UNOLS ANNUAL MEETING
Thursday and Friday, October 14-15, 2010
The National Science Foundation
4201 Wilson Boulevard
Stafford II, Room 555
Arlington, VA 22230

Appendices

Executive Summary:

The UNOLS Annual Meeting was held at the National Science Foundation (NSF) in Arlington, VA on Thursday and Friday, October 14-15, 2010. The keynote address was delivered by Dr. David O. Conover (Director, Division of Ocean Sciences, NSF). He provided a report on the "NSF Response to the Deepwater Horizon Oil Eruption."

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 three UNOLS Council positions. Dr. Peter Ortner (University of Miami) was elected to the Chair-Elect position. Drs. John Morrison and Nancy Rabalais were both reelected to second terms as Council members. Additionally, the membership voted to approve re-adoption of the UNOLS Charter with revisions suggested by the Council. The membership also voted to establish a new UNOLS standing Committee, the Ocean Observing Science Committee (OSSC).

XXIII	
XXIV	Fleet Improvement Committee Report
XXV	Research Vessel Operators' Committee Report
XXVI	Research Vessel Technical Enhancement Committee Report
XXVII	Arctic Icebreaker Coordinating Committee Report
XXVIII	Marcus Langseth Science Oversight Committee Report
XXIX	Scientific Committee for Oceanographic Aircraft Research Report (~2.7 MB)

Meeting Summary Report:

Annual Meeting - Day 1

Introduction and Welcome – Vernon Asper, UNOLS Chair, called the UNOLS Annual Meeting to order on Thursday, October 14, 2010. The meeting was held at the National Science Foundation (NSF) in Arlington. VA.

Meeting participants were provided an opportunity for introductions. The meeting agenda is included as ***Appendix I*** and the participant list is included as ***Appendix II***.

Vernon requested a moment of silence in remembrance of Dr. John Diebold. John passed away on July 1, 2010 at the age of 66. He was a very active member of the UNOLS community and served on the UNOLS Council. He also was a regular participant at the MLSOC and RVTEC meetings. John's career in marine sciences spanned four decades.

Jim Cochran (LDEO) remarked that John was hired right out of high school and worked to become a PhD. He was a remarkable scientist and strived to get the perfect pulse of data. He was the Lamont-Doherty Earth Observatory (LDEO) winner of their Chili Cook-off competition.

UNOLS Vessel Operations in response to the Gulf of Mexico Oil Spill – Vernon Asper reported that in response to the oil spill he has been on three UNOLS vessels since April, R/Vs *Pelican*, *Oceanus*, and *Cape Hatteras*. ***Appendix III*** provides details about UNOLS response to the spill. There were a total of 274 days of UNOLS ship days.

Thanks goes to Linda Goad for all her efforts in coordinating support for the UNOLS vessel response. Linda reported that support for the NSF ship time exceeded $5M.

As for the future, on 29 September 2010, BP announced their $500 million GOM Research Initiative (GRI) to study the effects of the Deepwater Horizon incident and the potential associated impact on the environment and public health over a 10 year program."

Jon Alberts has been in contact with the Gulf of Mexico Alliance (GOMA) to let them know that UNOLS ships are available for oil spill response work.

It is unclear at this time how the GRI money will get administered.

Federal Agency Reports:

National Science Foundation (NSF) - Bob Houtman provided the NSF report and began with a few personnel changes. Dr Subra Siresh has been appointed as NSF Director. Dr. David Conover, OCE

Division Director is onboard.

NSF is on a Continuing Resolution (CR) until 12/3/10. There are no additional updates on what the budget will actually be. While on the CR, NSF can operate at 90% of FY2010 level.

2010 has been a very active year at NSF in terms of Ocean Sciences and many of these items will be reported on later in the meeting.

Office of Naval Research (ONR) – Tim Schnoor provided the ONR report. It is expected that the budget for ship operations will remain at the same level as the past several years. This year about 10% of the ONR facility budget supported vessel repairs. 2010 was a busy year for Global Class ships and all had over 300 days of work. Of that total, about 500 ship days were for ONR and NRL operations. Most Navy days were on *Revelle* and this will continue into 2011 to support Physical Oceanography and Acoustics programs.

In 2010, ONR completed the cycle of INSURVs on the navy owned vessels.

FLIP is now 48 years young. ABS regularly inspects the platform. The vessel operator is always looking for science opportunities for FLIP.

Alvin underwent its annual certification in April 2010 and some issues with hull flaws were discovered. The flaws were corrected, but it was necessary to move an *Alvin* project to the ROV Jason while repairs and re-inspections took place.

Revelle, Atlantis, and Thompson will all be in the shipyard at the beginning of 2011. Ship operation days are down in 2011.

In exciting news, the Ocean Class Research Vessels acquisition effort is progressing. More will be reported later in the meeting.

National Oceanic and Atmospheric Administration (NOAA) – Ralph Rogers provided the report for NOAA's Ship and Aircraft Support, Office of Marine and Aviation Operations (OMAO). His slides are included as ***Appendix IV*** and cover the NOAA OMAO Budget (2006 to 2012), new ships and aircraft, NOAA's Deepwater Horizon Response and "Greening" efforts.

Ralph reported that the new fisheries vessels, *Shimada* and *Pisces* have not successfully completed their noise tests.

In response to the Deepwater Horizon oil spill, NOAA deployed seven ships to the Gulf of Mexico. 404 total operating days have been completed in the area.

NOAA is making progress on efforts to Green their Fleet. More that 30% of fleet is using biodegradable hydraulic and lube oil.

NOAA is moving their Pacific Northwest homeport from Seattle, WA to Newport, Oregon. The move will be complete in the summer 2011.

- Vernon inquired about the status of NOAA's Atlantic Fleet? Ralph – NOAA owns the ship facility in Norfolk, VA. The east coast facilities are spread out and NOAA owns the facilities.

United States Coast Guard (USCG) – Commander Krause provided the USCG report. The icebreaker

Healy is in the yard but will be ready for next season's science operations. It is anticipated that it will take nine months to repair *Polar Sea's* engines. [In early 2011, the USCG made the decision to decommission the *Polar Sea.*] *Polar Star* is still in caretaker mode, but is expected to be ready for service in 2013.

The USCG is in a CR. There is draft legislation to transfer operational funds for Healy from NSF back to USCG. USCG is ready to operate the vessel under either scenario.

Question – What ship will support the Antarctic Deep Freeze operations? Reply – the Swedish vessel, *Oden*.

Department of State – Liz Tirpak provided the report. The Research Application Tracking System (RATS) is activated and has been a helpful tool in expediting clearance paperwork. RATS is not perfect. It has been in development for about 10 years. Liz reported that she has been able to raise money for Version 2 of RATS.

Liz has been trying to trouble shoot a clearance problem with Columbia.
Linda – Do you know where the problem is with Columbia?
Liz – it appears to be a problem with the embassy.

Sam DeBow – Will our ships ever be granted clearance for work off Brazil? Liz – UNOLS voice is strongly heard. Letters to the DoS about this problem could be effective.

Sandy Shor – Are there clearance issues with other countries that are a problem? Liz – There are only about 10 denials annually and most often it is with the countries who demand the 6-month advance lead time for clearance requests.

Deb Steinberg – What is the issue with Brazil? Liz – It is lack of communication between Science and Administer of Defense.

Fleet Operations in 2010 and Recommendations for 2011 - Stan Winslow provided a summary of 2010 operations and the 2011 scheduling process. Jon Alberts followed with a summary of agency recommendations for 2011 Fleet Operations. Their slides are contained in ***Appendix V*.**

Stan began the report. The Ship Scheduling Committee (SSC) Chair is Stan Winslow and the SSC Vice Chair is Liz Caporelli. Stan's Chair term expires in October 2010 and Liz Caporelli is stepping down as Vice Chair. Normally the SSC Vice-Chair moves into the Chair position; however, Liz recently accepted a new position with the OOI group at Woods Hole Oceanographic Institution (WHOI). UNOLS is working to fill both the Chair and Vice-Chair vacancies. Stewart Lamerdin has agreed to serve as Vice Chair for now.

The 2011 ship scheduling process was grim. In January 2010, the Global Ship Schedulers met with NSF, ONR, and NOAA reps at Scripps Institution of Oceanography (SIO) for an initial review of ship time requests for 2011. They made a first cut at 2011 schedule options with Agency input on priorities. Ship scheduling efforts continued through the following months including efforts to encourage additional ship time. Scheduling meetings (telecomm and in-person) were held through the summer. In September the schedulers posted 2011 schedules.

Jon Alberts continued the scheduling report. There continues to be problems with reduced ship day demand and funding shortfalls. Charts showing fleet utilization, ship-time demand, and projections are included in the slides. There is about a 1000 operating day decline since 2005. Utilization by ship Class

shows a drop across the board in 2011. In 2011, none of the ships will be laid up but the schedules are light.

A letter was prepared by NSF/ONR/UNOLS with the Agency recommendation for 2011 Fleet operations and submitted to the UNOLS Council on September 15, 2010. A summary of the recommendations is included in the slides. Maintenance periods in the vessel home-port were strongly encouraged both as a cost saving measure as well as an opportunity to conduct preventative maintenance. If no additional work is identified when the final schedules are completed, it may be necessary for NSF to consider providing some funds to support extended maintenance or partial layup periods for the NSF-owned ships, *Wecoma and Point Sur*. The agencies encouraged the ship operators to find ways to reduce costs and seek appropriate opportunities to support research and education programs supported by other funding sources. Operators of institution-owned ships were encouraged to decide if their planned schedule can support the cost to operate. An analysis of the possible causes for the recent decline in ship-time request demand was recommended.

Discussion:

- Peter Wiebe – OPP indicated that they could perhaps use a UNOLS vessel in the Antarctic. Jon – This will be explored and is not represented in the schedules. If OPP decides to use a vessel, the ship will deploy in late 2011.
- Peter Wiebe – Can UNOLS pick up the NOAA work that NOAA did not do when their ships were deployed to the Gulf for the oil spill response? Jon – UNOLS has not had a request from NOAA.
- Sandy Shor – There was rumor of NOAA plans to not charter UNOLS vessels. Jon – That issue did arise, but fortunately NOAA can continue to charter UNOLS vessels in 2011.

Facility Renewal Activities:

Ocean Class Acquisition Update –Chris MacDonald provided the Ocean Class acquisition report. His slides are included as ***Appendix VI***.

Chris discussed the status of Phase I, the acquisition schedule, proposed UNOLS representation, and the operator representation.

The Phase I Preliminary/Contract Design contract awards were made to two separate design/build teams on 27 Jan 2010. Design reviews with each team were held during the spring and summer 2010. The Phase II Detail Design and Construction Contract award to one team is expected in FY 2011, Quarter 4. The first ship delivery is scheduled in FY2014 and the second ship in FY 2015.

ONR appointed Mike Prince as the Ocean Class project Research Facilities Assistant. He reports to Tim Schnoor at ONR and works with Chris MacDonald at PEO Ships. Mike represents the interests of ONR and the broader UNOLS community during the Ocean Class AGOR design and construction process. He will coordinate with the Operator representatives during design reviews and construction. Mike will assist with review of data deliverables (drawings, plans, calculations). He will provide input on Mission Equipment selections, schedules for installation, and post delivery test and trial schedule.

Chris provided information about the proposed make-up and responsibilities of a UNOLS Advisory Committee. The Fleet Improvement Committee (FIC) is asked to propose the make-up of advisory committee to ONR for concurrence. Signed non-disclosure agreements and competition rules training will be mandatory for all members. The responsibilities of the advisory committee will include:

- Provide input as needed on potential changes to specifications
- Assist Research Facilities Assistant with review of Phase I data deliverables as needed

- Provide Research Facilities Assistant input on Science Mission Systems equipment selections and schedules for installation as needed

Chris reviewed the UNOLS Operator Representation responsibilities. See the slides for details.

Discussion:
- Kenneth Coale – At the end of the design phase, will there be an estimated cost for each ship? Mike Prince – The first ship is budgeted at $74M and $71M for the second ship.

Regional Claas Acquisition Status – Bob Houtman provided the report on the Regional Class Research Vessel (RCRV) status. His slides are contained in ***Appendix VII***. Bob gave a bit of history on the project. At the end of the initial Phase I effort, the estimated RCRV construction costs were too high. NSF is still committed to the project and they are looking for alternate funding options.

In October 2009, an NSF Panel reviewed the RCRV designs and down-select to one design. Although the panel did a down-select, they felt that there were areas that needed greater attention and areas of inquiry were identified. NSF tasked FIC for their input on the areas of inquiry and FIC provided a response in September.

NSF would like to move forward with an "ARRV-like" process and a solicitation has been drafted. They would follow the MRE process with the Preliminary and Final Design Review structure.

The optimal RCRV acquisition schedule is:
- Release Solicitation - Late 2010/Early 2011
- Begin Construction - Early 2014
- Science Operations - Late 2016

NSF is still committed for up to three hulls.

Discussion:
- Peter Wiebe – The original cap for each RCRV was about $25M. The ships could not be built for that price. What will be the cap for the RCRV? Bob – They haven't listed it as a cap, but the budget will possibly be in the range of $50M to $55M per ship.
- Mike Prince – Is the design still for a ship that will be under 300GTons? Bob – Yes.
- Dennis Nixon – Will NSF release the RFP before they know the funding stream? Bob – No.
- Rich Findley – Will there be geographic distribution of the RCRV operators? Bob – NSF will make a geographic requirement: East, West, and Gulf of Mexico.
- Nancy- What if only one ship can be built? Bob – The ship locations have not been prioritized.
- Bruce – Will NSF economize by having one ship builder for all ships? Bob – If NSF acquires three ships, there will be a lead institution to oversee the construction of all three.

Alaska Region Research Vessel, R/V *Sikuliaq,* Construction Status – Terry Whitledge (UAF) provided the report on the Sikuliaq status. His slides are included as ***Appendix VIII***. "Sikuliaq" means new ice.

In October 2008 the Final Design Review (FDR) for the vessel was completed. In August 2009, the Z-drive contract with Wartsila was signed. January 7, 2010 was the shipyard contract start date with Marinette Marine Corporation. The project is well into the design verification and transfer to the shipyard. The project cost is $123,179,168.

There have been some project changes since the completion of the FDR (see slides). One change included the award of a hull option to lengthen the vessel by 12 feet and add an anti-roll tank.

Fabrication of the ship is expected to begin in October 2010 and the Keel Laying is scheduled for February 2011. Launch is planned for April 2012 and science trials are scheduled for the period from April to mid-June 2013. The NSF Inspection is planned for October 2013 with science operations to follow.

As part of the construction effort, full scale mock-ups of some of the vessel spaces are being built. The spaces include: the bridge, the Science Control Room, a wheelchair accessibility State Room, and laboratories (Main Lab, Wet Lab, Electrical/Computer Lab, Analytical Lab, and Upper Labs). The usefulness of the mock-ups has already been realized. Photos of the mock-ups are included in the slides.

Break

Keynote Address - Dr. David O. Conover, Director for the Division of Ocean Sciences, NSF provided the Annual Meeting keynote address. His slides are included as ***Appendix IX***. The title of Dr. Conover's talk was, "NSF Response to the Deepwater Horizon Oil Eruption."

The total amount awarded for NSF's Rapid Response Research efforts was $19.4 million and the total number of NSF awards was 166. About a third of the awards were in ocean sciences. The number of requests that came into the NSF Ocean Sciences Division was 443 requests and they issued 59 grants for a total of $6.823M. In OCE, awards were processed in as short as two days and on average was 11 days. It was truly a rapid response effort. A little less than half of the Rapid Response awards went to Gulf of Mexico states.

The total NSF ship days was 224 days on six UNOLS vessels. The total amount of ship costs was greater than $5 million.

The slides include an overview of oil spill response efforts from April-July 2010. The timeline of operations and the publications from Rapid Response Research are listed.

BP made a $500 million commitment over a 10 year period to support independent research. The initial distribution of funds to the Gulf States is provided in the slides. In terms of grant renewals, *"Renewed funding of RAPID awards may be requested only through submission of a proposal that will be subject to full external merit review. Such proposals would be designated as "RAPID renewals."* There will be a panel established to oversee the distribution of the BP funds. The panel will be selected by BP, agencies, and governors of the 5 Gulf States.

A Deepwater Horizon Oil Spill Principal Investigator (PI) Conference sponsored by the Office of Science and Technology, Joint Subcommittee on Ocean Science and Technology was held in St. Petersburg, FL on October 5-6, 2010. The conference brought together scientific investigators from academia, private research institutes, and agencies conducting DWH oil spill related research, monitoring, and sampling, as well as representatives from the NSTC JSOST agencies. The conference in St Pete was successful.

Discussion:

- Nancy Rabalais – There is still oil in marshes. What is being done by this? Dr Conover – restoration would be taken over by other agencies.
- Nancy Rabalais – There is science that can be learned from the marsh oil effects. Dr. Conover - If

scientific advances can be made they would be entertained.

- Kenneth Coale – When do you think there will be a plan to quantify the scope of the oil disaster? Dr Conover – There is a plan. He was on a committee that included multiple agencies. The draft Strategic Plan for Sub-Sea and Sub-Surface Oil and Dispersant Detection, Sampling, and Monitoring dated 17 September 2010 is under Executive review.
- Dan Schwartz – One of the primary tasks for UNOLS is to provide fleet access. UNOLS was able to respond to the oil spill with six vessels, if ships are laid up in the future, they won't be available for rapid response.
- Dr Conover –Finding the funding stream to support fleet renewal is a high priority for NSF. Acquisition of three new Regional Class ships is justified and NSF is highlighting the response effort as another reason to move forward.
- Vernon Asper – He is very appreciative of NSF's support for the Rapid Response Effort.

Facility Renewal Activities (continued):

Ocean Observatory Initiative (OOI) – Jean McGovern provided a **s**tatus report on OOI implementation plans. Her slides are included as ***Appendix X***.

Jean's slides describe the:

- OOI Subsystems
- Sensor distribution and core sensors
- Surface Mooring
- Pioneer Array
- Network design
- Data Policy
- Regional Scale Node
- Endurance Array
- Global Array
- Operational Domains
- Project team
- Installation schedule
- The "Jiffy Pop" diagram provided the cruises by OOI component.

The OOI facility projections are included in ***Appendix X***.

Some of the items that Jean reported regarding OOI included:

- OOI will include over 800 different instruments.
- For the Regional Node, UW has made an $89M award to a contractor. This was a major accomplishment this year.
- The Pioneer Array will utilize AUV and gliders. The AUV docking station will be a challenging endeavor to achieve.
- An OOI Operations and Maintenance review meeting was held in August 2010.
- The MRE structure that OOI falls under is new to the community and the reporting demands are high.
- OOI must be environmentally compliant and there have been public hearings. Many permits are required.
- They are building OOI to operate for 25 years.

- This is one of the first projects that has built in education from the start
- In 2012 there will be a huge install phase. Each string will be replaced every 6 months. There will be a lot of challengers in ordering and storing systems.
- OOI learned a lot from Canada's Neptune program.

Replacement Human Occupied Vehicle (RHOV) Project – Brian Midson (NSF) provided the report on the RHOV also know as the Alvin Upgrade project. His slides are included as ***Appendix XI***.

The original project was to build a new vehicle. However, cost estimates for the project were too high, so instead the decision was made that in order to maintain a U.S. HOV capability, *Alvin* would be upgraded dramatically. The upgrade would take place over two phases. In the initial phase Alvin will receive a new sphere, but the vehicle will continue to be operated to a depth rating of 4500m. All of the new components that are installed during Phase I (syntactic foam and sphere) are rated for a depth of 6500m.

Brian showed images of the titanium sphere fabrication. It has been welded and just recently heat treated. The heat treatment is applied to relieve the stresses from welding and reduce cracking.

The Alvin Upgrade project underwent a Final Design Review (FDR) in September 2010. The FDR panel recommended that the project continue. Dual NAVSEA/ABS certification/classification will now be required. The project schedule is a concern. It will take time for NAVSEA to get up to speed on the project.

The sphere is expected to be delivered in May 2011 and the initial sea trails are planned for mid 2012.

Brian showed a video-clip of the project activities.

DEep Submergence Science Committee (DESSC) – Peter Girguis, DESSC Chair, report on DESSC activities and plans for their fall meeting in December. Pete's slides are included as ***Appendix XII***.

NDSF vehicle status and updates included the addition of the AUV Sentry to the National Deep Submergence Facility (NDSF). DESSC continues to be informed about the DSV *Alvin* upgrade and will continue to work with the Replacement HOV oversight committee (RHOC) to insure that scientists' concerns are addressed. DESSC reviewed plans for the ROV *Jason* launch and recovery system upgrade.

The DESSC has long standing concerns about photo attribution and copyright of images collected with the NDSF vehicles. DESSC is working with WHOI personnel to develop a simple, shipboard database to insure that photographer is properly recognized.

NDSF personnel – There are some disparities in management at the NDSF. Pete will ask WHOI to provide DESSC with an assessment of this situation, to better understand these issues, and how they may affect operations at the NDSF.

DESSC is working to develop approaches to building a larger user base for NDSF. Increased publicity at a UNOLS booth and other forums will be considered in the future. DESSC will look into partnering with existing mechanisms such as the R2K distinguished Lecturer series and the "proposed" FIC chief scientist workshops.

Consortium for Ocean Leadership – Bob Gagosian provided an update on Ocean Leadership activities. His slides are included as ***Appendix XIII***.

Ocean Leadership is made up of about 100 organizations.

An Ocean Leadership Working Group to Develop Future Funding Models for New Ships was formed this year. Their charge was to review existing models to fund and support the academic research fleet. Using the past reports, they were asked to develop, recommend, and prioritize alternative funding models and/or approaches to the Ocean Leadership Board of Trustees.

The Ocean Leadership Board is looking for an innovative framework for how the organization should work with the community to secure a suite of oceanographic assets that support and respond to a broad range of National needs (e.g., economic, environmental, defense, etc.).

The Working Group membership is chaired by Mark Abbott and the full list is in the slides. They are working to have the final report ready for the Board by the end of 2010 and ready for implementation in early 2011.

Greening the UNOLS Fleet – Bruce Corliss provided an update on activities and future plans for the UNOLS Green initiative. His slides are included as ***Appendix XIV***.

Bruce reported that "Greening the Fleet" is a long term goal established in 2010. The motivation is for Environmental stewardship, educational outreach, finances, and fleet renewal.

Some of the activities that have occurred or are underway include an RVOC questionnaire on how to make existing ship operations more environmentally friendly, a "Green Session" at the NSF 3RD Large Facility Workshop, and a *Cape Hatteras* Life Cycle analysis to assess environmental and economic impacts.

Plans are underway to convene a UNOLS Green Ship Workshop. The workshop will be held at Duke University. There would be representation from the UNOLS Council, RVOC, RVTEC, FIC, NSF, Navy, NOAA, architects and naval designers, industry, and marine scientists interested in attending.

The long term goals for the initiative are to:

1) Promote environmental sustainability within UNOLS.
2) Development of guidelines for construction, operation and recycling of UNOLS research vessels that can be used by UNOLS and the federal agencies responsible for U. S. oceanographic vessels.
3) Development of green vessel guidelines for a broad range of U.S. vessels in addition to research vessels.
4) Promote environmental awareness on UNOLS ships with U.S. ocean scientists and students over the coming decades.
5) Incorporate environmental sustainability in Ocean Class and Regional Class vessel construction and operation.

Kenneth Coale – Is there time to get the green technologies into the OCRV and RCRV designs. Mike Prince – The OCRV hull form designs have been defined, but green waste management and air quality can be considered. On RCRV there is going to be a design refresh so there might be more possibilities.

Adjourn – Day 1 of the Annual Meeting

October 15, 2010 Annual Meeting – Day 2

Call Day-2 of the Meeting to Order: Vernon Asper, UNOLS Chair, called Day-2 of the UNOLS Annual meeting to order at 8:30 am.

Marine Technician Recruitment and Retention Pilot Program – Jim Holik provided an introduction and then introduced Alice Doyle. Alice provided an update on the UNOLS pilot program status. Her slides are included as ***Appendix XV***.

Over the past year, Alice's efforts with the Marine Technician Recruitment Pilot Program have focused on:

- Collecting Information
- Further contact with Technical Managers to learn about their programs.
- Visits to WHOI, LDEO, URI, UDE, UW, OSU
- Conversations with scientists
- Conversations with various other shipboard technical support programs to understand their systems (NOAA, NOAA OER, MBARI, IODP, SEA, OOI, USAP, OOI, WHOI vehicle programs).
- Conversations with private companies who supply technicians
- Follow-up/Debrief with tech exchange host institutions and technicians
- Conversations with full-time and contract technicians

Effort was spent in finding technicians to fill positions on other platforms. Full-time and contract technicians were transferred or placed on other vessels. An easy means of exchanging technicians was established between the UNOLS and OPP fleets. These transfers offered great experiences for full time technicians. They had the opportunity see how another institution's operations run. It was also a great experience for the host institutions in that the process of getting a qualified technician to fill-in was painless.

Alice worked with the MATE program to set up a 6-month internship to run from January to June 2011. WHOI and Duke will host the interns. An RVTEC subcommittee was established to develop internship guidelines and assist in choosing the candidates. For more information go to: http://www.marinetech.org/education/internships.php

Alice is investigating possibilities of developing Marine Technician Best Practices within the fleet to standardize operations and data collection for some systems. Some areas under consideration for Best Practices are: Multibeam, ADCP, Echosounders, CTD, Gravimeter, Magnetometer, TSG and other underway data systems, Met data, coring, etc.

Alice is investigating Marine Technician training within the fleet. She developed a survey on training within the fleet to:

- Review the current training models within the fleet
- Begin to develop a database of beneficial and not-beneficial courses for the fleet so current and future technicians can benefit from past technicians' training and education experiences
- Find out if there is any opportunity for future group training/education

Alice is investigating a means of hosting the Technician Pool. The Pool would provide flexibility to the Tech Managers within the fleet. Pool techs could augment the current support on particular cruises. The tech pool will consist of sea-going only technicians, either contract employees or independent contractors. NSF sent out an announcement requesting Letters of Interest from those institutions who might be interested in hosting the pool. NSF is developing a letter of Guidance to potential bidders. NSF is considering funding a pilot program to implement the concept.

Alice developed a tri-fold about the jobs available within the UNOLS fleet and she is looking for areas from which to recruit/inform the community.

Discussion:

- Stan Winslow – Has there been any progress made on developing a standard skill set. Alice – She hasn't found a "perfect" skill set.
- Mike Prince – Have you had opportunities to provide lessons learned to the crew. Alice – Not yet.
- Peter Wiebe – In the cruise pre planning, data management should be addressed. Alerting everyone to the need for data management is good at the very beginning. Jim Holik – This is important because there are new guidelines for identifying the data management plan.
- Jon Alberts – Losing a bunk to allow marine technician training isn't going to be popular, but perhaps the science party can use it as an advantage to say that they have extra technical support.
- Wilf Gardner – This is all great for at-sea technical support, however, technical help is needed pre-cruise. Jim Holik – The tech pool solicitation will indicate that shore side support is needed.
- Vernon Asper – Best Practices is a good thing. It would be a useful to know the basics about the equipment.
- Kip Shearman – Will the Internship program grow? Jim Holik – If it works he is interested in supporting it.
- Bob Collier – Will the material that you and MATE put together for the internship program be used outside of the program? If there is a way to use the material in outside ways, it could be useful. Rich Findley – There may not be a very structured curriculum because the training could depend on the operations that the interns are exposed to during the internship.

Rolling Deck to Repository (R2R) – Vicki Ferrini provided an R2R update on the project activities and plans. Her slides are included as Appendix XVI.

The vision for R2R is to provide a direct pipeline for routine underway cruise data from operating institutions to long term archives through a centralized gateway. Vicki reviewed the benefits, types of shipboard data, and core R2R services (see slides).

Data is currently being submitted to R2R by 18 UNOLS vessels and it is anticipated that the remaining 3 UNOLS ships will be on-line by the time of RVTEC. Over 1,600 cruises have been cataloged and over 5 million files have been archived.

Vicki reviewed the R2R features including vessel profiles (online interface), data dissemination, reciprocal linking to data centers, the R2R event logger, real-time data, post-cruise quality assessment.

R2R personnel have made efforts to reach out to the community via ship operator visits and national meetings.

Discussion:

- Peter Wiebe – Does R2R keep track of any big programs. Example – can you search by "GEOTRACES"? Vicki – R2R is considering this and it is something that they would like to do.
- Reggie Beach – Do UNOLS vessels continually stream multibeam data. Jim Holik – No there is too much bandwidth. Vicki – The multibeam data set is too large to send over HiSeasNet. They get multibeam data post cruise.
- Bruce Appelgate – Could this facilitate post clearance reporting? Vicki – R2R is classifying by zones.

NSF Solicitation for USCGC *Healy* Ship Support – Renee Crain (NSF) reported on the NSF solicitation for a single Cooperative Agreement for USCG Icebreaker support. The Ship-based Science Technical Support in the Arctic (STARC) would provide support similar to that found on UNOLS vessels. Her slides are included as ***Appendix XVII***.

Under the Cooperative Agreement the awardee would help plan and execute science support for Arctic cruises on icebreakers, augmenting USCG. The awardee would also manage science equipment onboard icebreakers in cooperation with USCG and NSF. The ships that would be supported include *Healy, Polar Sea* and *Polar Star,* and would transition to other ships as needed

The proposal deadline is November 8th and they will be reviewed during the winter with an award expected in Spring 2011.

Renee introduced Hedy Edmonds who will fill in for Renee while she is on maternity leave.

Discussion:

- Bob Collier – Would the proposing institution be required to provide the technical support people to participate in the cruise? Renee – The institution would match the technical support needs with the appropriate people. They can draw from the pool or recruit other technicians as required.
- Question - Isn't there already a *Healy* support group in place? Renee – Through various grants (LDEO, SIO, etc.) technical support has been patch-worked together. STARC would centralize the support through one grant.

Interagency Working Group on Facilities and Infrastructure (IWG-FI) – Rear Admiral Kenul (NOAA) provided the report on the IWG-F activities and plans. His slides are included as ***Appendix XVIII***.

The IWG-FI is a subgroup of JSOST. IWG-FI focuses on policy, procedure, and planning related to oceanographic facility use, platforms, networks and systems upgrades, and investment. This includes novel and emerging technologies. They emphasize cooperative interactions with UNOLS.

IWG-FI was re-chartered this year. RADM Kenel reviewed the IWG-FI current activities (details are included in the slides). A new group formed under the IWG-FI this year is the Task Force on Unmanned Systems (TFUS). They were established in January 2010 and are tasked to provide advice on policies, procedures, and plans relating to unmanned system uses, upgrades, and investments. Reggie Beach and Kim Curry are the co-chairs. The TFUS functions and priorities are listed in the slides. The Scope of the TFUS includes:

- Autonomous Underwater Vehicles (AUV)
- Gliders
- Unmanned Aircraft Systems (UAS)
- Unmanned Surface Vessels (USV)
- Lagrangian Platforms (floats, drifters)

In July 2010, and Executive Order on Stewardship of the Ocean, Our Coasts, and the Great Lakes, endorsed the recommendations of Ocean Policy Task Force (OPTF). The OPTF recommendations included nine priority areas, each with their own Strategic Action Plan (SAP). IWG-FI, IWG-OCM and IOOC were contacted to aid in the development of the SAP for Priority 9. The Priority 9 recommendation

states, "Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure- Strengthen and integrate Federal and non-Federal ocean observing systems, sensors, data collection platforms, data management, and mapping capabilities into a national system, and integrate that system into international observation efforts. IWG-FI has a meeting scheduled for October 20, 2010 to begin to address this task.

2010/2011 UNOLS Goals and Priorities – Bruce Corliss presented the 2010/2011 UNOLS Goals and Priorities as established by the UNOLS Council. His slides are included as ***Appendix XIX***. A goal for the next year will be to explore options to establish a speaker series to highlight UNOLS ships and oceanographic research and to serve as an outreach activity to non-UNOLS colleges and universities, with particular attention given to institutions with under-represented minorities in the marine sciences. As one option, the series could be introduced as a pilot program that would include a revolving set of speakers who would participate in this outreach program each year for three years, at which time a review of the program would be carried out to determine if it is a worthwhile outreach activity for UNOLS.

Discussion:

- Bruce Corliss – We will look to schools that may not be as familiar with UNOLS.
- Vernon Asper – There has been a lot of mis-information about what UNOLS is.
- Dan Schwartz – The Marine Technology Society (MTS) started a speakers database. We could look into this for potential speakers.
- Annette DeSilva – The UNOLS Office could assist be compiling a set of UNOLS slides that could be used for the lectures.
- Wilf Gardner – With OOI coming into service, we need to start educating the graduate students about how to carry out with these new assets.
- Richard Kniffin – It might be nice to have a video of UNOLS.
- Maureen Conte – It would also be useful to target Marine Technology institutions.

UNOLS Evaluation of Decline in Ship Time Requests – Annette DeSilva reported on efforts to evaluate the decline in ship time request demand. Her slides are included as ***Appendix XX***. A variety of reasons for the decline in ship time demand have been suggested. A draft on-line survey was created. With the data collected from this survey we hope to identify any perceived obstacles that might be hindering the submission of the ship time requests. We also hope to determine if this trend will continue and if so, more informed decisions on the future UNOLS fleet composition can be made to better match utilization projections.

The survey was drafted using the tool SurveyMonkey. There are 28 questions. Part I of the survey includes demographic questions and Part II includes questions regarding future plans (if any) to use vessels, which vessels, any obstacles in conducting research, etc

The next steps will be to finalize the form and then broadly distribute the Survey URL with an end date. The UNOLS Office will compile the data and present it at the winter Council Meeting.

"UNOLS Year in Review" - A summary of UNOLS activities in 2010 (that have not already been reported) was provided. The slides are included as ***Appendix XXI***.

Jon began the report.

NSF 3rd Large Facility Workshop - UNOLS assisted in the organization of the NSF 3rd Large Facility Workshop. It was held on May 4-7, 2010 in San Diego, CA. The organizers were Linda Goad, Florence Rabanal, and Jean-Rene Roy (all from NSF), Scripps Institution of Oceanography (SIO), and UNOLS.

There were 110 participants including representation from UNOLS institutions. Dennis Nixon provided the Keynote Address and he spoke on the "Cost of Complacency." Details of the meeting are included in the slides.

Investigate the Feasibility of a more flexible UNOLS – In late 2009 a UNOLS goal was established to "Investigate Ways that the UNOLS fleet could be more flexible." In response an ad hoc committee was formed. They were asked to prepare a white paper addressing fleet opportunities, constraints & successful methods to engage new users and define how decisions are made regarding ship use. This task will continue into the next year.

Antarctic Research Vessel Coordination and UNOLS – This year a goal was to work to increase the coordination between UNOLS, NSF, and OPP. A few UNOLS activities addressed this goal.

An Ad hoc Committee of Vernon Asper, Robin Muench, and Peter Wiebe was formed. They drafted a letter to NSF/OPP that was endorsed by the Council. The letter was sent to NSF/OPP on 24 September 2010 and provided "A Suggested Approach and Offer of Support from the UNOLS Council Regarding Ship Acquisition, Operation, and Oversight of Future Southern Ocean Research Vessels."

Additionally, NSF/OPP requested that UNOLS lead an effort to refresh the Polar Research Vessel (PRV) Science Mission Requirements that were drafted in 2006. UNOLS will form a committee and hold a community workshop in early 2011 as part of this task.

Another related UNOLS/OPP effort was establishment of a Marine Technician Exchange Program between Ocean Sciences and Polar Programs.

Post Cruise Assessment Report (PCAR) Subcommittee – Erin Jackson provided the PCAR report. The PCAR Subcommittee's goal is to assure that communications intended by the PCAR process remain effective. They are to report back on high-level trends and issues that might need to be addressed by the broader community in the interest of improving quality of the seagoing operation.

The members are Joe Malbrough/LUMCON, Wilf Gardner/TAMU (new Chair), and Dave Fisichella/WHOI. The subcommittee's most recent review focused on the PCAR forms for *Thompson, Revelle, Knorr* and *Kilo Moana*.

This year, UNOLS increased the effort from the UNOLS office to 'extract' missing forms. Erin Jackson sent letters directly to the Chief Scientists. This was effective, especially for vessels with anomalously low return rates.

The distribution and use of the PCARs is explained in the slides (see Appendix XXI).

*The PCAR review will c*ontinue. In the future a new form that is part of the UNOLS STRS system will be introduced.

The timely return of the PCARs is most effective. The PCARs can identify safety or operational issues, which benefit by immediate attention.

Gender Climate at Sea – Jon Alberts reported that the committee of Jon, Kenneth Coale, Annette DeSilva, and Bruce reviewed the on-line training courses on sexual harassment prevention offered by WorkPlace Solutions. The Committee selected WorkPlace Solutions training course: "Unlawful Harassment Prevention" for UNOLS. Jon will modify the introduction to customize it for the UNOLS Fleet. Once on-

line, UNOLS will offer the training as a pilot program. We will need to determine how many licenses are needed and who would act as the Administrator. The estimated cost is about $15 per training session.

Discussion:

- Kenneth Coale – This initiative was in response to a survey conducted by WHOI. They found that harassment was taking place aboard vessels. The science party was often involved and he really encourages scientists to take the training.
- Deb Steinberg – Would the training be mandatory? Jon – It would be left to the institution.
- Wilf Gardner – What is the timeline? Jon – We may be able to have the training available in 3 to 4 months.
- Maureen Conte – Perhaps this should be an addendum in the pre-cruise meeting.
- Rich Findley – The training should be cited in the pre-cruise manual.

UNOLS Outreach Initiatives – Annette DeSilva reported on UNOLS outreach initiatives and resources. These include:

- A proposed UNOLS Lectureship Program (Goal for 2010/11)
- Proposed Chief Scientist Training Workshop (2011)
- UNOLS 101 Slide Presentation (posted on the UNOLS website)
- New web page that offers UNOLS outreach material: http://www.unols.org/info/outreach.html
- Volunteer Opportunities (posted on the UNOLS website)
- UNOLS Lobby Display
- UNOLS Traveling Poster

Morning Break

UNOLS Membership Ballot Measures: Ballots were distributed to UNOLS Representatives by mail in early September. Members voted by postal mail ballot, proxy, or in person at the meeting. The results of the elections and ballot measures are as follows (they are also included as ***Appendix XXII***):

UNOLS Council Election results:

- Chair-Elect (2 year term) –Dr. Peter B. Ortner, University of Miami/RSMAS
- Non-Operator Representative (3 year term) - Dr. John M. Morrison, University of North Carolina at Wilmington, was elected to a second term.
- At-Large Representative (3 year term) - Dr. Nancy N. Rabalais, Louisiana Universities Marine Consortium, was elected to a second term.

Charter Revision And Re-Adoption – The membership approved the revision and re-adoption of the UNOLS Charter as set forth in the proposed UNOLS Charter revision document (available on line at: http://www.unols.org/meetings/2010/201010anu/CharterRevision2010.html

Establishment Of A New UNOLS Standing Committee – The UNOLS Member Institutions authorized the establishment of an Ocean Observing Science Committee (OOSC) to be operated according to the proposed Terms of Reference (*dated September 9, 2010*). The Terms of Reference will be incorporated in the UNOLS Charter as Annex X. The OOSC is charged with providing advice and guidance on decisions and plans from the science perspective related to NSF observing investments such MARS and OOI. The OOSC will be an essential element in the process of communicating the science user perspective to NSF and to the project teams involved in developing, deploying and operating ocean observatories.

The Council endorsed the appointment of the following individuals to the OOSC membership:

- Larry Atkinson (Chair)
- Emmanuel Boss
- Suzanne Carbotte
- Steve DiMarco
- Nancy Rabalais

UNOLS Reports – Jon Alberts reported on various UNOLS topics. His slides are included as ***Appendix XXIII***. Jon thanked the Council and Committee members whose terms have ended over the past year. They included:

- Council: Peter Wiebe
- DESSC: Bill Chadwick, Jeff Karson, Craig Young
- FIC: Jim Cochran
- RVTEC: Stewart Lamerdin
- RVOC: Pete Zerr
- AICC: Bernie Coakley, Rebecca Woodgate, Carin Ashjian
- MLSOC: Nancy Grindley, Michell Lyle, Tom Shipley, Peter Tyack
- SSC: Stan Winslow, Liz Caporelli
- SCOAR: John Bane, Daniel Riemer, Richard Zimmerman

Jon announced the new appointments to Committees:

- DESSC: Peter Girguis
- FIC: David Bradley, Miles Sundermeyer
- RVTEC: Daryl Swenson
- AICC: Karen Frey, Jeremy Mathis, Luc Rainville, Larry Mayer, Robert Campbell
- SCOAR: Phil McGillivary
- MLSOC: David Scholl, Sandy Shor, Nathan Bangs

UNOLS Dues Accounting – Jon reported that the balance in the Dues account as of 10/6/2010 is $6150.

UNOLS Committee Reports:

Fleet Improvement Committee (FIC) – Clare Reimers, Chair, summarized FIC activities. Her written report is included as ***Appendix XXIV***. The activities include:

- Ongoing fleet planning and improvement activities using the 2009 Fleet Improvement Plan as a guide for recommendations.
- Responses and recommendations stemming from 13 areas of inquiry on the RCRV design were submitted to NSF on August 30, 2010.
- FIC has been reviewing feedback from scientists, operators and marine technicians on the R/V *Sharp*, the load handling system on the R/V *Kilo Moana* and the WHOI Long Coring System.
- A FIC liaison to the MLSOC is serving to encourage a more versatile and fully outfitted R/V *Marcus Langseth*.
- Plans for a UNOLS chief scientist training workshop have been drafted. Chief Scientist Training Cruises are proposed to serve as a major forum for teaching young marine scientists how to effectively plan for, acquire, utilize and report on time at sea for multi-disciplinary research and education.

Research Vessel Operators' Committee (RVOC) – Joe Malbrough, RVOC Chair-Elect, reviewed the

highlights of the 2010 RVOC meeting, Committee activities over the past year, and plans for the 2011 meeting. His slides are included as ***Appendix XXV***.

Joe reviewed the plans of the Safety Committee and Research Vessel Safety Standards (RVSS):

- Review medical standard screening for scientific parties and crew
- Update the Crew Safety Training Manual
- Plan workshops for Appendix A- Rope and Cable Safe Working Load Standards
- Final Review of Draft for Appendix B

Appendix B addresses UNOLS Overboard Handling Systems Design Standards and applies to:

- All fixed and portable overboard handling systems
- Each component of the overboard handling system
- This document WILL apply to cranes if they are used to lift, deploy, and/or recover science packages
- This document DOES NOT apply to manned lifting operations

Other topics included in Joes report were:

- Equipment Pools and Shared Use Equipment- Vans, Winches and Wire
- Medical Advisory System for the Fleet - MedAire is contracted by UNOLS to provide medical services, products and assistance to all UNOLS vessels.
- NSF Ship Inspection Program
- UNOLS Ship Inspection Best Practices Web Site located on the RVOC web page

The 2011 RVOC meeting will be hosted by Scripps Institution of Oceanography on April 13-15.

Research Vessel Technical Enhancement Committee (RVTEC) – Rich Findley, RVTEC Chair, reported on RVTEC activities and plans for the RVTEC Annual Meeting to be hosted by the Bermuda Institute of Ocean Science. His slides are included as ***Appendix XXVI***.

The 2009 Annual RVTEC Meeting was held at the University of Washington. It was a 3-day meeting plus an additional day of focus groups. The meeting was well attended with about 100 people. Details of the agenda and focus groups are included in the slides.

The 2010 RVTEC meeting will be held at Bermuda Institute for Ocean Science on November 15-19. It will be a 3-day meeting plus 1 ½ days of focus groups. The agenda is available at: http://www.unols.org/meetings/2010/201011rvt/201011rvtag.html. One day of the meeting will be devoted to the RVSS Appendix A workshop. It will include "hands-on" opportunities aboard the R/V *Atlantic Explorer*.

The RVTEC Officer Appointments will move from a Vice-Chair to a chair elect position. This is consistent with other UNOLS standing committees.

Arctic Icebreaker Coordinating Committee (AICC) – Robin Muench (AICC Chair) reported on AICC activities in 2010 including an update on science operations for *Healy* and the Polar Class Icebreakers in 2010 and planned for 2011. His written report and slides are included as ***Appendix XXVII***.

Some of the topics reported include:

- The USCG *Polar Sea* is currently undergoing maintenance following support of arctic science earlier

during the 2010 season.

- The Coast Guard has initiated repair and upgrading needed to return the USCGC *Polar Star* to service.
- The *Healy* conducted three science missions in the western Arctic during the 2010 summer season.
- Icebreaker activities for the coming 2011 summer field season in the western Arctic will consist primarily of three cruises aboard the *Healy* in support of the same multiyear projects supported during 2010 summer.
- AICC efforts continue to foster communications among scientific researchers, the Coast Guard, science-oriented government agencies, and northern Alaskan Native communities. There is a lot of effort put into this.

Information concerning polar icebreaker operations in general, can be found on the IceFloe website that is maintained by the USCG at http://www.icefloe.net/ .

There will be two membership openings on the AICC in 2011.

Marcus Langseth Science Oversight Committee (MLSOC) – Jon Alberts provided an update on R/V Langseth operations and plans for the MLSOC fall meetings. His slides are included as ***Appendix XXVIII***.

The MLSOC held a workshop on March 22-24, 2010 at Incline Village, NV. The workshop was titled "Challenges and Opportunities in Academic Marine Seismology."

The workshop topics included:

- What are the exciting science goals that, over the next decade, will require a healthy Langseth facility?
- How can the process of soliciting, evaluating, funding, and scheduling work on the Langseth be improved?
- What modes of data access might help put Langseth products into more scientists' and educators' labs and schools?

The workshop recommendations and findings on the following areas are detailed in the slides:

- Funding
- Advanced Planning Cycle
- Proposal Process
- Training the Next Generation
- Data Processing
- Hybrid model of community-selected and PI-driven 3D and 2D programs
- Improving the Educational Footprint

The workshop facilitated the formation of several self-organized groups to submit community-driven 3D proposals with open data access for the upcoming August 15 deadline. These self-organized groups provide an opportunity to explore options for implementing open data access and strong training components in Langseth 3D programs.

Graham Kent, MLSOC Acting Chair, plans to step down in January 2011.

Scientific Committee for Oceanographic Aircraft Research (SCOAR) –Daniel Schwartz (SCOAR Chair) reported on the committee's June 2010 meeting and future activities. His slides are included as ***Appendix XXIX***.

Dan showed a video clip of a small unmanned aircraft system (UAS) that was used for marine mammal monitoring.

Information about the CIRPAS facility which makes up the National Oceanographic Aircraft Facility was provided (see slides). The SCOAR 2010 meeting was held in Marina, CA on June 22-23 at CIRPAS. During the meeting, a presentation was made on incorporating aircraft into ocean observing systems.

Dan's slides provide images and information on a variety of UAS systems. This included the Scan Eagle, Manta, Aerosonde, Quadrotor, and Flying Fish UAS. UAS are proving to be capable tools in multiple military and civil applications. Sensors are smaller, more capable. Regulatory issues are supplanting platform limitations as the primary operational challenge.

There is currently a membership opening on SCOAR.

Plans for a science UAS demonstration project are moving forward. There will be a proposal to conduct a UAS science demonstration (probably using a Scan Eagle) in the Indian Ocean.

Question:

- Deb Steinberg - How does a new PI get access to aircraft? Dan – This is one of the activities that SCOAR plans to address. Currently, PI can make requests thru CIRPAS.

General Membership Discussion:

Sandy Shor raised the question of how projects can use vessels or small ships in remote areas (like Guam). They have referred to the Research Vessel Safety Standards Chapter 18. But it is unclear what constitutes a "Charter" – bare-boat versus crewed. Perhaps there should be a revised form Appendix D for smaller boats.

Adjourn - A motion was made and passed to adjourn the 2010 UNOLS Annual Meeting (Rabalais/Findley). The meeting adjourned at 12:30 pm.