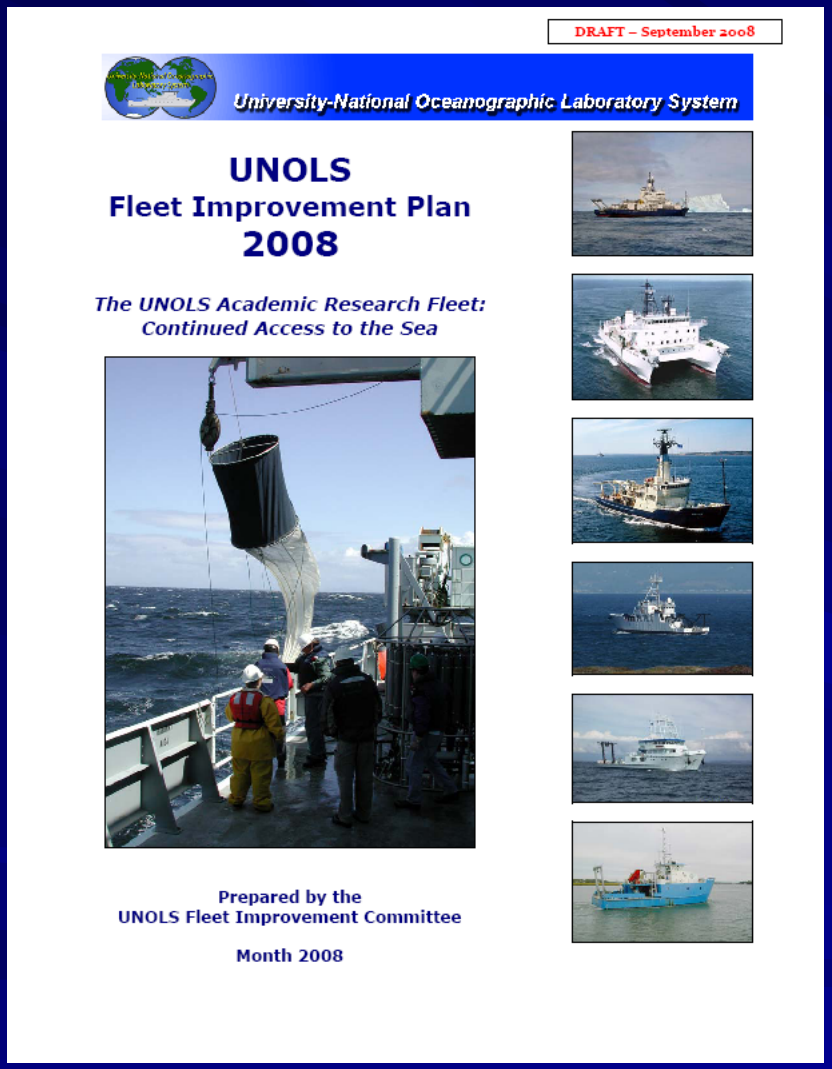
The UNOLS Fleet of the Future

- What is the right mix and number of ships needed to support your current and future research and education projects?
- Does the fleet envisioned in the Draft UNOLS Fleet Improvement Plan match the expectations you have for your work and that of your colleagues?
- Are the findings and recommendations articulated in the UNOLS Fleet Improvement Plan (FIP) the right ones that will lead to the UNOLS Fleet of the Future that meets the needs of the community?

UNOLS Fleet Improvement Plan



Findings
and
Recommendations

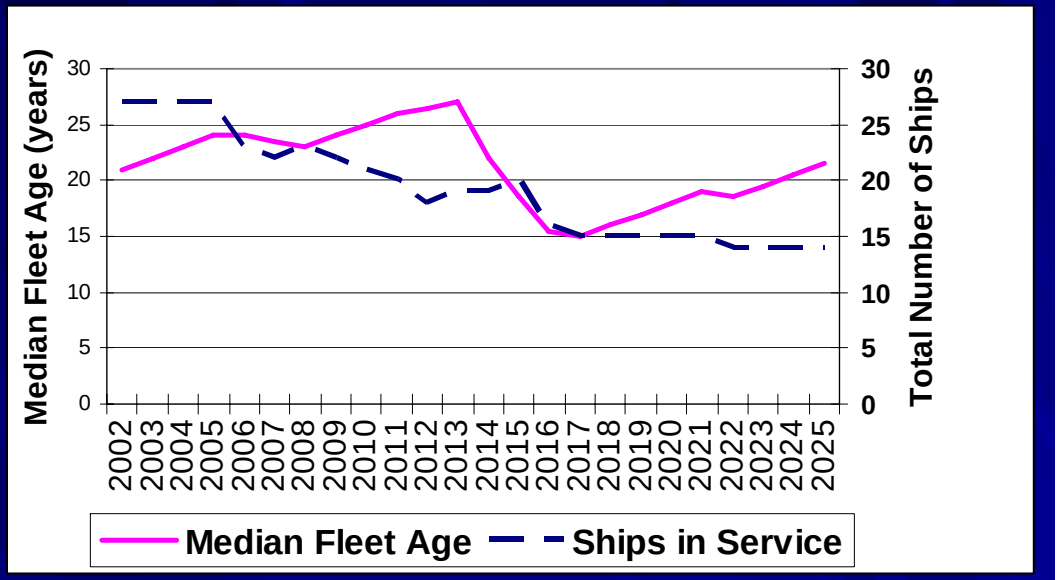
UNOLS Fleet Improvement Plan

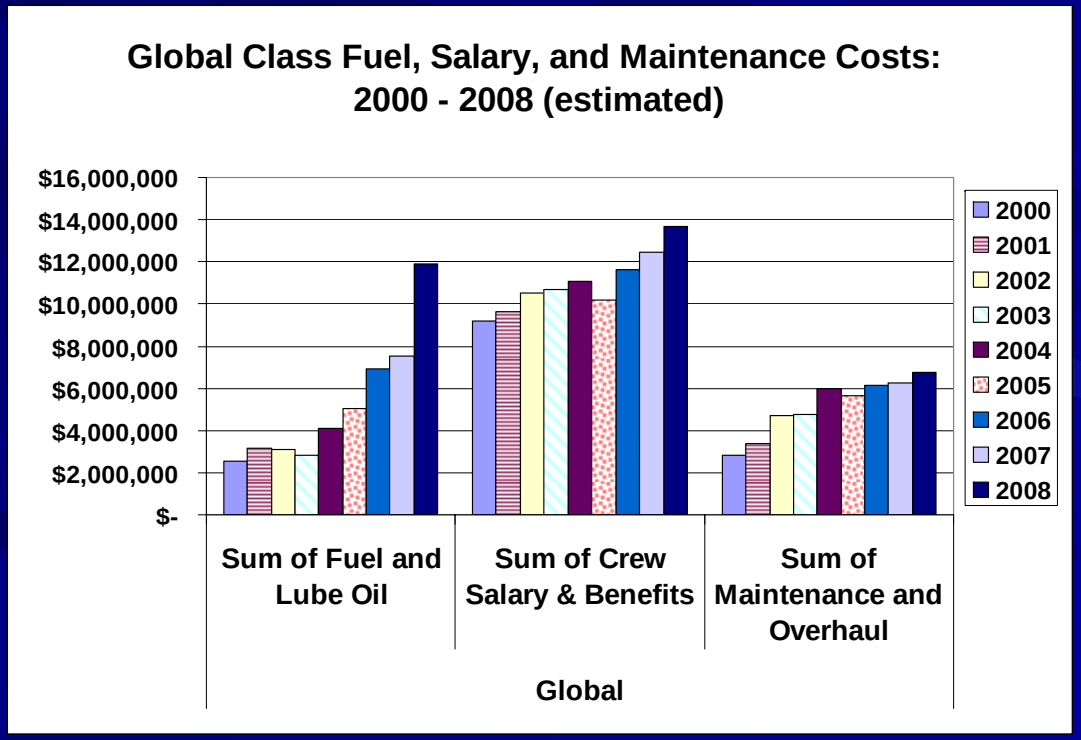
- Future oceanographic research and education initiatives require a capable academic research fleet. The fleet should consist of:
  - Vessels that can operate in the U.S coastal waters, as well as ships that can operate in the world's oceans, including ice-covered regions.
  - Global and Ocean Class ships must be able to carry large science parties.
  - Ship designs must provide flexibility in the use of exterior and interior spaces to accommodate the vast assortment of oceanographic equipment.
  - The ships' labs must be able to be easily reconfigured to meet diverse, multidisciplinary science needs on a leg-by-leg basis.
  - Large amounts of clean power and high data bandwidths and required with an increasing need for 24/7 high bandwidth two-way communications to the shore.

Finding – There is an increasing Need for Access to the Sea

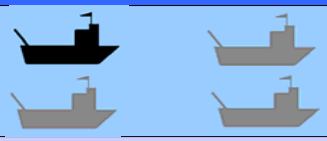
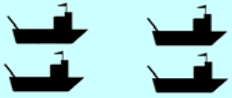
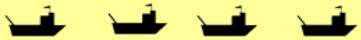
- The science and societal drivers for research and education at sea are at an all time high.
- To maintain our nation's competitiveness in the ocean sciences we must invest in the infrastructure that is necessary to support ocean-going research and education.
- Increased knowledge of the seas will better enable our nation:
  - To understand the ocean's role in climate
  - Preserve the oceans' natural resources
  - Sustain the economic benefits they offer (food production, energy and mineral resource development, shipping, recreation and tourism, and medicinal discoveries.)

Finding: Fleet is aging and facing severe budget constraints and escalating costs



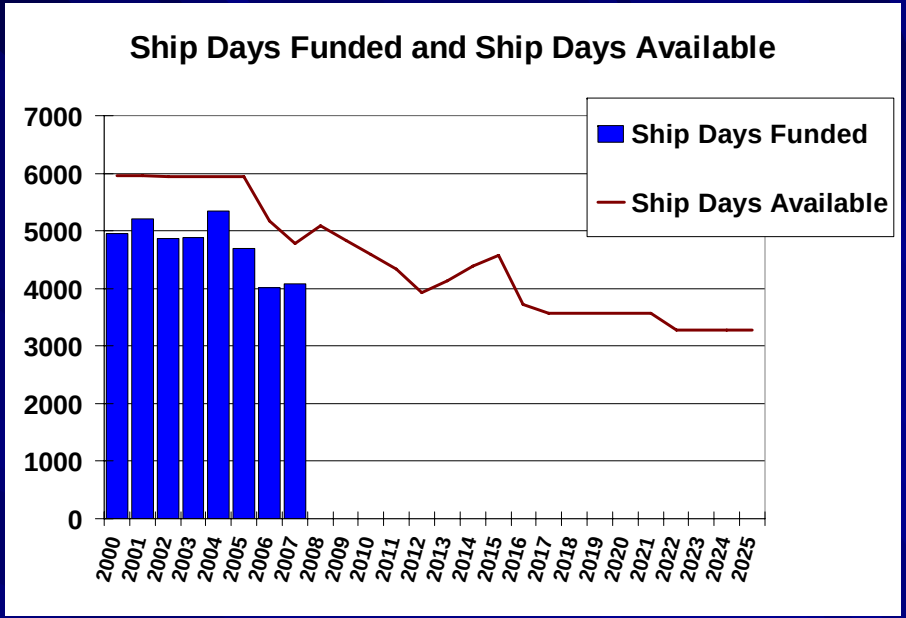


Finding: By 2025 there will be fewer ships in the UNOLS Fleet

	2008	2025
Global Class		
Ocean Class		
Intermediate Class		
Regional Class		
Regional/ Coastal Class		
Local Class		
Total Ships	23	14
Total Berths	492	331
Available Capacity	5085	3270

- **23 ships in 2008 → 14 ships in 2025**
- **From 5085 ship days → 3270 in 2025**
- **By 2017, all Intermediate size ships and all but one Local Class ships will be retired.**
- **By 2025, there will be one general-purpose Global class ship, one Global seismic vessel, and one submersible support ship.**

Finding: Ship day capacity will shrink below current demand



- By 2016 the fleet's ship day capacity will fall below the 2007 day usage.
- We will be increasingly unable to meet science user demands during peak periods in spring and summer.
- We will lose the required flexibility in fleet scheduling that allows for multi-ship operations and expeditions in remote areas.
- There is a recognized tradeoff between the cost effectiveness of a fully utilized fleet and the fleet flexibility that is required to meet science demand.

Finding: New and emerging technologies will not obviate the need for ocean-going research vessels

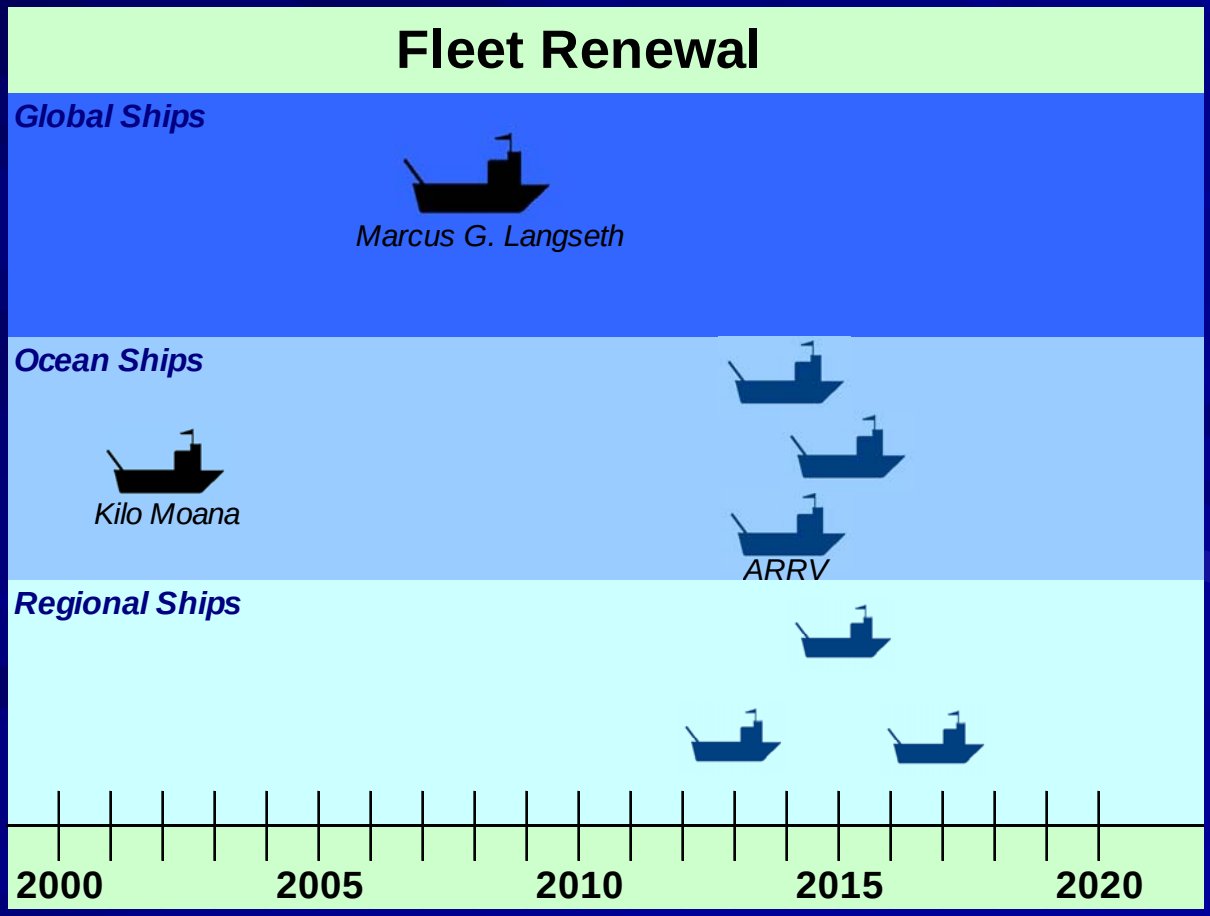
- Autonomous underwater vehicles, gliders, and ocean observatories, etc., will in many cases change the nature of the research expedition.
- The role of the ship will be to deploy and service these assets, and act as a nexus for the information aggregation.
- Future ships will require maneuverability, high-bandwidth communications, and the ability to deploy heavy payloads safely.

OOI Infrastructure	Vessel Class	Days at Sea by Year						
		2011	2012	2013	2014	2015	2016	2017
Atlantic								
Pioneer Array	Intermediate			18	18	18	18	18
Irminger Sea	Global				28	28	28	28
Pacific								
Regional Scale Nodes	Global + ROV			30	60	60	60	60
Station Papa	Global			22	22	22	22	22
Southern Ocean	Global					24	24	24
Endurance Array - OR	Global + ROV	4			5	5	5	5
	Intermediate	6	9	5	10	14	14	14
Total by Vessel Class	Global	0	0	22	50	74	74	74
	Global + ROV	4	0	30	65	65	65	65
	Intermediate	6	9	23	28	32	32	32

Finding: **The US Commission on Ocean Policy's vision and strategy for the 21st century and beyond articulates strong support for ocean research, including ample access to modern, well-equipped research vessels.**

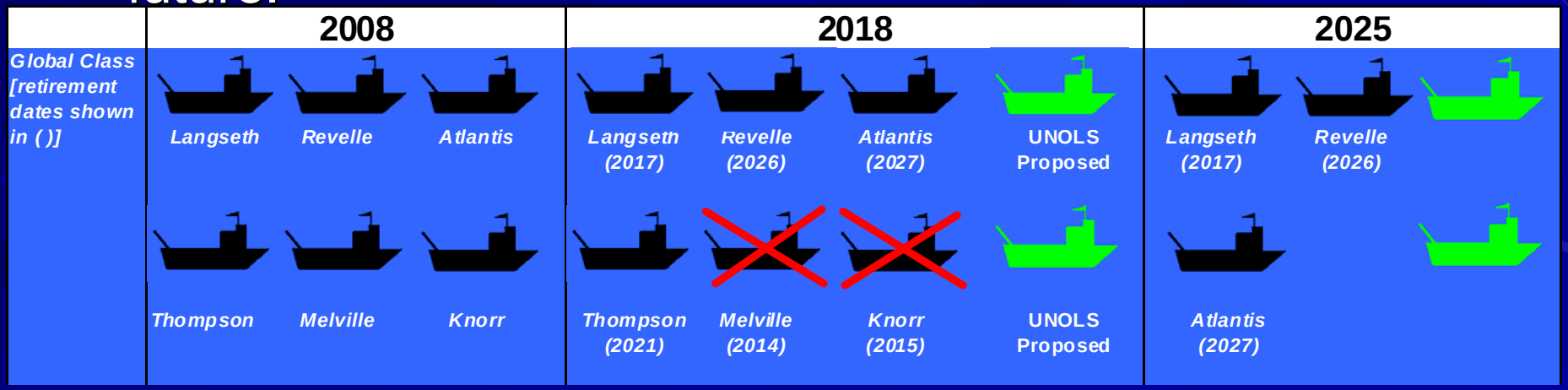
- This vision can not be realized by the fleet renewal scenario outlined in the IWG-F Status Report
- Increased support for ocean infrastructure in addition to research and education programs.

Recommendation: Strongly recommend that the Federal agencies implement the fleet renewal activities that are currently underway.



Recommendation: Begin the acquisition process now for a minimum of 1, preferable 2 new general-purpose Global Class ships

- Begin the acquisition process for ships that will be needed in 10 years (Ship acquisition generally takes at least 10 years)
- R/V *Knorr* and R/V *Melville* are scheduled for retirement by 2015, so replacement planning needs to start now.
- The new, Ocean Class vessels have both design and scheduling limitations that restrict their suitability for much of the global-ranging science missions envisioned in the future.



Recommendation: Encourage the replacement of Local and Coastal/ Regional vessels

- The Federal fleet renewal plan only considers vessels greater than 40 meters (131 ft).
- Smaller UNOLS vessels are normally constructed with state or institutional funding.
- UNOLS should encourage the timely replacement of Local vessels and Coastal/Regional vessels by institutions, state governments, and regional partnerships.

	2008	2025
Regional/ Coastal Class	***Sproul*** ***Walton Smith*** ***Pelican*** ***Hugh R. Sharp***	***Walton Smith*** ***Hugh R. Sharp***
Local Class	***Urraca*** ***Savannah*** ***Blue Heron*** ***Barnes***	***Savannah***

Additional Recommendations

- Some ships nearing retirement should have their service life extended to meet near term science requirements until the new ships come on line.
- If budget projections remain at the current low level, retirement of the least capable ships near the end of their service lives should be considered.
- The UNOLS fleet must increase beyond the current projected levels. Increased funding for support of ocean science, as wells as increased funding for facility construction, maintenance, and operation is required.
- New ships with technically sophisticated equipment will require more highly-trained and specialized personnel to provide technical support. Personnel strategies are needed to improve the staffing and retention of experienced personnel.

Conclusion

- The U.S. Research Fleet is a vital component of the national maritime enterprise.
- The U.S. ocean science research and education programs have benefited by broad access to the best possible mix of modern, capable, efficiently run, and well-operated research vessels, aircraft, submersibles, and other major shared-use facilities.
- Timely implementation of the recommendations presented in the Fleet Improvement Plan will ensure that the oceanographic community will continue to have access to a capable fleet of vessels to support national oceanographic science initiatives over the next 20 years.

Thank you.