


Robotic Ballast Tank Inspection

PROJECT IMAGE	OBJECTIVE
 <p data-bbox="188 715 1116 791">Example 3D map of underwater structure</p>	<p data-bbox="1205 344 2384 592">This project will utilize underwater robots to generate 3D models of ship ballast tanks and identify corrosion and damage prior to docking. This reduces the duration of ship servicing through more accurate resource allocation and maintenance planning.</p> <p data-bbox="1205 701 2097 743">TIP Item(s): 7.3.2.3.4, 7.3.2.5.1, 7.3.2.5.3, 7.3.2.7.2</p>
BENEFITS/ROI	PROJECT INFORMATION/FINANCIAL
<ul data-bbox="109 873 1123 1122" style="list-style-type: none"> • Evaluate off-the-shelf robots and software for use • Recommend robot and mapping software for immediate shipyard adoption • Quantify costs and expected benefits of robotically inspecting ship ballast tanks prior to dry docking 	<p data-bbox="1205 873 1842 1065">Project Lead/Team Members: Southwest Research Institute Newport News Shipbuilding BAE Systems Jacksonville Ship Repair</p> <p data-bbox="1205 1129 1582 1172"><u>Duration:</u> 12 Months</p> <p data-bbox="1205 1229 1595 1365">Program Funds: \$200k Cost Share: \$0 Public Sector: \$0</p>

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- Ship ballast tanks must be properly maintained by repairing corrosion damage as it occurs.
 - It is challenging to inspect ballast tanks while filled, so the condition of the ballast tanks is usually not known until a ship is already dry docked.
 - This adds uncertainty to the maintenance schedule and can cause delays and cost overruns.
- This project will reduce the cost and schedule impact of unexpected ballast tank repair by:
 - Evaluating underwater robots and 3D reconstruction algorithms to create 3D maps of filled ballast tanks.
 - Enabling accurate tank repair estimates prior to docking via the 3D maps.