

R/V LAURA BASSI

Vessel description

The RV icebreaker Laura Bassi, formerly known as E. Shekleton and Polar Queen, was acquired by OGS in 2019 to increase and extend its research capabilities in the polar areas and to support the Italian National Antarctic Research Program (PNRA).

After her first Antarctic campaign conducted in the Ross Sea in 2019-2020 within the framework of PNRA project, the vessel is now about to undergo a refitting, aimed at increasing her research capabilities that will be done New Zealand in November 2020,

A series of transducers will be installed on the hull to implement and improve the geophysical, biological and oceanography research activities:

- two multibeam echosounders for shallow and deep water surveys;
- a sub bottom profiling system for the study of the subsoil up to few tens of meters;
- an acoustic doppler current profiler;
- a fishing echosounder to locate and map the biomass.

As for the decks equipment, a CTD winch and a streamer winch will be installed in the B-Deck sheltered area (Table 5 of this document), and a Coring winch will be installed on the starboard side of A-Deck (Table 4 of this document), to perform gravity and piston corings.

RVIB LAURA BASSI	
Yard	Kverner Kleven Leirvik, Norway
Built	1995
Flag	Italy
Call sign	ZDLS1
IMO No.	9114256
Owner	National institute of Oceanography and Applied Geophysics - OGS
Operator	Argo Diamar



RV icebreaker Laura Bassi



CLASS NOTATION

RINa C
special service - research ship - unrestricted navigation
AUT-UMS; DYNAPOS DP2 ; HELIDECK
ICE CLASS IA; WINTERIZATION (temp -30 °C)

PRINCIPAL DIMENSIONS

Length O.A.	80.00 m
Length B.P.	72.40 m
Breadth mld.	17.00 m
Depth mld. (to B-deck)	8.55 m
Draught Scantl.	6.85 m
DWT	1910 tonnes
GRT	4028
Port of registry - No	Trieste - 807

CAPACITIES

Fuel Oil	1250 m ³
Fresh Water	165 m ³
Kerosene (Jet A1)	160 m ³

MACHINERY AND PROPULSION

Main Engines

Make	Bergen Diesel
Type	BRG 6
Rated Power	2 x 2280 kW @ 720 rpm

Main propulsion

C/P Propeller:	1 o# in Nozzle
Make	Ulstein
Blades	4
Bollard pull	100% pitch - 75 tonnes
	75% pitch - 62 tonnes
	50% pitch - 44 tonnes

Auxiliary Engines

Make	Mitsubishi
Type	S6R-MPTK
Rated Power	2 x 590 kW/1800 rpm

THRUSTERS

Bowthruster 1	600 kW
Bowthruster 2	800 kW
Azimuth fwd	800 kW (retractable)
Sternthruster 1	600 kW
Sternthruster 2	600 kW

ROLL REDUCTION

2 x integrated roll reduction tanks

HIGHLIGHTS FOR CHARTERER'S SPECIAL USE

Water supply:

- Uncontaminated sea water supply
- Freshwater production: 2 x 25m³ Fresh Water Production

Hydraulic Power Pack:

- 2 x 120 ltr/min – 210 Bar, outlets in cargo holds and on deck

Gate Valve:

- DN400 (16") in fwd HPR trunk

Utility SWB:

Utility SWB's in engine work shop

Utility SWB no1, 450V - 630 A / Conn. 2 x 100A, 2 x 250A and 1 x 600A

Utility SWB no2, 450V - 630 A / Conn. 2 x 100A, 1 x 250A and 1 x 600A

Distribution boxes in cargo holds and aft deck:

Total 450 V - 320A (each box 160 A)

Total 230 V - 160A (each box 160 A)

ELECTRICAL PLANT

Shaft Generators

Make	AVK
Rating	2 x 2 200 kW

Auxiliary Generators

Make	Mitsubishi
Rating	2 x 590 kW

Emergency Generators

Make	Mitsubishi - AVK
Rating	1 x 152 kW, 3 x 450 V, 60 Hz

Emergency generator

El. Distribution

440 V, 230 V and 110 V all 60 Hz



WORKSPACE AND DECK AREAS

Tank top:	
Distributed load	5.3 t/m ²
Container loads	3 tiers 20 TEU max stack weight 72 t
Cargo handling vehicles with max axle load 15 t and single pneumatic tyres.	

C-Deck cargo area:	
Distributed load:	1.65 t/m ²
Cargo handling vehicles with max axle load 15 t and single pneumatic tyres	

B-Deck aft deck	
Distributed load	5.0 t/m ²

A-Deck	
Distributed load	1.65 t/m ²
Container loads	1 tiers 20 TEU max weight 24t
Cargo handling vehicles with max axle load 15 t and single pneumatic tyres	

DECK EQUIPMENT

Main Crane	
Maker:	Norlift
Type	GPCO 900 – 5020 straight boom
Design	LRS, Ch. 3 Section 2
Specification	

Capacity	Outreach	Seastate	Fall	Hook speed loaded	Hook travel
50t	20m	NA	Four	8 m/min	62m
50t	10m	1	Four	8 m/min	62m
50t	8.4m	2-3	Four	8 m/min	62m
34t	8.4m	5-6	Four	8 m/min	62m
25t	20m	-	Two	16 m/min	125m
12.5t	21m	5-6	Single	32 m/min	250m
Aux 5t	19m	NA	Single	60 m/min	40m

Work Crane	
Maker	Norlift
Type	GPFO 160 – 0510 folded jib crane
Design	LRS, Ch. 3 Section 2
Specification	

Capacity	Outreach	Seastate	Hook speed empty	Hook speed loaded	Hook travel
5t	10m	6	90m/m	37m/min	35m

Provision crane	
Maker	Norlift
Type	GP
Specification	2 t / 7 m

Aft deck crane	
Maker	Norlift
Type	Telescopic boom
Specification	10 t / 5m
Winch capacity	2.75t
hook travel	15 m

Hatches	
A-deck	14 x 6 m
B-deck	14 x 5.4 m (flush)
Helideck	7 x 6 m (flush)

HELIDECK	
D-Value	19.5 m
Make take off and landing wight	Designed for Super Puma

MANOEUVRING, NAVIGATION AND COMMUNICATION

Dynamic Position System:

- Kongsberg K-Pos 21 + CJOY Remote Joystick
- Simrad LTW MK 8-15S Modified (500m)
- Seatex Seapath 200
- Seatex DPS 132
- STARFIX RTCM Correction Receiver
- MBX-4 IALA RTCM Correction Receiver
- MDL Fanbeam MK 4.2 Position Sensor
- HPR HiPAP 501
- HPR 410 Standard
- Interface to APos System
- Interface to DGPS NO.2
- 3 x Seatex MRU-5
- 3 x Anschutz Gyro
- Serial NMEA outputs Available
- Dief Wind Sensor Anemometer – 879
- 2 x Gill Sonic DP Wind Sensor
- Rudder, Thruster & Propulsion Control
- Propulsion Control
- Rudder Control
- Thruster Control
- ERN 99, 99, 96



Navigation

Integrated Bridge System – Kelvin Hughes IBS Paperless Bridge

- Kelvin Hughes IBS
 - Kelvin Hughes - X Band Manta Digital Radar
 - Kelvin Hughes - S Band Sharpeye Radar
 - Kelvin Hughes MDP-A2-ABAA ECDIS System (not certified)
 - Bridge Watch Monitoring System
 - 3 x Anschutz STD 20 Gyros
 - Skipper GDS 101 Echo Sounder
 - Kelvin Hughes MDP-A1 Slave radar
 - Furuno Doppler Current indicator CI-600G
 - Kelvin Hughes MDP-A2 Route Planning Station
 - DGPS 1 - Furuno GPS90 GPS/ Seatex DPS 123
 - DGPS 2 - Seatex Seapath 200
 - Kelvin Hughes SEM 200 Autopilot
 - Sperry Naviknot 350 E Speed Log
 - Seatex HMS 100 Helicopter Motion and Weather
 - Helicopter Transponding System
 - Maneuvering Joystick System: Ulstein PosCon
 - Navigation Information Network - ADB / LAN
- 1 X Becker Rudder Tenfjord Steering gear

Scientific Bridge Equipment

- Simrad EA 600 Hydrographic Echo Sounder
- AME 2006 Shipbourne Three Component Magnetometer
- Automatic Weather Reporting Station
- UK Meteorological Measuring Equipment

Navigation Information Network

LAN: 4 access CISCO switch working at ISO/OSI level 2

1 CISCO switch level 3 + 1 Palo Alto Firewall

WiFi: 6 access point - one for each bridge and in the dry lab.

COMMUNICATION

Communication and Radio Equipment including GMDSS for Area 4

- Console N
 - HF Radio 2
 - Taiyo Auto RDF
 - Watch Receiver
 - Weather Fax
 - Console Q1
 - Sailor Inmarsat C - LRIT Compliant
 - HF Radio 1
 - Console Q2
 - Console C
 - VHF No. 1
 - Console A
 - Broadgate S-VDR
 - Console G
 - Kelvin Hughes UAIS
 - Console R2
 - VHF No. 2
 - Console R3
 - VHF No.3
 - Helicopter Beacon
 - Aeronautical VHF
 - Console M
 - LP2 Domestic Supply
 - EMP2 Emergency Switchboard Supply
 - UPL1 Eaton 3KVA MKV
 - UPL2 Eaton 3KVA MK
- Immarsat Fleet 77 Satellite Communications
- VSAT C-band Satellite Communications
- Iridium Certus Satellite Communications
- Immarsat FleetBB Satellite Communications (Optional)

ACCOMODATION

High standard accommodation comprising facilities such as: Reception area, ships office, change room, recreation area, trim room, sauna, mess, TV/Crew dayroom, charterer's lounge, launderettes, laundry, client office

Crew: 24 berths

Available for charterers

2 single client rep. cabin = 2

4 cabins x 2 berths = 8

9 cabins x 3 berths = 27

6 cabins x 4 berths = 24

Total 61 berths

All cabins with toilet and shower

Hospital: 1 berth

LIFESAVING AND RESCUE EQUIPMENT

Lifesaving and rescue equipment according to SOLAS

Life boats: 2 x Harding MCB24CR - 40 persons

Life boat davits: 2 x Vestdavit H-7000

M.O.B. Boat: 1 x Norsafe Magnum 7.5

M.O.B. Boat davit: 1 x Vest Davit P-3000, with shock damper.

Life rafts: 8 x RFD (each 20 men).

Survival suits: 80 off

Lifejackets: 80 off

EEBD's: 6 off

Smoke Hoods: 38 o# (2 per SPP Cabin)

Fire Extinguishing:

Accommodation	Flexifog Fixed Fire Dampening System CO2, Dry Powder and AFF Extinguishers
Galley, Paint store, and Sw Board	CO2
Cargo Holds	AFF Hi Ex Foam
Engine Room	AFF Hi Ex Foam
Helideck	AFF Low Ex Foam



Double berth cabin.



Fire estinguisher in the kitchen.



Mess room, B-Deck



Mess room, B-Deck



TV Lounge, B-Deck



Day room 2, B-Deck



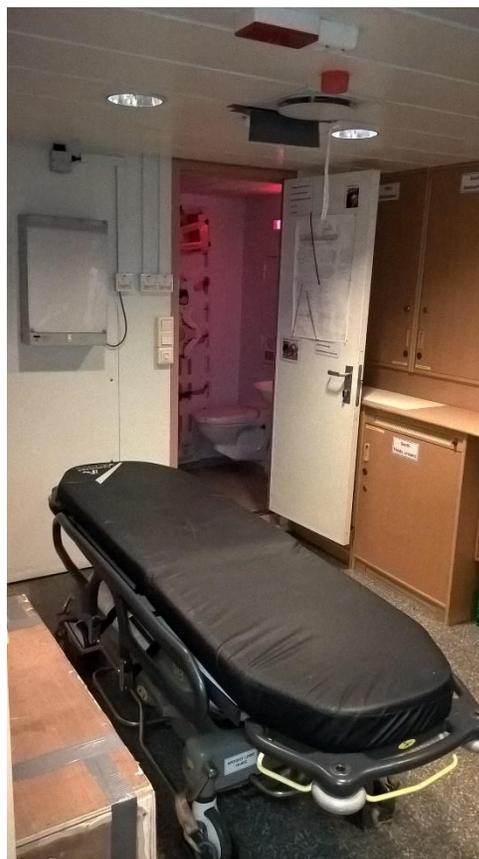
Client office, 1st Bridge Deck



Party chief cabin, 1st Bridge Deck



Double berth cabin, A-Deck



Laundrette (on the left) and hospital (on the right), A-Deck



Dry lab, B-Deck



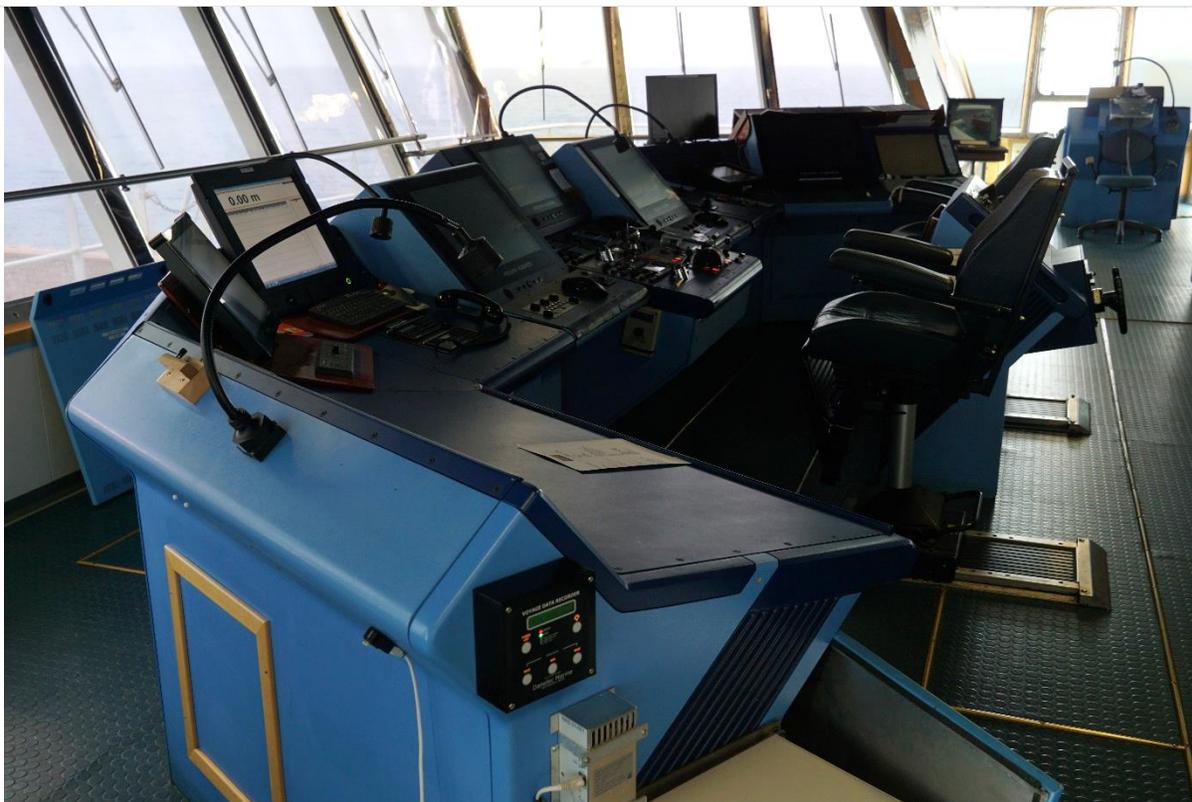
Dry lab, B-Deck



Wet lab, B-Deck



Wet lab, B-Deck



Bridge, 3rd Bridge Deck.



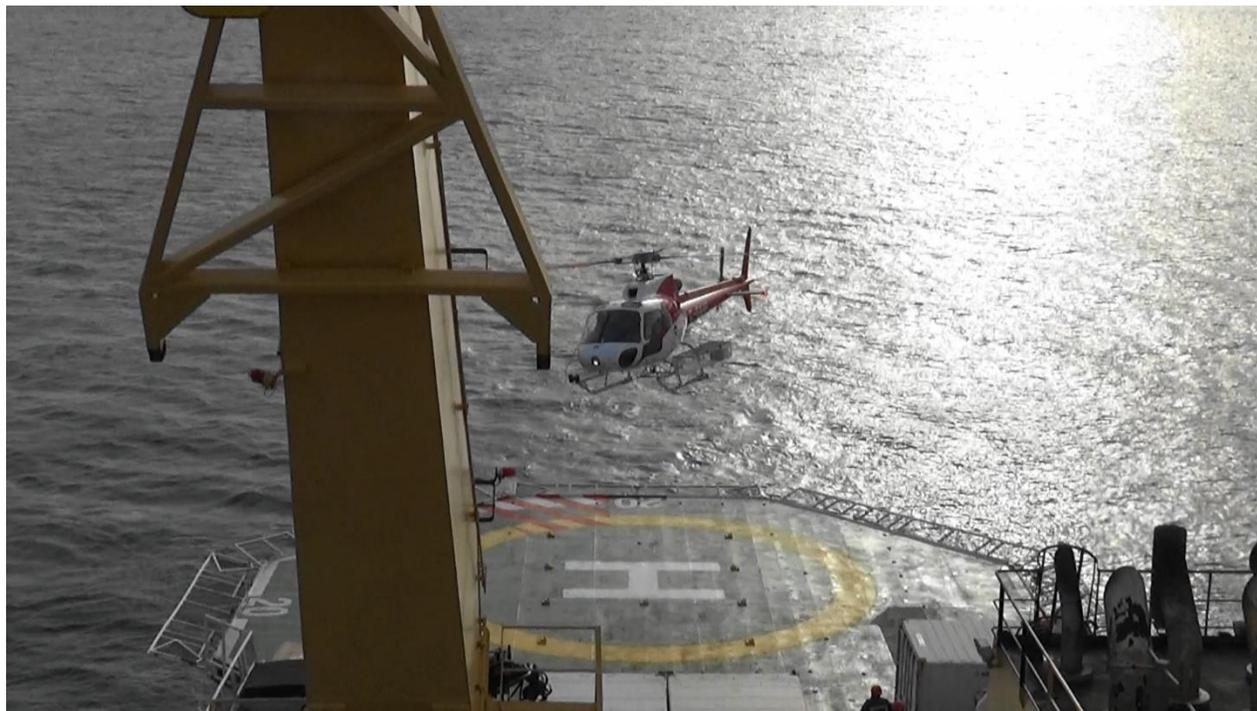
Control room, B-Deck.



Sediment trap recovering by means of the telescopic boom crane in the sheltered area, B-Deck.



CTD rosette deploying from the sheltered area, B-Deck.



Helicopter landing on the heli-deck, Terranova Bay (Ross Sea, Antarctica).



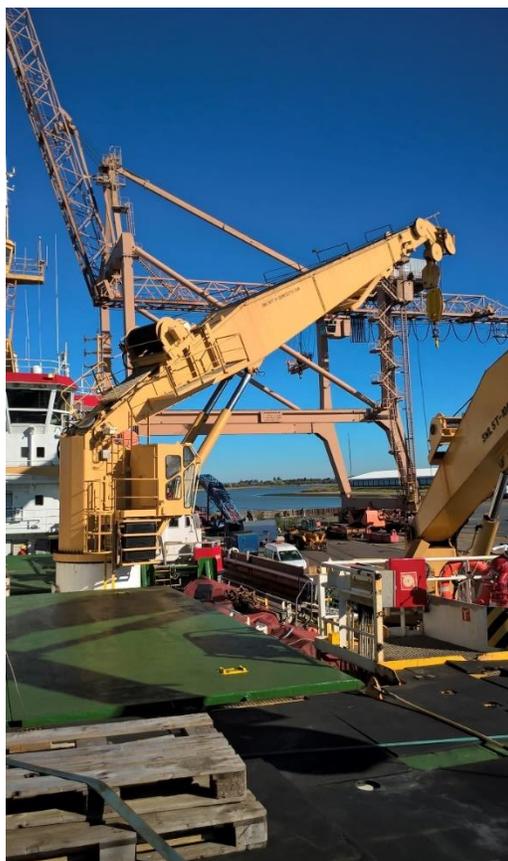
Telescopic boom crane and sheltered area.



The RV Laura Bassi from the stern. The main Crane is visible on the starboard side. The telescopic boom crane is also visible in the sheltered area.



Work crane, A-Deck.



Main crane (on the left) and main cargo hold from above (on the right).



Cargo operations in Terranova Bay (Ross Sea, Antarctica) to supply the PNRA Mario Zucchelli Station, February 2020.



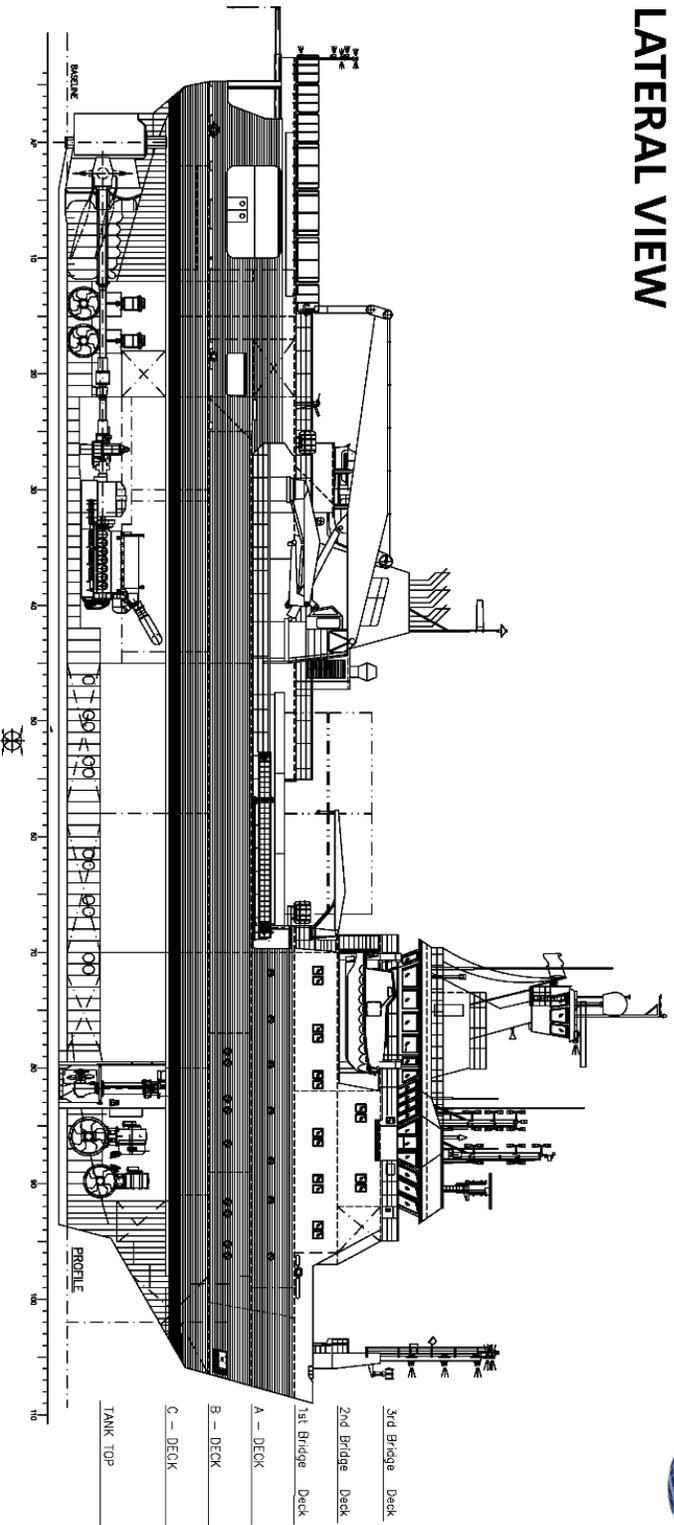
Main Cargo Hold, C-Deck.



Lower cargo hold, Above Tank Top.

RVIB LAURA BASSI
GENERAL ARRANGEMENTS

LATERAL VIEW



MAIN SPECIFICATIONS

NAME: LAURA BASSI
OWNER: OGS
CLASS NOTATION: ICEBREAKER ICE 05
YEAR BUILT: 1995

MAIN DIMENSIONS

LENGTH O.A.: 80 m
LENGTH B.P.: 72.4 m
BREADTH: 17 m
DEPTH MLD. B-DECK: 8.55 m
DRAUGHT MLD. TO DWL: 6.35 m
DRAUGHT SCANTL.: 6.85 m

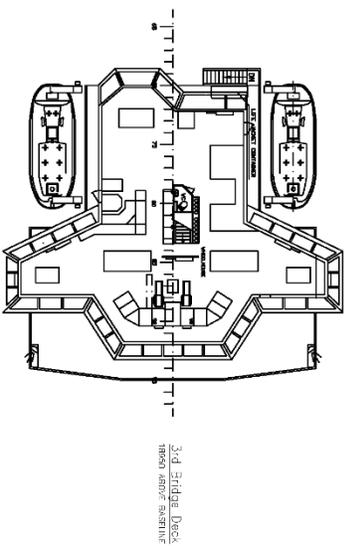
ACCOMMODATION

GROSS TONNAGE: 4,028 tons
CARGO HOLD: 3,000 m³
DYNAMIC POSIT.: DP2
MAX ENDURANCE: 60 days
ENGINE POWER: 2 X 2,650 kW
FUEL: MGO

CABIN: 37
SCIENTIFIC CREW: 50
MARINE CREW: 22
HOSPITAL: 1
TV LOUNGE: 1
DAYROOM: 2

Table 1

3rd BRIDGE DECK



2nd BRIDGE DECK

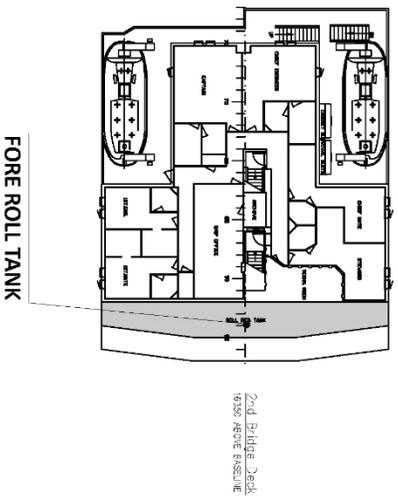


Table 2

1st BRIDGE DECK

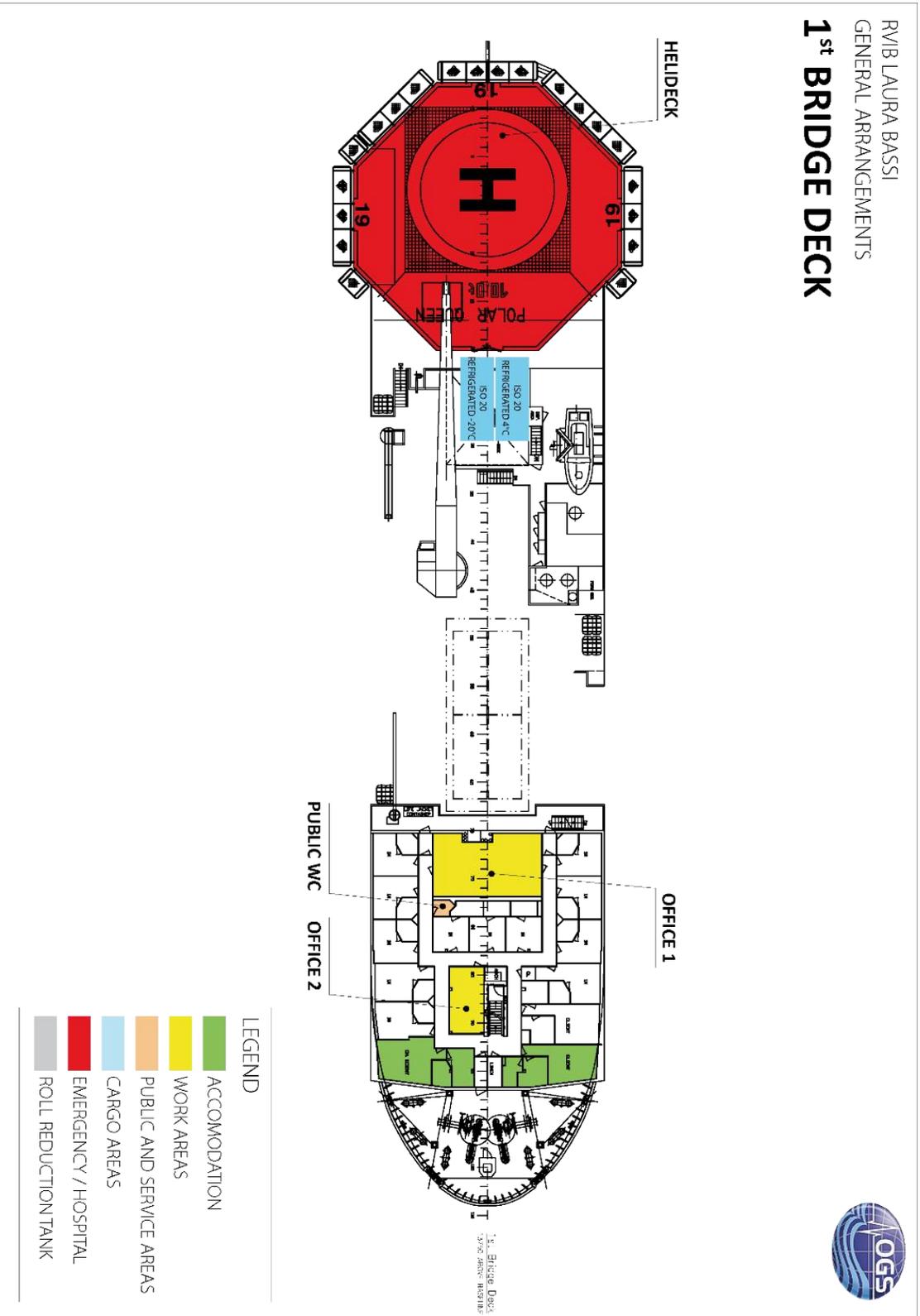
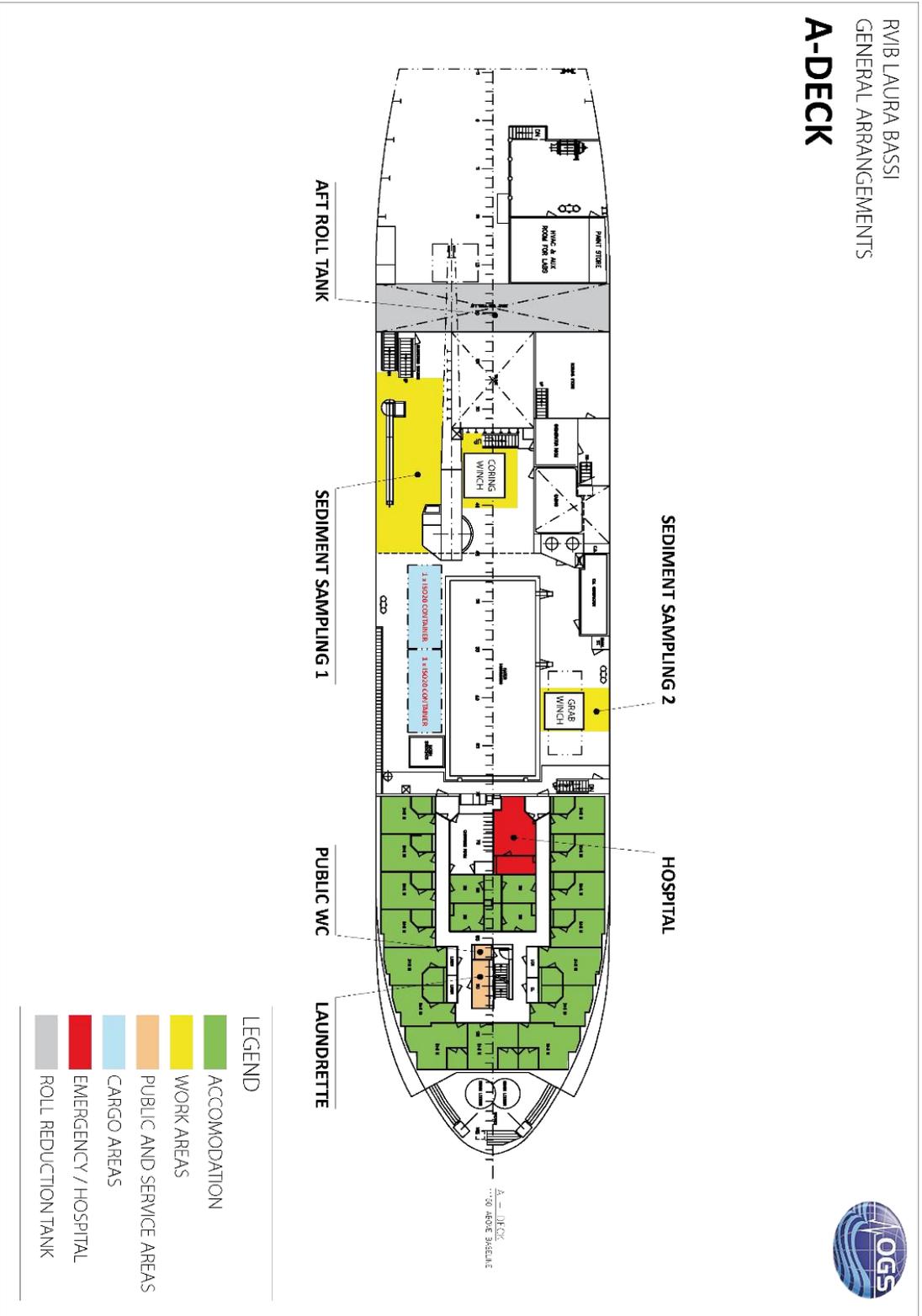


Table 3

RVIB LAURA BASSI
 GENERAL ARRANGEMENTS
A-DECK



- LEGEND**
- ACCOMODATION
 - WORK AREAS
 - PUBLIC AND SERVICE AREAS
 - CARGO AREAS
 - EMERGENCY / HOSPITAL
 - ROLL REDUCTION TANK

Table 4

R/V B LAURA BASSI
 GENERAL ARRANGEMENTS
B-DECK

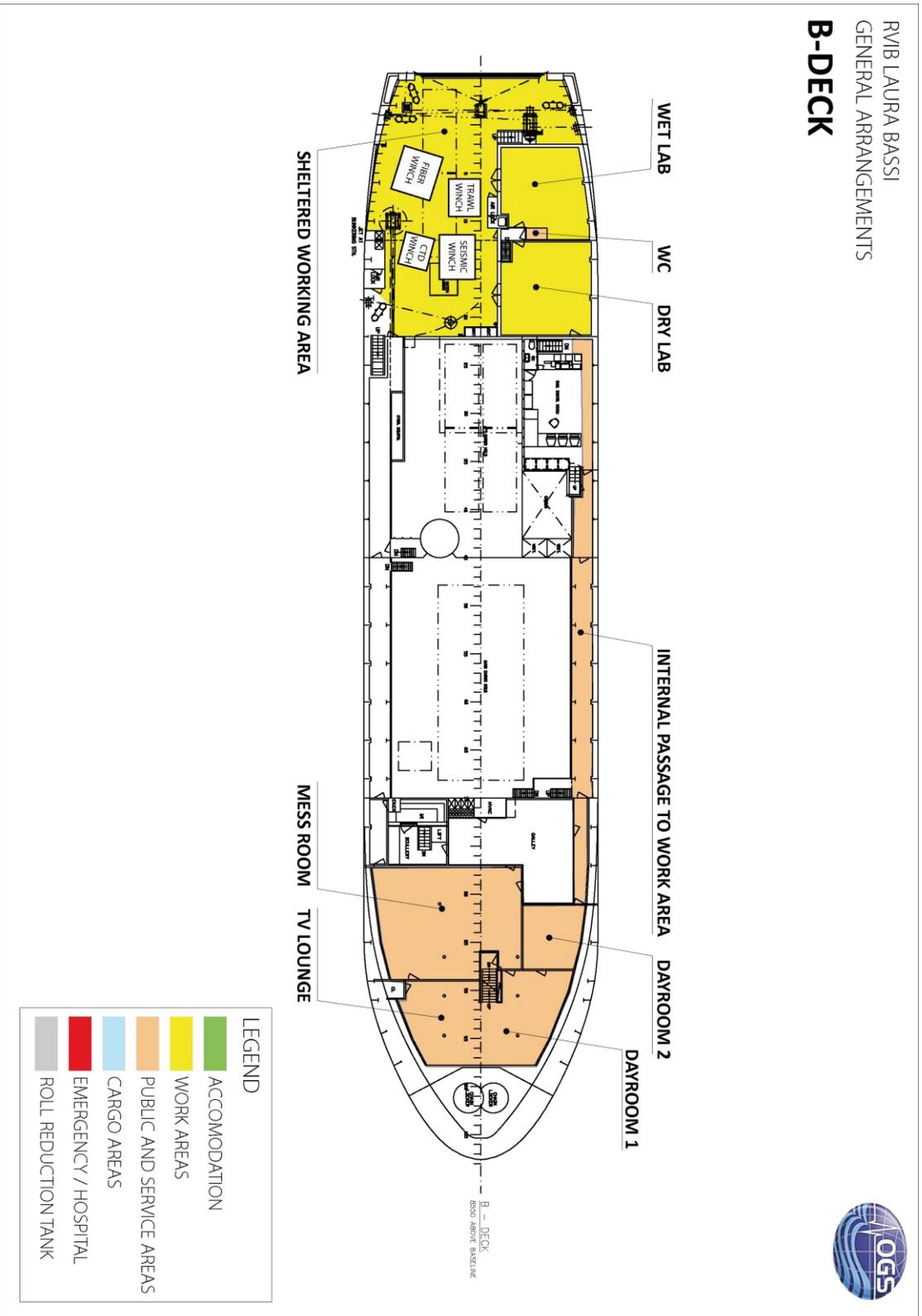
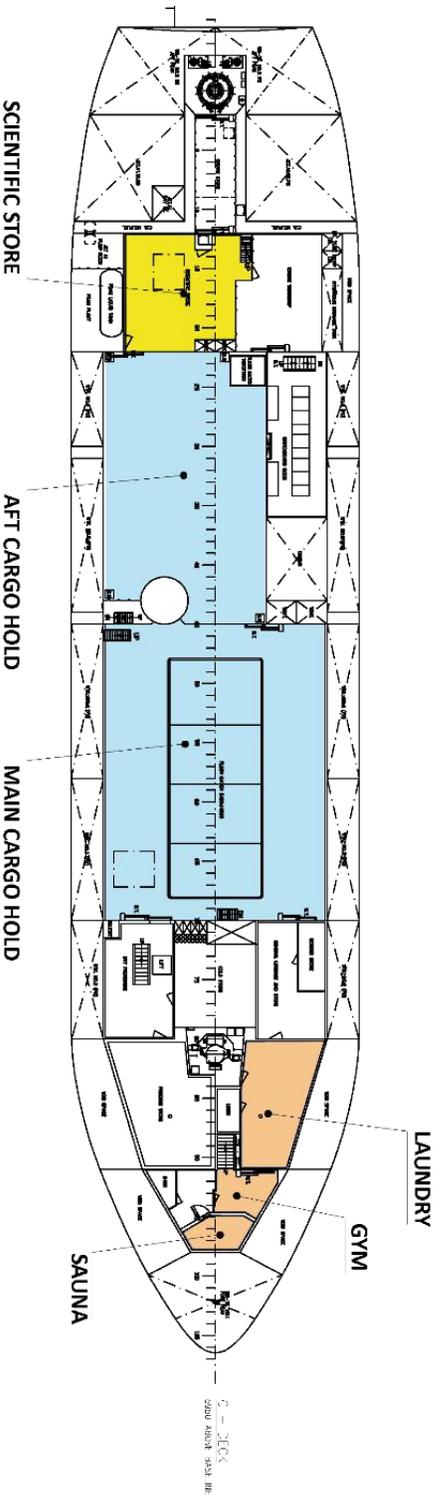


Table 5

RVIB LAURA BASSI
GENERAL ARRANGEMENTS

C-DECK

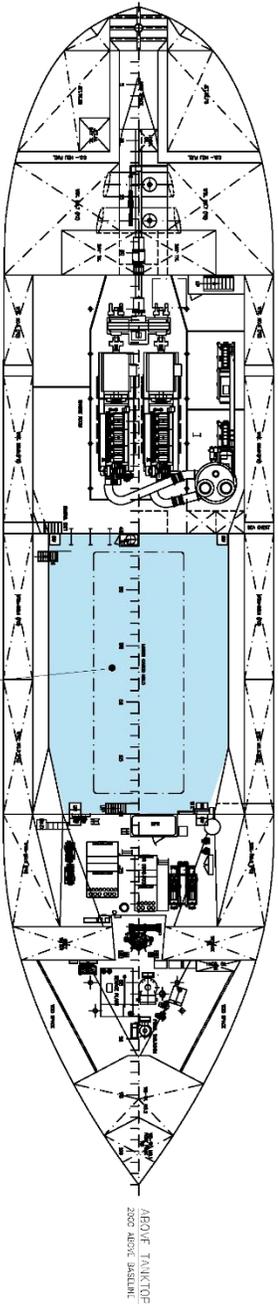


- LEGEND
- ACCOMODATION
 - WORK AREAS
 - PUBLIC AND SERVICE AREAS
 - CARGO AREAS
 - EMERGENCY / HOSPITAL
 - ROLL REDUCTION TANK

Table 6

RV/B LAURA BASSI
GENERAL ARRANGEMENTS

ABOVE TANKTOP



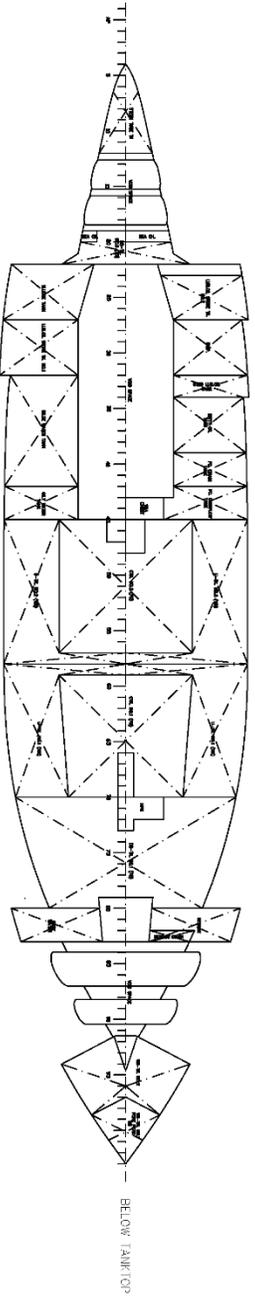
LOWER CARGO HOLD

LEGEND	
	ACCOMODATION
	WORK AREAS
	PUBLIC AND SERVICE AREAS
	CARGO AREAS
	EMERGENCY / HOSPITAL
	ROLL REDUCTION TANK

Table 7

RVIB LAURA BASSI
GENERAL ARRANGEMENTS

BELOW TANKTOP



LEGEND

	ACCOMODATION
	WORK AREAS
	PUBLIC AND SERVICE AREAS
	CARGO AREAS
	EMERGENCY / HOSPITAL
	ROLL REDUCTION TANK

Table 8

