

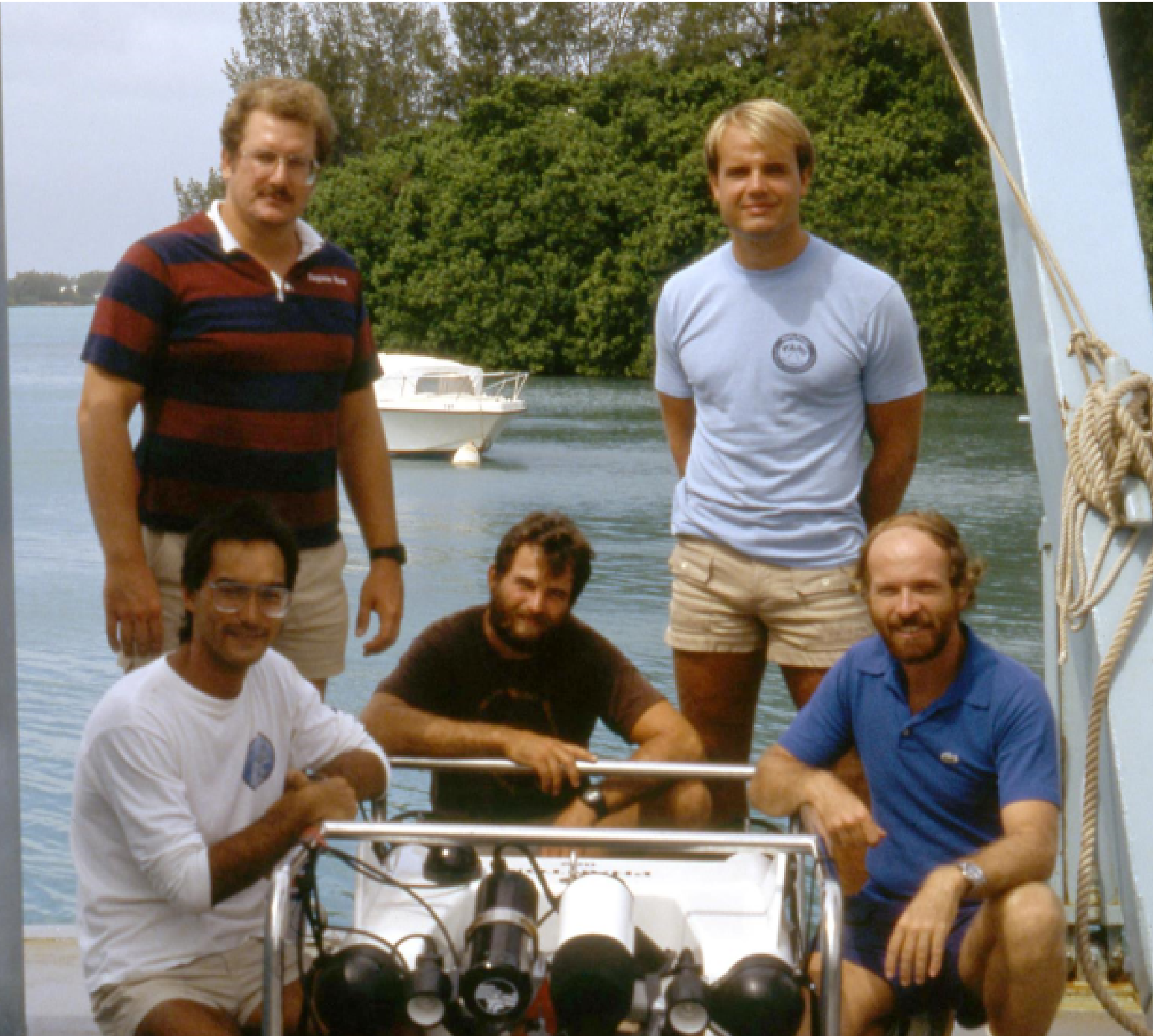


Samantha Flounders and Jason White



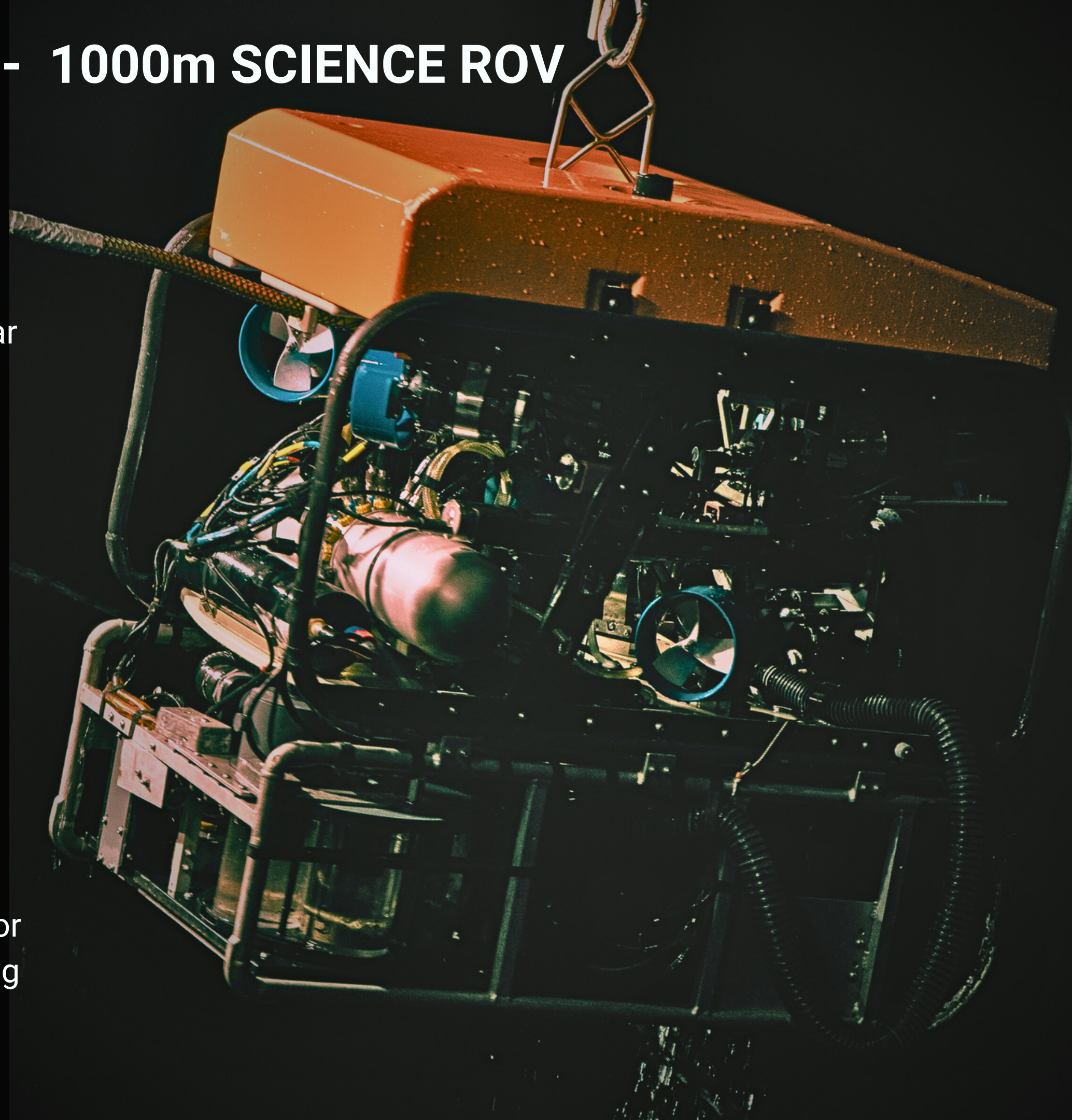
National
Marine Sanctuary
Foundation

UNDERSEA VEHICLES PROGRAM



- ⚙️ Founded in 1987
- ⚙️ 3,524 total dives
- ⚙️ 5,073 hours of bottom time
- ⚙️ 50 different vessels
- ⚙️ Over 80 different principle investigators
- ⚙️ Receipt based program

MOHAWK ROV - 1000m SCIENCE ROV



- ⚙ Small footprint
- ⚙ Compact and portable gear setup
- ⚙ Versatility to operate on many different vessels
- ⚙ 2-3 person crew
- ⚙ Collection Skid designed specifically for science sample collection
- ⚙ Multiple cameras/configurations for photo/video data collecting

- ⚙ 1,212 dives
- ⚙ 2,278 hours/95 days bottom time
- ⚙ 2013 - Present

MOHAWK 18 ROV

MANUFACTURER: Sub-Atlantic-FORUM, Aberdeen, Scotland

DEPTH RATING: 1000m

PAYLOAD: 30kg

CAMERAS: Insite Pacific Mini Zeus II HD video camera 10x zoom, 2 Kongsberg Maritime OE14-408 10mp digital still camera, 5x zoom, OE11-442 strobe with E-TTL metering

LIGHTS: 2 Deep Sea Power & Light 3100 LED dimmable lights – 3,700 lumens, beam angle 75 degrees, 6000K Temperature. 1 Teledyne Bowtech X-Light, 10K lumen

LASERS: 2 Sidus SS501 50mW green (532nm) spot lasers & 20mW red lasers in precision mounted aluminum block

THRUSTERS: 4 horizontal CTE-01, 1 vertical CTE-01 with tandem props

NAVIGATION: LinkQuest Tracklink 1500HA, LinkQuest 1505b transponder, Trimble SP461 dual antenna GPS/Heading Receiver, Hypack software provides tracking and geo-referenced video and digital stills

SONAR: Imagenex 881 sonar

ALTIMETER: 2 Trittech PA500/6-S

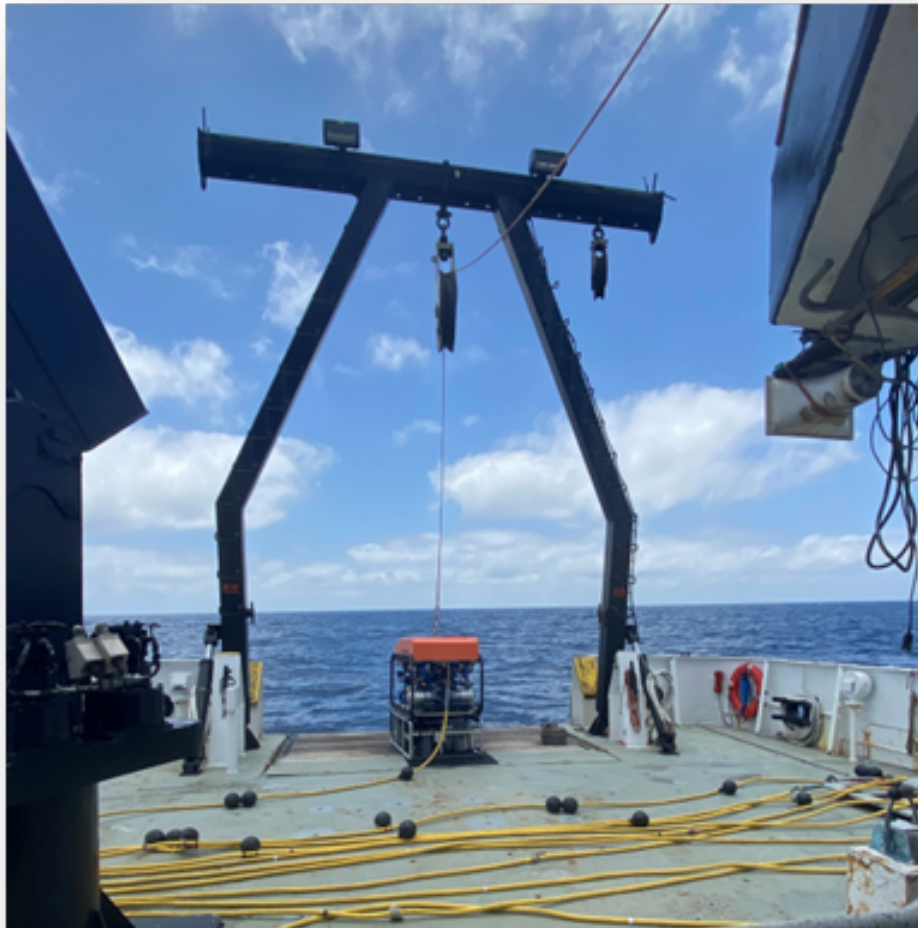
TETHER: 300m, 500m, 1,000m fiber optic

OVERLAY: depth, heading, altitude, number of 360° turns, date/time



SYSTEM OPTIONS

300M



Live Boat Operation

Tether is flaked on deck from storage box, tether is connected to ship's winch wire and clump weight

500M



Storage Winch Operation

Tether is spooled on winch for storage, winch is powered by separate HPU, tether is connected to ship's winch wire and clump weight

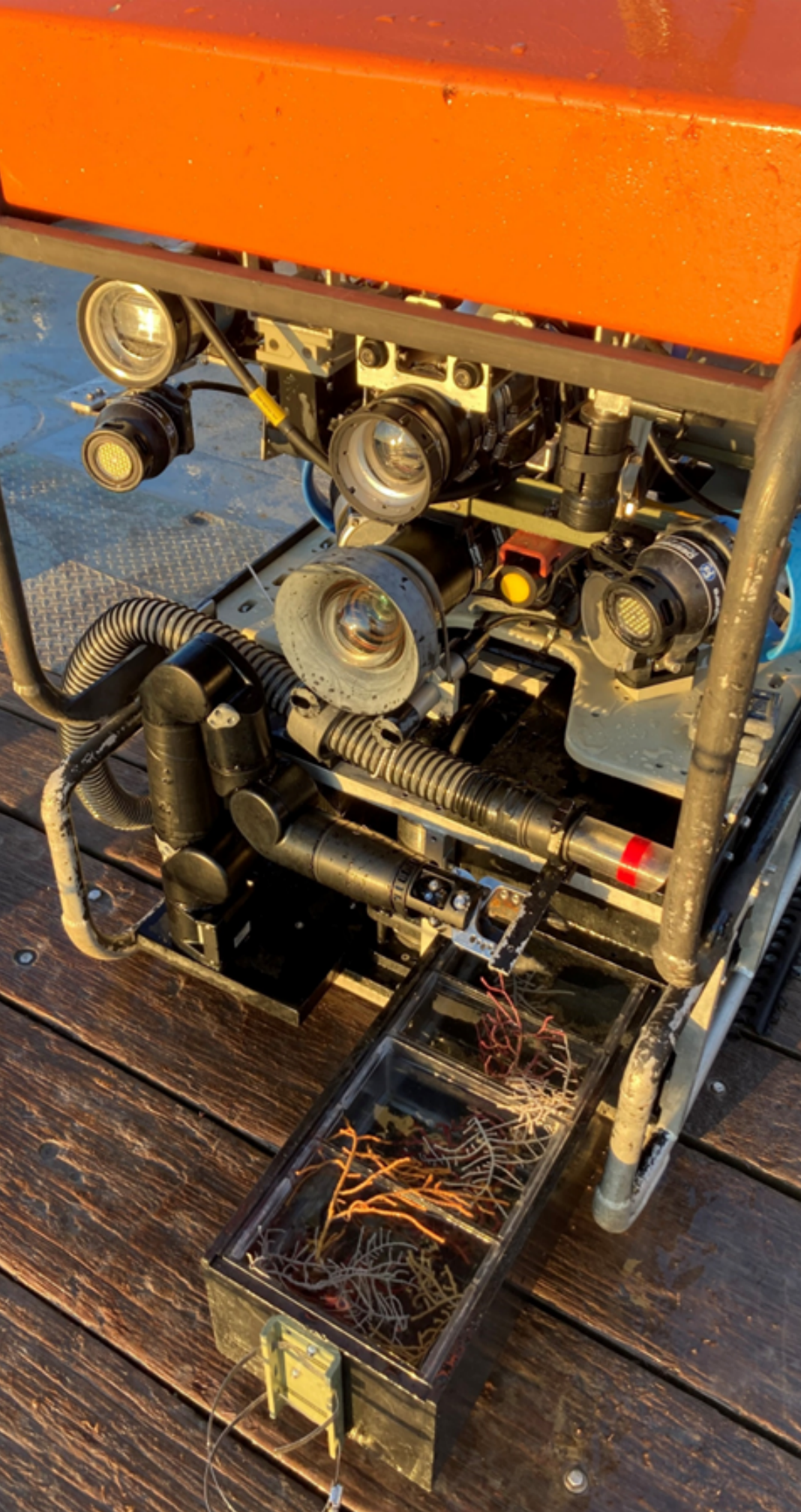
1000M



HPU Winch Operation

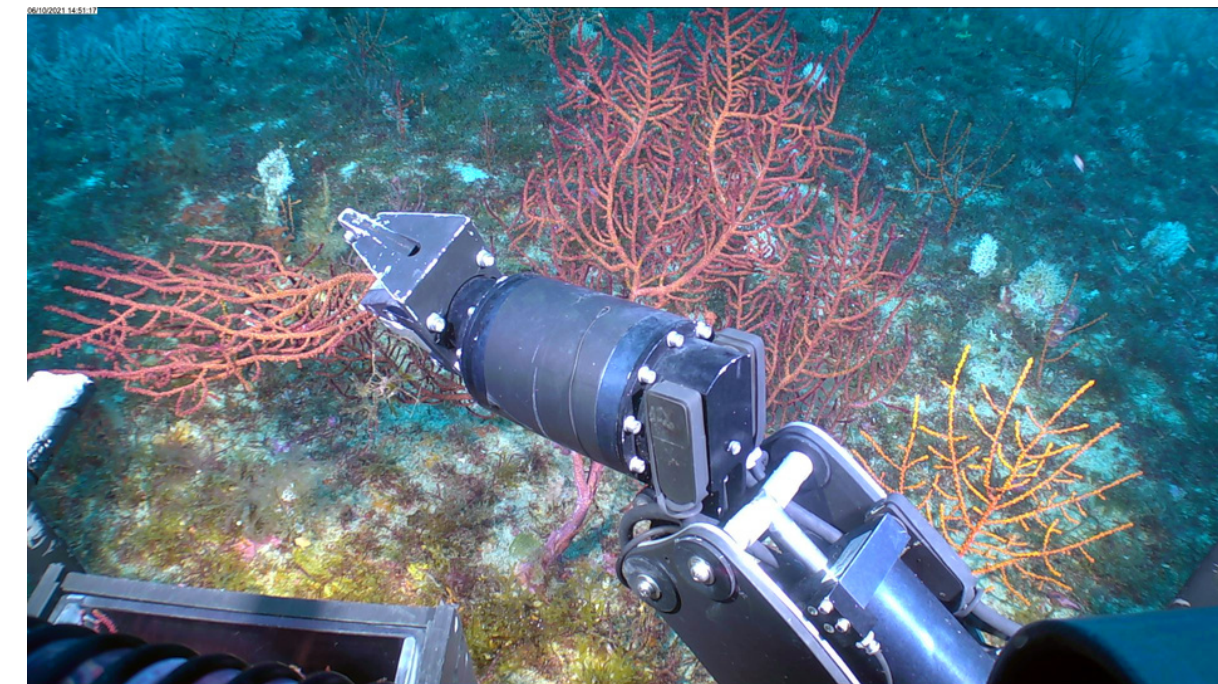
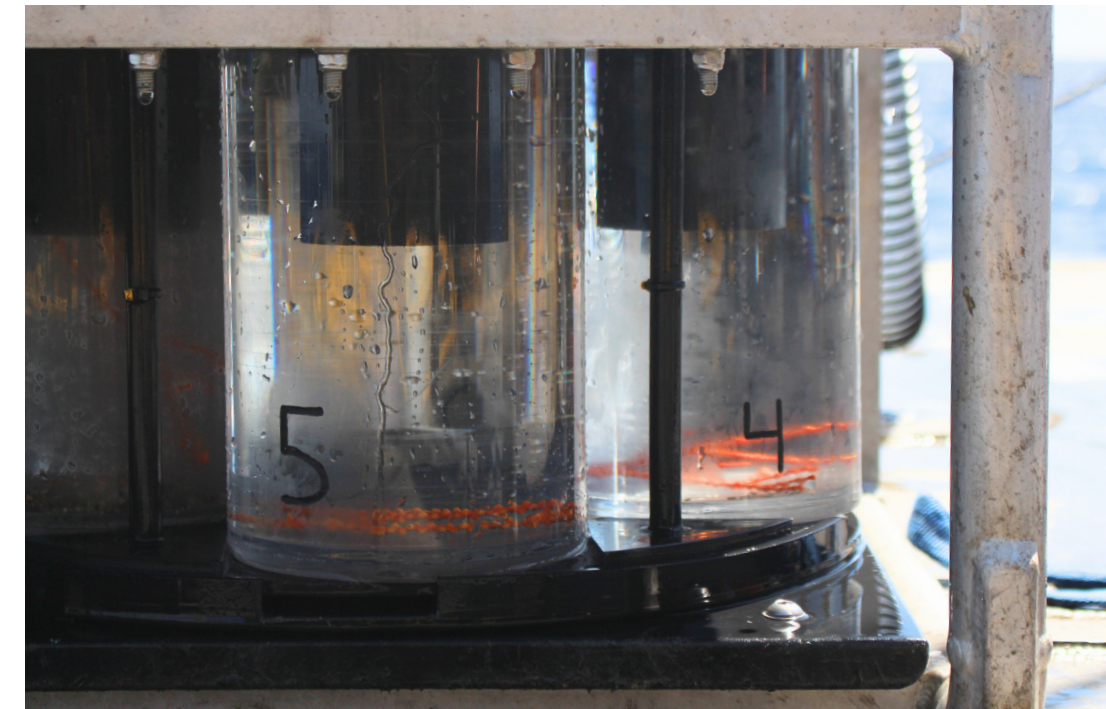
Tether is run through sheave on ship's A-Frame/J-Frame. Tether is spooled by winch HPU and connected to smart downweight.



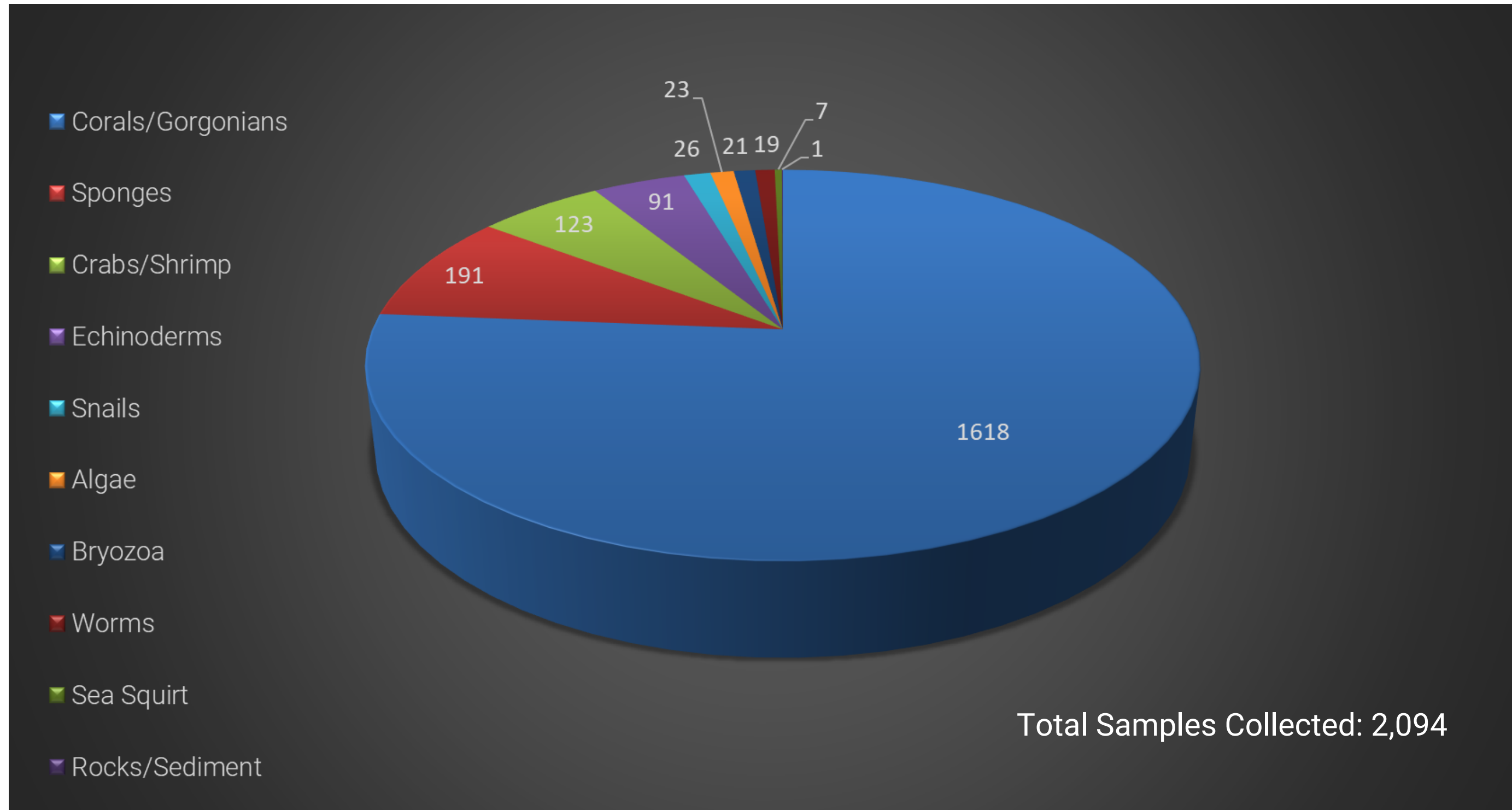


COLLECTION CAPABILITIES

- Custom designed collection skid engineered by Harbor Branch Oceanographic Institute after Johnson Sealink submersible
- ECA Robotics 5 function all electric manipulator
- Bio box opening/closing 23.5x 8.5 with adjustable inserts
- 3/8" insulated lexan
- Reversible/variable speed pump for suction sampler with 5 rotating 2-liter buckets.
- SeaBird FastCAT 49 CTD
- AquapHOx-LX - O₂ or pH sensor
- Spare connections (RS232/RS485/Ethernet)

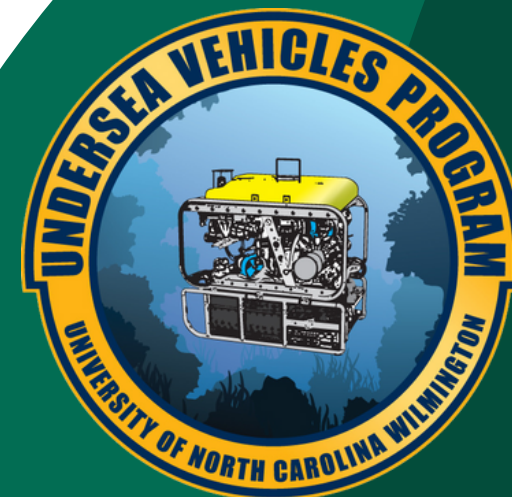


Sample Collections from 2022 and 2023



Topside Data Collection

- ⚙ Video Recording
HD 1080p video and SD Overlay
- ⚙ Horita UTG-50 Longitudinal Time Code generator
- ⚙ Geo-referenced digital still pictures,
dual laser scaling
- ⚙ Digital still pictures, downward facing, with strobe for
bottom transect
- ⚙ LinkQuest TrackLink 1500HA USBL Underwater Acoustic
Tracking System, LinkQuest TN1505b transponder, and
Trimble SP461
- ⚙ Hypack navigation files
- ⚙ Processed CTD files



2023 Missions

Les Hanson, Scripps

"Virginia Beach Buoy Replacement and Fouled Gear Recovery" *R/V Tiki XIV*

Jan 23 – Jan 27, 2023

Tim Battista, NOAA National Centers for Coastal Ocean Sciences

"Multibeam ground truthing of Puerto Rico and US Virgin Islands" *NOAA Ship Nancy Foster*

April 30 – May 13, 2023

Stacey Harter, NOAA MDBC

"ROV surveys of Gulf of Mexico Mesophotic Coral" *NOAA Ship Pisces*

June 27 – July 31, 2023

Marissa Nuttall, Flower Garden Banks National Marine Sanctuary

"Stetson Bank Long Term Monitoring" *R/V Manta*

Sept 14 – Oct 1, 2023

Dr. Peter Etnoyer, NOAA-Deep Sea Coral Program

"Soft Coral Collections in De Soto Canyon" *R/V Point Sur*

October 8 – 18, 2023



2024 Missions

1,000m Upgrade

Factory Acceptance Trials for UVP Mohawk in Kirkbymoorside, England

March 1 - 14, 2024

Dr. Esther Guzman, Harbor Branch Oceanographic Institute

"Sponge Biotechnology Collections in Puerto Rico" R/V Walton Smith

April 1 - 31, 2024

Testing of new 1,000m System

"UVP Mohawk 1,000m Shakedown Cruise" R/V Virginia

May 10 - 17, 2024

Stacey Harter-NOAA

"Mesophotic Deep Benthic Communities Project Gulf of Mexico" NOAA Ship Pisces

June 22 - July 19, 2024

Marisa Nuttall-FGBNMS

"Flower Garden Banks National Marine Sanctuary Cruise" R/V Manta

August 23 - September 11, 2024



RESEACH PLATFORMS

Commissioned Vessels



*NOAA Ship Nancy Foster
NOAA Ship Pisces
R/V Manta
USCGC Mobile Bay*

University Research Vessels



*R/V Walton Smith
R/V Point Sur
R/V Hugh Sharp*

Private Vessels

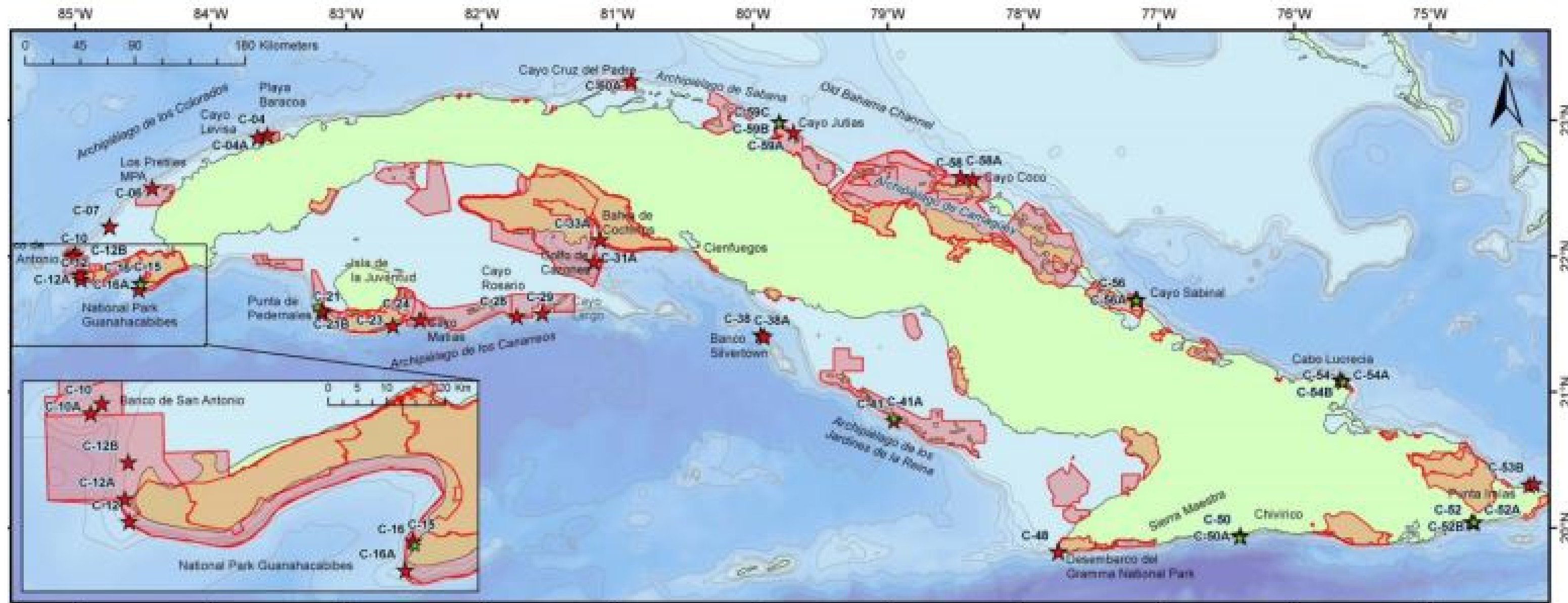


*Tiki XIV
Artic Sunrise
M/V DA BFAR
M/V Go America*



MISSION HIGHLIGHT - Circumnavigation of Cuba

Circumnavigated Cuba in 2017- to map and characterize for the first time the extent and health of mesophotic ecosystems (MCEs) along the entire coastline of Cuba

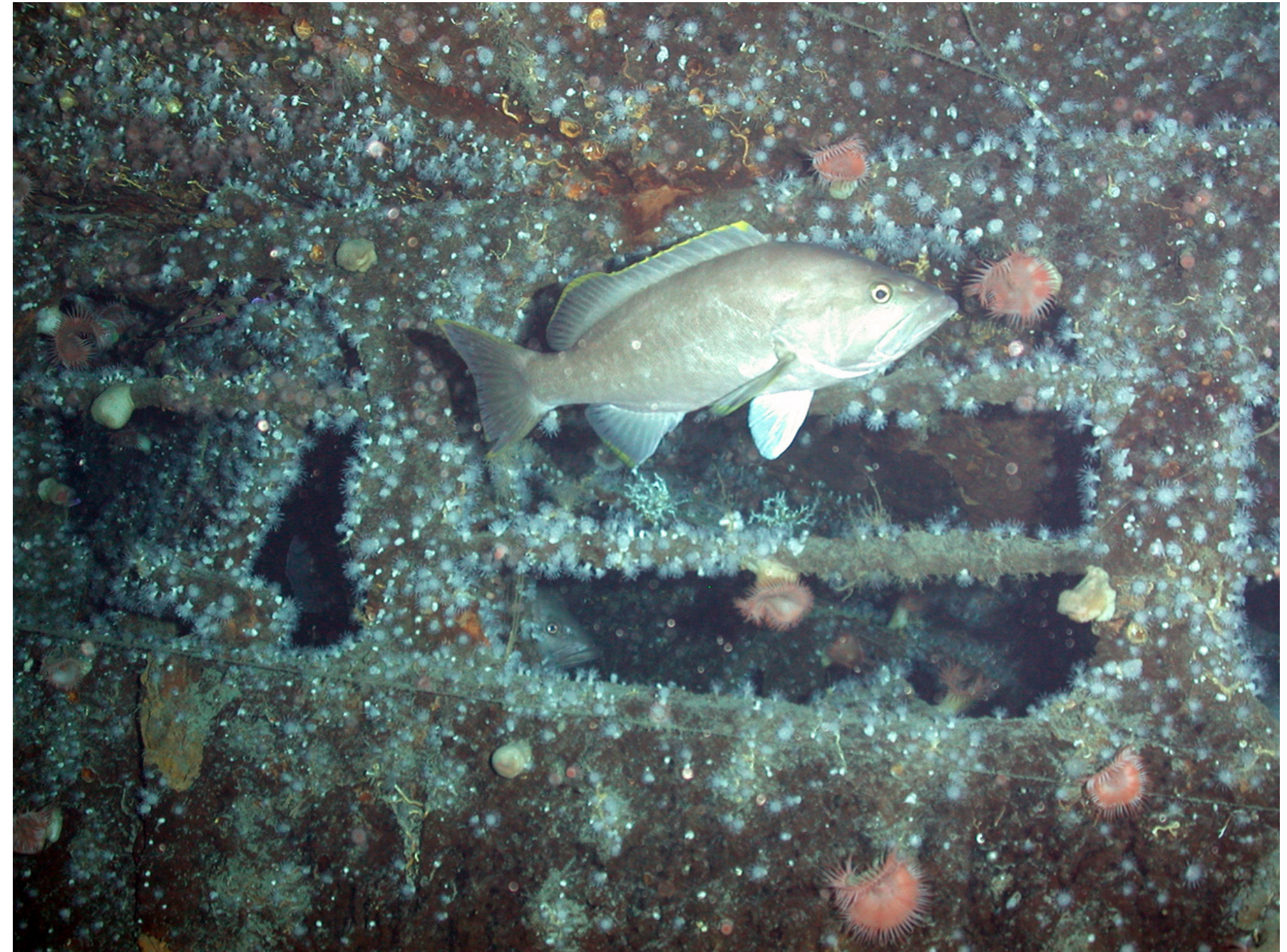
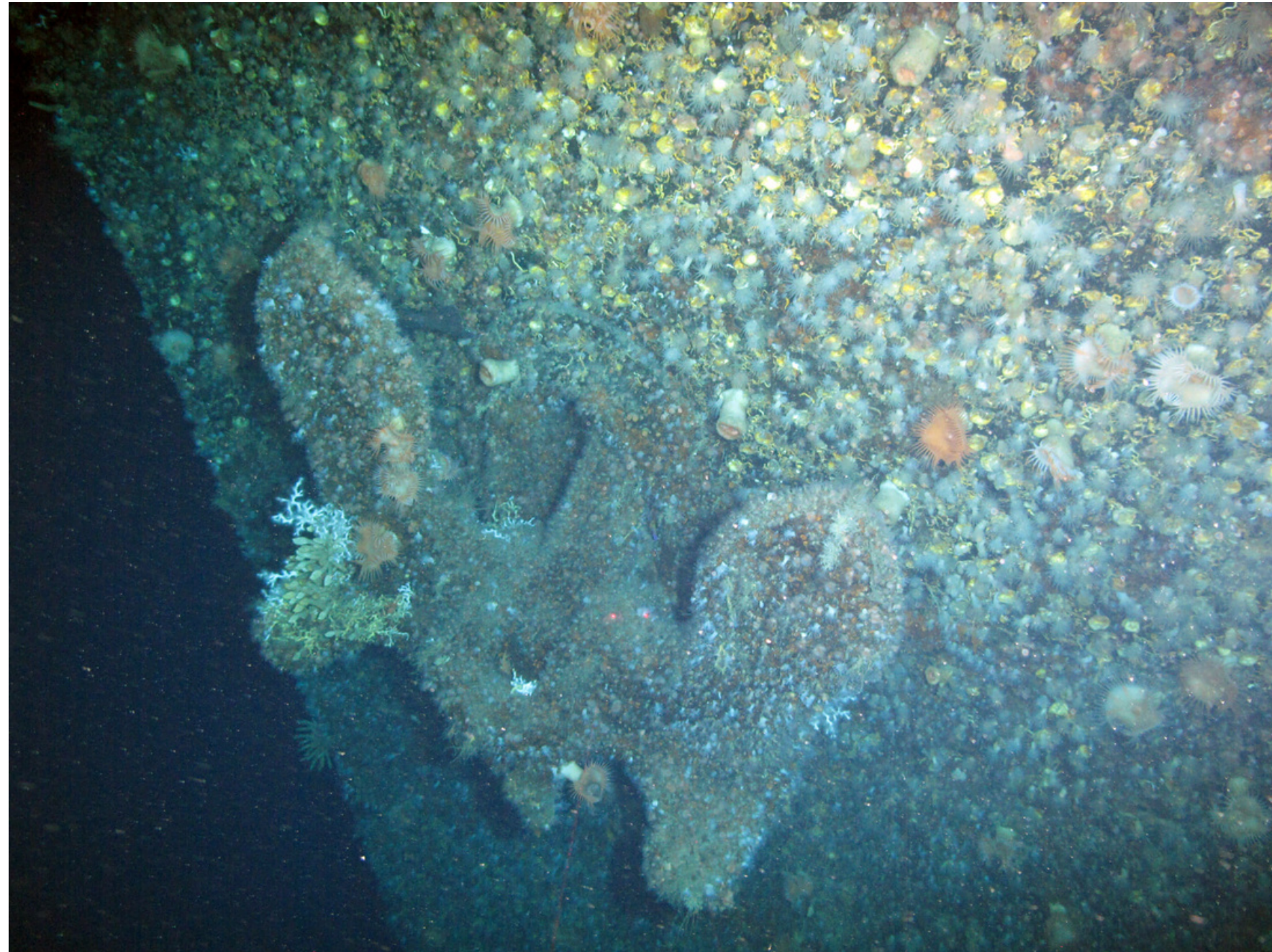


- ✿ 43 dives at 36 stations for a total of 99 hours of bottom time
- ✿ 345 samples collected
- ✿ 21,146 digital still images documented habitat and species.
- ✿ 7,248 transect images used for percent cover and density of benthic biota
- ✿ 110 hours of HD video footage used to document species composition and density of fish



MISSION HIGHLIGHT - 'Snowy Grouper Wreck' Identification

A mystery wreck 60nm offshore of the Carolinas, commonly referred to as the 'Snowy Grouper Wreck' was recently identified as the tanker *Doris Kellogg*.



- ⚙ As the ship sits in the Gulf Stream, the high currents have made exploration of the wreck extremely difficult
- ⚙ The ship sank in 1932 and hasn't been unidentified until 2023
- ⚙ Photos taken by the MOHAWK ROV were what made the identification possible





Thank you!

 www.uncw.edu/uvp

 [UNCWUnderseaVehiclesProgram](https://www.facebook.com/UNCWUnderseaVehiclesProgram)

 [uvp.uncw](https://www.instagram.com/uvp.uncw)

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