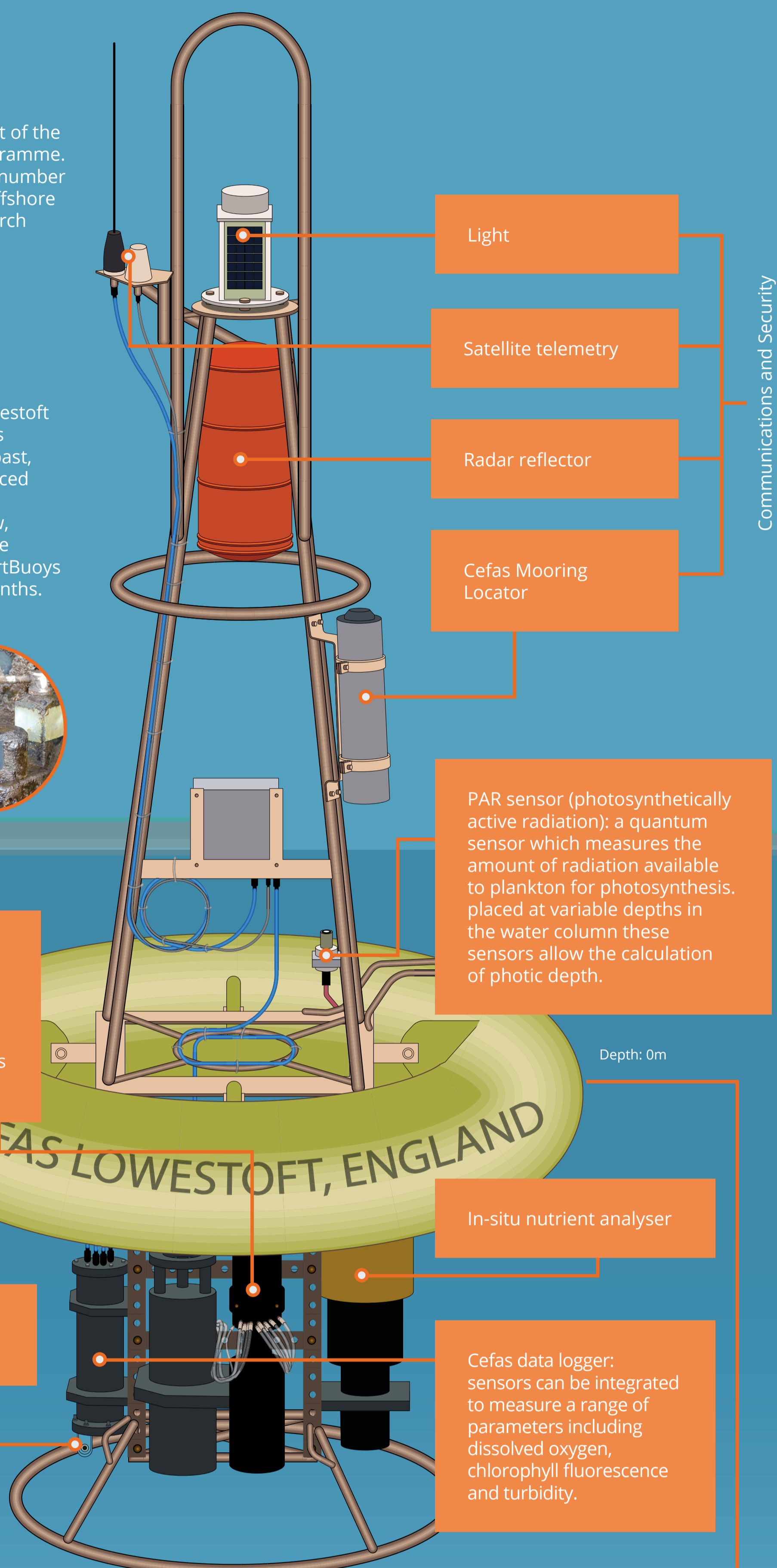


What is a SmartBuoy?

The core SmartBuoy network is part of the UK eutrophication monitoring programme. SmartBuoy technology is used in a number of sectors including government, offshore wind, nuclear new build, and Research Council projects.

How are they deployed?

The SmartBuoy Team based at Lowestoft deploy and recover the SmartBuoys using R/V Cefas Endeavour. In the past, SmartBuoys would have to be serviced on a monthly basis due to marine conditions fouling the sensors. Now, wipers have been added to keep the sensors clean in-situ, allowing SmartBuoys to remain at sea for up to three months.

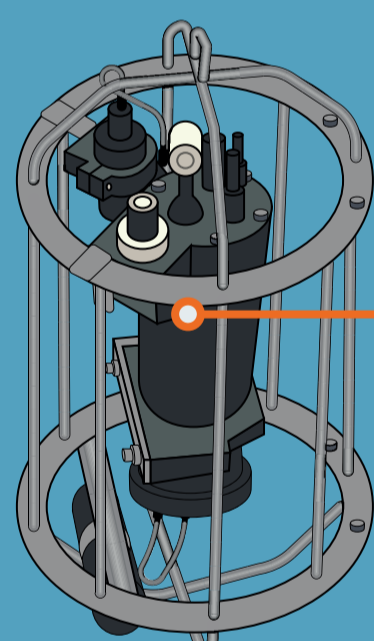


Additional applications

The frame of the SmartBuoy has plenty of room to customise the equipment it takes, depending on the data desired.



Settling plates can be added to the underside of the SmartBuoy to determine which invasive non-native species are present.



In addition, the Cefas data logger and suite of sensors can be mounted on a range of platforms or placed at varying points in the water column depending on the research design.

Depth: 50m

This configuration can also be deployed in a tethered frame on the mooring line at chosen depths in the water column. This can also be used for water column profiling.



Mussel cages and passive sampler strips can be added to measure the contaminants present, an indicator of the health status of the sea.



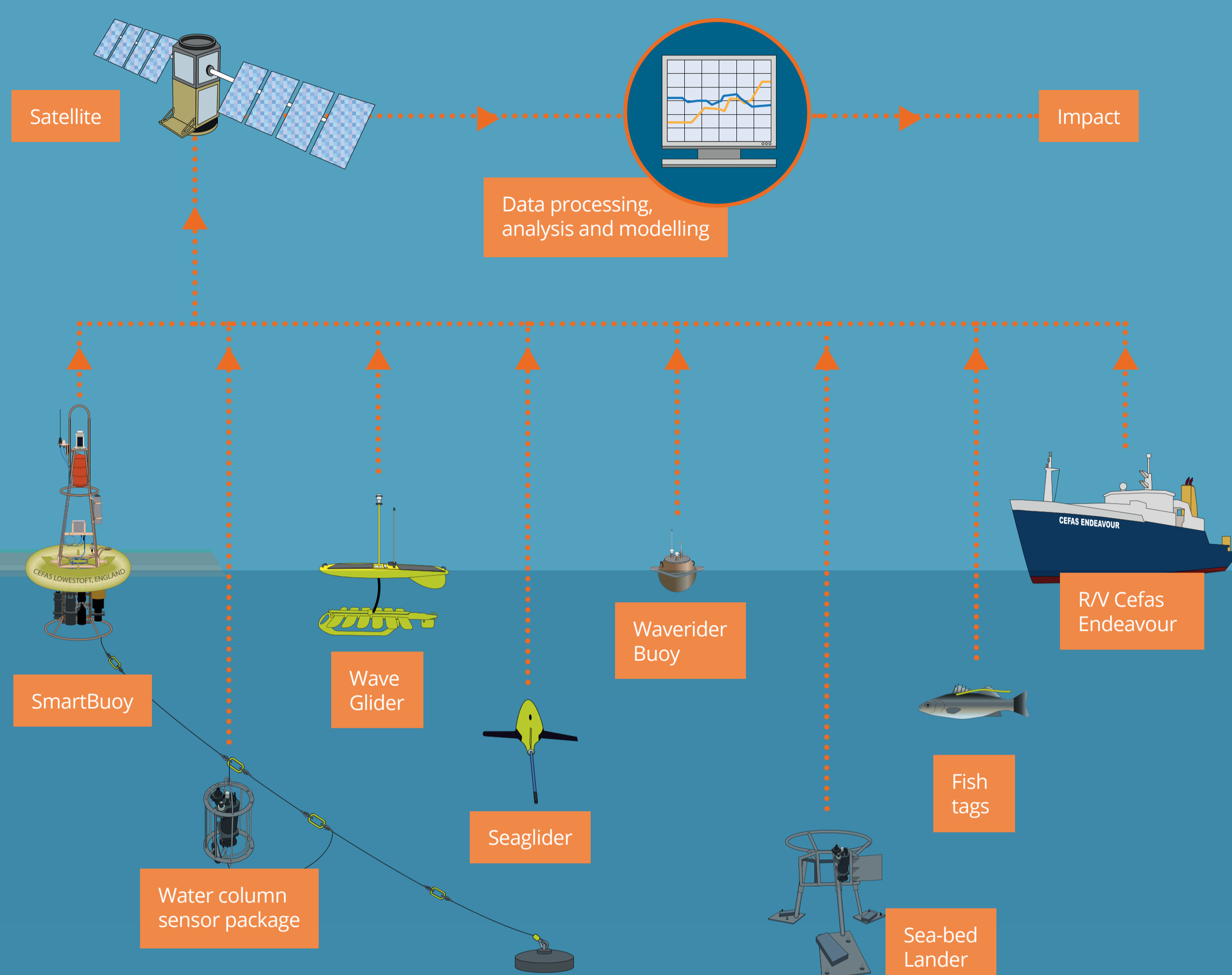
Depth: Sea floor

The same suite of sensors can be placed on a lander on the sea floor - typically waves, currents, turbidity, salinity, temperature and water depth are measured for the offshore renewables industry.

The Cefas Integrated Observatory

Cefas operates a coordinated network of observations in the marine environment with integrated data management and web based data analysis tools. The observatory is designed to provide data and enable scientific research for a range of applications including

- make assessments of aquatic environmental status
- flood forecasting
- understanding coastal processes
- contaminant fate and transport
- coastal protection
- model validation
- ground truthing of satellite products
- support for offshore engineering projects

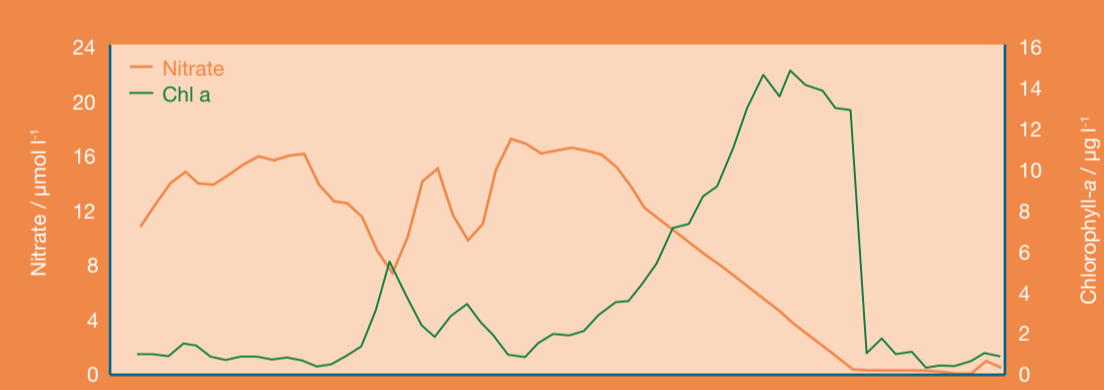


How has this data been used?

SmartBuoys have been used to contribute to OSPAR and the Charting Progress 2 assessments; contributed to the defence of infraction proceedings under the Urban Waste Water Treatment Directive; provided validation of ecosystem models and remote sensing products; been used in targeted process studies; for studying dredge disposal and, studying sediment transport.

As of March 2015, SmartBuoy data has been included in over 40 peer-reviewed research papers.

This data from the East Anglian Plume mooring highlights the capacity of SmartBuoy to deliver high temporal resolution insight into the marine environment. Nitrate can be seen to decrease rapidly as chlorophyll increases during the spring bloom. This data (from 2000) was collected as part of a collaborative study between NERC funded scientists at UEA and Defra funded scientists at Cefas into the transport of nitrogen from UK rivers across the North Sea, informing policy on trans-boundary pollution. This collaboration is ongoing and continues to deliver insight into nutrient transport issues in the North Sea.



Our Collaborators

This map shows the many institutions throughout Europe collaborating with Cefas.

Our Smartbuoys and Landers

PLATFORM LOCATION

- Active
- Historic

