

ANUANUA MOANA - VESSEL OVERVIEW

January 2025



KIVA MARINE LIMITED

VESSEL CHARACTERISTICS

MV ANUANUA MOANA – Scientific exploration and research vessel



Built : 2007

Converted : 2022

Length overall : 61m

Beam : 15.8m

Draught : 4.8m

Draught with gondola : 6.1m

GRT : 2163 t

Flag : Cook Islands

Class : Lloyds Register

DP : DP1

Berthing : 42 persons



VESSEL DATA



- 2 x Wartsila 9L20 engines (1800kW each)
- 2 x shaft generator (1MW each)
- 800kW bowthruster, 500kW sternthruster
- Fuel : Marine Gas Oil (low sulphur) – 468mt
- Maximum speed : ~ 10kts (~9 mt/day)
- Economical speed : ~7 kts (~7 mt/day)
- DP mode : 4-5 mt / day
- Idle in port : 0.9 mt / day
- RO Plant
- Sealed ballast system
- Deck strength 5mt / m²
- Starlink internet connection



AFT DECK LAYOUT



A frame

Box core

4t Crane

Reefer

Deck work
area

Geo Lab

Stored samples

FFG

ROV
A frame

ROV hoist
winch

ROV

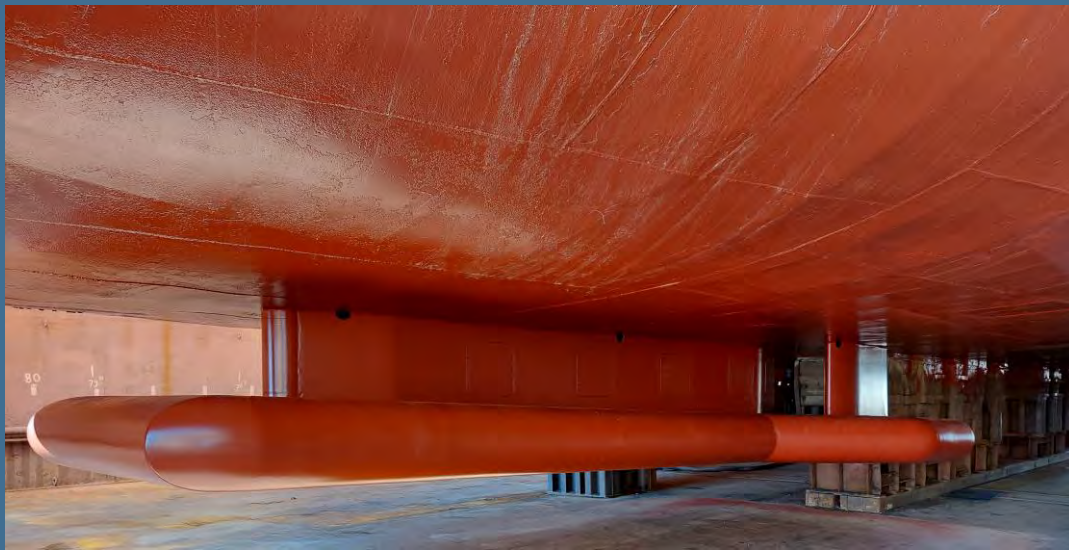
Bio Lab
(under)

Chem Lab
(under)

SURVEY EQUIPMENT – SONAR SUITE



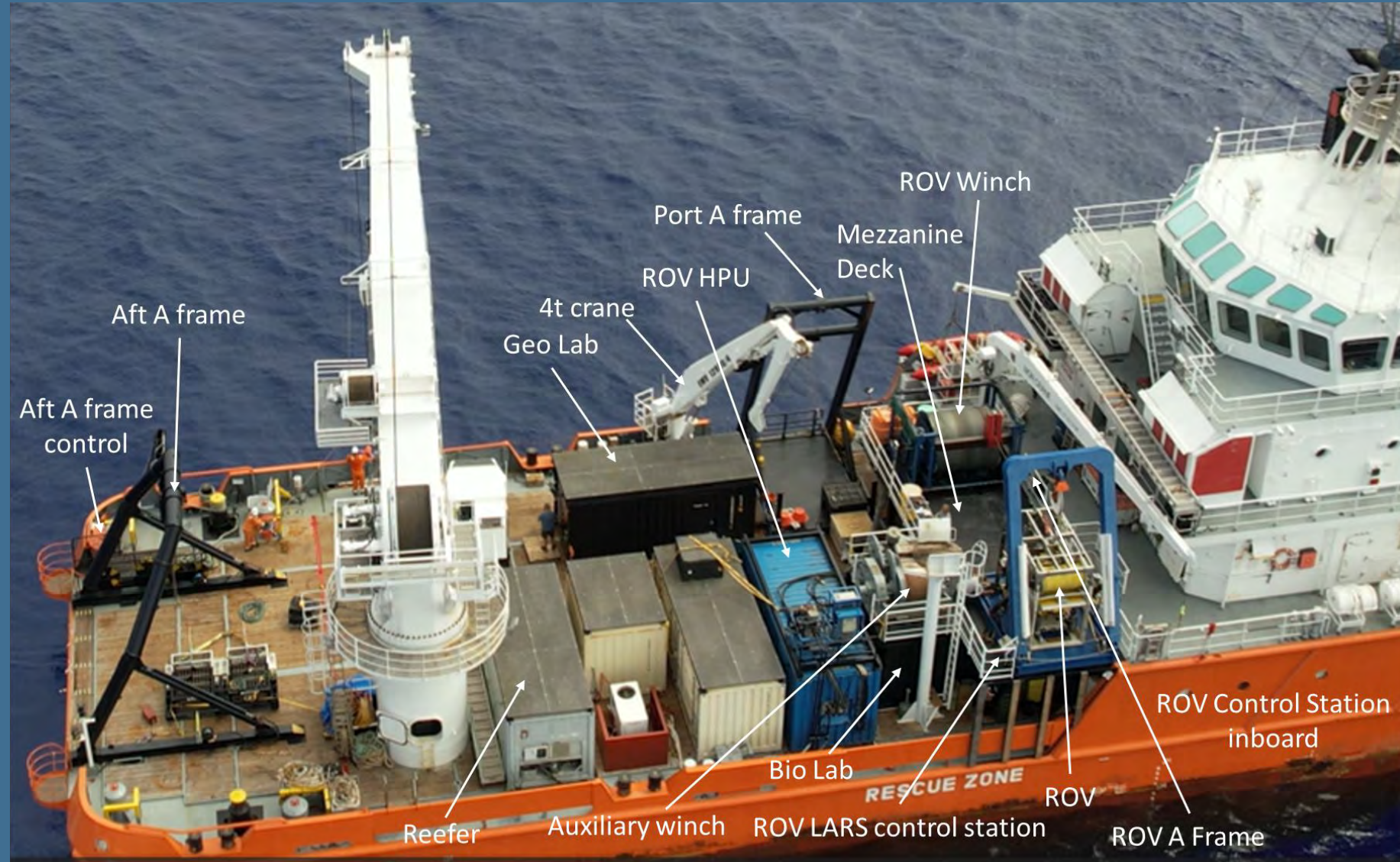
- Kongsberg EM304 Mk II deep water MBES, 20-32kHz (7 – 9km swath @ 5000m)
- Kongsberg EM2040 shallow water MBES
- SBP 29
- EK80 scientific wideband echo sounder (6 frequency)
- Navigation sensing – Seapath 380 DGNSS
- Processing – Qinsy; Caris
- Underwater positioning : Sonardyne Ranger 2



Main Deck



- ~180m² work area
- 10t A frame aft
- 2 x tugger winches
- 2 x pulpits
- 8t A frame port
- 4t crane port side
- 30t crane, 5t aux hook
- Lighting, power, sea water, fresh water



DECK OUTFITTING



- Reefer (with 2 x -80°C and 2 x -40°C freezers)
- Chiller and 4°C chilled water circuit for labs
- Workshop / deck storage
- Storage areas on tops of containers



LABORATORIES

Geology Lab



- Outdoor camera jig for BC top imagery
- Two sinks with running filtered ambient seawater
- Outdoor sieving tables, with sinks and running filtered ambient seawater
- Shear vane instrument and laptop
- Weight scale and standard weights
- Counter space and sieving trays for sample sorting
- Data entry workstation
- Square board for nodule counting and measurement
- Photography stand, scale and colour scale
- Racks for stowing MC tubes
- Oven for drying samples



LABORATORIES

Chemistry Lab



- Sample sorting and preservation work areas.
- Data entry workstation
- Fume hood
- Milli-Q water filtration system
- Filtered, chilled seawater
- Filtered fresh water
- 5cm core extruder
- Water and sediment sampling chemicals and consumables in hazardous materials container



LABORATORIES

Biology Lab



- Environmental sample sorting and preservation work areas.
- Data entry workstation
- 10cm core extruder
- Microscopy station
- Filtered, chilled seawater
- Filtered fresh water
- Photography stand.



WINCHES



Aft A-Frame & Levelwind winch

- Dynacon 421 Levelwind
- 3.5t line pull (based on fitted HPU)
- ~50m/min max rope speed (top layer)
- 10,000m of 14mm Dyneema rope
- Rope
 - 19t Breaking Capacity
 - 5.5t SWL (3x Safety Factor)



Port A-Frame & Auxiliary winch

- Markey DESH-5
- 5t line pull
- ~100m/min max rope speed (top layer)
- 6,500m of 9mm Dyneema rope
- Rope
 - 8.9t Breaking Capacity
 - 2.6t SWL (3x Safety Factor)



OPERATIONAL SPACES



Online Survey Office

- Sonar Suite displays
- Survey station – Qinsy, QGIS, operational data
- ROV Control Station
- CCTV



Offline Survey Office

- Operational office
- Space for 5 workstations (processing)
- Big screen TV
- Conference table
- Teleconferencing



REMOTE OPERATED VEHICLE

Comanche 6000 Observation ROV

- 6,000-meter rated remote operated vehicle
- One seven-function manipulator arm
- One five-function manipulator arm
- Tether management system
- LARS rated to 9.7 tons
- Winch with 6.4 km of $\frac{3}{4}$ -inch umbilical (7 fibre / 3 copper)
- Hydraulic Power (415V/3 Phase system)
- Underwater camera systems Interfaces to accept supplemental equipment such as power, hydraulics, and communications
- Control system featuring navigation & station keeping, hand control unit & graphical user interface, power management & protection, system condition monitoring and diagnostics



SAMPLING EQUIPMENT

Freefall Grabs



- 8 x De Meyer 0.16m² grab
- Float assembly (rated 6000m)
- Radar reflector
- GPS
- Strobe
- Mounting for camera & CTD
- Galvanic fuse



SAMPLING EQUIPMENT

Boxcore



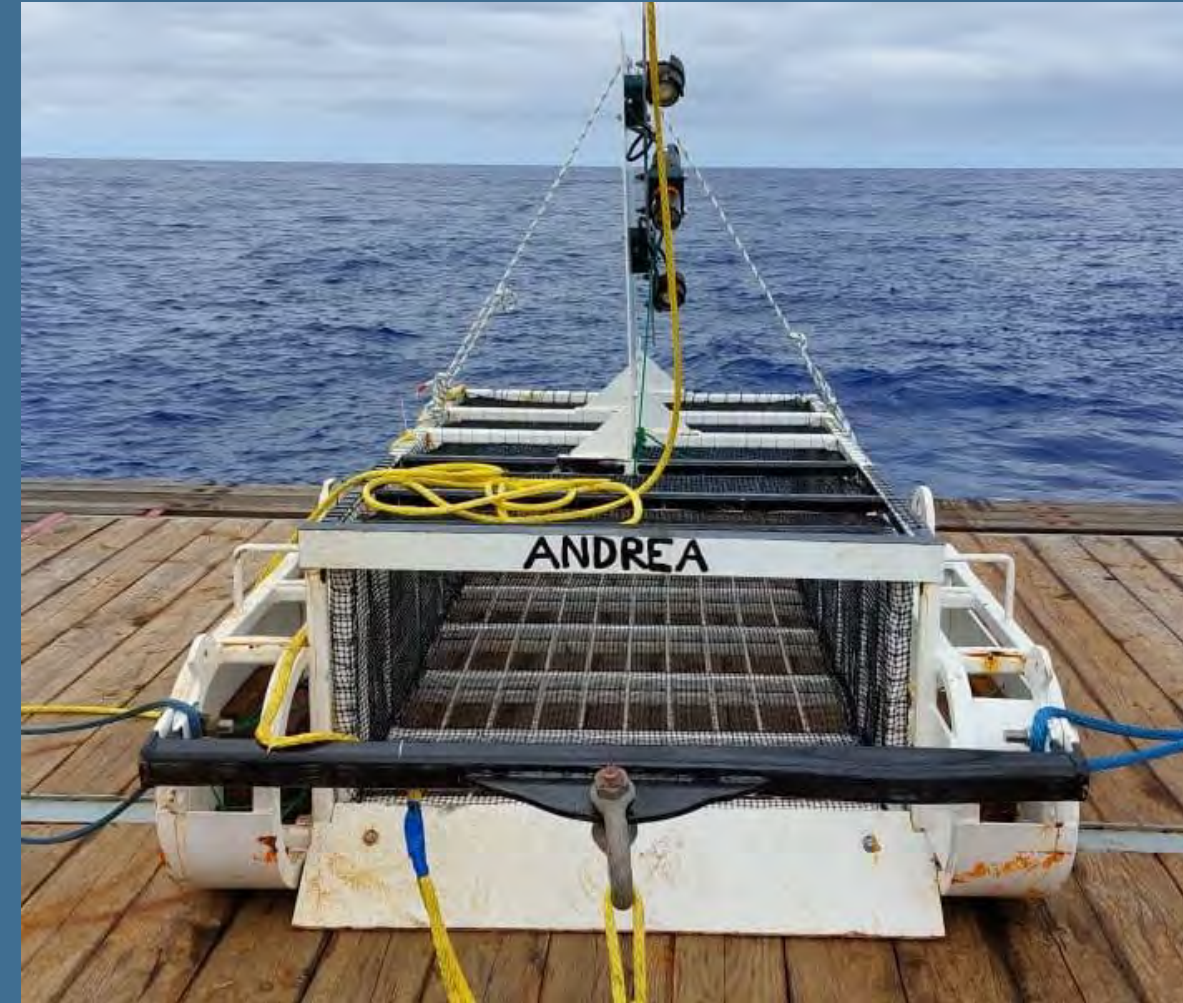
- 2 x Ocean Instruments BX-750
- 0.56m² box (75 x 75 cm)
- ~60cm deep
- Mounting for camera & CTD
- Trolley to move box



BENTHIC SLED



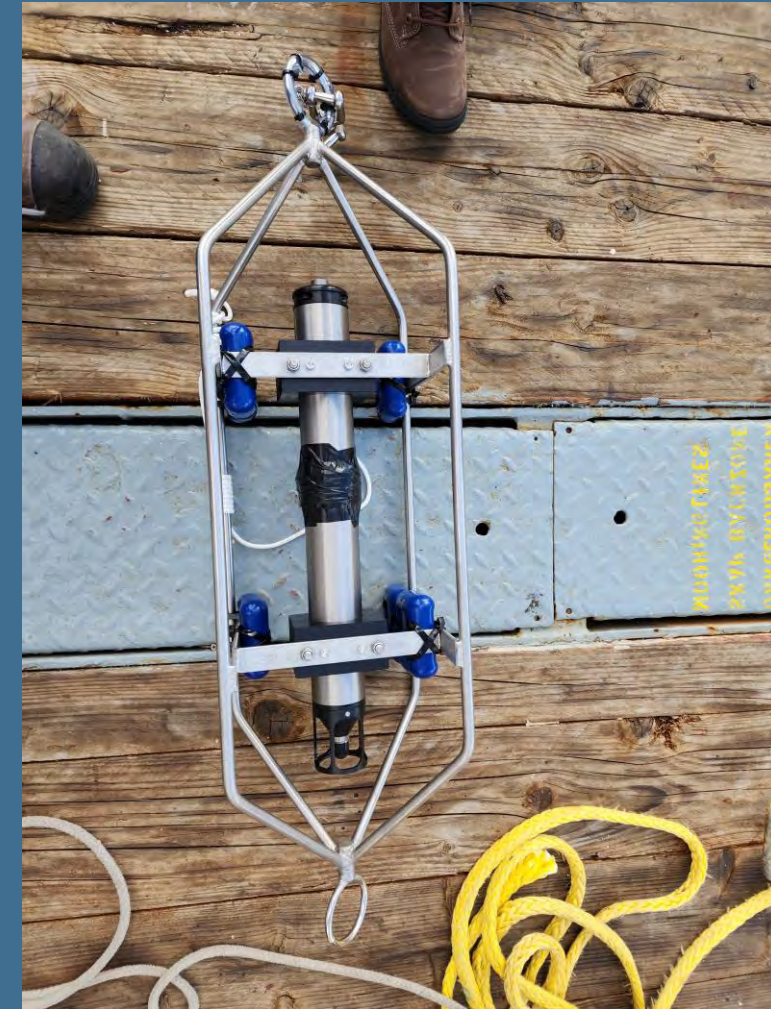
- 2 x Purpose designed tubular framed sled – deployed in CCZ and CI
- 1050mm (wide) x 500mm (high) x 1850mm (length).
- Internal volume 0.97m³
- ~750kg bulk sample
- Single configuration



DRIFTING HYDROPHONE



- Ocean Instruments ST500HF
- Deployed to 450m depth
- Depressor plate

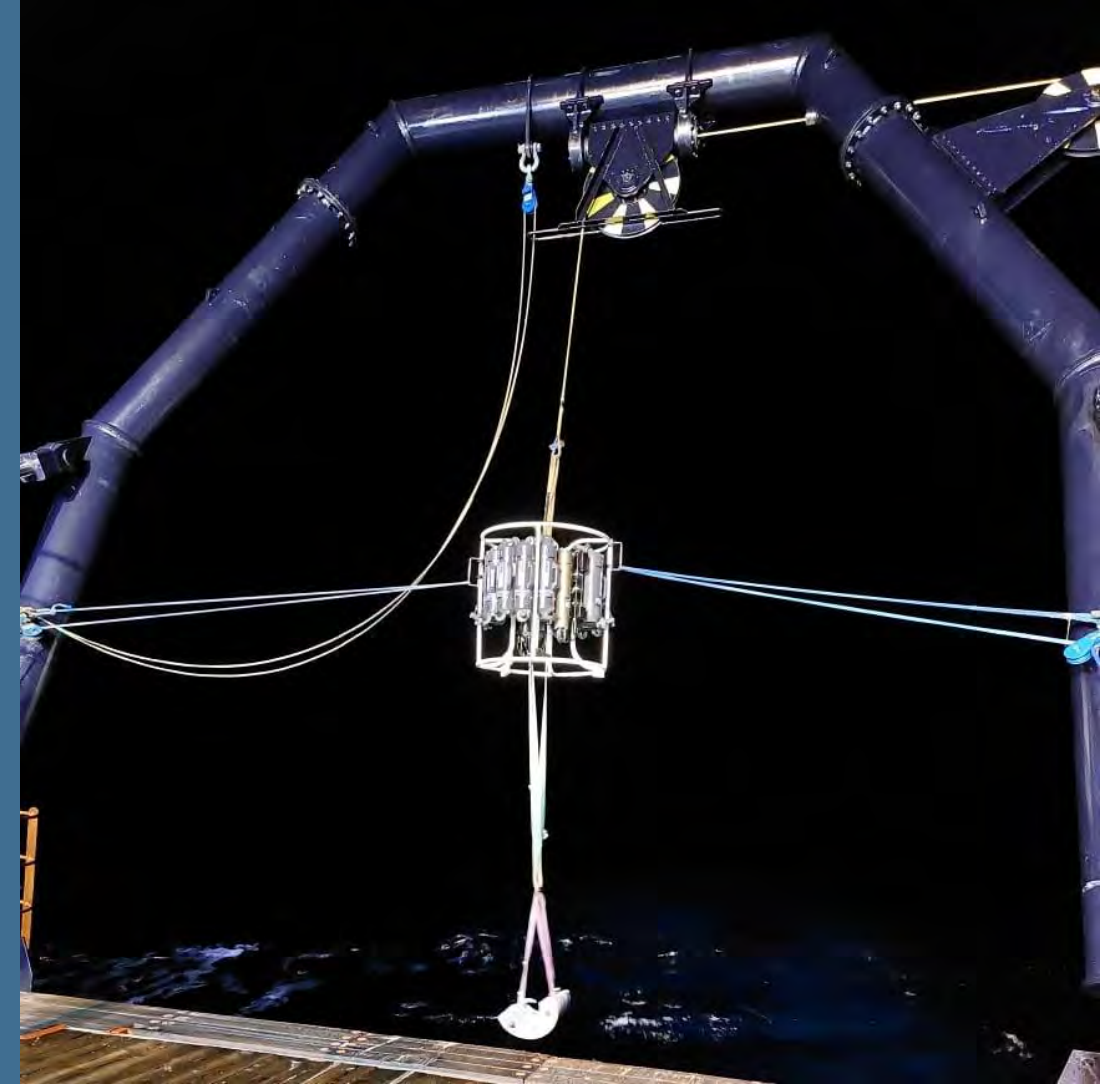
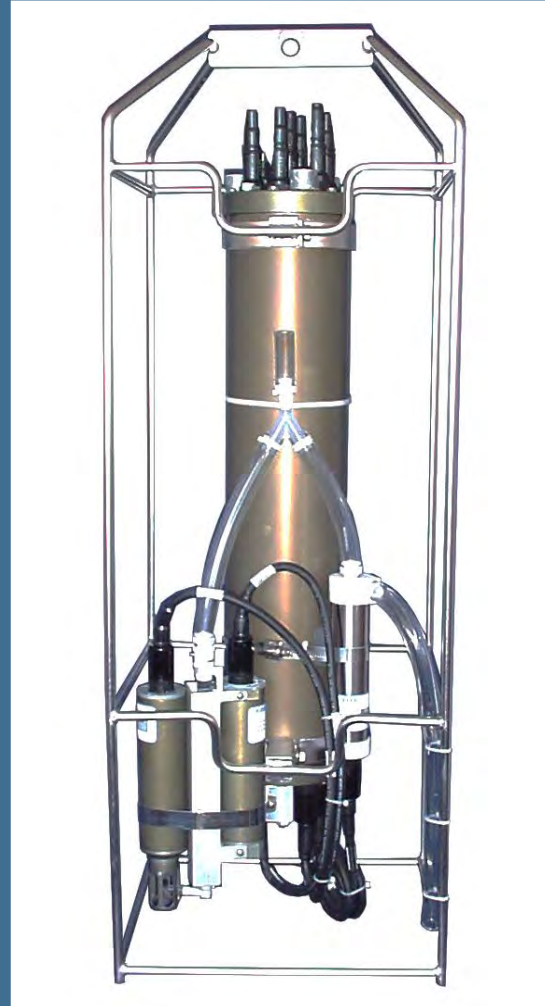


ROSETTE

Carousel and CTD



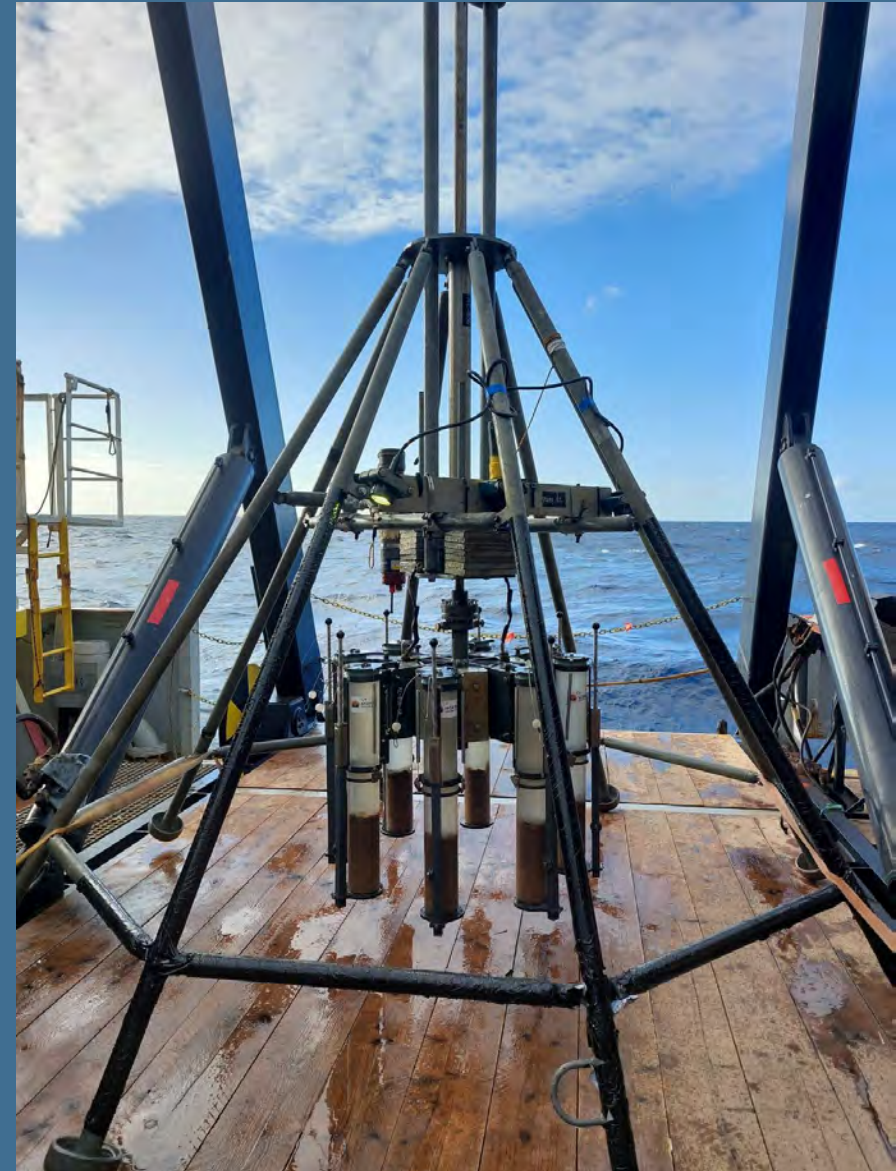
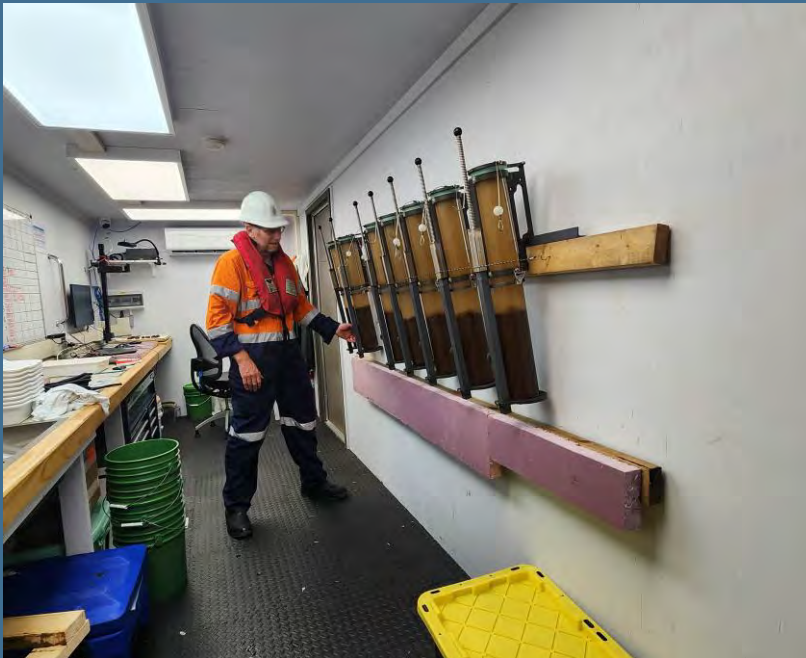
- 24 and 12 bottle rosette
- 1 x Seabird 911Plus CTD
- Water chemistry –
 - Dissolved Oxygen Sensors
 - Ultraviolet Fluorometer
 - Chlorophyll Fluorometer
 - pH Sensor (1,000 meters)



MULTICORER



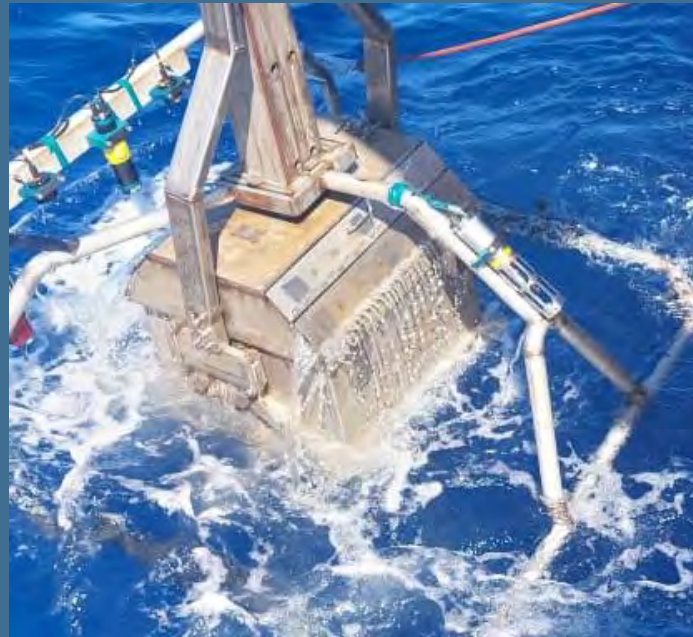
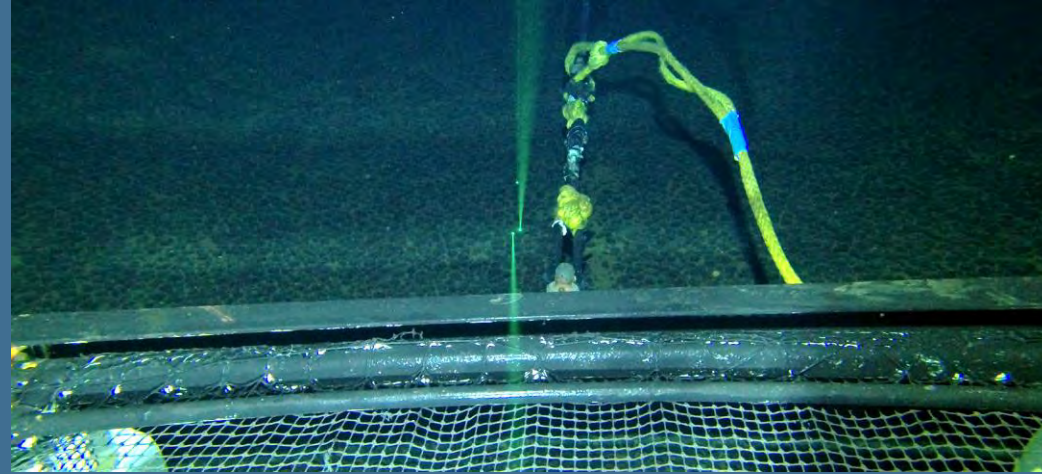
- 1 x MC800 multicorer
- 8 tubes
- 100mm diameter
- Tube storage rack in Geo lab



SCIENCE PACK For FFG, ROV and BC deployments



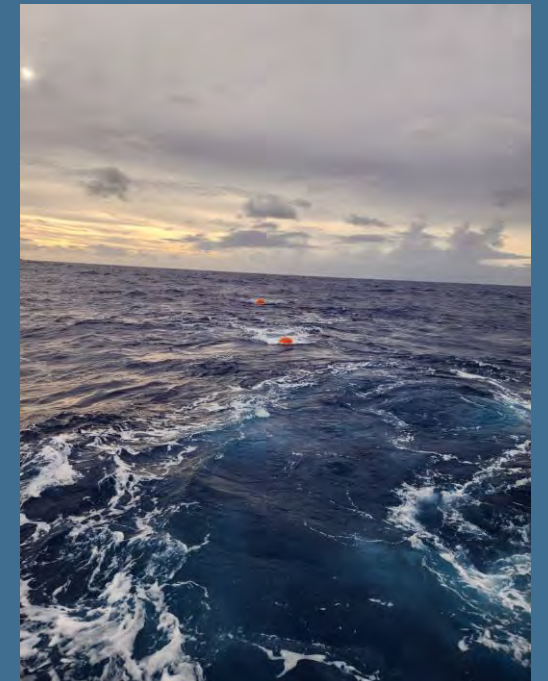
- HD Cameras (Still and Video)
- Lights (3,000 lumens)
- Green Lasers (for scaling – course and fine)
- AML CTD Profiler



MOORING ARRAY DEPLOYMENT AND RECOVERY



- 5t winch (option)
- Electronics workshop to program instruments
- Deck space to pre-position instruments



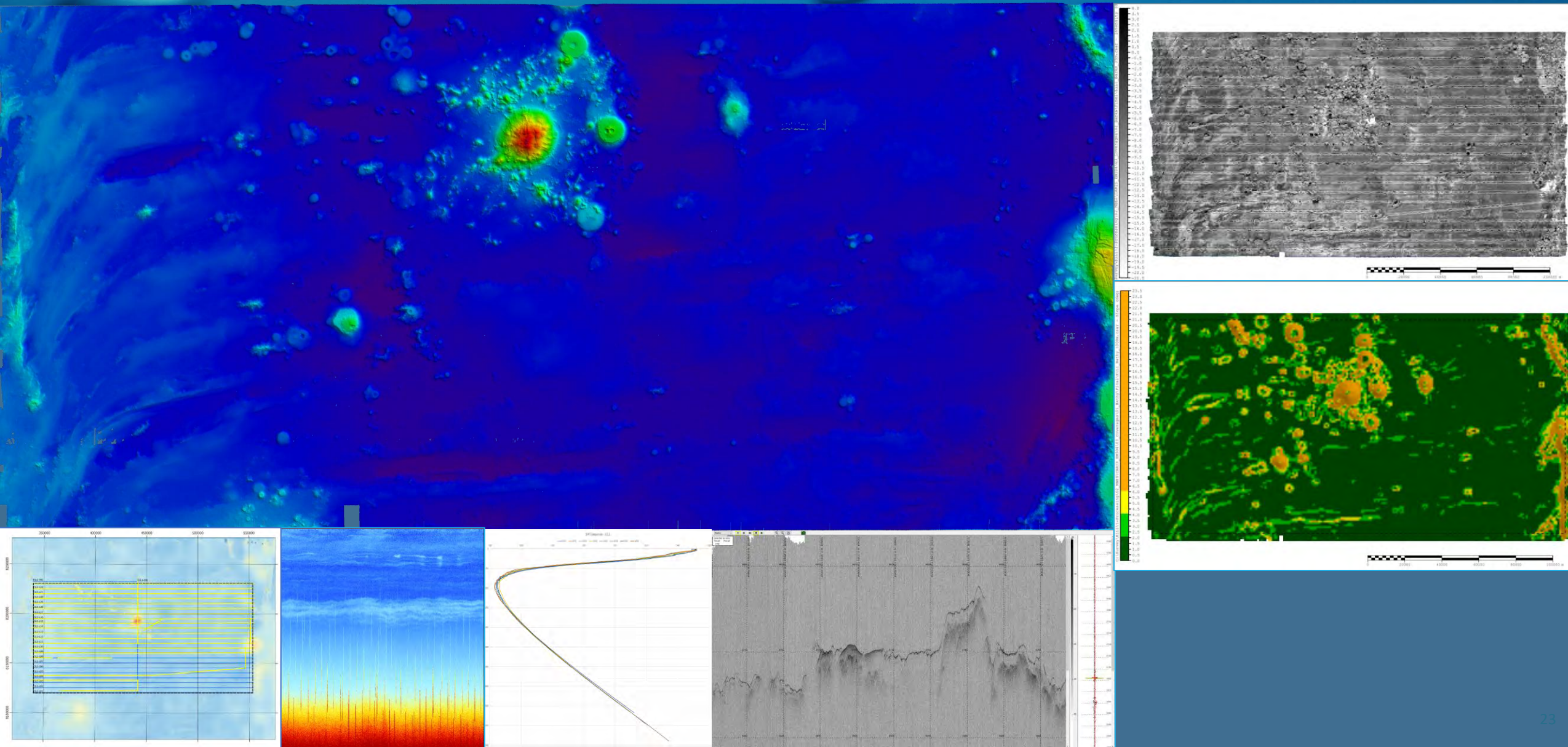
ACCOMMODATION



- Berthing for ~25 science personnel
- Single and double cabins
- Recreation space
- Outdoor gym
- Internet for social contact (Starlink & KVH)



MULTIBEAM SURVEY



EXPLORATION ACTIVITIES

