

DRAFT
UNOLS ANNUAL MEETING
Thursday and Friday, October 2-3, 2008
The National Science Foundation
4201 Wilson Boulevard
Stafford II, Room 555
Arlington, VA 22230

Meeting Minutes

Executive Summary:

The UNOLS Annual Meeting was held at the National Science Foundation (NSF) in Arlington, VA on Thursday and Friday, October 2 – 3, 2008. The keynote address was delivered by Dr. Robert Gagosian, President and CEO of the Consortium for Ocean Leadership. Dr. Gagosian addressed the challenges and opportunities for the ocean science community in today’s political and financial environment.

The Annual Meeting also included reports on fleet renewal plans, agency activities, UNOLS Committees updates, and a presentation on this year’s accomplishments and goals. Elections were held for two UNOLS Council positions and for the UNOLS Chair-Elect position. Dr. Bruce Corliss of Duke University was elected as the Chair-Elect. Dr. Kenneth Coale of the Moss Landing Marine Laboratories and Dr. Robert Pinkel of the Scripps Institution of Oceanography were elected as Council members.

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Meeting Summary:

Welcome and Introductions - Marcia McNutt, UNOLS Chair, called the 2008 UNOLS Annual meeting to order at 1PM on October 2, 2008 and welcomed everyone. Introductions were made around the room. The meeting agenda is included as [Appendix I](#) and the attendance list is included as [Appendix II](#). Marcia presented a report on, "The Year in Review" ([Appendix III](#)) that summarized UNOLS issues, activities and major accomplishments in 2008

2008 Activities include:

- The UNOLS Ad-Hoc Committee continues work to establish best practices in Data Management
- FIC project to establish target and threshold values for Science Mission Requirements (SMR). Community Ocean Class SMR survey is underway.
- Fleet Improvement Plan – all chapters are drafted.
- UNOLS Policy and Procedures Regarding Committee Recommendations to Federal Agencies have been established – these have already been used twice.
- Other Committee Activities will be reported later in the Meeting.
- Transportation Worker Identification Credential (TWIC) - Information for the UNOLS Community was drafted and is available at: http://archive.unols.org/info/UNOLS_TWIC_INFO_051408.pdf
- TWIC cards are required for unescorted access to secure vessels and facilities.
- UNOLS recommends that scientists who use secure vessels/facilities obtain TWIC cards
- TWIC regulations are being phased in across the country and will be fully implemented by April 15, 2009.
- Once they are in place, foreign students and researchers will still be able to go to sea on UNOLS research vessels, but may require an escort to gain access to the ship at certain secure facilities.
- Foreign students on certain visas cannot get access, hoped that this policy would be changed, but it was not.

UNOLS continues to stay abreast of on-going Fleet Renewal activities

- Regional Class
- Ocean Class
- Alaska Region Research Vessel

2008 Issues

- Fleet Operations in 2009 –The cost of 2009 ship operations for NSF and ONR are circa \$13M and \$6M over budgeted funds for a total projected shortfall of about \$19M.
- Escalating Ship Operation Costs - The estimated total fleet ship operating costs are almost \$1M more than they were in 2008 (1% increase) but the number of days supported is reduced by just over 13% dropping from around 4,400 operating days to just over 3,800.

2008 Highlights

- *R/V Marcus G. Langseth* began science operations as a UNOLS Vessel - February 2008
- First UNOLS 3-D seismic cruise – Summer 2008
- The cruises were very successful. The data was great. The chief scientists were very happy with what they were able to accomplish.

Keynote Speaker – Dr. Bob Gagosian, Consortium for Ocean Leadership

Marcia introduced the keynote speaker, Bob Gagosian, President and CEO of the Consortium for Ocean Leadership.

Dr. Gagosian began his talk with a little background information on himself. He began his career at Woods Hole Oceanographic Institution (WHOI) in 1972 and was Director for 13 years from 1993 to 2006. He is excited about his new role at Ocean Leadership and has now been in this role for the past 10 months. He then touched on several ideas and issues that will affect the future for the ocean sciences.

Transformational science and innovativeness are the keys to science growth in the post cold war era. 50% of growth in our economy has come from innovational science. The American Competitive Initiative is a good example of the recognition that this is important. Anti-submarine warfare (ASW) during the Cold War period was a major driving force behind the growth of ocean science since the 50's. The U.S. won the Cold War and now it is no longer a driving issue.

Climate change is now the huge issue for society, but the Oceans are not getting the attention they should as part of this issue. We have not done as well in this new game. There is a huge potential in global climate change, but we have a long way to go. We were barely mentioned in the Al Gore movie. It has to be a full court press from the ocean community. If we want to mitigate global change - we must begin with the "why".

Currently there are a lot of competing interests for Federal Funds; two wars, energy bills, transportation, and prison guards for example. We will need to develop an overarching issue that we fit the different areas of research into. What is the current tone? We have a lot of support in the Congress. There are a lot of global climate change friends. There are people who understand and respect the need to move forward in this direction.

For the past few years and this fiscal year, the budget has been disappointing. The National Science Foundation (NSF) was supported by all parties to the budget process at a 7% increase, but in the end only got 2% with the continuing resolution (CR) and ocean sciences saw even less. The CR has been signed and runs to March 6 – there is a good chance that it might extend for whole year given the economic crisis.

It is going to be a difficult time. No one is being heard with the financial crisis and bailout funds going out. It is going to be difficult to not have a tax increase with this new crisis along with support for wars in Iraq and Afghanistan. Congress is going to wait for the new administration before making any new budget decision. As a result, there is less discretionary spending. Bob's thesis is that it is pretty hard to see that there would be any large increase in research funds. Even if there is, we haven't made our case strongly enough for the ocean sciences. Department of Energy (DOE), Environmental Protection Agency (EPA), and the Minerals Management Service (MMS) are mission agencies and they have had budget cuts. This has shifted more pressure on to the NSF for basic research.

Additionally, we are adding 7 to 9% graduating students to our ranks annually. We will not have a greater success rate for new proposals unless we find new funding. On top of that, the cost of maintaining and operating infrastructure continues to increase due to a variety of factors. Recently, oil prices have gone

through the roof. Building and operating new ships cost more money than it did for their predecessors. Beyond ships, there are other infrastructure initiatives such as the Ocean Observing Initiative (OOI) and the International Ocean Drilling Program (IODP). For OOI, by 2015 the cost for operations and maintenance could be \$55M a year. Ship Operations and IODP will continue to rise or at the very least stay at the current levels. The community has to do a better job of prioritization and needs to do that cooperatively with organizations such as Ocean Leadership, UNOLS, and others working together.

We need to keep our eyes and ears open for opportunities and for better ways to operate. We can learn from industry where they use techniques such as earned value management. We are going to have to learn these techniques and others to better manage our infrastructure and to set priorities. We should be seeking partnerships and support from states, such as California, Oregon, Washington, and others that have coastal and marine science initiatives in place. International partnerships will also become important and will lead to opportunities to share ship time and support for science programs. Many countries are emulating our previous trends of growing our investment in science. One area that Ocean Leadership does not support is the use of earmarks as a means to invest in science programs or infrastructure. It doesn't work for building a program because it relies on the representative that supported it and usually dies with the end of their term. Earmarks can also undermine on-going projects.

Prioritization on a community wide scale is something we have to take on. If we don't do it, the Office of Management and Budget (OMB) or Congress will get involved and do it for us. They feel that they have the responsibility to manage the taxpayer's money and without our input, will decide based on their own priorities. We need to do a better job of working together on prioritization and on the operation of shared use facilities. We need to think in terms of short, medium and long range plans. UNOLS is exactly the organization to start the effort and should coordinate with Ocean Leadership, the National Research Council (NRC), and others. UNOLS is also in a good position to set some best practices for planning and operating shared infrastructure.

Following Dr. Gagosian's remarks there were some questions and discussion about the transition to a new administration, how all of the other issues facing the new administration will impact the outlook for ocean science, and about how to set priorities between projects that are funded from completely separate budgets or agencies.

UNOLS Membership Ballots and New UNOLS Office Host Institution

Ballots were distributed prior to the break for elections in the following UNOLS Council positions:

- UNOLS Chair-Elect (2-year term)
- Operator Representative (3 year term)
- UNOLS Council Member At-large (3-year term)

The slate of nominees is available in [Appendix IV](#) and can be viewed at:

<http://archive.unols.org/meetings/2008/200810anu/Slate08.html>.

The next UNOLS Executive Secretary and UNOLS Office Host Institution was announced. The University of Rhode Island Graduate School of Oceanography will be the host institution and Jon Alberts will become the UNOLS Executive Secretary on May 1, 2009. Three excellent proposals were received to host the office. Jon Alberts has broad experience within the UNOLS fleet and in support of oceanographic research. He has worked as a Chief Mate and Relief Captain on board the *R/V Endeavor*, as the marine operations coordinator for the Antarctic research vessels *N.B. Palmer* and *Gould*, and as the ship scheduler and marine operations coordinator for WHOI's vessels *Atlantis*, *Knorr* and *Oceanus*. Annette DeSilva and Dennis Nixon will continue as part of the UNOLS Office team.

Agency Reports

NSF Report - Dr. Julie Morris, Captain Bob Houtman and Matt Hawkins

Julie Morris came back early from a Geo-Sciences Retreat in West Virginia where the discussions lead her to believe that there will be opportunities for partnerships and developing methods to maximize the utility of their major facilities. She sees evidence and some threads around the table that the community is pulling together in seeking solutions.

Dr. Morris reviewed changes at NSF, foremost of which, is the appointment of Dr. Tim Killeen as the Associate Director for Geological Sciences. He comes from the Climate Change community and this will help put Geo-Sciences front and center for support of research in this area. They intend to work towards growing the budget and to pursue constructive partnerships as well.

Bob Houtman became the Integrated Programs Section (IPS) head on July 7 and will be taking the lead on Ocean Sciences infrastructure programs. Captain Houtman came to NSF from his role as Facilities Program Manager at the Office of Naval Research (ONR). Bob said that it's great to be at NSF. New in Integrative Programs are Matt Hawkins working on ship acquisition and Jim Holik in the technical services and instrumentation program.

Dr. Morris quickly reviewed the budget situation reiterating that the NSF is under a continuing resolution until March at 90% of FY08 levels. Last year they received a 2% increase for the FY08 CR and in FY07, there was a 7% increase under that CR. They are working hard to make the most of the funds that they do have until such time as an actual budget is passed into law.

Dr. Morris expressed heart felt thanks to Marcia McNutt for her support as the Chair of UNOLS. She then introduced Captain Bob Houtman who said that it was great to be at NSF, where there was no shortage of challenges to keep him busy. He announced the changes within the IPS section, which included Dolly Dieter retiring and working part time on a some of their acquisition projects, Matt Hawkins as Dolly's replacement working on the Alaska Region Research Vessel (ARRV) Acquisition and some other of her duties and Dr. Jim Holik as the new Technical Services and Oceanographic Instrumentation Program Manger, replacing Dr. Shor.

Most items related to IPS are covered elsewhere on the agenda except for the Regional Class acquisition.

Regional Class Acquisition – Matt Hawkins, NSF ([Appendix V](#))

Matt Hawkins gave a brief report. The contract for the completion of Phase I (Vessel Design) was extended through November 2008 to accommodate the reorganization of Nichol Bros. The Dakota Creek/Guido Perla team Contract Design Review (CDR) was held on March 11-12, 2008 and they submitted their final design package on April 30, 2008. The Nichols Brothers/Glosten Team CDR is scheduled for October 8-9, 2008. Nichols successfully emerged from bankruptcy and they are now owned by Ice Floe LLC. Their final design package is due around November 10, 2008.

The RCRV Phase II, Detailed design and construction phase, has been suspended until funding is available (FY 2010 or later). The current cost estimates for acquisition are \$50-60M per ship once fully outfitted. NSF remains committed to the RCRV project.

Discussion followed about how many and when the ships will be built. IPS intends to ask the RCRV Advisory Group to provide an assessment of the Guido Perla and Glosten designs to NSF. This will be an internal document for future use when the project re-starts. NSF is being very methodical in their process for moving forward. They want to make sure that everything is in order to give them flexibility in the

future.

ONR Report - Tim Schnoor

Tim Schnoor has replaced Bob Houtman at ONR as the Oceanographic Facilities program manager and considers this a great opportunity. He has been at ONR for a while in a different department. ONR funding for the fleet for 2009 is a challenge, but they are working on ways to meet those challenges.

Before introducing Chris MacDonald from PEO-Ships who will cover the Navy acquisition program for the Ocean Class AGOR vessels, Tim mentioned that the Request for Proposals (RFP) for operator institutions would come out some time next year after the RFP for the design-build teams and after the new Chief of Naval Research was in place.

Ocean Class Acquisition - Chris MacDonald. ([Appendix VI](#))

Chris presented the timeline for the design and building of two new Ocean Class research vessels. He also outlined the Navy's request for UNOLS participation in the process.

- Award contract in April 2009
 - 3 months later begin design reviews. (participation by UNOLS)
 - This will go on for 18 months.
 - Detailed design and cost proposal due.
 - Then down select
- Phase II – Feb. 2011
 - There is going to be a lot of activity.
 - Design reviews every two months
 - FY13 – trials take place.
 - Delivery of OC1 – 2014
 - Delivery of OC2 – 2015.

Phase I and Phase II – UNOLS at-large representative requested:

- Navy requests participation of 2 UNOLS representatives (1 primary, 1 alternative) to ensure coverage at all design reviews
- Navy requests participation of one rep from each operating institution throughout phase I-III (Post Delivery).

National Oceanic and Atmospheric Administration (NOAA) Report – Bill O'Clock ([Appendix VII](#))

Bill started by highlighting the accomplishments in 2008 for the NOAA fleet and aircraft. They operated 21 vessels which provided 4,960 total ship operating days (reported thru August and planned for September): 3,640 NOAA ship days using Office of Marine and Aviation Operations (OMAO) and Program funds and 1,320 charter days using OMAO and Program funds. They also operated 12 aircraft which provided 4210 flight hours (reported thru August and planned for September): 2,430 hours using OMAO funds and 1,780 hours using Line Office program funds and reimbursable funds.

They continued the recapitalization of NOAA ships:

- FSV 5 preliminary design moving forward
- FSV 6 requirements being refined in anticipation of funding

- *Rude* decommissioned in March
- *John N. Cobb* decommissioned in August
- *Okeanos Explorer* commissioned in August
- *Bell M. Shimada* (FSV 4) launched in September
- *Pisces* (FSV 3) projected delivery in October

Cone housing modifications were completed for the Tail Doppler Radar on the Gulfstream IV aircraft and the damage assessment aircraft departed Beechcraft and is going through modifications at AvCon.

Bill showed the NOAA ship and aircraft locations for 2009. They are hoping for around 3100 days at sea for the 19 ships in service. A status report on the *Okeanos Explorer* was provided indicating that by April 2009 they would be conducting trials.

A NOAA recapitalization plan was completed and approved by NOAA, the Department of Commerce (DOC), and OMB in September and is awaiting transmittal to Congress. It calls for the replacement of nine active NOAA vessels with either new Fisheries Survey Vessels (FSV) or with NOAA Survey Vessels (NSV) as well as a service life extension on one other vessel.

The NSVs were called for in the 2008 appropriations act report and defined as a vessel that would be capable of multi-mission operations, and be able to maximize on-site activities and modularize for versatile platform availability. OMAO will lead the formulation of an NSV study scope, action plan, and report preparation. This report is due to Congress in June 2009. The study report will adhere to recommendations in the NOAA Ship Recapitalization Plan approved by NOAA/DOC.

Stewart Lamerdin asked about the status of the *David Star Jordan*. Answer - It is fully operational through the end of December 2008. After that, it is dependent on what happens with the budget.

Marcia McNutt asked if the plan for new ships was to be a one-for-one replacement. Answer – Yes, there is no added capacity.

Department of State - Liz Tirpak

Liz Tirpak introduced herself and the functions of her office, which is to seek clearances from other coastal states for marine science research. This does not include military surveys; map-making surveys or commercial extraction surveys. They also review and approve clearances from foreign researchers to work in our waters.

Some lessons learned over the last few years:

Since January, there have been 187 requests with only one rejection involving the use of aircraft. Venezuela, Indonesia, China, and Oman are among the places where there have been rejections in the recent past. Liz says they have been working on the way they transmit the data to the other countries and hopes to improve that process.

Mike Purdy asked if Liz was seeing any changes or maturity in the way foreign countries are handling environmental issues. Answer - they haven't had many opportunities to test the waters in this area other than in Mexico. In the future there will likely be more concerns and information required by foreign states.

Sandy Shor asked what percentage of the clearances from other countries get turned down for research in US waters. Answer – none.

Fleet Operations in 2008 and Recommendations for 2009:

Summary of 2008 operations and the 2009 scheduling process -Stan Winslow, Ship Scheduling Committee (SSC) Chair ([Appendix VIII](#))

Stan said that 2008 schedules ended up being not bad. For the 2009 schedules, it will probably be January before they are done. Not all schedules are posted yet. After showing the chart with the trends in total fleet costs and operating days, the big questions are why is there projected to be such a big increase in cost and such a significant reduction in the number of days:

- Lack of work from “Other” and NOAA in 2009 compared to 2008, creates higher day rates for NSF and Navy and the potential need to lay up ships.
- Higher percentage of 2009 cruises on large vessels compared to 2008 increases the average cost per day of the fleet. – Large ships are more expensive.
- Higher fuel costs, which impact large vessels more (50¢/gal change = \$1,250 per day change in day rate for Global Ships)
- Other inflationary costs for personnel, maintenance, regulatory compliance, etc.

The chart showing UNOLS fleet utilization (2000 to 2009) by funding source clearly indicates a projected drop in the total days, but you can see that this comes from the drop in NOAA and “other” days. NSF is slightly up and Navy is essentially flat. This leads to the question, will things get better like they did for the 2008 operating year?

The next two charts shown illustrate how 2008 days and costs as of Oct. 1, 2008 compare to the current estimates for 2008 and the projections for 2009. Most of the increase in NOAA and Other days occurred between last October and early 2009.

Between then and now a significant amount of Private and Institutional work was added to the schedules along with some additional Navy work. The work from “Other” sources in 2008 included:

- Waite Institute - *Seward Johnson*
- Survey work - *Walton Smith*
- N.J. Wind farm work - *Sharp*
- Scallop Survey - *Sharp*
- German and Private Survey work - *Kilo Moana*

The only such work on the horizon for 2009 at the moment is the *Walton Smith* survey work, German and other survey work on *Kilo Moana* and perhaps some additional wind farm work. The work from the August panels is not included in the 2009 projections because NSF does not have the funds to support it. Nancy Rabalais mentioned that there might be some additional work in summer 09 for NOAA work based on a recent call for proposals.

In general, we are at the same place we were last year at this time, but the question is whether or not we can add work like we did last year.

2009 projections of costs and budgets slide showed the projected budget deficits in funding for NSF and ONR if no additional funds for ship operations are found. Stan also covered 2008 and projected 2009 ship utilization by class and region as well as the percent distribution of operating days and cost by agency.

Sandy Shor asked what the process for completing the scheduling this year would be. Stan stated that schedulers received word last week that operators could start publicly posting schedules. There were a few exceptions where some major pending decisions might delay posting the entire schedule. The ship

operations and technical services proposals are due in October and these will help to refine what the actual projected costs will be for 2009.

There was further discussion and questions about the budget shortfalls, how to add more work and what the prospects for the future might be. Linda Goad summed it up by saying this had become a very difficult year financially for the program managers.

Summary of Agency Recommendations for 2009 Fleet Operations

1. Lay up one NSF Intermediate Class ship on the east coast and fund only a partial schedule for *Seward Johnson* due to economical alternatives for several cruises that still meet the funded science requirements.
2. Determination of whether to lay up *Endeavor* or *Oceanus* to be based on input from the operating institutions regarding cost of operations, contributions to operations, and the impact and cost of lay ups for the non-operating vessel's institution.
3. Plan on a partial lay up for the *New Horizon* with no new NSF funded cruises.
4. NSF ship operations would fund approximately \$6M of 2009 operations from FY2010 funds with supplemental awards if a National Science Board (NSB) waiver were not available.
5. NSF would attempt to find an additional \$6M to \$7M from other program funds.
6. ONR would attempt to find an additional \$6M from other program funds.
7. Ship Operators would continue to find ways to reduce costs.
8. Operators of Global and Ocean Class vessels would work to effectively schedule and support the known work from other funding sources.
9. Operators of Intermediate, Regional and Local Class vessels would seek appropriate opportunities to support research and education programs supported by other funding sources including their own institutions.

UNOLS Process for Review of Agency Recommendations - Marcia McNutt

UNOLS anticipated this sort of budget and utilization issue a few years ago and came up with a process for reviewing recommendations made by the supporting agencies in response to the scheduling process. We wanted the agencies to come up with substantive recommendations to which we would respond after a UNOLS review. Now that we have the recommendations for the coming year, we have formed a subcommittee of the UNOLS Council made up of non-conflicted members. This year the subcommittee that will lead the effort of formulating the UNOLS response will consist of Vernon Asper, Mary-Jane Perry and John Morrison. Marcia will serve as an alternate while John is at sea. The subcommittee will use the criteria developed for the process to answer questions about how well the science objectives are being met, to what extent the pain is being shared, how geographic distribution of work affects scheduling, and the other criteria outlined in the procedures. The committee is just starting with the information gathering process and will seek input from the potentially affected ship operators and any other ship operators or Council members that wish to comment. The UNOLS Council will review and forward the response within 30 days if at all possible. There was some discussion about the meaning of some of the recommendations, in particular the potential need to use FY10 funds for CY2009 operations. Linda Goad offered to provide further information to the committee if needed.

Interagency Working Group on Facilities (IWG-F) – Bob Winokur ([Appendix IX](#))

Bob Winokur gave an update on plans for developing a Federal Facilities and Infrastructure Inventory needed to implement the Ocean Research Priorities Plan (ORRP). The terms of reference for this will focus on the ORPP that is structured around a call for data from the participating agencies. They will attempt to inventory the shared-use assets that are federally owned and/or operated. It will be a two-phase

study that will be coordinated with the Joint Subcommittee on Ocean Science and Technology (JSOST) and the Ocean Studies Board (OSB) infrastructure study.

In phase one, they will use a data call to define trends, areas of diminishing or increasing capability/capacity, and will produce a report including recommendations for use in budget development. Depending on the results of phase one, phase two will focus on integrating agency plans, identifying priority areas necessary for ORPP implementation and identifying any priority gaps or issues. From this, they would work on developing a “facilities and infrastructure implementation strategy.”

The IWF-G has held one meeting and plans another for early October. They have briefed the JSOST on the way forward and have received guidance to focus on the research priorities within the six themes of the ORPP. They will start with the four Near-Term priorities identified in the ORRP and later expand to all 20 research priorities. They intend to complete the initial survey early in CY 2009, but early indications are that this might be problematic. Bob showed the type of data being collected and the organization being applied to the information.

Lastly, now that they have completed the Federal Oceanographic Fleet Status Report and even as they move ahead with the infrastructure inventory, there is a desire to re-focus some of the IWG-F efforts on the current use of ships, similar to what was historically done within the Federal Oceanographic Facilities Committee (FOFC). UNOLS participation will be welcome.

Alaska Region Research Vessel Acquisition Status – Denis Wiesenburg ([Appendix X](#))

In 1974, the NSF began the process of developing an ice capable research vessel for the Alaska region. Now finally in 2008, there is a signed agreement with NSF for the University of Alaska, Fairbanks (UAF) to construct and operate the Alaska Region Research Vessel (ARRV).

Denis presented the UAF organization chart and ARRV project team:

- Project Director: Capt. Dan Oliver
- Construction Manager: Mr. Gary Smith
- Program Manager: Dr. Terry Whitledge
- Science Operations: Steve Hartz
- Marine Science Technical Director – Marc Willis (Oregon State University)
- Technical Support: Dirk Kristensen (Glostsen Associates) et al.

Captain Oliver will be the Seward Marine Center Director and is leading the ARRV program. He is a retired Coast Guard Captain with service on the USCGC *Healy* as the Executive Officer for two years and later as the Commanding Officer for two years.

Key characteristics of ARRV include:

- Length: 242 feet
- Beam: 48 feet
- Draft: 19 feet
- Endurance: 44 days
- Icebreaking capability: 2.5 ft at 2.5 knots
- Crew: 20
- Scientists: 26
- Cruising speed: 12 knots

During the design refresh, they have been working to update the contract design that was completed in

December 2004. Major changes include:

- hull lengthened to 242 feet – Archimedes principle requires more floatation for added steel necessary to meet ice classification requirements
- improved crew berthing – habitability issue
- eliminated trawl fishing gear – cost reduction
- greater guidance/emphasis on u/w radiated noise
- ABS review of drawings, CG review of GA
- greater detail on science requirements

Current project status:

- In phase 1 of a 4 phase project
- Phase 2 delayed by NSF – no FY09 funding
- Finalizing design refresh and development of project documentation
- ARR V Oversight Committee established
- Revised PEP delivered to NSF 9-19-08
- Preparing for Final Design Review (FDR) with NSF - October 20-23, 2008

The final budget depends on further Congressional appropriations, which will result from NSF budget requests after FDR and NSF Board approval. The cooperative agreement is based on the \$123M intent to fund. Current budget projections include risk-assessed contingencies causing a potential budget of around \$175M. UAF has been awarded \$4.7M to complete phase one and Congress has appropriated \$51.43M so far.

The project schedule is to complete the FDR in late October and finish Phase one by May 2009. With National Science Board approval, they expect funding in FY2010 with which to award a shipyard contract and begin construction in March 2010. The estimated time for the shipyard contract period runs from 39 to 50 months with the lead-time for the Z-drive units being a critical factor. It takes longer to get a Z-drive than it does to build a ship. One strategy that will be explored will be to order the Z-drives sooner as owner furnished equipment in order to receive them sooner in the process. If all goes according to plan, the ARR V should be ready for science operations in 2014. An estimate of the day rate and yearly operating costs for 2014 suggests \$11.9M per year with \$5M just for fuel. With a 270 operating days, this would equal a rate of \$44,105 per day.

Denis also briefly reviewed plans for the Seward Marine Center to accommodate the new vessel.

Ocean Studies Board Committee on Evolution of the National Oceanographic Research Fleet – Plans and Status - Susan Roberts

Susan Roberts reviewed the plans for the National Academies' Committee on the Evolution of the National Oceanographic Research Fleet and introduced the study director, Deb Glickson. Dr. Glickson is a recent graduate of the University of Washington. The study is funded by the Office of Naval Research and may eventually include funding from other agencies. The committee's statement of task is as follows:

“An ad hoc committee will review the scientific and technological issues that may affect the evolution of the University-National Oceanographic Laboratory System (UNOLS) academic fleet over the next 25 years, including:

- How technological advances such as Autonomous Underwater Vehicles (AUVs) and ocean observing systems will affect the role and characteristics of the future UNOLS fleet with regard to accomplishing national oceanographic data collection objectives.

- The most important factors in oceanographic research vessel design. Do specialized research needs dominate the design criteria and, if so, what are the impacts on costs and overall availability?
- How evolving modeling and remote sensing technologies will impact the balance between various research operations such as ground-truthing, hypothesis testing, exploration, and observation.
- How the increasing cost of ship time will affect the types of science done aboard ships. The usefulness of partnering mechanisms such as UNOLS to support national oceanographic research objectives.”

Day Two

Marcia McNutt, UNOLS Chair, called day-2 of the meeting to order at 0830.

UNOLS Council Election Results

Dr. Bruce Corliss, Duke University was elected to the Chair-Elect position. Dr. Kenneth Coale, Moss Landing Marine Laboratories (MLML) was elected as an Operator Representative and Dr. Robert Pinkel, Scripps Institution of Oceanography (SIO) was re-elected to a second term as an At-Large Representative.

UNOLS Fleet of the Future – UNOLS Fleet Improvement Plan (FIP) Recommendations – Marcia McNutt and Dave Hebert ([Appendix XI](#))

The meeting participants were provided with the Findings and Recommendations from the Draft UNOLS Fleet Improvement Plan, which were posted at:

http://archive.unols.org/meetings/2008/200810anu/FIP2008_draft_Findings_Rec.pdf

Marcia McNutt and Dave Hebert lead a discussion that focused on the following set of questions. What is the right mix and number of ships needed to support your current and future research and education projects? Does the fleet envisioned in the Draft UNOLS Fleet Improvement Plan match the expectations you have for your work and that of your colleagues? Are the findings and recommendations articulated in the Fleet Improvement Plan the right ones that will lead to the UNOLS Fleet of the Future that meets the needs of the community?

There was a great deal of discussion, which was helpful in focusing some of the intent of the recommendations in the Improvement Plan. Captain Houtman did point out that NSF and ONR considered the *Atlantis* to be a General Purpose Global research vessel with special capabilities to handle the *DSV Alvin* and should not be classified as a special purpose vessel. The same is true for the *Langseth* although it is acknowledged that the General Purpose capabilities need improvement.

Key ideas discussed included the extent to which the new Ocean Class vessels will be capable of covering a good portion of the work now carried out by Global Class vessels. There will be some limitations, but *Kilo Moana* has already proved that they can cover some work previously scheduled on Global vessels. It was pointed out the ARRV is approaching the size of a Global, even though it will have fewer berths for science. The planned Ocean Class AGORs will likely be somewhat smaller, but still capable vessels, so it is difficult to predict exactly to what extent these vessels will handle work now done from Global Class vessels.

With regards to the numbers of larger vessels available, it was noted that by 2025, there would only be three Global Class vessels and four Ocean Class vessels unless action is taken on the recommendations in the Improvement Plan. At the same time six Intermediates and three Global Class vessels will be retired unless a service life extension is undertaken for Thompson or other vessels. The reaction to the recommendation to start now on the planning process for two new Global Class vessels was mixed. It was thought that it would be a difficult sell for Navy funding and alternatives are few for a ship of that size and cost.

Some discussion focused on utilization and partnerships. Projections for future utilization depend on information that is hard to know, such as to what extent the Ocean Observing Initiative will add to the demand for ship time, to what extent will NOAA continue to need to charter time on UNOLS Vessels, or how NOAA's own renewal efforts will affect demand for UNOLS vessels or provide time for academic researchers. It was emphasized that we need to do a better job of working with these other partners. Julie Morris suggested that this was clearly an issue for the JSOST and IWG-F to work on.

Future funding for research and education in the ocean sciences is dependent on a lot of factors, many of which are outside our community. Budget deficits, wars, and the increasing costs of entitlement programs make it difficult to successfully argue for additional funding. Global Climate Change and the health of the oceans are important societal issues and may be a driver in greater support for ocean science research. Nancy Rabalais pointed out that much of this research is carried out in coastal regions, which supports the need for smaller regional and coastal research vessels. Other than the tentative plans of the NSF to build one to three Regional Class vessels if construction funding can be found, there are no real plans to replace many of the smaller vessels in the fleet. The FIP recommends the timely replacement of these vessels by institutions, state governments, and regional partnerships. Several people including Nancy felt this would be difficult without federal help and jeopardized an important component of the fleet.

No matter what pathway we follow, partnerships, prioritization, and efficient use of infrastructure funds will be necessary. In addition, partnerships and collaboration with regards to operation and maintenance costs will be necessary.

UNOLS Committee Reports

Marcia McNutt introduced UNOLS Committee Chairs who reported on their committee's issues and activities.

Fleet Improvement Committee (FIC) – David Hebert ([Appendix XII](#))

Dave reviewed the process underway for updating the Science Mission Requirements (SMRs) so that they more clearly indicate minimum threshold levels and target values for key components such as the number of berths, lab sizes, deck area, science load, range, speed, sea keeping, etc. In addition, a priority level is being defined for these different elements. The FIC is starting with the Ocean Class SMR and will use it as a template for updating the others. The Ocean Class SMRs are being used currently to finalize the performance specifications for the Ocean Class AGORs and the work done so far on values and prioritization is being shared with the Navy.

Dave also reviewed the content, schedule, and remaining tasks for completing the UNOLS Fleet Improvement Plan, which is targeted for early next year.

Stewart Lamerdin raised the issue of having just one UNOLS representative on the Ocean

Class design project. Many felt that this was a huge time commitment and wondered how one person could know about everything necessary to do the job properly. Peter Wiebe asked whether that one person could come to the UNOLS community to seek feedback. Chris MacDonald said that there would be constraints about what can be disclosed during the competition period. It was clear that further discussion with ONR and NAVSEA about the nature of UNOLS representation on the AGOR project would be needed and they were open to further dialog.

Research Vessel Operators' Committee (RVOC) – Pete Zerr, RVOC Chair ([Appendix XIII](#))

Pete started by mentioning the highlights of the April 2008 RVOC meeting held at Old Dominion University in Norfolk, Virginia. The committee heard the usual update on the world insurance market and legal issues affecting oceanographic research vessels from the UNOLS legal advisor, Dennis Nixon. A major focus was new winch and wire monitoring technology and the impact of the proposed new safety standards for safe working loads on oceanographic cables and wires.

A major task of the RVOC in partnership with RVTEC has been the revision of the UNOLS Research Vessel Safety Standards (RVSS). The RVSS serves as a reference for vessel operators as to where they can find applicable rules and regulations and they provide scientists with some direction relative to the safety aspects of science equipment and scientific personnel. They apply standards to all UNOLS vessels, whether or not they are USCG Inspected, based on regulations for inspected vessels and good practices. Vessels operators must adhere to the UNOLS RVSS in order to be designated as a UNOLS vessel. The NSF and Navy Inspection teams use the RVSS to ensure compliance.

The first edition was published in May 1976 and this revision will result in the ninth edition. The RVSS are reviewed and republished every three to five years.

The major change during this revision affects the overall organization. We have revised the overall structure of the standards to uniformly show those requirements mandated by laws and regulations, those required by the UNOLS RVSS in addition and any further recommendations, best practices or resources. The chapters were reordered and a few chapters and appendices were added.

- Chapter 5: Added chapter on Personal Safety with sections covering alcohol and drug policies, sexual harassment and accommodations for persons with disabilities.
- Chapter 11: Added chapter on Human Occupied Vehicle (Submersible) Safety.
- Appendix A – UNOLS Rope and Cable Safe Working Load Standards.
- Appendix B – UNOLS Load Handling System Design Standards; (still under development)
- Appendix E – Sexual Harassment Brochure.

A near final draft has been circulated to RVOC and RVTEC and revisions are expected to be completed in about 3 weeks, at which time they will be submitted to the UNOLS Council for approval.

It has long been recognized that there is a need to establish consistent safe working loads for wire ropes and cables in the UNOLS fleet. One goal of this standard is to minimize damage to cables and handling equipment, and the loss of scientific equipment, while still permitting

the science objective to be met. Appendix A defines the operating requirements, or loading limitations on wire, and are expressed in terms of Factor of Safety (FS) on the Nominal Breaking Load (NBL). Appendix A also defines the inspection and testing requirements for wire.

Research Vessel Technical Enhancement Committee (RVTEC) – Stewart Lamerdin, RVTEC Vice-Chair ([Appendix XIV](#))

Stewart Lamerdin reported on RVTEC activities in 2008 and plans for the RVTEC Annual Meeting to be hosted by Florida State University in October 2009.

New topics of interest include data archival, which will influence how shipboard technicians deal with data collection, data formats, and how the data is eventually transmitted and archived. Bill Martin and several other sea-going technicians participated in the NSF Legacy Workshop in September and will participate in the pilot project – Rolling Deck to Repository (R2R) that will work on the specific processes for improving data archiving and availability.

The upcoming RVTEC meeting will include focus groups for HiSeasNet and SWAP.

Arctic Icebreaker Coordinating Committee (AICC) – Carin Ashjian, AICC Chair ([Appendix XV](#))

Dr. Ashjian reported on the activities of the AICC in 2007 and 2008 and covered science operations for *Healy* and the Polar Class Icebreakers in 2008 and planned for 2009.

The committee held meetings in Seattle during late November 2007 and at NSF in Arlington in June 2008. In December 2007, Carin and *Healy* Commanding Officer Captain Ted Lindström met with the Alaska Eskimo Whaling Commission during their meeting and discussed the plans for BEST cruises in the Bering Sea.

The committee conducted debriefs of the 2007 cruises and the first two 2008 cruises. These debriefs always result in some constructive suggestions for improvement. In addition, as a result of discussions during the two committee meetings and a teleconference in February 2008, the committee has become a little “recommendation happy” with five formal recommendations:

1. That the NSF review and define new requirements for medical pre-cruise assessment for science participation and on-board medical expertise for US icebreaker Arctic cruises
2. That the NSF support the proposed replacement of the existing *Healy* Seabeam system with a Kongsberg EM122 multibeam system during a planned dry-dock in 2010
3. That the NSF purchase a laboratory van to be used on the icebreakers, and, when not needed, to be part of the UNOLS van pool.
4. That the NSF and the CG enable Science of Opportunity (SOO) on non-science missions on board *Polar Sea* and other icebreakers through open calls to the community
5. That the NSF support upgrades/maintenance to existing science equipment on *Polar Sea* and that the NSF continue to support the *Polar Star* in caretaker status until a decision is made regarding replacement or refurbishment of the *Polars*. This recommendation required and received UNOLS Council review and endorsement.

Healy science operations in 2008 included three cruises for the Bering Ecosystem Study

(BEST), a National Oceanographic Partnership Program (NOPP) sponsored mooring cruise and two cruises dedicated to the Extended Continental Shelf mapping efforts. The *Polar Sea* conducted a cruise from late March to mid May in the Bering Sea conducting seal surveys for NOAA researchers. Another cruise on *Polar Sea* to the Bering and Chukchi Seas is planned this fall and it is hoped that will include the possibility for science of opportunity participation. The *Polar Star* remains in caretaker status. Meanwhile, the Coast Guard has become more active in the Arctic as part of their Arctic Domain Awareness efforts. The *USCGC Hamilton*, a 378 foot High Endurance Cutter (White Hull) conducted operations in the Arctic during August and September including marine mammal observations with participation by the USGS, UAF, and World Wildlife Fund (WWF). The buoy tender *Spar* also worked in the Arctic during the same time frame and the Coast Guard has been conducting regular flight operations over the Arctic with C130's from Kodiak.

In 2009 *Healy* and maybe *Polar Sea* will support continued BEST cruises, ECS mapping, NOPP mooring work and polar bear surveys. The *Knorr* and *Point Sur* will also support the July BEST cruise. The *Polar Sea* will also be in standby status for the Antarctic breakout. A scheduling meeting is planned for later this month.

AICC will finish the debriefs for the remaining 4 cruises from 2008 and continue to work on their action items. The next meeting will be held in Seattle in December and the committee chair will participate in a Town Hall meeting at AGU organized by the Arctic Research Commission. The committee has recently appointed three new members, Lee Cooper, Don Perovich and Erica Key.

DEep Submergence Science Committee (DESSC) – Annette DeSilva

Annette DeSilva provided a report on behalf of Deb Kelley, DESSC Chair who could not attend. Annette gave a quick review of DESSC activities and plans for their fall meeting to be held in San Francisco the day before AGU. The meeting will use a slightly more streamlined format with fewer formal reports and more opportunity for discussion and feedback.

The committee continues to conduct debriefs with users of the *Alvin*, *Jason* and the AUVs *Sentry* and *ABE*. *ABE* was added as NDSF facilities in 2008. These debriefs have proven very useful for identifying needed improvements and how well changes are working once implemented. For example, the new ROV control vans were put into service in 2008. The design of the new vans reflect feedback received from *Jason* users. DESSC is now starting to get feedback on how they are working out.

A major focus of the committee has been working with the Replacement Human Occupied Vehicle (RHOV) oversight committee providing advice to WHOI and NSF on options for moving forward either with the full 6,500-meter replacement vehicle or with an upgraded *Alvin*.

Other topics addressed during the year have been the DVD archiving policy for *Jason*, standard calibration procedures for the Magnetometer, and HD cameras. A new science direction is the possible use of NDSF assets in the polar regions.

Marcus Langseth Science Oversight Committee (MLSOC) – Steve Holbrook, MLSOC Chair ([Appendix XVI](#))

Dr. Holbrook reported on the initial science operations on *R/V Langseth*, Committee

activities, and plans for the fall meeting. It has been a very exciting year with four major cruises completed, all successful. Two legs on either side of Costa Rica and Nicaragua involved 2-D seismic reflection using a streamer up to 8 km long, a record for a UNOLS vessel. These cruises involved the deployment of Ocean Bottom Seismometers (OBS) and land instruments and on the west coast; two ship operations with the New Horizon. On this second leg, they were also able to profile ocean temperature measurements and image mixing using the reflection data. The next cruise involved shooting to OBS only and resulted in excellent data. A theme throughout the cruises was that the quality of the sound source far exceeded previous capabilities in our fleet. Finally, after running a short test cruise to work out the details of deploying a full 3-D array a very successful 3-D cruise was conducted at the East Pacific Rise. PIs were uniformly pleased with the data and overall success of their cruises, but there are still many items that need to be addressed before the *Langseth* is fully ready. *Langseth* has one more cruise scheduled for 2008 that is just beginning in and just offshore of Yakutat Bay in Alaska. Next year after a stand down period in Astoria, the schedule includes 245 days of which 191 are NSF funded and 54 are funded by collaborators in Taiwan. The work will all be 2-D or air guns only with OBS in the Lau Basin, Taiwan and on the Juan de Fuca's Endeavor Ridge.

The capabilities that have all been successfully tested include:

- 3D acquisition: 4x6 km streamers
- 2D acquisition
- Hi-res acquisition
- OBS deployment recovery
- XBT/XCTD/XCP deployment during seismic operations
- High-quality sound source
- Onshore-offshore source capability

Improvements since MGL0804 (first cruise) include:

- Passive Acoustic Monitoring System (PAM) spare onboard
- New shot-time logger acquired and tested
- 2D towing arrangement refined & improved (float head of streamer)
- Additional gun tow ropes acquired for full suite of tow depths (3, 4.5, 6, and 9 m)
- Progress in SEG-D -> SEG-Y conversion (headers etc.)
- Shipboard website ("how-to") improved
- Real-time QC shot monitor installed
- Gravimeter working
- Science staffing hires: Dave Martinson, Robert Steinhaus - These people are from industry and are making a big difference.

MLSOC activities include bi-annual meetings with the last meeting held in San Diego during May when the *Langseth* was in port at the Scripps Marine Facility. The next planned meeting will be the day before AGU and will involve a format similar to DESSC meetings. The MLSOC Chair has conducted informal debriefs with Chief Scientists and has made himself available for pre-cruise planning questions. Interactions with the operator (LDEO) center around recommendations for improvements and monitoring the implementation of those improvements.

The committee has identified a number of areas of concern or risk for future operations

including some personnel issues related to recruiting and retaining technical support people. Other areas include habitability on the ship, especially in the multi-person cluster cabins (“snake-pit”) and in common areas. There are some equipment issues such as general-purpose winches, magnetometer towing, streamer replacement and air-gun spares. In the engine room, compressors need some attention and in general, maintenance procedures and training on the systems need to be addressed. Marine mammal issues, software, and data flow will all need continual attention.

Long-term issues include finding an appropriate pathway for replacing or upgrading the streamer, which are already beyond their rated age. For MLSOC defining their role with regards to scheduling and long range planning, broadening the funding base for operations beyond NSF, and lowering the bar for access to the ship and it’s data are all on the agenda. The committee will also begin to look at ways to stagger the rotation of members and start looking for new members next year. Marcia McNutt commented that they should look at users for future membership.

Scientific Committee for Oceanographic Aircraft Research (SCOAR) – Mike Prince

SCOAR had no activity for the past year as we are still searching for a chair. They had some good suggestions for Chair, but none that were available to take on the duties at this time. The question is do we need a committee. If we want to continue, we need to re-energize that group. Most felt that it was worth keeping the committee and that Mike and the Council should find and appoint a Chair. Dan Schwartz was suggested as a possible candidate to get the committee going again.

Ad Hoc Committee on Data Management Best Practices – Mike Prince ([Appendix XVII](#))

The committee has met several times during the past year and has developed a set of recommendations about the data and documentation that should be routinely reported for every cruise leg:

1. Cruise summary (ship name, cruise id, dates/ports, personnel, data inventory, etc);
2. Navigation (ship track i.e. time & position);
3. Cruise event log (“everything over the side”, including both science and engineering).

Much of this documentation is already routinely collected by the operators and/or the UNOLS Office, and needs only to be standardized and centralized. Every ship in the fleet today uses GPS and could report navigation data to a central repository. Refer to the appendix for details of the data collection requirements.

The committee has reported their recommendations and solicited feedback at the last RVTEC meeting and will do so again at the upcoming meeting. The committee has also been involved in other closely related data management activities, in particular the NSF Legacy of Ocean Exploration (LOE) project and the NSF Rolling Deck to Repository (R2R) project. The R2R will serve as a one-year pilot project to develop a prototype system for obtaining the recommended data and information.

Replacement Human Occupied Vehicle Status – Bob Detrick ([Appendix XVIII](#))

Bob Detrick provided an update on the status of the project to build a new 6,500-meter human occupied submersible that would replace Alvin.

Key events to date include:

- Successfully formed both hemispheres in June 2008
- Sphere insert forging process has begun
- Initial heat treatment of spheres has been completed
- Machining of spheres has begun
- Electron Beam (EB) weld procedure has been successfully tested, and scheduled for ABS approval
- Sphere completion on track for mid-July 2010

Bob showed the workflow and pictures that illustrate the forging process for the Titanium sphere and he covered key elements of the vehicle design. (See appendix).

Next Bob reviewed some key events in the process that have led to a decision to proceed with a phased approach. Starting in June 2007 WHOI entered into a contract with Lockheed Martin (LM) for vehicle design and construction. By January 2008, they had received a detailed cost estimate that was considerably higher than previous estimates and budgets. After a review by the RHOV Oversight Committee (RHOC) and NSF of the cost estimate, it was decided to explore a phase approach for the RHOV. A conceptual design for this phased approach was developed and reviewed. In August, WHOI and NSF made a joint decision to pursue this phased approach and at the end of September, the contract with Lockheed Martin was terminated.

The phased approach would start with a 4500 meter *Alvin* upgrade using the new 6500 meter sphere. The goals of this approach would be to satisfy as many of the RHOV design goals as possible, keep many of the RHOV improvements leveraging those design efforts and to reduce the overall project cost. They would also ensure that the design would allow for later upgrade to the full 6500-meter capability. The presentation includes a list of the RHOV goals that would be accomplished and those that would not in the initial phase. The ability to upgrade to 6500 meters and to add enhanced 3-D HiDef imaging, microfiber for high bandwidth and two-way communications to the surface at a later date are still feasible. This plan would involve cross-decking some major components from the existing *Alvin*. The presentation includes a list of items and shows graphically the elements of the *Alvin* upgrade that would come from the RHOV effort, that would be new and those that would come from Alvin. There is also a chart comparing the specs of the current *Alvin* with the *Alvin* upgrade.

This phased approach comes with new risks to the project including NSF approval of the re-scoped project using the large facilities process including Preliminary and Final Design Reviews. They will also need ABS certification of the frame and pressure vessels and there will be schedule delays, and the need for additional management and engineering resources. At the same time significant risks associated with the foam, the variable ballast system, and the A-Frame capacity will be avoided until later.

The timeline includes submitting WHOI's management plans, etc. to NSF on October 15, a Preliminary Design Review in June 2009, and a Final Design Review in the fall of 2009. If approved the project would go forward such that the personnel spheres are completed by mid 2010, the *Alvin* is taken out of service in the fall of 2010 and by mid 2011, the new vehicle becomes operational.

2008/2009 UNOLS Goals and Priorities – Marcia McNutt ([Appendix XIX](#))

Due to a lack of time, Marcia referred everyone to the posted report in Appendix XIX. This report outlines the vision and mission of UNOLS along with goals for the coming year.

UNOLS Report – Mike Prince ([Appendix XX](#))

Refer to Appendix XX for a list of departing Council and Committee members. UNOLS also took the opportunity to thank Dolly Dieter and Beth White for their support and partnership with UNOLS over the years. Dolly retired from NSF and Beth from NOAA during the past year. Certificates of appreciation were presented to Peter Ortner and Peter Wiebe who are both ending their final terms on Council.

Also covered in the report are the UNOLS Dues accounting and upcoming UNOLS meetings calendar.

The Council thanked and congratulated Mike Prince and Kate Sawyers for their support of the UNOLS Council and for the Annual meeting preparations.

Mike took this opportunity to thank the UNOLS Staff, Kate Sawyers, Laura Dippold, Annette DeSilva, Aaron Payne and Dennis Nixon.

A motion to adjourn was made by Peter Ortner and seconded by Peter Wiebe; their last official acts as members of the UNOLS Council. Meeting was adjourned at 1230 pm.