

Date: June 27, 2014
 From: NSF and ONR
 To: Dr. Peter Ortner

Subj: 2015 U.S. Academic Research Fleet Operations Support Findings and Recommendations
 Ref: Criteria and Process for Recommending Non-Operational Periods of Ships in the UNOLS Fleet, UNOLS Council - July 24, 2006.

Introduction

The National Science Foundation (NSF), the Office of Naval Research (ONR), and the UNOLS Executive Secretary have participated in numerous ship scheduling meetings and conducted a thorough review of the 2015 Letters of Intent for the UNOLS Global, Ocean/Intermediate, Regional, and Local class ships. Realizing that additional funding decisions will be made over the coming weeks for the 2015-scheduling year, based on current projections the agencies present the following outlook for 2015. NSF feels that an early review provides good analysis on where work is needed to fill out schedules, especially in the promotion of non-federal work. This by no means is meant to convey a final forecast, but rather a baseline for continued discussions within UNOLS of how to improve the outlook for CY 15. The variances from our past June letters have been mainly a result of non-NSF work becoming known later in the scheduling process.¹ This year it is anticipated that very few NSF ship days will be added to CY 15 schedules from the Spring 2014 OCE panels.

There are presently 1616 funded days across all agencies for CY 15, as shown in Table 1. There are 1146 pending days of which an estimated 30% (344) will likely be funded resulting in a total of 1960 days (Institution/State=77, Navy=308, NOAA=119, NSF=1291, USGS=57, BOEM=8, ACOE=10, and Other=90) of proposed ship time. The available information indicates the number of proposed Fleet operating days for 2015 is lower than historical levels. The Fleets' utilization appears to have leveled off at about 3400 days over the last three years. However, the 3400 days do not quantify, on their own, the shifts in the types of ships being utilized. Figures 1-3 illustrate the Fleet

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Agency	ACOE	DOE	EPA	Inst/State	BOEMRE	NASA	NAVY	NOAA	NSF	USGS	Other	Total
<i>Projected 2012 on Sept 26, 2011</i>												
Total Funded and Pending	7	0	0	130	23	1	301	168	1987	1	159	2776
Actual/Final 2012 days by agency	0	0	0	176	21	37	376	337	2158	11	281	3397
<i>Projected 2013 as of June 1, 2012</i>												
Total Funded and Pending	0	0	0	128	0	32	151	154	1682	20	239	2406
Actual/Final 2013 days by agency	8	0	0	200	4	14	594	227	1989	23	403	3462
<i>Projected 2014 as of June 17, 2013</i>												
Total Funded and Pending	0	0	0	121	20	17	334	152	1700	40	175	2559
Provisional 2014 days by agency	0	11	0	220	16	20	394	379	2096	27	229	3392

utilization trends over the past ten years and the anticipated use in 2015, and Figure 3 in particular demonstrates the Global demand. This has increased the strain overall on the agencies' budgets.

Based on the findings outlined below, several ships in the Fleet will have less than optimal schedules in 2015. As agreed to by the UNOLS Council, the referenced document which guides the recommended process for making decisions regarding non-operational periods, calls for substantive recommendations to be made by the Agencies. This letter provides those recommendations. The link to the reference document is:

http://www.unols.org/publications/reports/budget_impacts/NonOp_Process_Recmd.pdf

Agency Positions

- 1) Vessel owners have sole discretion on whether or not to retain their vessel(s) in service. Agencies have final say on where their respective federal work will be carried-out.
- 2) In order to improve the efficiency and economy of the overall Academic Research Fleet schedule, it is not assumed that NSF and ONR will provide operators of agency-owned assets with lay-up funds or divert work from other UNOLS ships as an artificial mechanism by which to reduce day rates. The need for lay-up funds for a specific ship will be carefully reviewed by the federal agency ship owner on a case by case basis and will be considered within the context of the overall Fleet right-sizing and budgetary projections. The agencies believe this is in compliance with the UNOLS Charter (ANNEX I, Ship Scheduling Committee).
- 3) Federal agencies prioritize decisions based on schedule efficiency, scientific effectiveness, and budget comparisons, to maximize science support while making every effort to reduce overall costs. This may require a long-term view beyond a 12-month forecast. It may be the case that consolidation of underutilized schedules adds transit days but reduces overall costs, and is in line with agency position 2 above.
- 4) NSF and ONR agree an appropriate level of surge capacity is needed; in particular for rapid response type cruises and to allow for potential future increases in science utilization.
- 5) Given the current and projected federal funding limitations coupled with the underutilization of the U.S. Academic Fleet, and the need to modernize the Fleet, it has become apparent that the Fleet size needs to be reduced more rapidly than had been previously planned. With regard to "right sizing" of the Academic Fleet, consideration will be given to geographic distribution of the ships and overall projected science utilization by class.

- 6) NSF currently plans to maintain R/V *Marcus Langseth* as a specialized seismic ship and when appropriate geographically, general-purpose work will be carried out. The report from The National Research Council's Committee on a Decadal Survey of Ocean Sciences 2015, which is expected to be published in the Spring of 2015, may provide community perspective on the need to maintain this specialized capability.
- 7) Federal agencies encourage institutions that own and/or operate Fleet vessels to charter ship days for institutional education and research. This commitment reduces the dependency on the Federal agencies and lowers the day rate for all potential users. Multi-ship operators should avoid unintended consequences of shifting costs to other ships that they may operate. The use of institutional days must conform to requirements set forth in Charter Party and Cooperative Agreements.

Agency Decisions and Recommendations

- 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 30th, 2014 as a decision date to move forward with the retirement or purchase the vessel as an institution-owned ship.
- 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.

Guidelines

The guidelines used to develop these recommendations are outlined below:

- 1) Budgetary constraints across the Federal agencies, escalating ship day rates and ship repairs, require that operators strive to maintain day rates within inflation. An institution's ability to maintain reasonable day rates will be considered when negotiating annual awards. Global and Ocean Class ships account for 76% percent of the NSF budget for ship operations and technical support, and the impact to the Fleet should be especially considered. This is in line with agency decisions and recommendation #2.

- 2) Federal agencies will evaluate if a weak schedule of an institution-owned ship is adding to an agency's costs. Shore-side support is one area where costs are distributed across the ships and these costs will be reviewed on an annual basis. Base costs should be used in evaluating comparisons.
- 3) When possible, scheduled maintenance periods should be carried out in a vessel's homeport, both as a cost saving measure as well as an opportunity to conduct preventative maintenance. Unless an exemption is granted, U.S. shipyards must be used for regulatory dry-docking.
- 4) Ship schedules must be developed to meet the science program requirements while adhering to budgetary constraints.
- 5) Science program requirements must match the oceanographic outfitting capabilities of the ship on which the program is scheduled.
- 6) The size/class of vessel should be considered when selecting ships appropriate for the science mission.
- 7) The Funding Agency Program Manager and the Principal Investigator (PI) will be consulted when information beyond that listed on the UNOLS Ship Time Request Form is required. PIs and operators should avoid changing the scope and purpose of the funded project unless approved by the Federal agency.
- 8) Programs may be scheduled as a two-ship operation instead of a single Global Class ship if it will be more efficient and cost effective.
- 9) Every effort should be made to schedule each year's funded programs within the budgetary constraints of each Federal agency. Deferrals will be considered if a particular cruise cannot be accommodated effectively and efficiently. All cruises requiring significant transit costs will be specifically reviewed and evaluated to determine if it can be accommodated within the available funding.
- 10) Cruises requiring Federal assets, such as NDSF ROVs, need special consideration when scheduling. It may require substitution of assets, which requires approval by the funding agencies to either give flexibility for scheduling the cruises or for cost savings.

Supporting Information and Findings

The following findings regarding Fleet ship operations for 2015 are based on the submitted ship time requests, posted Letters of Intent (preliminary schedules) and cost estimates provided by the ship operators as of June 11th, 2014:

Table 1: Fleet Utilization by Agency (2010 - 2015)

Agency	ACOE	DOE	EPA	Inst/State	BOEM	NASA	NAVY	NOAA	NSF	USGS	Other	Total
2010 Funded Days	6	3	3	183	63	0	487	518	2515	20	213	4011
2011 Funded Days	0	0	1	206	35	2	491	498	2274	62	232	3801
2012 Funded Days	0	0	0	176	21	37	376	337	2158	11	281	3397
2013 Funded Days	8	0	0	200	4	14	594	227	1989	23	403	3462
2014 Funded & Pending Days*	0	11	0	220	16	20	394	379	2096	27	229	3392
2015 Funded Days**	10	0	0	59	8	0	267	63	1097	56	56	1616
2015 Pending Days**	0	0	0	61	0	0	136	186	647	2	114	1146
2015 Funded & 30% of Pending Days***	10	0	0	77	8	0	308	119	1291	57	90	1960

Notes about the table:

- * The 2014 Funded and Pending days are based on posted ship schedules as of 6/11/2014.
- ** The 2015 Funded and Pending days are based on the latest LOIs and draft schedules posted as of 6/11/2014.
- *** A 30% success factor rate has been applied to the pending days

1. There were 3462 operating days on the 2013 final published schedules.
2. There are currently 3392 operating days (funded and pending) on the 2014 published schedules as of June 11, 2014. (All numbers presented excludes RVIB *NB Palmer*; 93 days in 2014.)
3. The total funded number of requested operating days for 2014 by NSF is 2096 days. In recent years NSF has assumed a larger proportion of the funded days and this trend continues in 2014. In 2013, of the total 3462 days, NSF funded 1989 days, or 58 %. In 2014, NSF will provide support for 62 % of the total days.
4. For 2014, Globals/Ocean Class, (*Atlantis, Knorr, Langseth, Melville, Revelle, Sikuliaq* and *Thompson*) and *Kilo Moana* have schedules with between 129 and

- 316 operating days (funded and all pending). There are specific homeport maintenance periods planned. In CY 14, NSF funded 1092 days on Globals, including use of *R/VIB N.B. Palmer*, accounting for 67% of the OCE/IPS/Ship Ops budget, or about \$44M. Not included in that cost figure are the OOI days (77 days) that NSF/IPS/OOI supported, accounting for an additional \$2.7M. ONR Global usage represented a significant investment in R/V *Revelle*, supporting 175 days plus 58 days on *Knorr*, 28 days on *Melville*, and 1 day on *Atlantis*. The cost to ONR is \$11.9M.
5. In CY 14 *Melville* and *Knorr* will be inactivated by the Navy, and by late in CY 15 *Neil Armstrong* and *Sally Ride* will transition into science operations. The CY 15 projection for the seven Global and Ocean Class ships is about 1080 days total (funded + 30% pending). At this time, NSF is scheduled for 516 days on Globals, both funded and 30% of the pending.
 6. For the East Coast Intermediates, *Endeavor* has 179 days (funded) in CY 14, down 35 days from CY 13. Some efficiency was found by moving work off a Global to *Atlantic Explorer*, which increased the *Atlantic Explorer's* schedule to 177 days, up by 25 days. For 2015, *Endeavor's* LOI has 83 funded days split between NOAA and NSF, and 212 pending days. *Atlantic Explorer's* LOI shows 116 funded NSF days, with 21 pending days.
 7. In CY 14 R/V *Pelican* in the Gulf of Mexico has a fully subscribed schedule of 181 days but down from CY 13 by 13 days. Historically *Pelican* has added days over the course of the operating year. The Gulf of Mexico Research Initiative funding has increased ship days in 2014 as programs ramp up their need for ship support. *Pelican's* 2015 LOI has 82 funded days and 104 pending.
 8. In CY 14 R/V *Hugh Sharp* has a relatively strong schedule at 185 funded operating days, and work concentrated regionally. This is down from CY 13 by 25 days. For 2015, *Sharp's* LOI has 79 funded and 59 pending, of which 43 are for Navy, 23 days for NSF and 13 USGS. 37 pending days are for NOAA's annual scallop survey which are expected to be supported.
 9. In CY 14 R/V *Walton Smith* has a relatively modest schedule, with 140 days, up from CY 13 by 25 days. The 2015 LOI has a light schedule, at 33 days funded and 33 days pending.
 10. R/V *Savannah* has a full schedule at 173 days in CY 14, up from 111 days in CY 13. The increases seen on *Walton Smith* and *Savannah*, do not appear to reflect a boost in days due to the retirement of *Cape Hatteras*. The 2015 LOI for R/V *Savannah* has 54 funded days and 74 pending.
 11. R/V *Blue Heron* maintains nearly the same operating days between CY 13 & 14 at 62 and 55 days. Some NSF days were added to *Blue Heron* for a rapid response cruise and an early career training cruise. *Blue Heron's* LOI has 14 funded days, and 84 pending days. The majority of pending days are NSF.

12. For the West Coast Intermediates, *Oceanus* has 200 days scheduled in 2014, up by 38 days. In 2014 R/V *New Horizon* remains nearly the same at 167, up by 4 days from CY 13. 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.
13. R/V *Point Sur* has 107 days in CY 14, down substantially from a nearly record high of 196 days in CY 13. The ship had nearly 100 days devoted to Polar Programs, a one-time use of the ship in Antarctica. The outcome of NSF's recommendation to retire *Point Sur's* in CY 15 will be finalized in the coming months. MLML has posted a CY 15 LOI, which shows 69 funded days. All these days are triple booked between *Oceanus* and *New Horizon*.
14. In CY 14 *Robert G. Sproul* is scheduled for 21 days, supported by Navy, Institutional, and Other. In 2015 2 pending days are shown on the Letter of Intent. NSF and ONR have no work scheduled on *Sproul* in CY 15. *Robert G. Sproul's* last inspection was held in 2010 and would need to be conducted prior to any NSF funded work.

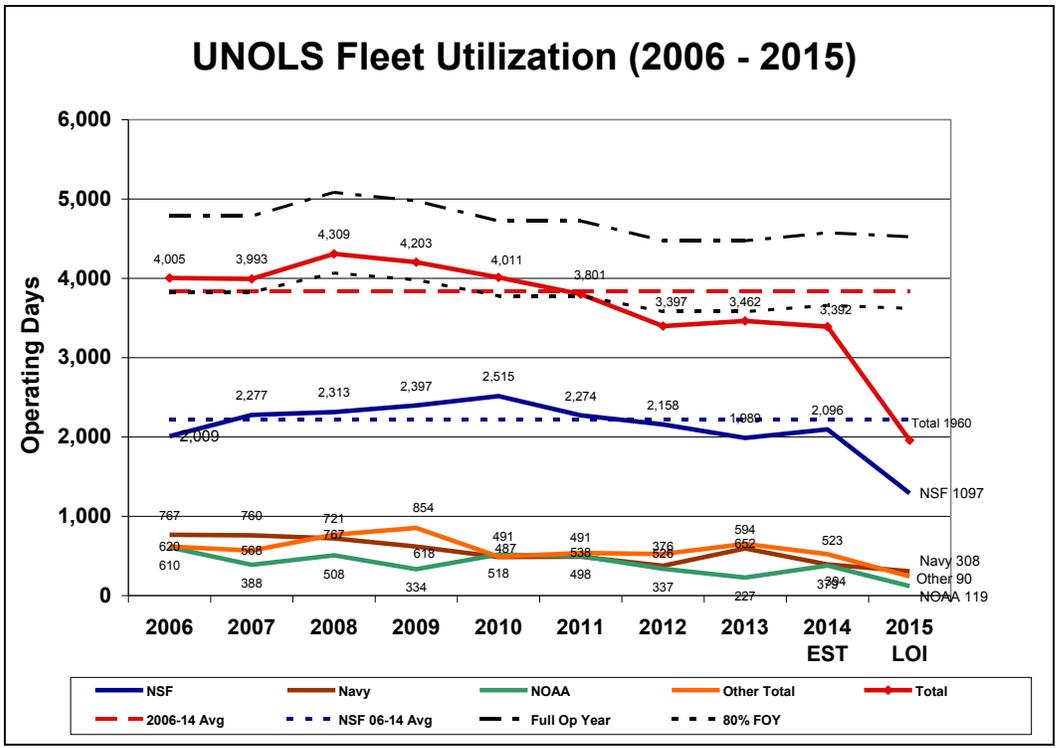


Figure 1: UNOLS Fleet Utilization (2006-2015)

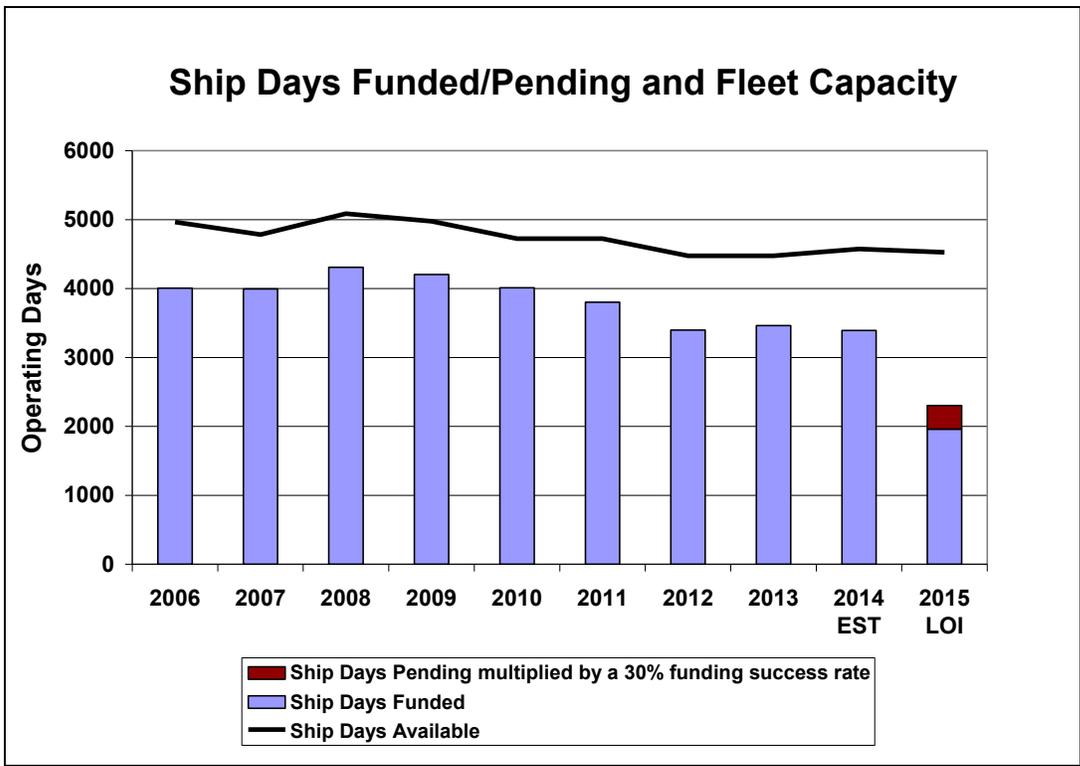


Figure 2: Ship Days Funded/Pending and Days Available

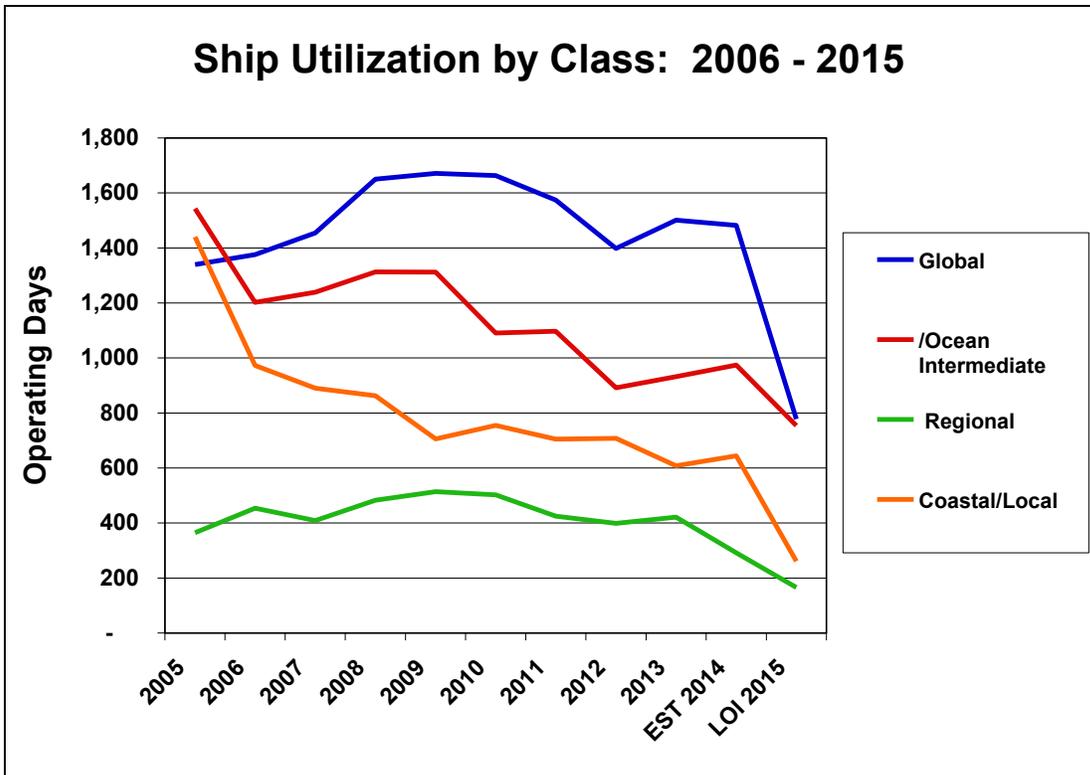


Figure 3: Ship Utilization by Class (2006-2014)

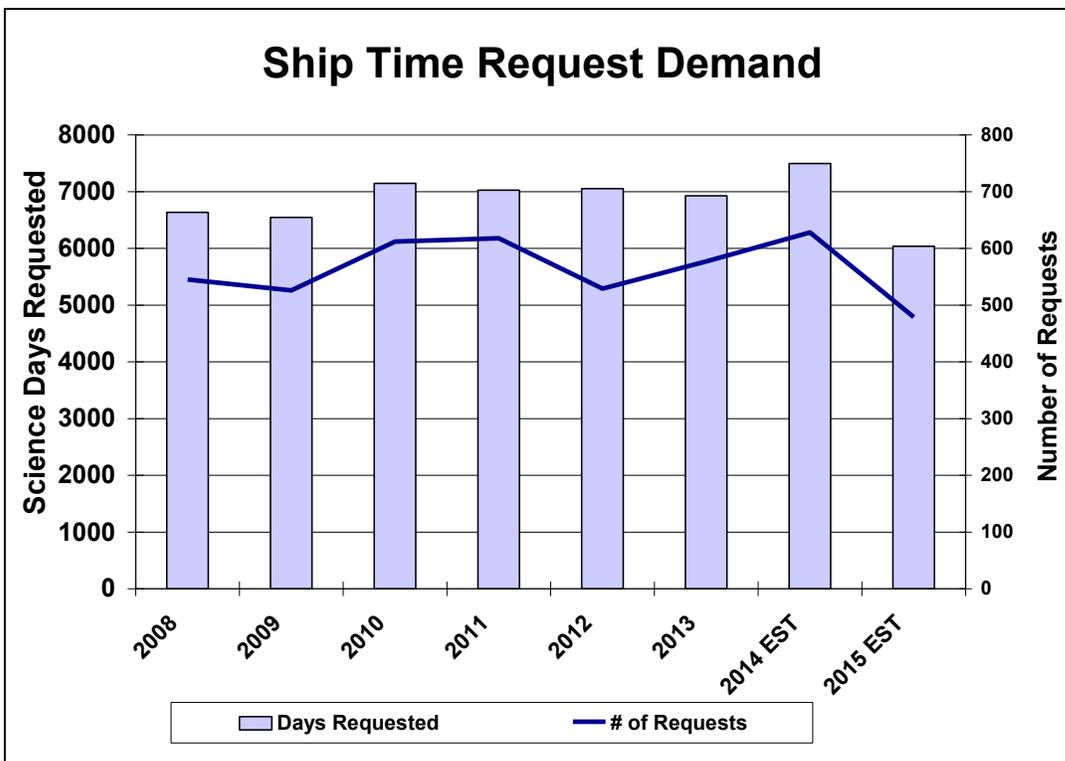


Figure 4: Ship time Request Demand