



## Measuring fine scale marine mammal responses around an operational tidal turbine – Project Inception

A project being undertaken by SMRU Limited, funded by the Department of Energy and Climate Change (DECC) Offshore Energy Strategic Environmental Assessment (OESEA) programme. For further information, contact the Project Coordinator at [jph@hartleyanderson.com](mailto:jph@hartleyanderson.com)

### Context

An understanding of marine mammal behaviour in the vicinity of tidal turbines is important in the prediction of potential impacts on individual species from the wider deployment of devices and arrays. Work to date by SMRU at the SeaGen tidal turbine, Strangford Lough, has sought to develop an active multibeam sonar system to detect the movement of marine mammals in proximity to the device. A range of systems were assessed during a DECC funded study by SMRU (see separate project information sheet for the study on the detection of marine mammals by sonar). As a result of this project, multibeam imaging sonar was trialled on SeaGen (see figure below) and capabilities for identifying marine mammals and tracking individuals around the turbine are much improved, but would benefit from validation by visual means or high resolution tagging.



Figure: Image showing the turbine with the cross arm raised out of the water (left). The mounting location of a sonar transducer on the centre of the crossbeam is shown on the right.

Current operational licence conditions of the Strangford Lough turbine are such that the turbine is shut down when marine mammals are within 30m of the installation. The resulting data from the development of the active sonar system has been useful, but has not resolved the gap in understanding interactions of marine mammals with tidal turbines in continuous operation. In order to help fill this data gap and to further develop the active sonar system, permission has been granted by the Northern Ireland Department of Environment Marine Division to temporarily suspend the shutdown protocol.

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## Project Objectives & Scope

A total of four multibeam systems will be deployed on SeaGen to provide high resolution data on marine mammal movements whilst the tidal turbine is operational, in addition to visual verification of individual animals. A remote high definition camera will also be used to record observations. A final report is due in Q4 2014.

## DECC Offshore Energy SEA

The SEA process aims to help inform licensing and leasing decisions by considering the environmental implications of a plan/programme and the activities which could result from its implementation. Since 1999, DECC has conducted a series of offshore energy SEAs, the latest covering wind, tidal stream and range, CO<sub>2</sub> and hydrocarbon gas storage, and oil & gas – see right.

Since the first SEA, the associated research programme has targeted key information gaps on the marine environment and potential industrial impacts, to inform the SEA process, developers, consenting bodies and others. Research priorities are discussed with the SEA Steering Group and a range of other stakeholders.

For more information on the OESEA programme, visit the offshore SEA web pages on <https://www.gov.uk/> or email [oepe@decc.gsi.gov.uk](mailto:oepe@decc.gsi.gov.uk)

A data portal for previous SEA reports and data is at <http://www.bgs.ac.uk/data/sea>

	Area	Sector
SEA 1	The deep water area along the UK and Faroese boundary	Oil & Gas (19 <sup>th</sup> Licensing Round, 2001)
SEA 2	The central spine of the North Sea which contains the majority of existing UK oil and gas fields	Oil & Gas (20 <sup>th</sup> Licensing Round, 2002)
SEA 2 Extension	Outer Moray Firth	Oil & Gas (20 <sup>th</sup> Licensing Round, 2002)
SEA 3	The remaining parts of the southern North Sea	Oil & Gas (21 <sup>st</sup> Licensing Round, 2003)
R2	Three strategic regions off the coasts of England and Wales in relation to a second round of offshore wind leasing	Offshore wind (R2 of Leasing, 2003)
SEA 4	The offshore areas to the north and west of Shetland and Orkney	Oil & Gas (22 <sup>nd</sup> Licensing Round, 2004)
SEA 5	Parts of the northern and central North Sea to the east of the Scottish mainland, Orkney and Shetland	Oil & Gas (23 <sup>rd</sup> Licensing Round, 2005)
SEA 6	Parts of the Irish Sea	Oil & Gas (24 <sup>th</sup> Licensing Round, 2006)
SEA 7	The offshore areas to the west of Scotland	Oil & Gas (25 <sup>th</sup> Licensing Round, 2008)
OESEA	UK offshore waters*	Oil & Gas (26 <sup>th</sup> Licensing Round, 2009) Gas storage Offshore wind (R3 of Leasing, 2009)
OESEA2	UK offshore waters*	Oil & Gas (27 <sup>th</sup> Licensing Round, 2012) Gas storage Carbon dioxide transport and storage Offshore wind, wave and tidal energy

\*For renewable energy included potential leasing in the UK Renewable Energy Zone (REZ) and the territorial waters of England and Wales but not the Scottish Renewable Energy Zone and Northern Irish waters within the 12 nautical mile territorial sea limit