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## ACOUSTIC IMAGING AROUND MARINE RENEWABLE ENERGY DEVICES – FIELD DEPLOYMENTS OF THE FLOWBEC PLATFORM

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### ABSTRACT

Rapid development of Marine Renewable Energy Devices (MREDs) strongly focuses on tidal and wave sites, although little is known of impacts on surrounding ecosystems. Quantification of the behavior and distribution of animals around MREDs is crucial to understanding these impacts.. The NERC/Defra collaboration FLOW, Water column and Benthic ECology (FLOWBEC) produced an innovative subsea platform [1], which includes an Imagenex multibeam echosounder oriented along the axis of tidal flow, and an EK60 multifrequency echosounder, identifying targets and characterising the morphology of turbulence. Co-registration and tracking [2] will be illustrated with examples from five 2-week deployments at the European Marine Energy Centre (EMEC) in Orkney.

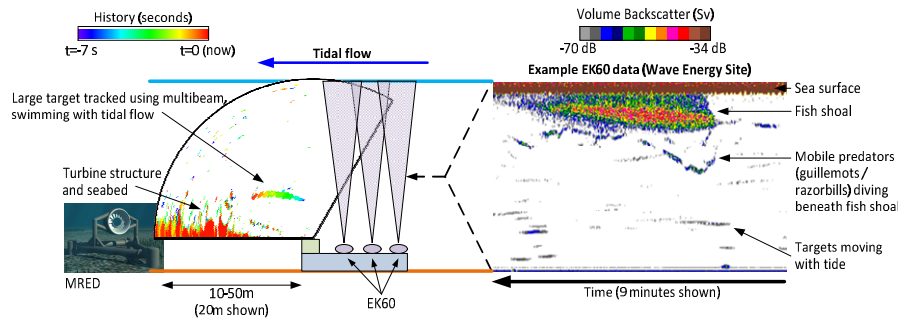


Figure 1: The FLOWBEC subsea platform captures acoustic snapshots of MREDs, marine life and the surrounding water column in a 120° sector, several times per second, at ranges up to 50 m. From [1].

### REFERENCES

[1] Williamson, B.J., Ph. Blondel, E. Armstrong, P.S. Bell, C. Hall, J.J. Waggitt, B.E. Scott; “A self-contained subsea platform for acoustic monitoring of the environment around Marine Renewable Energy Devices – Field deployments at wave and tidal energy sites in Orkney, Scotland”, *IEEE J. Oceanic Engineering*, vol. 41, no. 1, pp. 67-81, 2015

[2] Williamson, B., S. Fraser, Ph. Blondel, P. Bell, J. Waggitt and B.E. Scott, “Integrating a multibeam and a multifrequency echosounder on the FLOWBEC seabed platform to track fish and seabird behaviour around tidal turbine structures”, *Proc. 4<sup>th</sup> Marine Energy Technology Symposium (METS)*, 5pp., 2016