



NDSF 2016 Vehicle Operations Summary

Alvin Operations



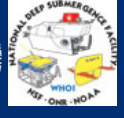
- 127 operating days
- 4 cruises (1 underway)
MAR, Continental Slope, EPR, Guaymas
- 45 dives, 328 hrs submerged
- Longest: 9.1 hrs
- Average: 7.5 hrs
- Average bottom time: 5.0 hrs
- Average depth: 2,427 m



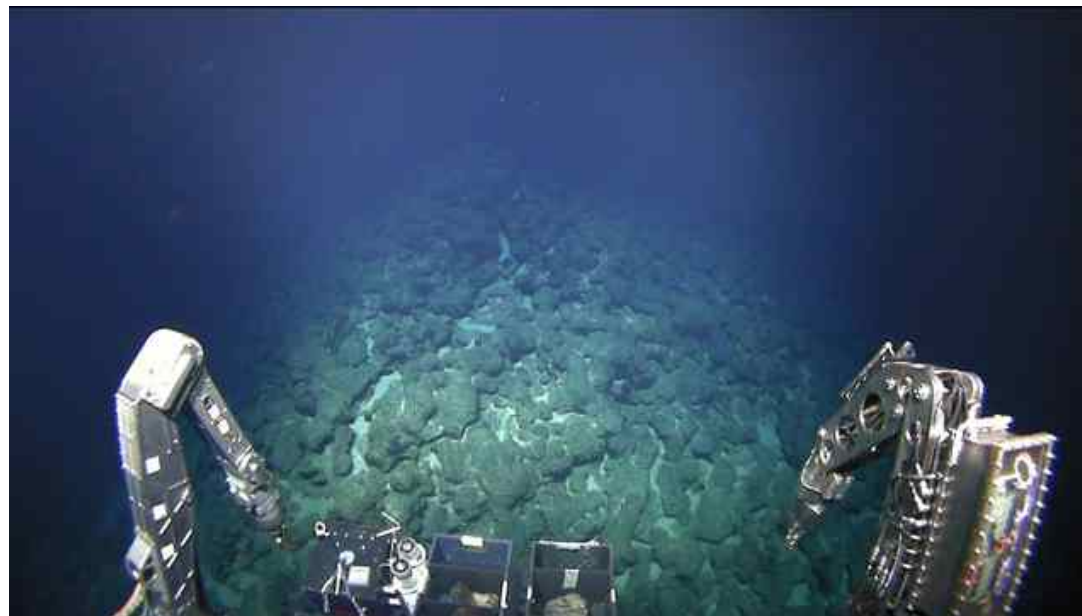


NDSF 2016 Vehicle Operations Summary

Alvin Highlights



- The “nested” survey strategy with *Sentry* and *Alvin* has proven to be very effective in accomplishing mission objectives. Guidelines have been developed for concurrent *Alvin-Sentry* dive operations.
- First acoustic transfer of still images from *Alvin* to *Atlantis*, used during ECS and Gregg cruises. Low res images sent from sub to surface, and sub/ship SMS channel employed for dedicated science communications via text.



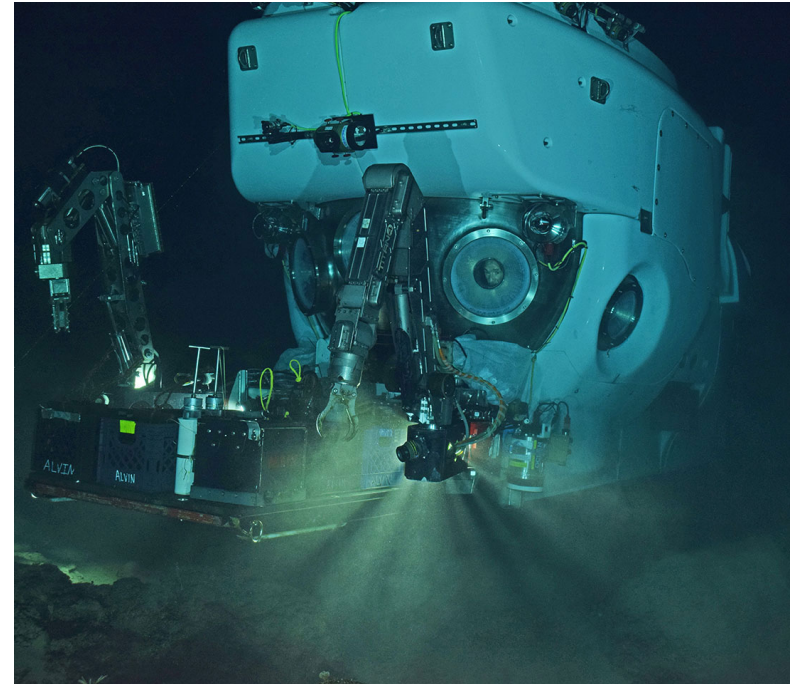


NDSF 2016 Vehicle Operations Summary

Alvin Highlights (cont.)



- ECS cruise – early-career PIs experienced *Alvin*/Sentry joint ops; telepresence enabled collaboration with second science team at URI Inner Space Center
- Prototype new DSP&L video cameras - HD wide angle, HD super wide angle, SD low light (down-looking)
- First use of sensitive sample bio box during Seyfried cruise – new design protected live *Riftia* tubeworms during ascent and recovery. Science users provided very positive feedback; planning construction of additional boxes.





NDSF 2016 Vehicle Operations Summary

Jason Operations



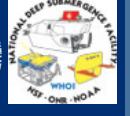
- **117 operating days**
- **6 cruises**
Catalina Basin, Juan de Fuca, Cascadia, Axial, off San Diego
- **80 dives, 521 total hrs**
- **On bottom: 326 hrs**
- **Longest: 33 hrs**
- **Average: 6.5 hrs**
- **Vessels used:** *Sikuliaq, Sally Ride*





NDSF 2016 Vehicle Operations Summary

Jason Highlights



- Six successful single-body cruises
- Numerous heavy lifts to 3,800 lb
- Deployed 1.4 km of cable with cable sled
- Increased payload
 - 520 lb science skid
 - 4,000 lb through-frame lift skid
- Two Schilling Titan 4 manipulators
 - Increased reliability
- Operated on new ships
 - *Sikuliaq*
 - *Sally Ride*
- Redesign of control vans is underway
 - Capacity to operate from one van



NDSF 2016 Vehicle Operations Summary

Sentry Operations



- **124 operating days**
- **4 cruises (2 remaining)**
MAR, Bahamas, Cont. Slope, EPR, Guaymas Basin
- **36 dives, 515 hrs in water**
- **Total survey time: 423 hrs**
- **Average dive time: 14 hr**
- **Longest dive: 37 hrs**
- **1,125 km of survey**
- **Longest continuous transect: 85 km**
- **Vessels used:** *Atlantis, NOAA Pisces*





NDSF 2016 Vehicle Operations Summary

Sentry Highlights



- Located *El Faro* VDR
- New batteries = able to multibeam for 28 hours, camera 50+ hours
- Addition of the Dynamic Focus Sidescan as nearly standard capability - 10cm sidescan resolution
- Working on significant upgrades to real-time data display and mission re-planning
- Automated metadata capture system