



## Construction RV *Adriaen Coenen*



### Progress report #1 March 2021

The RV *Adriaen Coenen* is a new construction project of the Dutch national research fleet. This fleet is managed and run by the National Marine Facilities (NMF), a department of the Royal Netherlands Institute for Sea Research (NIOZ). The NMF fleet consists of three ships that support research in all kinds of waters, from shallow coastal waters to the open ocean.

The RV *Adriaen Coenen* is the intended replacement for the current Wadden Sea vessel RV *Stern*. With its small draught of 1 metre, it is specifically designed for day trips to conduct research in the Wadden Sea and possibly the Zeeland delta.

The RV *Adriaen Coenen* has a permanent crew of one person, provides state-of-the-art day facilities to a maximum of 12 passengers and is equipped with its own dry and wet lab facilities. There is also deck space with all possibilities that an A-frame and side frame provide.

The RV *Adriaen Coenen* is being constructed by Next Generation Shipyards in Lauwersoog and will be delivered at the start of 2022.

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*The contract to build the RV Adriaen Coenen was signed on 23 March 2021 in Lauwersoog. From left to right: Feico Hoogeveen (Site Manager NIOZ), Marcel van der Linden (Contract Manager NIOZ), Alex Cofino (Project Manager NIOZ), Peter Smit (Institute Manager NIOZ) Albert Keizer (Director Next Generation Shipyards), Dirk Keizer (Manager Next Generation Shipyards), Henk Brinkhuis (director NIOZ) and Henk van der Veer (Project Sponsor NIOZ).*

### **The shipyard: Next Generation Shipyards**

The builder of the RV Adriaen Coenen is Next Generation Shipyards (NG Shipyards) in Lauwersoog. NG Shipyards is specialised in the design and construction, and also the maintenance and restoration of working vessels up to 30 metres. An important focus for NG Shipyards is the continuous search for sustainable solutions and techniques to reduce the ecological footprint. For NG Shipyards it is a challenge to put that specialised knowledge into practice. Recently, NG Shipyards converted Wubbo Ockels' yacht "Ecolution" so that it can cruise on hydrogen. The shipyard has a little while back also built and delivered pilot boats for the piloting organisation Loodswezen.



NG Shipyards will build the RV *Adriaen Coenen* completely under its own management in a covered area at the shipyard in Lauwersoog. This includes both the construction of the aluminium hull and the further internal fitting out and completion.

### **The preliminary phase**

The RV *Adriaen Coenen* is primarily intended for day trips in the Wadden Sea and possibly the Zeeland delta. Under the leadership of NIOZ, a “wish list of requirements” was drawn up in consultation with all current and potential future users of new ships in the Dutch national research fleet. The critical points on the wish list for the RV *Adriaen Coenen* read: maximum draught (1 metre), number of passengers (max. 12), and scientific deployability in bad weather (up to 6 on the Beaufort Scale). This led to the following starting points:

An aluminium ship with 2 waterjets, driven by low-emission diesel engines with a wet exhaust system and the following requirements:

- low noise;
- day accommodation for 6 to 8 passengers, the ship may have a maximum of 12 passengers + 2 crew, safety equipment should therefore be sufficient for a maximum of 14 people on board;
- overnight accommodation for 2 people;
- capacity to transport 2 rubber dinghies above each other in a cradle;
- A-frame with two hydraulic winches, 2 tonnes SWL per winch, with dyneema rope;
- side frame with hydraulic winch, 0.25 tonnes SWL;
- suitable to beach;
- sanitary facilities onboard (toilet, shower);
- galley on board with fridge and freezer, combination microwave oven and small stove
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Sustainability is an important issue in the construction of the RV *Adriaen Coenen*. Therefore, the ship will be fitted with solar panels on the wheelhouse roof and batteries in the bottom of the ship that can provide electricity when the ship is beached. The ship will also use HVO (“green diesel” from waste products) as a fuel. All materials used will be as sustainable as possible and recyclable.

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The design agency Marimecs in Steenwijk further developed these starting points into a basic design and subsequently into a detailed project description. This detailed design drawing was publicly tendered in the market, and after negotiations with various shipyards, this led to the selection of NG Shipyards for the construction of the RV *Adriaen Coenen*.

### **The construction process**

The construction will take about 14 months from signing the contract, and consists of several phases:

1. *From design drawing to final design*

First of all, the shipyard will check the design drawing, make calculations and optimise this into a final design, especially for the total weight, placing of various tanks and realising various ship systems.

The next few months have been reserved for this.

2. *Construction of the hull*

After the final design has been agreed, then the construction of the aluminium hull can start. All of the aluminium will be cut with a computer-guided system at the supplier and delivered as a construction package to the shipyard.

Construction of the hull will take place in the summer.

3. *Fitting out of the hull*

The last phase is the internal fitting out of the hull: placing engines and finishing the engine room, building in laboratories, huts, galley, wheelhouse and the accommodation with the associated components and electronics.

The second half of 2021 has been reserved for the completion

4. *Commissioning*

After a successful period of commissioning and trial runs, the ship will be handed over to NIOZ



Everything depends on proper scheduling by the shipyard. Many components and the required efforts of subcontractors must be ordered and agreed upon well in advance. Examples of this are purchasing the aluminium, producing the cutting package, and purchasing the engines, galley equipment, electronics, and other inventory. Furthermore, NG Shipyards and its subcontractors are expected to put together the ship with respect for the environment and, insofar as this is practically possible, to build in a sustainable manner and minimise waste.

NIOZ has a say in the choice of components and subcontractors. A construction meeting will be held with NG Shipyards every one to two weeks to prevent bottlenecks and to resolve these quickly should they nevertheless occur.

NIOZ has also hired Feico Hoogeveen (NAVIS, Harlingen) to supervise the building of the RV Wim Wolff and RV Adriaen Coenen. NAVIS is specialised in supervising the construction of new ships.

More information can be found at <http://www.NewResearchFleet.nl>

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