

## Update for UNOLS Council

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“There are no shortcuts to  
any place worth going.”

Beverly Sills

## AGOR 23 Class Service Life Extension Program

The Global Class ships *Thompson G. Thompson* (1992), *Roger Revelle* (1996), and *Atlantis* (1997) had a 30 year design life

- ONR is focused **primarily on life extension** of the basic ship (hull, mechanical, electrical) – extending the 30 year service life to 45 years
- Ensuring reliability, maintainability and regulatory compliance are key parts of the primary goal
- Science upgrades, making ships green are **secondary goals**

# Achieved: *Roger Revelle* Midlife Refit



- Modern propulsion
- Improved electrical generators
- New, better bow thruster
- Updated safety systems
- New scientific capabilities
- Reduced criteria emissions
- Water quality



R/V *Roger Revelle*, Hobart 2015

# Finished: R/V *Roger Revelle* Midlife



## 14.5 months

Work Package	
S-01	RR Shipyard Contract Technical Spec
WP-1	Repower
WP-2	Bow Thruster Replacement
WP-5	Z-Drive Inspection and Maintenance
WP-6	Ballast System Piping
WP-7	Ballast Treatment System Installation
WP-8	Firemain System Piping Replacement
WP-9	Potable Water System Modifications
WP-10A	A/C Spaces General
WP-10B	A/C Controls Upgrades
WP-10C	AHU-5 Zone Redesign
WP-10D	Bow Thruster Room A/C
WP-10E	AHU-2 Makeup Air Upgrades
WP-11A	HVAC Makeup Air Upgrades
WP-11B	Generator Room Supply Fan Noise Mitigation

WP-12	Chiller Replacement
WP-13	Sewage System and Drain Replacement
WP-14	Ship Stores Refrigeration Equipment Replace
WP-15	Science Refrigeration System Modifications
WP-16	Uncontaminated Seawater System Modifications
WP-17	PA System
WP-18	Telephone System
WP-23	Ship Service Transformer Upgrades
WP-28	Exterior Ballast and Fuel Tank Vent Modifications
WP-30	Oily Water Separator (OWS) Replacement
WP-32	Crane Replacement
WP-33	Anchor and Chain Maintenance
WP-34	Overhead Lighting Upgrades
WP-35	Steel Replacement
WP-36	Drydocking
WP-37	General Maintenance
WP-38	Multibeam Gondola

# Modern Power Is Also Greener



*New diesel generator*



New clean EPA Tier III diesels replace old Tier I  
Reduce emissions from each engine by two-thirds

# Excellent maintenance envelop



# Quieter deck operations





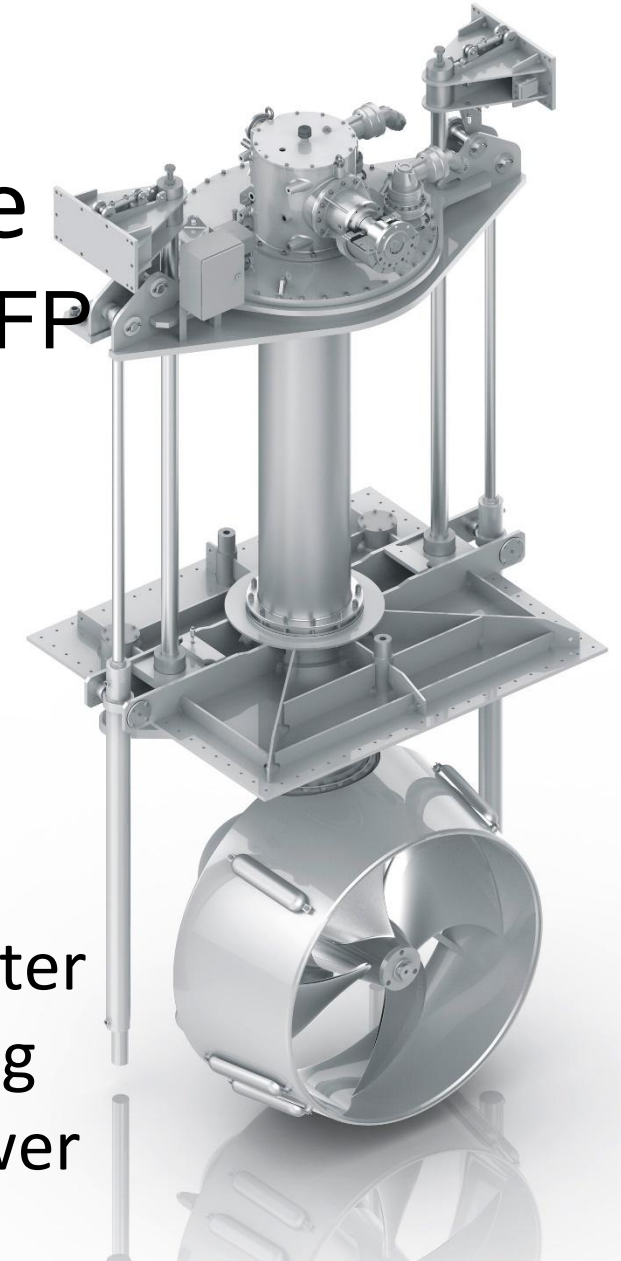
# Bow Thruster



New: ZF Marine  
Retractable L-Drive  
Model AT 5011 RT TT-FP

**Retracted:**  
tunnel thruster for  
maneuvering in port

**Extended:**  
360 degree azimuth thruster  
Better dynamic positioning  
less prop noise, more power



# ZF Marine Bow Thruster



# Ballast Water Treatment System: Green

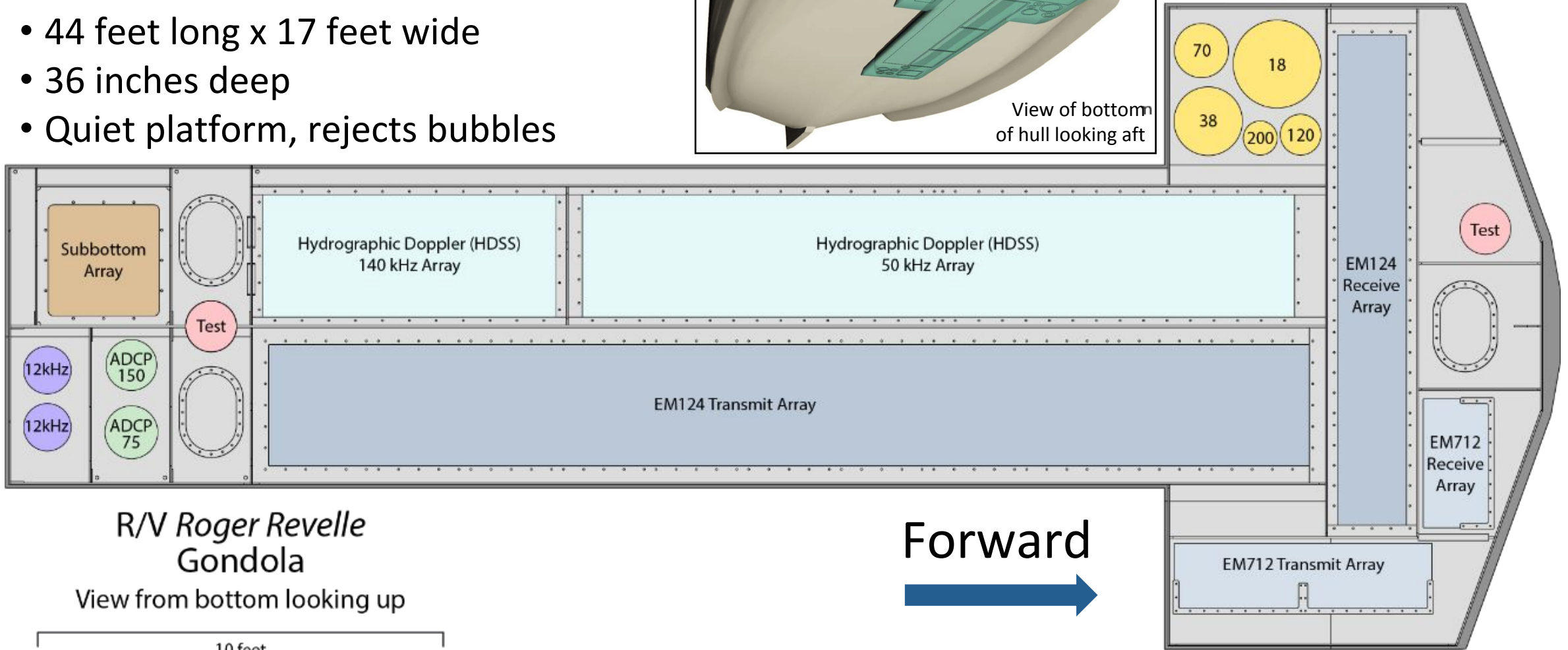
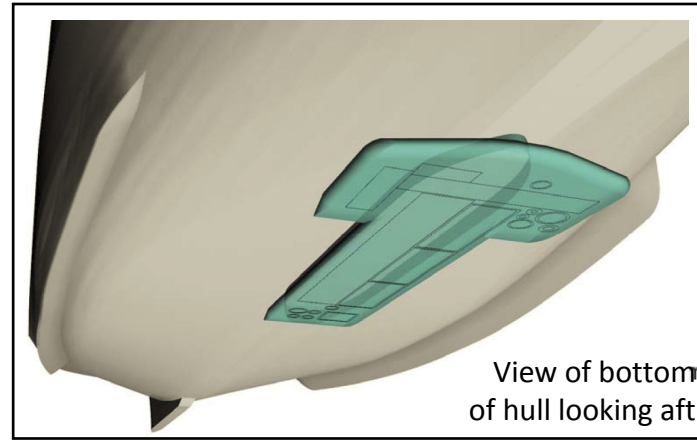


# Gondola = Better Sonar Performance



Gondola home for new EM124, EM712, EK80 and HDSS sonars

- 44 feet long x 17 feet wide
- 36 inches deep
- Quiet platform, rejects bubbles



# Gondola = Better Sonar Performance



*Gondola coming in for landing*



*HDSS installation*

# New Main Lab Deck



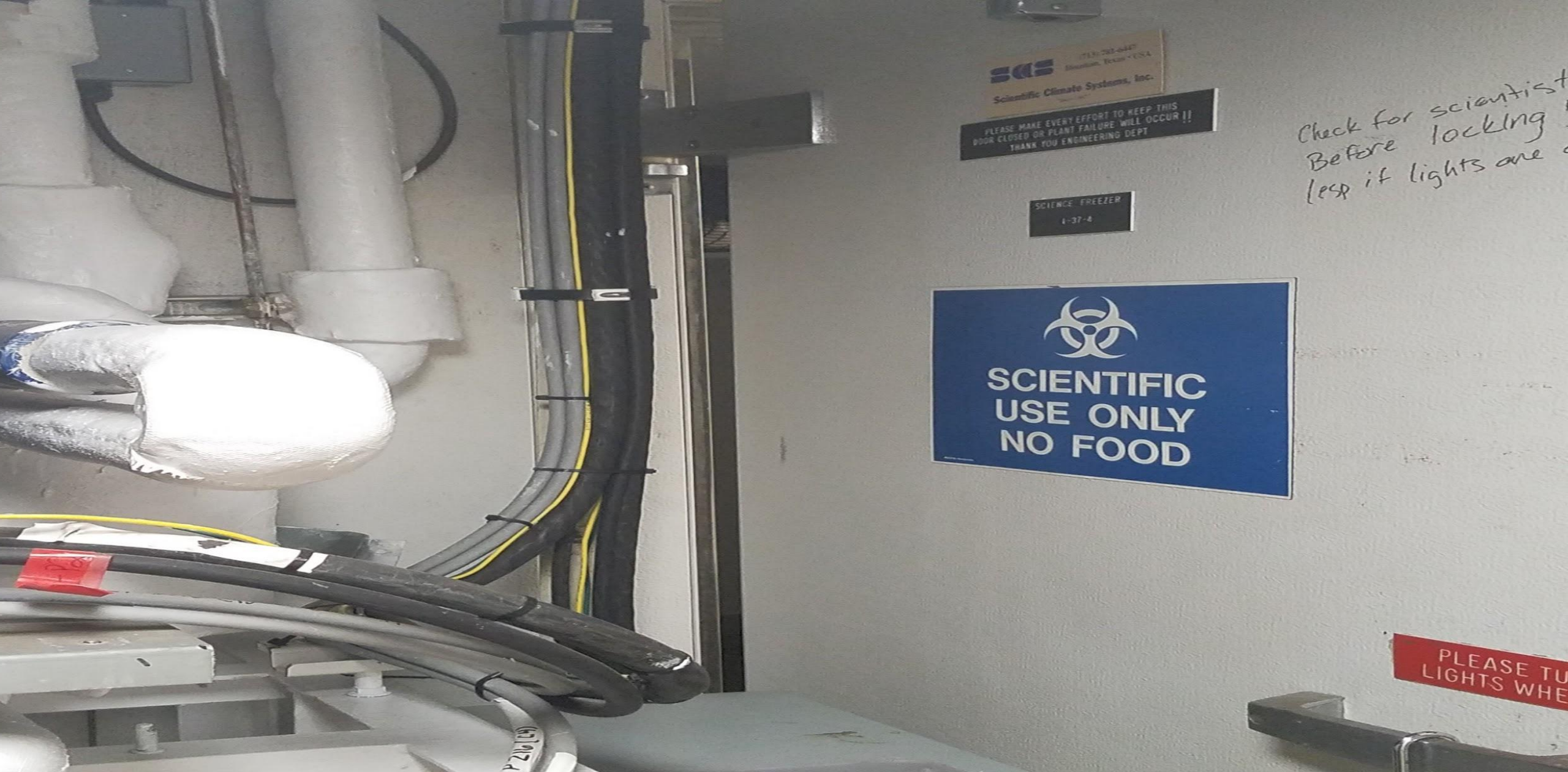
# A-frame Refurb



# Servers separated from Computer Lab



# Refurb Science Reefer





“Difficulties mastered are opportunities won.”

Winston Churchill



The most important quality in a partner is a sense of humor.

Thank you ONR and NSF

# Questions?

