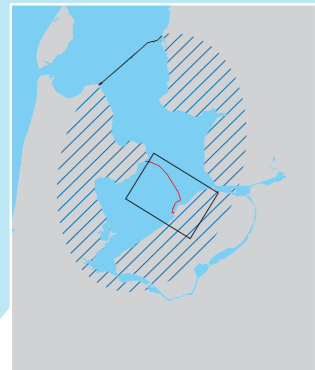


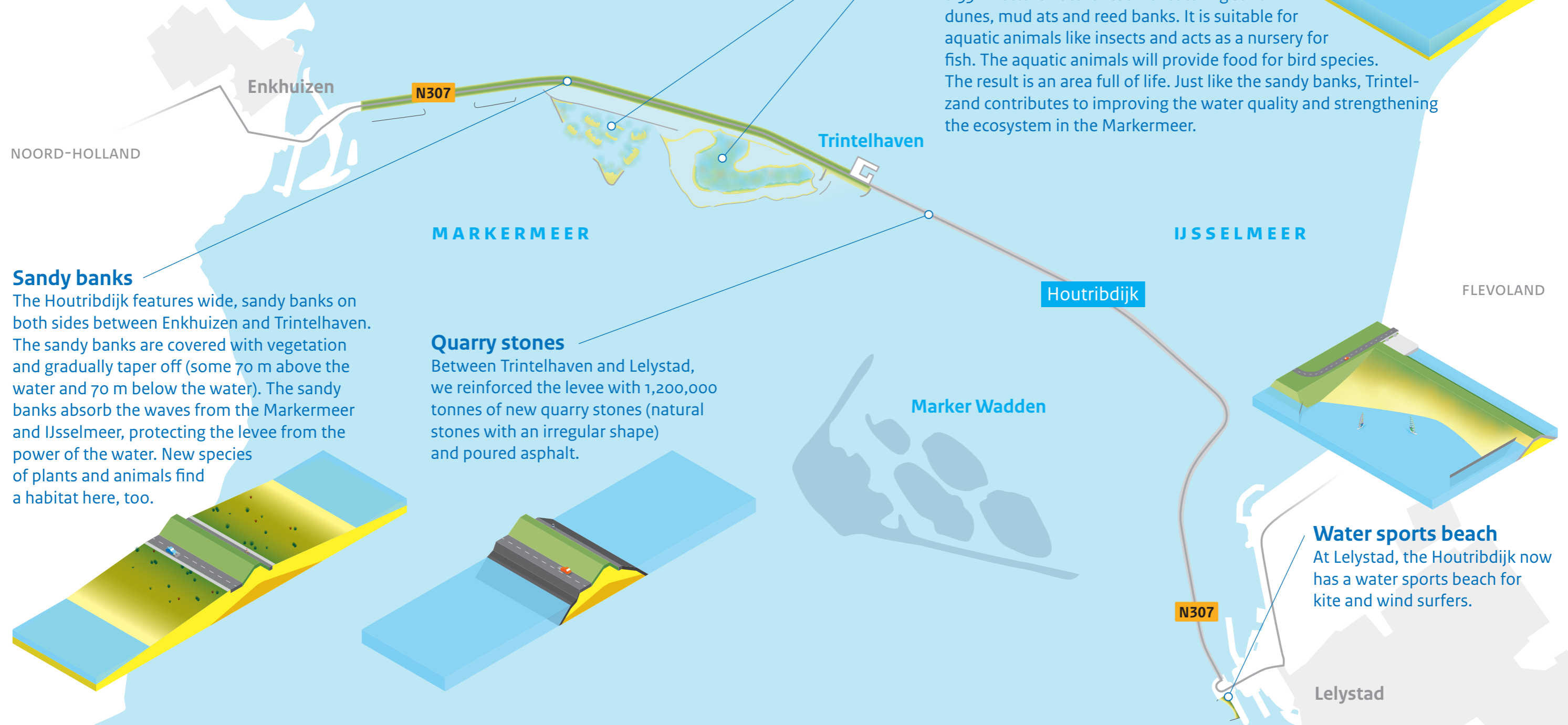


# Reinforcement of the Houtribdijk



Protective effect of the Houtribdijk in the Netherlands

The Houtribdijk serves as a massive breakwater between the IJsselmeer and the Markermeer during storms. This makes the Houtribdijk vitally important for flood risk management in all provinces in the IJsselmeer region. A part of the Houtribdijk is reinforced with quarry stones. Another part of the levee is reinforced using wide, sandy banks. This way of Building with Nature in a lakeside area is a worldwide first. We also developed Trintelzand, a new nature reserve. The reinforcement (2017-2020) was part of the national Flood Protection Programme, in which Rijkswaterstaat and the regional water authorities face the largest dike reinforcement operation ever undertaken. [www.rijkswaterstaat.nl/houtribdijk/english](http://www.rijkswaterstaat.nl/houtribdijk/english)



## New nature reserve Trintelzand

One of the largest 'extra' interventions is the creation of Trintelzand, a 532-hectare nature reserve featuring sand dunes, mud flats and reed banks. It is suitable for aquatic animals like insects and acts as a nursery for fish. The aquatic animals will provide food for bird species. The result is an area full of life. Just like the sandy banks, Trintelzand contributes to improving the water quality and strengthening the ecosystem in the Markermeer.

## Sandy banks

The Houtribdijk features wide, sandy banks on both sides between Enkhuizen and Trintelhaven. The sandy banks are covered with vegetation and gradually taper off (some 70 m above the water and 70 m below the water). The sandy banks absorb the waves from the Markermeer and IJsselmeer, protecting the levee from the power of the water. New species of plants and animals find a habitat here, too.

## Quarry stones

Between Trintelhaven and Lelystad, we reinforced the levee with 1,200,000 tonnes of new quarry stones (natural stones with an irregular shape) and poured asphalt.

## Water sports beach

At Lelystad, the Houtribdijk now has a water sports beach for kite and wind surfers.