Exploring Above and Below the Surface through Robotics

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Unmanned Aerial Systems (UAS)

Unmanned Aerial Systems (UAS) or drones, are air vehicles that do not carry a human operator and are controlled remotely

Agricultural and Commercial Surveying

First Responders, Disaster Response, Maintenance and Inspection

Patrols, Investigations and real-time data

Search and Rescue, Assess Damage, Deliver Supplies

Inspect and Maintain Power Lines and Telecommunications Equipment

Regional Science Consortium at Presque Isle

Deep-ocean Exploration Remotely Operated Vehicles (ROVs)

Remotely Operated Vehicles (ROVs) are underwater robots that are tethered to a surface ship by a long power and communications cable and controlled by pilots aboard the ship.

D2 Ready to Dive
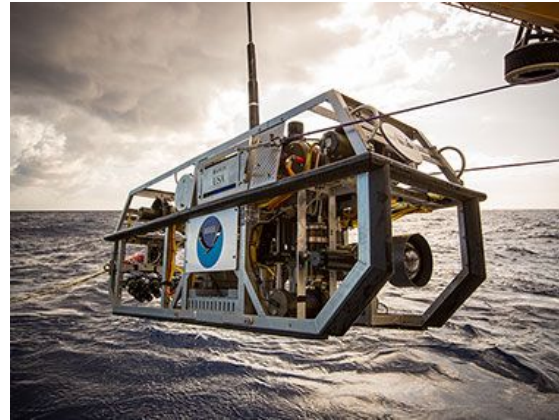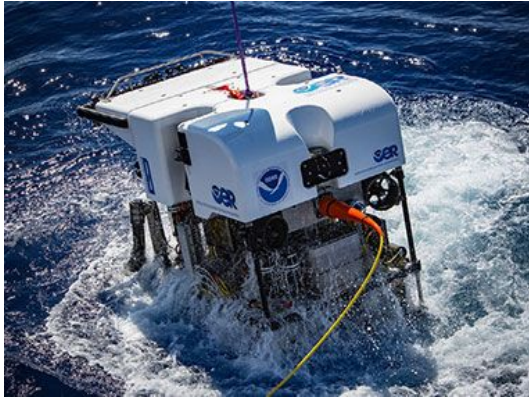
ROV Seirios: provides light in the deep ocean, follows D2

From fungi to invertebrates and fish, all the way to marine mammals and birds. <u>All of these organisms are intricately connected</u>. By documenting and describing biodiversity, we are building a better understanding of life and the impacts of humans on Earth

Comb Jelly *Duobrachium sparksae*

- First time NOAA scientists exclusively used high-def video to describe a new species.
- Deep Discoverer Robot

https://www.fisheries.noaa.gov/feature-story/noaa-scientists-virtually-discover-new-species-comb-jelly-near-puerto-rico#:~:text=Deep%20Discoverer%2C%20a%20remotely%20operated,and%20recognized%20it%20as%20novel.
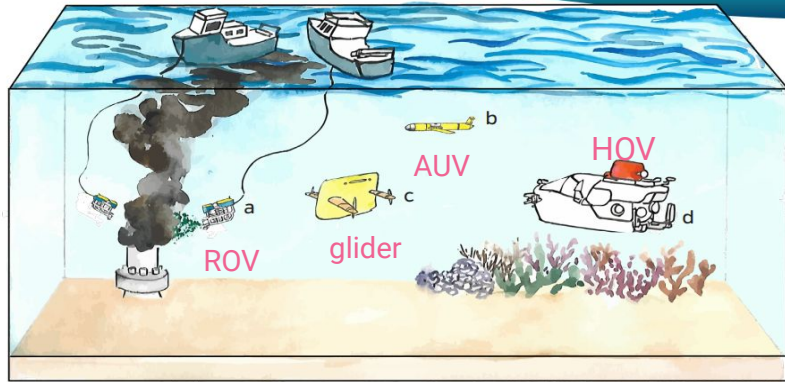
"E. T. sponge" *Advhena magnifica*
- Discovered in 2017 through ROV Okeanos Explorer

https://www.fisheries.noaa.gov/feature-story/magnificent-new-sponge-deep-gets-name

A New Way to Study Oil Spills

AUV: Autonomous Underwater Vehicle
HOV: Human Occupied Vehicle

Deepwater Horizon Oil Spill
ROVs: inspected the rig, treated the underwater oil plume, and studied the impacts of oil on the seafloor.

Study of coral reefs in deeper parts of the ocean (mesophotic zone) to discover elevated levels of contaminants on the seafloor
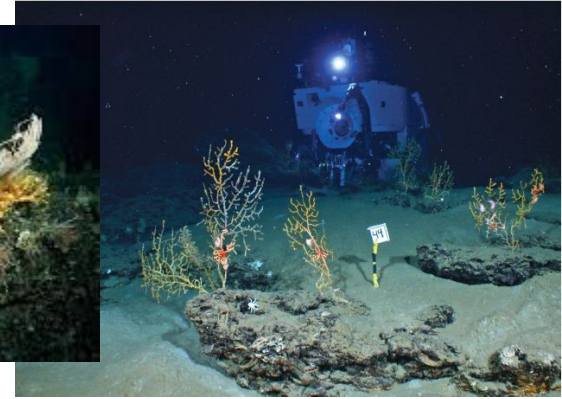

Scientists used various underwater technologies to study the Deepwater Horizon oil spill. ROVs (a), AUVs (b), gliders (c) and HOVs d) assessed the impacts the oil had on the deep-sea environment.[24] (Florida Sea Grant/Anna Hinkeldey adapted from Woods Hole Oceanographic Institution/Jack Cook)

HOV Alvin

How can YOU use these resources to solve an environmental issue?

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