

# NSF Ship Operations Overview of CY 16 & 17

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UNOLS RVOC Spring meeting  
April 2017



## A summary of NSF activities and topics this past year

- Federal Government outlook
- Sea-Change Update
- Cooperative Agreements New Cycle/language
- SSF/MOSA
- CY 17 Budget outlook- CY 16 outcome
- Polar Code
- RCRV
- IWG-FI
- Future of 3-D Seismics
- JR-100
- Safe Climate Video- Interagency project

## Federal Government outlook FY 17

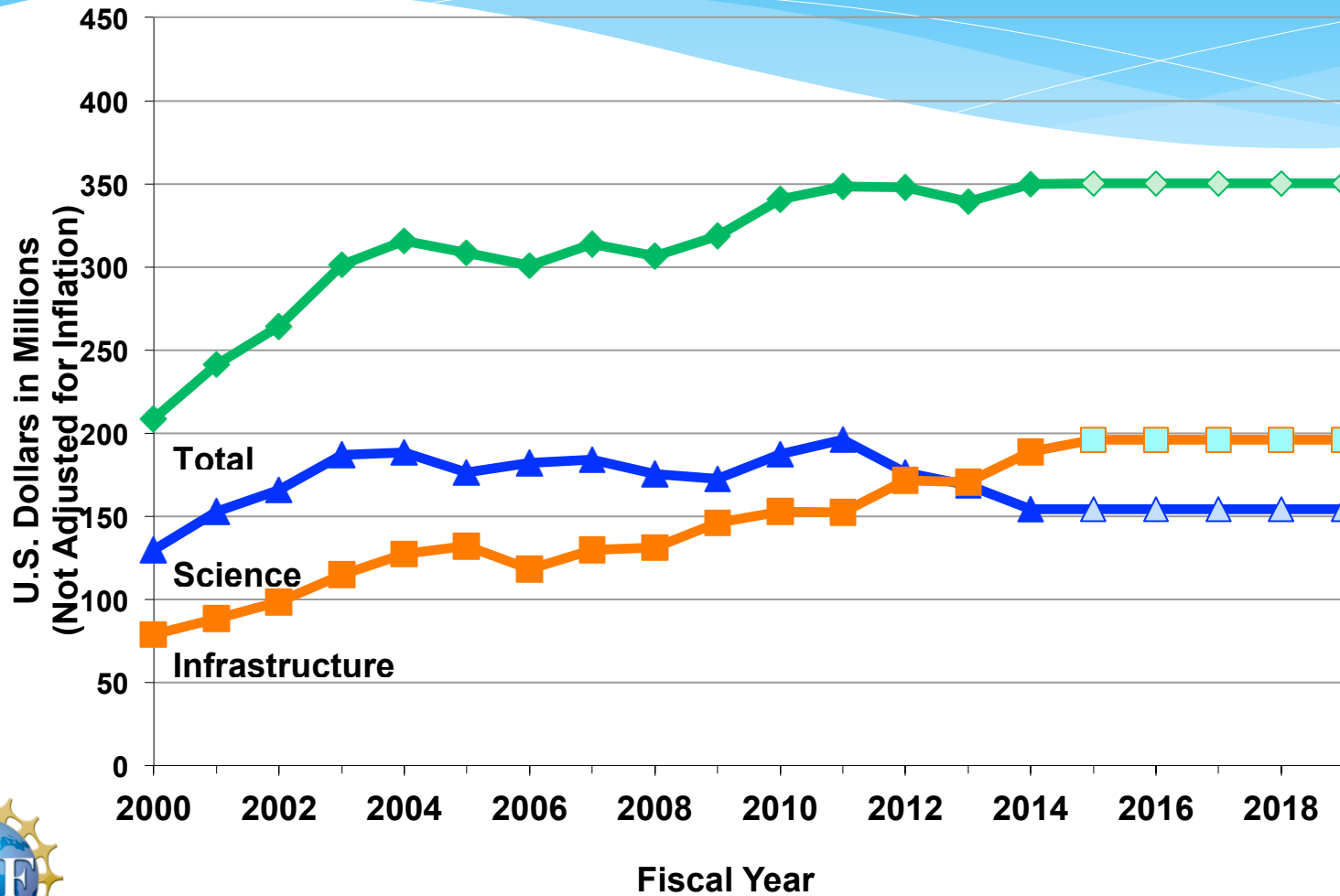
- A CR in place until April 28<sup>th</sup> .

*Bipartisan leaders on the spending panels in the House and Senate are making progress on a deal that would wrap several individual spending measures into one "omnibus" spending bill they hope to approve before the deadline.*

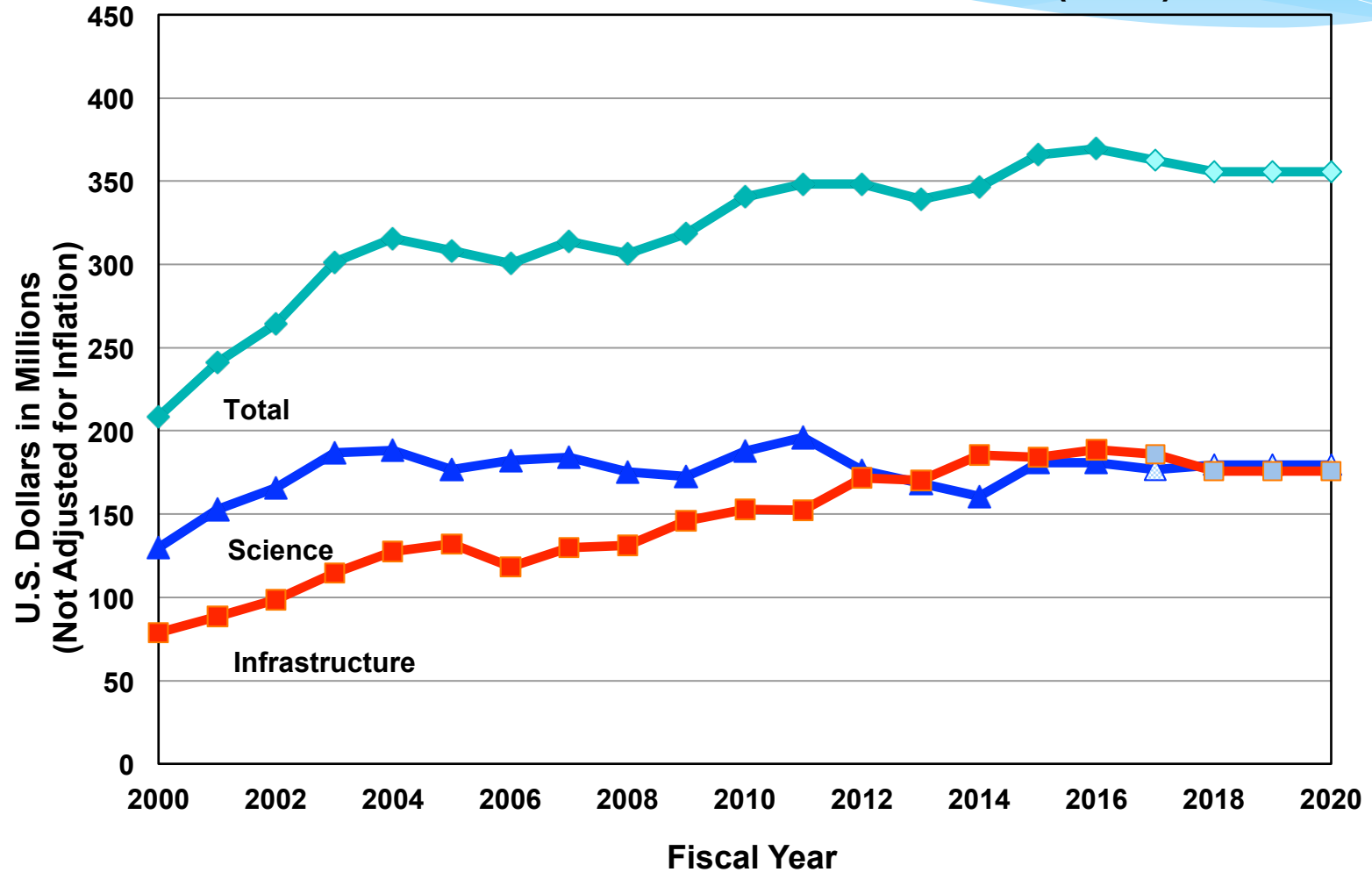
*The skinny budget did not mention NSF, so it's unclear what kind of budget cut is being considered for NSF. However, if one presumes that "other" agencies includes NSF, then a 10% cut is likely.*

- If we have Federal Government shut-down what is the impact to ship operators?
- With a few exceptions among the local class vessels, all operators received partial funding for CY 17. It remains unclear when I can provide the balance.
- For the most part I've deferred Ship Day Rate negotiations based on the need to potentially mitigate a budget short fall.
- If there is a government shut down, a person within NSF will be designated as "key POC" for emergency notifications.

# Projection before Sea Change



## OCE Science vs Infrastructure (2016)



# Specialized Service Facilities

§200.468 Specialized service facilities.

(a) The costs of services provided by highly complex or specialized facilities operated by the non-Federal entity, such as computing facilities, wind tunnels, and reactors are allowable, provided the charges for the services meet the conditions of either paragraphs (b) or (c) of this section, and, in addition, take into account any items of income or Federal financing that qualify as applicable credits under §200.406 Applicable credits.

(b) The costs of such services, when material, must be charged directly to applicable awards based on actual usage of the services on the basis of a schedule of rates or established methodology that:

(1) Does not discriminate between activities under Federal awards and other activities of the non-Federal entity, including usage by the non-Federal entity for internal purposes, and

(2) Is designed to recover only the aggregate costs of the services. The costs of each service must consist normally of both its direct costs and its allocable share of all indirect (F&A) costs. **Rates must be adjusted at least biennially, and must take into consideration over/under applied costs of the previous period(s).**

(c) **Where the costs incurred for a service are not material, they may be allocated as indirect (F&A) costs.**

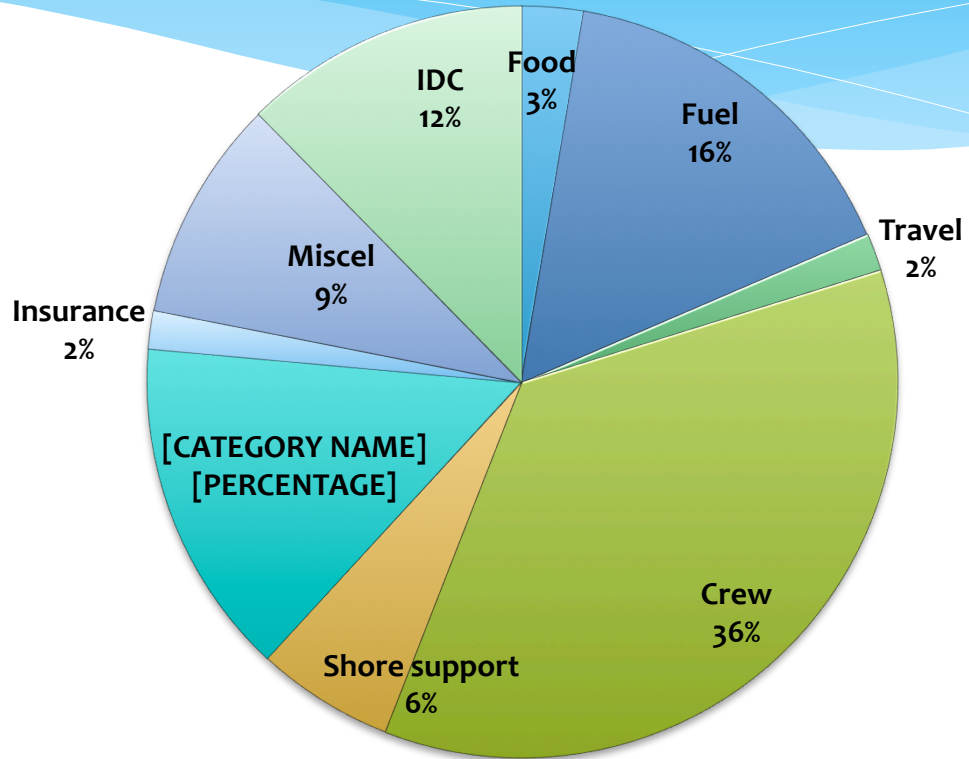
(d) Under some extraordinary circumstances, where it is in the best interest of the Federal Government and the non-Federal entity to establish alternative costing arrangements, such arrangements may be worked out with **the Federal cognizant agency for indirect costs.**



# CY 17 Total Projected % of Expenses

## All ships

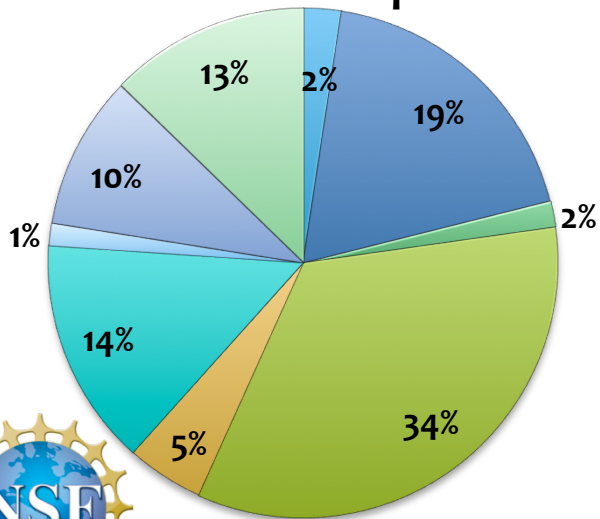
- Food
- Fuel
- Travel
- Crew
- Shore support
- MOSA & Normal Repairs
- Insurance
- Miscel
- IDC



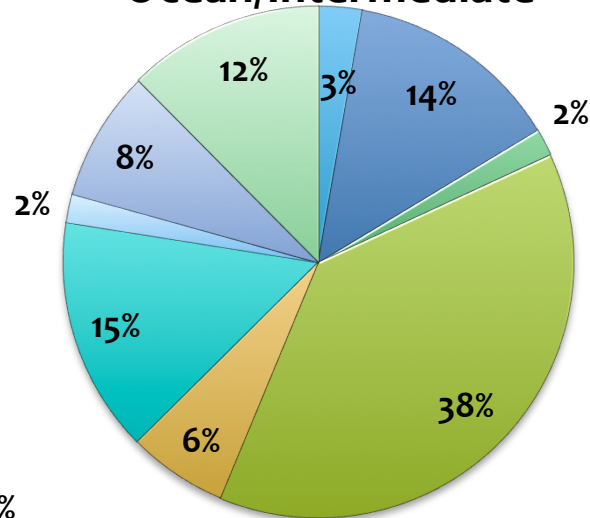
# CY 17 Total Projected % of Expenses

- Food
- Fuel
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- Crew
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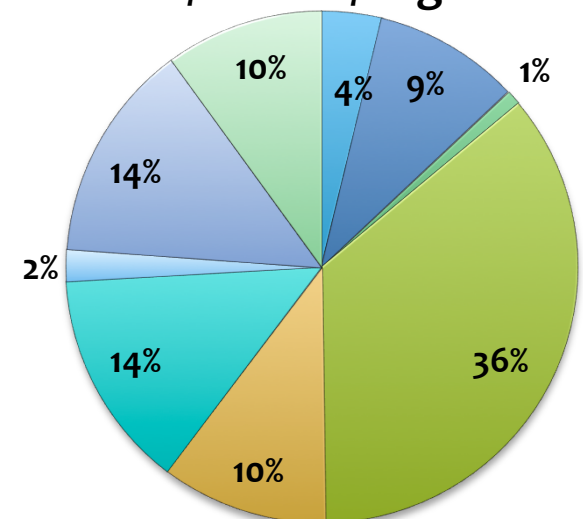
## Global ships



## Ocean/Intermediate



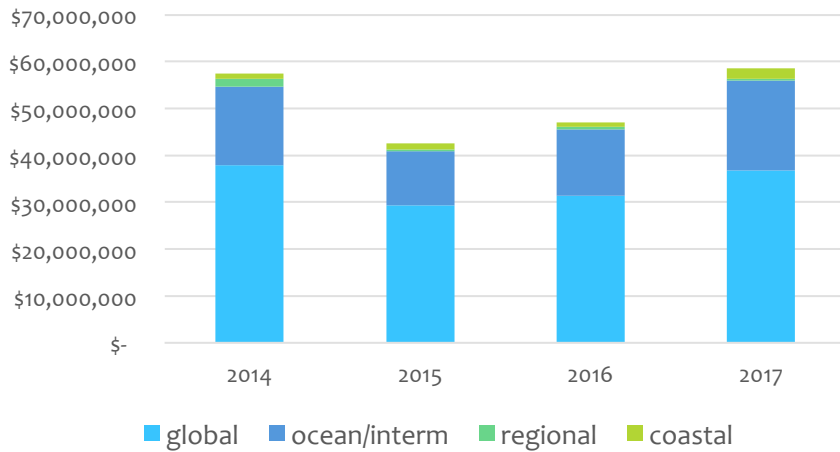
## Local/Coastal/Regional



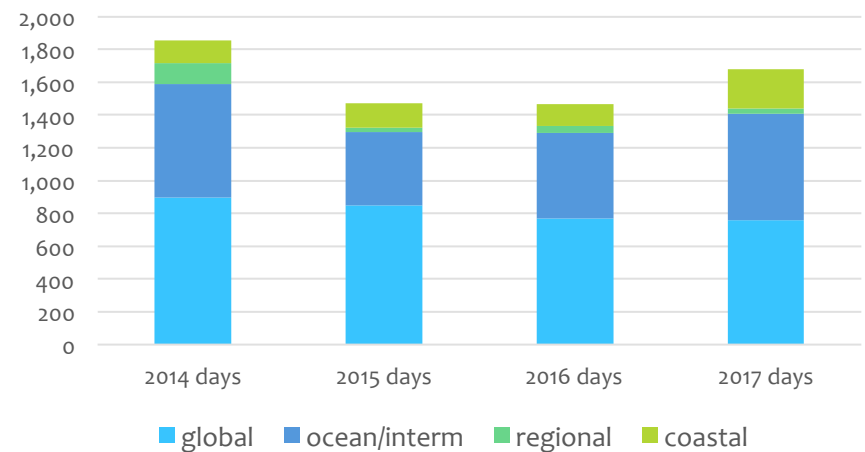


# NSF Support Per Class in ARF

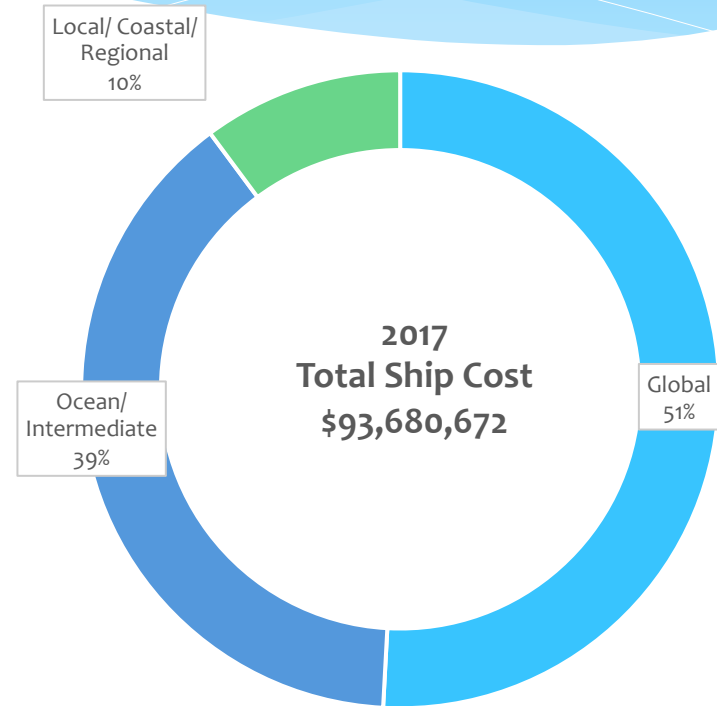
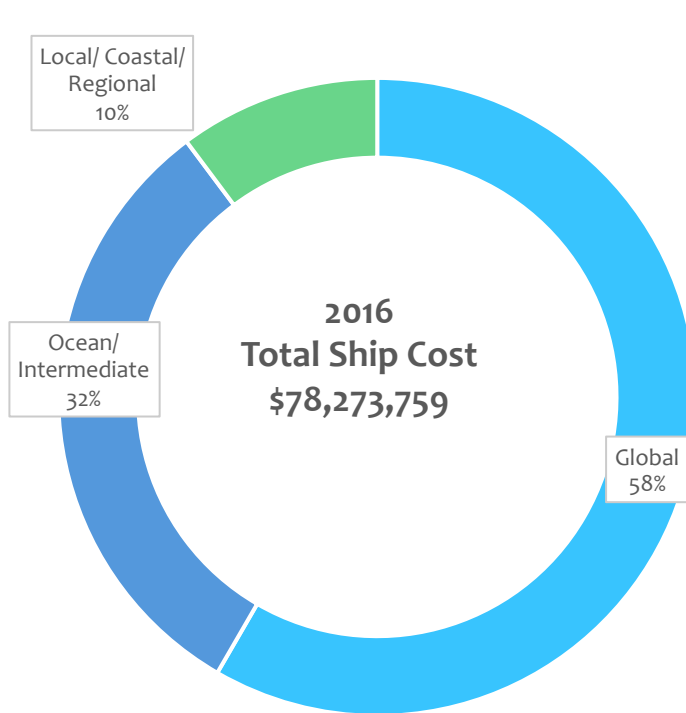
## NSF Funding Per Class



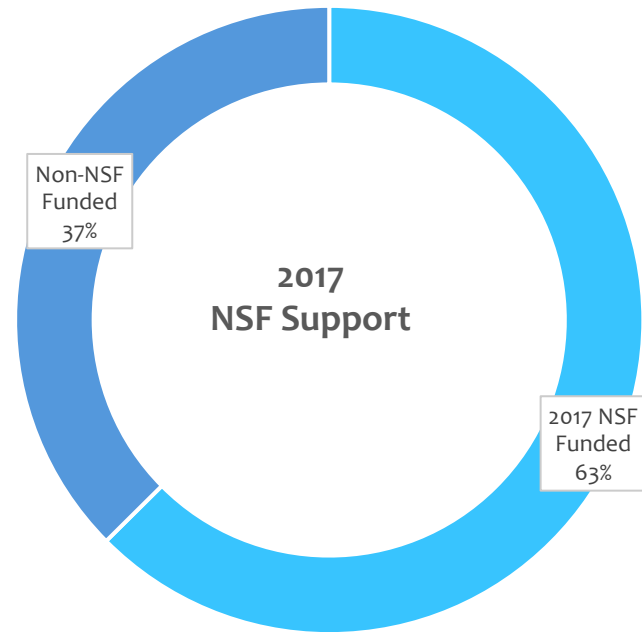
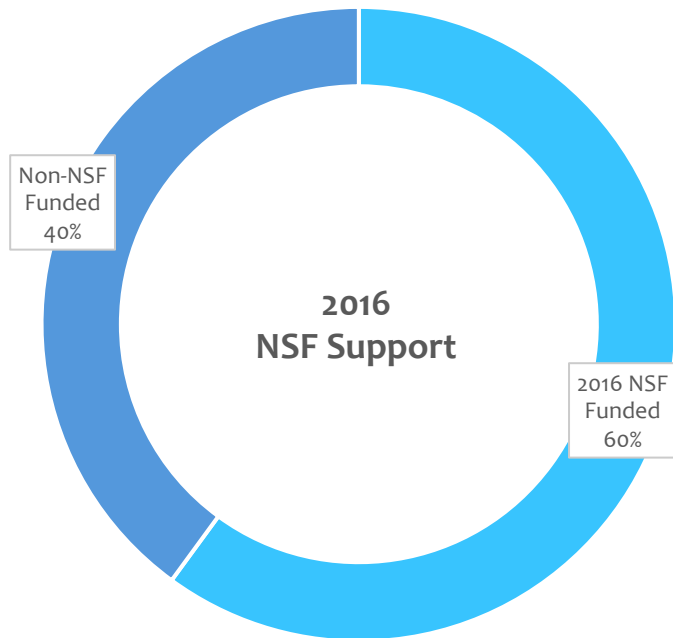
## NSF Days Per Class



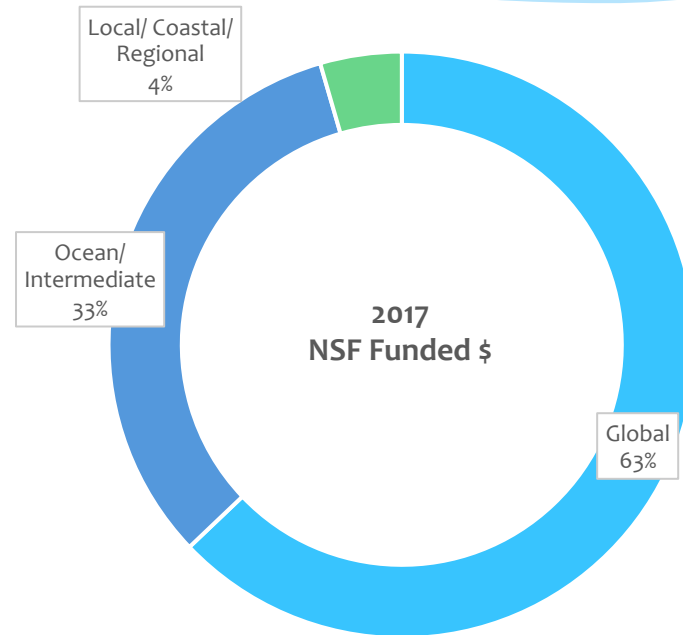
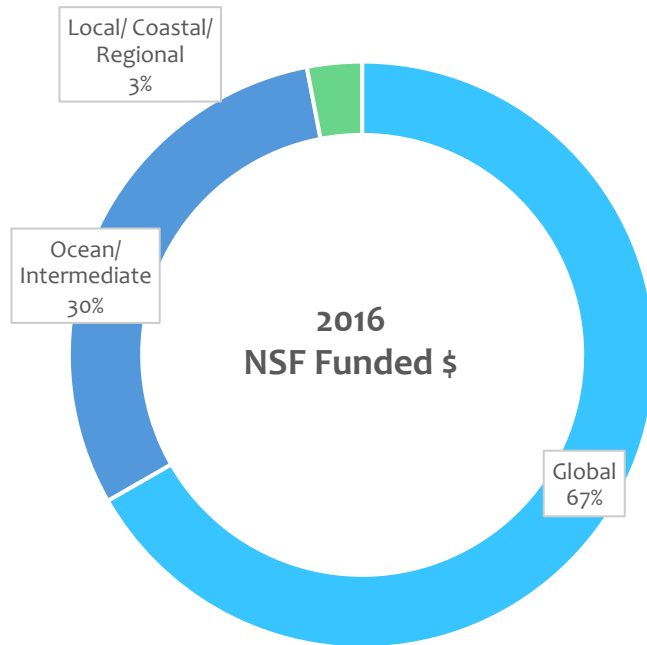
# Operations by Ship Class



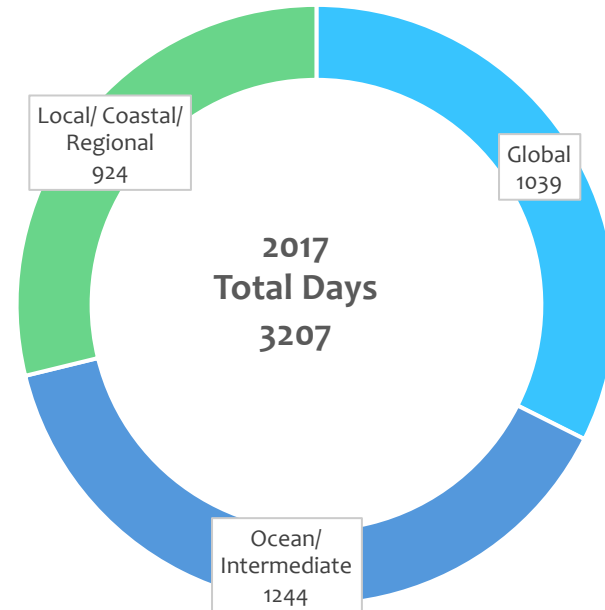
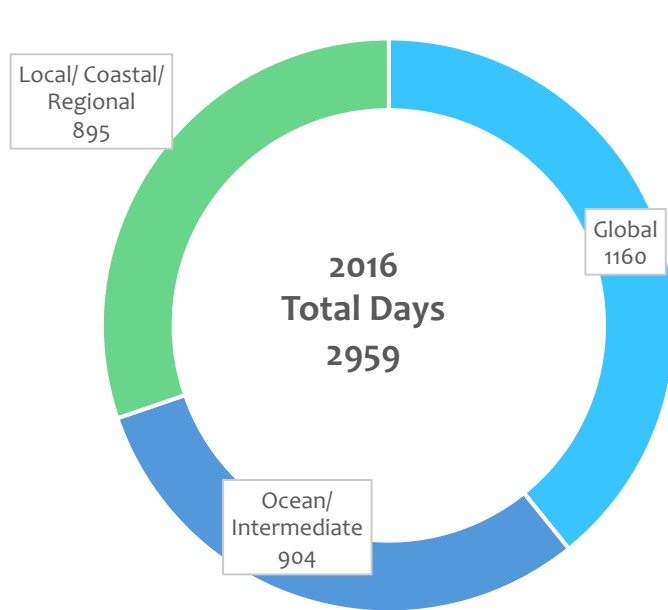
# Proportion of NSF Support



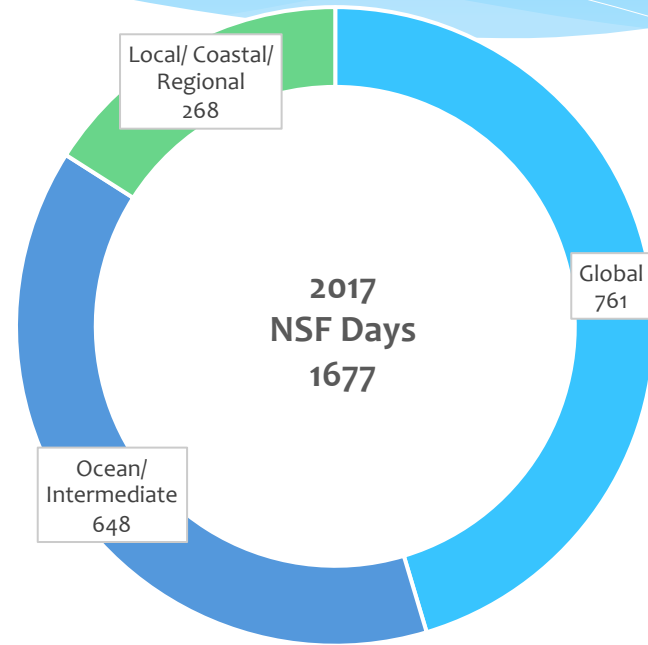
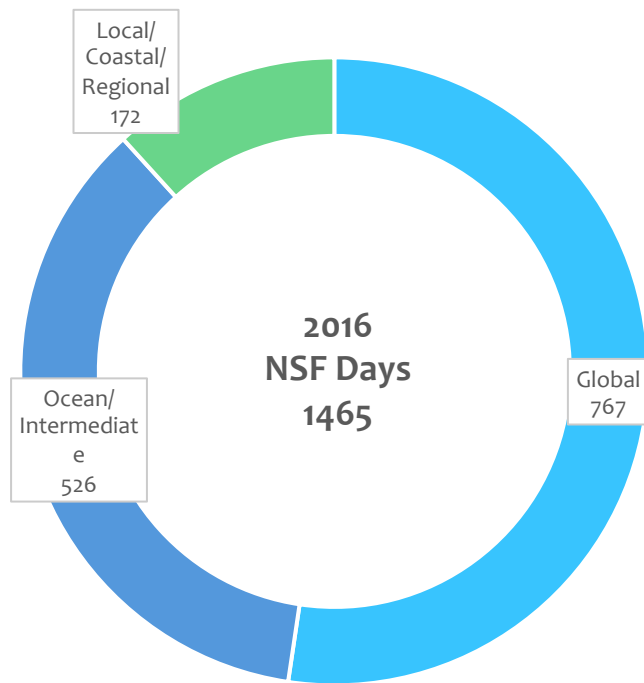
# NSF Amounts Funded by Ship Class



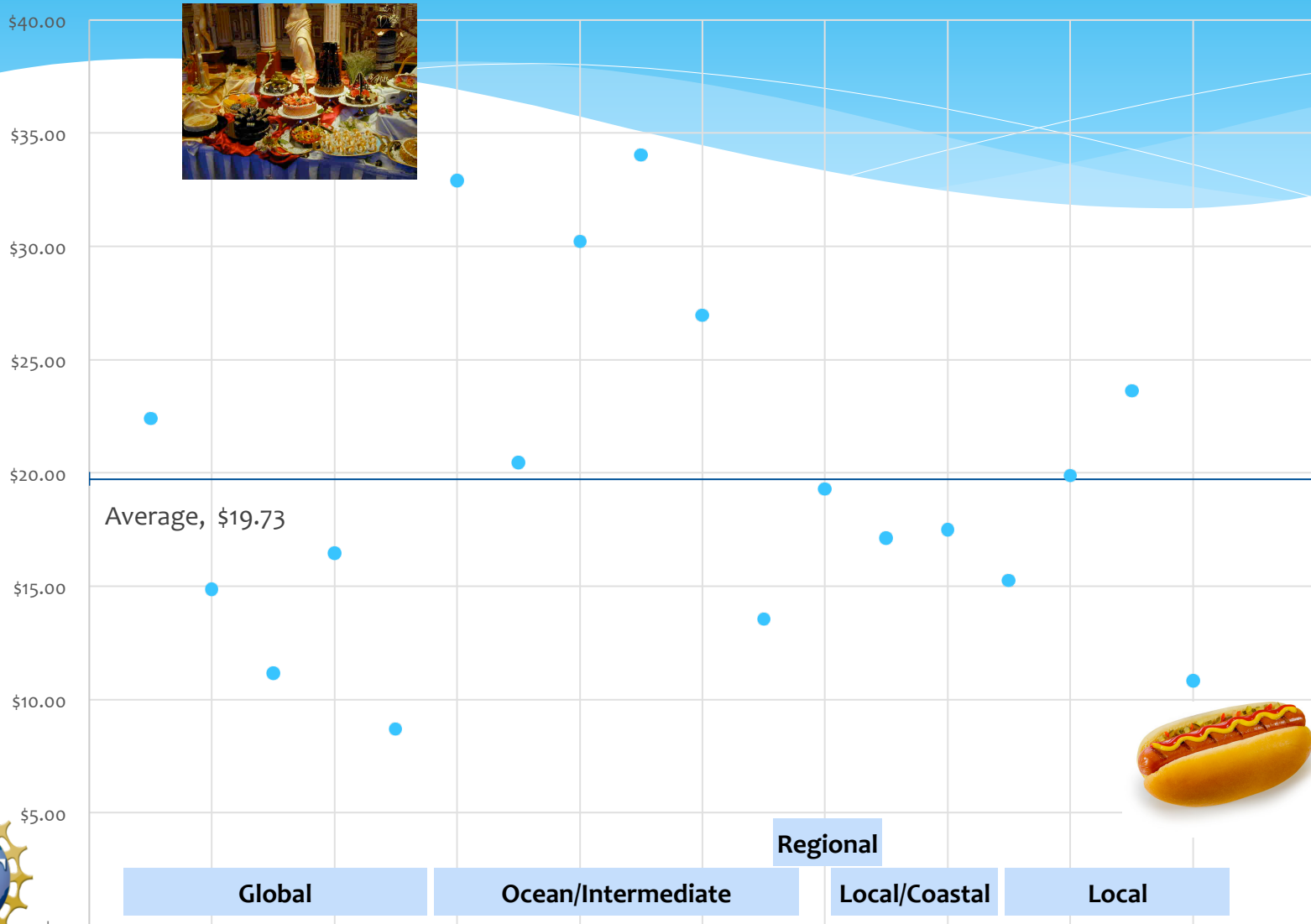
# Total Funded Days by Ship Class



# NSF Funded Days by Ship Class



# 2016 Food Cost Per Person Per Day



# 2016/2017 Fuel Usage

- \* \$9,997,417 spent on fuel
- \* at \$3/gal => 3,332,472 gallons
- \* 9000 gal/truck => 370 trucks
- \* 3.5 mile line of trucks!



- \* \$14,850,134 spent on fuel
- \* at \$3/gal => 4,950,045 gallons
- \* 9000 gal/truck => 550 trucks
- \* 5.2 mile line of trucks!

9,157,588.800 pounds of CO<sub>2</sub> per month or  
109,891,065.600 pounds of CO<sub>2</sub> per year





# Regional Class Research Vessel (RCRV)



- Request for Proposals – Phase 2
  - Four U.S. shipyards invited to submit cost proposals
  - OSU currently evaluating bids
- Project Approvals
  - Final Design Review successful, December 2016
  - National Science Board, May 2017
- Operator Selection Solicitation – pending vessel number information
  - FY18 President’s Budget Request (May, 2017?)
  - Continuing Resolution through April 28



# Polar Code

NSF is working through IRSO on Polar Code Implementation.  
The code is now mandatory under SOLAS and MARPOL

- Polar Code entered into force 1 January 2017
- UAF has been proactive in establishing a protocol-
- The Code regulates discharge and ship safety in the Polar Regions



# WHAT DOES THE POLAR CODE MEAN FOR SHIP SAFETY?

## EQUIPMENT



**WINDOWS ON BRIDGE**  
Means to clear melted ice, freezing rain, snow, mist, spray and condensation



**LIFEBOATS**  
All lifeboats to be partially or totally enclosed type



**CLOTHING I**  
Adequate thermal protection for all persons on board



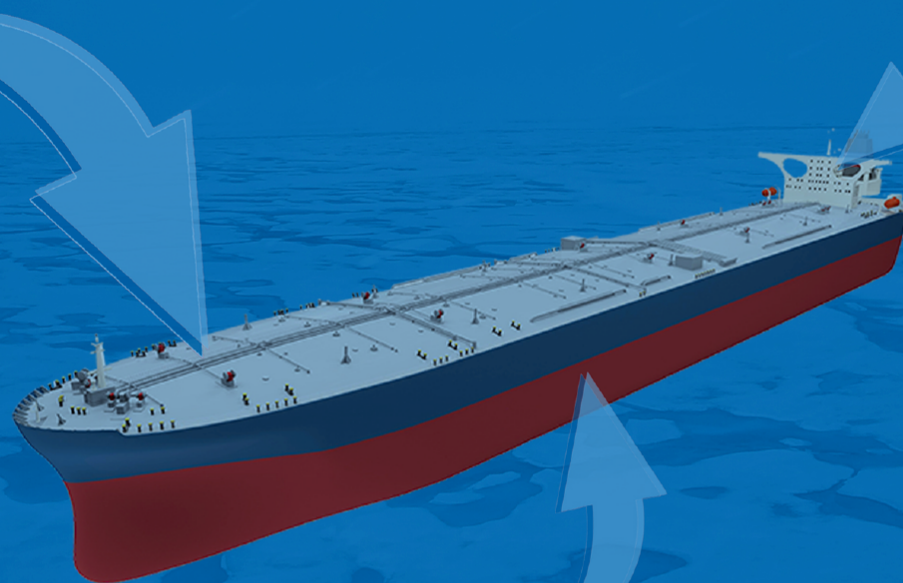
**CLOTHING II**  
On passenger ships, an immersion suit or a thermal protective aid for each person on board



**ICE REMOVAL**  
Special equipment for ice removal: such as electrical and pneumatic devices, special tools such as axes or wooden clubs



**FIRE SAFETY**  
Extinguishing equipment operable in cold temperatures; protect from ice; suitable for persons wearing bulky and cumbersome cold weather gear



## OPERATIONS & MANNING



**NAVIGATION**  
Receive information about ice conditions



**CERTIFICATE & MANUAL**  
Required to have on board a Polar Ship Certificate and the ship's Polar Water Operational Manual



**TRAINING**  
Masters, chief mates and officers in charge of a navigational watch must have completed appropriate basic training (for open-water operations), and advanced training for other waters, including ice

## DESIGN & CONSTRUCTION



**SHIP CATEGORIES**  
Three categories of ship which may operate in Polar Waters, based on:  
A) medium first-year ice  
B) thin first-year ice  
C) open waters/ice conditions less severe than A and B



**MATERIALS**  
Ships intended to operate in low air temperature must be constructed with materials suitable for operation at the ships polar service temperature



**INTACT STABILITY**  
Sufficient stability in intact condition when subject to ice accretion and the stability calculations must take into account the icing allowance



**STRUCTURE**  
In ice strengthened ships, the structure of the ship must be able to resist both global and local structural loads

## BACKGROUND INFO



THE INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS WAS ADOPTED NOVEMBER 2014 BY THE IMO MARITIME SAFETY COMMITTEE



IT APPLIES TO SHIPS OPERATING IN ARCTIC AND ANTARCTIC WATERS



THE AIM IS TO PROVIDE FOR SAFE SHIP OPERATION AND THE PROTECTION OF THE POLAR ENVIRONMENT BY ADDRESSING RISKS PRESENT IN POLAR WATERS AND NOT ADEQUATELY MITIGATED BY OTHER INSTRUMENTS

# NSF Seismic Portfolio

- Marine seismic research is an important component of the OCE/MGG research portfolio and NSF remains committed to supporting

NSF remains committed to supporting marine seismic data collection, including the type of work that is currently carried out on the Langseth (long-offset 2D, 3D, and other active source seismic experiments requiring a large well-tuned source).

- NSF is considering a variety of models to support the tools required to collect marine seismic data (reflection and refraction, including OBSs).
- NSF Programs will continue to accept proposals to use existing assets. Proposals to use the Langseth should be consistent with the current regional plan of operations.

