Construction RV *Wim Wolff*

Progress Report #5: June 2021

The RV *Wim Wolff* is a new shipbuilding project for the Dutch national research fleet. The fleet is owned and operated by the National Marine Facilities (NMF), a department of the Royal Netherlands Institute for Sea Research (NIOZ). The NMF fleet consists of three vessels capable of conducting research from the shallow coastal waters out into the open ocean.

The RV *Wim Wolff* is intended to replace the Wadden Sea research vessel RV *Navicula*, and with its shallow draught of 1 meter it is specifically designed for overnight voyages for research in the Wadden Sea, the Zealand delta or the coastal zone.

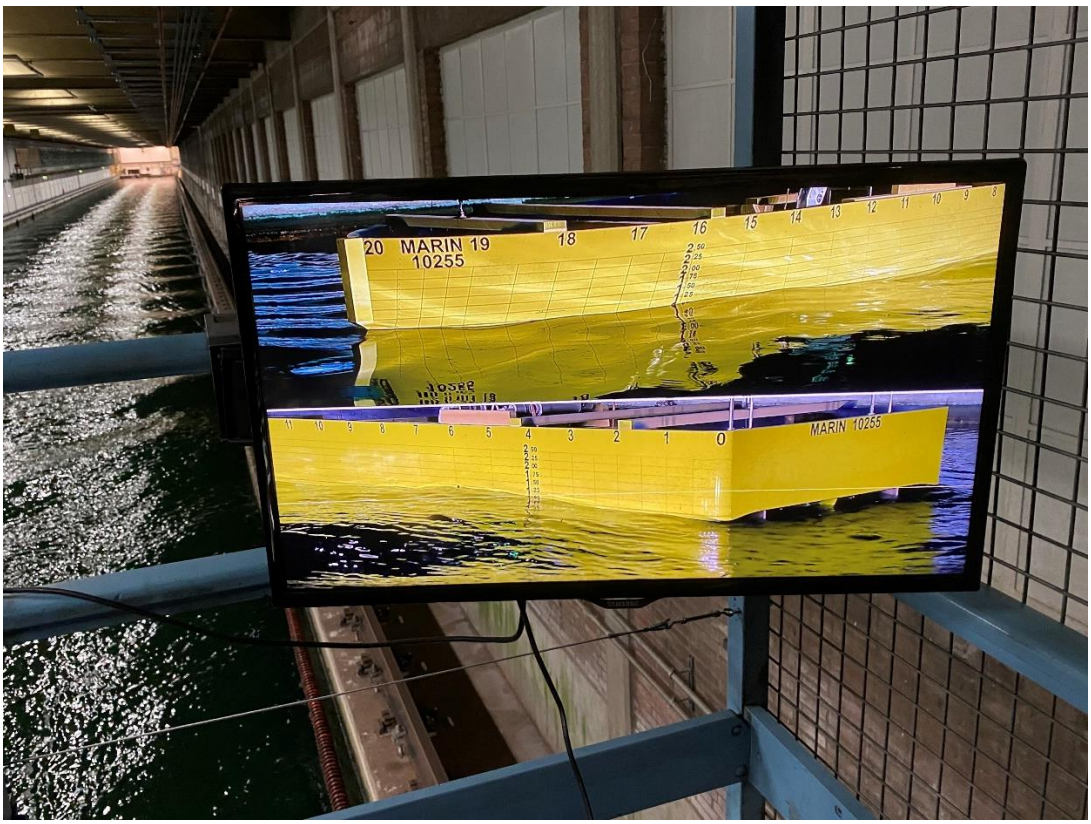
With a permanent crew of four, the RV *Wim Wolff* will offer state-of-the-art facilities for a maximum of 12 passengers, and is equipped with onboard dry and wet lab facilities. The vessel also has room for two customised lab containers.

The RV *Wim Wolff* will be built by Thecla Bodewes Shipyards in Harlingen, and is scheduled for delivery in late 2022.

Model testing at MARIN

Every ship design is tested to see if the desired characteristics -including speed in relation to fuel consumption and behaviour under the influence of waves, seaway and wind- can be achieved. Although nowadays computer simulations can replace practical tests, practical tests with ship models remain an indispensable part of the design phase. MARIN (Maritime Research Institute of the Netherlands) has been engaged for the practical trials. MARIN is located in Wageningen and Ede and has been an institute for hydrodynamic and nautical research for more than 85 years. MARIN offers an optimal combination of software, test facilities, simulators and real size measurements for each project.

Two model tests are planned for RV *Wim Wolff*: speed and sea behaviour. A different scale model is made for each type of test. The speed tests were carried out first, in June, in the towing tank at MARIN in Wageningen.

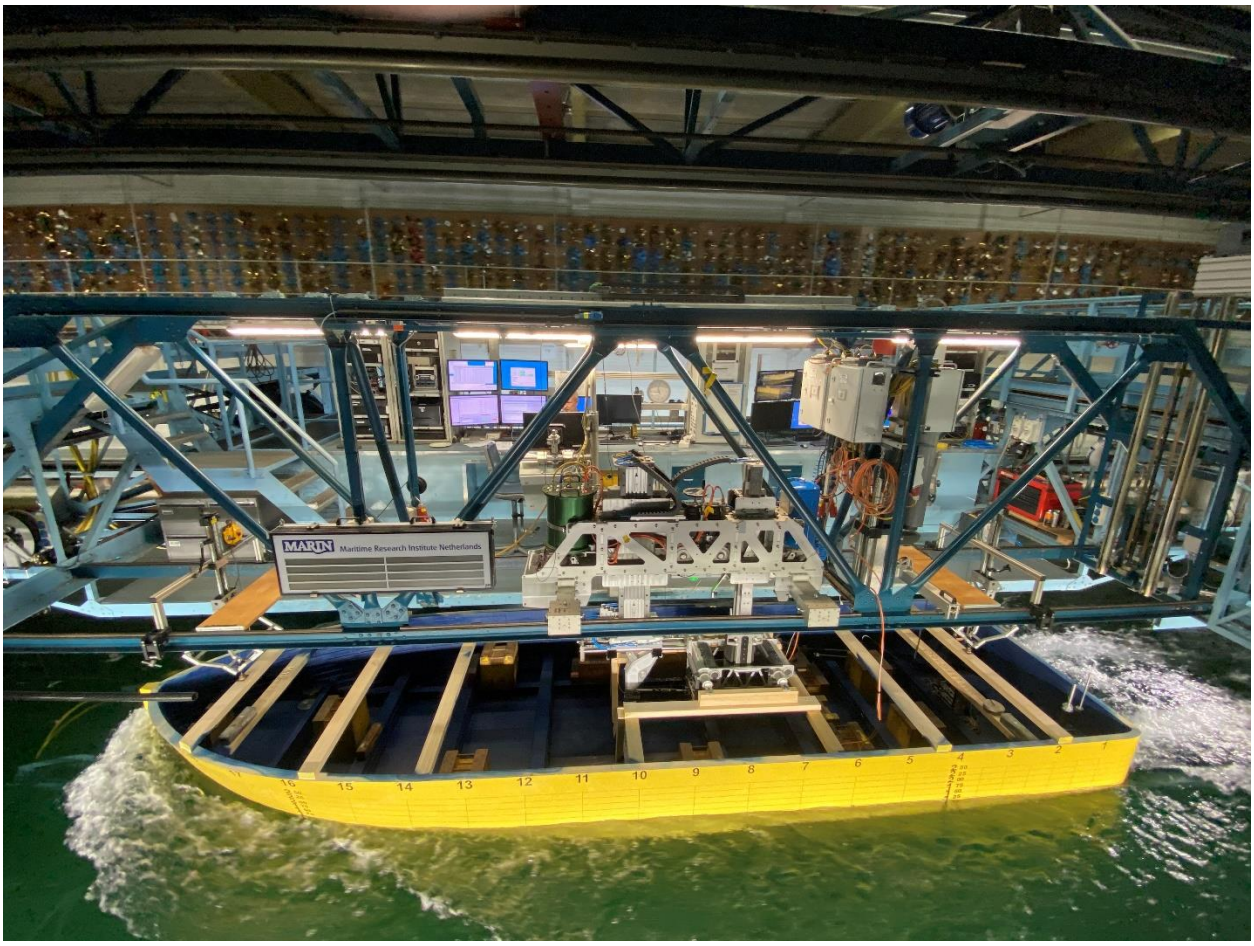


The towing tank at MARIN in Wageningen with on the screen the scale model of RV Wim Wolff.

The towing model is surrounded by and attached to a towing carriage that runs over the towing tank during the tests. There is an operator on one side, with all the measuring equipment, and on the other side there is a stand for the test leader and other interested parties.

The carriage, the frame over the towing tank with in the middle the scale model of RV Wim Wolff, on the right the operator with the measuring equipment; on the left the grandstand with interested parties.

The carriage brings the towing model up to speed, after which it continues to move forward until it reaches the end of the tank. The carriage then drags the model back to the beginning of the tank for the next test. There is a pause between each test of a few minutes for the water in the tank to settle down again.



Towing model of RV Wim Wolff during a test run

To analyse the speed in relation to resistance, series of runs are made at increasing speed up to the maximum hull speed and with and without self-propulsion. This provides a mega set of data for analysis. The first results seem to be in line with the expectations. The final results are expected in a few weeks.

In the meantime, the shipyard is busy engineering the hull, in close cooperation with DEKC engineering. This is laid down in so-called main frame and building plans. After being approved for the classification, these plans will form the basis for the section drawings. These are the final drawings from which the hull will be built.

The first step in the building process is the production of the aluminium building kit. It is important that all inputs and outputs are clear and recorded for the construction of the hull. This information should preferably be included in the section drawings so that the lead-throughs for pipe systems can already be made by the computer-controlled milling machines. A lot of time was spent last month on the specification and selection of items to be built into the hull with lead-throughs, supply lines, and discharge lines. Examples of these are the propulsion engines, the generators, the firefighting system, diaphragm and centrifugal pumps and the black water treatment and ballast water. The above has been laid down in diagrams that form the basis for the systems to be installed.

Additionally, the first orders have been prepared for items with long delivery times, such as the battery system, the propeller shaft line with jet nozzles, the rudders and rudder heads. The aim is to purchase these in the near future.

Further information can also be found at www.NewResearchFleet.nl

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