



Deep Ocean Exploration Vehicles



Autonomous Benthic
Explorer



Jason 2

QuickTime™ and a Photo - JPEG decompressor are needed to see this picture.

HROV

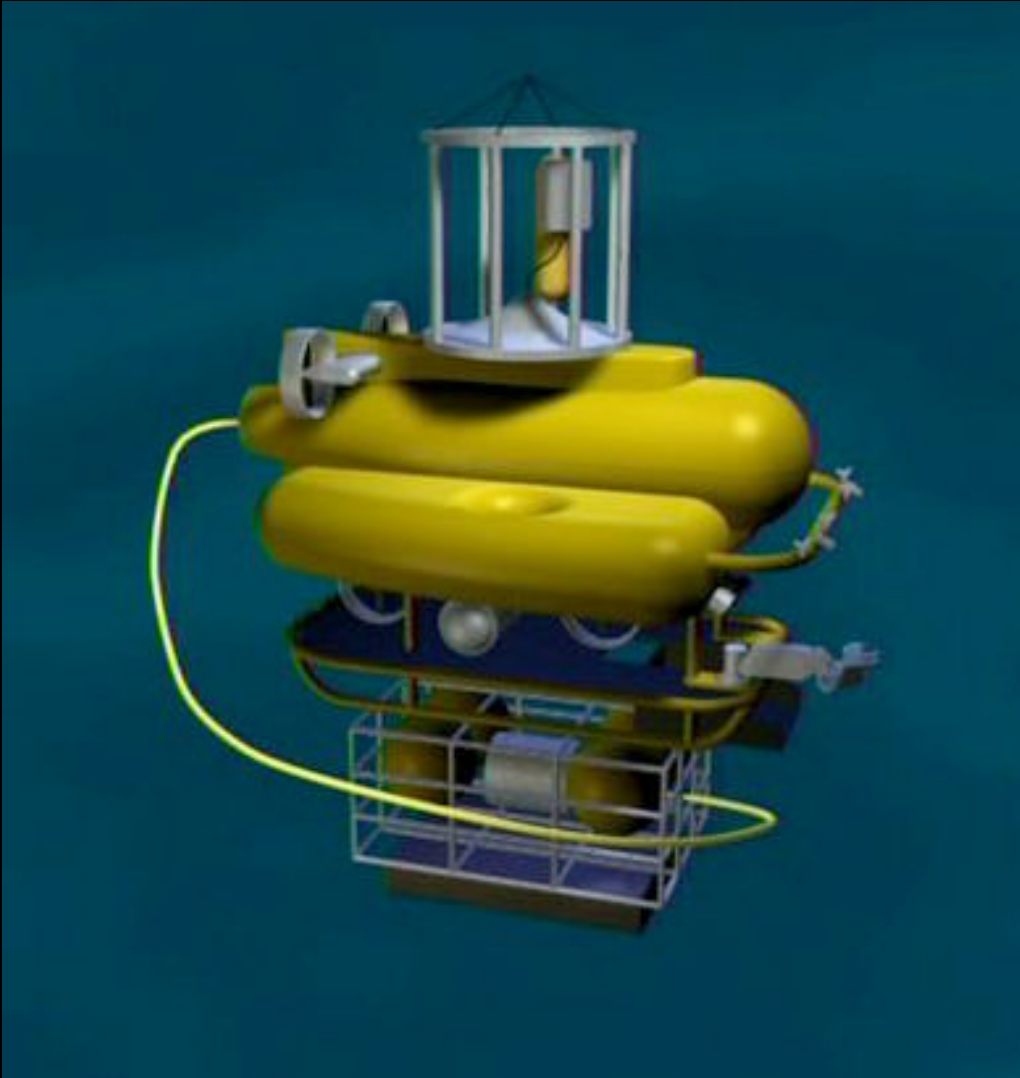


HROV Operations

- Event Response
- Under Ice Operations
- Margins
- Marginal Environments
- Public Outreach

11,000m Hybrid ROV

Woods Hole Oceanographic Institution



L×W×H	3m x 2m x 2m
Air Weight	2100 kg
Payload	25 kg
Battery	Rechargeable Lithium Ion. 8 kWh in main pressure housing, 6kWh in tool package housing
Speed	3 knots (1.5 m/s), 2 knots (1.0 m/s) with work package
Arm	Electric, 5 DOF, 20kg lift at 1m
Thrusters	2 aft, 2 vertical, 1 lateral
Lights	Variable output LED array, strobes.
Sonar	Scanning sonar, multibeam
Sensors	Magnetometer, CTD



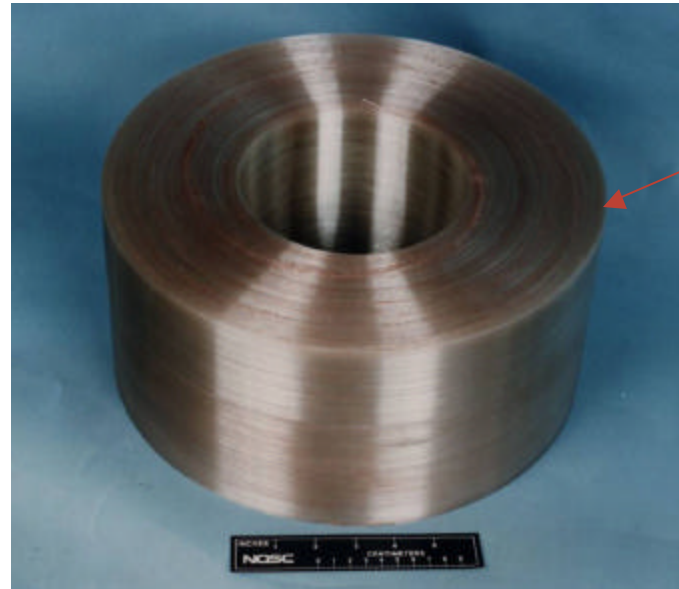
HROV Sampling Capabilities

- Pushcoring
- Heat-flow probe – e.g. the Alvin probe
- Geotechnical/Geochemical sensors – pore pressure in sediments
- Rock sampling/drilling
- Biological sampling – small suction samplers, nets and “bio boxes”
- Water sampling

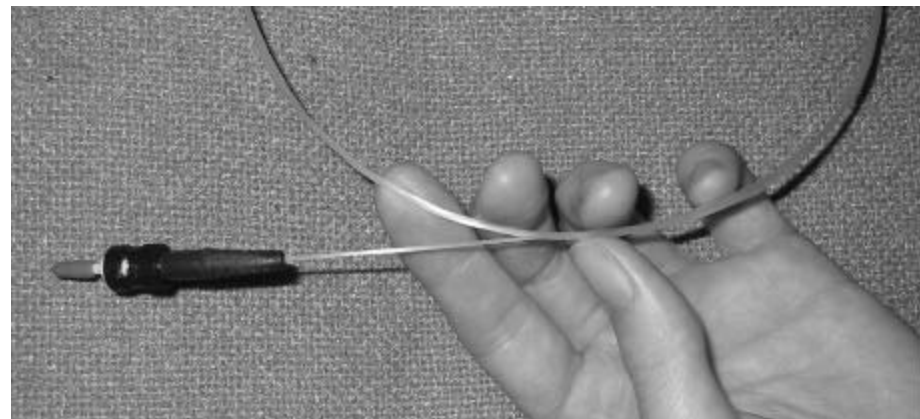


Fiber Optic Microcable (FOMC)

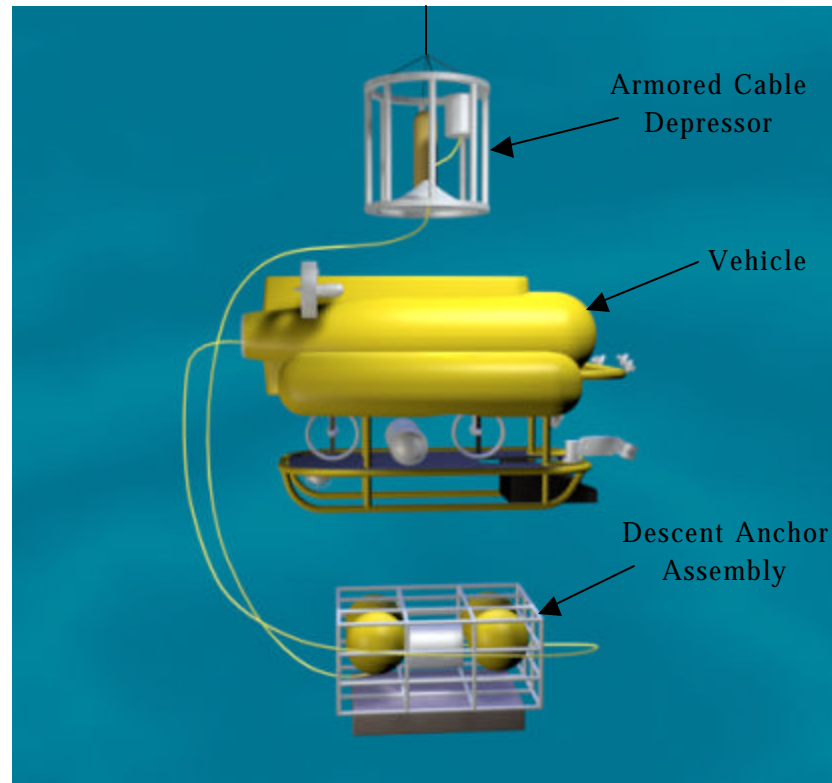
- **Developed by U.S. Navy for torpedoes and other uses**
- **Size: 1/32 inch diameter, 100 lb breaking strength**
- **Weight in water: 1 lb/km**



*12 miles
of fiber*



Hybrid for 11,000-Meter Operation



HROV configuration

Key Challenges in the HROV Program

- Ceramic pressure cases
- High efficiency lighting
- Low power manipulators
- High performance floatation

