



NDSF Operator's Report Alvin Upgrades



- **Integration of USBL**

- Now the tracking system of choice
- Simultaneous tracking of multiple objects (e.g., sub and elevators/other offload items)
- Data transfer
- Available for other uses such as CTD, multicore, TowCam etc.
- Video transfer in work and hope to test on *Jason* during *Alvin* upgrade

- **Personnel**

- All ALOPS personnel now qualified as pilots
- Exchanges with *Jason* ops

- **Initial integration of new NDSF HD cameras**

- **New SeaKing forward-looking sonar**

- **Basket swap between dives**

- **New Doppler spare (600 Khz)**



NDSF Operator's Report *Jason Upgrades*



- **New Schilling T4 manipulator**
- **Designed and built cruise-specific gear for science users**
 - New cutter on Kraft manipulator to assist in coral recoveries on Fisher and *Alvin* cruises.
 - Tilt mechanism and controls for Zeus + HD camera on Delaney cruise
- **Integrated HD and file-based recording system, improved on HD control system**
- **First use of Reson multi-beam and associated processing pipeline into *Jason* system**
- **Video telemetry upgrade**
- **Successful use of rock drill**



NDSF Operator's Report Sentry Upgrades



- **New Equipment added**
 - Sub-bottom profiler
 - Seabird Model 49 CTD
- **Other**
 - Water cooling for extended deck ops
 - New operations and shipping van nearly complete
 - Revised magnetometer mounting to reduce noise
 - Improved spares for propulsion and servo actuators
- **Two short-notice mobilizations in support of Deepwater Horizon disaster via NSF-Rapid**
- **Demonstrated effective mid-water survey**
- **Google-Earth interface for photo and bathymetry interpretation**
- **Collaborative survey and joint operations with both *Alvin* and *Jason***
- **Control system refinements including better bottom-following and logging of vehicle state data**
- **Acomms command interface development**