What is an ROV?

ROV stands for Remotely Operated Vehicle. ROVs are tethered to and operated from a ship allowing humans to explore the ocean without actually being in the vehicle.

**LIGHTS**
High power LEDs bring light to the dark depths of the ocean so that cameras can capture exceptional images and video of the deep ocean world.

**MANIPULATOR ARM**
Multi-joint arm with interchangeable jaws collect biological, geological, or archeological samples.

**SAMPLE BASKETS**
Containers that store biological specimens and geological samples to be brought to scientists for further study.

**CAMERAS**
Multiple cameras are mounted at different angles to take photos and high-definition video of the seafloor and water column to transmit back to explorers.

**CUSTOMIZABLE**
Additional sensors can be added to the ROV to measure parameters like temperature, salinity, chemical compounds, and pressure.

**ROV FUN FACTS**

**SMALLEST SCIENCE ROV:** about the size of a large laptop

**BIGGEST SCIENCE ROV:** about the size of a small truck

**DEEPEST DIVE:** ROVs can be designed for a variety of ocean depths and a few can descend to the deepest part of the ocean (~11,000 meters or ~36,200 feet)

**LONGEST DIVE:** several days

What is an ROV?

**DAVIT**
Small crane that stabilizes the ROV while it is being lowered into the water or retrieved after a dive.

**SYNTHETIC FOAM**
Supports the weight of the ROV and helps maintain neutral buoyancy in the water column.

**THRUSTERS**
Control the motion of the ROV underwater.


**TETHER**
Bundle of cables connecting the ROV to the ship that provides electricity to run cameras, lights, samplers, and sensors on the ROV and connectivity through fiber optics to send data to the ship at the surface.

**CONTROL ROOM**
Aboard the surface vessel pilots, engineers, and navigators work together to control the ROV.

The ROV pilot controls D2’s grasping arm, while the co-pilot points the main camera. Image courtesy of NOAA Ocean Exploration, 2017 American Samoa.

ROV pilots use this scale model to control D2’s manipulator arm when collecting a sample. Image courtesy of Art Howard, GFOE; edited by Jeffery Laning, GFOE.

**ADDITIONAL RESOURCES**

**ROV FACTS** [https://oceanexplorer.noaa.gov/facts/rov.html](https://oceanexplorer.noaa.gov/facts/rov.html)

**FREQUENTLY ASKED QUESTIONS** [https://schmidtsocean.org/education/rov-faqs/](https://schmidtsocean.org/education/rov-faqs/)

Control room operations (photo): [https://oceanexplorer.noaa.gov/oceanoexplorations/ex1702/logs/feb25/media/sampling-hires.jpg](https://oceanexplorer.noaa.gov/oceanoexplorations/ex1702/logs/feb25/media/sampling-hires.jpg)