ALUMINIUM WORKBOAT *PROTEUS*

manoeuvrable, which is a major benefit for any scientific vessel. Coupled with the Kongsberg DP system, this allows total control of all propulsion units – which greatly enhances the vessel's ability to maintain station when deploying scientific equipment.

Trawling

Alba na Mara is fitted with three trawl winches each carrying 800 metres of 20mm diameter wire. These winches will allow her to operate a single demersal trawl, a twin demersal trawl or a pelagic trawl. The ability to twin trawl is particularly useful as it augments Marine Scotland' ability to carry out fishing gear research to investigate technical measures. The aim of these measures is generally to facilitate selective escape of immature fish or of particular fish species from the trawl. The single demersal and pelagic trawls are used for stock assessment purposes.

CRANE AND NET-DRUM

Scallop dredging

The vessel is fitted with deployable scallop arms that allow the vessel to tow two sides of six standard dredges, one per side. The vessel is also fitted with a novel tray system for dumping stones and other debris from the dredges overboard. This reduces the work in clearing debris from the deck and speeds up operations when scalloping.

TRAY SYSTEM BEING TRIALLED

Handling scientific equipment

Alba na Mara is fitted with a range of onboard cranes, winches and net-drums to enable the safe deployment of scientific equipment. Noteworthy in particular is the Gamma Frame, a one-sided A frame, that is used to launch scientific equipment overboard and can also be used to manoeuvre the scallop dredges.

Echosounders

As well as a Simrad ES 60 fishing sounder, *Alba na Mara* is fitted with an EK 60 scientific sounder which operates at 38,120 and 200 kHz. The transducers for this system are mounted in a pod fitted to a shaft – enabling the pod to be deployed up to one metre below the keel in an attempt to improve acoustic performance.

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MRV *ALBA NA MARA*

Introduction

Alba na Mara was built by MacDuff Shipbuilders Ltd for the Scottish Government and entered service in 2008. Operating from her home port of Fraserburgh, the vessel is used for fish and shellfish stock assessment and environmental monitoring in the North Sea and on the west coast of Scotland. She carries a crew of eight, and can accommodate up to five scientists.

One of the most important functions of Marine Scotland is to provide the Scottish Government with expert advice on environmental and fisheries management. This can be achieved only through the provision of scientific work conducted at sea. To facilitate expert and technical advice, it is essential to have research vessels of a high calibre that can operate in both inshore and offshore areas – *Alba na Mara* and *Scotia* respectively perform this role for Marine Scotland.

Primarily operating in the inshore zone, *Alba na Mara* monitors fish, *Nephrops* and scallop stocks in order to gather the independent data required to aid the sustainable management of fisheries. The vessel also researches the wider marine ecology, including the examination of factors important in sustaining fish stocks and other marine wildlife. Further research evaluates the environmental impact of aquaculture, and other anthropogenic inputs as an adjunct to understanding the physical and biological oceanography of the coastal zone.

Comfort

Alba na Mara has been built to an exceptionally high standard by MacDuff Shipbuilders Limited to provide a very flexible vessel capable of undertaking a wide variety of tasks. A vital requirement for any research vessel is a stable working platform to carry out scientific work,

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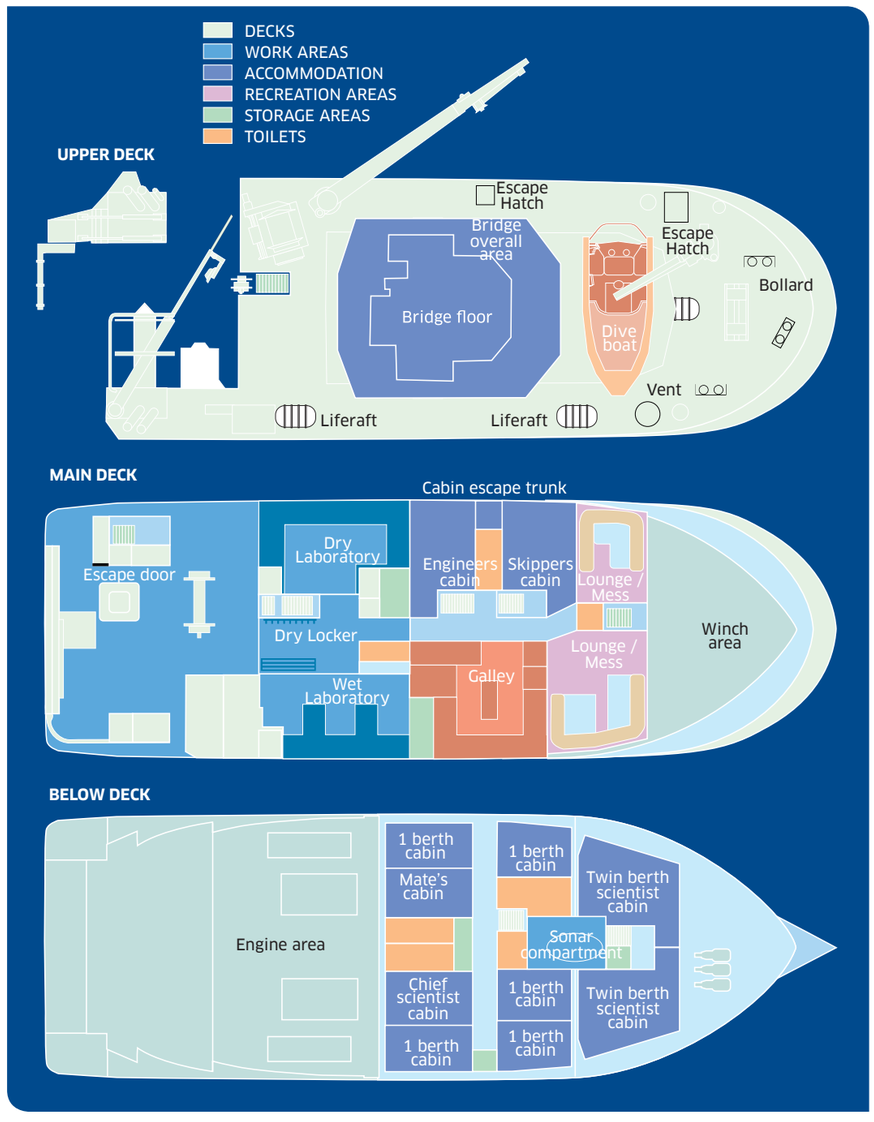
and *Alba na Mara* was specifically designed with this in mind. Great care has been taken to make the vessel comfortable – with high quality accommodation and messing available being provided for both scientists and crew. Particular efforts have also been made to reduce internal noise levels wherever practicable, in an attempt to reduce fatigue for the users..

Manoeuvrability

The vessel is fitted with twin propellers and rudders as a safety feature in case of engine breakdown. This has the added advantage of economy, as the vessel can operate on one engine if full power is not required. This twin screw arrangement coupled with fore and aft tunnel thrusters makes the vessel very



Capabilities:	Fisheries research (single, twin, pelagic/ demersal trawling and scallop dredging) hydrographic sampling, surveying and camera work
Class:	MCA Category 1 – 150 miles offshore – Safety of Small Workboats and Pilot Boats – A Code of Practice Hull Construction to SFIA, Machinery and outfit to SCMSS
Endurance:	14 days minimum
Builder/ Designer:	Macduff Ship Design Ltd
Dimensions:	Length Overall - 27.00m Length on Loadline - 23.95m LBP - 23.55m Breadth Moulded - 8.80m Amidships Depth Moulded - 4.30m
Speed:	Trial speed 10.3 knts at 100% Cruise speed 8 knts
Bollard Pull:	Minimum 11.5 tonnes
Crew:	8
Scientists:	5
Capacities:	Tonnage - 163.47 Oil Fuel - 45,274 litres Fresh Water - 15,200 litres Water Ballast - 20,000 litres Sewage Plant - 4,000 litres
Propulsion Machinery:	Main Engines - 2 x Mitsubishi S6R MPTK Rating - 2 x 630 BHP @ 1600 RPM Gearboxes - 2 x Reintjes WAF 364L Ratio - 4.92:1 Propellers - 2 x fixed pitch, 5 blade Diameter - 1800mm open Bow Thruster - Thrustmaster 711mm dia 4 blade – 93kw Stern Thruster - Thrustmaster 711mm dia 4 blade – 93kw Rudders - 2 x high performance Main Generators - 2 x Scania D112 62 EMS 10.6F –220kw Harbour Generators - 1 x Mitsubishi 6D16T –97kw
Laboratories:	Wet Lab Area - 12.5 sq m Dry Lab Area - 11.5 sq m
Electrical Supplies:	415v 3ph 50hz 240v 1ph 50hz 24v DC 240v stabilised clean system

Deck Machinery:	3 x Split trawl winches- 810m x 20mm wire – RAPP 2 x Auxy trawl winches - 100m x 16mm wire – RAPP Slip ring winch - 700m x 30mm cable – RAPP Slip ring winch - 600m x 8.1m cable – RAPP Anchor windlass - 3.5T pull – double – RAPP Hydro wire winch - 400m x 8mm – 1.2T pull– RAPP Net sounder winch - 700m cable – Svendborg Gilson winch - 3.0T pull – RAPP Knuckle boom crane - Triplex – 18 t/m Power block crane - Triplex – 10 t/m Net drum - Split type – 8.0T pull Portable net drum - Single type – 3.0T pull Cargo winch - 1.5T pull 1 x Gamma frame - 3.0T SWL – Odim
Data Processing Equipment:	Ship-Wide fast Ethernet Fibre optic network Colour inkjet printers General purpose PCs Thermosalinograph Scientific computers
Navigational Equipment:	2 x Band Arpa Radars – JRC 5310/6 2 x GPS Simrad GN33D 2 x Sodena Mini ECDIS Chart Plotter 1 x Simrad AP50 Autopilot 2 x Simrad Dual GC80 Gyrocompass 1 x Simrad ES60 Echosounder 50/200 kHz 1 x Suzuki S1800-MBB/H800 Searchlight Sonar 80 kHz 1 x Skipper EML 224 Electromagnetic Log 2 x Wet Lab Extension Monitors for EK60 1 x Simrad EK60 Split Beam 38 kHz 1 x Simrad EK60 Split Beam 120 kHz 1 x Simrad EK60 Split Beam 200 kHz 1 x Simrad AI50 AIS system 1 x Seatex MRU H Motion Sensor 1 x Kongsberg Synchronisation Unit 1 x Simrad Hoistable Transducer Unit
Communications:	1 x Sailor 4000 HF SSB 150w PEP 2 x Sailor RT5022 VHF with DSC 4 x Simrad AX50 GMDSS Portable VHF 2 x Simrad EP50 EPIRBs 2 x Simrad SA50 SARTs 1 x Simrad MS55 Fleet 55 Sat System 1 x Skipper Taiyo TF711 Weather Fax 1 x Airmar Weather Station 1 x Cellphone System 1 x Internal Vingtor ACM M PABX & PA System 1 x CCTV System – 5 cameras
Position-Keeping System:	1 x Kongsberg C-Joy Joystick Control System linked to: Gyro Compass, wind, DGPS speed, thrusters, propellers, steering gear and autopilot
Trawl-Monitoring System:	1 x Rapp PTS Pentagon Auto Trawl System 1 x Scanmar Trawl Monitoring System
Noise and Vibration:	Extensive use of noise reducing insulation, flexibly mounted machinery, balanced propellers to minimise noise.
Workboat:	An Allay Duck/ERACO aluminium workboat 5.5m with twin 50 HP outboards and launching davit.