

NDSF Operator's Report

NDSF Vehicle Operations Summary

NDSF NATIONAL
DEEP SUBMERGENCE
FACILITY



Alvin Operations Summary



3 Cruises

- East Pacific Rise (Dec/Jan 2019/2020)
- Gulf of Mexico (Feb 2020)
- Gulf of Mexico/Eastern Seaboard (Feb/Mar 2020)

85 Operating Days

26 Sylvan/Mullineaux/Fornari

- *Microbiology - Superb cruise with concurrent Sentry/Alvin Ops*

13 McClain

- Biology - Excellent cruise although two days lost to fog in-port resulting in no engineering dive time – all remaining dives to science

22 Young

- Biology - Excellent cruise overcoming many weather and clearance challenges

27 Dives

- 12 Sylvan (2,500m)
- 6 McClain (2000m)
- 9 Young (380m – 3300m)



Alvin Highlights



Overhaul Commenced in March 2020

Upgrades To Include:

Modified Frame

- Supports new syntactic foam designs
- Streamlines aft end of vehicle

New VB Seawater Pump

- Hydraulically activated
- Easily maintained – ease of spare installation
- 10 lbs/min @ 6,500 meter

New MB and VB Ballast Spheres

- Enables 500 lb payload

Submersible Imaging System

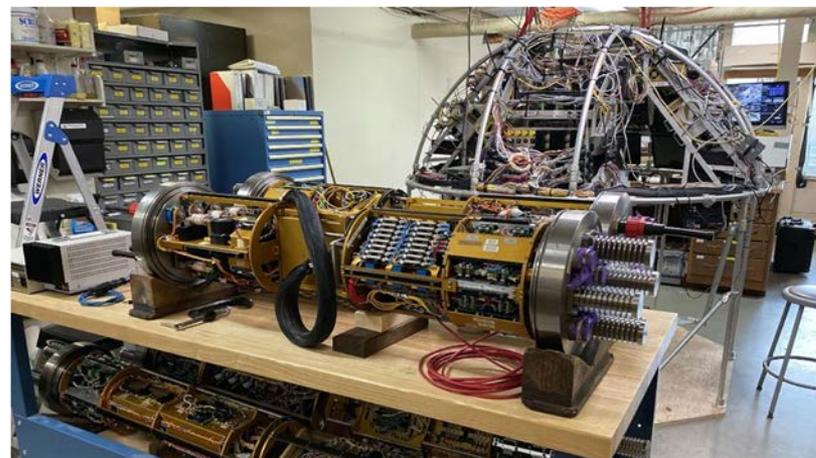
- 4K UHD Video Integration
- Improved imaging handling and viewing

Data System Upgrades

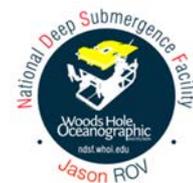
- Final Sea-log Integration
- Improved post dive data product and access

Temperature Instrument Suite

- Increase accuracy and range
- Replacement to ICL data interface



JASON Operations Summary



- *Four cruises completed in 2020, 5th cruise underway now*
- *Seewald/Lang/Rogers: Carbon at Cayman & Cayman Deep (pcar)*
 - *Atlantis, 2-body, 24 ops*
 - *11 dives, 8 days in water*
- *Schmidt Cascadia GPS-A & Jason engineering (pcar)*
 - *Thompson, Single body*
 - *3 dives 2-1/4 days in water, 1144 m*
- *Kelley RCA (not reviewing pcar)*
 - *Thompson, Single body, 24 hour ops, 2 legs*
 - *44 dives 10-1/2 days in water 2904 m*
- *Chadwick/Nooner Deformation at Axial (pcar)*
 - *Thompson, Single body, 24 hour ops*
 - *5 dive, 8-1/4 days in water, 1819 m*
- *Miksis-Olds ADEON added (underway now)*
 - *Neil Armstrong, single body*
- *Cruises deferred due to COVID-19, Beinart & Gartman- deferred Scmidit/Engineering- moved to July 2020*



JASON Highlights

- New Control Vans received great feedback
- New 4 k camera interface improved
- Sentry Kongsberg EM 2040 tested successfully on Jason (was to be used on now deferred Gartman)
- Sea-log being used extensively, mostly positive feedback
 - Recognize concerns and developing transition from VV to Sealog **pcar 2020**



Sentry Operations Summary

- **51 operating days**
- **2 Cruises Completed**
 - 2020 Chadwick (Axial)
 - 2020 Young
- **10 dives**
- **Total survey time:** 98 hrs
- **Total Survey coverage:** 309 km
- **Vessels:** R/V Thompson & R/V Endeavor
- **COVID-19 Impacts:**
 - 3 cruises canceled (Beinart/Resing/Boetcher)
 - Over 130 operating days lost
 - 1 month delay in return of system from Fiji
 - Significant logistics planning to accomplish cruises



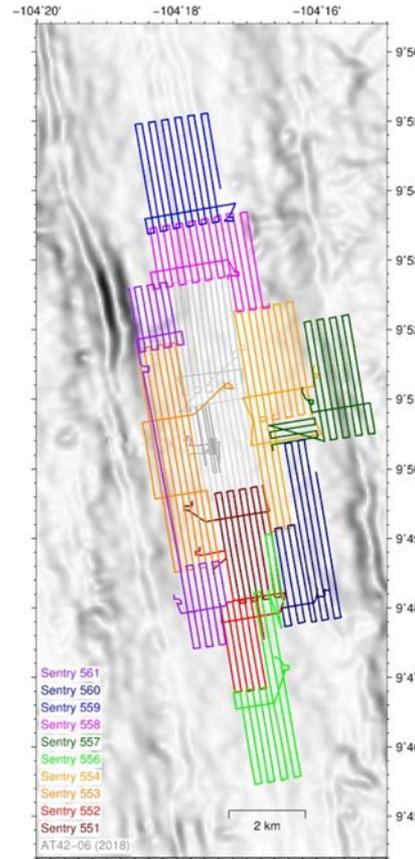
Sentry deployment on R/V Thompson Chadwick cruise 2020



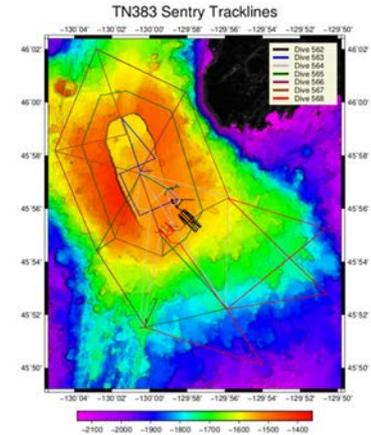
Young cruise demob

Sentry Operation Highlights

- **11 Dives** on EPR extending high resolution survey.
- Sylvan cruise first science cruise relying on new Kongsberg MB. **Kongsberg system operated very well.**
- One dive extended on Sylvan cruise following a **successful joint-ops with Alvin.**
- Remote operations and integration of **MBARI TRN software and hardware**
- Two cruises completed through pandemic



EPR Completed survey 2019/2020.



Chadwick 2020 completed survey lines



2020 Young dive sites