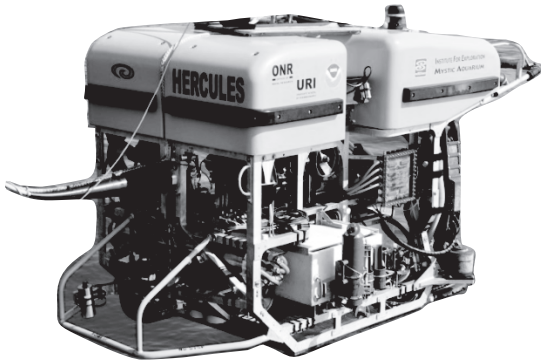


Boats Along the Connecticut Coast



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Ballard ROV



Eli Whitney

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What were these boats used for?

Remotely operated vehicles (ROVs) are submersible machines equipped with tools for underwater exploration and research. ROVs transmit real-time data about an underwater environment to a remote operator who is then able to perform underwater inspections, scientific research, marine exploration, and maintenance activities.¹ The maximum depth achieved by an ROV was 35,798 feet, reaching the sea floor in the Challenger Deep, the deepest known point of the Earth's seabed. Many underwater scientific and archeological discoveries have been made using ROVs.²

Who used these boats and where?

ROVs are used by various industries and agencies all around the world. In Connecticut, the growing offshore wind industry uses ROVs in the installation, maintenance, and inspection of wind turbines. Oceanographic institutes use ROVs to investigate coastal and deep-sea ecosystems, and they are extensively used in marine scientific research to explore ocean depths.³ Connecticut has a rich maritime history, and ROVs are employed in archaeological explorations to locate and document shipwrecks and submerged historical artifacts. ROVs are instrumental in various aspects of underwater activities in Connecticut, contributing to economic development, scientific advancements, and environmental stewardship.⁴

When were these boats used?

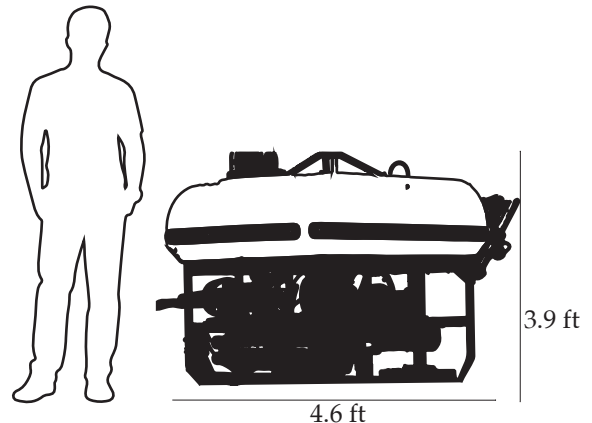
In the early 1980's, the WHOI Deep Submergence Laboratory (DSL), directed by Robert Ballard, set out to design an ROV to give scientists and explorers access to the seafloor. Ballard's primitive ROVs were used to discover the Titanic and Bismark shipwrecks. But, with a series of breakthroughs, such as fiber optic cable, the ROV technology could transmit high-definition color images by 2004.⁵ Now, ROVs are used in all types of applications from evidence recovery, search and rescue, aquaculture, and even film and TV.⁶

How were these boats made?

Engineers begin by planning the construction of the ROV using computer aided design (CAD) softwares and 3D models. The frame of the ROV is typically made from strong and lightweight materials such as aluminum, stainless steel, or carbon fiber to provide durability and buoyancy. The frame is constructed using welding or bonding techniques and a flotation pack is added to the top of the frame, which helps the ROV stay upright. ROVs are electrically powered and use propulsion systems to maneuver underwater. The lifeline which connects the ROV to its human operator is typically a fiber optic cable or tether.⁷

Where to Visit:

Visit the live-stream view of Little Hercules ROV on the Nautilus Live website. Currently, Dr. Robert Ballard's Little Hercules is in transit to the Eastern Pacific Ocean. As a part of the Ocean Exploration Trust and the Nautilus Exploration Program, the ROV Little Hercules will help seek out new discoveries in geology, biology, and archaeology while conducting scientific research on the seafloor.⁸



- 1, 3. <https://oceanexplorer.noaa.gov/facts/rov.html>
2. <https://www.usni.org/magazines/proceedings/2009/september/oceans-nercus-explores-oceans-greatest-depth>
4. https://portal.ct.gov/DECD/Content/Historic-Preservation/01_Programs_Services/Hurricane-Sandy-Program/Underwater-Archaeology
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8. <https://nautiluslive.org/>