

UNOLS FLEET IMPROVEMENT COMMITTEE MEETING

Wednesday, October 13, 2004, 8:30 am

National Science Foundation

Stafford II Building, Room 555

Executive Summary

The UNOLS Fleet Improvement Committee met on Wednesday, October 13, 2004. A major focus of the meeting was on Academic Fleet Renewal activities and plans. A brief summary of these items and other issues addressed by FIC are provided in this Executive Summary:

FOFC Long-Range Fleet Plan Update - Bob Winokur, Federal Oceanographic Facilities Committee (FOFC) Chair, discussed the Committee's efforts to update their Long-Range Fleet Plan. The FOFC update will consist of one integrated Federal Fleet Plan that addresses the needs of each member agency (not just the Academic Fleet). The FOFC plan will be drafted to be consistent with budgetary limitations. They hope to have a draft report available by March 2005. The planned release date for the report is 30 September 2005. Bob emphasized that a UNOLS fleet plan should be in "lock step" with the FOFC plan. There is a need for consistency in the report recommendations.

EWING Replacement – LDEO has purchased a modern seismic vessel to replace EWING. Plans are being developed to convert the ship into an oceanographic research vessel. The converted ship is scheduled to go into service in 2006. EWING's last cruise will take place in early 2005. LDEO has requested that the ship be named MARCUS LANGSETH.

Regional Class Ships – Regional Class Operational Capabilities have been drafted and are based on the UNOLS prioritization of the Regional Class SMRs. The draft document is being circulated for UNOLS review and comment. The performance specification for the Regional Class will be drafted over the next few months. NSF is developing a request for proposals for design/build teams, which should be advertised in mid 2005. NSF plans to advertise the Regional Class operator solicitation in mid summer 2005.

Ocean Class Planning –Phase II of the ONR sponsored Ocean Class study was completed in the summer. The study looked at various hull forms including monohulls, SWATHs and X-Crafts.

Ocean Observatory Facility Needs – Ken Brink, Ocean Research Interactive Observatory Networks (ORION) Project Director, was invited to the FIC meeting to discuss ocean observatory facility needs and timelines. ORION is working to define the science plan and the execution plan for the Ocean Observatory Initiative (OOI). The benchmark being used by ORION is the UNOLS Chave Report (Feb 2004). The ocean observatory facility needs will place heavy demand on the already heavily utilized UNOLS Global vessels. ORION is working to define the actual size/scope of OOI that can be supported within

realistic budget projections. It will likely be scaled down from the original estimates. The ORION Executive Steering Committee is developing an Implementation Plan and hopes to have it available in late summer 2005.

UNOLS Fleet Utilization Projections – The Chave Report estimates for ocean observatory facility needs have been incorporated into the UNOLS Fleet utilization projections. With the addition of ocean observatory ship time (installation and O&M), demand is expected to increase approximately 1000 days by 2020.

Revised Vessel Retirement Dates and SLEP Estimates - UNOLS vessel operators were polled to determine if vessel retirement dates should be extended. If so, they were asked to provide a SLEP cost estimate for a 5-year extension and for a 10-year extension. There are eleven UNOLS ships >40 m that have retirement dates prior to 2020 and are potential candidates for SLEPs (excluding ALPHA HELIX and EWING). Preliminary findings indicate that most of the ships (>40m) can have their lifetimes extended 5 and possibly 10 years for an estimated cost of \$1.025M-\$5M per ship for a 5-year life extension. Extension of retirement dates for most vessels <40m is not recommended. It is important to recognize that the SLEP estimates focus on maintaining the ship in an operational condition without enhancing the scientific capabilities of the platform. Existing Intermediate Class vessels do not meet most of the desired Ocean Class SMRs and the Regional Class ships fall short of the Regional Class SMRs in many areas.

Ship Design and Construction Efforts - The ARRV project is on track and the design will be complete soon. Construction of the CAPE HENLOPEN Replacement Vessel is well underway at Dakota Shipyard in Anacortes, WA. Delivery is scheduled for October 2005.

Fleet Improvement Plan (FIP) Update – FIC agreed that the UNOLS 1995 Fleet Improvement Plan should be updated. An outline for an updated FIP document was drafted. They hope to have a first draft by the March 2005 Council Meeting with a final draft by September 30, 2005

Global Class SMR Update – A Global Class Steering Committee has been formed with Bruce Howe (UW) as Chair. The committee is charged with updating the 1989 Global Class SMR document. The document will identify general-purpose oceanographic requirements. As a follow-on effort heavy lift considerations, and seismic capabilities will be addressed.

KILO MOANA Debriefs - A letter was sent to University of Hawaii in April 2004 listing some of the problem areas that have been reported during the KILO MOANA debrief interviews. University of Hawaii has addressed some of these issues. FIC has decided to continue the KILO MOANA debrief interviews but with a more focused, selective set of questions and cruises.

ADA Design considerations – Terry Whitledge and Glosten Associates have reviewed the draft report, “Construction Requirements for Passenger Vessels to Include the

Americans with Disabilities Act” to determine how its recommendations could be adopted to the ARRV. Terry has offered to draft a white paper summarizing the ADA design considerations.

Other topics addressed by FIC included identification of FIC projects/goals/priorities for 2005, membership changes, and winter meeting plans.

Recommendations

The FIC recommends that the 1995 Fleet Improvement Plan be updated. They have established an outline for the updated document and an associated timeline.

Actions/Tasks

Task Description	Action
Regional Class Actions:	
<ul style="list-style-type: none"> • Review Regional Operational Capabilities and send to NSF by the end of October 04 	FIC/RCAC - COMPLETE
<ul style="list-style-type: none"> • UNOLS Regional Class Rep - Recommend a community representative to be the UNOLS rep to the IPT. [Note – Agency input is needed to complete] 	Dave, Wilf, RCAC, Office
<ul style="list-style-type: none"> • Stay engaged in acquisition process <ul style="list-style-type: none"> ▪ Provide feedback to NSF ▪ Insure community input 	FIC, RCAC
KILO MOANA Actions:	
<ul style="list-style-type: none"> • Continue Debrief Interviews – focused and more selective 	FIC - Ongoing
<ul style="list-style-type: none"> • Obtain feedback from WESTERN FLYER and KILO MOANA Captains 	Mike Prince
<ul style="list-style-type: none"> • Compile Debriefs for posting on the UNOLS website 	Office - Ongoing
<ul style="list-style-type: none"> • Draft Summary document 	Annette & Dave
FOFC Fleet Plan Update - Provide the Working Group information when requested.	FIC
Amend SMRs:	RC and OC Steering Committees - ongoing
<ul style="list-style-type: none"> • Amend Regional and Ocean Class SMR to include ADA requirements (Terry’s white paper) • Carefully review the “Lessons Learned” and PCA comments. Incorporate as appropriate into the SMR documents 	
PCAR Comments - Review PCAR comments with regard to facility improvements.	FIC - Ongoing
Design and Constructions Efforts - Stay engaged in ongoing design and construction efforts (ARRV, EWING replacement, CHRV, etc.)	FIC - Ongoing

Updated Vessel Retirement Dates and SLEP Estimates: <ul style="list-style-type: none"> • Address report inconsistencies (by Oct 26) and provide draft report to FOFC Working Group. - COMPLETE • Finalize Report 	FIC
Ocean Class Planning – Provided input as requested	FIC and OCSC – ongoing
Global Class: Update SMRs	Global Class Steering Committee – ongoing
ADA Guidelines draft White Paper	Terry Whitledge – ongoing
Update Fleet Improvement Plan: <ul style="list-style-type: none"> • First draft – March 2005 • Final draft – 30 September 2005 	FIC – ongoing
Ocean Observatories – Stay in contact with ORION Office.	Dave Hebert – ongoing

Appendices

- I. [Meeting Agenda](#)
- II. [Participant List](#)
- III. [FIC Meeting Slides](#)
- IV. [ORION Report – Ken Brink’s Slides](#)
- V. [ADA Requirements – Report from Terry Whitledge](#)

Meeting Report:

Welcome and Introduction – The UNOLS Fleet Improvement Committee met at the National Science Foundation (NSF), Stafford II, Room 555, Arlington, VA on Wednesday, October 13, 2004. Dave Hebert, FIC Chair, opened the FIC meeting at 0830. Agenda items were followed in the order as reported below except as noted. Meeting participants introduced themselves. The agenda and meeting participants are included as *Appendix I* and *Appendix II*.

Accept Minutes - A motion was made and approved to accept the minutes from the [March 9-10, 2004 FIC Meeting](#).

Review FIC Action/Task List from March meeting – Dave Hebert reviewed the status of the action items from the March FIC meeting. All of the slides presented by Dave during the FIC meeting are included as *Appendix III*.

Task Description	Action
Regional Class Actions:	
<ul style="list-style-type: none"> • UNOLS Regional Class Rep - By summer 2004, UNOLS needs to recommend a community representative to be the UNOLS rep to the IPT. [Note – Agency input is needed to complete] 	Dave, Wilf, Tim, Office – ongoing
<ul style="list-style-type: none"> • Prioritize Regional Class SMRs by July 2004 	COMPLETE
<ul style="list-style-type: none"> • Form Regional Class Advisory Committee (RCAC) 	COMPLETE
Ocean Class Phase II Study – Held FIC and JJMA phone/web conferences	COMPLETE
Ocean Commission Report – Drafted a unified Council response by 5/20/04.	COMPLETE
KILO MOANA Actions:	
<ul style="list-style-type: none"> • Continue Debrief Interviews 	Ongoing
<ul style="list-style-type: none"> • Obtain feedback from WESTERN FLYER and KILO MOANA Captains 	Ongoing
<ul style="list-style-type: none"> • Send Letter to UH with list of problems 	COMPLETE
<ul style="list-style-type: none"> • Compile Debriefs for posting on the UNOLS website 	Ongoing
FOFC Fleet Plan Update - Encourage the Agencies to update the FOFC plan and provide the Working Group information: <ul style="list-style-type: none"> • Update the projected retirement dates and provide SLEP estimates (first draft complete, addressing inconsistencies) 	Ongoing
<ul style="list-style-type: none"> • Update ship utilization projections to include ocean observatory facility needs (presented by P. Wiebe to FOFC) 	COMPLETE
Amend SMRs: <ul style="list-style-type: none"> • Amend Regional and Ocean Class SMR to include ADA requirements • Carefully review the “Lessons Learned” and PCA comments. Incorporate as appropriate into the SMR documents 	RC and OC Steering Committees - ongoing
FIC Membership – Nominations are needed to replace Chris Measures	Ongoing
PCAR Comments - Review PCAR comments with regard to facility improvements.	Ongoing
Design and Constructions Efforts - Stay engaged in ongoing design and construction efforts (ARRV, EWING replacement, CHRV, etc.)	Ongoing

Academic Fleet Renewal Activities and Plans:

FOFC Plans for Update of their Academic Fleet Long-Range Renewal Plan – Bob Winokur, Federal Oceanographic Facilities Committee (FOFC) Chair, discussed the Committee’s efforts to update their Long-Range Fleet Plan. FOFC members have agreed that the update will consist of one integrated Federal Fleet Plan that addresses the needs of each member agency (not just the Academic Fleet). The National Oceanographic Research Leadership Council (NORLC) has been briefed and they endorse FOFC’s plan. Bob reported that FOFC has moved forward slowly with the update. In spring 2004 a questionnaire was sent to each FOFC agency about their respective fleet renewal plans. A retreat was held in the summer. They hope to accelerate their progress and will meet

again at the end of October. They hope to have a draft report available by March 2005. The planned release date for the report is 30 September 2005.

At the summer retreat FOFC drafted the report's outline. NSF, NOAA, ONR and the USCG have indicated that they each have fleet renewal plans. The coordinated Fleet Renewal Plan is expected to include eight or nine chapters. The writing assignments will be made during their October 28th meeting.

Some of the issues that FOFC will address while drafting the update include:

- Academic Renewal Plan – lessons learned since the first draft.
- They will try to identify which agencies have money to support renewal and which do not.
- The length of time it takes to build a ship and how this factors into the plan's timeline for renewal.
- Is it possible to partner between agencies?
- Lease versus ship ownership – Although it doesn't seem to make economic sense to lease general-purpose oceanographic ships, leasing of special purpose ships will be evaluated.
- They will also discuss strategies for marketing the plan.

Bob emphasized that FOFC would like to work with UNOLS. If UNOLS drafts their own fleet plan, he emphasized that it should be in "lock step" with the FOFC plan. There is a need for consistency in the report recommendations. There will be a lot of competing interests for Federal funds. FOFC and UNOLS must be able to sell the plan. The two plans should be unified.

Discussion followed:

Bob Knox suggested linking the renewal plan to the Ocean Commission report as a possible marketing strategy. Bob Winokur commented that the Ocean Commission report recommendations are still being reviewed. This is still a work in progress. The report includes a couple hundred recommendations, many of which require funding. There will be a lot of competition in a very tough funding climate.

Bob Knox also emphasized that the Service Life Extension Program estimates that were compiled by UNOLS (and will be reviewed later in the meeting) were put together because they were requested by the agencies. UNOLS does not view the SLEPs as a good option. Instead plans should move forward for renewal.

Dan Schwartz asked if the FOFC agencies with non-academic research ships have generated their Fleet renewal plans. Bob Winokur replied that he plans to discuss this at the UNOLS Annual Meeting. The Navy ships are relatively new, but if you factor in the 10-year process for construction, planning for renewal will need to be addressed soon. NOAA's fleet is old, but they have been building some new ships and they have been successful in obtaining ships through Navy transfers. Beth White added that NOAA has

now transferred seven Navy ships into their fleet. They have removed all of the T-AGOS ships from service.

Peter Wiebe remarked that UNOLS has compiled utilization projections to 2020. Is FOFC planning to do this same thing? Bob Winokur replied that the agencies will try to do this and they have gotten some of the numbers together.

Peter asked how new initiatives will be factored into the renewal plan. Many of the ships that were built ten years ago did not anticipate the needs and directions that we are now learning about, such as, ocean observatories. There has also been Navy's shift in research interest from deep water to the littoral zone.

Tim Cowles remarked that a year ago UNOLS and some FOFC members were concerned that the academic renewal plan would be consumed by an integrated agency renewal plan. As FOFC now moves forward with an integrated plan, how can we ensure that the Academic Fleet renewal will stay on track and will not be overtaken? Over the last five years a lot of effort has gone into defining future science directions and requirements, how will the other agencies do this in the next six months? The other major concern is that the academic plan will be constrained by budget limitations. By presenting an integrated plan the competition for funds will be more evident. A separate academic fleet plan would be more focused and would clearly identify the community's facility needs.

Bob Winokur explained that Navy research ships would have to compete for AGOR funds, with or without an integrated renewal plan. The interagency plans should not be in competition with each other. Each agency will be required to articulate their real needs as well as address fiscal realities. One of the first steps for FOFC is to identify their budget. The facilities that are identified by the updated FOFC plan would need to be able to be supported. Beth White added that NOAA's renewal plans haven't impacted the academic fleet plans. NOAA has been able to get new fisheries vessels and Navy ship transfers. A unified plan has a better chance of succeeding. In fact, it might strengthen the academic renewal plans.

There was discussion on how the FOFC plan and UNOLS plan could be in "lock-step." The FOFC plan will be drafted to be consistent with budgetary limitations. However, if budgets expand and additional research can be supported, the facilities needed to support the research must be articulated. A UNOLS Fleet plan could project facility needs based on future research directions and demand. In order for FOFC and UNOLS to be in "lock-step," the FOFC plan can be viewed as the high priority facility needs. The UNOLS Plan could reinforce the facility requirements outlined by the FOFC plan, but also articulate the facility requirements in an expanded budget scenario.

Bob Knox commented that earlier in the year a few UNOLS representatives met with agency representatives and discussed the topic of the Fleet Plan update. At that time there was indications from the agencies that it would be good for UNOLS to create its own document. Before UNOLS begins to draft their plan, we would like to get agency

feedback. Bob Winokur replied that if it is drafted in such a way so that it is not contradictory it could be useful.

Peter Wiebe commented that UNOLS has been trying to project what the ship use will be for the future. Even if there is level funding, a fleet larger than that indicated in the FOFC Plan, figure 17 is needed. If FOFC plans to reduce the fleet, we need to alert the community. They need to be able to think about how they can accomplish their science in the future. Bob Winokur replied that we shouldn't have to think small, however, we just need to think realistically. As research needs and directions change, the fleet composition must be re-evaluated. The FOFC plan is only addressing ship needs. The NORLC has questioned FOFC as to when the other facilities will be addressed.

Niall Slowey commented that UNOLS isn't putting together a wish list of fleet needs. The future Fleet identified in the FOFC plan cannot meet current research needs. The oceanographic community will not be able to accomplish all of today's research programs with the future FOFC fleet.

NSF Fleet and Facility Renewal Activities - Mike Reeve reported on renewal activities at the National Science Foundation (NSF). The Alaska Region Research Vessel (**ARRV**) was approved for inclusion the Major Research Equipment (MRE) account and is listed for funding in FY06. In February 2005 NSF will have a better idea of the budget status.

EWING Replacement – Earlier in the year Lamont Doherty Earth Observatory (LDEO) proposed that EWING be replaced with a modern seismic vessel rather than undergo a mid-life refit. After review, NSF agreed and the seismic vessel, WESTERN LEGEND, was purchased by LDEO. NSF will purchase the ship from LDEO over the next five years. Plans are being developed to convert the ship into an oceanographic research vessel. These plans will be put out to bid to shipyards. Selection of a yard is expected in spring 2005. LEGEND will go into service in 2006. EWING's last cruise will take place in early 2005. NSF has received a letter from LDEO requesting that the ship be named MARCUS LANGSETH.

Replacement Human Occupied Vehicle (HOV) – Woods Hole Oceanographic Institution (WHOI) submitted a proposal to NSF to replace ALVIN with a deeper diving HOV. NSF reviewed the proposal favorably and they have entered into a four-year cooperative agreement with WHOI. Funding will be in a phased approach, based on successful outcomes of the early phases.

Regional Class Ships – Plans for design and construction of Regional Class ships are moving along. NSF is developing a request for proposals for design/build teams, which should be advertised in mid 2005. From the proposals received, two teams will be selected. NSF plans to advertise the Regional Class operator solicitation in mid summer 2005.

Regional Class Operational Capabilities have been drafted. These take into account the UNOLS prioritization of the Regional Class SMRs. The ship design will be based on the

operational capabilities. Comments from UNOLS regarding the operational capabilities need to be provided as soon as possible. The performance specification for the Regional Class will be a more detailed document than the Operational Capabilities. JJMA, NAVSEA and NSF will be drafting the Performance Specifications over the next few months. They will be looking for comments from UNOLS. NSF would like to be able to send it out to UNOLS for review in increments instead of having to wait until the entire document is drafted. Pete Kilroy remarked that because of the sensitive nature of the document, it would need to be discussed with their legal counsel before releasing it. They need to make sure that none of the potential design/builders of the ships get an advanced copy of the performance specifications. The confidentiality of the solicitation needs to be maintained. The issue and options for maintaining confidentiality will be considered further.

Bob Knox asked if the solicitation for operator would be for selection of all three ship operators. Mike Reeve replied that this has not been settled yet.

Ocean Class Planning – Phase II Study and Next Steps –Phase II of the ONR sponsored Ocean Class study was completed in the summer. The study looked at various hull forms including monohulls, SWATHs and X-Crafts. The study’s findings are available in JJMA PowerPoint presentations posted on the UNOLS website at <http://www.unols.org/committees/fic/ocean/ocean_class.html#OCphase2>. In other ONR sponsored activities, Curt Collins has been funded to conduct a motion study that compares the WESTERN FLYER with the POINT SUR. Matt Hawkins has been funded for a handling system study.

Ocean Observatory Facility Needs – Ken Brink, Ocean Research Interactive Observatory Networks (ORION) Project Director, was invited to the FIC meeting to discuss ocean observatory facility needs and timelines. The ORION Project Office is working to define the science plan and the execution plan for the ocean observatory initiative. Ken’s presentation is included as *Appendix IV*.

Ken began by explaining that the benchmark being used by ORION in developing their facilities needs is the UNOLS Report (Feb 2004) by Alan Chave and committee, <http://www.unols.org/committees/fic/observatory/work_group.asp>.

The assumptions for facility needs are critical and involve three elements. They call for:

- Global Arrays:
 - 10 Large Global buoys
 - 10 Smaller Global buoys
- Regional Observatory (Juan de Fuca):
 - 3200 km of Regional cable with 26 nodes
- Coastal Observatories:
 - 15 long term Coastal sites
 - 30 “pioneer” Coastal sites

Ships and ROVs would be needed for operations such as:

- Surveys
- Cable Laying (chartered)
- Installation of science equipment
- Mooring deployment and servicing (largest moorings require charter for installation)
- Maintenance and sensor changes
- Related science (not included)

The Chave report indicates that observatory installation would begin in FY06. The annual operation and maintenance estimates are:

- UNOLS Global Class for global moorings: 600 days (ROV required 75% of time)
- Commercial cable repair vessel (standby)
- UNOLS Global Class for Regional cabled system: 150 days (ROV required)
- UNOLS intermediate/regional/local for Coastal observatory: 330 days

The ocean observatory facility needs will place heavy demand on the already heavily utilized UNOLS Global vessels. The ocean observatory facility needs are equivalent to using THOMPSON and REVELLE full-time. In the current FOFC plan KNORR and MELVILLE are retired at the end of their service life without replacement. As a result, by 2020 there will be fewer ships available than there are today to support both the traditional ocean research plus the added support required by the ocean observatories. The large ships will require modifications (heavier lift and fueling capability) to support ocean observatories. Additionally, changes would be needed in the UNOLS scheduling process to allow more flexible scheduling of facilities to support event response activities and to respond to unplanned maintenance/repairs. ORION plans to evaluate the depressed cable industry for potential vessels for charter/lease/purchase.

Ken explained that ORION is working to define the actual size/scope of the ocean observatory. They will have to determine what can be supported based on available budgets. It will likely be scaled down from the original estimates identified in the Chave report. As examples, there may be 10 vs. 20 Global moorings, or 8 vs. 26 Regional Cabled nodes.

The ORION Executive Steering Committee is starting to develop an Implementation Plan. Their target date for completion is late summer 2005. He encouraged the community to stay engaged. Input is needed from scientists and engineers. A call for community input is expected.

Overall Planning Considerations will include:

- Scientific demand
- Potential synergies
- Design and Installation costs
- Operations and Maintenance costs, including Cyberinfrastructure

Discussion followed. Dan Schwartz asked if there are any plans to prioritize the OOI installation list. Ken replied that the plan is for installation over five years, FY06 to FY10. The most innovative items would be installed last.

Tim Cowles recommended that the ocean observatory needs should be considered by the FOFC plan update. Ken reported that he has briefed FOFC on the ORION plans and projections.

Marc Willis cautioned that a scaled back ocean observatory installation might not necessarily result in a linear decline in ship demand. Once a node is installed it will have to be serviced.

Break

Ocean Observatories Discussion (Continued) – The Chave Report estimates for ocean observatory facility needs have been incorporated into the UNOLS Fleet utilization projections. A series of graphs were created and were presented by Peter Wiebe to FOFC in April 2004 (*Appendix III*, slides 11-15). The projections extend out to 2020. The current UNOLS Fleet includes 27 ships. In 2020, 12 current and new ships will be in operation according the FOFC plan. This assumes that the new seismic vessel, the ARRIV, three NSF Regional vessels, and the CAPE HENLOPEN Replacement Vessel (CHRV) are funded. With the addition of ocean observatory ship time (installation and O&M), demand is expected to increase approximately 1000 days by 2020. In 2020, a total of 21 new ships will be needed to meet estimated ship time demand (includes observatory ship time). The breakdown of ships by class are:

- 5 Global ships (includes Seismic)
- 5 Ocean Class ships (includes ARRIV)
- 3.5 Regional Class >40m ships (includes the 3 ships to be funded by NSF)
- 7.5 Regional and Local Ships < 40m

Revised Vessel Retirement Dates and SLEP Estimates - Dave Hebert provided background information on the recent effort to update vessel retirement dates and develop Service Life Extension Program (SLEP) estimates. This year the UNOLS vessel operators were polled to determine if they thought their respective vessel retirement dates should be extended. If so, they were asked to provide a SLEP cost estimate for a 5-year extension and for a 10-year extension. FIC was concerned that the SLEPs would be perceived as a good option for delaying Fleet renewal. For this reason, the operators were asked to show how the capabilities of their current ships compare to the Ocean Class and Regional Class SMRs. These SMRs identify the requirements necessary to support future science.

There are eleven UNOLS ships >40 m that have retirement dates prior to 2020 and are potential candidates for SLEPs (excluding ALPHA HELIX and EWING). Preliminary findings indicate that most of the ships (>40m) can have their lifetimes extended 5 and possibly 10 years for an estimated cost of \$1.025M-\$5M per ship for a 5-year life

extension. Extension of retirement dates for most vessels <40m is not recommended. The immediate focus for ships with retirement dates past 2020 is on mid-life refit planning.

It is important to recognize that the SLEP estimates focus on maintaining the ship in an operational condition without enhancing the scientific capabilities of the platform. The responses to the poll indicate that the existing Intermediate Class vessels do not meet most of the desired Ocean Class SMRs and the Regional Class ships fall short of the Regional Class SMRs in many areas.

FIC's preliminary finding is that maintaining the current UNOLS fleet vessels beyond their designed service life will significantly impede the advance of ocean science relative to that possible with new ships that meet the SMR specifications.

Most of the operators have provided responses. Inconsistencies in the report are being identified and addressed. Once these are addressed the report will be finalized. Dan Rolland commented that they have some seakeeping analysis data that might be useful to the large ship operators in their comparisons with the Ocean Class seakeeping SMRs.

Al Suchy remarked that the ship operators provided a considerable amount of time, effort and information for this project. A lot of thought went into their responses.

Beth White requested a copy of the preliminary report for the next FOFC working group meeting. UNOLS will try to address inconsistencies in the report and then provide a preliminary copy to Beth prior to the FOFC meeting.

Ship Design and Construction Efforts – Full status reports on design and construction efforts will be provided at the Annual Meeting. There was an opportunity for brief updates. Terry Whitlege reported that the ARR V project is on track and the design will be complete soon. Just a few items are outstanding. They anticipate the ice classification for the ARR V to be approved. If it is not approved, they will probably have to file for waiver. Over-the-side handling plans are being kept open, until recommendations from the handling system symposium are available. The ARR V Web page is available <<http://www.sfos.uaf.edu/arrv/>>. There will be time for community review of the design. Construction of the CAPE HENLOPEN Replacement Vessel is well underway at Dakota Shipyard in Anacortes, WA. Delivery is scheduled for October 2005.

Fleet Improvement Plan (FIP) Update – Dave Hebert opened the discussion on the Fleet Improvement Plan (FIP) and asked the FIC if an update to the 1995 report is needed. There are number of new factors that should be considered:

- Future science initiatives
- Ocean observatory facility projections
- Updated vessel retirement dates
- Updated Fleet utilization trends (*Appendix III*, slide 19)
- Ship construction plans and realistic timelines
- Future Fleet operating costs
- The FOFC Plan update will be based on budget realities.

There have been many studies since the 1995 FIP that have estimated future facility needs based on emerging research directions. These include the Future documents and the Cowles/Atkinson report, and the Chave Report on ocean observatory facility needs. All of these studies should be examined to determine if the future needs identified by them could be met with the Fleet of the future.

Dave presented slides (*Appendix III*, slide 20-21) showing the estimated Fleet operating costs for 2004 as compared to the estimated cost for the Fleet in 2020. The 2020 estimate is based on the FOFC Fleet as indicated in Figure 17 of their report. The daily rates for Regional Class and Ocean Class vessels are based on estimates from the recent JJMA studies. In 2020 there will be few ships available than there are now. In reviewing the chart it was recommended that the smaller, local ships would likely be replaced with institution/state support and that replacements should be included in the 2020 Fleet. With the addition of the local ships, there still would be approximately 1000 fewer operating days available to support sea-going science. The operating cost of the 2020 fleet is estimated to be roughly level with the operating cost of the 2004 fleet (2004 dollars). Tim Cowles commented that it is important to articulate the shortfall in ship day availability in 2020. This needs to be included in an updated fleet improvement plan.

FIC agreed that the UNOLS 1995 Fleet Improvement Plan should be updated.

Peter Wiebe recommended that in order for FOFC and UNOLS to be in “lock-step,” they should meet together. A two-way exchange is needed.

Lunch Break

UNOLS Fleet Improvement Plan Outline – The FIC drafted an outline for an updated FIP. Assignments were also identified. The draft outline and assignments are as follows:

UNOLS Fleet Improvement Plan Outline:

- Executive Summary / Intro
- Identify Future Science Initiatives:
 - Physical - Dave
 - Biological - Terry
 - MG&G - Niall
 - Chemical – Jim B
 - Education – Clare
 - Ocean Engineering -
 - Cross cutting initiatives (Observatories (broad)) – Jim C
- Current Fleet Composition and Utilization Trends - Office
 - Current Fleet Description
 - Updated vessel retirement dates and SLEP costs
 - Fleet Trends

- Geographical utilization
- Future Fleet Projections – Office and others
 - UNOLS and FOFC Plan Fleet Projections -
 - Ship Construction Plans and realistic timelines
 - Addition of other facility projections (Ocean observatory, etc)
 - Other Facilities – aircraft, deep submergence facilities
 - Scheduling and operating modes
 - Shortfalls:
 - Differences between FOFC and UNOLS FIP
 - Consequences of not carrying out SLEPs
 - Tradeoffs between various scenarios - Peter
 - Extensions and expansions beyond the FOFC Plan
 - Future Fleet Composition
- Fleet Budget Projections and Requirements
 - Ship Construction Cost
 - Future Fleet operating cost estimates
- Recommendations

There was discussion on how the two reports, one from FOFC and one from UNOLS, would be perceived. Bob Knox remarked that the UNOLS report would identify the facility needs that are required to meet future science directions. Peter asked if a projection could be made on how science would be impacted by a smaller fleet in 2020. What are the consequences of not expanding the fleet?

Next, the FIC established a draft for the project timeline:

- Finalize outline and assignments– 15 November 04
- Coordinate with FOFC - winter
- Draft text and prepare projections – 28 Feb 05
- First Draft – March Council Meeting
- Community review – April 1-30, 2005
- Second draft – Spring/Summer Council Meeting
- Circulate second draft for comment – Sept 1
- Final draft – September 30, 2005

Global Class Mid-Life Refit Planning and Science Mission Requirements – Dave Hebert discussed the status of plans to update the 1989 Global Class SMRs. Based on a 30-year service life, THOMPSON will be approaching its mid-life in 2006. At the last meeting it had been decided that the Global Class SMRs should be reviewed and updated as needed based on new science needs. The updated document would be useful as mid-life plans for the Global vessels are considered. Dave showed a series of slides, *Appendix III*, slides 22-25.

A Global Class Steering Committee has been formed with Bruce Howe (UW) as Chair. The committee includes Global vessel marine superintendents, representation from the various science disciplines, FIC, and RVTEC, and individuals with expertise in coring and ROVs. The full committee list is included in the slides. Initial draft tasks for the committee include:

- Review the past SMRs and other documentation to form the basis of the SMRs.
- Develop mission scenarios.
- Hold a Community workshop (if needed and funding available) to draft a set of requirements and desired capabilities.
- Solicit input and feedback from the larger science and operator community throughout process
- Produce SMR document.
- As a follow-on activity incorporate Heavy Lift considerations, and Seismic Capabilities

A web page for the project has been created <http://www.unols.org/committees/fic/global/global_smr.html>.

Bruce has identified some initial items that he would like the Committee to consider:

- Identify new ship developments/technology
- Identify developments in other countries, oil patch, Navy, etc., that are relevant.
- A review of basic bounding parameters/rules of thumb (size, range, speed, fuel rate, DP tradeoffs, ROV use, manning, cost/day, etc)
- User scenarios will be important to get on the table sooner rather than later
- Get the community involved!

Dan Schwartz stated that ONR hasn't identified funding for the THOMPSON mid-life refit. The ship MOSA account has been suggested to support the mid-life, but NSF has made it clear that this is unacceptable. Dan suggested that perhaps a mid-life refit account should be established. At the earliest, University of Washington will submit a proposal in fall 2005. Updated Global Class SMRs would be useful to reference. Tim Cowles stated that UNOLS should emphasize the need for mid-life refits.

Special Note: John Freitag revisited the topic of funding for Global Vessel mid-life refits later in the day. His comments are included here. John reported that the Oceanographer of the Navy views the UNOLS Navy-owned Global ships as relatively "new," so they do not need to be refitted in the very near future. As a result, no money is being budgeted for major refit periods. If the Global refits were to be supported, the funds would need to come out of ONR core program funds. John is not optimistic about the availability of funds. He indicated that they have been funding some improvement projects, but doesn't see funding for major projects. Instead of a dedicated mid-life refit period, it is likely that improvements and upgrades will be implemented during periods of opportunity over a number of years when funding is available.

KILO MOANA discussion (*Appendix III*, slides 26-41) - Dave Hebert reported that a letter was sent to University of Hawaii in April 2004 listing some of the problem areas that have been reported during the KILO MOANA debrief interviews. Dave reviewed the list of items. Chris Measures joined the meeting via phone conference and provided the status on some of the items with feedback received from Brian Taylor. This is represented in the text below. Responses are shown in italics.

- CTD operations – Issues include the number of people required to undertake CTD operations and the location of where the CTD casts are taken. *U. Hawaii agrees with these comments that CTD operations take too many people and result in undamped package motion near the surface (with attendant loss of near-surface data and safety concerns). They have proposed to replace the system with a Dynacon heave-compensated knuckle-boom crane, but this is on hold pending the ONR-NSF sponsored study on handling systems.*
- Aft cabin noise - concern of high noise level in the aft cabins when the winches are being used. *No action has been taken in this area and potential sound insulation fixes may be expensive.*
- Visibility Issues - It is suggested that more cameras are required. *Cameras have been added.*
- Drainage Problems - FIC suggests that ship trim and other operational conditions be recorded when experiencing drainage problems. *It appears that there haven't been any recent complaints.*
- Wave Slapping - FIC suggests that trim measurements, sea state and other operational conditions be recorded when wave slapping is occurring. *No action.*
- ADCP availability – There was no operational ADCP. *University of Hawaii has installed a new system.*
- Underway system pressure – It is recommended that the system pressure be monitored and increased if necessary. *No action.*
- Incubation work site – Provide an incubation work site and ensure that adequate high volume seawater is available at that location. *No action.*
- Holding tank capacity - Comments have suggested that the tanks need to be pumped anywhere between 8 and 24 hours. FIC suggests that the drains be configured so that uncontaminated seawater after passing through the scientist's equipment, may flow directly back into the ocean rather than into the holding tanks. *No action.*

In other areas, there have been reports that KILO MOANA's dynamic positioning system (DPS) doesn't work well at slow speeds. The original Lockheed DPS didn't work and was replaced with a new Kongsberg-Simrad. Dan Rolland reported that software problems are being addressed.

FIC reviewed the list of debriefs that have been conducted since the ship went into service in 2002. Most cruises have had debrief interviews, 19 total. *Appendix III*

provides a brief summary of the more recent debrief responses and areas of concern. On the whole, the ship users enjoy the stability of the ship. Some of the negative aspects of working from the SWATH that have been reported are that when seas are >6 ft the motion and vibrations were unusual, unpredictable. Although the ship is normally stable, users shouldn't forget to use tie downs and secure equipment.

Recent debriefs have reported that the underway systems (thermosalinograph, running seawater) were working much better than in earlier cruises. The ADCP is now working. In regard to email, users would like to have more than three email transfers per day. Also, there was a report of problems sending files >100 KB. The DPS didn't work well at slow speeds. One thruster had a steering problem while in DP and acted erratically.

The FIC discussed whether or not the KILO MOANA PI debriefs should be continued in 2005. The Committee was divided. Some indicated that additional debriefs were not needed and that enough information has already been collected. They felt that most of what we can learn about the ship has been learned. A summary document should be drafted. Others felt that the debriefs were useful and should be continued. They would allow us to identify any new problems as well as monitor areas that have already been identified as areas of concern. This information can be provided to the University of Hawaii to help support any proposals for improvements. In the spirit of compromise, it was decided to continue the debrief interviews but with a more focused set of questions.

At the last meeting it was recommended that feedback be obtained from the captains of the WESTERN FLYER and KILO MOANA. Both individuals were also captains of monohulls previously. Mike Prince volunteered to contact them.

Break

ADA Design considerations – Terry Whitledge reported on the Americans with Disabilities Act (ADA) and how it can be considered in ship designs. His viewgraphs are included as *Appendix V*. The U.S. Access Board, an Independent Federal Agency, develops and maintains accessibility requirements and enforces accessibility standards for federally funded facilities. They have drafted a report, "Construction Requirements for Passenger Vessels to Include the Americans with Disabilities Act." The definition of Passenger Vessels is very broad and can be construed to include research vessels. Terry reported that the draft document is about 200 pages long. He and Glosten Associates reviewed the document to determine how its recommendations could be adopted to the ARRV. This could perhaps then be used as a set of guidelines for UNOLS vessel new construction. Terry reviewed the titles of the 12 Chapters included in the document.

The ARRV design attempts to meet the intent of the ADA guidelines. The ADA design features incorporated into the ARRV include:

- One ADA stateroom accessible via forward lift
- Top bunk in ADA stateroom a Pullman
- One ADA water closet on main deck
- 12:1 slope for interior sills to labs on main deck

- Navigate over 24” weather sill in Baltic room via cargo door and removable ramp
- Four foot wide passageways (36” clear)
- Minimum 32” door widths to mess, lounge, spa, gym, and labs

The guidelines are very specific about audible signals for the hearing impaired and the height of switches. Terry showed a schematic of the ADA stateroom.

Terry offered to draft a white paper summarizing the ADA design considerations. The paper could be added to the SMRs as an appendix.

Identify FIC Projects, Goals, and Priorities for 2005 - The FIC discussed and identified projects for the upcoming year. These include:

- Regional Class:
 - Help identify UNOLS representative(s) for the IPT teams.
 - Stay engaged in acquisition process (ongoing)
 - Provide feedback to NSF
 - Insure community input
- Ocean Class: Stay engaged
- Global Class: Update SMRs
- ADA Guidelines - White Paper – Terry
- Update Fleet Improvement Plan
- Ocean Observatories – Stay in contact with ORION Office.
- Ongoing Design and Construction Efforts - Stay engaged in ARRV, EWING replacement planning, and CHRV.
- KILO MOANA – Continue debriefs (streamlined and selective)
 - Obtain feedback from Captains
 - Summary document of Debriefs

Review FIC Action Items and Assignments – The FIC reviewed their action items and assignments. These include:

- Everything listed in the above section (2005 Goals, Projects, etc)
- Review Regional Operational Capabilities (UNOLS comments should be submitted to NSF by the end of October) – FIC/RCAC
- Address SLEP/retirement date inconsistencies (by Oct 26) – Global Operators, Office, others

Draft a FIC Report for the Council Meeting – The FIC prepared a report for the Council meeting, which summarizes the recommendations and actions from this meeting. Their slides are available in the minutes of the Council Meeting at <http://www.unols.org/meetings/2004/200410cnc/200410cncap03.PDF>.

Other business:

FIC Membership Changes - Terry Whitledge is completing his first full term on FIC and Chris Measures is completing his second term. Terry has expressed his willingness to stay on the Committee for a second term and FIC endorses his nomination for a second

term. A replacement for Chris will be needed and a call for nominations was broadly advertised to the community. One nomination has been received from Jim Cochran (LDEO). Jim is a member of the UNOLS Ocean Class Steering Committee and is also a member of the EWING Replacement Conversion Oversight Committee. The FIC recommended that Jim Cochran's nomination be forwarded to the UNOLS Chair for appointment.

Winter Meeting – There was discussion on the time, place and format of the winter FIC meeting. Mike Prince reported that an in-person meeting would need to be justified and agency approval is needed. Travel funds for a second FIC meeting are not in the UNOLS budget. The FIC members agreed that it would be most useful for them to meet as a group, in person. There are important projects on their agenda in the upcoming year that would best be accomplished in a forum that allows open conversation and discussion. The update of the Fleet Improvement Plan is an example. The FIC recommended that the winter meeting be an in-person meeting.

1700 Adjourn