

The challenge

Scientists from the Centre for Environment, Fisheries and Aquaculture Science (Cefas) in the United Kingdom are working to assess the environmental condition of the North Sea in accordance with international agreements and European Directives; for example the OSPAR Strategy for the protection of the marine environment and the Marine Strategy Framework Directive (MSFD). These require multiple parameters to be measured in near- and off-shore waters.

Cefas records observations at sea throughout the year from a variety of platforms, including moored instruments such as Cefas SmartBuoys, research vessels, FerryBoxes and satellites. However, there are still important data and knowledge gaps.

Our approach

A Wave Glider was launched at Lowestoft in Suffolk and equipped with standard sensors—weather station, wave height and temperature sensors—as well as instruments added by Cefas scientists to measure oxygen concentration and saturation, turbidity, the chlorophyll fluorescence of phytoplankton, and salinity. Observations were recorded by a specially integrated Cefas data logger and data were transmitted to shore via satellite telecommunications in near real-time.

Over a period of 28 days the Wave Glider travelled 380 nautical miles, in an area of the North Sea with strong currents and crowded with hazards, while providing spatial and temporal measurement capabilities too difficult and costly to achieve with current platforms.

While SmartBuoys provide high-frequency, high-quality data, measured at a fixed point, the instruments mounted on the mobile Wave Glider provided greater spatial coverage between platforms and more accurately determined the spatial representation of our SmartBuoys' data.

— Jo Foden, Cefas project manager

Customer

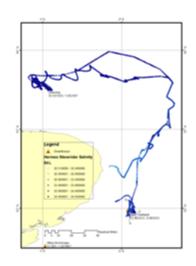
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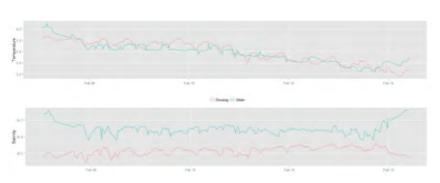
Mission location

North Sea

Wave Glider

Standard SV2 platform with additional oceanographic sensors





Above: Good agreement between measurements from the Wave Glider and the Dowsing buoy

Left: Wave Glider track shown with graduated point colour illustrating the salinity logged by the ESM-2

