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
Good Intentions: *Roger Revelle* Midlife Refit

- Modern propulsion
- Improved electrical generators
- New, better bow thruster
- Updated safety systems
- New scientific capabilities
- Reduced criteria emissions
- Ballast water quality
- LED lighting
Schedule: R/V Roger Revelle Midlife

One Year (366 days)

APR 2019

APR 2020
## Schedule: R/V Roger Revelle Midlife

### One Year

(366 days)

<table>
<thead>
<tr>
<th>Work Package</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-01</td>
<td>RR Shipyard Contract Technical Spec</td>
</tr>
<tr>
<td>WP-1</td>
<td>Repower</td>
</tr>
<tr>
<td>WP-2</td>
<td>Bow Thruster Replacement</td>
</tr>
<tr>
<td>WP-5</td>
<td>Z-Drive Inspection and Maintenance</td>
</tr>
<tr>
<td>WP-6</td>
<td>Ballast System Piping</td>
</tr>
<tr>
<td>WP-7</td>
<td>Ballast Treatment System Installation</td>
</tr>
<tr>
<td>WP-8</td>
<td>Firemain System Piping Replacement</td>
</tr>
<tr>
<td>WP-9</td>
<td>Potable Water System Modifications</td>
</tr>
<tr>
<td>WP-10A</td>
<td>A/C Spaces General</td>
</tr>
<tr>
<td>WP-10B</td>
<td>A/C Controls Upgrades</td>
</tr>
<tr>
<td>WP-10C</td>
<td>AHU-5 Zone Redesign</td>
</tr>
<tr>
<td>WP-10D</td>
<td>Bow Thruster Room A/C</td>
</tr>
<tr>
<td>WP-10E</td>
<td>AHU-2 Makeup Air Upgrades</td>
</tr>
<tr>
<td>WP-11A</td>
<td>HVAC Makeup Air Upgrades</td>
</tr>
<tr>
<td>WP-11B</td>
<td>Generator Room Supply Fan Noise Mitigation</td>
</tr>
<tr>
<td>WP-12</td>
<td>Chiller Replacement</td>
</tr>
<tr>
<td>WP-13</td>
<td>Sewage System and Drain Replacement</td>
</tr>
<tr>
<td>WP-14</td>
<td>Ship Stores Refrigeration Equipment Replace</td>
</tr>
<tr>
<td>WP-15</td>
<td>Science Refrigeration System Modifications</td>
</tr>
<tr>
<td>WP-16</td>
<td>Uncontaminated Seawater System Modifications</td>
</tr>
<tr>
<td>WP-17</td>
<td>PA System</td>
</tr>
<tr>
<td>WP-18</td>
<td>Telephone System</td>
</tr>
<tr>
<td>WP-23</td>
<td>Ship Service Transformer Upgrades</td>
</tr>
<tr>
<td>WP-28</td>
<td>Exterior Ballast and Fuel Tank Vent Modifications</td>
</tr>
<tr>
<td>WP-30</td>
<td>Oily Water Separator (OWS) Replacement</td>
</tr>
<tr>
<td>WP-32</td>
<td>Crane Replacement</td>
</tr>
<tr>
<td>WP-33</td>
<td>Anchor and Chain Maintenance</td>
</tr>
<tr>
<td>WP-34</td>
<td>Overhead Lighting Upgrades</td>
</tr>
<tr>
<td>WP-35</td>
<td>Steel Replacement</td>
</tr>
<tr>
<td>WP-36</td>
<td>Drydocking</td>
</tr>
<tr>
<td>WP-37</td>
<td>General Maintenance</td>
</tr>
<tr>
<td>WP-38</td>
<td>Multibeam Gondola</td>
</tr>
</tbody>
</table>
Equipment Removals

- Bow thruster removal
- Engine room hull cut
Dude, where’s my ship?

Engine room chaos
Diesel and Generator Rotation Mismatch

Caterpillar diesel engine and Siemens generator each manufactured to run counterclockwise, but no agreement on orientation

This required replacement of generator internal fan

~ Two week schedule delay
#3 generator coupling very hard to remove

Generator shaft found damaged after coupling removed

Not repairable, manufacture replacement 6 months
Fire barriers must never be defeated by penetrations.

USCG review every visit.

Final transits will be fully blocked with conforming material.
Removals are complete
Modern Power Is Also Greener

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

Original equipment: Tees White Gill Model 50T3S
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
Two New Cranes

finer control via pilot valves

modern safety sensors
Ballast Water Treatment System: Green

Model AT 5011 RT TT

New: ZF Marine Retractable L-Drive

Retracted: tunnel thruster for maneuvering in port

Extended: 360 degree azimuth thruster

Better dynamic positioning, less prop noise, more power
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

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**R/V Roger Revelle**
Gondola
View from bottom looking up

**View of bottom of hull looking aft**
Gondola = Better Sonar Performance

Gondola coming in for landing

HDSS installation
Transducer Installations

12 kHz

EK80 Transducers

EM124 & EM712
Transceiver Room
Shipboard Network Replacement

R/V Roger Revelle Fibre Distribution
Backbone
Jen Meyer | August 28, 2019

Main Lab distro
- Fibre PP+jbox
- Cable MGMT
- Patch-Panel
- Cable MGMT
- Ethernet Switch
- Cable MGMT
- Ethernet Switch
- PDU
- serial console
- UPS
Refurbishment of Lab Spaces