

NDSF Facility Update

6500m DSV ALVIN

2020-2021 OVERHAUL UPDATE

NDSF NATIONAL
DEEP SUBMERGENCE
FACILITY



2012-2013 Major Upgrade

Stage I Upgrade (4500 meter ops) - completed in 2013

- New personnel sphere (rated to 6500 meters)
- New electrical/optical penetrators
- New syntactic foam
- New command and control system
- Upgraded frame to support new sphere
- Upgraded life support system
- Minor modifications to remaining SOC systems



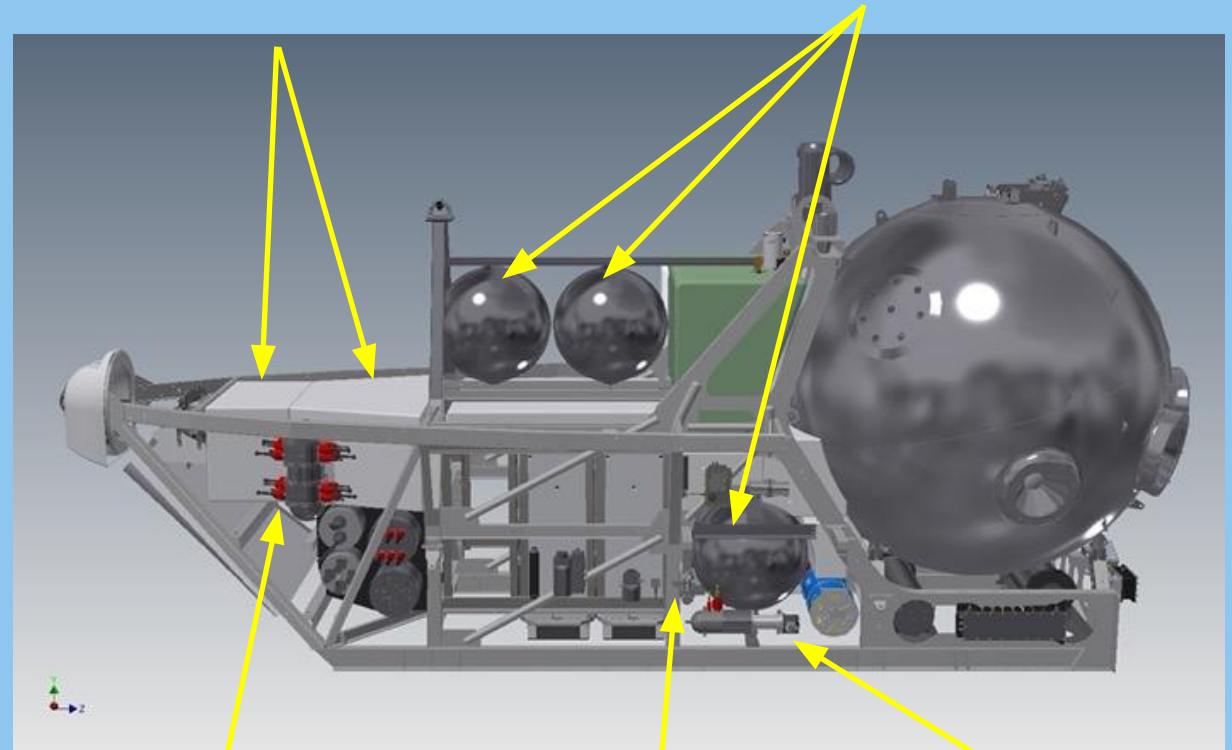
2020-2021 Overhaul Objectives

Stage II - completion Sept 2021

- Final 6,500m syntactic integration
- New MB & VB H.P. Air Spheres
- New VB system
- New VB seawater pump
- New 10 H.P. thrusters
- New motor controllers
- New hydraulic plant

6500m syntactic blocks

Ballast spheres

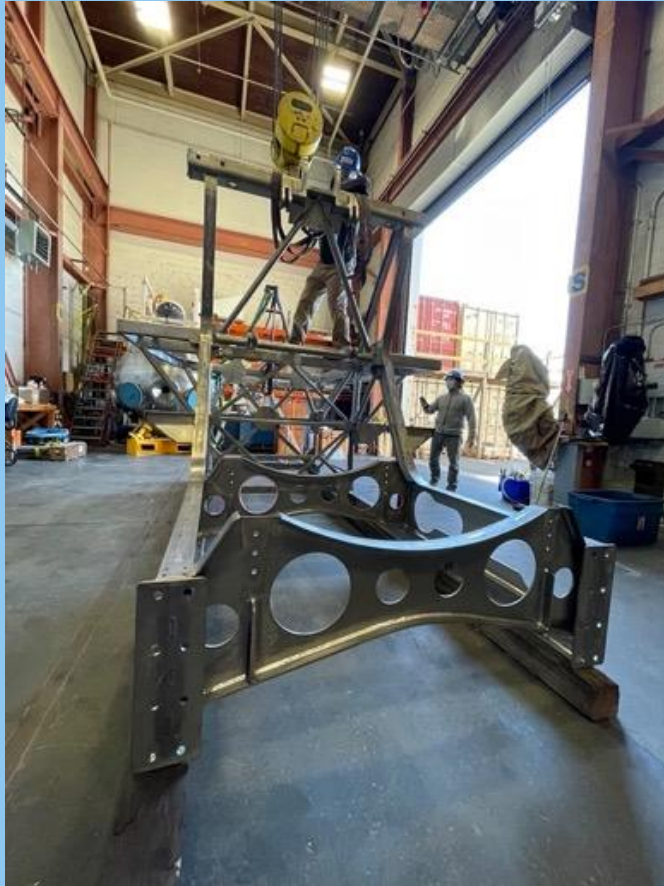


Motor controllers

VB water pump

Dual hydraulic plants

Spring 2021 Assembly



Frame arrives!



Spring 2021 Assembly



Getting Going



Spring 2021 Assembly



Personnel sphere installation

Spring 2021 Assembly



Syntactic fit-up

Spring 2021 Assembly



Assembly in-progress

Spring 2021 Assembly



New VB spheres and J-boxes installed

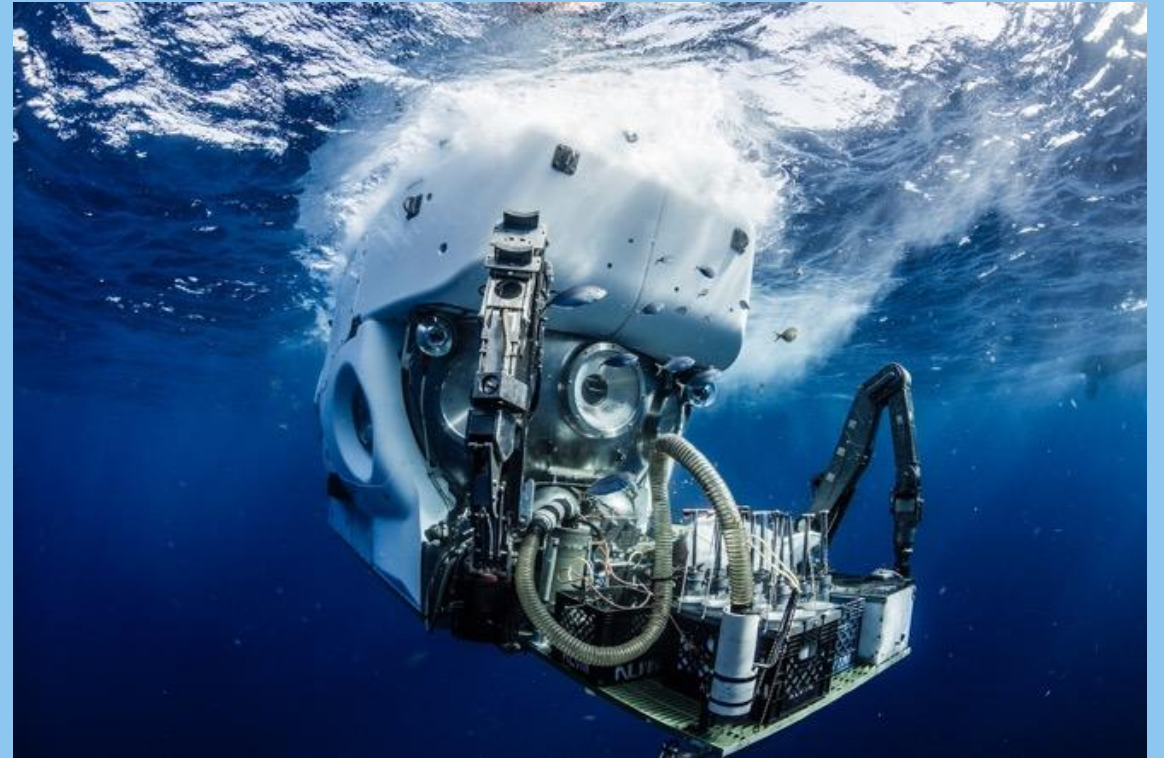
Spring 2021 Assembly

Imaging system upgrades

- New DSPL 4K cameras
- New Pan & Tilt Units
- 4 wide-angle DSPL Flex-link cameras
- Improved positioning of cameras
- Improved lighting positioning/separation
- Improved still cameras imaging
- Proxy videos created real-time in-hull
- Improved observer monitors
- Improved camera controllers

Data system upgrades

- Upgrade to Navigation (NAV-G 3.0)
- 'SEALOG' event logger
- Improved meta data display (tablets)
- New temperature suite (LoT, HiT, Heat Flow)



Return to dive operations

2021 - 2022 Operations Schedule

- Jul - Aug '21 Dockside Testing
- Sep - Oct '21 Sea-trials & 6500m Certification
- Oct '21 - Science Verification Expedition
- Oct - Nov '21 - Craig Young Larval Seeps
- Nov - Dec '21 - Dave Valentine GOM
- Jan - Feb '22 - Shawn Arellano 9N EPR
- TBD - Dan Fornari 9N EPR
- TBD - Lisa Levin - San Diego
- TBD - San Diego Basin
- TBD - Chris German - Deep water vents





THANK YOU!

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