SMARTBAY IRELAND

SmartBay Newsletter

Issue 15: Oct 2018

Welcome from the General Manager

Welcome to the latest edition of the SmartBay newsletter. At the start of 2018 we shared the good news with you that a 35-year foreshore lease had been awarded for the test site. Since then the Marine Institute as lease holders, have been working hard at implementing the requirements of the lease before recommissioning the test site. At the end of July we were delighted to see that the cardinal marks for the test site were successfully deployed and a number of monitoring projects were initiated. This marks a positive new start for the lease as we ready ourselves for an exciting array of projects in the years ahead.

Along with the test site recommissioning this summer, the SmartBay Observatory received an overhaul in May when it was recovered from the seabed after successfully recording 13 months of data in the Test Site. This platform for innovation was redeployed in July after a thorough clean, maintenance and refit by the operations team. You can read more about the refit below.

Technologies currently deployed on site include three devices funded under the H2020 funded Jerico-NEXT project, one project for the Spanish company Zunibal, who are developing a directional wave buoy called Anteia. Another project from the CNR/CSIC (Italy), involves the trial of an underwater camera system designed to observe benthic activity. A third project undertaken by a team from the University of Aveiro, Portugal involves the trial of a specialised net for Microplastics sampling at the observatory. Preparations are currently underway for a deployment, by a company called Smalle-Tec, who will trial and validate the performance of an energy harvesting device for generating power from waves for powering sensors in floating buoys. You can read more about these below.

The FORESEA project has also been keeping us busy at SmartBay, as we received 3 more applications for use of the test site, in the 4th call for applications. These applicants were all recommended for funding and the projects will cover the development of a range of novel ocean energy products and services. Our ocean energy developers supported by FORESEA have all been approved for access to the test site under the new lease and we look forward to working with them over the coming months to prepare for deployments at the site.

We have had a busy start to the year in terms of workshops and events at SmartBay. In January we co-hosted with the Marine Institute a knowledge transfer workshop in Galway for our Cypriot project partners in the MaRITec-X project. In February, we co-hosted a workshop & networking event on Marine Acoustics with Marine Institute and Sustainable Energy Authority Ireland. Further detail is available here. In March, SmartBay Ireland organised a Responsible Research and Innovation workshop on Marine Spatial Planning as part of the H2020 MARINA project. More detail here.

Finally, I would like to say farewell to our Senior Software Developer Regina McNulty who has left to take up an exciting role in Tusla, Regina was the first SmartBay Ireland employee and I would like to wish her the best in her new role and to thank her for her hard work and dedication throughout her time with us.

John Breslin

General Manager

Test Site Operational Activities

Observatory

In May the SmartBay Observatory was brought ashore for essential maintenance and cleaning. The underwater observatory, which is permanently located 1.5 km off the coast of Spiddal, had been continuously monitoring the underwater environment for the previous fifteen months. The observatory which was funded by Science Foundation Ireland & SmartBay Ireland and the Marine Institute, uses cameras, instruments and sensors to provide a live stream of underwater observations. This service gives ocean researchers unique real-time access to monitor ongoing changes in the marine environment. As part of the maintenance, the observatory was cleaned, all the scientific instruments were replaced, and a new underwater lamp along with a second UV antifouling light were added to improve the high definition video camera footage. The frame itself was also refitted with 10 cable spools/drums, which enables all the ports on the observatory to house enough cable to connect devices at the surface, in a dry environment, before long term deployment underwater for testing.

Recommissioning the Test Site

In July, four new cardinal marks were deployed at the test site. These marks delineate the test site for mariners, marking out the full area of the site which will be used for testing a variety of marine devices and equipment. Within the 550mx670m test site there are 3 berths for scaled ocean energy devices, as well as an area set aside for the underwater observatory. In July, coinciding with the test site recommissioning the newly refitted and cleaned observatory was redeployed, the SmartBay instrumented buoy and the Waverider buoy were deployed also; these form part of a suite of the permanent equipment available for use by technology developers who are accessing the site. You can read more about the current projects deployed onsite below.

Project Deployments

FORESEA

Funded by a FORESEA Support Package, Blue Ocean Monitoring deployed their acoustic enabled glider on the test site in September. The glider was deployed and piloted for a 24/7 period, where it collected acoustic data for the site to complete an acoustic landscaping of the area, compare the data collected against the fixed PAM system onsite and to gain a better understanding of what can be achieved with an acoustic glider platform rather than a fixed platform onsite. The information collected will be used to create an acoustic model of the test site. This will provide valuable information to the test site operations team and to wave energy developers at the site, providing a better understanding into sound propagation from wave energy converters and useful data for environmental monitoring.

Jerico-Next

The transnational access period allocation to the Galway Bay Underwater Observatory offered under Jerico-Next was used up by three projects including, Sonardyne (project ECSyrinx, reported previously), CNR/CSIC (project Advance) and UAveiro (project MicroPlastox), all of which have requested a minimum of 2-months access. Project EC-Syrinx as described in the previous issue, Project Advance will support the installation of an underwater video camera for studying benthic communities in the vicinity of the observatory, scheduled for Summer 2018. Project MicroPlastox studies the distribution of micro-plastics in seawater in several parts of the world; the SmartBay Observatory will collaborate in the project with the installation of a micro-net for sampling of plastic. From a previous call in Jerico-Next, the new lease at the test site enabled the deployment of a wave measuring buoy developed and manufactured by Zunibal.

Smalle-Tec: eForcis Deployment

The company SmalleTec have deployed their small-scale energy harvesting device eForcis in the test site this month. The device is housed in a water tight box which sits on top of a Marine Institute buoy and uses he motion of the buoy and simple electromagnetic principles to harvest energy. The energy generated in this novel device can be used as an alternative power source to address electricity supply shortages in off-grid marine devices operating in harsh marine conditions. The Spanish company are funded by the EU under the Ocean-EraNet programme and the SME instrument to trial and validate the eForcis design in SmartBay and will perform a second trial in 2019 of beForcis, which is an improved eForcis device.

Workshops

MARINA Worshop

Smartbay Ireland hosted a workshop in March to discuss 'what is Marine Spatial Planning (MSP) and how can it be used to help inform decisions about the sustainable utilisation of Irelands marine resources, while using the Mobilisation and Mutual Learning approach championed by the H2020 Marina Project'.

The workshop included two presentations, the first was delivered by Peter Campbell, Project Manager Ports and Logistics, SSE Renewables, highlighted the current status of the Offshore Wind Energy industry and the opportunity for Ireland. Caitriona Ni Aonghusa, Marine Institute, presented on the current status of the Marine Spatial Planning process in Ireland with input from Philip Nugent, Department of Planning, Housing and Local Government.

The workshop was attended by 22 individual stakeholder representatives from government agencies, NGOs, marine researchers and industry. Discussion was developed using a "Focus Group" methodology to develop an agreed initial Roadmap to overcome the challenges as identified by the participants.

Acoustics Workshop

The Marine Institute, Sustainable Energy Authority of Ireland and SmartBay Ireland hosted a Marine Acoustic Workshop and Networking Event on Wednesday, 7th February 2018 at the Marine Institute Headquarters in Galway. The Workshop highlighted developments and milestones in Marine Acoustics in Ireland over the last decade and facilitated the interaction and networking of stakeholders including acoustic experts from both academia, industry and government. Further details on the presentations and discussion are available here.

SmartBay Facilitated Research

National Infrastructure Access Programme: Marine Inspired Design for Antifouling Technology- Dublin City University (DCU) Project- Chloe Richards

Biological fouling, is the undesirable formation of organisms on a surface immersed in water. When the exterior surface of an object such as a sensor or any item, is submerged in seawater for a prolonged period, micro and macro organisms usually accumulate on the surface. This research project focused on creating novel antifouling (AF) coatings and textures inspired by the brown crab and other familiar fish species. Techniques such as 2-photon 3D printing, and photolithography have been used to prepare these novel test structures. Transparent coatings are being studied because of their importance for application to sensors with optical windows or underwater camera windows.

To date, a study has been completed at the SmartBay Test Site in which DCU assessed the abundance and diversity of biofouling organisms present on glass panels coated with the above novel transparent coatings for optical sensors. Diatom assessment was used to determine the effectiveness of the transparent coatings against biofouling. Test panels were deployed in Galway Bay for six months. Some preliminary results of the study show there was a low diversity of diatoms with most species listed occurring on the slides repeatedly. Cocconeis was found to occur on all materials.

Currently, DCU have deployed novel AF coatings and textures replicating the brown crab and brill fish in Galway Bay. The next step is to take back these coatings and textures for assessment by SEM, FT-IR, EPS, Protein and Carbohydrate. DCU can then deploy more optimised coatings and textures to aim for our end goal of creating novel AF coatings and textures which will have huge benefit to the marine industry.

HSEQ Management

SmartBay successful in ISO 9001 & 14001 recertification

SmartBay Ireland has successfully transitioned from ISO 9001:2008, ISO 14001:2004 to certification under the new standards ISO 9001:2015 and ISO 14001:2015 and maintained its accreditations under OHSAS 18001:2008. Having first successfully attained accreditation under all three standards in December 2015 SmartBay Ireland's processes and commitment to continuous improvement were recognised as meeting all standard requirements during the recertification audit which took place in August. This was carried out by SGS, a global provider of verification, testing and certification support and marks the beginning of a three-year cycle where ongoing periodic reviews of the organisation's Health Safety Environment and Quality management system are carried out to ensure continued compliance with the ISO and OHSAS standards.

Speaking following the announcement John Breslin, Smartbay General Manager said, "Recertification and a successful transition to two new standards, demonstrates SmartBay Ireland's continued commitment to the health & safety of our employees, the quality of our work and the impact of our activities on the Environment".

ISO 9001: 2015 is the internationally recognised standard for quality management systems and ensures organisations deliver products and services that consistently meet the highest international standards. ISO 14000: 2015 is a series of environmental management standards which provide a guideline, or framework for organisations that need to systematise and continually improve environmental management efforts. OHSAS 18001 is an internationally recognised occupational, health and safety management system standard. This standard requires a company to have appropriate health and safety policies, procedures and protocols to maintain the safety and well-being of its employees, contractors and the general public.

National Infrastructure Access Programme (NIAP) Funding

A new NIAP call to access the test site infrastructure and the SmartBay observatory is being prepared for publication before the end of the year. As usual, this NIAP will promote the use of the infrastructure in SmartBay through the provision of fund support for projects from academia and/or industry. These projects which will benefit from access to high-end equipment (such as the observatory or the instrumented databuoy), or services (such as the marine services made available by the Marine Institute). This call will support 6 to 8 independently selected projects for commencement in Q2 2019. The details of the call will be available through the SmartBay and Marine Institute's websites; stay tuned!

Project newsletters

MARINA

Issue 3 of the MARINA EU H2020 Project Newsletter is now available online. Inside this issue you will find:

- Science Education: which is the role of creativity to engage citizens with science?
- Ocean Literacy: engaging and empowering Europeans
- First glimpse of the MARINA RRI Roadmap: open to your contributions
- Responsible Research Innovation Stories and more

The magazine can be downloaded here

Meloa

The MELOA project (Multi-purpose/ Multi-sensor Extra Light Oceanography Apparatus) will publish an annual Newsletter to update you with the latest technology developments on the WAVY's family, and other project activities, such as test campaigns and workshops. If you would like to get involved in a demonstration of the drifter or would like to use one, or more drifters in your own project or idea (be it at the littoral, or in the open ocean), please get in touch with SmartBay or visit the website of the project (www.ec-meloa.eu). Sign up to the newsletter here

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