

Date: 19 September 2014  
From: UNOLS Council Non-operator Committee (Wilf Gardner, Chair; Tammi Richardson, and Miles Sundermeyer)  
To: NSF and ONR (hereafter 'the Agencies')  
Subj: Response to document "2015 U.S. Academic Research Fleet Operations Support Findings and Recommendations"  
Ref: The above document (submitted to Dr. Peter Ortner-UNOLS Chair, 11 September 2014)

The following comments are intended to further inform the Agencies' decisions regarding the significant challenges facing our research fleet, as reflected in the "2015 U.S. Academic Research Fleet Operations Support Findings and Recommendations." In formulating our response, the UNOLS Council Non-operator Committee has considered inputs from operators/ institutions and the UNOLS Scheduling committee as well as from members of the UNOLS community (both Council and non-Council) who provided comments in response to the "2015 U.S. Academic Research Fleet Operations Support Findings and Recommendations" document. The UNOLS Council was also given an opportunity to review this response. We have also obtained data from the UNOLS office to better formulate our response.

We focus our comments on two recommendations and one "Supporting Information and Findings" item from the Agencies.

**Recommendation 1.** In CY 2012, NSF recommended the retirement of R/V *Point Sur* at the end of the 2014 operating year. NSF has given Moss Landing Marine Laboratories (MLML) September 30<sup>th</sup>, 2014 as a decision date to move forward with the retirement or purchase the vessel as an institution-owned ship.

**Recommendation 2.** NSF and ONR recommend the operators of all ships identify ways to reduce costs and seek appropriate opportunities to support research and education programs from other funding sources, including institutional funds. It is important that operators not over-estimate yearly costs, producing large residual carry-forward funds that reduce opportunities to schedule additional funded days in the current year.

**Information Item 12.** For the West Coast Intermediates, R/V *Oceanus* has 202 days scheduled in 2014, up by 40 days. In 2014 R/V *New Horizon* remains the same as CY 13 at 163 days. A full operating year for this class is between 200-225 days. 2015 LOIs for these two vessels equates to roughly one ship year. NSF has requested that the operators look at a consolidated schedule for 2015, and if viable could possibly result in the potential non-operation of one ship in CY 15. (The above numbers have been updated with the 9/1/14 data. Also, definitions of the full operating year range for the fleet are currently under review by the ship operators and FIC.)

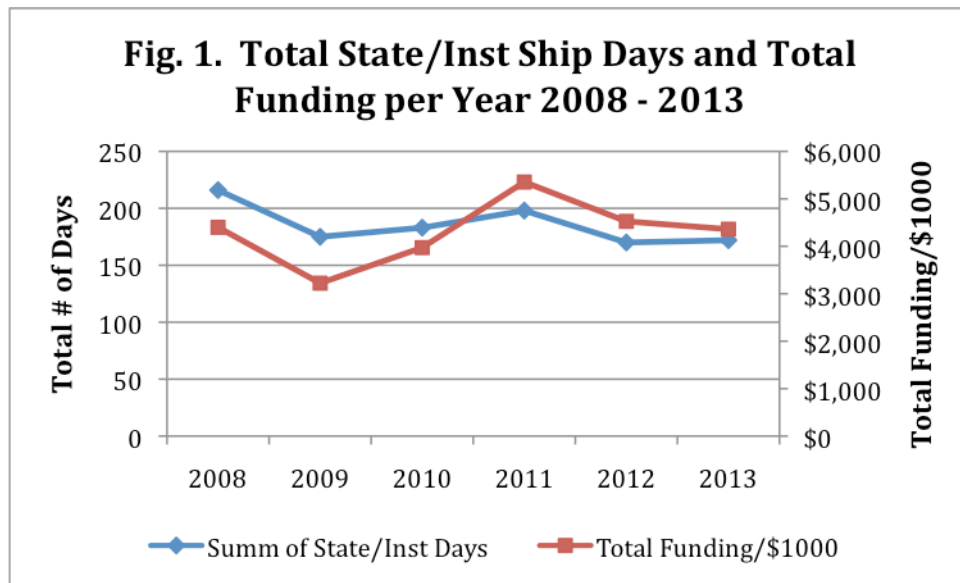
**Re: Recommendation 1.** Retirement/purchase of R/V *Point Sur* at end of 2014.

NSF has given Moss Landing Marine Laboratories (MLML) September 30, 2014 as a decision date to move forward with the retirement or purchase the vessel as an institution-owned ship. Until that decision is made, we can provide no further comment beyond what the 2012 and 2013 Non-operating committees recommended.

**Recommendation 2.** We divide this item into Part 2A - Reduce costs and find additional funding sources; and Part 2B – Minimize annual carry-over funds so more ship days can be committed each year.

**Recommendation 2, Part 2A.** Reducing costs and finding additional funding sources were issues examined in detail in the 2012 and 2013 Non-Operators Committee response letter to the Agencies, and we repeat, modify, and expand upon some of those suggestions here.

1. In the 2012 response, a chart was generated that showed a large drop in ship days and dollars coming from Institutions/States between 2008 and 2009, followed by a steady increase between 2009 and 2012. We present here a revised chart of Institution/state contributions that show no consistent trends during that time (Fig. 1).



**Fig. 1:** Total number of State/Institutionally funded days and total funding amount for the UNOLS fleet for the period 2008 – 2013 showing no definite trend over the period.

There are two reasons for the revision from the 2012 response: 1) NSF had instructed institutions to count OOI ship days as INST/State days for technical reasons, leading to an apparent increase between 2009 and 2012. It later became clear to everyone that classifying these days as “NSF-OOI” days was more reflective of the funding source. The operators were asked to make this change in their reports and Figure 1 reflects that adjustment for all years; 2) The 2012 chart was made before the FY ended. The R/V *Thompson* experienced a Z-drive failure late in the season, so only 22 of the originally planned 59 institution days were carried out that year, resulting in a loss of institutional support of more than \$1M. INST/State funding remained flat in 2013. Additional costs,

often substantial, are incurred by INST/States for upgrading and maintaining port facilities that service the ships and don't appear in the ship's day rate. We don't have data on those contributions, but they could in fact constitute substantial institutional support that is not being recognized as such. Much of "ongoing" INST/State funding is based on historical precedent, but some institutions have increased their contributions. The present is a difficult time to expect "new" money from states. Still, we all need to educate legislators about the importance of understanding our coasts for sustainable management of resources and training of new students.

2. Using the philosophy of looking at the "bright spots" to see what is working and trying to emulate those tactics at other institutions, it would be worthwhile if ship operators could learn from each other how to better leverage money from their institution/state. When we look at data for individual ships (Fig. 2) we see a wide range of contributions (in both ship days and total dollars) to different ships. Interannual variability is also substantial, with some ships receiving consistent amounts of time/dollars from their INST/state primarily for student training, and others receiving none to sporadic funding. Operators without local support should use these data to solicit support from their INST/state. The average institution/state investment for all ships for the 6-yr period was 5.4% (\$26M out of \$484M).

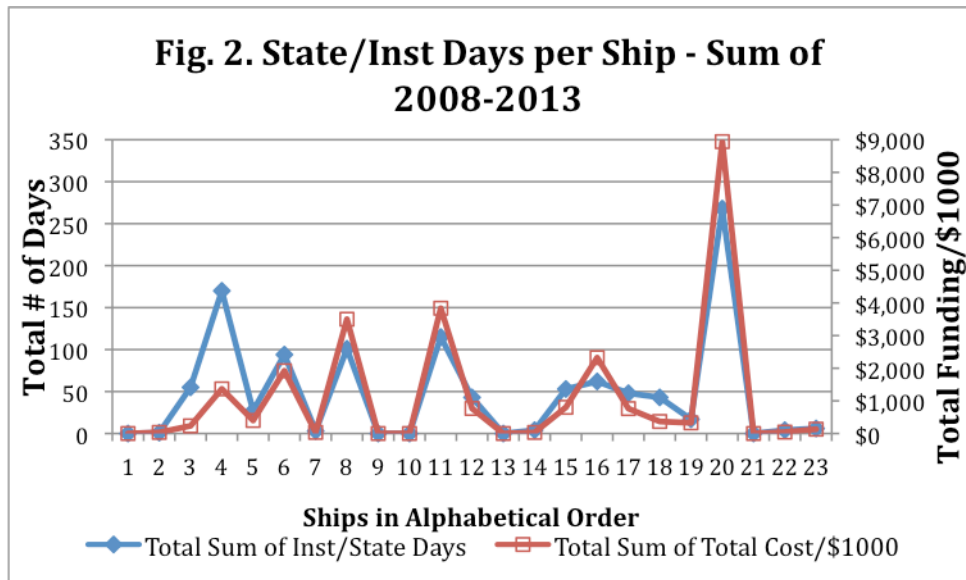


Fig. 2: Total number of State/Institutionally funded days and total funding amount for the UNOLS fleet (in alphabetical order) for the period 2008 – 2013, showing significant variability among the ships of the fleet.

3. Realizing that it will be hard to depend on institutional/state support for significant increases in the future, how else can operators expand the revenue source? For the IODP *Joides Resolution* and the *Langseth*, NSF has encouraged operators to seek industrial clients to use the ships. It appears that NSF's comment in the letter to UNOLS Council hints toward that option for other UNOLS ships, but we know there are constraints imposed by the Coast Guard, NSF, and individual institutional regulations. In 2011 UNOLS formed an ad hoc committee to explore alternative funding avenues for UNOLS

vessels. The results were reported by Nancy Rabalais at the UNOLS Council meeting in October, 2011 (<http://www.unols.org/meetings/2011/201110cnc/201110cncap07.pdf>). In one case the former R/V *Maurice Ewing*, in order to avoid complete lay up, took a year off to do work for BP in the North Sea. It lost its R/V designation, which was very difficult to reinstate, but there are examples of other ships where commercial work was successfully accommodated under the guidelines.

In his July 28, 2014 weekly message, Bob Gagosian, President of the Consortium for Ocean Leadership, said of the likely scenario of flat federally-funded research budgets into the future, “We need to think outside our comfort zone and think, for instance, about creating new academic/industry partnerships and introducing new innovative ideas to Foundations. I can assure you that I am giving careful thought to the issue. You need to do the same, and you need to engage the senior administrators of your institutions on the issue that “weathering the storm” is not going to work. We are in a new world; we need a new model.”

Since 2008 the number of ship days requested has been fairly constant with a projected drop in 2015 (Fig. 3). What has dropped most significantly is the percentage of requested ship days that have been funded – from 65% in 2008 to what may be as low as 33% in 2015! This is not good news to PIs writing proposals for ship use. Perhaps we need to rewrite the rules of what research vessels are allowed to do with respect to industries. At least we need to be more innovative in involving industry in oceanographic research. Private foundations are now providing ship time for oceanographic work, but are not funding the data analysis and publication. If Agencies lack funds for UNOLS ship time, will they provide funding for analysis and publication through competitive proposals? This issue should be discussed further within the UNOLS community and with agencies.

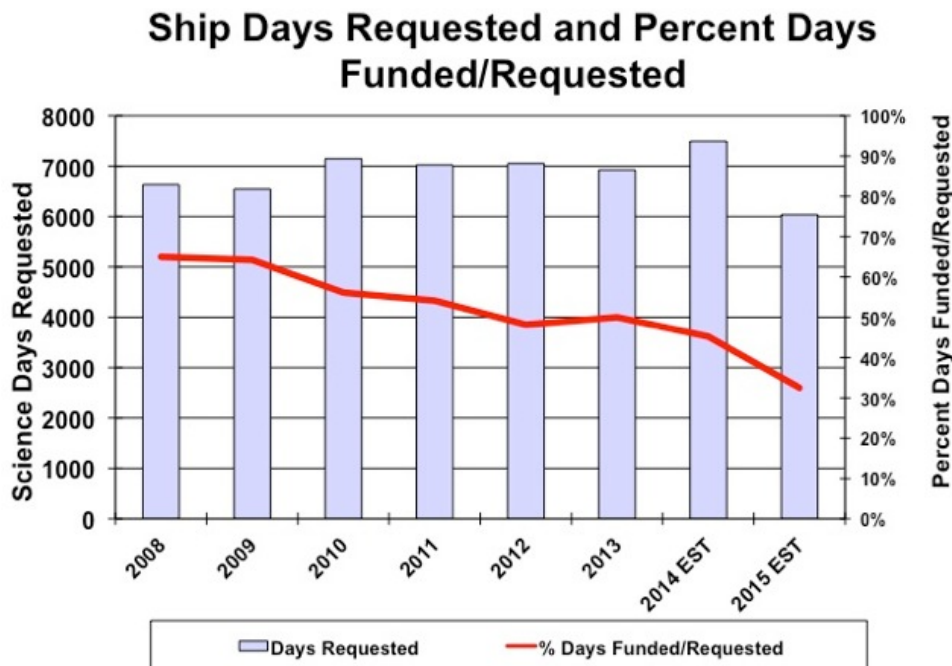


Fig. 3: Science days requested and percent of days funded (relative to requested) for the period 2008 – 2015 (last two years estimated), showing a consistent and steady decline over that period.

In addition, a greater onus could be placed on scientists and NSF program managers, to more carefully consider the size of ship and number of ship days that are required for seagoing projects. In some cases, a smaller vessel may be adequate for a project in which a larger, more expensive vessel is requested.

4. There have been several suggestions related to whether there could be significant cost savings by consolidating purchases from national or regional suppliers, for example an over-the-side equipment insurance pool, or consolidated fuel or supplies purchasing. We provide here an update on those issues.

**Insurance:** The UNOLS Research Vessel Technical Enhancement Committee (RVTEC) and the UNOLS Research Vessel Operators Committee, (RVOC) have discussed at several recent meetings the concept of a group purchase for insurance for over-the-side oceanographic equipment deployed from the UNOLS ships. There have been some attempts at having an insurance expert attend these meetings to explain how premiums are set and to provide more detail on a possible insurance pool. To date, we have been unable to get an insurance company representative to attend our meetings.

**Group purchases:** The RVOC has a long and successful record on working with the federal funding agencies on group purchases. In recent years NSF has funded group purchases for the engineering analysis necessary in developing maximum capability documents for the Research Vessel Safety Standard's Appendix B. Also, a group purchase was arranged for the procurement of the Electronic Chart Display and Information Systems, (ECDIS) for the UNOLS fleet. The group purchase of high speed internet bandwidth for satellite communications is another example of a successful group purchase. There is also currently an ongoing group purchase upgrade for the Markey Desh-5 winch systems on the UNOLS fleet.

**Fuel Purchases:** There has been some effort in researching a fuel purchase arrangement to allow large volume fuel procurements in hopes of securing a better pricing structure. With the UNOLS fleet operating all over the world, and several ships being gone from their home ports for months if not years, this has been a challenging task. A UNOLS fuel broker has been considered, but to date, no action has been taken in this regard.

All of the above information needs to be shared again with all ship operators.

**Recommendation 2, Part 2B.** It is important that operators not over-estimate yearly costs, producing large residual carry-forward funds that reduce opportunities to schedule additional funded days in the current year.

Residual carry-forward funds is an issue outside the normal ship user's or even UNOLS Council member's common awareness. Our understanding is that carry-forward funds for large ships can be very large (order \$0.5 – 1.0 M), so more accurate budgets could have allowed more ship days to be committed by the agencies. Given that the budgets and day rates are provisional and agencies allow a renegotiation upward if budgets are exceeded at the end of the year, statistically it seems that individual ship budget shortfalls should

occur as frequently as surpluses. It is admirable to come in under budget for the year, but especially under present conditions, all steps must be taken to maximize days at sea with the available dollars rather than carrying them forward.

We also realize there are events like emergency repairs that push work onto other ships unexpectedly, which lowers the annual day rate of the recipient ship and creates an unexpected carryover, but increases the day rate of the disabled ship, potentially causing a shortfall. There are also delays such as with rebuilding DSRV *Alvin* that resulted in funds being carried forward into the next calendar year. These are totally unpredictable and are valid reasons for high carry forwards. Maintaining the capacity to move work from one ship to another is important to sustain when considering laying up a ship for any period of time. We understand that these financial negotiations are between the operators and agencies and need to be dealt with on a case-by-case basis, but we urge all operators to work to minimize carry-overs.

Another little-known reality in ship scheduling is the funding cap that NSF must adhere to. NSF is not allowed to fund any single institution more than 1 % of the total GEO Budget averaged over a 5-year period. So when the *Atlantis* and *Alvin* have a strong schedule year that is funded primarily by NSF, then it requires careful planning. For example if NSF funds 270 days on *Atlantis* at a day rate of \$39,500, this comes to over \$10 million for one year, which exceeds the 1% of the GEO budget.

**Information Item 12.** Potential layup of West Coast Intermediate vessel.

The schedulers of both the R/V *Oceanus* and R/V *New Horizon* have posted letters of intent with a version showing their single respective ship schedule and then a combined schedule that includes all of the funded work for *Oceanus*, *New Horizon*, and *Point Sur*. At present, even with the number of days for the R/V *Point Sur*, both the *Oceanus* and *New Horizon* would have weak schedules. By combining all the work on the west coast for the *Oceanus*, *New Horizon* and the *Point Sur*, there is funded work that would produce one strong schedule of about 240 days. Granted, some of this work may not be scheduled in the preferred window requested by the Principle Investigator, and the capacity for any new work that may be funded in 2015 would be limited. It is also likely that Institution/State days on one institution's ship will not be funded on the ship of another institution.

**Potential Scenarios:**

Potential scenarios include 1) laying up either *Oceanus* or *New Horizon* for 2015 and losing some of the Institution/State days, or 2) operating these two Intermediate ships with less than optimal schedules, but maintaining capacity for unexpected events. A third intermediate scenario is to have each ship do a partial layup in 2015, thus completing all of the scheduled work during the time requested by PIs, retaining all Institution/State days, and maintaining the capacity of the academic fleet - especially the shipboard and shore-based personnel.

If the *Pt. Sur* is retired (i.e., not acquired by MLML), laying up the *New Horizon* or *Oceanus* next year leaves the west coast with only one Intermediate/Regional class vessel for the entire coast from San Diego to Washington, and its schedule would be completely full, leaving no capacity for additional work of opportunity – not an ideal circumstance. If the *Sproul* is operating in 2015, that ship could relieve some scheduling pressure for a few cruises (e.g. CalCofi and LTER). If MLML decides to purchase and operate the *Point Sur*, that ship might also be available for some cruises.

Highlighted in bold in the 2006 Non-Operators Committee Guidelines for considering and responding to Agency recommendations for ship layups, we are reminded, **“The recommendations need to consider the impact on experienced technical staff, crewmembers and shore support personnel and the potential for alternative methods for retaining their services. Investments in training and experience are significant.”**

In closing, we recognize that schedules and funding are always subject to change and that future Agency budgets are hard to predict. We strongly emphasize the need for continued close interaction and communication among ship operators and the agencies responsible for providing and funding a modern academic research fleet that is capable of supporting the ocean research and education required in the 21<sup>st</sup> Century.