

Research Vessel Technical Enhancement Committee Meeting
Bermuda Institute of Ocean Sciences
November 16-18, 2010 (Tuesday-Thursday)
~ Focus Groups met on Monday, November, 15th ~
~ An UHDAS + ADCP Workshop was held on Friday, November, 19th ~

Meeting Minutes

Executive Summary: Bermuda Institute of Ocean Sciences hosted the 2010 RVTEC Meeting on 16-18 November. Rich Findley, RVTEC Chair, presided over the meeting. The meeting agenda was full. A few of the major discussion topics included the:

- Satellite Communications
- Data Collection Systems and Initiatives
- The Marine Technician Retention and Recruitment Pilot Program
- RVTEC Officer Appointments and Strategy for transitioning from the RVTEC Vice Chair position to the Chair-Elect position.
- BGM-3 Gravimeters in the UNOLS Fleet
- JMS Inspection Report

A full day session was held to discuss winch and wires. Rich Findley led an informative workshop on the Research Vessel Safety Standards Appendix A, UNOLS Rope and Cable Safe Working Load Standards.

The “Year in Review” session that was introduced at last year’s RVTEC meeting was continued in 2010. Each marine technician group was asked to provide a brief presentation recapping the highlights of their annual operations including the most challenging issue or biggest technical hurdle.

The agenda also included reports from agency representatives, committee reps, and subcommittee liaisons. The R/V *Atlantic Explorer* was available for tours. An informative Show and Tell session was provided at the end of the meeting.

Elections were held for a new RVTEC Chair. David Fisichella from Woods Hole Oceanographic Institution was elected.

Meeting Presentations:

Monday, November 15th - Pre-meeting Focus Group Sessions:

- [Satellite Communications - HiSeasNet Presentation for Focus Group Session](#) (~1.3 MB) - Steve Foley
- [Gulf of Mexico - Oil Spill Response Effort](#) - Aubri Steele
- [Update on the State of Multibeam Systems](#) (~5.5 MB) – Dale Chayes
- Rolling Deck to Repository (R2R) Initiative – R2R Group:
 - [R2R Directory Structure](#) (Bob Arko)
 - [SAMOS Real-Time Data](#) (2.3 MB) (Shawn Smith)

- [R2R Event Long](#) (3.9 MB) (Andy Maffei)
- [BGM-3 Gravimeters - Gravimeter Best Practices](#) - James Kinsey and Dan Fornari

Tuesday, November 16th - RVTEC 2010: Day 1

I	RVTEC Agenda
II	Meeting Participant List
III	BIOS Introduction Slides
IV	NSF Report
V	USCG Report
VI	RVTEC Office Transitions and Membership Voting Procedures
VII	BGM-3 Gravimeters in the UNOLS Fleet
VIII	Marine Technician Retention and Recruitment Pilot Program
IX	10-ft Diving Van for Use on UNOLS Ships
X	UHDAS and ADCP Update
XI	R2R Initiative Update (~4.8 MB)
XII	OSU Data Acquisition System Installation Update
XIII	HiSeasNet Recap of Focus Group
XIV	Fleet Broadband
XV	Gulf of Mexico Oil Spill Response Effort
XVI	Update on the State of Multibeam Systems
XVII	CTD Data Processing, Limitations of Seabird Software
XVIII	UNOLS Technical Services - Best Practices and Pre-Cruise Planning

Wednesday, November 17th - RVTEC 2010: Day 2

XIX	SWAB Program
XX	JMS Inspection Report (~4.6 MB)
XXIa	Winch and Wire Session - Appendix A - UNOLS Rope and Cable Safe Working Load Standards (~8MB)
XXIb	MTNW LCI-90i Display - Calibration Procedure

Thursday, November 18th - RVTEC 2010: Day 3

XXII	Kilo Moana's New Motion Compensated Crane/Winch
XXIII	Appendix B - UNOLS Load Handling System (2MB)
XXIV	UNOLS Van Pool
XXV	Year in Review
XXVI	MATE Update and Long Term Internship Program
XXVII	Fleet Improvement Committee Update
XXVIII	Alaska Region Research Vessel - R/V Sikuliaq
XXIX	UNOLS Report
XXX	RVTEC Web Page - New Resources

XXXI	RVTEC Education Subcommittee
XXXII	RVTEC Meeting Host Institutions
XXXIII	SWAP Update
XXXIV	My IEEE/MTS Oceans 2010 Seattle
XXXV	Vessel Tracker
XXXVI	"Sugru: Hack things better"
XXXVII	Latest Release of NOAA's Scientific Computer System (SCS)

Monday, November 15th - Pre-meeting Focus Group Sessions were held.

Satellite Communications – Steve Foley lead the focus session and provided a presentation on HiSeasNet. His slides are available at: http://www.unols.org/meetings/2010/201011rvt/HiSeasNet_FocusGroup2010.pdf

Discussion:

- Dan Fornari – As a science ship user, there is a lot of variability of the networks from ship to ship. It is a big frustration. He likes the HiSeasNet – very useful. It seems like it would be good to get fleet guidelines on HiSeasNet bandwidth availability.
- Woody Sutherland – The availability really depends on how many ships are using the system and the types of operation.
- Steve Foley – there are some operations that are very demanding on the bandwidth
- Dan Fornari – There should be prioritization of uses. There are some uses that absolutely require the bandwidth- captain, etc. Then the science can manage their use accordingly.
- Bill Byam – It can be a hard thing to sort out.
- Richard Perry – Institutions should do this as part of their cruise planning. It should be treated like any other ship resource.
- Andy Maffei – there are two ways to do this. You can run the cruise in restrictive mode (limited to science) and non-restrictive/full mode.
- Steve Foley – Going between modes is not automated. When you hit the limit, you hit the limit. There is only a limited amount of bandwidth for the couple hundred people.
- Woody Sutherland - When we talk about resources, we will need another person to keep this running. We cannot expect the electronics technician to also take care of Internet traffic.
- Jim Holik – How much funding would help this problem? This is one of the most often cited problems in the post cruise assessments.
- Dan Fornari – There should be an across the board UNOLS policy.
- Steve Foley – There needs to be a culture change and more education. He thinks that it would help if there were some sort of meter to show how many ships are on-line and the bandwidth in use.
- Jules Hummon – She thinks that the chief scientist should be responsible for their students. Also, it is frustrating when another ship is streaming the football game.
- Jon Meyer – The http traffic is the biggest consumer. One way to regulate the structure is by implementing concurrent http connections limitations. This can be done by proxy. All of the pieces are there to do this now. This is done on the SIO ships.
- Richard Perry – Can more bandwidth be bought as needed per demand? Steve Foley – They try to do this.

- Bill Fanning – Is there a way for the techs to identify the IP address that is the high user? Steve Foley –It is available, but you have to dig for it. The problem is it is another task to for the Technician. There are some systems that are free and some that can be bought. You can contact Steve for more information.
- Richard Perry – There is a new version of Safari that has a reader mode that drops all of the images.
- Jon Meyer – Educate people on how to be a good neighbor and on use.
- Dan – He proposes that there be a rational assessment of the situation and then a proposal with a reasonable approach. It would go a long way to fixing this.
- Woody – There are times when there are antennae issues. Sometimes a ship only can see the satellite for very limited connect. This is a whole different issue.
- Woody – Their satellite equipment is starting to have failures and break. Many of the antennas are old and need replacement.
- Jim Holik – What does it cost to replace antennae? Rich Findley - ~\$175 - \$200k.
- Jim Holik – There is a lot of good discussion during this session. He proposes that we form a group to address these issues. It is an important issue and we need to determine which direction we want to go as a fleet.

Gulf of Mexico - Oil Spill Response Effort – Aubri Steele (U. Maimi) provided a summary of the Gulf of Mexico Oil Spill response effort. Her presentation is available at: [/www.unols.org/meetings/2010/201011rvt/GulfOilSpillResponse.pdf](http://www.unols.org/meetings/2010/201011rvt/GulfOilSpillResponse.pdf)

Discussion:

- Aubri Steele – BP provided a lot of funds for oil spill response efforts
- Rich Finley - Some of the funds are going to private vessels some to NOAA.
- Steve Hartz – In the Valdez oil spill there wasn't much money for response efforts for UNOLS. A pool of technicians, sensors at the ready would be a good idea. What can we do about having equipment ready for event responses? Should there be an equipment pool?
- David Fisichella – Perhaps there should be a UNOLS proposal to BP for environmental monitoring. There is not enough in-house support to potentially respond to this kind of need.
- Shawn Smith – FSU is funding a new vessel (~65-feet). They would like to partner with UNOLS for equipment and future readiness. There is a lot of oil out there and there is a lot of research to be done.
- Phil McGillivray – All of the gear from the *Polar Sea* went to NOAA for Gulf response efforts. The performance of sensors in oil wasn't properly addressed initially.

Break

Update on the State of Multibeam Systems – Dale Chayes lead a focus session on multibeam Systems. His presentation is available at: <http://www.unols.org/meetings/2010/201011rvt/chayes2010-11-17rvtec-mb-focusgroup.pdf>

The systems are big and complicated. Dale reviewed the systems that are currently in the fleet. The concept of a centralized UNOLS multibeam support pool (much like Jules Hummon and ADCP) was discussed. Dale highlighted some of the multibeam issues that need to be addressed:

- Best practices
- Spare parts
- Noise

- Education
- Installation

Dale reviewed the *Healy* multibeam installation and provided images (see slides).

Discussion:

- It is important to monitor noise signals over time.
- Hull noise transducer should be a placeholder in any multibeam installation. This should be a standard item.
- If we had more data on what hull noise exists, we will know more on how to avoid noise in new vessel construction.
- There is also EMI issues for cable runs
- Dale demonstrated a simlie timeline showing Healy multibeam events:
http://www.ldeo.columbia.edu/~dale/projects/multibeam-support/healy_timeline_local/local_example.html. The simlie widget tool set <http://www.simile-widgets.org/timeline/>. The tool allows you to make interactive timelines.
- Jim Postal commented on the *Thompson* multibeam upgrade. There are bubble plumes with water column tracking.
- Other issues associated with multibeam systems in the fleet are spare parts and backup problems
- Technical knowledge and expertise of the multibeam systems is limited.
- Tim Gates – Bubbles create a lot of noise. Ships don't get quieter over time. They have to be monitored. You need to have a quiet ship at the frequency that you operate the multibeam system at.
- There was a lot of discussion about the need for a pool and maintenance agreements.
- Dan Fornari – Where do we go from here? Dale - Larry Mayer and Dale have been trying to reach an agreement on how to establish a multibeam support system and what areas to focus on.
- Ship noise is an issue across the fleet. If you collect the data and you should use the data.
- Dan Fornari – If multibeam vendors were approached by UNOLS as a group, it would be helpful. Force in numbers.
- Jim Holik – A small meeting of multibeam users/operators was held and the consensus of the meeting was to set up a committee. There was funding attached. NSF and Navy will entertain proposals for this.

Lunch

Afternoon Session:

Rolling Deck to Repository (R2R) Initiative – Three presentations on R2R were made:

- R2R Directory Structure - Bob Arko presented and his slides are included as: http://www.unols.org/meetings/2010/201011rvt/R2R_BreakoutDirectory.pdf
- SAMOS/Rea-time Data - Shawn Smith presented and his slides are included as http://www.unols.org/meetings/2010/201011rvt/SAMOS_breakout.pdf
- R2R Event Log - Andy Maffei and Laura Stolp presented. Their slides are included as http://www.unols.org/meetings/2010/201011rvt/evLog_Update_AMaffei_101115.pdf. The elog is available at: <http://elog.rvdata.us:8086/RVTEC>

BGM-3 Gravimeters – James Kinsey provided a presentation on Gravimeter Best Practices. His slides are available at: http://www.unols.org/meetings/2010/201011rvt/Gravimeter_Kinsey.pdf.

End Focus Group Sessions

RVTEC Meeting: Day 1 - Tuesday, November 16th

Meeting Called to Order - Rich Findley, RVTEC Chair, called the 2010 RVTEC Annual Meeting to order and provided introductory remarks. There are 81 participants at the meeting and individuals introduced themselves. The meeting agenda is included as ***Appendix I*** (<http://www.unols.org/meetings/2010/201011rvt/201011rvtag.html>).

Gerry Plumley, Deputy Director of BIOS provided welcoming remarks. He provided a brief history of BIOS and their research vessels. His slides are included as ***Appendix III*** (<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap03.pdf>)

[Accept Minutes of the 2009 RVTEC Meeting](#) – The minutes will be reviewed and accepted later in the meeting.

RVTEC Participant Introduction – Participants introduced themselves. The attendance list is included as ***Appendix II*** (<http://www.unols.org/meetings/2010/201011rvt/201011rvtap02.html>).

Agency Reports:

National Science Foundation (NSF) – Jim Holik provided the report for NSF. His slides are included as ***Appendix IV*** (<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap04.pdf>).

Jim discussed the FY 2011 Budget.

- The NSF Appropriation for FY 2011 has not been passed. NSF is currently operating under a Continuing Resolution, which runs through December 2, 2010. They are not sure what the outcome will be.
- In NSF's request for 2011, they've asked for an increase in OCE of 8.3%
- Pressures from the deficit will likely make for a very austere 2012. Jim cited the *The New York Times*, November 3, 2010 article that takes a look at what the budget levels would be if the agencies were cut to the 2008 amounts. NSF would lose more than \$1 billion, or almost 19 percent, of its budget.
- OCE Highlights for the Integrative Programs Section include the construction of the R/V *Sikuliaq* and the Upgraded *Alvin*.
- David Conover is the new head of Ocean Science Section (Oct, 2010)
- The primary issues impacting OCE/NSF are:
 - Infrastructure vs. Science funding – In FY2010, infrastructure is 44% of science. It is going up, but they recognize that it is needed.
 - Fleet renewal (there will be 6 fewer ships in twenty years).
 - Cross-cutting programs
 - Response to OPM Survey
- Regional Class Research Vessels (RCRV) – NSF is investigating funding options with the initial hull construction starting in FY15. There could be three hulls total. They plan to

move forward with an “ARRV-like” process (the solicitation drafted). The optimal schedule would release the solicitation in early 2011 and begin construction in Mid-2016 with science operations in Mid-2018.

- The 2011 Fleet utilization was presented. Use is very low. There are about 1500 days less in 2011 than 2010.

Discussion:

- Dale Chayes – Inquired about the bulbous bow in the RCRV sketch. Marc Willis – He will explain this later.
- Dave Fisichella – With the cuts in the budget, what is the priority of the RCRV construction? Jim – he is not sure.
- There was a lot of discussion on the decline in ship time.
- Dan Fornari felt that the agencies need to put more money to basic science.
- Annette DeSilva mentioned the UNOLS is conducting a survey on the ship time demand decline. They will try to identify the causes. There is an aging sea-going community and many are discouraged over proposal award rates. One way UNOLS is trying to encourage ship use is be engaging early career scientist. A workshop is planned for new investigators on how to be a Chief Scientist.
- Dave Fisichella – PIs are getting more creative on combining work on ships. However, these multidisciplinary cruises are more demanding for tech support.

Next Jim discussed 2011 Proposals and deadlines:

Oceanographic Technical Services:	Dec 1st
Oceanographic Instrumentation:	Dec 15 th
Shipboard Scientific Support Equipment:	Dec 15th

Remember:

- 1.Data Management Plan (Required after Jan 18. Fast lane will reject without)
- 2.References
- 3.Facilities

Jim said that he feels that tech support needs to increase. He doesn't hesitate to ask for an extra tech bunk on cruises.

Office of Naval Research (ONR) – Tim Schnoor provided the report for ONR.

- The Navy has six ships in the UNOLS fleet and provides about 16-17% of the funding.
- Revelle consumed most of Tim's budget this year.
- Maintenance and repair of Navy owned ships must come out of the Navy budget.
- Tim complemented RVTEC on a great group and forum
- The Global ships had over 300 operating days each in 2010.
- *Knorr* had system failures and is coming back to port. This will be a cost to Navy.
- 2011 ship time will decrease with about 250-280 days on each the Global class vessels

Ocean Class Ships – WHOI and SIO are thinking of names for their vessels. The ships are in the preliminary design process and there are two teams competing on the design and construction. The design will be a monohull. Glostent teamed with Marinette Marine (Wisconsin). Guida Perle teamed with Dakota Creek (Washington). In a couple of months they will complete the

preliminary designs. Then there will be one award for construction in summer 2011. At the end of 2014, the first ship will go to WHOI and the second ship will go to SIO in the first part of 2015. There will be full schedules in 2016. The construction budget for the ships is about \$76M each. Mission Equipment is an additional budget that they have. They will also determine what can be cross-decked.

FLIP:

- 48 years old and Navy owned
- Just coming out of dry dock and is an available platform
- The platform is under utilized with about 20-60 days/year
- Operating areas are Southern California or not far
- It Needs to be towed to sample area
- It is a good platform for air-sea interaction experiments

Discussion:

- Tim McGovern – question for Tim and Jim. Has there been any discussion about laying up a ship earlier from WHOI and SIO. Tim –yes. They are looking at *Oceanus*. They are also looking at what can be done with the long core system that is on *Knorr* in terms of transferring it to another vessel. From Navy’s perspective, they won’t be responsible for more than 6 ships at any one time.

United States Coast Guard (USCG) – Dave Forcucci provided the USCG report. This slides are included as *Appendix V* (<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap05.pdf>). Dave’s slides cover the following topics and include ship photos while in the shipyard.

- *Healy* Update –
 - The multibeam upgrade installation was a highlight.
 - The ship’s Arctic deployment is about 100 days/year
 - Healy Dry Dock included:
 - Multibeam installation
 - Shaft electrolysis
 - New ADCP was installed.
- *Polar Sea* and *Polar Star*
 - These ships were built in the 1970s
 - NSF contracted with Swedish vessel, Oden, for Antarctic operations in 2010.
 - Polar Sea supported one science cruise in Bering Sea
 - Polar Sea’s liners on its pistons need replacing. The January cruise that the ship was scheduled to support will not happen due to piston work
 - Polar Star is in care taker status
 - Re-activation money is needed to add 7-10 years of life on the Polar Star
 - The funding for the operation of the USCG ice breakers is currently in the NSF budget, but might be put back into the USCG budget.

National Oceanic and Atmospheric Administration (NOAA) – Mike Webb provided the NOAA report.

- NOAA has the same budget problem as NSF and is also on a continuing resolution.
- NOAA will not sail as many ships next year as a result of the budget constraints.
- They will not know their budgets until March 2011.
- They also have a ship being built at Marinette Marine (same yard as *Sikuliaq*).

- NOAA brought on two new ships on line; the fisheries vessels *Shimada* and *Pisces*
- The *Shimada* is going through post availability trials to work out issues.
- The *Jordan* was taken off line over a year ago. NOAA is not sure what they are going to do with it. They will be towing it down to Newport, OR for storage
- R/V *Cobb* was decommissioned a year ago and was given to a local maritime group.
- NOAA terminated the contract on *Hassler* with Halter Marine.
- Gulf Oil spill used many NOAA vessels. They are currently backing off on support in that area.
- NOAA Funding/Budgets
 - Budgets are going to be tight
 - There are rumors of 2008 budget limits
 - There are a number of projects that will not happen
 - *Miller Freeman* will most likely be laid up
 - NOAA has a deficient contract with Halter Marine
- *Okeanus Explorer* is in Dry dock
- NOAA is moving PMEL from Seattle to Newport, OR and they are going through their storage areas. There is a list of NOAA supplies that could be made available for community use including a 150 BB ADCP.

RVTEC Officer Appointments – Annette DeSilva opened a discussion on:

- Strategy for Transitioning from the RVTEC Vice Chair position to the Chair-Elect position.
- Officer Nominations
- Membership voting procedures (via internet)

Annette's slides are included as *Appendix VI* <http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap06.pdf>. Every three years the UNOLS Charter must be reviewed and re-adopted. As part of the current review, an effort has been made to make each of the annexes (committee terms of reference) more consistent. For this reason, it is suggested that the RVTEC vice-chair position be transitioned to a chair elect position.

The RVTEC terms of reference, Annex V to the UNOLS Charter, were revised and circulated to the Tech Manager group for endorsement in the summer. At that time it was pointed out that not all UNOLS institutions were represented by the Technical Managers group. Annette then made an effort to contact the institutions that were not represented. As a result of this effort, it became clear that a procedure for conducting Internet voting would be needed.

The UNOLS Membership endorsed the revised Annex V in October. The revision changes the vice-chair to the chair-elect position but it does not suggest how this transfer should take place. Election for the RVTEC Chair and Chair-elect must occur in the same year.

One proposed strategy for transition is:

- At the 2010 RVTEC Meeting, hold elections for the RVTEC Chair.
- The term length would be 3 years.
- At the 2010 RVTEC Meeting, hold elections for the RVTEC Chair- Elect.
- The term length would be 3 years.
- At the end of the 3-year term as the Chair-Elect, the Chair-Elect would become RVTEC

Chair for a 3-year term.

Discussion:

- Bill Fanning – Do the officer terms have to be 2 or 3 years?
- Joe Malbrough - The RVOC is on 3-year cycle
- Dale Chayes – all RVTEC UNOLS institutions members must vote on this topic.
- Annett DeSilva – There has been an effort to make the Charter consistent, but other options can be considered.
- There was some concern over the 3-year terms, but it was pointed out that the Vice Chair hasn't been heavily tasked over the years.
- Marc Willis is willing to serve as the Nominating committee

Membership voting procedures (via internet) were discussed next:

- Dale Chayes – The procedures were flawed this year
- A new RVTEC e-mail list called RVTEC_vote was proposed and each institution could put a representative on the voting list.
- Dale Chayes – He did not like the process for voting on the Annex adoption. There was a lack of coordination. He suggested that issues should be aired openly before going to vote.
- Annette DeSilva – An item for vote could go to the entire RVTEC list for discussion. Then once the discussion is closed, the vote would come from the rvtec_vote list with one rep per institution.
- There could be an on-line discussion for vote items and perhaps use an RVTEC wiki.
- Annette DeSilva will work on drafting a voting procedure and circulate it for group discussion.

Break

BGM-3 Gravimeters in the UNOLS Fleet – James Kinsey and Dan Fornari provided a presentation on BGM Gravimeters. Their slides are included as *Appendix VII* <http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap07.pdf>.

They reviewed the importance of gravimeters, past history of the inventory, the existing infrastructure, pooled equipment and services, the present status, and future work.

In June 2009, the Potential Fields Pool Equipment facility was formed. An NSF award (NSF-OCE-0943618) for \$239k was awarded in Summer 2009 to provide equipment for the Potential Fields Pool Equipment (PFPE). The PFPE provides the UNOLS community with:

- A supply of spares for maintaining the at-sea BGM-3s
- Technical Support including on-shore support for the at-sea gravimeters and helping establish best practices.
- Two pool gravimeters for use of ships of opportunity or as complete emergency spares for the at-sea systems.

The PFPE included a SeaSPY towed marine magnetometer, pool gravimeters, land gravimeters, and spares.

Dan Fornari encouraged RVTEC members to contact him or James if they have a land gravimeter (or know someone who does) so it can be refurbished.

Dan encouraged individuals to provide as much lead-time as possible for gravimeter requests. The PFPE provides 24/7 on-shore technical support from Kinsey and Herr and they are helping to establish best practices.

For additional details, refer to the slide package.

Report from the UNOLS Technical Support Manager – Alice Doyle provided an update on the Marine Technician Retention and Recruitment Pilot Program. Her slides are included as *Appendix VIII* <http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap08.pdf>.

The recommendations from Austin workshop in Feb 2009 were:

- Internship Programs for Technicians and licensed crew positions
- Training Scholarship to provide opportunities for advanced technical skills and license upgrades.
- Crew and Technician Relief Pool Process that will better utilize existing personnel and to better identify qualified and available temporary personnel.
- Available Berths Policy and Procedures to more effectively provide opportunities for training, experience and research or educational opportunities, including outreach to potential employees.
- Addition of a UNOLS Personnel Coordinator that will oversee, coordinate and facilitate these related issues on a fleet wide basis making them more effective and providing relief to smaller ship operations staff.

Alice's effort over this past year have included:

- Collecting Information
- Finding Technicians for transfers to other institutions in need of technical support.
- UNOLS/MATE 6 month Internship
- Training & Education
- Technician Pool
- Technician Augmentation
- Recruitment/Outreach

Alice has had further contact with Tech Managers to learn about their programs. She has visited WHOI, LDEO, URI, UDEL, OSU, and SIO and has had conversations with scientists, and with private companies who supply technicians.

She has investigated other shipboard technical support models including those from National Oceanographic Center – Southampton, UK, WHOI Jason Program, NOAA, IODP, USAP, and SEA.

Alice worked to establish a UNOLS/ USAP exchange for an easy means of exchanging technicians between the fleets.

Alice worked with the MATE program to set up a six-month internship to run from January – June 2011. WHOI and Duke with hose the interns. The intern opportunity was advertised through all the UNOLS email lists, MATE infrastructure, COL, web. Emphasis was placed on candidates who already completed or almost completed studies, had previous sea-time, and

candidates interested in a career as a marine technician. A subcommittee of RVTEC members helped to develop the Internship Guidelines and is assisting in narrowing down the applicant pool. Interns will spend about 80-90 Days at Sea and 80-90 Days ashore. Thirty complete applications were received and the candidates are well qualified. In the future years additional host institutions will be needed.

Alice is investigating MT training/education needs. Dale explained the difference between training and education. We train people to do predefined tasks. We educate people on how to think about things and react to do them. Much of what we do is education based as opposed to training.

Alice 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

There were 54 responses to the survey. Most indicated that more training would be useful. Some courses that have been taken over the years that specifically stood out include: Seabird, HiSeasNet, multibeam (Kongsberg and UNH), Rigging, and Winches & Wires.

Courses interested in taking included many of the same courses as listed above as well as: network administration, ADCP, software programming, and electronics.

Some next steps include:

- Create a list of good courses and providers as a resource for the fleet.
- Investigate further community training sessions
- Investigate different models for funding training
- Investigating finding ship days (transit or other) to conduct full-scale MT training onboard a UNOLS R/V

Discussion:

- Dave Forcucci – Technicians are service provider. Have they been provided with management courses?
- Rich Findley – Team building and management training is useful.
- Richard Perry – There was an RVTEC meeting (St Pete) that brought in a team builder/management session.
- Marc Willis – In the early days of this group there was a volunteer training person. We have lost that, we now have the workshop focus groups, but these have become presentations instead of education. This meeting is a great forum for this. Provide training and education opportunities at RVTEC.
- Rich Findley – This meeting is now five days. Marc Willis – You can run things in parallel.
- Alice Doyle – 95% of people said that they don't do training because they don't have time. They could do on-line training.
- Shawn Smith – It is useful to have a ship available for training purposes.
- Marc Willis – There is also DVD training.
- Alice – Is it worthwhile to buy these through UNOLS?
- Ted Colburn – With the ship time going down, use laid-up ships for training opportunities.

Next Alice discussed the concept of a Technician Pool. NSF is investigating means of hosting the Technician Pool. The pool would augment the current support on particular cruises. The tech pool would consist of sea going only technicians either contract employees or independent contractors. They are investigating the skill sets required per ship and the various pay structures within the fleet.

The Technician Pool concept is to have it hosted by a single institution that would employ all tech pool technicians. The UNOLS office sent out a call for Letters of Interest earlier this year for host institutions. NSF is developing a Letter of Guidance to potential bidders. NSF plans to fund a pilot program to implement the concept.

NSF would like to increase the technical presence about UNOLS vessels. Technical managers are encouraged to look through your schedules to determine where you could use additional technical support. This extra support would not be included in the tech day rates, it would be supported with carry-forward funding in the proposal.

Discussion:

- Richard Perry – What are the criteria for selecting the salaries of the tech pool? Will the bidders see these salaries? Alice – yes.
- Richard – he is wondering how the tech pool inst will be selected. Jim Holik – The inst will be given the salary range from the data collected.
- Dale Chayes – Whom would the Tech Pool proposals be sent to? Alice – NSF. Jim Holik – There have been 3 inst maybe 4 institutions that are interested.
- Dale Chayes – He is worried about Alice’s term of “MT.” This can be confused with mechanical tech, but it should be the marine tech.
- Jim Holik – The onus is on the host inst to define what the tech definitions should be.
- Richard – Will there be an education component. Alice – yes.
- Anthony Johnson – Will the host inst have a way to ensure that the techs in the pool are qualified? Alice – The host inst will need to deal with this.
- Anthony Johnson – There are several areas of expertise. Are there minimum qualifications that are needed? Alice – These are good questions.
- Tim McGovern – Resumes don’t tell you everything. CVs are in different formats. A standard format might help.
- Phil McGillivray – What is the time frame of establishing the Tech pool (in light of the decline in ship demand). Jim Holik – This is a good point. The techs from the UNOLS vessels might populate the Tech Pool from ships with weak or laid up schedules.
- Phil – Is the tech pool being set up to help the laid up techs. Alice – We would utilize the laid off Techs first.
- Tami – Is the intent that Alice be the point of contact? Alice – yes.
- Tim McGovern – Are there any insurance issues for an employee that does not work for the host institution. Alice – The techs would be employed and insured by the employer institution. This is the sort of thing that we have been doing. Dale – It also depends on where the person works.
- Dave Forcucci – Salaries have been compared between institutions. Have you compared salaries to industry? Alice – A little bit, every industry is different.
- Richard Perry – When we talk about industry, there are different techs for each task. On research vessels, some techs do everything.

- Annette DeSilva – What will be the selection process for the host institution? Will it be peer reviewed? Jim – Yes, there will be a panel of some sort.

Alice reviewed her Recruitment/Outreach activities. She developed a UNOLS flier focused on Vessel Support jobs. Hopefully this will help the community understand what UNOLS is.

10' Diving van for use on UNOLS ships – Matt Durham provided a presentation on the 10-foot diving van. His slides are included as Appendix IX <<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap09.pdf>>. The van is available for UNOLS use. The dive van is not funded through the UNOLS vanpool and will be kept at SIO.

Discussion:

- Tim McGovern – Will a tech be provided with the van? SIO – not planned for.
- Dave Nelson - If you were already carrying tanks, would you consider supplying oxygen? Woody – yes.
- Steve Hartz – UAF has put an oxygen reclaimer station on the *Sikuliaq* to make oxygen.
- Steve Hartz – What about a portable decompression chamber? SIO – They are not providing this.
- Tim McGovern – Some programs have requirements for the decompression chamber. Steve Hartz – Or they need to be in helicopter range.
- Is there a day rate for this? Matt – Not yet, contact SIO for details.
- The deck connection is a 2-foot pattern.
- Have you shipped it yet? Matt – They have not transported the van outside of the SIO area.
- Chris – They have a Nitrogen generator van that they have shipped and it has had a lot of damage. Matt – they haven't had any trouble yet, but that is something that they will be aware of.

Lunch

Data Collection Systems and Initiatives:

UHDAS and ADCP update – Julia Hummon provided the update. Her slides are included as *Appendix X* <<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap10.pdf>>. Jules asked everyone to send her a note when their Ashtech is re-set.

Discussion:

- Bill Fanning – Does anyone have problems with ADU5? Reply - Yes
- Jon Meyer – Can UHDAS evaluate Ashtech? Jules – No, there will not be anything in UHDAS to detect this.
- Richard Perry – Can Ashtech send the configuration file. Reply – Don't think so.
- Dale Chayes – The failure mode on the *Healy* is it stops putting out altitude data.
- Jon Meyer – Going from a green indicator to a yellow indicator would be very useful.
- Dale Chayes – Adding that to the data monitor isn't hard, but adding an application can be tricky.

Rolling Deck to Repository (R2R) Initiative Update – Bob Arko provided the R2R update. His slides are included as *Appendix XI* <<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap11.pdf>>.

Bob ended by reviewing the program objectives, the status, current activities and 2011 goals. In 2011 R2R plans to revise and extend vessel profiles to include device components, file formats, data types, installation date, and vessel reference frame. Bob's slides include details about the R2R highlights, activities, and plans.

Discussion:

- Dan Fornari – What are the plans to pull in the National Deep Submergence Facility (NDSF) vehicle data? Bob Arko – It is worthwhile to consider.
- Dave Forcucci – Is there a standard for generating cruise tracks. Bob – They put forward a minimal amount of points to get a cruise track. The maximum resolution is one second.
- Bob Arko – It has been very rewarding to work with each ship operation.
- Jim Holik – This has been a remarkable project and there is a lot of good feedback.

OSU Data Acquisition System Installation Update – Daryl Swenson, Toby Martin, and David O’Gorman provided the update report. Their presentation is available as *Appendix XII* <<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap12.pdf>>.

Dave O’Gorman began the presentation and covered the Sensor Meta Entry. Toby Martin discussed Data Flow Design Concepts. Examples can be found at the URL that Toby provided by email.

Preprocessing was discussed and there is a filter for elements of interest. You can inject additional metadata, such as, cruise, ship, source/sink, etc. The output is as CSV. Examples can be found at: <http://www.shipops.oregonstate.edu/martech/project/suds_2.0/presentation/rvtec2010/example/>

On-Shore distributions of near real-time preprocessed (CSV) files go to R2R, VOS weather to NOAA, and public visualization graphics (projected). The end-of-cruise data set goes to the Science Team and to R2R. They transmit data to shore by the least expensive means.

Discussion:

- Dave Forcucci – What do you use for software? Toby – Perl.
- Dave Forcucci – How much would this system cost? Daryl Swenson – They would be willing to share this with anyone.
- Phil McGillivary – What was the incentive for developing the system? Daryl – They were running an old system and it was time to go with a new system. They would be happy to implement it with anyone who is interested.
- Dave – If you want to add anything to the system, it is very easy. Daryl - If scientists come aboard with a new system, they can just plug into one of the boards and the raw data will be saved and time synced.
- Richard Perry – They went through a similar process for a SWAP system. How far are they from having a full parts list and schematics? Toby – They would probably only need a day or two for Dave to have this together.
- Jim Holik – If anyone is interested in the OSU system, let him know.

Break

Accept Minutes – A motion was made and passed to accept the minutes of the 2009 RVTEC Annual Meeting as edited by Dale Chayes. (Swenson/Perry)

Communications:

HiSeasNet recap of Focus Group – Steve Foley provided the HiSeasNet report. His slides are included as *Appendix XIII* <<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap13.pdf>>.

Discussion:

- Steve reported that HiSeasNet received their FCC license.
- Rich Findley – Is a site license per ship needed? Steve – no, but he is working to get a license for all of the ships.
- Steve - Training is very useful and he will provide if desired.
- Richard Perry – How long does it take to get expanded bandwidth for a cruise? Steve - For CB and it takes about a month. There are costs for the higher bandwidth periods. This will be posted on the wiki page. Requests for higher bandwidth should be submitted as early as possible.

Fleet Broadband – Jim Holik provided the Fleet Broadband (FBB) update. His slides are included as *Appendix XIV* <http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap14.pdf>. The program was established 1 January 2010 and covers 3 years for 20 users (ships). The use of Fleet Broadband reduced the rate reduced from \$11.34/MB to \$1.52/MB. The total pool size is established at just over 40 GB per month. Any unused balance will carry-forward month to month for 1 year period. If the user pool exceeds the allowance, the use rate increases to \$2.28/MB. An FTP site, <ftp.who.edu>, was established to allow users to monitor usage. Member institutions are provided with individual user and password login information

Jim’s message to RVTEC members is that if you need FBB, use it. Jim will deal with the charges. He doesn’t want to hear from the Science party that they were scared to use FBB. They are using about a ½ of what they have.

Mike Gagne continued the presentation. FBB was designed as a backup for HiSeasNet. He thinks it should be used in tandem when more bandwidth is needed. If you have a later version “B,” let Mike know what you have so WHOI can procure spare parts.

Mike encouraged FBB users to save the URL <http://192.168.0.1/index.lua?pageID=Maintenance> in their favorites. The site provides maintenance details. You must have the java update to see the boxes. Shows a bar graph of how the system is operating. Then you can tell if the FBB is working. Temperature should be watched. The “A” systems don’t have fans. “B” units have the fan.

Discussion:

- Dave Nelson – Are the MB number on the first slide for voice and data? Jim – Data only.
- Jon Meyer – Do you have any experience with FBB in heavy seas. Mike – They haven’t seen any weather problems with the system.
- Dave – Is the maintenance URL linked? Mike – No, you need to bookmark it.
- Rich Findley – He is heading a group that will look at optimal communication strategies for the future.

- Mike – Use both – HSS and FBB
- Dave O’Gorman – Why doesn’t FBB kill open sessions? Mike – They are working on this.
- Toby Martin – Is the pool for all of the ships? So if one ship isn’t using FBB, there is more for everyone else? Mike – Yes.
- Ben Jokinen - Has there been anything done on having to reset the sessions? Mike Gagne - Yes. There is a firmware update that is not out to the public. WHOI has the firmware. Mike has the firmware upgrade. Contact Mike for firmware
- Anthony Johnson – Is there any experience using this in the polar regions? Mike – Yes.
- Jim Holik – R/V *Gould* is using FBB and things are working well. There is a gap at high latitudes.
- Mike – If you are going from one Satellite to another there is no gap except for when you are operating in Polar regions.
- Anthony – Has anyone integrated FBB with VoIP PBX? Mike – They are just starting to do this.
- Mike – you can get extra handsets. Meyer – They just did that but need POE (power over the Ethernet). Toby – you just need an injector.

Break

Re-Cap of Monday Focus Group Sessions:

Gulf of Mexico Oil Spill Response Effort – Aubri Steele provided a summary of her presentation from Monday. Her slides are available as ***Appendix XV*** <<http://www.unols.org/meetings/2010/201011rvt/GulfOilSpillResponse.pdf>>.

Discussion:

- The UNOLS operations in the Gulf were supported by rapid response money.
- Aubri Steele – We need to encourage our science community to use this money that is available from BP
- Wet Labs has an 8 weeks turn around time
- Dave Forcucci – USCG sent two CTD systems to the Gulf from *Healy*
- Jim Holik – The proposal reviews for the rapid response funding was quick.
- There were some operational problems. The heat exchanger on *Walton Smith* failed.
- Dave Nelson – On *Endeavor*, they used fresh water from their ballast tanks for air conditioning intakes, laundry etc.

Update on the State of Multibeam Systems – Dale Chayes provided the summary. His slides are included as ***Appendix XVI*** <<http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap16.pdf>>. Dale provided a list of multibeam systems in the UNOLS Fleet, *Ron Brown*, and *Healy*. They would like to establish a multibeam support program. multibeam education is being offered. Dale offered to take a few people on a cruise (June 12, 2011) that is planned for multibeam evaluation.

Discussion:

- What is the cost of the UNOLS multibeam inventory? Dale - \$45 million includes the ships in presentation list.
- Dave Forcucci - Is there standard procedure for sea acceptance tests? Dale Chayes - Most vendors have them. Most people modify them for proper acceptance.

- Dave Forcucci - Does UNOLS have an accepted protocol? Dale Chayes - No but sounds like a good idea.
- Richard Perry - Was *Healy* the first funded acceptance test? Chayes – No.
- Dan – Where is the data from acceptance tests of the current systems. Dale – It should be in R2R. Woody – Not all of it is there. There are issues with foreign EEZs and some data cannot be released.
- Dan – What would be extremely useful, is the up-to-date performance levels of the existing multibeam systems. Dale – This would need to be a funded effort.
- Jim – If it is not going to happen unless the committee is going to be funded. It can be funded
- Dale is working with Larry Mayer and will provide a proposal/plan forward when they are comfortable with it.

CTD data processing, limitations of Seabird software – Courtney Schatzman and Alex Quintero provided the presentation. Their long-term goal is to work with SeaBird to get plug and play. They would like to work with SBE on updating

- Rich Perry used the term “well taken care of sensor” and using the recommend care procedure
- Andrew Woogen – Asked about SBE info regarding drift in sensors. Temp over time? Courtney – yes.

UNOLS Technical Services – Alice Doyle provided a presentation on Best Practices and on Pre-Cruise Planning. Her slides are included as Appendix XVIII <http://www.unols.org/meetings/2010/201011rvt/Tuesday/201011rvtap18.pdf>.

Alice discussed an effort to develop Marine Technician Best Practices within the fleet to serve as a tool for technicians and to standardize operations and data collection where applicable. This will provide help to inexperienced technicians, help to capture some of the expertise within the fleet, and help ensure that the best possible data is being collected. A list of some areas under consideration for best practices documentation is provided in the slides.

Best Practices would be collected on a single website. The documentation is going to be coordinated through Alice but controlled by experts within the fleet).

Discussion:

- Rich Findley – This needs to be done. It is a good idea.
- Jim Holik - Good idea, needs to start
- Jules Hummon – This is a big red flag for Jules. Sounds like a cookbook. We cannot educate a person to run a system by referring them to a best practice. She worries about the term “Best Practices.” Perhaps it could be renamed as “Document References/List.”
- Toby Martin - Alliance Coastal Technology (ACT) has a great site with some of this info on Best Practices.
- Phil McGillivary – They have scientists who come on the ship that want to use equipment that is not widely used. Vibracores is an example of gear that is not widely used. A reference document would be useful. The USCG MST may not have ever seen a particular piece of equipment before so having a reference document would be helpful. He tries to find video clips of equipment operation. This is what he sees the most need for.

- Richard Perry – He does not like the term “Best Practice.” Best practices are different from a “How To” document. Best Practices is a refinement of an art; it is not the art.
- Jim Holik – Right now we have nothing. This is an evolving kind of thing.

Alice also presented issues associated with pre-cruise planning and how to keep information current. Also, we need to determine what information is informative to the community.

Discussion:

- Alice - What should we do about TSI?
- Tim McGovern – He thinks that the TSI exercise was good.
- Annette DeSilva provided information about the Technical Services Information (TSI) website:
 - There was an RVTEC committee set up to address this issue
 - They came up with an outline on cruise planning
 - RVTEC endorsed the outline 3-4 years ago
 - An on-line form was created that could be populated by each tech service group.
 - Erin Jackson in the UNOLS Office is available to pre-populate the information
- Willis – There is a disconnect between the TSI and ship time request. The PI doesn’t look at the TSI.
- Rich Findley – The tech proposals require that the services be updated. It gets updated for the proposal, but not for all the other places.
- Tim McGovern – it would be good to know all of the places where the same information is required to be updated
- Dave Forcucci – The Healy system forces them to provide updates and lets you know if you left anything out.
- Cruise manuals and websites vary quite a bit amongst operators
- Dave Nelson – The cruise planning manual is very dynamic.
- Alice – there are some very good databases: URI, WHOI, USCG Icefloe. Etc.

Adjourn Day 1

RVTEC Meeting Day 2 - Wednesday, November 17th

Call to Order & Announcements – Rich Findley called the Day 2 of the meeting to order at 9:00AM.

SWAB Program – Jim Happell provide the SWAB Program report. His slides are included as *Appendix XIX* <<http://www.unols.org/meetings/2010/201011rvt/Wednesday/201011rvtap19.pdf>>.

Operation SWAB was developed to help protect background ¹⁴C and ³H measurement from contamination. It is run by the University of Miami’s Tritium Laboratory. These isotopes are frequently used in radio-labeling experiments conducted by biologists. Even small amounts of ¹⁴C and ³H from the labeling experiments inadvertently spilled on a ship have the potential to adversely affect background measurement of these isotopes. Samples are collected and analyzed by a lab that has no stake in whether or not contamination is present. Reports of the results are delivered to the ship operators and scientists involved. A SWAB test should be performed on the ship and Rad Van after every cruise where ¹⁴C or ³H is used. There is no direct cost to the

operating institution for a SWAB test. Jim can be contacted to schedule a SWAB test or with questions.

Discussion:

- Phil McGillivary – If you have a contamination event difference between ¹⁴C and tritium, can they tell the difference? Jim – Yes.
- Dave Nelson - Do you have a historic record? Jim Happell - All data is there but nothing is formalized in a plot. There are also annual reports.
- Jim Happell - The purpose of test is to determine if there is a contamination and if there is, get it taken care of.
- Steve Hartz - What is the standard for locking and refrigeration in RAD vans? Jim Happell - There should be refrigerator in the van.
- Phil McGillivary - The door for the van is the lock for the RAD material.
- Jim Happell – We will start to see lower background levels because they were funded for a new LSC that is much more accurate.
- Phil McGillivary – What is the turnaround time after a SWAB test to get the results? Jim Happell - About a week of turnaround time.
- Dave Nelson – *Endeavor* just did a cruise in the gulf, will that affect the ship? Jim Happell – It should have no effect on the background.
- Rich Findley - We use electronic locks on RAD vans.
- Aubri Steele – There is a cyber lock on the van. This will identify who actually gets access to the van. Keys are tied to people and they now have a record of who and when it was accessed.

JMS Inspection Report – Ted Colburn provided a report on the NSF Ship Inspection Program. His slides are included as *Appendix XX* <<http://www.unols.org/meetings/2010/201011rvt/Wednesday/201011rvtap20.pdf>>. Ted recommended that the marine technicians submit Post Cruise Assessment Reports (PCARs), as they would be very helpful.

The major purposes of the NSF Ship Inspection Program are:

- To assure that the capabilities of the research vessel and technical support meet accepted scientific community standards and expectations;
- To assure the seaworthiness and safety of research vessels supported by NSF meet or exceed the standards set forth by the UNOLS Research Vessel Safety Standards (RVSS), and applicable requirements of the International Maritime Organization, American Bureau of Shipping (ABS), the Code of Federal Regulations (CFR), and the U.S. Coast Guard;
- To ensure NSF-owned ships as capital assets, are being adequately maintained;
- To ensure NSF-funded science is scheduled on properly outfitted and maintained vessels.

Ted reviewed some of the common findings (the full list of findings is included in his slides):

- Good progress during the past few years in keeping CTD and flow through water system sensors within the calibration periods.
- Not as good for the meteorological sensors.
- Most vessels have a system for tracking sensor calibration schedules.
- Some vessels are making good progress on developing a set of “operating procedures for all installed and portable equipment and instrumentation available to support scientific investigators”.

- Most vessels have not determined the ultimate design load (design capacity) of their frames. Must be 150% of the strongest cable or wire breaking strength. Will become more important as Appendix B becomes implemented. Appendix B will have additional requirements.
- Most vessels have not established Safe Working Loads for deck sockets or put in place an associated periodic testing program. This will also be important as Appendix B becomes implemented.
- Progress is being made toward clear bold readable labels on all controls and associated switches.

Ted reported on Appendix A related progress:

- Higher rate cable monitoring systems are coming into the fleet
- Some ships have the audible and visual alarms operating
- Some ships have posted cable SWL in clear view of the operators
- At least one ship uses weak links.

For Appendix A compliance inspectors will be looking for:

- Written qualifications for winch operators
- Formal training programs for winch operators (FS 2.5 and lower)
- Systematic programs to maintain and demonstrate tensiometer calibrations within 4% (FS 2.5)
- Implementation of weak links: Adjust for cable loads for any deep work.

Another inspection benefit is it provides an opportunity to spread concepts and experiences from one vessel to another as we conduct the inspections. There is now a dedicated web page that <http://www.unols.org/committees/rvoc/ShipBestPractices/ShipInspectBestPractices.html>. Ted provided some examples.

Ted provided some tips for providing a more ADA capable vessel:

- Incorporate more ADA awareness and requirements into the pre-cruise planning process.
- Improve access to science berthing from the main deck.
- Improve markings to access the main deck from the science berthing area.
- Improve lighting, handrails, and retro-reflective tape in stairwells and egress routes.
- Install visual alarms to augment audible alarms.
- Remove obstacles in the passageways.

Discussion:

- Dale Chayes – You did one inspection of an icebreaker. How did this go? Ted – It was strictly a science review.
- Marc Willis – Use of weak links on wire, does not relieve you of the ultimate load of frame/design capacity. Ted – correct.

RVTEC Business:

Voting Procedures and transition from Vice Chair/Chair-Elect – Annette DeSilva presented a proposed strategy for transitioning from Vice Chair to Chair-Elect. The details are included in slides available at http://www.unols.org/meetings/2010/201011rvt/Rev2RVTEC_Officer_TransitionDraft.pdf and summarized below:

RVTEC shall have a Chair and Vice Chair/Chair-Elect. Nominations for the RVTEC Chair and Vice Chair/Chair-Elect will be reviewed and voted on by the standing RVTEC members. The standing RVTEC will select one nominee for each open position and forward the nomination to the UNOLS Chair. Under normal circumstances the Vice-Chair/Chair-Elect will serve one three-year term and then serve one three-year term as Chair for a total of six years maximum. Date of office shall commence at the close of the Annual RVTEC Meeting. To transition from Vice Chair to Chair-Elect, the elections of RVTEC officers (Chair and Chair-Elect) must be re-aligned to occur in the same year.

The proposed strategy for transition is:

- At the 2010 RVTEC Meeting, hold elections for the RVTEC Chair.
- The term length would be two years.
- At the 2010 RVTEC Meeting, hold elections for the Vice Chair/Chair-Elect position for a two year term.
- At the end of the term as the Chair-Elect/Vice-Chair, the Chair-Elect would become RVTEC Chair for a 3-year term.

A motion was made and passed to accept the proposed strategy for transition (Chayes/McGovern).

Next, Annette presented a proposed strategy for voting on RVTEC matters:

- If a matter requires a discussion and vote by the RVTEC but sooner than the next scheduled meeting, a discussion and vote of the matter by correspondence (e.g., electronic mail) may be held.
- A motion can be introduced for voting by a UNOLS representative of RVTEC. The matter for vote will be distributed to the full RVTEC community email list for a discussion period of at least 7 days. Based on the discussion, the motion can be revised accordingly.
- The matter will then be put to vote to the “RVTEC_vote” email list for a period of 7 days.
- A vote taken by correspondence will require a quorum (as defined in the RVTEC By Laws) and will be in accordance to the same voting rules as for regular votes
- Ballots may be submitted by correspondence, fax or email to the UNOLS Office, where the count shall be compiled and reported to the RVTEC.

It was also propose that a new RVTEC email list be created RVTEC_vote@unols.org UNOLS Member Institutions can appoint one RVTEC representative to the RVTEC_vote email list.

Discussion:

- Dale Chayes – We need a clear definition of what constitutes a UNOLS operator? Annette DeSilva – A UNOLS Operator representative is from an institution that operates a UNOLS facility (ship, aircraft, NDSF)
- Annette DeSilva - UNOLS institution will be invited to designate an RVTEC voting representative.
- Woody Sutherland - Are all UNOLS members informed of the option to be a part of RVTEC
- Annette DeSilva – UNOLS institutions should be informed about RVTEC, but may not be. Presentations are made to the membership at each UNOLS Annual Meeting about RVTEC.
- Dale Chayes - Identified as wanting a discussion on the need for a second on a motion.
- Jim Postal: Who can make a motion? Dale Chayes - Only UNOLS institutions can make

motions.

Future Meeting Formats:

- Toby Martin suggested a new format for focus sessions by the “bar camp” model. On the first day of the meeting (Mondays) have a long lunch break and end early to allow more time for casual interchanges. Toby suggested that meeting participants post on the bulletin board areas that they would like to have discussions on. Individuals would have to choose the sessions that you want to go to because there would be concurrent session.
- Dale Chayes – would like to have a place where you can have equipment set up all week. Then participants can visit the equipment throughout the week.

Winch and Wire Session:

Research Vessel Safety Standards (RVSS) Appendix A: Wire & Cable Safe Working Loads – Rich Findley provided an informative presentation on the RVSS Appendix A. His slides are included as *Appendix XXIa* <http://www.unols.org/meetings/2010/201011rvt/Wednesday/201011rvtap21.pdf>.

Tension members (Wire Rope & Cables) are normally operated at 20% of their breaking strength by shore side regulation. In order to meet scientific research requirements, it is necessary to operate at 50% of the breaking strength or higher. Appendix “A” of the UNOLS Research Vessel Safety Standards was created in order to operate **safely** at these higher tensions.

Rich is organizing Appendix A Workshops that will be held regionally. The first workshop is planned for December 14-15 at WHOI. Rich’s slide package includes 159 slides. This package contains information that will also be presented during the workshops. Below is a summary of some of the major topics of Rich’s presentation. Meeting discussions are inserted as they relate to specific slides in the presentation.

Presentation Topics:

- Shipboard Priorities
- General Definitions (as they apply to Appendix A and the workshop slides)
- 3x19 Oceanographic Wire Rope
- Oceanographic (Electromechanical) Cables
- Equipment Lowering Dynamics
- Operational Characteristics of Wire Rope and Cable
- LCI-90i Display Calibration and Use

Some general comments that Rich reported:

- Appendix “A” applies to tension members. Appendix “B” applies to winches, over boarding structures (a-frames, j-frames etc.), sheaves and ship foundations.
- Grades of Wire Rope - All of our wires are made of “Extra Improved Plow Steel.” After the workshops are complete, we will go back to improving the wire.

Discussions/Comments as they pertain to the slides:

Slide 18 – Preforming: “The preformed operation in wire ropes confer more stability to them; it reduces internal stresses, giving a more homogenous distribution of load on wires and strands.”

- Dave Nelson – When you say more stable, what does that mean? Rich – It is better when tension winding.

Slide 34 —Cables Free to Rotate: When a cable is free to rotate or is forced to unwind by improper operating conditions the breaking strength is significantly reduced and when it does break, the inner armor will break first and then the outer armor wires will stretch out before they break.

- Dave Nelson gave an example of the loss of a CTD due to rotation of the wire.
- Rich Findley – We have that the wire be tested while free to rotate, using a swivel.
- Daryl Swensen – Are they going to test both ways, or just with the swivel. Rich - You can ask them to test both ways. The swivel breaks are accruing at over 12,000 lbs.

Slides 37 and 38 - .322 Cable Specifications:

- Rich - The manufacturer part number for the 322 wire, is different for the UNOLS cable (but is the same wire with different loads 5,000 vs. 2500)
- Dave Nelson – Does this only apply to UNOLS wire?
- Chris Griner - Rick Trask is taking other non-UNOLS wires for testing.
- Marc Willis – He has noticed the change in the number on loads for the .322 cables over the years.

Slide 40 - Z-Kinking of Conductors:

- Chris Griner – If you end for end a .322 cable can you reuse it? Rich – You should not.
- Dave Fisichella – If you are using a lighthouse. It is under tension.
- Chris Griner – What about wire rope? Rich – if you end for end the wire rope, you still have to worry about it. There is no easy solution. You want to do the break test on the end that has been under the most load.
- Marc Willis – He thinks that the synthetic wire is a bigger problem.

Slide 44 - .681 Cable Specifications:

- Dave Nelson - Does this construction affect bend? Rich Findley - Do not know.

Slide 62 –Payout and Tension for Entire CTD Cast:

- Dave Nelson - Is heave dynamic or static? Rich Findley - Heave Is dynamic.

Slide 72 - Tension Member Behavior in Bending

- Dave Nelson gave an example of a MOCNESS breaking at a roller feed.
- Rich Findley – The lead-in for level wind heads on ALL of our winches are too small!

Slide 79 - Effect of Sheave Contact Arc on Bending Fatigue Life:

- Ben Jokinen – Does this mean that we all have to get new large sheaves?
- Everyone chimed in about the problem.
- Ben Jokinen – Is it worthwhile to have an analysis conducted of our wires and sheaves and to look at the service life of our existing lead-in systems?

Slide 83: Proposed Changes to Appendix A:

- Marc Willis – How much longer will this be evolving before the changes become final? While building a new vessel (*Sikuliaq*), it is difficult to meet a moving target. If it continues

to change, what is the incentive to buy new equipment to meet Appendix A? Rich – Hopefully the changes will be final in a few weeks. We thought that we are ready to go, but discovered that there was a problem and it is still in review.

- Ted Coburn – Should there be consideration of minimum drum size? Rich - It would have to comply.
- Tim McGovern – is there a recommended Diameter for the drum? Rich – No, larger is better.
- Richard Perry – In our calculations, should we be using the smallest Diameter dimension of the system (level roller feed)?

Next Rich provided a review of Appendix A. He mentioned that the HANDBOOK OF OCEANOGRAPHIC WINCH, WIRE AND CABLE TECHNOLOGY is on the CD that Rich and Aubri distributed.

Aubri Steele presented a report on Winch Monitoring Equipment. Her slides are included on the CD that was distributed.

A presentation on the MTNW LCI-90i Display and Calibration Procedure was provided. Slides are included as Appendix XXIb, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap21b.pdf>.

Tim Rezanko provided a tabletop **Demonstration on Winch Monitoring as its relevance to Appendix A.**

General Discussion on the Winch and Wire Presentations:

- Daryl Swensen – If a scientist that comes aboard and wants to operate the winch that they must be qualified and they have to indicate this in writing.
- Richard Perry – Does the science owner of a winch have to show that they have met everything in Appendix A? Rich Findley – They have to show the calculations. The science owner would have to provide the information that is on the spreadsheet. Rich reviewed the spreadsheet - Tension Member Load Estimate.
- Dave Nelson - Does Appendix A require lubing? Rich Findley - No, it recommends but does not require.
- Andrew Woogen - Is there recommended wire lube? Group - Corlube
- Bill Fanning - Does Rick Trask let you know what kind of break was done? Rich Findley: No, not to the best of his knowledge.
- Marc Willis – The sensors that he has seen are linear. He pointed out that the sensor does not register below a certain threshold.
- Dale Chayes – There are implications about getting better sensors. This was in regard to 4% of applied load. He recommends that the wording be changed to % accuracy.
- Rich Findley – He can go back to the Safety Committee with RVTEC recommended changes.
- Dave Nelson – At FS 5 we don't have to have the tension monitoring system.
- There was a lot of discussion on the sensors/load cells.
- Tension Monitoring – Change “applied load” to the safe working load.
- Dave Nelson – Would he have to calibrate after every cruise. Rich Findley – Calibrate every six months at the factor of safety lower than 5. If you don't come back to homeport, you will need to calibrate when you are away or else you would have to operate at FS of 5.

- James Postel – “Imposed” is a confusing word.
- Rich Perry - Does any further part of approval process involve a legal review? Rich Findley – Yes.
- Dave Nelson - How does this apply to gear you are dragging? Rich Findley - The weight of package plus transient load.
- Tim McGovern - Has this been conveyed to the science community?
- Rich Findley: Plans are for ratification of Appendix A in June 2011.
- Phil McGillivray: - Question on what the payout alarm is for? Rich Findley - When the package is getting close to surface.
- What other kind of alarms can there be? Tom Rezanka - Just about anything you want.
- Dave Nelson - Is the TAR function still available as with the older units. Tom Rezanka – He needs to investigate.
- Group Discussion - TAR is not allowed because it throws off calibration.
- Ted Colburn - Do you get a trend on the calibration? Group Answer - Only if you keep a documentation history of your calibrations.

R/V *Atlantic Explorer* Ship Tour – Day 2 of the meeting presentations adjourned and RVTEC members were provided with an opportunity to tour the BIOS research vessel, *Atlantic Explorer*.

RVTEC Meeting – Day 3: Thursday, November 18th

Call to Order and Announcements – Rich Findley called Day 3 of the RVTEC meeting to order at 9:00 am.

Kilo Moana’s* New Motion-Compensated Crane/Winch CTD System** – Tim McGovern provided the report on *Kilo Moana’s* load handling system, “the good, the bad, and the ugly.” His slides are included as ***Appendix XXII, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap22.pdf>.

The “good” features include the crane’s launch, deploy/recover, and motion compensation capabilities. The “bad,” is the problems and failures of the system, such as, the loss of the Caley winch motor in March 2010. The Dynacon winch has been installed back on the ship as a backup handling system.

Discussion:

- David Fisichella – How does the head move? Tim – There is a roller system and a soft area for the wire to move.
- Is this the same system that is on the R/V *Hugh Sharp*? Tim – The two systems were both based on the load handling system design.
- Dale Chayes - How does this system control tension, by rendering? Tim McGovern - When it gets a pre-determined tension it will render.
- Jules Hummon - Do you think one of the problems was a frequency-bleeding problem between the two systems? Tim McGovern – Yes.
- Jim Holik - What did you do for CTDs operations in the interim? Tim McGovern – CTD operations were with the .680 wire through the A-frame.
- Rich Perry – What is the relative cost for repair for the wire running issue compared to the slip rings system? Tim McGovern – The work on the wiring was about \$20K and it was

about \$ 50K for the slip ring.

- Dave Nelson - Who is going to get the training on this system? Tim McGovern - Both the techs and engineers are going through training.
- Doug Russel – There seems to be high maintenance requirements for the system. Tim – Yes, it can take very long. When the system is working it is simplified. But it takes a lot of technology to operate properly. U. Hawaii had to take an integrated approach for system operation with the crew and technicians. The techs support the computer side of the system and the crew deals with the hydraulics.
- Woody Sutherland – Was the original plan to use the moon-pool for CTD operations? Tim – Yes, but there was concern over the water pressure through the moon-pool. The moon-pool's diameter is seven feet and the CTD diameter is six feet, so clearance was very tight. They did it once and never again.

Appendix B - UNOLS Load Handling System Design Standards - Ted Coburn (JMS) provided the report on the Research Vessel Safety Standards (RVSS) Appendix B. The purpose of his report was to introduce the concepts in the draft Appendix B. His slides are included as *Appendix XXIII*, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap23.pdf>.

JMS was invited by Matt Hawkins at NSF to take a look at the draft Appendix B. Ted provided a brief summary of Appendix B. The objective of the RVSS Appendix B document is to provide a unified code of practice for the structural design and operating principles of overboard handling systems used on board vessels in the UNOLS Fleet. All UNOLS vessels must comply with Appendix B. Appendix B applies to all overboard handling systems and their component parts intended for use on UNOLS vessels. A sample of these components include winches, overboarding appliances (e.g., frames, davits, cranes, booms, etc), sheaves, foundations for all of these components, deck tie downs (sockets), and shackles.

Appendix B is to be used in conjunction with, and its application is to be fully compatible with, Appendix A - *UNOLS Rope and Cable Safe Working Load Standards*. The cable or rope employed is considered part of the system for any given deployment scenario.

Some of the major topics covered by Ted included:

- The Maximum Capability Document (MCD) - For each component, the maximum allowed capability is determined by calculation.
- Labeling and Documentation - As a minimum, the system components shall be labeled with the following information: Maximum Permissible Tension (MPT), Test Date, Intended Purpose, MPT Diagram, and Reference Drawing.
- Overboard Handling Data Document (OHDD) - The Overboard Handling Data Document is a standard data sheet that shall be developed for an overboard handling system for existing systems, new systems equipment, and components. Each overboard handling system will have a Maximum Capability Document developed based upon that overboard handling system's OHDD and evaluation of the MPT for all the components.
- Maximum Permissible Tension (MPT) - The maximum permissible tension (MPT) of the system shall either be the Safe Working Tension (SWT) or the wire/cable SWL from Appendix A, whichever is LESS.
- Tension Mitigation Devices and Systems
- Maximum Anticipated Operating Tension (MOAT) - The MOAT must be less than the overboard handling system's Maximum Permissible Tension (MPT)

Discussion:

- Marc Willis – These systems are new to us, but not to the rest of the world. Render systems have been around.
- Richard Perry – Is there a criteria for the rendering systems? Ted – No. They do fail and it isn't addressed in Appendix B.
- Phil McGillivary – How many different rendering systems are in the fleet? Ted – There is the Dynacon system and the Caley system. Dynacon worked fine, but Caley had some issues.
- Tim McGovern – What is the cost to retrofit a rendering system? Bill Byam – about \$30K
- Steve Hartz – How will Appendix B be implemented? Will there be a document on how to maintain the systems? Will there be training? Whose responsibility will it be? Ted – There will be a lot of required documentation. Each vessel will need Naval Architect services for the initial system review. Ted encouraged sharing of info and tables across the fleet. Bill Byam – NSF (Matt) has indicated that this will be supported.
- David Fisichella – Would portable winch systems be required to comply with Appendix B? Ted – Yes.
- Rich Findley – He thinks that Appendix B will be approved at the RVOC meeting in May 2011. Then it would go to Council for approval. Once approved, there will be a two-year implementation period before mandatory compliance.

UNOLS Van Pool – Bill Byam provided a report on the UNOLS van pool. His slides are included as *Appendix XXIV*, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap24.pdf>.

The purpose of the van pool is to supply standard IOS portable laboratory vans for ocean research. Fred Jones at OSU runs the West Coast pool and Tim Deering at U. Delaware runs the east coast pool. Bill reviewed the van pool inventory (see slides). Two new vans were added in 2010; a cold van and a general purpose van. Bill reported that this year one of the vans experienced damage, most likely during commercial shipping. Commercial transportation is hard on all vans. Bill encouraged everyone to properly prepare the vans for transport to reduce the potential for damage. The link to the van pool web site is included in the slides.

Discussion:

- Dale – Transportation on air-cushioned trucks should be specified when shipping vans. You might think about putting placards on the vans for people who aren't familiar with the shipping routine.
- Dave Forcucci – The vans are on a first-come, first serve basis.
- Bill Byam – Shipping and early planning is a big challenge for the van program.
- Rich Findley – Are there LCSs in the rad van? Bill – yes.

Year in Review – Each marine technician group was asked to provide a very brief presentation that covers the following three topics:

- Annual Operations Recap (Geographic area, Number of days, research disciplines supported, etc.)
- Highlight(s) of the year
- Most challenging issue or biggest technical hurdle

The presentations have been compiled into one document and are available as *Appendix XXV*, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap25.pdf>.

The following presentations were made:

- *Walton Smith* – Jim Lovin reported that *Walton Smith* participated in rapid response Gulf of Mexico oil spill response efforts.
- UW Ships - Casey Canfield reported on *Clifford A. Barnes* and *Thomas G. Thompson*. The *Thompson* had some z-drive problems. There were many different techs that helped out on the *Thompson*. This worked out well, but was challenging.
- *Atlantic Explorer* - Matt Wilkinson reported. There were 136 operating days in 2010. Most trips were focused around Bermuda, with one trip to Puerto Rico. The highlights included that the ADCP is working a lot better, with no interference. A highlight was also being able to attend this RVTEC meeting. A big challenge was mobilization for a WHOI mooring trip. Overall, it was a good year.
- WHOI Ships:
 - *Atlantis* – Catie Graver reported that it was a very busy year and they did vent work with an annual trip to support CORKs. Currently they are in the Gulf of Mexico and next month they will be using *Alvin* for the oil spill research. The ship returned to WHOI for the first time since 2006. One of the biggest challenges this year was carrying 11 vans to Sacramento for air quality sampling and ship exhaust plumes. This was a non-*Alvin* cruise. Next month, the ship will go to the shipyard to replace the multibeam system.
 - *Knorr* - Chris Griner showed the cruise track and reported that most work has been in the Atlantic. There were two back-to-back long core cruises. *Knorr* experienced thruster problems and is heading back to port. This year they completed the 7th long-core cruise. 150-ft was the longest core collected.
 - *Oceanus* – Robb Hagg reported that *Oceanus* was diverted to the Gulf of Mexico in response to the oil spill. During one of their cruises, Samantha Joye found a mat of oil on sea floor. There are a lot of good links to this cruise on the *Oceanus* site. Robb reported that the Video Plankton Recorder sends data to the lab for automatic classification. During one *Oceanus* cruise they experimented with FBB and HiSeasNet. The transfer between the systems is automatic.
- *Blue Heron* – Jason Agnich reported that he started the year on *Atlantic Explorer* and it is very valuable to see other operations. *Blue Heron*'s year started in May and had a lot of problems with their new GenSet installation. The season ran through mid Sept.
- *Cape Hatteras* – Tina Thompson and Stephen Jalickee reported that there were 13 cruises for 221 days. Fisheries operations were different than the typical oceanography and quite the experience. Work is around the clock. Working with MATE interns was very rewarding. Tina reported that she worked in the Gulf of Mexico and the most difficult challenge was the rapid response requirement and getting everything staged.
- *Endeavor* – Dave Nelson reported that they had 190 funded days. Initially the year's operations were supposed to begin in April, but they had a rapid response cruise to Haiti. Then they got deployed to the oil spill. They did black carbon work off of Africa and air sampling along the way. They also conducted fish surveys off of the Georges Bank.
- *Hugh R. Sharp* – Wynn Tucker reported that this year was a light year for the ship with 148 days from Canada to the Chesapeake Bay. This was their third year of supporting the Georges Bank operations. They are looking to hire one of the MATE Interns.
- *Kilo Moana* – Kuhio Vellalos reported that their biggest challenge is the Caley system.
- *Langseth* – Anthony Johnson reported that the *Langseth* had a challenging year. While in shipyard, the yard damaged all 13 multibeam receivers. In April they did their JMS inspection and then finally went to Honolulu to begin science operations. One cruise was

lost because of engine control problems. This left one cruise on their schedule. There were two medical diversions and a crew member died. The highlight of this year will be the new ADCP. Next year six cruises are planned and one is 3D.

- SIO Ships:
 - *Melville* – Jon Meyer reported that a highlight this year was the installation of a new radar system. A challenge was the rapid response cruise to Chile.
 - *New Horizon* – Josh Manger reported the ship had 165 days of work. A giant squid was caught during their cruise to Guaymus. The biggest challenge was that the scientist was bit by the squid and had to be stitched by the captain.
 - *Robert Gordon Sproul* – Josh Manger reported that they installed a giant tower on the ship. There were operations with *FLIP*, which were a highlight and a challenge. The cruise was also coordinated with an aircraft.
 - *Roger Revelle* – Josh Manger reported that the challenge of the year was “Typhoon Chasing.”
- *Pelican* – Joe Malbrough reported that it was a busy year with 241 days and will have a similar year in 2011. They were heading out to sea the day of the spill. When they returned from that cruise, they immediately redeployed for CTD and core operations. Joe thanked Jim Holik for support during the spill cruises. The longest cruise was 30 days for SAIC.
- *Point Sur* – Andrew Woogen reported that they had a 70 day cruise to the Aleutian Islands, AK. A challenge was dealing with Triaxis problems. He attended network training in Los Vegas and it was very useful.
- *Wecoma* – Dave O’Gorman reported that the ship had 18 cruises. A challenge was the generator tearing itself apart. The Barnes recovered equipment. Did OBS as well.
- NOAA vessels - Mike Webb reported that NOAA has 20 ships and he not going to talk about all of them. When the spill occurred, they diverted some of the NOAA ships to the Gulf of Mexico. The *Okeanus Explorer* went to Indonesia. The *Miller Freeman* will be laid up next year. Most of the Hawaii ships have been doing dive work in that area. NOAA brought two new ships on-line. The biggest challenge has been getting set up in Newport, OR.
- *Healy* – Dave Forcucci reported that the biggest challenge is the noise in the systems.

MATE Update and Long Term Internship Program – Tami Lansford provided an updated on the MATE program. Her slides are included as *Appendix XXVI*, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap26.pdf>.

The MATE Center just published new Knowledge and Skill Guidelines for Oceanographic Instrumentation Technicians. They worked to identify the knowledge and skills that are needed for this career. Tami encouraged the group to provide feedback on the guidelines.

Tami provided an overview of the Internship Program. Since 1999, 148 community college and university students have been placed on UNOLS vessels. MATE intends to host 14-17 interns in one to eight week internships each summer from 2011-2014. MATE worked with UNOLS to create an annual 6-month internship on two different vessels. Thirty applications are under review for this year’s program.

A survey was conducted on past interns and there is data on 81% of the interns as of this fall. 33% are currently working in marine science and technology positions. 53% of interns this year were from community colleges. Interns’ interests, knowledge, and skills are carefully matched to mentor requirements. The mentor makes the final decision on which student(s) they host. In

2010, 14 interns were placed on UNOLS and USCG vessels: *Cape Hatteras*, *Endeavor*, *Oceanus*, *Pelican*, *Sharp*, *Thompson*, and *Walton Smith*, and *USCG Healy*. 100% of mentors said the intern made their job easier and they would hire another MATE intern in the future. Four interns were hired immediately following their internships.

MATE is working to better understand the reasons for and solutions to low levels of minority applicants to the MATE Internship Program. A survey was conducted and Tami reviewed some of the preliminary results.

Tami encouraged the marine technician groups to commit to providing internship opportunities as early as possible in 2011. When the mentoring guide is released, marine techs are encouraged to read it and share it with mentors.

Discussion:

- Marc Willis – It would be useful to have a Marine Tech mentor attend the class and let the students know what they would be asked to do at sea.

UNOLS Reports:

Fleet Improvement Committee (FIC) – Marc Willis provided the FIC report. His slides are included as *Appendix XXVII*, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap27.pdf>.

FIC activities in 2010 included an in-depth review of RCRV design issues in response to NSF's request for input. FIC continues to monitor ongoing construction/renewal efforts (ARRV and Ocean Class). They are also continuing debriefs of new handling systems and the WHOI Long Coring System. Marc reviewed the FIC activities planned for 2011 (fleet renewal, greening the fleet, update projected service life end dates, develop a proposal for a Chief Scientist Training Workshop).

Alaska Region Research Vessel (ARRV) – Steve Hartz and Marc Willis prepared a presentation on the status of R/V *Sikuliaq*. Slides are included as *Appendix XXVIII*, <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap28.pdf>.

Marc presented the slides. “Sikuliaq” means new ice. *Sikuliaq* is one of the first U.S. ships made to Ice Class PC5.

In October 2008 the Final Design Review (FDR) for the vessel was completed. January 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.

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.

Marc explained the weight issue associated with *Sikuliaq*'s design. The weight estimate was delivered in Sept 2010 and was ~ 300LT greater than the contract estimate. This was due to

inaccurate weights from vendors (30-50% of the problem), major equipment (engines, cranes...), margins (20-30%), and other errors/omissions. As a solution, they will increase the vessel length by 6-feet and change steel to aluminum in some areas. They hope to restart shipyard construction soon. They weight issue put them behind by 4 to 6 weeks.

The Keel Laying ceremony 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. Science operations are expected to begin in late 2013.

Lastly, Marc made a personal comment that there was far too much negativity at this meeting. He is interested in hearing what people are doing to support marine science. It is not constructive to criticize the presenters.

RVOC and Safety Committee – Rich Findley reported that the Safety Committee’s primary focus is now on the RVSS Appendix B. Any input on Appendix B can be sent to Rich or Dan Oliver.

Rich reported that Joe Malbrough is now the Chair of the RVOC.

Arctic Icebreaker Coordinating Committee (AICC) – Steve Hartz provided the report. The AICC met in April and will meet again in December. NSF is soliciting STARC proposals for marine technician support for *Healy*.

Scientific Committee for Ocean Aircraft Research (SCOAR) – Steve Hartz reported that SCOAR had a Town Hall meeting in Portland, OR and a regular meeting in June. Dan Schwartz is SCOAR Chair.

UNOLS Report – Annette DeSilva provided a UNOLS report. Her slides are included as **Appendix XXIX** <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap29.pdf>.

In 2009 the Council established two goals. One goal was to strengthen the relationship between UNOLS and the Antarctic Research Programs. As part of this effort, NSF requested UNOLS assistance in a Polar Research Vessel Science Mission Requirements Refresh project. Another goal is to work to Green the Fleet. This would apply to construction as well as operation of vessels. In 2010 a new goal was proposed to “Explore Options for Establishment of a UNOLS Speaker Series.”

There are a variety of UNOLS outreach initiatives and resources available to the community. This includes volunteer cruise opportunities, slide packages, posters, brochures, etc. These are available from the UNOLS web site.

A recent decline in ship time requests has been observed. In response, UNOLS will conduct a survey to evaluate the decline in ship time demand. 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.

A new UNOLS Standing Committee was formed, the Ocean Observing Science Committee (OOSC). The OOSC is charged with providing advice and guidance on decisions and plans from

the science perspective related to NSF observing investments such as OOI.

RVTEC Web Page Update – Annette DeSilva provided an update on new features of the RVTEC web pages. Her slides are available as *Appendix XXX* <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap30.pdf>. The new features include:

- Ship Inspection – “Best Practices”
- RVTEC Video Library
- RVTEC Technical Exchanges/ Discussions

Ship Design/Construction Updates:

Ocean Class Research Vessel Status – Tim Schnoor reported that because of the on-going ship design competition for the Ocean Class vessels, he couldn’t present much on the status or specifications of the ships. The vessels will be over 200 feet in length and will be a monohull design.

Discussion:

- David Fisichella inquired about the status of electronics updates. Tim – They are coming along, but there is going to be limited resources.
- David Fisichella – The ships will be base lined with some very nice equipment. The Sonar systems look very nice.
- Woody Sutherland suggested that the ships be built with holes/chests, etc that can be later equipped with instrumentation and equipment. The Navy will deliver the ship and put it through sea trials. The operating institutions will outfit the vessels with science equipment. Woody thought that they would have more time for this effort. The base instrumentation is similar to what is on the Navy TAGS vessels. He is concerned that the WHOI and SIO ships must be the same in terms of the suite of instrumentation, yet these should will operate in ocean basins that are different from each other, so shouldn’t the outfitting be different?
- Dale Chayes amplified this concern. He also suggested that the selection of the multibeam system should be done as late as possible in the design/build/outfitting cycle.
- Tim Schnoor – The Navy is open to suggestions and they will look at getting more money to do what is needed.
- Dale Chayes suggested that we simply should indicate the size of the holes, weight, heat load and power that should be provided with the ship.

Lunch

RVTEC Officer Nominations – Marc Willis introduced this year’s RVTEC officer nominees

- RVTEC Chair – Rich Findley, Dale Chayes, and David Fisichella
- Vice Chair – Daryl Swensen and Ben Jokinen

RVTEC Subcommittee Reports:

Post Cruise Assessment Report (PCAR) Committee – Dave Fisichella provided the report. The PCAR Committee met once. David noted that there are some flaws in the PCAR process and form. As an example, there was a cruise that lost a \$100K package over the side and yet the

cruise was ranked it above average. Dave indicated that he thinks there needs to be a better way to record the assessment of cruises.

There was a discussion about the validity and use of the PCARs:

- Bill Fanning – No URI techs fill in the post cruise assessment. The form is poorly worded. He feels that the writing of PCARs is not a very useful process.
- Jim Holik – He finds that the narrative in the PCAR is most useful.
- Bill Fanning – When things go wrong on a cruise, the tech is expected to provide an explanation on what went wrong. This doesn't seem to apply to the science party.
- Alice Doyle – The technicians are concerned about the science users getting their feedback.
- Ted Coburn – Perhaps the process could be changed so that the Techs and Captains only complete portions of the PCAR.
- David Fisichella – We have considered this suggestion in the past. The process also needs to be changed.
- Tim McGovern – From the Marine Tech perspective, there is worry about retribution. The techs may not see the science PCAR before submitting their report.
- There was a question about post cruise debrief interviews. Annette explained that the DESSC interviews are conducted between the science user, DESSC member, and NDSF chief scientist. The interview reports are sanitized (names are removed) before the reports are summarized publically.
- Steve Hartz – There had been a recommendation to remove the Tech and Captain PCAR form. Annette explained that the PCAR Committee retracted the recommendation because the Council felt that there needed to be a mechanism for Techs and Captains to report.
- David Fisichella – If you are interested in working with him on this issue and developing suggestions, see him at the end of the meeting.

RVTEC Education Subcommittee – Aubri Steele provided the Education Subcommittee report. Her slides are included as *Appendix XXXI* <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap31.pdf>. Aubri reported on plans for the Research Vessel Safety Standards – Appendix A workshops. The training workshops will be coordinated and led by U. Miami (Rich Findley and Aubri). An initial workshop was conducted on *Walton Smith* and about eight individuals participated, all from U. Miami.

- Ben Jokinen – Who is the training geared for? Aubri – Captain, crew, marine sup, techs, and science users.

Aubri encouraged everyone to take the Training Survey that is being coordinated by Alice Doyle. Input on the types of training of interest is needed.

8th INMARTECH: 26 - 28 January 2011, NIWA, Wellington, New Zealand – The 2011 INMARTECH meeting has been postponed. When rescheduled, the meeting information will be forwarded to RVTEC.

Suggestions for 2011 RVTEC Meeting Host Institution – A slide listing the past RVTEC meeting host institutions was presented, see *Appendix XXXII* <http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap32.pdf>. LDEO and New Orleans (host LUMCON) were suggested.

Show & Tell Presentations:

SWAP Update – Toby Martin lead a discussion on SWAP. His presentation is included as *Appendix XXXIII* <<http://www.unols.org/meetings/2010/201011rvt/Thursday/swap2010report/cover.html>>. Toby asked the group “What sort of products do you want out of SWAP?”

- Dave Forcucci – USCG does a lot of ship to ship communications with Canadian vessels. It would be good to have a SWAP spec sheet. What should be expected in terms of performance? Toby – the details are available on the SWAP site.
- Jon Meyer – There is potential for public domain frequencies in the future, perhaps in a couple years. SWAP uses the public domain.

Officer Election Results - Elections were held and the following individuals were selected:

- RVTEC Chair –David Fisichella
- Vice Chair – Daryl Swensen

These nominations will be forwarded to the UNOLS Chair for appointment.

My IEEE/MTS Oceans 2010 Seattle – Toby Martin and Dave Gorman provided a summary of the IEEE/MTS Ocean 2010 conference that was held in Seattle. Their information is included as *Appendix XXXIV* <<http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap34.pdf>>.

A list of some of the presenters and vendors is included in the slides. They found the conference very worthwhile. Next year’s meeting will be held in Hawaii. Toby and Dave encouraged RVTEC to attend these forums.

Vessel Tracker – Annette DeSilva provided the Show-n-Tell. Her slides are included as *Appendix XXXV* <<http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap35.pdf>>.

Annette explained that it has long been desired by the UNOLS Office to have the capability to answer the question – “Where are the UNOLS ships now?” (In other words –the geographic location of each ship in near real time). Using navigation position data, we would like to create a visual display of the world oceans with ship positions. To avoid any added work on the part of the ship’s marine techs, we would want automated feeds of lat and long data in a standard format. One possible way to accomplish this at relatively low cost is to provide each ship with a portable vessel tracker box (see slides).

Bill Fanning said that the vessel tracker boxes also offer a good safety tracking devise, particularly for small boats.

It was pointed out that for most (but not all) UNOLS vessels that real-time navigation data is available. There could be ways to collect the data and achieve the goals of this effort.

Laura Stolp and Dale Chayes offered to assist in this project.

"Sugru: Hack things better" – Dave Gorman provided information about Sugru, which can be used as an adhesive for repairs and other uses. See *Appendix XXXVI* <http://sugru.com/>. Dave passed around packets of the Sugru. It is great for holding things together, yet it comes apart when you want to separate the parts again.

The latest release of NOAA's Scientific Computer System (SCS) – John Katebini provided the report. He showed a flow chart of the entire SCS system from meta-data, data collection, to repository. The chart is included as *Appendix XXXVII* <<http://www.unols.org/meetings/2010/201011rvt/Thursday/201011rvtap37.pdf>>. The user can create their own events to collect the data that they are interested in. It is typically the ET or Tech who collects the data. NOAA is integrating their system with R2R. Email is used to transfer data.

Discussion:

- Bill Fanning – How long will you be using flat files? John – There are not plans to change in the future.
- Sequel Server Express is only used for data.
- Toby Martin – Is data going directly into the database? John – The data permanently logs into the flat files.
- They are using Windows.net
- John asked that RVTEC to contact him with any comments or questions.
- Nathaniel Sanders - What kind of searches/queries are you running? John gave an example. He commented that if you have bad position data, you could find where it's located.
- There are about 18 non-NOAA vessels using the SCS system. NOAA is not permitted to distribute SCS out of the US for legal reasons

Closing Remarks – Rich Findley provided some closing remarks. A motion was made and passed to adjourn the meeting (Chayes/Martin).

Adjourn RVTEC Meeting