UNOLS COUNCIL MEETING
Thursday, October 14, 2004, 8:30 am
National Science Foundation
Stafford II Building, 555

Executive Summary

The UNOLS Council met at the National Science Foundation (NSF) in Arlington, VA on Thursday, October 14, 2004. The morning agenda items focused on Fleet Renewal activities and issues. Bob Winokur, Federal Oceanographic Facilities Committee (FOFC) Chair, reported that the FOFC Long-Range Fleet Plan update would consist of one coordinated 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.

A summary of the Fleet Improvement Committee (FIC) activities was provided. FIC plans to update the 1995 UNOLS Fleet Improvement Plan (FIP). The update will identify facility needs based on future science initiatives and research directions. An outline for the document has been drafted. Vessel retirement dates have been updated and estimated service life extension program (SLEP) costs have been prepared by UNOLS operators. Preliminary findings indicate that most of the ships (>40m) can have their lifetimes extended 5 and possibly 10 years for an estimated cost of $1M-$5M per ship for a 5-year life extension. The SLEP estimates focus on maintaining the ship in an operational condition without enhancing the scientific capabilities of the platform. A UNOLS steering committee has been formed to update the 1989 Global Class SMRs. The document will identify general-purpose oceanographic requirements. As a follow-on effort, heavy lift considerations, and seismic capabilities will be addressed.

Federal Agency Plans for Fleet Renewal Implementation were reviewed. NSF's renewal activities include the design of the Alaska Region Research Vessel (ARRV), replacement of Ewing with a modern seismic vessel, design and construction of a replacement for Alvin, and acquisition of Regional Class ships. There was a good deal of discussion on the Regional Class acquisition process and UNOLS voiced concern over the need for community involvement throughout the effort. RADM Cohen will attend the Annual meeting to discuss ONR's Ocean Class acquisition plans. There was discussion by the Coast Guard regarding refurbishment/replacement of the POLAR Class Icebreakers, science operations, and SLEPs.

The Council approved revisions to the Guidelines for Becoming a UNOLS Vessel. The revised Guidelines request the applicant to define how the vessel would fit into the fleet plan. The revised guidelines also better define the criteria for deciding on the applications and provides an appeal process.

Major topics addressed in the afternoon were Marine Mammals and Acoustic Permitting Issues and Frequency Spectrum Management issues. Sandy Shor reviewed NSF's efforts to work with NOAA Fisheries OPR to develop a programmatic permit that would underlie permits for individual seismic cruises. Steve Leathery (NMFS) reported on the restructuring of the NMFS Office of Protected Resources. Frequency Spectrum managers from NOAA, NSF, Navy and the NAS's CORF discussed spectrum management issues and how to better coordinate issues related to the ocean sciences. They explained the need to identify uses of the radio spectrum that are important to the Ocean Sciences. The Council decided to form a small committee to stay abreast of spectrum management issues and communicate with Radio frequency individuals.

LDEO has indicated that when the new seismic vessel, Ewing's replacement, is ready for service they will recommend that it be designated as a National Oceanographic Facility. The Council agreed to form an ad hoc committee to draft Terms of Reference for a new UNOLS Standing Committee to oversee the Facility once it is established.

Actions

Task Description/ Date Required	**Assigned/ Status**
Regional Class Actions: - Stay engaged	
• UNOLS Regional Class Rep - UNOLS needs to recommend a community representative to be the UNOLS rep to the IPT. Waiting for input from NSF.	Dave, Wilf, Peter, Office
• Review Regional Operational Capabilities Document and Timeline and provide input to NSF – need as soon as possible	FIC, Council, RCAC – COMPLETE
• Review and Comment on Regional Class Performance Specifications as they become available.	All
Seismic Vessel – Form an adhoc committee (4-6 people). • Draft Terms of Reference for UNOLS Standing Committee (due 6 mo.) • Suggest members for standing committee (due 6 months)	Council
Frequency Spectrum Management:	
• Draft a letter to Otis Brown thanking him for representing oceanographic community on CORF. Indicate that if any input is needed (on non-satellite issues), we are available.	Peter

• Form small committee to stay abreast of spectrum management issues and communicate with Radio frequency individuals	Council
• Provide NRC with nominations for their committee that will study Oceanographic Radio Frequency requirements.	Council
Letter Writing: • Thank you letters to Admiral Cohen, Margaret Leinen, and Bob Winokur • Letters to newly appointed committee members	Peter, Office, and Tim COMPLETE

Appendices

I. Meeting Agenda
II. Participant List
III. Fleet Improvement Committee – Meeting Summary Report
IV. NSF – Construction Projects and Timeline
V. ALVIN Replacement Timeline
VI. Guidelines for Becoming a UNOLS Vessel
VII. Marine Mammals and Acoustic Permitting Issues Report
VIII. Letter from LDEO (Mike Purdy) to UNOLS dated 9/24/04
IX. AICC Report to Council
X. DESSC Membership and Nominations

Meeting Minutes

Welcome and Introduction – The UNOLS Council met at the National Science Foundation (NSF), Stafford II, Room 555, Arlington, VA on Thursday, October 14, 2004. Tim Cowles, Chair, opened the meeting at 0830. Agenda items were followed in the order as reported below. 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 July 2004 Council Meeting <http://www.unols.org/meetings/2004/200407cnc/200407cncmi.html>. Tim noted that this was the first Council meeting to be conducted virtually.

Academic Fleet Renewal Activities and Plans:

Summary of FOFC Plans for Update of their Academic Fleet Long-Range Renewal Plan - Bob Winokur, Federal Oceanographic Facilities Committee (FOFC) Chair, provided the Council with a preview of the material he will present during the Annual Meeting. The FOFC update to their Long-Range Fleet Plan will consist of one coordinated 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.

FIC Meeting Summary – Plans and Recommendations - Dave Hebert, FIC Chair, provided a summary of the FIC meeting discussions and plans for the upcoming months. His slides are included as **Appendix III.**

During the FIC meeting it was decided that an update to the 1995 Fleet Improvement Plan (FIP) should be prepared. The update would identify facility needs based on future science initiatives and research directions. The FIC drafted an outline for an updated FIP and some assignments were identified. Major elements of the draft outline include:

UNOLS Fleet Improvement Plan Outline:

- Executive Summary / Intro
- Identify Future Science Initiatives
- Current Fleet Composition and Utilization Trends
- Future Fleet Projections
    - 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

Dave showed a chart with fleet utilization and projections through 2020. The Fleet of 2020 as outlined in the FOFC long range fleet plan would fall significantly short of meeting current ship time demands.

Dave reviewed the timeline for updating the FIP:

• Finalize outline and assignments– 15 November
• 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

Update Vessel Retirement Dates – Over the spring/summer UNOLS vessel operators were polled to determine if vessel retirement dates should be extended. If so, they were asked to provide a Service Life Extension Program (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.

Next, Dave discussed the effort to update the Global Class SMRs. The Global Class vessels are approaching the date for mid-life refit work. A Global Class SMR Steering Committee has been formed with Bruce Howe (UW) as Chair. The committee includes representation from the major science disciplines, ship operators, and marine technicians. 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. A website has been created to post progress on the activity: <http://www.unols.org/committees/fic/global/global_smr.html>

Initial efforts on the Global SMR project include:

• Identify new ship developments/technology
• Identify developments in other countries, oil patch, Navy, etc., that are relevant
• Review of basic bounding parameters/rules of thumb (size, range, speed, fuel rate, DP tradeoffs, ROV use, manning, cost/day, etc)
• Establish user scenarios
• Get the community involved!

Other items of discussion that FIC addressed in their meeting include:

• Ship Design and Construction Efforts – status
• ADA Requirements
• KILO MOANA Debriefs
• FIC Membership – Chris Measures completes his 2nd term. FIC nominates Jim Cochran.
• FIC Projects and Priorities for 2005

Lastly, FIC considered estimates of the operating costs for today's Fleet as compared to the estimated operating cost of the 2020 Fleet. Although the cost doesn't increase greatly, the ship days available in 2020 is greatly reduced as compared to today's rates.

Federal Agency Plans for Fleet Renewal Implementation:

NSF Facility Renewal – Mike Reeve (NSF) discussed agency acquisition and construction projects and cautioned that these are coinciding with lean budgets. He presented a timeline for construction and funding, see Appendix IV. The Alaska Region Research Vessel (ARRV) is included in the Major Research Equipment (MRE) account for the proposed budget and construction would be scheduled in FY07 – FY08 at $82M (provided the budget gets approval). NSF approved replacement of Ewing with a modern seismic vessel and LDEO has purchased the ship. There will be an NSF cooperative agreement to purchase the ship from LDEO over five years. An RFP to shipyards will be issued for proposals to convert the ship so that it can support oceanographic research. If all stays on schedule, the ship would be ready for service in early calendar year 2006. NSF is supporting design and construction of a replacement for ALVIN. The estimated cost is $20M with design and construction over four years.

Regional Ships - Construction of the Regional Class ships is estimated at $25M each. NSF is working with NAVSEA and has signed an MOA to undertake this process. A solicitation would be issued for ship design teams, perhaps by mid 2005. From the proposals, two design/construction teams would be selected to develop designs over a one-year period. The first ship could come into service in 2007. The ships are sequenced to match the availability of funds. The ship operator solicitation could potentially go out in the middle of next year (2005).

Discussion followed Mike Reeve's presentation:

Bob Knox asked how could the funds be available for Regional ship facility renewal when the budget is going to be flat? Mike Reeve – NSF has considered this and thinks that it can be done. $10M has already been paid for a replacement human occupied vehicle and Ewing replacement. The budget assumption is likely to be flat for a couple years and then hopefully there will be an increase after that. NSF can always look over the budgets and adjust as needed. The 2nd and 3rd ships would be options in the Regional Ship construction contract. If there are budget shortfalls, these options could be postponed/cancelled.

Mike Prince commented that the first task in the Regional Class project is review of documentation. NSF has agreed to share information. The first document, the Operational Capabilities was circulated to UNOLS for comment. Community review and comment of this document is very important.

Ocean Class Planning – Phase II study and next steps - John Freitag (ONR) provided a brief review of the Ocean Class project. RADM Cohen will provide a full report at the Annual Meeting. There is no money identified for Ocean Class construction in the classic sense (SCN funding) as with the AGORs. The Ocean Class Phase II study is complete. The study evaluated various hull forms as potential Ocean Class hulls. Curt Collins asked if there was a clear-cut best hull form. John indicated that the monohull is the low risk solution. Annette DeSilva asked if UNOLS could get a copy of the Final Phase II Report. John replied that UNOLS could probably get a copy.

Other Facility Planning:

USCG POLAR Class Icebreaker Science Operations, Service Life Extension Plans, and Major Issues – Jon Berkson (USCG) reported on the Polar icebreakers. The Ocean Commission Report recommended refurbishment or replacement of the Polars. Polar Sea has been condemned. Polar Star's engines are not much better, but it will support Deep Freeze and deploy in November. NSF has recommended that a second icebreaker is needed to support Deep Freeze, and contract of a foreign icebreaker will be explored. NSF did not want to use Healy as the second ship. In other activities, the MOU between USCG and NSF is being renegotiated.

A series of studies will be conducted to evaluate the replacement/refurbishment needs of the Polars. AICC is participating in this effort. Additionally there will be a Polar Icebreaker summit. The Summit will take a much broader look at the issue - economics, science, environment, security, and National policy. Finally, the appropriations bill for the Department of Homeland Security includes language directing the USCG to have a National Academies of Science study to evaluate science support by Coast Guard icebreakers.

Discussion followed:

Charlie Flagg – Are any AICC members or the science community reps included in the Summit? Jon Berkson – The Summit will mostly include high-level personnel, but NSF and NOAA would probably be at the table to represent science interests.

Peter Wiebe asked how the science community could get representation at the Summit? Jon Berkson indicated that he would find out.

Deep Submergence Facilities: ALVIN Replacement - Mike Reeve reported that Woods Hole Oceanographic Institution (WHOI) submitted a proposal for design and construction of a deep diving Human Occupied Vehicle (HOV) to replace Alvin. NSF and NOAA are supporting the proposal with funds for Phase I.

Some of the characteristics of the replacement HOV include a 6500 m depth capability allowing it to reach 99% of seafloor.

The new vehicle would be designed to provide:

- Faster descent speed
- Better visibility
- Variable ballast
- Improved ergonomics
- Heavier science payloads
- Improved sensors
- Improved maneuverability and manipulation
- Higher speed data

A Replacement HOV Oversight Committee (RHOC) has been formed. One of their responsibilities is to obtain community input and advice on aspects of the design and construction effort. The RHOC includes members from academia, industry, and NAVSEA. Karen Von Damm is the Chair. A public website has been established on the UNOLS website at <http://www.unols.org/committees/dessc/replace_alvin/replacement_hov.html>

Mike presented the timeline for construction; see **Appendix V**. In 2005 hull design and construction is planned as well as vehicle preliminary design. In 2006 hull design and fabrication continues and detailed vehicle design is carried out. Vehicle fabrication and purchase is planned for 2007. Following sea trials, the vehicle is scheduled to be ready for science work in mid 2008.

Hybrid Remotely Operated Vehicle (HROV) – Another major deep submergence facility project is the development of a hybrid ROV. WHOI has been funded to design and build an HROV. The vehicle will have a depth capability of 11,000 meters. An oversight committee that includes non-WHOI members of the science community has been formed. 2005 HROV project plans include testing the syntactic foam, completing proof pressure testing of floatation spheres, testing the microfiber, prototyping the batteries, and development and testing of the control system. Plans are to have the vehicle ready for service in 2007.

Scientific Aircraft – John Bane, Scientific Committee for Oceanographic Aircraft Research (SCOAR) Chair, reported that the committee would hold their fourth meeting in November. SCOAR would like to make an impact on how people think about using aircraft for their research. They would like to increase the communication between the users and aircraft operators. The SCOAR website provides information about aircraft facilities. SCOAR is working to spread the word about their committee. A short news article was submitted to EOS and

appeared in the October 12, 2004 issue. An expanded article has been submitted to Oceanography and is in review. Mike Prince added that they are trying to model the CIRPAS request system after the UNOLS ship time request model. Mike showed the Aircraft Request Form <http://www.unols.org/committees/scoar/cirpasrequest.asp>.

Discussion followed:

Peter Wiebe – Are there aircraft safety requirements? Dan Schwartz replied that the aircraft are strictly regulated. John Bane added that NOAA does a lot of aircraft chartering and they have come up with safety requirement above and beyond those set by industry.

Jon Berkson commented that the USCG spends a good deal of time in their aircraft for viewing purposes. Perhaps they could accommodate ancillary science projects.

Wilf Gardner – How does aircraft time get funded at NSF? John Bane replied that it is normally included as a line item in science proposals. However, if the request were for an NCAR aircraft the NSF Atmospheric Chemistry program would likely fund the time. Mike Reeve added that the Ocean Sciences division rarely handles aircraft, requests are rarely submitted. John Bane indicated that SCOAR has been in discussions with NSF to encourage them to take the funds for aircraft time out of the science proposals.

Mid Morning Break

Open Discussion and Identification of Fleet Renewal Issues that require Council – Time for open discussion was provided to discuss issues such as:

- Funding for Ocean Class Design and Construction
- UNOLS Rep to IPT for Regional Class Vessels
- UNOLS Input to RFPs for Regional IPTs and Operators
- Operation Cost Estimates for New Vessels

Tim Cowles opened the discussion period with a summary of activities to date. The latest Marine Technology Society Journal includes an article on academic Fleet renewal and has a table showing the vessel retirement dates. Projections are showing that in the future there will be fewer ships available and current levels of ship time cannot be accommodated.

Regional Acquisition and IPT Reps – It is good to have the Regional Class ship acquisition process on track and the SMRs prioritized. Tim stated that UNOLS would like to stay actively involved in the process and keep abreast of plans for soliciting Integrated Product Teams (IPT). It was important to define the process and role of the UNOLS IPT rep(s). UNOLS is concerned about how the rep(s) would communicate with the teams and convey community concerns. A letter has been sent to NSF voicing UNOLS concerns regarding the IPT process. Mike Reeve expressed NSF's willingness to have UNOLS collaborate on the project as

it moves forward to the RFP process. There are still some potential concerns in the contracting areas about sharing information. Tim encouraged everyone to review and comment on the Regional Class Operational Capabilities document.

Bruce Corliss – Has there been a precedence for more than one IPT? Dan Rolland – The Navy has had acquisitions with one or more teams.

John Hotaling commented that during NOAA's vessel acquisition they had a completely open process. The performance specs were openly available for anyone to comment on. Charlie Flagg asked what would NOAA do when a contractor had questions. John replied that NOAA would provide the answers to questions asked by any bidder to all bidders.

Dolly remarked that NSF wants community input; they just need to make sure that it is within the contracting rules.

Information about the results, findings and recommendations of the Regional Class and Ocean Class studies that were conducted over the past year are available on the FIC web page.

Operation Cost Estimates – The JJMA study showed that the Ocean Class ship day rates are estimated at $20k per day. Earlier in the meeting during the FIC report, a comparison chart was presented showing the approximate operating cost of the Fleet in 2004 as compared with the estimated cost in 2020. The chart is provided in Appendix III. The Ocean Class in 2020 will have fewer operating days available, but the cost will be higher. There is a higher cost to operating more capable ships. The total Fleet cost in 2004 to support 5,421 operating days is approximately $71,218,413 as compared to 3,850 available days in 2020 at an estimated cost of $69,974,785. It is important to note that while there isn't much difference in cost, there will be fewer days available for research.

Bruce Corliss – The 2020 local ship numbers are low, will they just go out of service without replacement? Tim Cowles replied that these vessels would likely be replaced. They are not included in the FOFC long-range plan. The chart can be revised to include replacement of the small vessels.

Fleet Utilization Projections/Observatory needs – The Fleet projections that were presented earlier in the meeting were revisited. Cindy Van Dover asked about the status of the ocean observatory initiative and where the supporting funds would come from. Tim Cowles replied that they are early in their planning process. Ken Brink, ORION Director attended the FIC meeting and reported that they may scale back on the scope of the ocean observatories to meet budget projections. The installation schedule might also get pushed back a bit. If installation is planned to begin in 2006 and requires UNOLS vessels, the ship time requests would need to be submitted in the next few months. Peter Ortner asked how event response work could be accommodated. Dave Hebert replied that charter vessels might be used for event response.

Jon Berkson - Do ocean observatory facility projections only include ORION? Tim Cowles replied that the projections identified in the Chave report are based on the Ocean Observing Initiative. A challenge facing the ORION office and the Ocean.US office are integrating their plans. Bob Knox – It would be good to get the facility needs for the other types of observatories. John Bane – There are also aircraft needs for ocean observatories and these should be factored into the planning and projections.

Peter Wiebe – It would be good to get the ship requirements from the USCG for buoy servicing.

Bruce Corliss – Who will fund the new ships needed for Ocean Observatories support? Tim Cowles – This is an unknown. The advance planning for these vessels does not appear to be identified yet.

Tim Cowles wrapped up the observatory discussion by commenting that it is clear that observatories will happen, but the scope and when it happens is a question. The facilities needed to support the ocean observatories will likely compete with the ocean facilities needed to support traditional oceanography. The community should be made aware of this.

SMR Prioritization – Mike Prince asked if the Ocean Class SMRs would need to be prioritized? John Freitag – At this time the constraints haven't been defined. The new Ocean Class vessels will be inspected. As a result, they will be more expensive than the current Intermediates, but probably not as much as the Global ships to operate. Once construction and estimated operating budgets are better known, the Ocean Class SMRs might require prioritization.

~ End Fleet Renewal Discussion ~

Guidelines for Becoming a UNOLS Vessel – Charlie Flagg reviewed the history leading up to the recent effort to revise the Guidelines for Becoming a UNOLS Vessel. Issues arose during the review of the University of Hawaii's application for KOK. In the past if an operator submitted an application and got their ship inspected it often would be designated a UNOLS Vessel. There were no criteria requiring the applicants to indicate how the ship would fit into the Fleet plan. It also wasn't clear whether the Council could make the designation or if it needed to be voted on by the membership.

The revisions made to the guidelines and the process include:
• The information required from applicants
• The criteria for deciding on the application
• The process for review/appeal of Council decisions

The revised Guidelines indicate that the Council has the authority to make UNOLS vessel designations and that there is an appeal process. The new sections were reviewed, see **Appendix VI.** Mike Prince suggested that the Guidelines be sent to Dennis Nixon for review. After the spring meeting Tim Cowles sent a

message to Brian Taylor (UH) explaining why their request for UNOLS designation of KOK had been declined.

A motion was made and passed to accept the revised Guidelines for Becoming a UNOLS Vessel.

Defined Levels of Technician/Instrumentation Support – Annette DeSilva reviewed the status of the RVTEC effort to define levels of service. In November 2003, RVTEC endorsed the Technical Services Outline. Subcommittee members drafted text providing technical services information for their respective institutions. The goal of this effort is to:

• Define the technical services that are provided in support of oceanographic research cruises aboard each UNOLS vessel.
• Develop a standardized, web-based format for providing this information.
• Provide a UNOLS Website for public access and operator input.

This topic is on the agenda for the 2004 RVTEC meeting in November 2004.

1200 Break - Lunch

Conflict of Interest on UNOLS Committees – Tim Cowles and Mike Reeve, NSF. NSF would like to avoid any appearance of conflicts of interest on facility oversight committees. As a result, they have advised UNOLS that their preference is that individuals who are from the institution operating the national facility should not be included as voting members of the facility oversight committee. It would be acceptable for them to participate as ex-officio, non-voting members at the meetings. NSF is recommending that UNOLS consider this issue in making appointments to oversight committees for National Facilities. The primary reason is that the recommendations, especially those that ultimately result in funding decisions, would be more valuable and useful to NSF if there were no appearance of any conflict of interest.

Tim Cowles said that UNOLS would take this advice into account for future appointments and that changes to the UNOLS Charter would not be necessary.

Marine Mammals and Acoustic Permitting Issues – Alexander Shor, NSF and Steve Leathery, NMFS
Dr. Shor presented the background and current issues for NSF with regards to permitting for seismic work under the Marine Mammals Protection Act, Endangered Species Act and the National Environmental Policy Act (NEPA). His PowerPoint slides are available in Appendix VII. NEPA requires that any 'Major Federal Actions' with anticipated impact on the environment must have an Environmental Assessment (EA) completed. Normally, unless there is a finding that an activity will result in significant impact, or will have 'substantial public controversy,' this completes the NEPA requirements. If significant impact is anticipated, then you need to proceed with an Environmental Impact Statement (EIS), which is a substantially larger undertaking.

Under the Endangered Species Act (ESA), if "Listed Species" are likely to be impacted, then the NMFS Office of Protected Resources (OPR) will consider issuing NSF a 'Biological Opinion' that includes an 'Incidental Take Statement.' The Biological Opinion is based on NSF's Environmental Assessment, a 'Finding of No Significant Impact' (FONSI), and formal consultations between NSF and NMFS under Section 7 of the ESA. The minimum time needed to meet ESA requirements is 135 days from receipt of a complete application by NMFS.

The Marine Mammal Protection Act (MMPA) requires obtaining an Incidental Harassment Authorization (IHA) from NMFS/OPR if it is anticipated that marine mammals will be close enough to the vessel to experience a 'behavioral disturbance.' The IHA is requested by the operator of the seismic equipment, not by NSF. An acoustic 'behavioral disturbance' is presently defined as a received sound level of 160 dB re 1 microPascal for whales, and 170 dB for seals. These levels are independent of frequency. IHAs prohibit an operator from causing injury or death to marine mammals. Standard mitigation protocols include continuous observation by qualified observers, and shutting down seismic operations if animals approach within a 'safety zone' in which sound exceeds 180 dB for whales or 190 dB for seals in order to prevent injury. Other mitigation protocols can be mandated in the IHA. Examples could include avoiding coastal waters or other areas where special concentrations of animals might be anticipated (i.e., migration or breeding areas). Mitigation can include restricting or prohibiting some or all seismic operations at night or in poor visibility, and on occasion acoustic monitoring has been required. In some cases, post-survey aerial or vessel-based observations may be required to check for injured animals. A report summarizing operations and marine mammal observations is required 90 days after the project is completed. The minimum time required to meet MMPA/IHA application requirements is 120 days after receipt of the complete application by NMFS.

There are a few mammals, such as manatees, sea otters, polar bears and walruses, for which MMPA compliance is regulated by the U. S. Fish and Wildlife Service (USF&WS). There are also State regulations under the Coastal Zone Management Act (CZMA) that can impose additional restrictions. Other federal regulations such as when working in marine sanctuaries, national parks or marine protected areas might also need to be considered, especially in near-shore regions.

Lastly, projects in waters regulated by foreign countries will need to comply with relevant laws and regulations of those countries. NSF has recently produced a draft memorandum of guidance to prospective investigators for projects involving seismics in foreign waters, which they intend to circulate once review has been completed.

NSF provides support for preparation of seismic Environmental Assessments and applications for Incidental Harassment Authorizations to the UNOLS vessel operator that will be supporting the seismic operation (either the ship operator, or if portable seismic system, the seismic system operator.) To date, only LDEO and SIO have undertaken this effort for NSF research. This support is provided via the annual Oceanographic Technical Services (OTS) award. Costs of Marine

Mammal Observers (MMOs) are also provided via the OTS award, as are funds to support preparation of the post-cruise report.

A listing of seismic projects in 2004 and 2005 were shown. For projects in 2006 and beyond NSF is considering a 'Programmatic Environmental Impact Statement' to address seismic operations on the new NSF-owned, LDEO-operated seismic vessel. This process is likely to be prepared in cooperation with NMFS, take 12-18 months, and include extensive public input.

Mike Prince pointed out that NSF is now asking that proposals involving seismic operations be submitted for the August deadline of the calendar year that is two years before the operating year (e.g., August 2005 for operations in CY 2007). Bob Knox and others felt that Dr. Shor had done a great job of describing how the process works.

Steve Leathery from NMFS Office of Protected Services spoke next, giving an overview of how their office operates. Litigation is clearly a driver for their procedures and workload. There have been as many as 100 lawsuits at any one time over the past 5 years. It has practically brought the agency to their knees. Their workload has increased significantly in recent years without any increase in staffing. They have to regulate directed marine mammal research in addition to regulating and providing IHAs for other types of research such as seismic mapping. The recent Senate appropriations language contains enough funding to allow them to increase their staff for permit application processing and they are trying to streamline their procedures. For the most part they are using documents being prepared by or on behalf of the requesting agencies and organizations. Also, some agencies such as NSF and ONR are developing their own guidelines, which are useful for making the application process more effective.

They certainly sympathize with everyone and understand the hardship of having a project halted by court order. For these reasons, they want to make sure that everyone understands the procedural requirements and timelines involved in obtaining proper authorizations. In addition, NMFS believes that public outreach and education about the affects of sound on marine mammals and the protections in place will be useful in defusing some of the unwarranted actions. If all procedural requirements are properly addressed then challenges can only be made on substantive issues. If good information is available regarding the substantive issues then reasonable rulings can be made by the courts.

Efforts are moving forward to develop and refine guidelines for use in evaluating permitted activities involving noise in the ocean.

Marc Willis asked about the planned matrix of noise sources/levels versus impacts on marine mammals that was to be the basis for determining the types of activities that needed IHAs and perhaps lay out required mitigation activities. The acoustic criteria in the matrix will first need to be published in peer reviewed journals, probably next summer. The NMFS would use the criteria to create guidelines that would probably require that an environmental impact statement be prepared. There will likely be quite a bit of controversy over these guidelines,

with many parties unhappy about one aspect or another. In the meantime, the draft criteria has been made available and is used to some extent in the permitting process already.

There was some discussion and questions about issues such as the definition of seismic activities and why some recent permits or clearances were denied. There was also a question about why the planned programmatic environmental impact statement would be limited to the EWING replacement vessel. Primarily, they would not want permitting for other projects to be affected by delays or problems with the permitting for the EWING replacement. Also, some of the basic environmental impacts would be somewhat different for each system.

Spectrum Management Issues – Frequency Spectrum Managers from NOAA, NSF, Navy and the NAS's CORF formed a panel that presented the Council with an overview of their responsibilities and how the regulatory process for frequency management might impact the ocean sciences. The panel consisted of the following ocean science agency representatives:

• Tomas Gergely, NSF Program manager for Electromagnetic Spectrum Management, (MPS/AST)
• Richard Barth, Director, Commerce/NOAA Office of Radio Frequency Management
• James Epp, U.S. Navy and Marine Corps Spectrum Center
• Brian Dewhurst, Program Associate, National Academy of Sciences, Committee on Radio Frequencies (CORF)

Tim Cowles provided a brief introduction to the subject and emphasized that it could be very important for UNOLS to be aware of the issues involved with frequency management and regulation. Mike Prince then gave a brief overview of what we have learned in the past year and introduced the panelists to the Council.

Tom Gergely – Outlined his role as the Frequency Spectrum manager for NSF. He is located in the Astronomical Sciences section but represents all of NSF with regulatory bodies and on U.S. and International committees. For example, IRAC is the Interagency Radio-Spectrum Advisory Committee, which meets every two weeks with representatives of the FCC.

The decisions about how the frequency band will be used within the U.S. lies with two agencies. The Federal Communications Commission (FCC) rules on assignments for the public and private industry, while the Department of Commerce's National Telecommunications and Information Administration (NTIA) handles the requirements for the Federal Government. Internationally, spectrum management issues are dealt with by the International Telecommunication Union (ITU) and the World Radiocommunication Conferences (WRC).

Dr. Gergely has been the NSF Frequency Manager for over twenty years, but has heard very little from the Ocean Sciences since his early years in the job. He is willing to become engaged with our requirements and to represent those interests

with the regulatory bodies when needed. The main requirement would be to make sure he is aware of our requirements and issues.

Dick Barth – represents the Department of Commerce, but most of their activities are spent on NOAA issues. They have a great deal of experience with the NOAA operational and scientific issues. During the twenty-five years that he has been working on these issues it has evolved somewhat. In the beginning most issues were technical and there was not a lot of interaction with FCC. Most of the spectrum is shared by government and public; government does not control a very large part of the spectrum exclusively. The use of spectrum has exploded and it is becoming increasingly oversubscribed. You can no longer depend on the fact that your system and its use of radio spectrum will be left untouched. The challenges for the use of spectrum will be greater and greater with demand for all sorts of new uses for the public and other commercial entities.

James Epps represents the Navy and Marine Corps. They are doing quite a bit of work with sonobuoys. They are also dealing with unmanned aerial vehicles (UAV). They are trying to get a handle on how many of these systems they have, both UAVs and autonomous underwater vehicles (AUV) and what frequency bands they operate in. They need to work with FCC and FAA to make sure they don't end up with interference issues and operating in the wrong band. Some of these issues could be related to Navy funded science projects and his office would be available to assist the research community. They have worked with NSF in the past.

Brian Dewhurst – Staff support for the National Academies' Committee on Radio Frequencies (CORF). CORF is mostly made up of radio astronomers and remote sensing people, but there is one oceanographer. Dr. Otis Brown/RSMAS is the current member, succeeding Dr. Charles Erickson/UW. The committee would consider additional members from the oceanographic community, however, since the primary source of support for the committee is from Astronomy, it might be necessary for support from Ocean Sciences to increase their representation.

CORF plans to catalogue the scientific use of the radio spectrum and would want to include oceanographers in this process.

Brian also thought it would be useful to set up some regular process for communication between the ocean science community and the IRAC representative from the agencies. During discussion, Tom Gergely and others thought that a periodic meeting or phone conference would be useful, perhaps every six weeks or so. A possible task for UNOLS, if no one else steps forward would be to put together an ocean sciences group to interact with CORF and the IRAC representatives.

The Council thought that UNOLS should send a note to Otis Brown thanking him for serving on the committee as an oceanographer and letting him know that we are available for support. Peter Wiebe, Peter Ortner and Dan Schwartz will coordinate writing something appropriate.

In summary, to protect their interests, UNOLS and the Ocean Science community should:

• Identify a core of knowledgeable ocean scientists to provide feedback to agency spectrum managers and CORF on ocean science related issues and that can help keep their community informed about challenges to their access to radio spectrum.
• Periodically communicate with the Agency frequency managers about current regulatory activities that might affect the community (can be done through UNOLS)
• Provide assistance to the CORF in cataloguing ocean science use of the frequency spectrum
• Make sure that at least one ocean scientist and if funding allows more than one ocean scientist is part of the CORF.

Establishment of a National Oceanographic Facility – Seismic Vessel
Dr. Mike Purdy, Director of the Lamont-Doherty Earth Observatory, sent a letter to UNOLS Chair, Tim Cowles, informing him of the status of the acquisition of the commercial 3-D seismic vessel Western Legend (the letter is included as Appendix XVIII). The vessel is now in Rhode Island under Columbia University (LDEO) ownership and has been temporarily renamed the Legend. LDEO plans for a six month dockside period during which they plan for the conversion of the vessel to an academic research vessel, followed by a shipyard conversion period and then final outfitting, system integration and sea trials. Their plan is that the vessel will meet all requirements for designation as a UNOLS vessel by January 2006 and they will be requesting that designation. The letter also points out that their Cooperative Agreement with NSF requires that a Science Oversight Committee, managed under UNOLS be established. They agree with this requirement and are asking UNOLS to take up this issue and work towards the early establishment of this committee to help address some important issues that would affect the ship's capabilities and the quality of science operations. Some of these issues include, but are not limited to:

• Providing a service, especially MCS, that can be used by more than a few specialized science groups.
• Establishing shipboard data quality control requirements. Identifying specific tools to support quality control.
• Rethink and redefine roles of the science party and the technical support group.
• Review options and recommend solutions for the specialized technical support required for shipboard operations e.g. contractor vs. full time staff for back deck, observers, navigation...
• Mammal mitigation and permitting

The letter concluded by saying that addressing and resolving these issues early in the conversion process is critical. This led to a discussion about how quickly UNOLS could establish an oversight committee and whether or not it was even appropriate to do so before the facility actually existed. It was noted that LDEO and NSF have already established an EWING Replacement Oversight Conversion Committee (EROCC) with Tom Shipley/UT as the chair. EROCC membership

includes scientists, ship operators and industry representatives. They are tasked with providing review and advice to LDEO regarding the specifics of the conversion plans, including consideration of the ship modifications, selection and placement of the seismic and other oceanographic equipment and establishment of design and budget priorities to ensure the project remains within the agreed scope and cost. Dolly Dieter noted that LDEO and the EROCC needed some additional science oversight input now on items such as procedures, equipment requirements, data quality and policies, general oceanography needs, etc. She thought that since it would be difficult to establish a UNOLS committee quickly enough that perhaps an interim committee could be established to provide input on the immediate needs. There was discussion about how this interim committee might also write the terms of reference for the eventual UNOLS committee, suggest membership and perhaps even evolve into the oversight committee. The discussion became somewhat confused because of attempts to fit several objectives into the tasking for one group. The conclusion was that an interim committee or augmenting the EROCC in an ad hoc manner would address the immediate requirements for science community input. This would be handled by Tom Shipley, LDEO and NSF. In the meantime, UNOLS would form a small group with at least one Council member to draft the terms of reference and make nominations for the eventual UNOLS Science Oversight Committee. If the proposed Charter changes are passed at tomorrow's Annual meeting, then the designation of the Legend as a UNOLS vessel and National Facility could be approved by the UNOLS Council at one of their future meetings or through correspondence when necessary. The charter still requires a vote of the membership to establish a new Standing Committee, so the target date for having terms of reference and committee member nominations ready would be in time for inclusion on the ballet for the Annual meeting in September or October of 2005.

Other Business

Tim Cowles quickly reviewed the remaining items of business. Committee appointments were approved by the Council as follows: DESSC – Debbie Kelley appointed as Chair and Jeff Karson, Bill Chadwick, Jennifer Reynolds, Kathleen Scott and Craig Young were appointed as members; FIC – Jim Cochran appointed as a member. John Bane mentioned that SCOAR is looking for suggestions for a fifth member. They are particularly interested in someone with a biology background and/or remote sensing experience.

A written committee report was submitted by AICC and is included as Appendix IX.

Lastly, the 2004-2005 UNOLS Goals and Objectives were reviewed, edited and approved for presentation to the UNOLS Representatives at the Annual Meeting.

Meeting was adjourned at 4:30 pm

Revised: October 6, 2004

Tentative Agenda
UNOLS COUNCIL MEETING
Thursday, October 14, 2004, 8:30 am
National Science Foundation
Stafford II Building, 555

A pdf copy of this agenda can be downloaded by clicking <200410cncag.pdf>.

0800 Coffee and Pastries

0830 Call the Meeting: Tim Cowles, UNOLS Chair, will call the meeting to order and provide an opportunity for introductions.

- **Accept the minutes of the July 2004 Council Meeting.**

0845 Academic Fleet Renewal Activities and Plans:

- Summary of FOFC Plans for Update of their Academic Fleet Long-Range Renewal Plan
- FIC Meeting Summary – Plans and Recommendations (Dave Hebert)
  - Fleet Improvement Plan Update
  - Revised retirement dates and SLEP Estimates
  - Global Class Mid-Life Refit Planning and Science Mission Requirements

Other Items

- Federal Agency Plans for Fleet Renewal Implementation:
  - Regional Class Planning – Acquisition Status, RFP for Operator and IPT, UNOLS rep to IPT – (NSF – Mike Reeve)
  - Ocean Class Planning – Phase II study and Next steps (Navy –John Freitag)
  - NOAA – Beth White
- Other Facility Planning:
  - USCG POLAR Class Icebreaker Science Operations, Service Life Extension Plans, and Major Issues – Carin Ashjian & Jon Berkson/Tom Wojahn
  - Deep Submergence Facilities – Replacement for ALVIN and HROV (Annette DeSilva)
  - Aircraft (John Bane)
- Open Discussion and Identification of Fleet Renewal Issues that require Council Attention. For background material, click on: <Regional Class SMR Priorities> and <Ocean Class Phase II Study>.
  - Funding for Ocean Class Design and Construction
  - UNOLS Rep to IPT for Regional Class Vessels
  - UNOLS Input to RFPs for Regional IPTs and Operators
  - Operation Cost Estimates for New Vessels
  -

- Crew Sizes
- Other Issues

- **A mid morning 15-minute break will be called at 1015.**

1200 Lunch

UNOLS Discussion Items:

1300 Conflicts of Interest on UNOLS Council and Committee – NSF Legal Counsel and Agency Program Managers will address the issue of conflict of interest and provide guidance regarding membership nominations to UNOLS Council and Committees.

1320 Marine Mammals and Acoustic Permitting Issues

- Review status of ongoing studies and implications for permitting process (Sandy Shor)
- Report on restructuring of NMFS Office of Protected Resources (Steve Leathery/NMFS)
- Discuss requirements for any future UNOLS action.

1400 Spectrum Management Issues – Frequency Spectrum Managers from NOAA, NSF, Navy and the NAS's CORF will discuss spectrum management issues and how to better coordinate issues related to the ocean sciences.

1440 Break

1500 Guidelines for Becoming a UNOLS Vessel – Review latest draft <guidelines_unols_vessel_093004.pdf>

1510 Establishment of a National Oceanographic Facility – Seismic Vessel - Mike Purdy (LDEO) sent a letter to Tim Cowles providing the status and plans for the seismic vessel, LEGEND. The letter is available at <LDEO_ltr092404.pdf>. Council action - form a subcommittee to address establishment of a National Oceanographic Facility and formation of a Science Oversight Committee.

1530 Defined Levels of Technician/Instrumentation Support – Review status.

1540 Review draft UNOLS objectives, priorities and goals for 2004 –2005 – Mike Prince

1600 Opportunity for Additional Reports:

- **Committee Reports** – Committee Chairs will have an opportunity to raise issues requiring Council attention. Full reports on their past year's committee activities and plans for the upcoming year should be provided at the Annual meeting.
- **Agency Representatives**
- **Council Members**

Other Business:

- Annual meeting - If needed, review plans for meeting on 10/15/04.
- Nominating Committee – review slate
- Calendar of UNOLS meetings for 2004/2005, Winter

activities

Adjourn

UNOLS COUNCIL MEETING
Thursday, October 14, 2004
National Science Foundation
Stafford II Building, 555

ATTENDEES

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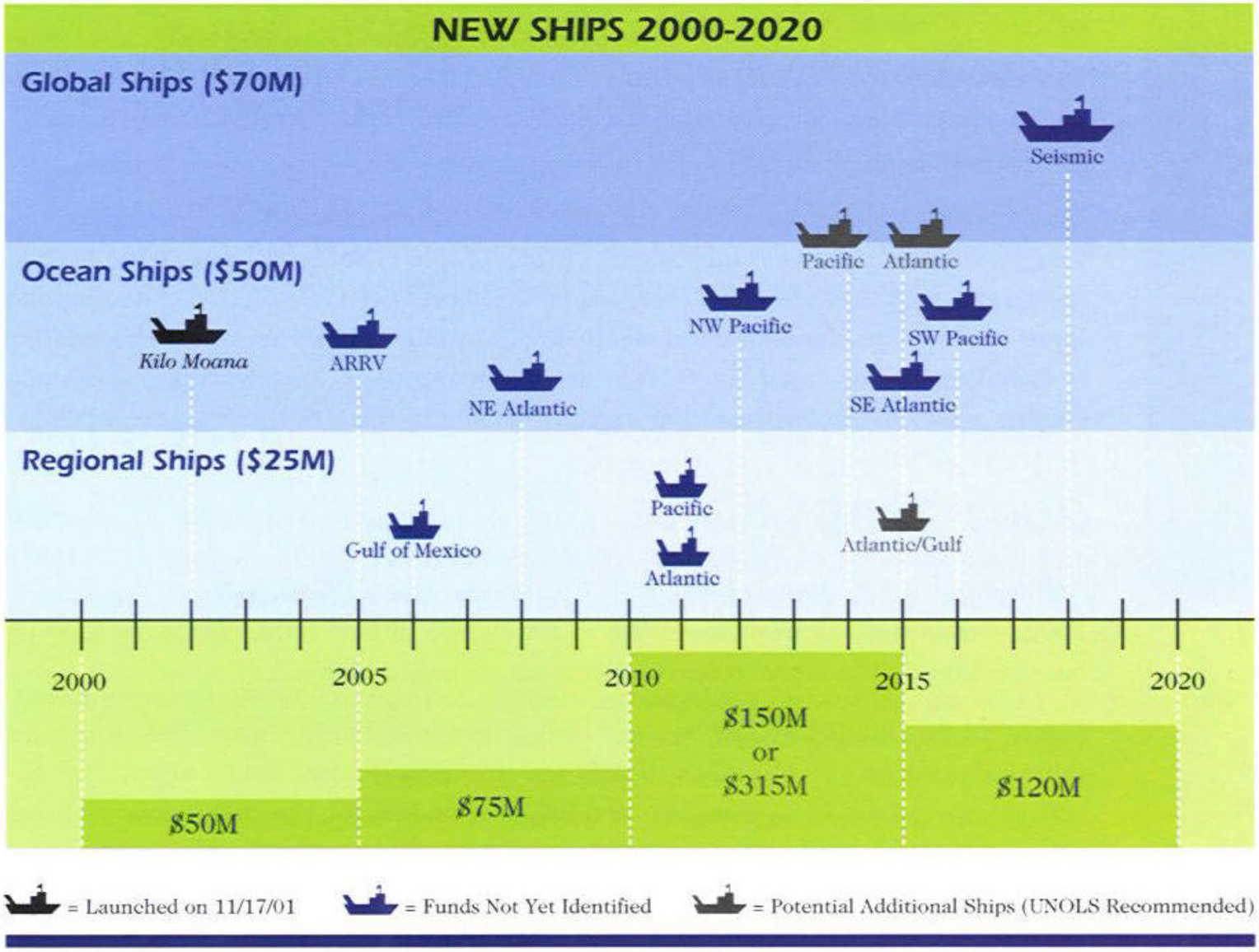
Fleet Improvement Committee Report to UNOLS Council

October 14, 2004

Figure 17. Proposed schedule for new construction.



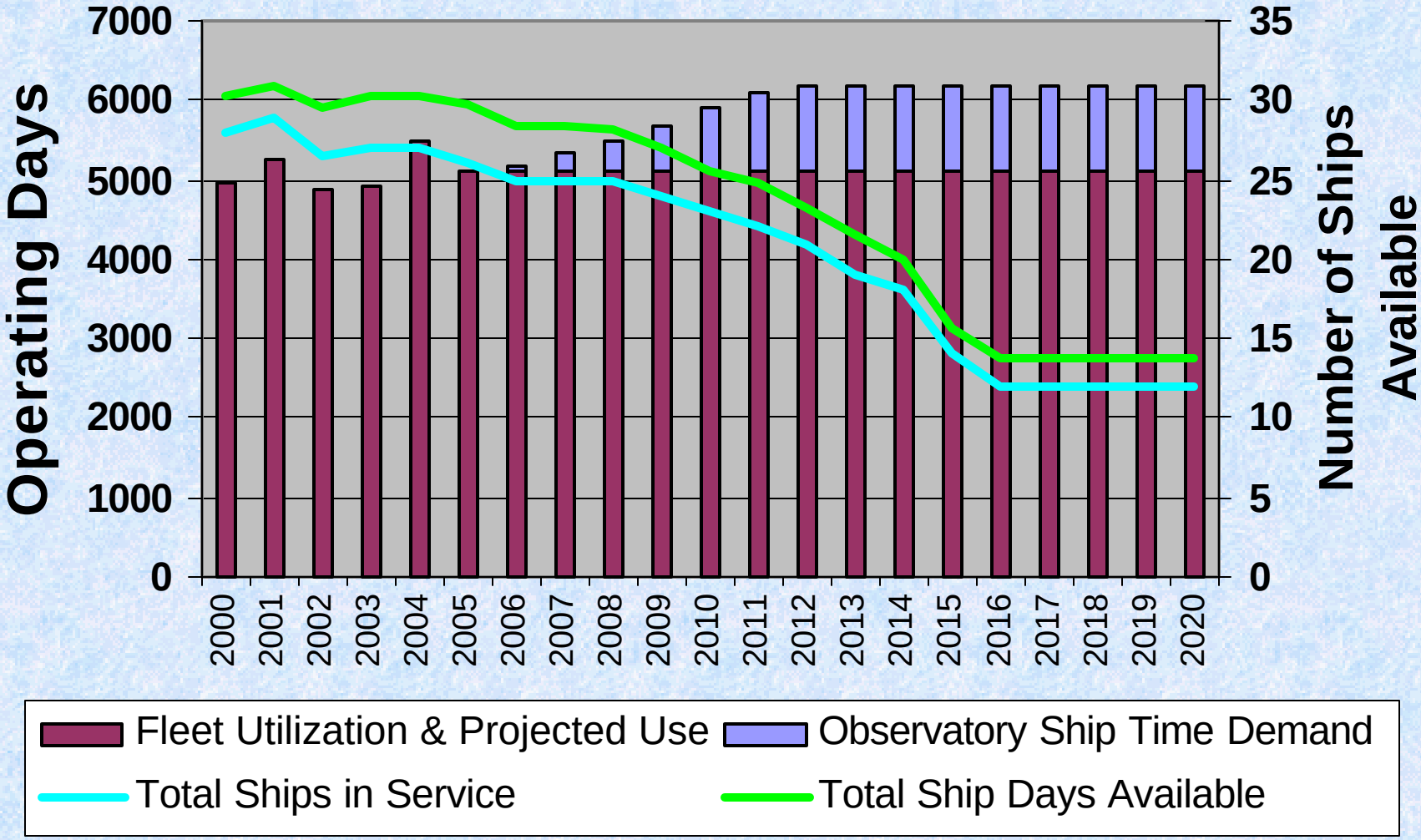
UNOLS Fleet Improvement Plan Outline

- Executive Summary / Intro
- Identify Future Science Initiatives:
  - Biological Oceanography
  - Chemical Oceanography
  - MG&G
  - Physical Oceanography
  - Education
  - Ocean Engineering
  - Cross cutting initiatives (Observatories (in a broad sense))
- Current Fleet Composition and Utilization Trends - Office
  - Current Fleet Description
  - Updated vessel retirement dates and SLEP costs [addressed later]
  - Fleet Trends
    - Geographical utilization

UNOLS Fleet Improvement Plan Outline

- Future Fleet Projections
  - •UNOLS and FOFC Plan Fleet Projections [next slide]
  - •Ship Construction Plans and realistic timelines
  - •Addition of other facility projections (Ocean observatory, etc) [next slide]
  - •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
  - •Extensions and expansions beyond the FOFC Plan
  - •Future Fleet Composition
- Fleet Budget Projections and Requirements
  - •Ship Construction Cost
  - •Future Fleet operating cost estimates
- Recommendations

UNOLS Fleet Utilization and Projections (2000 - 2020)



*** Only new construction with funds identified have been included in the total.**

FIP 2005 – Draft Timeline

- Finalize outline and assignments– 15 November
- 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

UNOLS Vessel Retirement Dates and Service Life Extension Program Estimates

Update Vessel Retirement Dates

This year the UNOLS Vessel Operators were polled:

- Should vessel retirement dates be extended? And if so:
    - Service Life Extension Program (SLEP) cost estimate for 5-year extension
    - SLEP cost estimate for 10-year extension
- How do the capabilities of their current ships compare to the Ocean Class and Regional Class SMRs?

Vessel Retirement Dates and SLEP Estimates

Eleven UNOLS ships >40 m have retirement dates prior to 2020 and are potential candidates for a SLEP (excluding ALPHA HELIX and EWING):

- 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.

Revised Retirement Dates Preliminary Findings

- The SLEP estimates focus on maintaining the ship in an operational condition without enhancing the scientific capabilities of the platform.
  - The existing Intermediate Class vessels do not meet most of the desired Ocean Class SMRs
  - Regional Class ships fall short of the Regional Class SMRs in many areas.
- 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.

FIC Action – Finalize Report and provide to FOFC

General Purpose Global Vessel SMR Mid Life Refit considerations

2006 - *THOMPSON*

FIC recommends the model used for developing the Ocean & Regional Class SMRs

2011 – *REVELLE*

2012 – *ATLANTIS*

Global Class Steering Committee

- Bruce Howe (UW), Chair – Ocean Observatories
- Tom Althouse (SIO) – Marine Superintendent
- Jim Broda (WHOI) – Coring
- Bob Embly (NOAA/PMEL) – ROVs, MG&G
- Ken Johnson (MBARI) – Chem O.
- Paul Ljunggren (LDEO) – Marine Superintendent
- Dan Schwartz (UW) – Marine Superintendent
- Niall Slowey (TAMU) – FIC Rep, MG&G
- Al Suchy (WHOI) – Marine Superintendent
- Woody Sutherland (SIO) – Marine Technician
- Randy Watts (URI) – Phys. O
- Patricia Wheeler (OSU) – Biol. O.

Global Class SMR Update

- Task Items:
  - **Review the past SMRs and other documentation to form the basis of the SMRs.**
  - **Develop mission scenarios.**
  - **Hold a Community workshop (if needed) 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**
- **Website:**
  <http://www.unols.org/committees/fic/global/global_smr.html>

Global SMRs – Initial Efforts:

- 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!

- **Need Project Timeline**

Other Items of Discussion

- Ship Design and Construction Efforts – status
- ADA Requirements
- KILO MOANA Debriefs
- FIC Membership – Chris Measures completes his 2nd term. FIC nominates Jim Cochran.

FIC Projects and Priorities for 2005

- **Regional Class:**
  - Help identify UNOLS representative(s) for the IPT teams.
  - Stay engaged in acquisition process (ongoing)
    - – Provide feedback to NSF – operational capabilities, etc
    - – Insure community input
- **Ocean Class:** Stay engaged
- **Global Class:** Update SMRs
- **ADA Guidelines** - White Paper – Terry
- **Update Fleet Improvement Plan**
- **Ocean Observatories** – Initiate discussions 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

Estimated Operating Costs

2004

class	ship	dayrate	total days	Total Cost
global	atlantis	$21,282	291	$6,193,062
global	ewing	$18,300	230	$4,209,000
global	knorr	$20,675	278	$5,747,650
global	melville	$20,338	300	$6,101,400
global	revelle	$20,652	309	$6,381,468
global	thompson	$21,586	313	$6,756,418
	2004 GLOBAL TOTAL		1721	$35,388,998

class	ship	dayrate	total days	Total Cost
ocean	endeavor	$10,979	248	$2,722,792
ocean	gyre	$11,500	93	$1,069,500
ocean	kilo moana	$18,000	309	$5,562,000
ocean	new horizon	$14,402	195	$2,808,390
ocean	oceanus	$12,214	235	$2,870,290
ocean	SJ I	$12,300	180	$2,214,000
ocean	SJ II	$12,300	231	$2,841,300
ocean	wecoma	$12,815	221	$2,832,115
	2004 OCEAN TOTAL		1712	$22,920,387

2020

FOFC 2020	Days	dayrate	Total Cost
atlantis	300	$21,282	$6,384,600
new seismic	300	$30,000	$9,000,000
			$0
			$0
revelle	300	$20,652	$6,195,600
thompson	300	$21,586	$6,475,800
	1200		$28,056,000

ship	total days	dayrate	Total Cost
NE Atlantic	275	$20,000	$5,500,000
			$0
kilo moana	275	$18,000	$4,950,000
SW Pacific	275	$20,000	$5,500,000
			$0
SE Atlantic	275	$20,000	$5,500,000
ARRV	275	$22,817	$6,274,675
NW Pacific	275	$20,000	$5,500,000
	1650		$33,224,675

Estimated Operating Costs

2004

regional	alpha helix	$10,910	129	$1,407,390
regional	hatteras	$9,750	168	$1,638,000
regional	henlopen	$6,226	172	$1,070,872
regional	longhorn	$5,500	75	$412,500
regional	pelican	$4,665	241	$1,124,265
regional	pt sur	$8,115	189	$1,533,735
regional	sproul	$6,981	150	$1,047,150
regional	weatherbird	$8,491	164	$1,392,524
	2004 REGIONAL TOTAL		1288	$9,626,436

class	ship	dayrate	total days	Total Cost
local	blue heron	$4,400	40	$176,000
local	clif. Barnes	$2,262	126	$285,012
local	savannah	$4,600	154	$708,400
local	uracca	$3,701	152	$562,552
local	walton smith	$6,801	228	$1,550,628
	2004 LOCAL TOTAL		700	$3,282,592

2004 TOTALS	5421

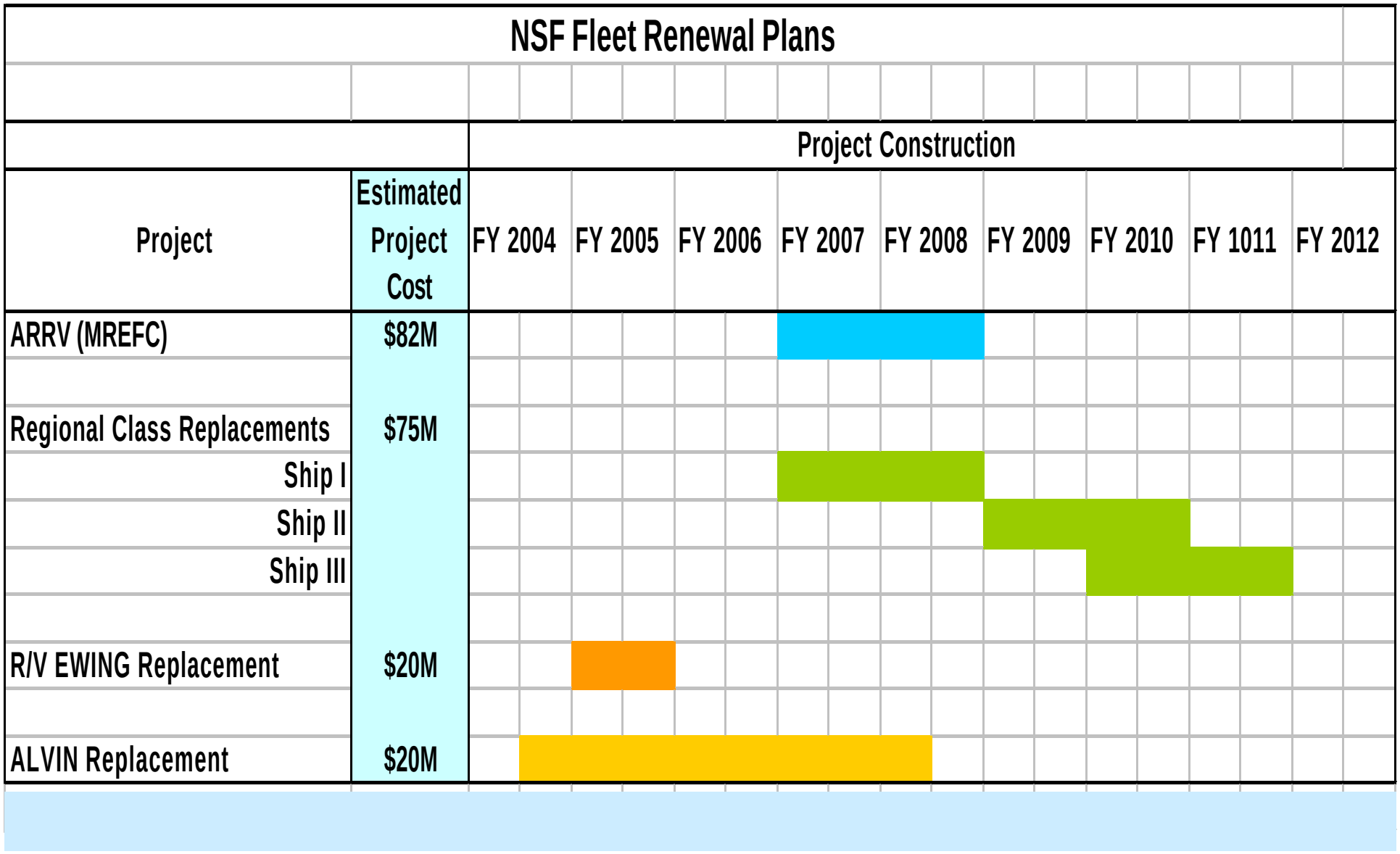
2020

			$0
Atlantic	200	$10,000	$2,000,000
CHRV	180	$8,000	$1,440,000
			$0
Gulf of Mex	200	$10,000	$2,000,000
Pacific	200	$10,000	$2,000,000
			$0
			$0
	780		$7,440,000

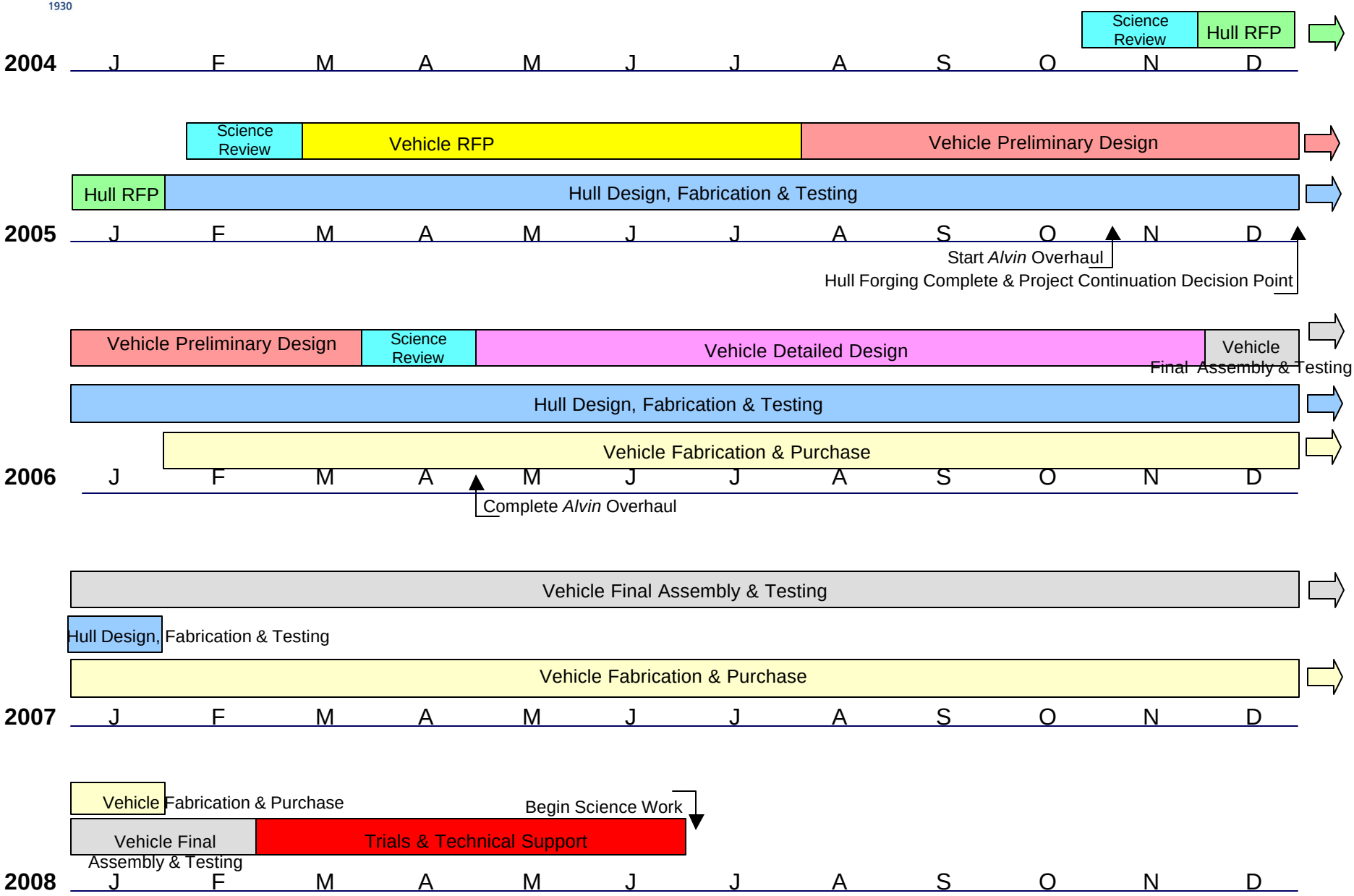
ship	total days	dayrate	Total Cost
			$0
			$0
savannah	110	$4,600	$506,000
			$0
walton smith	110	$6,801	$748,110
	220		$1,254,110

2020 Totals	3850		$69,974,785

Projected Timeline for Construction and Funding



Construction Schedule for *Alvin* Replacement (Hull & Vehicle)



October 2004

UNIVERSITY- NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM GUIDELINES FOR REQUESTING/BECOMING A UNOLS VESSEL

DRAFT REVISION – September 30, 2004

1. INTRODUCTION

This instruction provides guidelines for requesting the designation of an institution's vessel as a University-National Oceanographic Laboratory System (UNOLS) vessel. Included in these guidelines is a description of the objectives of UNOLS Operator Institutions, the relationship of UNOLS vessels to research and academia, the relationship of UNOLS Operating Institutions as UNOLS members, and the responsibilities of UNOLS Operating Institutions.

2. OBJECTIVES OF UNOLS OPERATOR INSTITUTIONS

The objective of a UNOLS Operator Institution is to provide an oceanographic vessel to scientists, faculty, and students from both within and outside of their institution, provided that funding is available from the sponsor of the research/class or from the user.

3. RELATIONSHIP TO RESEARCH AND ACADEMIA

UNOLS vessels are those United States research vessels generally operated in support of national oceanographic research and education programs by academic institutions and are significantly funded by the federal government.

4. RELATIONSHIP OF UNOLS OPERATING INSTITUTION AS UNOLS MEMBER

UNOLS institutions that operate UNOLS vessels are, in addition, designated as Operator Institutions.

UNOLS vessels are designated by the UNOLS Council. The list of designated UNOLS vessels shall be reviewed regularly for additions or deletions by the UNOLS Council. If a vessel ceases to meet the UNOLS standards, the UNOLS Council shall recommend termination of such designation.

5. RESPONSIBILITIES OF A UNOLS OPERATING INSTITUTION

The responsibilities of the UNOLS Operating Institution include, but are not limited to:

a. Assuring that ships are regularly available to all federally funded users.
b. Maintaining their vessels to accommodate the needs of the academic oceanographic programs.
c. Operating their UNOLS vessels in accordance with UNOLS Research Vessel Safety Standards, Current Edition.
d. Subjecting to regular, recognized ship inspection procedures, such as NSF Ship Inspections or INSURV.

e. Participating fully in the UNOLS scheduling process. While scheduling is the responsibility of the operating institution, the operating institution shall receive, acknowledge, and structure requests for ship-time use in consultation with the UNOLS Office.
f. Submitting cruise reports and cruise assessments according to UNOLS uniform practices.
g. Adhere to cost accounting and performance standards according to UNOLS uniform procedures.
h. Requesting funds for operation of their vessels. UNOLS membership does not guarantee federal funding.

6. REQUIREMENTS FOR BECOMING A UNOLS VESSEL

An institution requesting designation of their vessel as a UNOLS vessel must be a qualified UNOLS member institution. If they are not a member, they must submit an application for membership in accordance with the guidelines established in the UNOLS Charter. These applications can be submitted in tandem with their requests to designate a vessel as a UNOLS vessel. Application forms can be obtained from the UNOLS Office.

The requirements for designating a vessel as a UNOLS vessel include:

a. The institution must operate the vessel for oceanographic research and education purposes.
b. There must be evidence of three or more years of continuous operation of shared use research/education facilities.
c. The operating institution must be able to provide a projection of the vessel's use for the next year, including user charges.
d. The vessel must successfully complete an appropriate safety inspection such as NSF Ship Inspection or INSURV) at the, institution's expense.
e. The vessel must be capable of operation under the UNOLS Research Vessel Safety Standards.
f. The vessel must be regularly available to all federally funded users.
g. The vessel must be maintained to accommodate the needs of the academic oceanographic programs.
h. The operating institution must be willing to participate fully in the UNOLS scheduling process. The operator shall receive, acknowledge, and structure requests for ship-time use in consultation with the UNOLS Office.
i. The operating institution must be willing to submit cruise reports and cruise assessments according to UNOLS uniform practices.
j. The operating institution must adhere to cost accounting and performance standards according to UNOLS uniform procedures.
k. The operator institution must be capable of obtaining the necessary funds to support operation of their vessels. UNOLS membership does not guarantee federal funding.
l. The operator institution must submit a written application to the UNOLS Office addressing all of the requirements listed above and include a statement addressing how the addition of this vessel to the UNOLS Academic Research Vessel Fleet will improve the mix of facilities available for oceanographic programs or address an identified need for specific capabilities.

DESIGNATION OF A UNOLS VESSEL

Requests for designation of a vessel as a UNOLS vessel shall be considered by the UNOLS Council upon receipt for evaluation of a written application by the operation institution. The application should address all requirements outlined in the previous section and shall be evaluated both upon that information and the match of the vessel to current and projected requirements for additional facilities. Designation of UNOLS vessels is normally done by the UNOLS Council after a review of an application. If the application is denied, the applicant shall be promptly notified as to the specific reasons for the denial. The applicant shall then have two options:

OPTION 1: The applicant may reapply to the Council after addressing the specified deficiencies.

OPTION 2: The applicant may submit their modified re-application, along with a copy of the Council's notification of denial, for reconsideration by the UNOLS general membership. Designation would then be determined by a vote at the next annual meeting in accordance with the procedures described in Section 5a of the UNOLS charter.

Permitting Requirements and Procedures for use of Seismics in NSF Research on UNOLS Ships: Update and Current Status

Sandy Shor

<ashor@nsf.gov>

Oceanographic Technical Services Program, GEO/OCE, NSF

October 2004

Environmental Assessments – NEPA Requirements

- ‘Major Federal Actions’ with anticipated impact on the environment must have an Environmental Assessment (EA) completed.
- Normally, unless there is a finding that an activity will result in significant impact, or will have ‘substantial public controversy,’ this completes the NEPA requirements.
- If significant impact is anticipated, need to proceed with an Environmental Impact Statement (EIS), a substantially larger undertaking.

Endangered Species Act (ESA)

- If “Listed Species” are likely to be impacted, then NMFS Office of Protected Resources (OPR) will consider issuing NSF a ‘Biological Opinion’ that includes an ‘Incidental Take Statement.’
- The Biological Opinion is based on NSF’s Environmental Assessment, a ‘Finding of No Significant Impact’ (FONSI), and formal consultations between NSF and NMFS under Section 7 of the ESA.
- Minimum time to meet ESA requirements is 135 days from receipt of complete application.

Marine Mammal Protection Act (MMPA)

- If it is anticipated that marine mammals will be close enough to the vessel to experience a 'behavioral disturbance,' then it is necessary to obtain an Incidental Harassment Authorization (IHA) from NMFS OPR.
- The IHA is requested by the seismic operator, not NSF.
- An acoustic 'behavioral disturbance' is presently defined as a received sound level of 160 dB re 1 microPascal for whales, and 170 dB for seals. These levels are independent of frequency.
- IHAs prohibit an operator from causing injury or death to marine mammals. Standard mitigation protocols include continuous observation by qualified observers, and shutting down seismic operations if animals approach within a 'safety zone' in which sound exceeds 180 dB (whales) or 190 dB (seals) to prevent injury.

MMPA, cont'd

- Other mitigation protocols can be mandated in the IHA. Examples include coastal waters, or where special concentrations of animals might be anticipated (migration or breeding areas, or over slopes where beaked whales might congregate).
- Mitigation can include restricting or prohibiting some or all seismic operations at night or in poor visibility, and on occasion acoustic monitoring has been required. In some cases, post-survey aerial or vessel-based observations may be required to check for injured animals.
- A report summarizing operations and marine mammal observations is required 90 days after project completion.
- Minimum time to meet MMPA IHA application requirements is 120 days from receipt of complete application.

Other Requirements

- There are a few mammals (manatees, sea otters, polar bears and walruses) for which MMPA compliance is regulated by FWS rather than NMFS.
- State regulations under the Coastal Zone Management Act (CZMA) can impose additional restrictions.
- Other federal regulations can impose requirements as well – working in marine sanctuaries, national parks, and regulations related to impacts on fisheries and fish habitats often need to be considered, especially in inshore regions.
- Finally, for projects in waters regulated by foreign countries, relevant laws and regulations must be complied with. NSF has recently produced a draft memorandum of guidance to prospective investigators for projects involving seismics in foreign waters, and we expect to circulate it once review has been completed.

Costs of Assessments and Application for Permits

- NSF provides support for preparation of seismic Environmental Assessments and applications for Incidental Harassment Authorizations to the UNOLS vessel operator that will be supporting the seismic operation (either the ship operator, or if portable seismic system, the seismic system operator.) To date, only LDEO and SIO have undertaken this effort for NSF research. This support is provided via the annual Oceanographic Technical Services (OTS) award.
- Costs of Marine Mammal Observers (MMOs) are also provided via the OTS award, as are funds to support preparation of the post-cruise report.

Seismic Projects in 2004

- R/V Ewing:
  - Southeast Caribbean, Levander
  - Gulf of Alaska, Mix
  - Blanco Fracture Zone, Christeson
  - Pacific Central America, Fulthorpe
  - *Foreign clearance denied: Yucatan, Barton*
- R/V Revelle:
  - *Foreign clearance denied: Gulf of California, Lonsdale*

Seismic Projects in 2005

- R/V Ewing
  - Yucatan, Barton (deferred from 2004)
- R/V Melville
  - South Pacific, Lyle
- R/V Kilo Moana
  - Western Aleutians, Yogodzinski

Planning for 2006 and beyond

- Programmatic Environmental Impact Statement being considered to address seismic operations on new NSF-owned, LDEO-operated seismic vessel.
  - Likely to be prepared in cooperation with NMFS, take 12-18 months, and include extensive public input.

September 24, 2004

Dr. Tim Cowles, UNOLS Chair
UNOLS Office
Moss Landing Marine Laboratories
8272 Moss Landing Road
Moss Landing, CA 95039

Dear Dr. Cowles;

Lamont Doherty Earth Observatory (L-DEO) is pleased to report that after a start-up in July, followed by dry-docking, and reinstatement of class by Det Norske Veritas (DNV), the Seismic Vessel *Western Legend* met all of our criteria for acceptance and for purchase of the vessel. On September 2, 2004 the *Western Legend* sailed from Stavenger, Norway, along with three of L-DEO's senior ship operations personnel (Captain Mark Landow, Chief Engineer Steve Pica, and Port Engineer Al Walsh) acting as observers, for a transit of the North Atlantic. The *Western Legend* completed the transit to Quonset Point, Rhode Island on September 17, 2004. On September 20, 2004 ownership of the vessel was officially transferred to Columbia University.

We have planned for 6 months dockside with the vessel moored in Rhode Island, during which conversion plans will be finalized. This will be followed by the shipyard conversion period, a period for equipment integration, and finally sea trials. At the end of the sea trial period, all requirements for designation as a UNOLS vessel will have been completed and L-DEO will apply to UNOLS for designation of the renamed *Legend* as a UNOLS vessel.

A critical requirement in our NSF Cooperative Agreement is the establishment of a Science Oversight Committee managed under UNOLS. The intent is to have this oversight committee advise L-DEO on long-term operational policies. We concur with and support the establishment of a Science Oversight Committee by UNOLS and in view of the ship's specialized and unique capability will request that the *Legend* be designated a National Oceanographic Facility.

The *Legend* offers exciting new capabilities to the academic community that can be best guided and supported through the early establishment of this Science Oversight Committee. In order to optimize the ship's new capabilities and insure that the science carried out is of highest quality there are a number of issues for immediate consideration by this committee which will provide substantial benefit to future operations. They include, but certainly are not limited to:

- Providing a service, especially MCS, that can be used by more than a few specialized science groups.
- Establishing shipboard data quality control requirements.

G.M. Purdy / Director / 845-365-8348 / Fax – 845-365-8162 / mpurdy@ldeo.columbia.edu

-Identifying specific tools to support quality control.
-Rethink and redefine roles of the science party and the technical support group.
-Review options and recommend solutions for the specialized technical support required for shipboard operations e.g. contractor vs. full time staff for back deck, observers, navigation …
-Mammal mitigation and permitting

Addressing and resolving issues of this nature early in the conversion process are critical to the successful resumption of L-DEO ship operations in January, 2006, and therefore we hope that preliminary discussions of these issues may be possible at the forthcoming UNOLS meetings in October.

Sincerely,

G. Michael Purdy
Interim Associate Director
Office of Marine Affairs

GMP/bw

cc: P. Ljunggren

Report for UNOLS Arctic Icebreaker Coordinating Committee
July 2004 – October 2004

The USCGC Healy presently is completing her 2004 field season with her fifth science mission (NOAA Mapping) in the Beaufort/Chukchi Seas. After a port call in early July in Yokosuka, Japan, she returned to the operations area for the second SBI Process Cruise (physical and biological sampling) during July-August. A month long SBI Mooring Recovery cruise was conducted in September, followed by a port call in Provideniya, Russia before beginning the final science mission of the year. All of the science missions to date have been highly successful. The Position and Orientation System (POS MV) that was installed on Healy earlier in the summer has been operating successfully. Problems continue with the Healy's shipboard communications for science (e-mail) but in general the ship's performance has been very good. HEALY is scheduled to return to Seattle on November 8, 2004. HEALY already has a busy schedule for 2005, including a cross Arctic Basin transect in conjunction with the Swedish icebreaker ODEN.

The news continues to be less favorable for the POLAR class icebreakers. POLAR SEA remains at the dock in Seattle with two of her three main engines condemned. If funds are obtained, POLAR SEA will be operational only after two years of repairs. POLAR STAR completed repairs from damages incurred during the 2004 Deep Freeze in Antarctica and is scheduled for her shakedown cruise during October 12-15 with departure to Antarctica for Deep Freeze 2005 on November 1. Ice conditions near McMurdo Station are quite bad this year with fourth-year ice and the potential for icebergs to block the ship channel and to prevent first year ice from being blown north and into the Southern Ocean. The ice is quite thick near McMurdo (~20') as well so that breaking it up, either by icebreaker or through big storms, will be more difficult. The NSF is currently exploring options for leasing a foreign (e.g., Finland, Norway) icebreaker (commercial or otherwise) to assist the POLAR STAR in this mission. The NSF is reluctant to request the HEALY as backup for the POLAR STAR and has not done so at this time. So at the moment, POLAR STAR is going on her own although other options may (need to) develop.

The issue of icebreaker support to break out McMurdo and to conduct research in both polar regions continues to be problematic as the POLAR class icebreakers age and funds for repairs are difficult to obtain. Some hard decisions will have to be made regarding NSF and USCG support of the icebreaker fleet and ship life extension plans for the POLAR class icebreakers. The Coast Guard has commissioned a science mission needs analysis report from Booz Allen Hamilton that should be completed in November, 2004. Many science users contributed to the report either through interviews or through web-based surveys. The NSF and the USCG have asked for assistance from the Office of Management and Budget in renewing the Memorandum of Understanding (covers the breakdown by agency of the costs of operating the ice breakers). Upcoming high-level interagency discussions are planned to review the status and future plans of US Icebreaking Operations.

In addition to monitoring the icebreakers performance and maintenance, several AICC members participated in the Booz Allen Hamilton interviews for the CG science mission needs analysis. The AICC continues to work with the Coast Guard and the science user community to come to a long-term solution for science systems support for the icebreakers. For the past field season, the USCG contracted with a group from Lamont-Doherty Earth Observatory to: (i) integrate new science equipment (e.g., POS-MV), (ii) provide onboard science support during the 2004 field season, (iii) develop protocols for data and metadata archiving, (iv) review and evaluate science operations, and (v) facilitate the transition to long-term science systems support by groups outside of but working closely with the USCG.

Finally, the AICC welcomes our newest member, Rolf Gradinger from the University of Alaska Fairbanks, who moves into the slot vacated by outgoing AICC chair Lisa Clough. Rolf is a specialist in both sea ice and biology and thus satisfies two of our targeted research areas of interest. The next AICC meeting is scheduled to take place November 18th and 19th in Seattle, WA.

The AICC can be reached by writing to the Chair (margo@soest.hawaii.edu) or the the UNOLS Office (office@unols.org).

Report submitted by C. Ashjian

DESSC Membership

Leaving the committee: P. Fryer (Chair, UH), R. Embley (PMEL), A-L. Reysenbach (PSU), W. Ryan (LDEO), T. Shank (WHOI)

Remaining on the committee:
D. Kelley (UW), D. Mindell (MIT), M. Chaffey (MBARI), and H. Edmonds (UT)

DESSC recommendations for replacements:
D. Kelley (Chair), J. Karson (Duke), W. Chadwick (ORST), J. Reynolds (UAF), K. Scott (USF), C. Young (UO)

Exofficio:
Leaving: R. Pittenger, D. Fornari, S. Pomponi

New exofficio:
R. Detrick, M. Tivey, T. Shank