



With their core markets of inland barges and seagoing ships a little on the back burner, and the market for offshore ships – in particular for offshore wind farms – on the rise, the VEKA Group decided to expand its portfolio into fast crafts. The 'Animal' Multipurpose Catamaran is the first in this series of high speed crafts. A powerful workboat, specialised in transporting technical personnel, tools and spare parts to and from wind farms.

To make a successful entrance in the market of wind farm support vessels, VEKA decided to start out with a basic 19-metre catamaran for the transportation of maintenance crews and fuel, and then extend the range into larger versions. For the design, they called in the naval architects of BMT Nigel Gee, which are based in Southampton, United Kingdom. Through their close relationships with wind farm operators, BMT Nigel Gee has been able to pour all the experience gained in the past years into this new model. With 1.3 GW installed name-plate power in offshore wind farms, the UK has more experience in this field than the rest of the world combined (1.1 GW), so it made sense for VEKA to tap into the knowledge and network of a British company.

Critical point

The task list of wind farm support is pretty straightforward: to bring maintenance crew either from shore or from a central accommodation platform to the individual wind turbines in an offshore wind farm. Once there, the crew will either carry out repairs, refuel the wind turbine's generator, or remove the fouling from the wind turbine's base with a pressure washer. The most critical operational point of these ships is the moment at which a maintenance technician steps over from the (moving) vessel onto the (stationary) ladder of the wind turbine base. As the safety of this manoeuvre will ultimately decide in which range of conditions the maintenance can be carried out, it has a profound effect on a number of design choices.

WHALE OF THE WAVES

VEKA GROUP LAUNCHES RANGE OF FAST CATAMARANS FOR WIND FARM SUPPORT

Builder

VEKA Group, Werkendam, the Netherlands

Owner

VEKA Group, Werkendam, the Netherlands

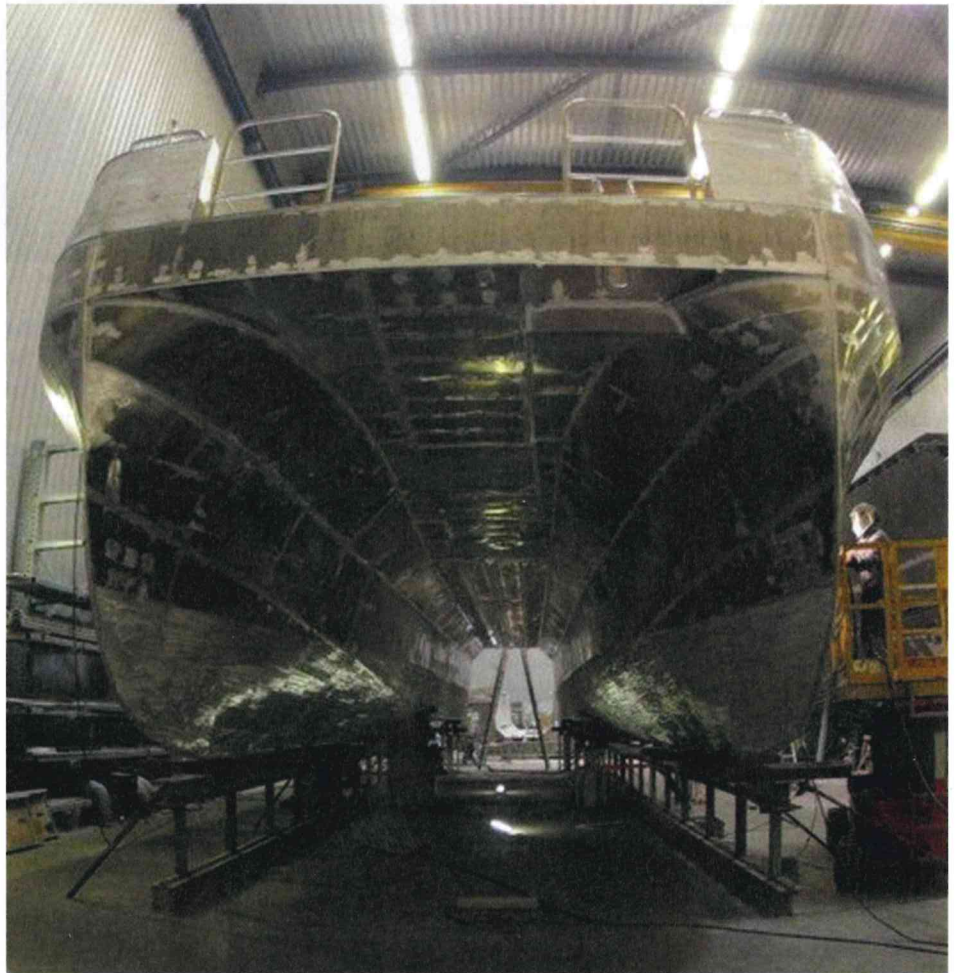
Principal particulars

Length o.a.	19.40 m
Length waterline	17.60 m
Beam o.a.	7.00 m
Draught	1.00 m
Displacement (lightship)	45 ton

Main engines	2 x 720 kW
Auxiliary generator	1 x 17.5 kW

Max speed	27 knots
Service speed	25 knots
Crew	3 persons
Passengers	12 persons

Fuel tanks	6,000 l
Fresh water tanks	500 l
Black water tanks	500 l
Deck space	73 m ²
Containers	3 x 10 feet



The catamaran hullform was chosen for its stability and speed

Manoeuvrability

Perhaps the *Whale of the Waves* would have been named more aptly as the *Dolphin of the Waves*, as the area in which she excels most is her excellent manoeuvrability. This fact can be credited entirely to her propulsion with water jets instead of the more conventional propeller shafts. One could assume that this propulsion system was chosen based on its efficiency at high speeds, but it is much more the improved manoeuvrability which tipped the scale in favour of water jets. When the direction of the swell does not align with the orientation of the ladder on the wind turbine, it is sometimes necessary to approach the wind turbine with waves coming in from the side. To turn towards ladder at the right moment between

sets of waves, requires very fast and precise manoeuvring. As the water jet propulsion system allows to keep the engines running at a continuous high rpm, while directing the thrust in any combination of three directions (aft, forward port or forward starboard), the reaction speed of the diesel engines does not limit the steering response, and the precise amount of thrust needed can be exerted onto the bow fender. During the presentation of the *Whale of the Waves* to the press, at VEKA's headquarters in Werkendam, this was clearly demonstrated on the river Merwede. A crash stop test – using the water jet's reversing buckets – is effortless and immediate, without the usual complaints from cavitating propellers or struggling main engines. Although the *Whale of the Waves* has

no bowthrusters, as there is simply no need for them, the vessel can move perfectly sideways or rotate within its own length. The yard captain, even with only a few days of water jet experience at the helm, was able to let the *Whale of the Waves* perform a water ballet without a glitch.

Fenders

The way to let people move safely from ship to wind turbine is by pressing the nose of the vessel firmly against the two large-diameter pillars which protect the ladder from impact. Enough propulsion pressure has to be applied to stop the bow from moving up and down relative to the ladder. For this purpose, the front fender of *Whale of the Waves* has a protrusion, which fits neatly between the pillars. Not only

does this eliminate transverse movements of the bow, it also reduces the step between the ship and the ladder. All the fendering on *Whale of the Waves* is from Ocean 3, France, and is a specific type combining lightweight with an improved stickiness. In total, this represents a weight reduction of about one ton, compared to conventional rubber fendering.

Accommodation

The *Whale of the Waves* will normally be sailed by a crew of three, and can transport a maximum of twelve passengers. In each hull, two bunk beds are installed giving the option to spend the night on board. The main room for passengers features twelve comfortable seats, a central TV, a small pantry corner with microwave oven and two-hob cooking stove, and several lockers. The forward part of the floor is cleverly partitioned to create a convenient location to safely stow the luggage or toolboxes of the passengers. In the aft, there is access to a toilet with a spacious shower room, suitable to hang wet gear to dry.

Deck equipment

On deck, the 'Whale' has three positions for ten-foot containers: one on the aft deck and two on the foredeck. Instead of standard container lashing points, U-profiles are recessed into the deck, allowing the containers to be lashed in an unlimited number of positions. Pedestals are provided for deck cranes, both on the stern and on the bow. A future owner can place his preferred type of crane without any structural modifications. Alternatively, a Turbine Access System (TAS) can be placed on the foredeck, a development from BMT Nigel Gee and Houlder Ltd which consists of a lightweight, motion-compensated gangway.

In a locker on portside of the foredeck, a fuel hose reel is located, which is used for refilling the tanks of the diesel generators found in the base of each wind turbine. These generators supply the power for the wind turbine's control



The *Whale of the Waves* was built at VEKA-Group's shipyard in Wieringerwerf

and monitoring systems, for example for the controllable pitch blades. The fuel can be pumped from either one of the two fuel tanks. Notably, these 3,000 litre tanks are not part of the structure but are freestanding units, bolted to the structure. This prevents leakages in the case of excessive deflections of the hull. In a locker on starboard side of the foredeck, a pressure cleaner is installed, for the boats own cleaning as well as for removal of the fouling off wind turbines' splash zones.

Powering

In order to reduce cost and complexity, the electrical consumers on board have been kept to a minimum and as much as possible 24V DC equipment has been specified, which can be supplied straight from the service battery. As a result, only the air conditioning and galley equipment require running of the single-phase

17.5 kW generator set from Cummins Onan, which is located in the portside hull. The winches, the fire-fighting pump and pressure washer are all driven by hydraulic motors. The hydraulic power is generated in hydraulic pumps on PTOs on each of the main engines.

The main engines are 8V2000 series from MTU, with a rated power of 720 kW each. The gearboxes are bolted directly onto the engines and supply the propulsion power through a cardan shaft to the Hamilton water jets of type HM571. The exhausts are water-injected before entering the composite silencers from Halyard, from where they are led to the stern. They exit the hull under the platforms above the water jets. The bilge system is with individual submersible bilge pumps in each watertight compartment, thus avoiding a lot of pipework. Engine room bilge is pumped through a Wavestream bilge water polishing filter to remove oil content before discharge overboard.

The excellent visibility from the wheelhouse and the waterjet propulsion make manoeuvring a breeze



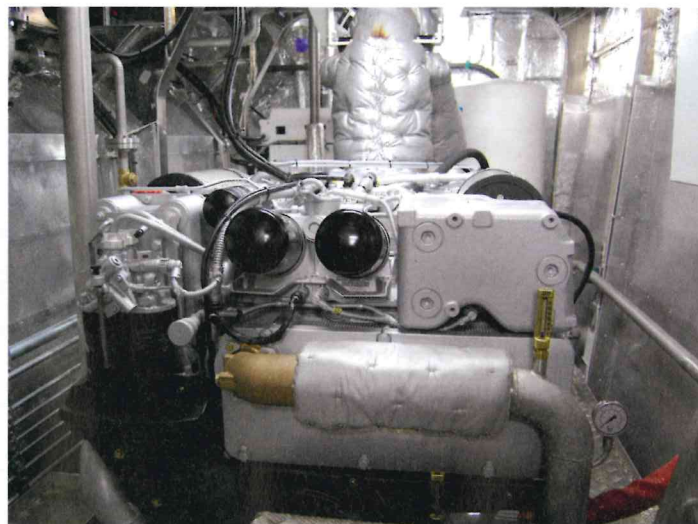
The electrical installation was done by Berghuis Maritiem, the Netherlands, and includes a Free Technics alarm and monitoring system. With a few simple hard keys on the wheelhouse console, the captain can easily switch between various screens of the system, such as alarm list, CCTV or engine monitoring. The navigation and communication equipment was supplied by Alphanon and includes an ECDIS chart system and a radar. Two pilot seats with air suspension ensure a smooth ride. As fogging is always an issue, the wheelhouse windows are equipped with both electric heating and blowers.

Construction

The port and starboard hulls are identical and start out as narrow deep-V hulls in the bow, gradually evolving into flat U-shaped sections in the stern, thus creating a good flat surface for



Seating is provided for a maximum of twelve passengers



Each hull houses a 720 kW main engine

the water jet intakes. Once over the hump speed at around 18 knots, the *Whale of the Waves* gets into planing mode and accelerates seemingly effortless to her top speed of 27.3 knots.

VEKA Groups project manager Robin Sijbrands: "We paid a lot of attention to saving weight, for example by making the accommodation an integral part of the hull. By monitoring the weight budget closely, we achieved a lightweight of about 20% less than a traditionally built catamaran, resulting in equivalent fuel savings." The *Whale of the Waves* was built at the VEKA Group's shipyard for superyachts, where they have the skills to build a fast vessel in aluminium and where the builders' attention for detail sometimes had to be reigned in a bit to achieve the efficiency

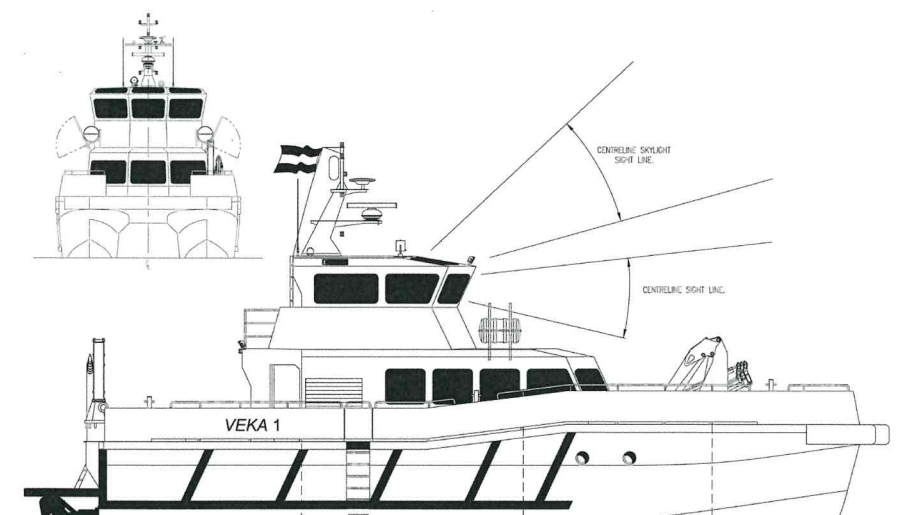
of commercial shipbuilding. The vessel was built under Dutch flag with Germanischer Lloyd's classification. Her class notation is GL + 100 A5 II HSDE Work Boat / (+) MC, which allows for voyages up to 200 miles from the coast.

Versatile workboat

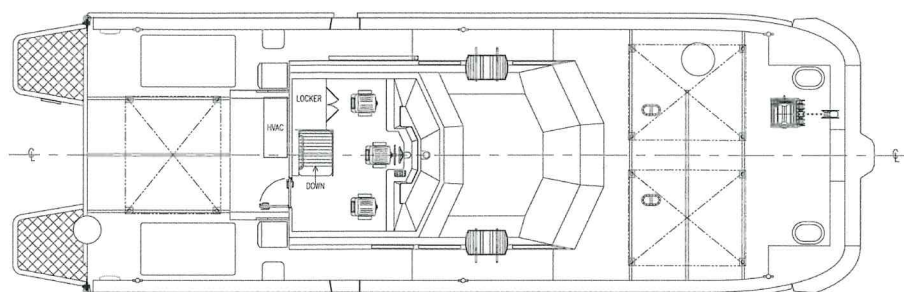
Although the *Whale of the Waves* was initially conceived as a wind farm support vessel, it is of course a very versatile and fast workboat for all kinds of duties. This fact is illustrated by the fact that it was recently purchased by a Nigerian company, with the intention to use it for crew transport to offshore oil rigs and for security services. In the meantime, VEKA's engineers have developed a 24 metre version, responding to the needs of windfarms built further offshore.

At the shipyard a second 19 metre catamaran is currently in build for delivery in February 2013. The facility can build as many as ten catamarans per year, with a delivery time of just six months. VEKA group has branded the catamarans as the 'Animal' series, and each vessel will receive the name of a different animal. Currently in build at other shipyards in the VEKA-group are six inland barges and three seagoing vessels of which one is a dredger. The design department has a number of interesting projects in the pipeline, including a cruise ship for the Arctic Ocean, a ferry, a short-sea LNG tanker, a multi-purpose landing craft and various pontoons for temporary storage and housing at offshore locations.

Bruno Bouckaert



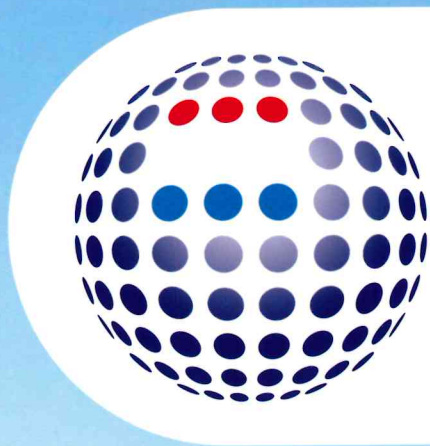
OUTBOARD PROFILE



PLAN VIEW BRIDGE

Subcontractors and suppliers of equipment fitted on board the *Whale of the Waves* - YN VK 100350

Alphatron Marine , Rotterdam	: navigation and communication equipment
AMW-Marine , Hendrik-Ido-Ambacht	: Hamilton water jet
Berghuis Maritiem , Amersfoort	: electrics
Bijlsma , Lemmer	: Jotun paint systems
BMT Nigel Gee , Southampton (England)	: engineering
Exalto Quality Marine Equipment , Hardinxveld-Giessendam	: Cleemann chairs
Hercules Hydraulic , England	: wash down system; hydraulics; fuel transfer; winch and manholes
Hoogendoorn Maritieme Betimmeringen & Interieurbouw , Werkendam	: carpentry; Seaglaz windows and portholes
JVS Scheeps- en Industrietechniek , Spijkenisse	: sound and vibration
KPM-Marine , Birmingham (England)	: bilge system; e- room ventilation
MTU Benelux , Dordrecht	: main engine
Ocean 3 , Wervik/Sud (France)	: fenders
SIM Holland , Papendrecht	: Onan generator
Technautic , Wormerveer	: Halyard exhaust system
Pinta Nieuwburg Unisol , Ridderkerk	: isolation
Polmai , Barendrecht	: safety equipment
Quick Cooling , Papendrecht	: HVAC
Stat X , England	: FI-FI System
Trinnox , Hardinxveld-Giessendam	: doors
ZF Marine Krimpen , Krimpen aan de Lek	: gearbox



Maritime by Holland.

Magazine



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Paul
Rotterdam