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#CONNECTEDSEALS - VODAFONE AND SMRU IN WORLD FIRST

Connecting marine mammals to M2M global network

Seals and other marine mammals around the UK coast and in other parts of the world are to be equipped with the latest marine smart tags using machine-to-machine (M2M) technology in a world first.

The new project is the result of a partnership between the Sea Mammal Research Unit (SMRU) Instrumentation Group at the University of St Andrews and Vodafone UK to aid research into the rapid decline of some species of marine mammals. In the UK, some populations of Harbour seal - one of two resident UK species - have declined sharply, by up to 90% in some areas over the last 10 years.

The partnership will allow SMRU, a global leader in marine science, to equip and link smart tags worn harmlessly by seals, as well as turtles, with Vodafone's M2M technology and global network to significantly improve the reach and quality of transmission in data collected from them when they surface to breathe. The data collected is vital to SMRU and associated research organisations worldwide. It will assist them in providing impartial advice to government bodies, industry and offshore energy companies on the best practices in safeguarding seal populations and wider marine conservation.

M2M technology is being used to connect a wide range of systems to the 'internet of things'; from cars and bicycles to heart monitors and homes – however, this is the first time it has been used to connect marine mammals.

Vodafone's global M2M network provides a single and dedicated communications network from coastlines around the world to allow data about a seal's location, dive behaviour and its oceanic environment, to be sent directly from the tags to SMRU for analysis.

Vodafone UK

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SMRU developed the world's first data capture and relay tags in 1982 and has progressively improved their design and functionality for in its own use in the UK and by similar research establishments elsewhere in Europe, North America and Asia Pacific. A marine smart tag, connected to Vodafone's global M2M platform and third-party satellite services, is lightweight, no larger than a mobile phone and can withstand depths of up to 200 metres. Fixed to the fur of seals with harmless adhesive, the tags drop off during the animals' annual moult.

SMRU, which is funded by the Natural Environment Research Council (NERC), aims to produce up to 100 Vodafone M2M marine smart tags per year for use both in the UK and with other institutions all around the world. The SMRU Instrumentation Group is recognised as a world leader in the design of innovative telemetry systems for marine mammals.

Vodafone's M2M technology provides SMRU with a number of benefits, including:

- A unique core network built specifically for M2M services;
- A ubiquitous experience utilising both Vodafone owned and partner networks, offering access to hundreds of mobile networks worldwide, giving scientists more opportunities to collect data from 'tagged' marine mammals from more places, including remote areas and across different maritime borders;
- Avoids any unforeseen data roaming charges if the seal travels to a different country as it works across a single system;
- Enables SMRU to standardise the smart tags to work on one system rather than worry about working across multiple mobile phone technologies, and;
- Marine scientists can control directly the active state of every M2M SIM in each tag anywhere in the world from a single PC.

SMRU's Deputy Director Dr Bernie McConnell said: "Through the combination of technology and science, SMRU and Vodafone can help businesses and governments accelerate economic growth and responsible environmental management. Marine data collected is fundamental in balancing the health of the sea with society's need to harvest food and energy from it."

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Vodafone UK's head of corporate responsibility Emer Boulter added: "Vodafone is providing its M2M technology and consultancy to help Bernie and the SMRU team to improve their data gathering and so help shape better informed policy decisions and better stewardship of the seas. We are delighted to partner with SMRU and hope that our technology and resources can go some way in continually improving environmental assessments in order to protect local sea mammal populations."

SMRU and Vodafone began installing the M2M service this month for use on seals around the Northern Isles and western Scotland in Spring next year, for a project backed by the Scottish Government and Scottish Natural Heritage. They also plan to work together at Vodafone's laboratories in the UK to investigate ways to improve the speed and efficiency of relaying data ashore. After a dive, seals come to the sea surface to breathe only for short periods. So SMRU and Vodafone will continue to investigate ways to use these brief 'data communication' periods without expending too much battery energy.

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Note to Editors

The Sea Mammal Research Unit is based at the Gatty Marine Laboratory at the University of St Andrews. The acknowledged international expertise of Marine Science at St Andrews has led the University to commence a fundraising appeal for a new flagship building, seeking a £9.6m investment to provide a new aquarium and research facility in the East Sands at St Andrews.

A short film on #ConnectedSeals can be viewed here:

https://youtu.be/uF_wRoYLDIo

Images of the #ConnectedSeals project can be found at:

www.mediacentre.vodafone.co.uk

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