

Vattenfall uses uncrewed vessels for safer, greener seabed inspections



Vattenfall recently conducted their first large-scale seabed survey using uncrewed surface vessels, with very positive results from both a climate and safety perspective. This has opened up the potential for the wider use of this new technology. During the summer and autumn of 2022, Vattenfall successfully conducted large-scale seabed surveys with uncrewed surface vessels at several

of their offshore wind farms in Denmark, Sweden and the United Kingdom.

As part of operating an offshore wind farm, it is essential to periodically survey the seabed around turbine foundations and substation jacket legs to monitor changes in cable burial depth and scour development. This information is also critical for repair and maintenance activities involving jack-up vessels, which require a stable seabed to ensure safe elevation out of the water.

Less fuel, improved safety and well-being

Traditionally, seabed surveys have been conducted using crewed vessels, resulting in considerable emissions of carbon from the burning of fuel.

“When we issued the tender to select a contractor for seabed surveys across our Danish wind farms, we received an interesting proposal using [uncrewed vessels](#). Having observed their deployment in small-scale trials elsewhere, we were curious to understand how successful their deployment would be on a larger scale. This technology consumes much less fuel than a traditional survey vessel, and because the vessel is controlled from an onshore operations centre instead of having a crew onboard, personnel aren’t exposed to the same challenges as working offshore, thereby improving safety and well-being,” said Rasmus Juncher, senior lead geophysicist at Vattenfall.

The uncrewed vessel is significantly smaller (4.5m total length) than crewed vessels, and typically also more modern, which explains the big fuel saving.

Visual inspections and in-site investigations

Vattenfall aims to expand the use of uncrewed vessels in future operations: “This is the first step of many using uncrewed vessels, supporting the aims of a fossil-free future. We want to pursue further opportunities to support other functionalities of the uncrewed vessels, for instance for visual inspections of our assets both above and below water and for in-site investigations on a broader scale to support the wind farm design. The journey of autonomous vehicles in general has just begun and I believe that the possibilities are endless. I am proud that Vattenfall is part of the journey. This is only the very beginning,” Rasmus Juncher continued.

The service was provided by ocean data acquisition company [XOCEAN](#), who has used uncrewed survey services since 2019.

“Our uncrewed survey vessel platform offers a safe, reliable and low-carbon solution for the collection of ocean data. We are delighted to be supporting Vattenfall through the provision of sustainable data to support their survey requirements across the development and operation of their offshore wind farms,” said James Ives, CEO, XOCEAN.



XOCEAN USV conducting a large-scale seabed survey for Vattenfall.