

UNOLS FLEET IMPROVEMENT COMMITTEE MEETING
The Spring 2007 UNOLS Fleet Improvement Committee Meeting (FIC)
will be held on March 20-21, 2007 (Tuesday and Wednesday)
Scripps Institution of Oceanography
T-29 Martin Johnson House, La Jolla, CA

Executive Summary:

The UNOLS Fleet Improvement Committee met at Scripps Institution of Oceanography on March 20-21, 2007. Day two of the meeting included a joint session with the UNOLS Council. Reports and updates on Fleet renewal plans and implementation were provided. Agency representatives reported on budget projections and facility acquisition efforts. The status of the development of ADA Guidelines for Research Vessels was also provided.

New and Continuing Action Items:

Task Description	Action/Status
Ocean Class SMRs - Over the next two months verify whether or not these SMRs still represent the community's requirements. Prioritize the SMRs with input provided by Navy on constraints.	FIC
Global Class: Update SMRs – send out one last call for community input and finalize	Global Class SMR Committee
KILO MOANA Actions:	
<ul style="list-style-type: none"> Contact Brian Taylor to keep abreast of Handling System details. 	Dave H.
<ul style="list-style-type: none"> Draft EOS or other appropriate article 	Dave and Brian Taylor
Design and Constructions Efforts - Stay engaged in ongoing design and construction efforts (Regional Class, ARRV, <i>Langseth</i> Conversion, etc.)	FIC
Fleet Improvement Plan Update: <ul style="list-style-type: none"> Finalize all writing assignments, Revise and generate new charts as suggested during meeting, incorporate alternative/new technologies, complete Ship requirements table. 	FIC & Office
ADA Guidelines: <ul style="list-style-type: none"> Complete ADA Guidelines for UNOLS Fleet 	Terry Whitledge
Develop Webpage(s) for Science and Educational Opportunities – incorporate FIC suggestions, request Nixon review, finalize	DeSilva
Science User Debriefs for R/V <i>Hugh Sharp</i> - Dave working with Matt Hawkins will draft user debrief questions that will evaluate the new technologies of the ship. <ul style="list-style-type: none"> Conduct debrief interviews with <i>Sharp</i> users. 	Dave Hebert <ul style="list-style-type: none"> FIC
Ocean Observatories – Stay in contact with ORION Office.	Dave Hebert

<p>Science User Debriefs for Knorr’s Long Coring Capability - Dave working with Jim Broda/Bill Curry will draft user debrief questions that will evaluate the operation of Knorr’s long core capability. It will also assess the impact on the general-purpose capability of the ship.</p> <ul style="list-style-type: none"> • Conduct debrief interviews with <i>Knorr</i> users. 	<p>Dave Hebert</p> <ul style="list-style-type: none"> • FIC
<p>FIC Membership Changes – Seek nominations to fill Terry Whitledge’s FIC position. Representation from a Biologist is desired. Geographic areas not represented include Alaska, off Washington, and the Gulf of Mexico.</p>	<p>Office and FIC</p>

Appendices:

I	Agenda
II	Attendees
III	FIC Meeting Slides
IV	Ship Time Request Award Statistics
V	Ocean Observatory Projections
VI	Service Life Extension Plan Updates
VII	Summary list of Ship Requirements needed to meet Future Science Directions
VIII	Fleet Improvement Committee Report to Council
IX	R/V <i>Marcus Langseth</i> and MLSOC Meeting Report
X	Replacement Human Occupied Vehicle Project Status Report
XI	ORION Presentation
XII	Ice Breaker Status Report
XIII	ADA Guidelines Status Report

Meeting Summary:

Call the Meeting: The UNOLS Fleet Improvement Committee (FIC) met at Scripps Institution of Oceanography on March 20-21, 2007. Dave Hebert, FIC Chair, called the meeting to order at 0830 and provided an opportunity for introductions. The meeting agenda was followed in the order as recording in these minutes. The meeting agenda is included as **Appendix I** and the meeting participants are listed in **Appendix II**.

October 2006 FIC Meeting Minutes – Editorial changes to the October 2006 Meeting Minutes were suggested to correct text on pages 9 and 10. A motion was made to accept the minutes of the [October 2006 FIC Meeting](#) with the revisions as noted. The motion passed (Garfield/Conte).

Review FIC Action/Task List from March meeting – Dave Hebert reviewed the status of the Committee action items that are listed on slides 2 and 3 in **Appendix III**.

Fleet Improvement Plan (FIP) Discussion - Dave reviewed the status of the Fleet Improvement Plan and explained that this meeting would focus on the Fleet utilization projections.

Interagency Working Group on Facilities (IWG-F) Report – Bob Winokur reported that the IWG-F Federal Fleet Plan has been sent to the Joint Subcommittee on Ocean Science and Technology (JSOST) twice. There were substantial comments from the Office of Management and Budget (OMB) and OSTP. They objected to any words that commit to funds. OMB didn't want anything in the report that wasn't in a budget. Only facilities with funding are permitted. They have recommended that the report be released as a "status report" as opposed to "Plan." Any out-year projections are removed. The plan will project to the year 2015 and through that period the Federal fleet size remains relatively stable.

Bob continued by discussing potential future activities for IWG-F. One suggestion has been to develop a facility priorities plan modeled after the ocean priorities plan. IWG-F will propose the facilities priorities plan to JSOST. The plan would address facility priorities for the next decade. He welcomes everyone's ideas. Ideas can be sent to Dave and Annette.

Bob Houtman further explained the OMB and OSTP view of IWG-F's Fleet Plan. They felt that the plan had a strident tone in its statement for the need for ships. OMB doesn't think that ships should be viewed as the only tool. OMB recommended that new technologies be considered in addition to ships. They need to look at other cost effective means for doing science (novel, less man power). Bob Houtman explained that we would all be more effective in promoting Fleet renewal if we can also address the benefits of new technologies.

Discussion followed:

- Clare asked if the Navy's Ocean Class ships are in the plan. Bob Winokur replied that the two Ocean Class ships are in the plan.
- Al Hine asked what other facilities are needed and being considered by IWG-F. Bob Houtman gave the example of AUVs and explained that IWG-F fully recognizes the need for ships, but they are looking at what other technologies are needed
- Dave suggested that FIC also consider other technologies and determine if they will reduce the need for the ships and if so, to what extent?
- Al Hine questioned whether there has ever been a meeting where the technology people have sat down with the ship people to determine how the technologies would impact ship demand.
- Terry Whitledge recommended that mission scenarios are needed.

Dave presented Figure 17 of the 2001 FOFC plan that shows the Fleet renewal plans (*Appendix III*). He then went through the evolution of renewal plans and what is now presented in the IWG-F status report. FIC will need to justify what facilities are needed above the IWG-F report.

Annette explained that one difference between the IWG-F status report and the UNOLS FIP is the dates that the new ships are scheduled to enter the Fleet (*Appendix III*). The FIP dates reflect

the latest estimates of retirement dates. All agreed that the UNOLS renewal dates should be used in the FIP report.

Regional Class Acquisition Status – In late 2006, a 90-day stop work order was issued to each of the Regional Class design/build teams. The order ended in mid-March. Work will resume and the teams will be given revised specifications that include constraints for ship construction cost and life cycle costs. As for the Regional Class operator selection, NSF would like to have the operator selected by the time of ship construction. The revised Regional Class specifications call for a maximum length of 155-ft and that the ship be uninspected.

Ship Time Request Award Statistics – Mike Prince has prepared a paper on Ship Time Request award statistics and it was distributed prior to the meeting (*Appendix IV*). The paper estimates proposal success as it relates to ship time requests. It is based on all of the “active” ship time requests in the UNOLS system. It does not include requests submitted prior to 2006 that had been declined, but it does include (in the funded category) earlier requests. This skews the results in favor of funded requests. The requests are for NSF only, except that OPP has been excluded. Basically the ship time proposal success rate in 2007 is about 30%, which is probably a bit high. The UNOLS Office doesn’t have a good way to track success rates. The bottom line is that to increase ship utilization, funding support must be increased.

Fleet Improvement Plan Projections - Next discussion focused on the projection charts contained in Appendix III. The chart that projects ship demand as compared to the number of ship days available through 2025 was discussed and concern over the gap between ship demand and the available ship days was expressed. The gap would potentially make it difficult to justify the need for new vessels. Discussion followed:

- Maureen Conte – We need to highlight the point about the funding shortfall. Demand is high, but due to funding constraints, not as much ship time can be afforded.
- Al Hine - Can commercial time be sold? Marc explained that selling commercial time has to be handled very carefully. Federally funded vessels cannot be considered as competition to the commercial vessels.
- Jim Bauer – Perhaps there could be different versions of the projections with curves that show an
 - Annual increase in ship demand of 1%
 - Annual increase in ship demand of 2%
 - Remove the axis that shows the number of ships
- Bob Winokur – Avoid the ship demand projection that is a flat line. This would make it difficult for them to justify the acquisition of Ocean Class ships.

Ocean Observatory Projections - Dave reported that Kendra Daly (ORION Office) provided ocean observatory projections (see *Appendix V*). Support for science days associated with research at ocean observatory are not included in the Major Research Equipment (MRE) account budget. Bob Detrick explained that the MRE account budget only covers the installation costs for the ocean observatories and that operation and maintenance (O&M) costs are not included in the MRE. According to the observatory projections provided by Kendra, the 140 maintenance days plus transit would need to be supported from the traditional basic research budget. The

UNOLS projection chart that includes observatory facility needs in Appendix III is incorrect; there shouldn't be any blue bars. ORION hopes that the NSF budget would grow enough by 2013 to support O&M.

Discussion:

- It was pointed out that once an observatory is installed, it would have to be serviced. The service costs will compete with science funds.
- Suggestion – In the FIP, change “utilization” to “funded ship time.”
- Excess ship capacity could be used to accommodate event response needs that are more likely once the observatories are installed.
- A suggestion was made to add another chart that shows ship time request days, days available, and days funded.

Service Life Extension Plans (SLEPs) – In February 2007 the operators for *Endeavor*, *Oceanus*, *Wecoma*, *Point Sur*, and *Cape Hatteras* were asked the following questions:

1. How long can you continue operating your vessel with your present maintenance plan before you would need a service life extension program (SLEP)?
2. In 2004, all of the operators were polled regarding SLEP requirements and associated costs. Does the cost and work items identified in the 2004 survey still represent the SLEP requirements for the ship that you operate?

The summary of their response is included in **Appendix VI**. The current projected retirement dates for these ships are all within the next 5 years. It was suggested that the *Endeavor*, *Oceanus*, and *Cape Hatteras* retirement dates could be extended a couple years before a SLEP is needed. All of the ship service lives could be extended for five or ten years with SLEPs. The question before FIC is whether or not the retirement dates in the plan should be revised. If needed the SLEPs could be implemented until a new ship comes on line.

Bob Detrick cautioned that the retirement dates should be carefully evaluated. Ships must be available to support the ORION Pioneer array in the mid-Atlantic. Before taking ships off line, the needs of science and observatories should be considered. Some of the ships will have to stay in service.

Annette commented that there will be a UNOLS subcommittee appointed each year to evaluate ship scheduling recommendations and non-operational periods. As part of their tasking, they will consider the retirement dates of vessels.

In conclusion, it was decided to keep the retirement dates as they currently are stated and add an explanation that the dates can be extended without major new investment. Given the future needs that are known (ORION installation), the current ship service lives can be extended. Until the new ships come on line, the current ships can be operated, but it must be realized that they are less capable. Refer to the retirement date as the “projected end of service” date.

Additional Chart Suggestions:

- Include a chart that shows the average fleet age by year.

- On the projection chart – split out the bar so that it shows the average age of the ship. Base the age on the year the ship was built.
- Ships that have dynamic positioning and multibeam systems (ships that support observatories should have DP)
- Another Chart - Make a table that compares the SMRs to the Fleet

Lunch Break

Fleet Improvement Plan (FIP) Discussion - continued

Science Facility Requirements - Dave reported that he created a summary list of ship requirements needed to meet future science directions (*Appendix VII*). To create the list, he went through each of the science sections of the FIP and pulled out the science facility needs. He was looking at the facility needs that go beyond the SMRs. The list was an attempt at identifying all of the facility needs. He compared his list to the SMRs and there was considerable overlap. As a follow-on, a table could be put together to identify which items are needed for each discipline.

- Maureen – Uncontaminated air sampling should be added to the list. This item should be separated out, or it should be better defined. Say “Clean Air”
- Al Hine – There should be a rock-dredging ability. Dave replied that the new handling system should be able to support rock-dredging.
- Al Hine – A freezer should be included.
- Some of the items in Dave’s table could be accommodated in vans.

As a next step, the question of how new/alternative technologies affect how science is carried out should be addressed. Some of these technologies include:

- AUVs
- Gliders
- ROVs
- Observatories
- Remote aircraft
- Off shore stable platforms
- Floats (disposable)
- Shore based instruments

The technologies should be examined to determine how they would impact ship time. Their limitations and benefits should be identified. Toby suggested that we determine what portion of the ocean cannot be sampled with gliders. This section can be added after the IWG-F

Fleet Renewal Recommendations - The table that compares the Fleet of 2005 to the Fleet of 2020 was reviewed (*Appendix III*). General discussion followed:

- Clare – Are we losing our national capability compared to the other countries that are making investments into facilities. A chart could be added showing the foreign ships that are coming on line.
- The facility needs that are required by the Ocean Research Priorities Plan should be stated. Basically, what facilities are needed to meet demand in future?
- Bob Detrick – We are facing the problem that the new facilities being built will be too expensive too operate. We won't be able to afford them. There is a need to have a balanced renewal plan that considers operating costs. It is better if UNOLS can come up with the plan rather than the agencies.
- Marc Willis – There must be a compelling argument as to why more ships are needed.
- Maureen – A question that could be addressed is “Will the current fleet and projected fleet meet the requirements of the Pew and Ocean Commission Report”
- Dave – The FIC needs to identify the number of ships that will be needed in the future.
- It was suggested that a couple of ships be added to the renewal plan and be shown as gray ships (as was done in the 2001 FOFC Plan). These could fall between the classes in terms of size and capability:
 - 2015 - Regional/Ocean Class vessel
 - 2017 - Ocean/Global Class vessel

By 2015, the current MRE projects should be completed and perhaps NSF would be receptive to new acquisition initiatives.
- Maureen said that we need to articulate why SLEPs won't be beneficial.

New UNOLS Web Page – Volunteering and Cruise Opportunities - Annette DeSilva reviewed the draft UNOLS web page <http://www.unols.org/info/cruise_opportunities.html> that could be used as a tool for chief scientists/PIs to recruit watchstanders for cruises. It can also be used by students and educators to volunteer to serve on cruises. The FIC recommended that the list of volunteers should not be listed for public viewing, instead the names could be provided upon request. It was also recommended that Dennis Nixon (UNOLS risk manager) be asked to review the site.

Break –The FIC moved to a new meeting room for the remainder of the meeting.

American's with Disabilities Act (ADA) Guidelines – Terry Whitledge reviewed the status of the draft ADA Guidelines for Research Vessels. He reported that progress has been delayed and the final draft hasn't been vetted through the ADA committee yet. He continued by reporting on the ADA workshop that was held at Woods Hole Oceanographic Institution in September 2006. He discussed some of the findings and recommendations. Terry's full report will be provided to the Council later in the meeting.

Most of Terry's focus has been on the ADA guidelines for the Regional Class ships. NSF asked the ADA Committee to provide ADA guidelines so that they could be included in the Regional Class designs. Dave Barksdale reported that the ADA recommendations have been included in the Regional Class modified specifications that were recently sent to each of the Regional Class design teams.

Annette added that procedural ADA guidelines will be included in the updated version of the Research Vessel Safety Standards (currently being drafted). Also, the NSF inspectors will be looking for things that could enhance ADA accessibility during their ship inspections. The ADA design modifications will also be incorporated into the SMRs.

Global Science Mission Requirements (SMRs) Update - Dave Hebert reported that there has been minimal community response to the survey on Global vessel SMRs. Some years ago a Global Class SMR committee was formed to update the SMRs. The committee was formed because we thought that the updated SMRs would be useful as plans were developed for the Global Class mid-life refits.

There have been some new capabilities that could be desired for these ships. Bob Detrick pointed out that the Global vessels might potentially be useful in servicing the observatories. More information would be needed on the final design of the benthic nodes and how frequently they would have to be serviced.

Dave Hebert added that a long piston core capability might also be desired for the Global Ships.

Bob Detrick said that an upgraded dynamic positioning systems for the Global ships would be useful.

For the next step, the Committee decided to put out one last community call for Global SMR input before updating the SMRs.

Kilo Moana Update - Dave reported that the new load handling system has been installed and is in service on the R/V *Sharp*. The *Kilo Moana* handling system requires ABS approval, which has turned out to be a very slow process. U. Hawaii expects to have their new system in June 2007. Hawaii would like to install the system in their homeport so that they can tend to any initial installation needs. ROV *Jason II* trials were carried out from *Kilo Moana* to determine if the vessel could support the ROV. The trials were successful.

Other business:

R/V *Sharp* User Debriefs - Dave Hebert raised the question of whether FIC should conduct user debriefs for R/V *Sharp*. The ship is the newest in the Fleet and has many new features. Alternatively, FIC could monitor the *Sharp* via the post cruise assessment reports that are submitted by the users. Jim Bauer has used the vessel and was in favor of the debrief interviews. The input would be useful as renewal efforts move forward with the Regional Class designs. Dave Barksdale commented that any input would be too late for the Regional Class design, but if

there is something catastrophic it should be brought to the attention of the designers. However, the information could be helpful to the Ocean Class design process.

There was discussion on whether or not *Sharp*'s operator should be included in the debrief interviews. Annette pointed out that there was criticism for not including the operator in the Kilo Moana debrief process. The FIC expressed concern about having operator involvement and worried that the users would not be open in their assessments.

Jim Bauer shared some feedback from his cruise aboard *Sharp*. The new handling system had been heavily lubricated with grease prior to Jim's cruise. As a chemical oceanographer, there was concern with grease contamination of the samples collected. This is the type of user feedback that would be useful to improve future operation.

The Committee decided to move forward with the *Sharp* debriefs. Dave will contact Matt Hawkins and work with him to develop debrief questions with the intent to evaluate the new technologies of the ship.

R/V Marcus Langseth – Jim Cochran provided a brief update on the R/V *Langseth* conversion. Reflagging and conversion efforts continue. About \$1.6 million additional support is needed to complete the project and LDEO is working to secure the funding. If all goes as planned, the sea trials of the vessel will take place in the summer 2007. The first cruise planned is a 3D seismic cruise for John Mutter in the fall 2007, to be followed by an OBS program. Additional information about the status of the *Langseth* conversion will be provided later in the meeting. [Post meeting note – the *Langseth* conversion and sea trial dates slipped later in the year.]

2007 FIC membership changes - The term for Jim Cochran and Terry Whitledge are ending in the fall. Jim is eligible and willing to serve a second term. A replacement will be needed for Terry. Geographic areas that are not represented on the committee include Pacific Northwest (with Terry's departure) and the Gulf region. It would also be useful to have additional representation in Biological Oceanography.

Adjourn Day 1

Day Two - Wednesday, March 21, 2007:

Introduction - The UNOLS Council met at Scripps Institution of Oceanography on March 21-22, 2007. Day one of the meeting included a joint session with the UNOLS Fleet Improvement Committee. Marcia McNutt, UNOLS Chair, called the meeting to order at 0830 and provided an opportunity for participant introductions.

A motion was made and approved to accept the minutes of the October 2006 Council Meeting (Rob Pinkel/Margo Edwards).

Agency Reports, Budget Projections, Future Fleet Utilization, and Fleet Renewal Activities:

National Science Foundation (NSF) - Dolly Dieter provided the report for NSF. The Agency is working under a continuing resolution at the FY06 budget levels with some increases. There are no new starts under the MRE account, but they have asked for an exception. When NSF gets their final budget authority for FY07, they will have to spend the funds quickly. NSF is optimistic about the FY08 budget, but uncertain about the 2009 budget level, which they are starting work on.

Regional Class Research Vessel (RCRV) Acquisition – NSF and PEO-Ships requested a stop work order on the Regional Class design efforts last fall. The new work specification to resume work by the two design teams is expected within days. The RCRV designs were growing too large and expensive to build or operate. NSF has now put a cap of 155 feet length and made other changes to stay within budget. They have also raised the cap on construction costs. One estimate has the current budget to build these vessels as high as \$40M, which is a number that approaches a level that might preclude using "mid-size" infrastructure funds. NSF will have to review what they can afford. If they have to pursue MRE funds, the project would get delayed. NSF will wait to see what comes from the RCRV design efforts, as this will determine if they can move forward. Until these matters are settled, NSF will wait on the ship operator selection. All of their large infrastructure projects (ARRV, Drill ship, OOI) are behind schedule and over budget. It is not the best time to build ships as there is currently a shipyard boom and everything is more costly. The Ocean Sciences Division of NSF has so many large acquisition projects in the queue that they are under careful scrutiny by the highest administrative levels at NSF.

Alaska Region Research Vessel (ARRV) – NSF held a panel review for the ARRV design with only one proposal from the University of Alaska, Fairbanks (UAF). The panel was a weeklong and the panel did a very thorough job, looking carefully at all aspects of the proposal. A phased approach to the construction and awarding of the funds was recommended. The project must stay close to the budget, because even a 10% overrun would result in an increase of \$10M to \$15M.

Marcia asked if new people with large project management experience would be hired to support NSF in their acquisition efforts. The projects will have to include this type of project management expertise. Dolly replied that NSF is recruiting a new section head and will also hire an IPA to help with infrastructure project management.

National Oceanic and Atmospheric Administration (NOAA) - Beth White provided the NOAA report. NOAA, like NSF, does not have a final FY07 budget yet. Their Continuing Resolution spending plan must still be approved by the Office of Management and Budget (OMB) and the pertinent Appropriations Committee. They have finalized FY07 allocation plans based on the current understanding of the continuing resolution. The FY07 budget will not support as many operating days for the NOAA fleet or UNOLS charter as in FY06.

The Ocean Exploration vessel, *Okeanos Explorer* is undergoing conversion in Todd Shipyard. It came with an earmark for conversion of \$18M, which is not enough to support the entire

conversion plan. Another \$9M is required for a telepresence capability and to complete scientific outfitting. The vessel is expected to be mission ready in July 2008.

V.T. Halter Marine is constructing a \$15.5M SWATH to replace *Rude*, NOAA's smallest hydrographic vessel operating on the east coast. The caterpillar propulsion engines intended for the SWATH were affected by new EPA regulations concerning emissions. The wait for engines that will meet the new EPA pollution requirements has delayed the project by at least 75 days.

NOAA believes the arcing and flashback problems experienced on the new Fisheries Survey Vessels (FSVs) *Oscar Dyson* and *Henry B. Bigelow* have been corrected and the vessels are now operating. FSVs 3 & 4 delivery is now delayed by a couple months due to the need for VT Halter shipyard to repair structural damage caused by Hurricane Katrina. A third quarter 2008 and 2009 delivery is now anticipated. School naming contests resulted in the name *Pisces* for FSV3 and *Bell M. Shimada* for FSV4.

NOAA is trying to move forward with a shallow water fishery survey vessel design, but has been told by the Department of Commerce that they will need to show solid requirements for the ship in a Fleet Capitalization Plan that is currently being drafted. NOAA is working closely with Commerce and OMB during the development of the Plan in the hope it will meet with success and be provided to Congress.

Office of Naval Research (ONR) - Bob Houtman provided the report for ONR. ONR has an FY07 budget and it is similar to past years. Bob expects that his base budget for FY08 will continue at about \$10M with additional funds from other Navy users.

For 2007, *Melville* was taken out of the normal scheduling and is being used for Navy projects in the Far East. The plus-up money for FY07 has been applied for the extended Navy ship time operations (*Melville*) and the remainder is being split between the University of Washington (UW), University of Hawaii (UH) and Woods Hole Oceanographic Institution (WHOI) for maintenance, ship equipment, etc.

Two Ocean Class vessels are identified in the FY08 budget to be funded in SCN budgets in FY11 and FY12. ONR has sent funds to PEO-Ships to put together a conceptual plan for these ships. They need to put together the project plan and supporting documents to get a milestone A decision by October of this year. ONR will ask UNOLS to assist by reviewing the Ocean Class SMRs over the next two months and verifying whether or not these SMRs still represent the community's requirements. The Navy will also look at Navy requirements and they will use these to build the documents for the decision A. Jim Cochran asked if prioritization was something they wanted also. Bob indicated that prioritization would be very useful. UNOLS will need information on any Navy constraints to help with the prioritization efforts.

Dolly emphasized that it is important to keep the ship design within constraints. The vessels must have a realistic day rate and construction cost.

Rose Dufour asked Beth White for the projection of the support needs for the Deep-ocean Assessment and Reporting of Tsunamis (DART) project. Beth didn't have the projection available.

Fleet Renewal Plans:

Interagency Working Group on Facilities (IWG-F) Fleet Renewal Plan Update – Bob Winokur provided the report. He began by first mentioning that Congress provided the Navy with \$116M to build a new oceanographic vessel (T-AGS66). The Navy cannot request any additional funds for the ship's construction and must keep the acquisition within the budget.

Bob thanked UNOLS for their help with the Federal Oceanographic Facilities Committee (FOFC) Fleet Renewal Plan. At the direction of the Office of Science and Technology Policy (OSTP) and OMB, the "Plan" will now be a "Status Report." The report went through repeated review processes, and although IWG-F thought that they had accommodated all comments, OSTP and OMB disagreed. In general OSTP and OMB felt that the plan was overly strident and too optimistic.

The Status report addresses the federal fleet through 2015. Any ship that is not in a budget appropriation had to be removed from the plan. Through 2015, the federal fleet stays relatively constant. Past 2015, the size of the fleet is reduced. IWG-F had to move from stating requirements in the report, to stating missions. OSTP and OMB questioned the impact new technology would have on ship demand and asked, "Can technology replace ships?" IWG-F had to address this question, and pointed out that often new technologies do not replace ships, but instead increase demand on ships.

IWG-F is now a subcommittee of the Joint Subcommittee on Ocean Science and Technology (JSOST). IWG-F will provide the draft Status Report to JSOST at their meeting on 22 March.

IWG-F is contemplating what their focus should be next. The IWG-F charter is to address facilities, not just ships. Bob would like to suggest that the Group build upon the Ocean Research Priorities Plan (ORPP) to create what might be called an Ocean Facilities Priorities Plan. The plan would look out 20 years and determine what facilities would be needed to support the recommendations of the ORPP. They would build a report around the themes identified in the ORPP. It would be based on science and agency needs.

Discussion followed:

Marcia thought this was a good strategy because OSTP and OMB were heavily invested in the ORPP. Also NSF put in a lot of effort to make sure that the ORPP was scientifically sound. Using the ORPP would mitigate any comments that it was not appropriate to look at facilities planning out in the future. Putting a facilities plan together with the ORPP will make the whole more acceptable to the community and perhaps to OMB.

Margo Edwards asked if the new icebreaker assets that were recommended by the recently released Ocean Studies Board (OSB) report had been included in the IWG-F Status Report. Bob

Houtman replied they were not included by direction because the icebreakers are not appropriated and the icebreaker policy is being developed.

Jeff Callahan asked if the status report would be an annual report. Bob Houtman replied that it would not, but the report would be reviewed at regular intervals.

Beth White mentioned that Barbara Moore had made the case during a recent IWG-F meeting that unique facilities such as underwater habitats (*Aquarius*) should be included in facilities plans. Marcia explained that Rick Spinrad has suggested an interagency review of major facilities to determine their demand and support needs, as well as, how they might be shared among the agencies. The review could evaluate which facilities are truly unique and what their demand is. Those facilities with low demand would be removed from consideration. The study would help establish the real facility priorities on an interagency basis.

Bob Winokur said that there are members of the IWG-F who think the IWG-F should address satellites. Bob feels that these are already covered by other groups and it is something that he doesn't want to deal with.

Mary Jane Perry asked if facilities such as Toga-Tao arrays and ocean observatories would fit into the facilities. Bob Winokur thought that the Toga-Tao arrays and other in-place arrays would be included, but is undecided as to whether observatories should be included. The boundaries on what facilities the IWG-F addresses will have to be defined.

Marcia thought that it might be a good idea to let new facilities like observatories develop more before becoming part of the agenda for UNOLS and IWG-F.

Fleet Improvement Committee (FIC) Meeting Summary and Fleet Improvement Plan Recommendations - Dave Hebert (FIC Chair) summarized the FIC meeting that was held just prior to the Council Meeting. His slides are included as *Appendix VIII*.

The FIC spent much of their meeting discussing the Fleet Improvement Plan (FIP). Dave showed the FIP table of contents and the project website. The FIC has been having phone conferences about every two weeks since October to review the Fleet Plan.

The IWG-F fleet status report will be used by FIC as the baseline for the minimum fleet requirements in the Fleet Improvement Plan. FIC would then articulate what they felt the requirements were beyond the minimum based on scientific demand.

Through a series of slides, Dave showed how the projections called for in Figure 17 of the 2001 FOFC Fleet Renewal Plan have changed over the years. Figure 17 is a projection of ship construction through 2020. The 2001 Plan included “gray” ships, which were ships that UNOLS had recommended for construction (if the budget could accommodate them). These ships have been removed by the IWG-F status report. The seismic ship moved forward from 2018 to 2007 with the acquisition and conversion of R/V *Marcus Langseth*. The ARR V funding and projected construction will take longer than originally planned and it will not enter the fleet until 2010. Dolly cautioned that the ARR V is not in the MRE approved budget yet. She projected that the

ARRV would not operate until 2011. The Ocean Class ships have been reduced from a total of four to two ships. The revised Figure 17 shows a scaled back renewal plan.

Dave explained that to be consistent with the IWG-F status report, they would consider a ship to be operational for a full year even if it only operates one day in that year. However, there are still some differences between IWG-F and UNOLS in ship service dates (see Appendix III, slide 8). The UNOLS dates are based on the latest available information. The timeline shows the new UNOLS dates for ships beginning operation. These dates will continue to change, for example the ARRV will probably enter the fleet in 2011 at the earliest.

The FIC members spent a lot of time discussing the UNOLS Fleet Projections, which always get a lot of attention. In the past, the FIC had used the averages of past years of utilization as the projection. They are now considering either flat line or curve projections to evaluate various scenarios. The committee would also like to point out that during the summer months, ships are often used to full capacity to meet demand.

The chart showing a comparison of today's fleet with the fleet of 2025 was reviewed and options of looking at the fleet at points other than 2025 should be considered. For example, the IWG-F status report only projects to 2015, so that might be a year to consider.

Other items discussed that are related to the need for additional ships beyond what are included in the IWG-F status report include items such as the Ocean Commission reports, the ORPP, and new initiatives related to global climate change (see *Appendix VIII* for additional items).

Dave reported on new ships that the Fleet Improvement Plan might recommend that include a vessel between the Regional and Ocean Class size, a Regional Ship that can meet all of the desired SMRs (Intermediate size), and another Global Class vessel.

The FIC also reviewed Service Life Extension Program (SLEP) recommendations and costs. The bottom line is that there is some flexibility that would allow vessels to operate beyond the currently stated retirement dates. The Intermediate Class SLEPS do not enhance science capabilities and these ships will still not meet the Ocean Class SMRs. (See slides for other SLEP constraints)

Toby Garfield pointed out that the Intermediates and Regional ships will be well over thirty years old soon, and given the nominal ten-year timeline to get new ships online we have a real problem facing us. Dolly said that the agencies were all well aware of this problem. In some cases some of the work in the ten-year timeline has already begun, and there is flexibility due to the material condition of the vessels in the fleet.

Dave showed the changes in the FIC membership. Jim Cochran is finishing his first term. A motion to reappoint Jim Cochran to a second FIC term was approved unanimously. Nominations to replace Terry Whitledge will be entertained as he is finishing his second term. They will be looking for a biologist.

Beth White asked if there has been any thought on people support. New ships with advanced technologies will require a different skill base. Marcia McNutt replied that the Marine Technology Society visited MBARI to discuss this issue. They are very concerned with this and are beginning to address it.

Facility Design, Construction, and Conversion Efforts

UNOLS Facilities:

Marcus Langseth Conversion Status - Steve Holbrook reported on the first official Marcus Langseth Science Oversight Committee (MLSOC) meeting, which was held earlier in the week on March 19-20 in Galveston, TX. His slides are included as ***Appendix IX***. The R/V *Langseth* is docked in Galveston and the MLSOC had an opportunity to tour the ship and observe the conversion effort. Steve reviewed some of the major changes to the ship, which include the starboard side deployment deck and the marine mammal observation tower.

The terms of reference for MLSOC include providing state-of-the-art seismic acquisition capabilities. This goal is probably unrealistic because the capabilities have been reduced by removing half the seismic equipment from the ship, however, the facility will be near to state of the art.

Other goals are to lower the threshold of expertise needed for users of the seismic facility and to increase the quality and accessibility of archived data.

Steve reported that the first meeting was very productive and to some extent was a handing off from the Ewing Replacement Oversight Conversion Committee (EROCC) to the MLSOC during this joint meeting. The committee is very broad based with representation from industry, marine mammal expertise, and general oceanographic people.

The key issues covered during the meeting include:

- Staffing - Staffing of cruises for four different scenarios such as 3D, 2D, OBS deployment with guns only, and general oceanography were considered. The committee felt that it was critical to provide adequate staffing, especially for 3D cruises. The model of just having a science officer will not work.
- Shipboard processing needs were discussed. Navigation is crucial. Real-time brute stack capability is required. Hardware and software will be in place, but not necessarily the onboard processing staff.
- Lowering the threshold for user expertise was discussed. This will be difficult, but important.
- Shakedown cruise - The cruise plan is extremely tight and some rearranging was discussed. There was some danger of not getting the 3D test portion done to the point that a 3D image data could be obtained to verify that everything works properly.

- Marine Mammal Observation (MMO) - LDEO and NSF will take the lead on this. R/V *Langseth* will be proactive and be a prime MMO platform. Five full time observers will be on all seismic cruises.
- Ombudsman role – The MLSOC will work to liaison between the facility operator and the community. They will communicate via a web site, AGU town hall meetings, and direct contact with future and past PIs.
- Long range planning – This will be difficult, but the committee will communicate pending research sites to the community. They will try to avoid long transits.

R/V *Langseth* Conversion Status - John Diebold continued with a report on the ship's conversion status. The ship is finally in Galveston after delays moving the ship out of the shipyard in Nova Scotia and getting approval from the Coast Guard to transit to Galveston.

LDEO will conduct multi-beam calibration, dynamic positioning (DP) calibration and an NSF inspection before conducting a combined testing and calibration cruise. They have about two and a half months before they need to get underway with an ambitious plan for completing all required conversion and outfitting tasks. There is a lot of work left on the ship interior. Most of the exterior conversion work has been completed.

Lab outfitting is just beginning. John showed a picture of the main lab. Much of the overhead, joiner work and flooring work that should have been done in the Nova Scotia shipyard, will have to be done now in Galveston at the same time as the outfitting. There are a lot of challenges, but they have a plan to move forward that was developed by the industry people that now work for LDEO. All of the LDEO technicians are at the ship and assisting with the outfitting. Jeff Rupert (LDEO) will be the ship's scheduler.

Rose Dufour asked what the ship's day rates would be for the various seismic operations. John replied that they have not done the final calculations yet. The 3D operations will require additional people and fuel. Ship operation costs are expected to be about \$33K per day. The cost for 2D seismic is expected to cost an additional \$12K per day, and slightly more for 3D seismic.

UNOLS Vessel Application - Mike Prince reported that LDEO has submitted an application to approve the R/V *Marcus G. Langseth* as a UNOLS vessel with contingencies for reflagging, conversion completion and a successful NSF inspection. The application was distributed to the Council prior to the meeting. Mike explained that in the past, applications have been approved conditional upon the successful completion of the contingencies and the appropriate correspondence to indicate that the contingencies no longer exist. Often the NSF inspection is carried out just prior to science operations. A motion was made to approve the R/V *Marcus G Langseth* application for UNOLS vessel status conditional on the contingencies being removed (Ortner/Corliss). The motion passed.

Replacement HOV Status – Bob Detrick reported on the status of the Replacement Human Occupied Vehicle (RHOV) project. His slides are included as *Appendix X*. The first phase, fabrication of the personnel sphere, is moving forward with Southwest Research Institute as the contractor. Testing of the hull titanium has been completed. The hull Preliminary Design Review (PDR) was completed in December 2006. In February, the Replacement HOV Oversight Committee (RHOC) met and decided to move forward with the project. Detailed design has started. Ingot production of the titanium began in March. The titanium was purchased last year to lock in the price (titanium prices have tripled in the past few years). A new hull forging process will be used and a slide showing the various steps was presented. The timeline for Phase 1 was reviewed. The forging process will take a year to complete. This will be followed by machining and welding. The hull is expected to be complete in 2009.

Next Bob discussed Phase II of the project, which is for vehicle design and construction. WHOI issued a Request for Proposals (RFP) for the vehicle design in November 2006. The RFP was sent to seven potential offerors, but only two proposals were received. The decision was made to cancel the RFP because the bids were too high. WHOI has explored options to reduce cost. These are outlined in Bob's slides. One option was to revise the contracting strategy, which is how WHOI is moving forward. Under the new strategy, they will negotiate the price for detailed design, fabrication, and testing six weeks after completion of the vehicle PDR. They will include a clause that allows WHOI to cancel the contract based on the estimate. There will be more collaboration between WHOI and the Contractor in developing the Statement of Work (SOW), providing a clearer understanding by both parties. WHOI just received approval from NSF to move forward with the revised RFP.

Bob reviewed the RHOV timeline. They hope to have the vehicle fabrication bids by the end of May. Design and costing will take about four months and would be followed by the decision on whether or not to move forward with the project. The personnel sphere would be integrated with the vehicle in early 2009 and system tests would take place later that year. If all progresses on schedule, the RHOV would be ready for science operations in 2010.

Dolly added a few comments. It was decided to go ahead with the sphere construction despite the possibility that they won't build the RHOV because of high costs. This is because the sphere could be used to improve the *Alvin*. The *Alvin* would have better capabilities with the new hull, but would not be rated for deeper depths unless *Alvin's* foam was replaced. NSF Contracting is heavily involved with this project and they are comfortable with this approach.

Non-UNOLS Facilities:

Ocean Observatories - Bob Detrick provided a status report on the Ocean Research Initiative Observatory Network (ORION) and the Ocean Observatory Initiative (OOI). His slides are included as *Appendix XI*. Bob presented the OOI Funding Profile. OOI was slated for a FY07 start, but that is still under negotiation. The continuing resolution will not allow new starts under the Major Research and Equipment (MRE) account. OOI is in the FY08 budget.

One of the issues that came up during the FIC meeting was operation and maintenance (O&M) support funds for OOI. Bob explained that there is money in the MRE account for ship time to

install the observatory; however, O&M ship time requirements will not be funded from the MRE account. O&M funds would come from the normal Research and Related Activities (R&RA) OCE funds. Bob's slides show the budget timeline for funding OOI.

The components of OOI are Coastal, Regional Cabled Observatory and Global Arrays. A series of slides was shown that outlined the scope, changes and potential budgets for each component.

Regional Cabled Observatory (RCO) includes two stages. Stage I is the Neptune Canada section, which is funded separately. Stage II is the NSF funded section, which is now down to four nodes from the original fifteen.

The Global Scale Observatory includes six sites that would focus on remote, high latitude sites where observations are scarce and hard to come by. There are five discus buoys that send data back through telemetry. There is one SPAR buoy in the mid Atlantic that would have power generation capability.

Coastal arrays includes the Pacific Northwest Endurance Array off of Oregon and Washington and a Coastal Pioneer Array on the east coast that would include moorings, gliders and Autonomous Underwater Vehicles (AUVs) to provide a 4D view of a block of the coastal ocean. This array is moveable.

Details about each of these types of observatories are included in *Appendix XI*.

Bob provided the status of OOI planning (see slide). The ORION office is moving ahead with the hiring of Implementing Organizations (IO). The RCO IO is in the final review stage and is expected to be awarded in March 2007. The Cyber-infrastructure IO is under review and an award is expected in April 2007. The Coastal/Global IO award is planned for August 2007. According to the FY07 schedule timeline, construction proposals will be submitted in late 2007 followed by a design review and National Science Board (NSB) approval before money could be spent starting somewhere in 2008.

In other supporting activities, the MARS cable has been laid and the trawl resistant node will be installed by the end of March 2007. The MARS commissioning is planned for September 2007, which represents a major milestone. Neptune Canada plans are on schedule for operation in 2008.

In concern over the projected OOI budget, NSF placed a cap on the O&M budget of \$50M. In response, some de-scoping of the project was done to stay within the \$50M limit. Bob explained that this was a big challenge and more of a constraint in terms of the final OOI design. These O&M constraints were particularly restrictive for the Global arrays and the Coastal observatories. The basic result of de-scoping is fewer nodes.

Mary Jane Perry made the comment that it seems necessary to look at where geographically the installation ship time would be needed, how much time is needed, and what types of platforms are required. As UNOLS considers vessel retirement dates, the OOI facility needs must be considered. Dave Hebert showed a table that had been presented during the FIC meeting

http://www.unols.org/meetings/2007/200703fic/200703ficap_03.pdf, slide 18. The table provides estimates for potential utilization of UNOLS vessels to install and then maintain the various OOI components. The table was compiled with the latest information provided from the ORION office. It lists the types of vessels that could support the work. The total O&M days are estimated at around 259 per year.

Marcia made the point that as OOI moves forward, UNOLS will need to build in flexibility into ship scheduling to allow event response, or response to a problem with a remote (or even nearby) component of the observatories. We will also have to look at flexibility on the part of scheduled PIs if an observatory component needs to be visited by a ship nearby. Use of other assets such as NOAA and foreign ships should also be evaluated. If flexibility cannot be accommodated, the observatories will have to face down periods.

USCG Icebreakers - Margo Edwards, past Chair for the Arctic Icebreaker Coordinating Committee (AICC) gave a brief status of the USCG icebreakers. Pictures of the ships and multibeam data are provided in *Appendix XII*. USCGC *Polar Sea* supported Deep Freeze in 2007, together with the Swedish icebreaker *Oden*. The *Polar Sea* departed Seattle Nov. 18 and arrived at McMurdo on January 1, 2007, a few days after the *Oden*. Favorable offshore wind conditions blew ice out of the ship channel, making operations easier. *Polar Sea* is expected to arrive back in Seattle in April 2007. *Polar Star* remains in caretaker status at the USCG Base in Seattle.

USCGC *Healy* completed her dry dock period in February and conducted sea trials March 1-3 and a shakedown cruise from March 8-16. The AICC participated in a shipyard visit and looked over the hull, fuel tanks, and multibeam system. The multibeam system has been problematic on *Healy* where the more ice you have, the more problems you have. Margo showed multibeam data to support the need for a system upgrade. In the next couple of years, the hope is to have a new multibeam. SAIC has been awarded a contract to look at what multibeam would work best on *Healy*. They had hoped to see how the EM122 would work on *Oden* in the ice this year, but the delivery is behind schedule.

Healy will sail in early April for Dutch Harbor to start the 2007 science missions. Three cruises have been scheduled: the BEST project in April-May; a northern Bering Sea cruise in May-June; and a cruise in August-September on the Chukchi Cap/Arctic Ocean. The gap in the schedule has not been filled and *Healy* is scheduled to return to Seattle between the 2nd and 3rd cruise. It is ironic that in the International Polar Year (IPY) July and August are open on *Healy*'s schedule.

American's with Disabilities Act (ADA) Guidelines – Terry Whitley, Chair of the ADA subcommittee, reported on the ADA workshop and the status of efforts to draft ADA guidelines for research vessels.

At the request of NSF, the UNOLS subcommittee was asked to draft ADA Guidelines that would address structural modifications and improvements as well as procedural guidelines for at-sea research operations by seagoing scientists with disabilities. The Committee's first task was to draft preliminary ADA design guidelines to be used in NSF's Regional Class Acquisition effort. Because of the RCRV's smaller size, implementing ADA structural modifications would be more

challenging as compared to the larger vessels of the Fleet. One ADA stateroom on the main deck is recommended that could be converted for general use when there is no one in the science party with a mobility disability. Some modifications that would improve accessibility for visually or hearing impaired could be implemented easily and with low cost. The Regional Class ADA Guidelines were completed and provided to NSF in early June 2006. *Appendix XIII* provides the draft Regional Class ADA Guidelines.

To assist in the task of generating general ADA guidelines, a workshop was convened on September 18-19, 2006 at Woods Hole Oceanographic Institution (WHOI). The workshop provided an opportunity to discuss and review the proposed guidelines that had been drafted by Terry Whitlege, as well as test the practicality of the procedural guidelines and identify any additional ADA recommendations. Workshop participants included ship operator representatives (captains, marine superintendents, crew, and marine technicians), agency representatives, Naval Architects, the UNOLS Risk Manager, a representative from the U.S. Access Board, and sea-going scientists including those with disabilities.

As part of the workshop, a tour of R/V *Knorr* was provided. The tour was very instructive in identifying the challenges for persons with disabilities. Some of the workshop science participants and one of the crewmembers are people with vision, hearing, and mobility disabilities. Obtaining their perspective on operations aboard a ship and responding to various situations was extremely useful. It was quickly realized that some of their suggested solutions to accessibility issues would enhance safety for all people on board the ships, such as improving markings and the visibility of hazards and the use of a buddy system for emergency situations.

The workshop findings reveal that many hearing and sight disabilities can be accommodated with modest cost and little to no redesign. Some examples include:

- Adding warning tactile stripping at the base and top of ladders and on weather deck edges.
- Extending railings at both the top and bottom of ladders.
- Providing adequate lighting in all areas, especially at ladders.
- Minimizing trip hazards by use of high contrast coatings.
- Reducing passageway obstacles.
- Implementing audio signals (door open/close, etc).

Many of the modifications that are required to accommodate mobility disabilities will be more difficult to implement on existing vessels because they could involve structural modifications to passageway widths, room size and layout, and ladders/stairs. It is better to implement these structural ADA features in the initial ship design. As for the Regional Class ships, one ADA stateroom is recommended for the Ocean and Global Classes. There is a better chance of implementing a lift system on these size vessels, which would allow the ADA stateroom to be in locations other than main deck. John Diebold asked if the subject of specialized berthing vans had been suggested. Terry stated that it had, but was not discussed in detail. ADA access to vans in general was of concern and would need further evaluation.

The Workshop participants recognized that there are many procedural issues that would best be addressed by the UNOLS Safety committee. These relate to pre-cruise planning, at-sea operations,

and emergency procedures. The workshop participants recommended that ADA procedural issues be addressed as a new section of in the Research Vessel Safety Standards (RVSS).

The workshop identified challenges that still need to be addressed. One of the biggest challenges in accommodating mobility disabilities is with egress to the ship and the gangway. Portable/temporary accommodations (people-rated personnel cages) for dockside access could be considered and further evaluated.

Once finalized, the general ADA guidelines for research vessels will be provided to the Fleet Improvement Committee for incorporation into the research vessel Science Mission Requirements (SMR). Sections of the ADA report can be extracted for inclusion in the SMRs to address ADA design requirements.

Terry Whitley is working to incorporate the workshop recommendations into the draft ADA Guidelines for Research Vessels. The revised document should be ready for review soon.

Mary-Jane Perry asked if emergency evacuation procedures were discussed. Terry said this was a lively discussion at the workshop. Modifications to immersion suits will also be needed to allow use by disabled individuals. It was suggested that Alaska Cruise lines be contacted for "Gumby" suit suggestions. The steps that should be taken after evacuation must be well defined. Some of these details will need to be addressed in shipboard procedures.

Lunch Break

This concluded the joint meeting of the FIC and Council. The Council meeting continued.

1200 *FIC Meeting Adjourns*