NDSF Vehicle Operations Summary
**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
23 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)

204 hours submerged
154 hours on bottom
5.43 hours average bottom time per dive
Sentry Operations Summary

- **26 operating days**
- **1 Cruise Completed**
  - Mapping EPR (w/Alvin)
- **11 dives**
- **Total survey time:** 109 hrs
- **Total Survey coverage:** 391 km
- **Vessels:** R/V Atlantis
- **COVID-19 Impacts:**
  - 3 cruises canceled (Beinart/Resing/Boetcher)
  - Over 130 operating days lost
  - Over 1 month delay in return of system
  - Lengthy Logistics meetings and planning
  - 2 cruises remaining for the year

*Sentry mission planning document created this year*

*Sentry Operations out of Newport Oregon 2019*
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.**

- Successful merge of two cruises worth of multibeam.

- Waveglider operations (WG had some HW & software issues).
JASON Operations Summary

- One cruise
- Seewald/Lang/Rogers: Carbon at Cayman & Cayman Deep
- Atlantis
- 2-body ops
- 24 op days
- 11 dives 191 hours 36 min in water
- 3 cruises deferred due to COVID-19
  - Beinart - deferred till 2021?
  - Engineering - moved to July 2020
  - Gartman - deferred to 2021?
JASON Highlights

- New Control Vans received great feedback
- New 4k camera interface improved
- Sentry Kongsberg EM 2040 tested successfully on Jason (was to be used on now deferred Gartman)
- Sea-log being used extensively, positive feedback