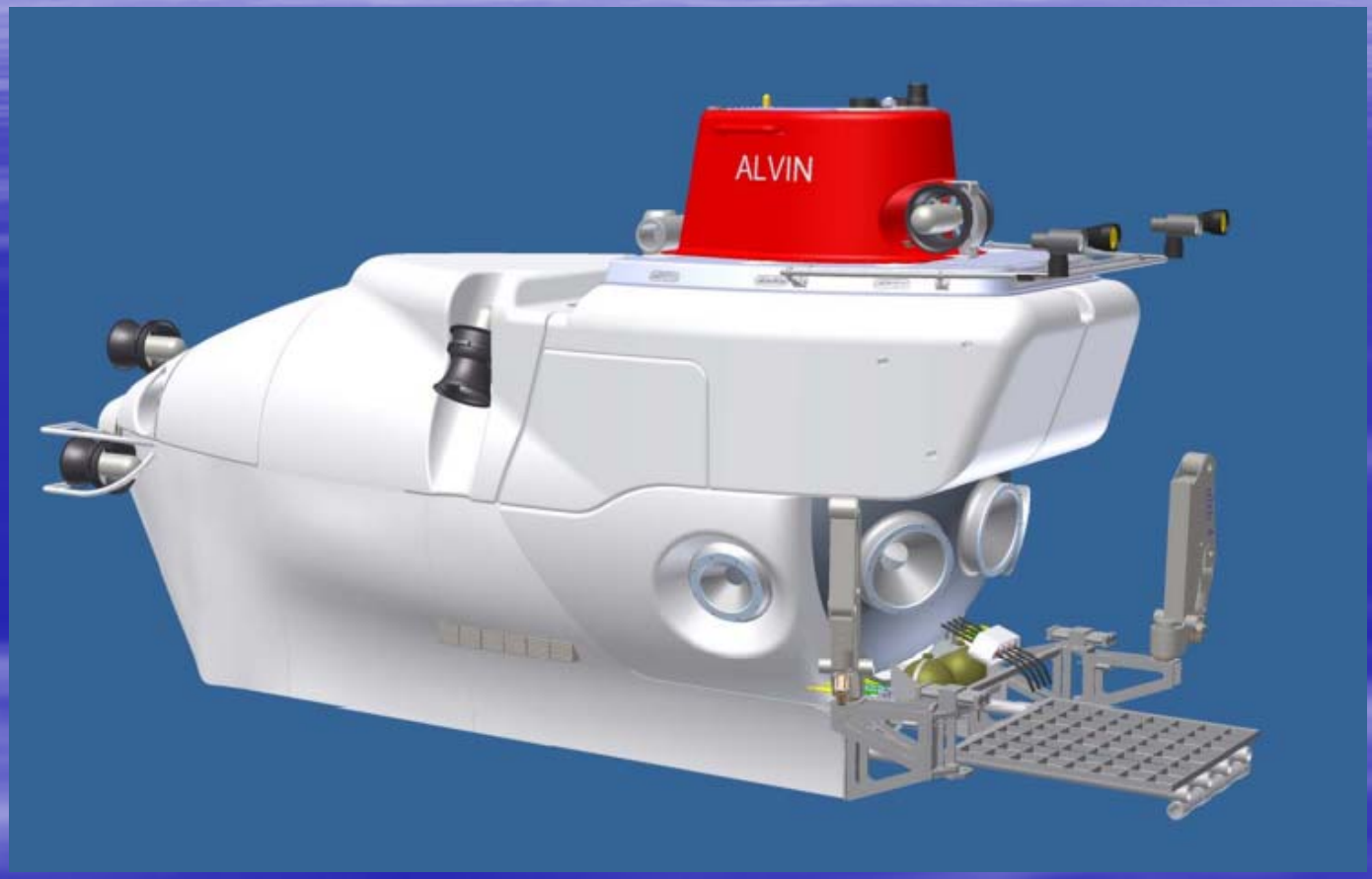
Replacement Human Occupied Vehicle
Alvin Upgrade



UNOLS Council
October, 2011

Brian Midson

Alvin Upgrade Goals

Phase 1 (4500m)

- ✓ Larger personnel sphere; more interior space and improved ergonomics
- ✓ Improved field of view for pilots and observers
- ✓ Automated position keeping
- ✓ Sampling basket load limits significantly increased
- ✓ Improved lighting and video systems
- ✓ Improved interior electronics

Phase 2 (6500m)

- ✓ Increased battery capacity
- ✓ Increased on-bottom time
- ✓ Increased hydraulic plant capacity (improved manipulator performance)
- ✓ Increased thruster horsepower (better maneuverability)
- ✓ Improved mid-water research capability

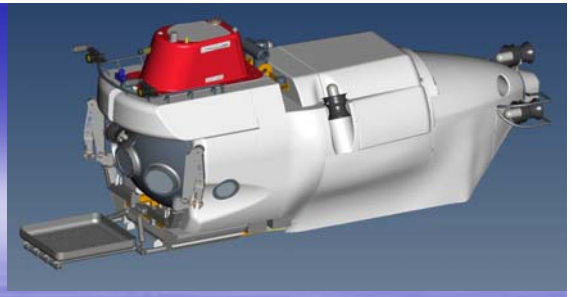
New System Designs

- Personnel sphere (6,500m)
- Penetrators (6,500m)
- Syntactic foam (6,500m)
- Forward frame section
- Pressure vessels (6,500m)
- Video and lighting system
- Command & Control
- Electrical system

Cross-Deck Systems

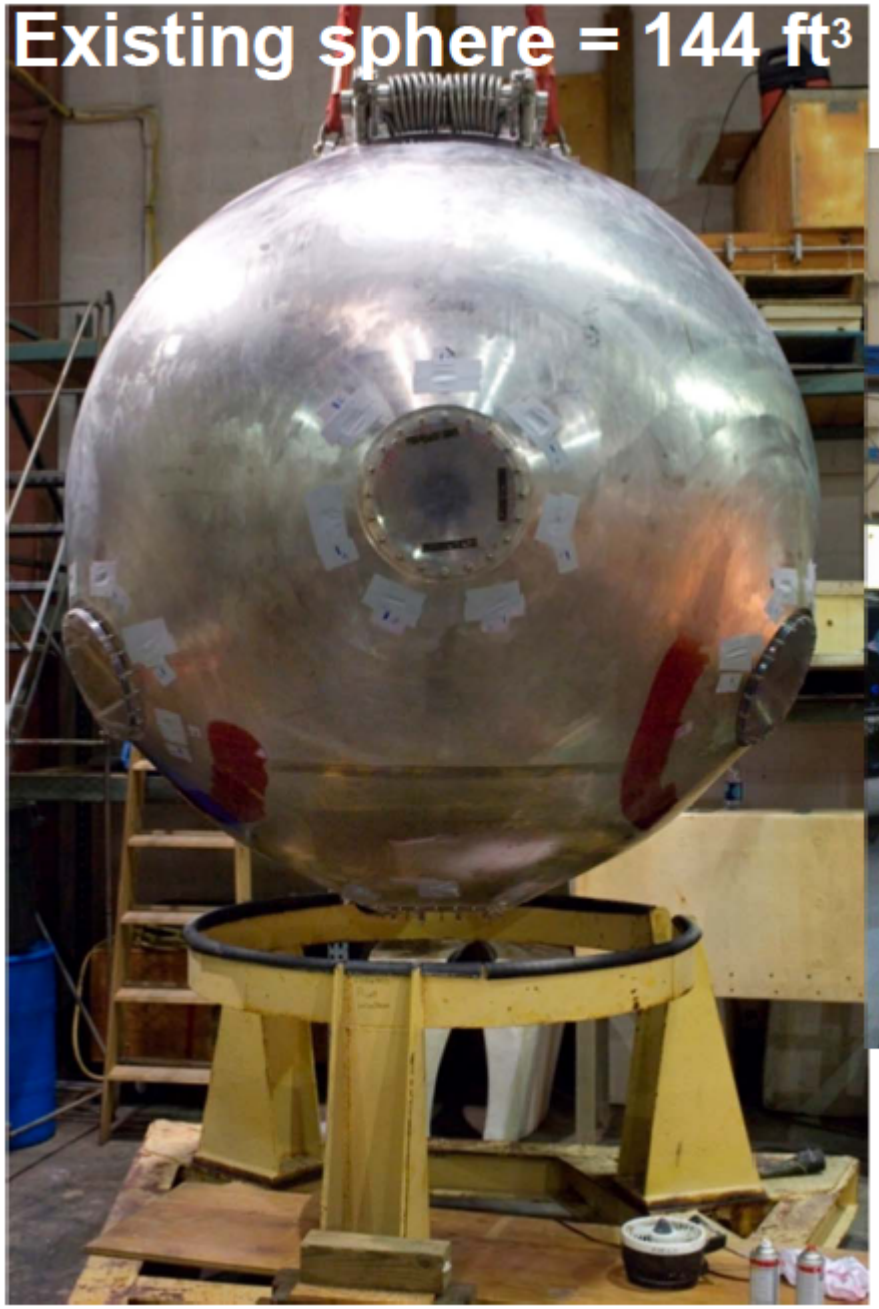
- Mercury trim
- Variable ballast
- Main hydraulics
- Main ballast
- Main batteries
- Instrumentation
- Propulsion

Milestones

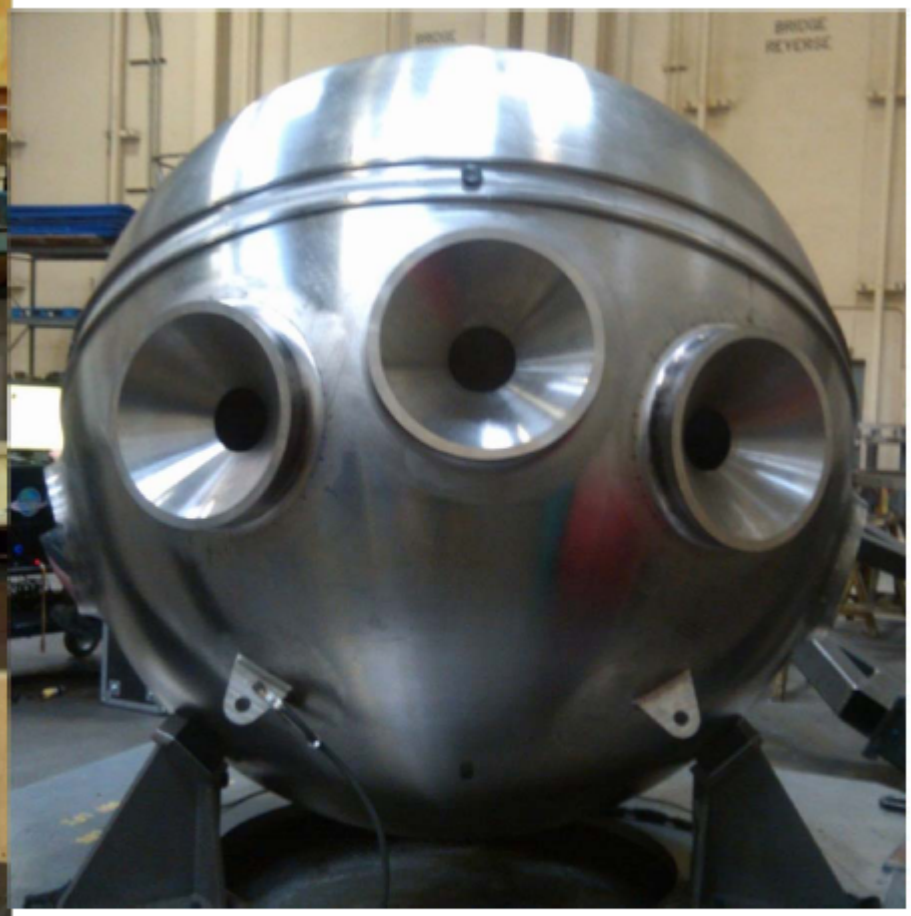


- Hydrostatic Test, April, 2012
- Initial Sea Trials, September, 2012
  - NAVSEA Certification
  - ABS Classification
- Science Trials, Fall, 2012

Existing sphere = 144 ft^3



New sphere = 171 ft^3



Frame Modification