Summary of 2017 Alvin Debriefs

6 Cruises, 6 Debriefs
(including two late-2016 cruises)
Alvin Debrief Highlights

• Overall, PIs were pleased with the performance and capabilities of the Alvin, with most of the objectives accomplished.
• While communication generally went well between the expedition leads and the scientists, there were mixed reviews depending on PI
• Given the integration of some new and different electronics, the PIs were impressed by the Alvin group and their ability to integrate these new systems relatively seamlessly
• PI noted some benefits to using Alvin over Jason for certain environments in mobility and sample selection
Pre-cruise and Mobilization

• Pre-cruise planning was complete and overall was very well done. No suggested changes.

• In port mobilization for the 6 cruises was long enough to allow testing of equipment and resolution of technical issues before dives commenced.
Operations – vehicle performance

• Dive delayed because batteries were not charged overnight
• Some grounds occurred, only one required the dive to be aborted.
• Leak detected-resolved within 30 min
• Dive aborted due to suspect CO2 absorbent.
• Assessment of bottom time alternated between “less than expected”, “just right”, and “better than expected” perhaps due to transits on the seafloor, efficiency in operations.
Operations- NDSF-provided equipment

- Video overlay on port monitor had intermittent recording problems
- Some issues with frame grabber
- HiT probes did not function 100% of the time
- Camera issues included difficulty with switching between camera sources and controlling the pan and tilt.
- Navigation was excellent
- Sample collections went smoothly
Operations- User-provided equipment

• High success rate with integrating user-supplied equipment
  • Note: Fornari-provided external GoPro facilitated dive review (fast turnaround)

• Alvin group helped trouble shoot syringe sampler issues

• Additional cameras added to Alvin (forward, down-looking, and 4K cameras) worked well.
General Recommendations

• Improve the functionality and reliability of user controls and overlay for the Alvin video systems
• Improve moisture control within the sphere
• Enable the availability of imagery data post dive (e.g., external GoPro) to facilitate quick dive review and pre-dive planning by scientists
Summary of 2017 Jason Debriefs

4 Cruises, 4 Debriefs
Jason Debrief Highlights

• This is the second season for Jason operating in either single body mode or together with Medea, majority of work was done in single body mode.

• A new control van was designed and put into service; the new van has improved visualization screens and ergonomics and can be configured as a single van to take up less deck space.

• Users felt that the Jason team worked exceptionally hard to accomplish their science.
Jason debrief – Issues.

• The Rapp winch that is now the primary winch used for Jason ops had several failures resulting in lost dive time and equipment retrieval.

• **Suggestion:** Continued evaluation of all aspects of the new winch system.
Jason debrief – Issues.

• Communication, operations, and best practices for service-related cruises with intensive dive plans could be improved.

• **Suggestion**: Improved coordination with either on-site or reverse-site visits prior to cruise ops; potential changes to watch schedules and/or two EL’s to handle heavy workloads with many launch & recoveries; review of industry best practices.
Jason debrief – Issues.

• Some challenges of working in single body mode, or switching between single and two body mode, e.g. issues getting Medea operational, extended mobilization time for single-body setup.

• **Suggestion:** Ensure adequate time allowances for engineering when switching between operating modes.
**Jason** debrief – Issues.

- Data transfer delays from Jason imaging systems to science party.
- **Suggestion:** Implement protocols for more rapid image transfer.
Jason debrief – Issues.

• Imaging systems: fogging of digital still camera; camera controllers complicated to use; video image quality not optimized.

• **Suggestion:** Review of imaging system and possible update of video cameras and digital still camera.
Jason Debrief High Notes

• “4K test camera was great and should be part of standard video system.”

• “Jason group assisted with rigging during short mobe period; USBL navigation was impressively accurate.”

• “It was clear that the cruise was successful because of the work that Matt & Tito put in to help the engineers design equipment that would work well with Jason. This pre-cruise preparation and coordination was extremely helpful.”
2017 AUV Sentry Debriefs

7 Cruises, all debriefed
(including two late-2016 cruises)
Sentry Debrief Highlights

• Overall, pleased with Sentry’s performance and generally able to meet their science goals.

• Success with science-supplied sensors integration: Ph, ORP, dissolved O2, magnetometer

• Concerns about Reson multibeam failed on 4 dives total on 2 of the 7 cruises. Both main system and backup failed on most recent cruise.

• Impressive turnaround. Preliminary bathy often within ~30-60 minutes of the AUV on-deck. Photos and side-scan usually available for next-day planning.
Sentry Pre-cruise Recommendations

• As fly-away system, develop a comprehensive and detailed mobe checklist. Include who on the team is responsible for follow-up on each item.
Sentry Ops Recommendations

• Consider alternatives to the existing Reson multibeam and vendors with improved shore-side support
• Calibrate magnetometers annually
• Provide end-of-cruise data on a RAID drive
• Continue to uphold standard of excellent communication between EL, Chief Sci, and Master
• Suggest to PI’s that if used for photo surveys, assign member of Science dedicated to reviewing all photos and generating ancillary data products broadly (mentioned 2X)
• Investigate the possibility of recording RAW image format and/or lighting systems for photos
Quotes from the debriefs

• “Sentry displayed an ... impeccable reliability...”
• Sean was “always on his feet in the Sentry lab”
• Sentry went “up and down like clockwork”
• “I’m still pinching myself that I got to use them”

• And a comment from your FOV: the Sentry Team consistently makes the never-before-attempted seem routine.