

# ORION



## Macduff Delivers New "ORION"

**M**acduff Shipyards Limited have recently signed over their latest new build fishing vessel, 'ORION, BF 432', to owner Brian Harvey and his two sons Andrew and Simon.

This new build replaces their previous fishing vessel of the same name, which was built by the yard in the early noughties and is intended to fish around the coast of Scotland, predominately in the North Sea.

ORION was originally planned to be built from the yards previous 24.50 m hull model but during the early design phase a decision

was taking to remodel the vessels bowbased on the preliminary results from a tank testing program which the yard and Macduff Ship Design were running for another project. A quick study was conducted by the Wolfson Unit in Southampton using CFD technology to compare the proposed new bow against the previous model with the results showing a net decrease in hull resistance at steaming speeds, as anticipated.

Following this the hull form was faired and finalised by Macduff Ship Design who then produced

a full set of steel construction plans along with conducting the incline experiment and producing the vessels stability booklet. The fabrication of the hull of ORION was subcontracted to Kedat Shipyard based in Szczecin, Poland with the construction reviewed and verified by Bureau Veritas to comply with the MCA's construction standard and upon completion the hull was towed to Macduff for outfitting by the yard.

The hull of ORION is built completely from steel, apart from the wheelhouse and mast, and

features a double chine hull form, transom stern and modern bow designed to cut cleanly through the sea with less energy leading to a reduction in fuel consumption and emissions along with increased crew comfort. In broad terms the layout of the ORION is largely like some of the other recent new builds produced by the yard. Below deck features the cabins, engine room, fish hold and a large freshwater tank forward of the collision bulkhead. Whereas above deck is situated the aft shelter, galley/mess and side passage area, fish processing area

and then a winch room forward where the trawl winch is situated.

A bespoke hydraulic deck machinery package was fabricated by the yard for the ORION comprising of a triple barrel winch powered by dual motors, two split net drums, two bagging winches, two small gear handling winches, cod end lifting winch and a dedicated anchor windlass. Thistle Marine of Peterhead supplied both the MFB8 landing crane and MBK13 powerblock crane, both of which featuring a slew ring base.

Primary hydraulic power is provided by a single Parker hydraulic pump driven from a dedicated Mitsubishi 6D24 auxiliary engine producing 218 kW whilst secondary hydraulic power is provided by combination of one electric/hydraulic motor set with an output of 22 kW in tandem with a Parker hydraulic pump driven from a power take off fitted to the main propulsion's gearbox. A hydraulically powered bow thruster is also fitted of 180 hp. The hydraulic system, designed by the yard, is cooled via a Blokland box cooler and Bowman heat exchanger.

The propulsion package features a 2.5 m fixed pitch propeller supplied by Wartsila, driven by a CATERPILLAR C32 main engine with 660 hp @ 1600-1800 rpm through a Masson Marine W7400 reversible gearbox with 9.077:1 reduction.

ORION is the seventh vessel built by the yard in recent years to feature this propulsion package which has demonstrated itself to be both robust and adaptable with the Wide Operating Speed Range of the C32 main engine providing flexibility to achieve full power from a fixed pitch propeller both whilst steaming and trawling. The efficiency gains

predicted during the early design phase were realised during engine trials with the vessel achieving 9.1 knots at only 50% engine load and 10.5 knots at 100% load.

ORION also features a triple rudder system and high lift propeller nozzle provided by Wartsila.

Cooling systems for all engines and hydraulics onboard are served by box coolers supplied by Blokland Non-Ferro.

Electrical power onboard is provided by two Mitsubishi generator sets supplied by Macduff Diesels Limited, each with a rating of 98 kW and of sufficient size to run the vessels power independently providing complete redundancy.

The electrical systems onboard were designed and fitted by R.D. Downie who also fabricated the vessels switchboard and control panels for all the pumps and motor starters. In addition to this R.D. Downie also provided the fire, bilge and gas alarm systems onboard along with the navigation light panel and assisted with the installation of the navigation equipment.

The fish processing deck features a catch handling system built by the yard and is complemented by a DEGA resin floor system fitted by PBP services. Two separate compartments are formed within the fish processing area which house both a dry locker and ice plant room. The fish hold refrigeration system along with ice machine was supplied and fitted by Premier Refrigeration.

The high specification navigation package was supplied and fitted onboard by McMinn Marine Ltd.

Fishing gear was supplied by Faithlie Trawl (International) Ltd, Seaforth Trawls Ltd and Caley Fisheries.



Harvey family at the launch. Photo Eugene Rutter



"The **Macduff team** have been delighted to work with Brian, Andrew & Simon of the **ORION**"

It has been a fantastic project for the yard, we are very grateful for the order and hope the vessel serves them well for many years."

