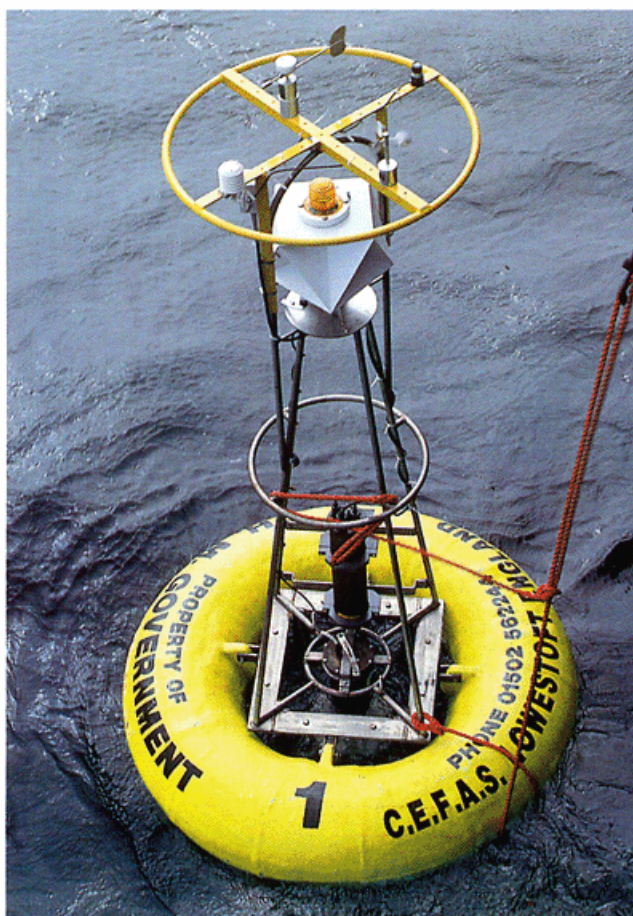
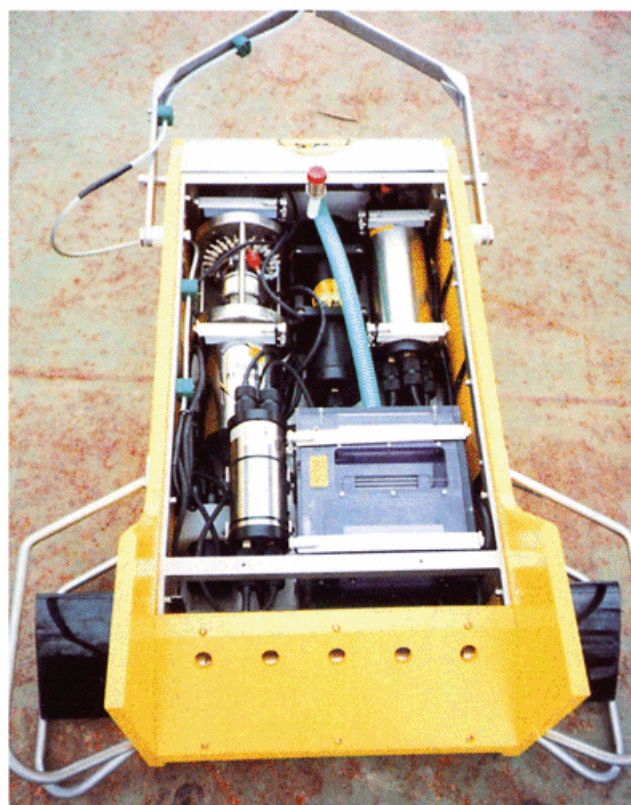


New Generation Marine Environmental Monitoring Technology

Detecting change and identifying its causes (natural, climatic or anthropogenic) forms the basis from which effective management strategies for sustainable use and protection of marine environment can be developed. Measurement and monitoring of the marine environment by survey vessel alone is costly, time-consuming and provides a relatively infrequent dataset against which to assess environmental change. To meet the need for improved detection and measurement of ecosystem change over appropriate temporal and spatial scales a new approach is required.



Smart Buoy being deployed



U-Tow with payload exposed

Novel instrumentation

In response to this need, CEFAS and W.S. Ocean Systems have developed a new generation of self-contained and automated systems that offer cost-effective solutions to high frequency, multi-parameter data collection in the marine environment.

- High frequency sampling in time and space
- Physical, chemical and biological measurements
- Smart technology enables conditional water sampling
- Smart Buoys and Minipods for total marine observations
- Real-time global monitoring via telemetry
- Custom configured systems

Integrated solutions

Based on the development of this novel range of instrumentation, CEFAS and W.S. Ocean Systems, with complimentary expertise in marine environmental science and oceanographic equipment manufacture, together offer a unique package of leading-edge technology and internationally recognised scientific services to provide an integrated approach to understanding environmental problems.

Features

- Proven operational systems
- Operational monitoring
- Project and operational management
- Data processing and interpretation
- Instrumentation calibration and support
- Cost-effective solutions

Applications

- Enhanced assessment of environmental health
- New insights into ecosystem function
- Improved understanding of environmental variability
- Monitoring change in marine biodiversity
- Early warning and forecasting
- Improved model validation and testing

Smart Moorings

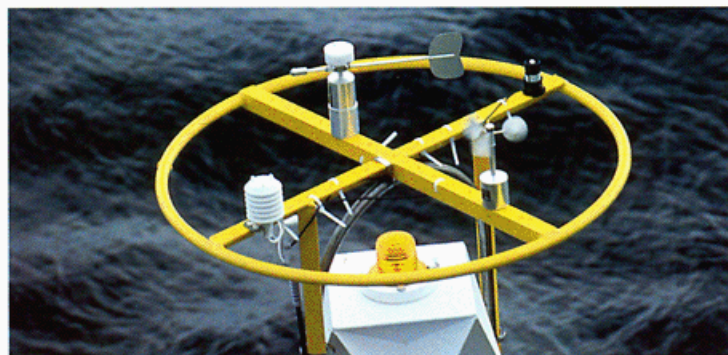
- Moored observational platforms to measure temporal variability in physical, chemical and biological parameters
- *In-situ* automated sensors and plankton sampler
- Featuring **Smart Buoy** technology, an integrated sensor and 'intelligent' sampler system
- Independent *in-situ* automated calibration of sensors
- *In-situ* nutrient analyser
- Real-time global 2-way telemetry
- Sensor configuration to meet user needs

Intelligent towed bodies

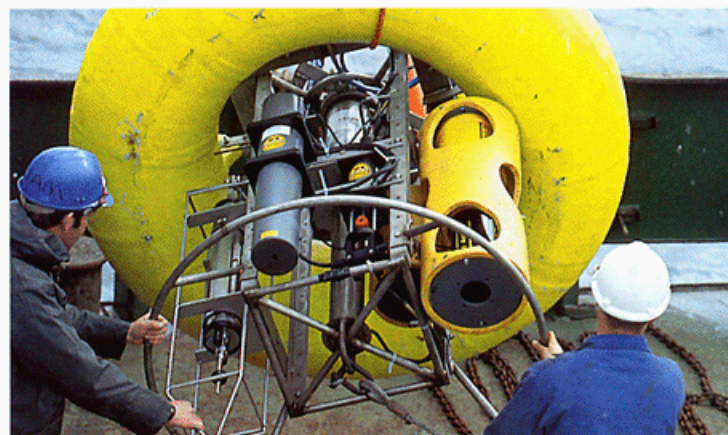
- **U-Tow** is a ship-towed integrated system to measure spatial variability in physical, chemical and biological parameters
- Complete plankton sampling (micro - to zooplankton)
- Shared technology with **Smart Buoy**

Bottom landers

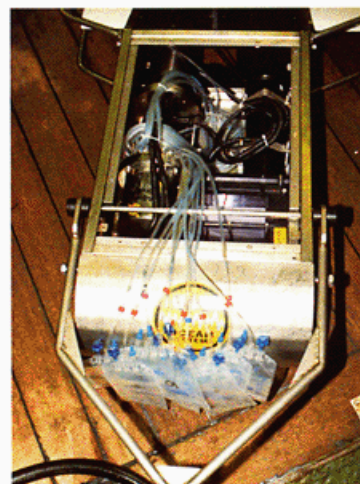
- **Minipods** and **Microlanders** are examples of a range of flexible seabed landers for measuring near seabed processes
- Highly flexible application-specific build and deployment options
- Automated *in-situ* measurements of sediment processes
- Simultaneous measurement of physical, chemical and biological parameters
- *In-situ* calibration of optical and acoustic sensors



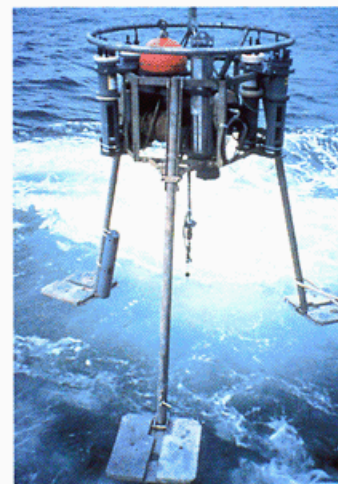
Meteorological sensors on Smart Buoy



Smart Buoy showing instrument payload



U-Tow with collected seawater samples



'Minipod' lander being prepared for deployment

For further information about any of our services or to discuss your needs with one of our specialists please contact