

SmartBay - Facilities

SmartBay is Ireland's national marine test and demonstration facility for the development of innovative products and services for the global maritime sector. It is located 4.5km east of Spiddal in County Galway approximately 1.5km offshore and in water depths of c. 23m.

The test site allows smaller scale devices, or those at an earlier stage in their development, to gain sea experience in less challenging conditions than those experienced at full-scale Atlantic Ocean test sites.

Sub-sea Cabled Observatory

The sub-sea cabled observatory includes:

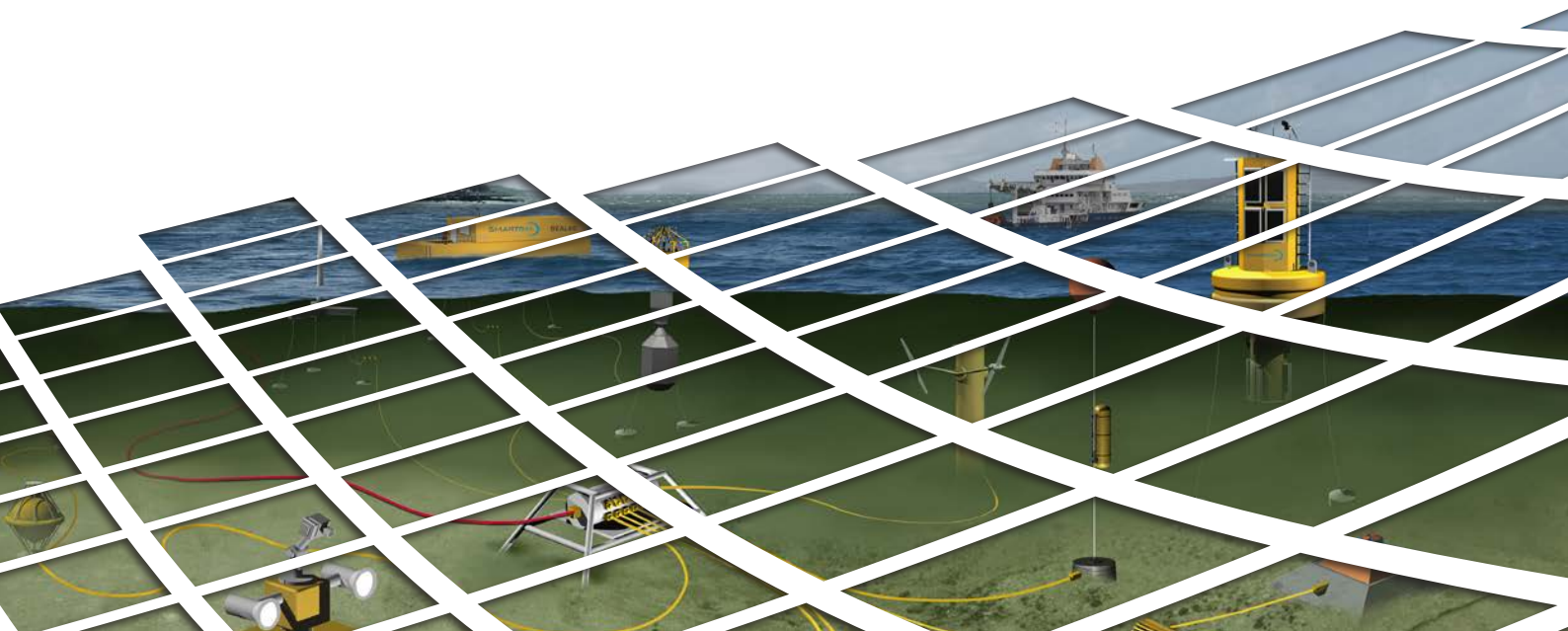
- A fibre optic data and 400v power cable
- High speed communications via 4 pairs of optical fibres
- A sub-sea cabled sensor platform which hosts a variety of sensors and equipment which can be tested and demonstrated in near real-time.

The observatory hosts 23 science ports, of these 23 ports:

- 4 are optical
- 18 electrical (Serial or Ethernet) of which 10 will be dedicated to the test and demonstration of new and novel equipment
- 1 coaxial port supporting a high definition camera.

The cabled observatory hosts the following sensors on a permanent basis:

- Conductivity, Temperature and Depth
- Dissolved Oxygen
- Combined Turbidity and Fluorescence sensor
- Acoustic Doppler Current Profiler
- High frequency hydrophone
- Acoustic fish tag detector.





Buoy Network

Mobilis DB8000 buoys are currently in use for testing and validating a range of novel sensors and to efficiently gather meteocean time series data. The buoys can host a variety of communications protocols to shore including; GPRS, Satellite, VHF, Wimax, GSM, 3G and Wi-Fi. These services allow simple high-speed backhaul connectivity for devices located in, or near the test site. The buoys 3G HPSA+ communications include download speeds up to 21Mbps, and uploads speeds up to 5.76Mbps, taking advantage of nearby next generation mobile sites.

Buoys can have single, bridle, or multipoint moorings through the hull compartment facilitating diverse and easily adaptable deployment solutions depending on user specific requirements. The data buoys allow for the trial and validation of a variety of sensors. Mobilis DB8000 buoys have the ability to power multiple sensors and the capability to generate autonomous power including Solar PV and Wind Power harvesting.

Acoustic Array

The observatory supports an acoustic array on one of the optical ports. This array incorporates 12 hydrophones (6 landers with 2 hydrophones per lander). The acoustic array allows focused monitoring and measurement of ocean noise in relation to marine ecology, ocean energy devices, sub-sea devices and other related purposes.

Data Delivery Portal

Data acquisition systems can be used for transmitting, collecting, parsing and storing data from all surface and subsea sensors tested within the test site. Data is made available to users via a data portal or directly to the user.

The portal offers:

- Sensor data collection from NMEA and non-NMEA sensors
- Tailored data acquisition timing intervals
- Collection and access to raw and parsed data
- Access to both historical and real-time data
- Access to data in a variety of formats e.g. csv, json, kml
- Integration of federated data sets
- Secure data access.



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