Established in a Single Building
Now on Two Campuses

Woods Hole

Quissett Campus
Woods Hole Oceanographic Institution (WHOI)

• Leading efforts to explore and understand the ocean since 1930
• Home to more than 450 ocean scientists and engineers
• $240 million annual operating budget, nearly $200 million sponsored research (~800 projects)
• Broad range of ocean experience, expertise, capabilities, and resources
• Goal to advance knowledge of ocean science and technology
• Unparalleled research facilities, technology, and sea-going capabilities
• MIT-WHOI Joint Program in Oceanography, over 900 students since 1969
Why Marine Robotics?

Ocean is a vast, complex, and often hostile place to work

• Robotics open the ocean to humans in new & surprising ways
• Improve efficiency, lower costs, and reduce risks
• Advance ability to predict, manage, and adapt to our future
• Meeting unique challenges: inaccessibility, extreme pressures, sensing and communicating through water, corrosion, complex environments and habitats
The Evolution of Alvin

1964

1968

1970

1977

1984

1989

Today
Argo and Jason are Born

Dr. Robert Ballard builds a team
Exploring the Deep Ocean
National Deep Submergence Facility Vessels
2022 Alvin, Jason & Sentry Operation Areas

183 Sentry days/ 6 Cruises  –  226 Jason days/ 7 Cruises  –  113 Alvin days/ 5 Cruises
NDSF 2022 Vehicle Operations Summary

Alvin Operations

5 Cruises in 2022/2023
- Fornari (January)
- Arellano (December)
- Young (October/November)
- Valentine (September/October)
- Alvin SVC (July/August)

- Dives Since Certification: 68
- Average Time Submerged: 7.08 hrs
- Average Bottom Time: 4.71 hrs
- Max Depth: 6,310 m
- Average Depth: 2,555 m
NDSF 2022 Vehicle Operations Summary

Jason Operations

- 158 operating days
- 7 cruises
- 78 dives
- On bottom: 1089 hrs
- Longest: 71 hrs
- Average: 12 hrs
- Vessels used: Thompson, Kilo Moana

78 dives
1089.3 hours of bottom time
1708.6 meters avg max depth
Sentry Operations

183 operating days 2022
26 operating days 2023 so far

2022 Cruises Completed
  Boettcher - GOFAR
  Beinart - Lau Basin
  Gartman – Escanaba Trough
  Nooner – Axial
  Valentine - GoM

43 dives -2022

Total survey time: 740 hrs
Diversity, Equity, and Inclusion at NDSF

- Intentionally building a more diverse generation of engineers and technicians
- Making internal processes more equitable in hiring and recruitment
- Providing training in every one of our groups
- Developing outreach efforts to engage historically marginalized student populations
- Building a culture that invites and nurtures the potential of all the engineers and technicians