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**UNOLS**
UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

Date:   6 September 2017
From:  UNOLS Council Non-Operator Subcommittee (Mark Brzezinski, Chair; Tammi
          Richardson, Anna-Louise Reysenbach)
To:      NSF and ONR (hereafter 'the Agencies')
Subj:   Response to document "2018 U.S. Academic Research Fleet Operations Support
          Findings and Recommendations"
Ref:     The above document (submitted to Dr. Deborah Steinberg-UNOLS Chair, 14 July 2017)

The following comments from the UNOLS Council Non-operator Subcommittee are in response
to the Agencies' positions, guidelines, and recommendations as detailed in the "2018 U.S.
Academic Research Fleet Operations Support Findings and Recommendations."

The UNOLS Council was also given an opportunity to review this response.

Overall, we are happy to see that the Agencies see no need to recommend non-operational
periods for any of the UNOLS vessels in CY 2018. With regards to homeport operational days
and associated costs, discussions among ship operators have been initiated and will continue.

Our comments focus on the Agency Positions, Decisions and Recommendations, and Guidelines.

**Agency Positions**

Most agency positions are identical to those in the past, particularly since the Decadal Survey,
and have been commented on in previous Non-Operator responses. In response to position 4 (the
Sea Change Report's recommendation of balance between core and infrastructure funding), we
agree that the Directorate has done a good job of attaining this balance in CY15 and CY16.
These changes feedback into position 3 regarding how agencies prioritize decisions.  When
considering the overall efficiency of resource allocation agencies should continue to consider the
need for assets to be deployed at the appropriate time and/or place of the scientific phenomenon
of interest to maximize the effective use of both research and infrastructure funds which may at
times increase costs.  Otherwise, neither research or infrastructure funds will be used effectively.

Re: position 5, we are also aware of the pressing need to finalize the methodology for defining
Full Optimal Year (FOY) values for vessels in the UNOLS fleet, and concur with the additional
need to define the available "surge capacity" within the FOY.

**Agency Decisions and Recommendations**

Recommendation 1 (identification of cost reduction strategies, leveraging of institutional
resources) is a recurring theme and a continuing activity for ship operators.

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Recommendation 2 involves developing effective strategies for use of the R/Vs *Sikuliaq*, *Armstrong*, and *Ride*. This process is happening organically as the word is spreading regarding the enhanced capabilities of these vessels. UNOLS continues to consider ways of disseminating information on the capabilities of these vessels. In the meantime the overhauls of the R/Vs *Thompson* and *Revelle* appear on schedule.

Recommendation 3: We are pleased that the University of Washington now has a replacement plan for the R/V *Clifford Barnes*.

**Agency Guidelines**

Most of the guidelines listed are identical to those in previous years, but we reiterate last year's comment that the concept of using a two-ship operation instead of one Global (Guideline #8) is problematic given that most cruises share samples and sampling systems (i.e., most cruises for Globals are interdisciplinary) so the applicability of this approach may be limited. We also note that past two-ship operations (e.g., SoFex) have fully utilized the space afforded by two Global class vessels (R/V *Melville* and R/V *Revelle*). The two-ship 2018-2020 NASA EXPORTS field program will involve one of the new Ocean/ Intermediate class ships (R/V *Ride*; plus the Global R/V *Revelle*) providing a test of their capacity/capabilities in this regard.

We also note that deferrals of cruises (Guideline #9) have a large impact on funded research programs potentially significantly impacting science effectiveness. When deferrals are necessary, Agencies should work to mitigate their scientific impacts.

**Supporting Information and Findings**

Given the sinusoidal variations in ship requests (Figure 4) we have to be careful in interpreting trends, but clearly the fleet utilization (Figure 1) has been declining steadily in the recent past, but may be recovering slightly; trends appear to be driven primarily by overall funding, not by a lack of scientific initiative (i.e., requests). The decline in Global utilization (Figure 2) since 2012-2013 is probably due to the cycle of OOI, Repeat Hydrography/CLIVAR, and GEOTRACES cruises (e.g., RH and GEOTRACES were on Healy in 2015). It is anticipated that these programs (e.g., planned GEOTRACES Pacific in 2018; OOI global array servicing) and other newly developed ones (e.g., NASA/NSF-funded EXPORTS) will increase Global demand and should shift this trend upward. Moreover, given the ages of the Global class vessels, not withstanding SLEP, and the long lead time for new ship funding and construction, the FIC has started writing new Science Mission Requirements for replacement Global vessel(s).

Sincerely,

Deborah Steinberg/UNOLS Chair