Sea Mammal Research Unit Instrumentation

25 November 2016

SCIENTISTS SUCCESSFULLY LOG INTO MARINE SMARTPHONES

WORN BY HARBOUR SEALS

Results in for stage one of a study into harbour seal population decline

Scientists have successfully completed the first stage of a Scottish Government-funded, multi-year study into the possible causes for the rapid decline in Harbour seal populations in Orkney. An essential part of this study uses the latest marine smartphones connected to Vodafone UK's 'Internet of Things' technology.

The smartphone component of this study was conducted between April and August this year. It involved scientists at the Sea Mammal Research Unit (SMRU) - part of the University of St Andrews and funded by NERC (the Natural Environment Research Council) – harmlessly gluing their unique marine telemetry tags to the fur of ten harbour seals; one of two species of seal in the UK.

The tags have now dropped off the seals following their annual moult but not before they transmitted information over the Vodafone network directly back to SMRU on the seals' behaviour and movements. The data is now being thoroughly analysed to help determine why harbour seal populations have declined in some Scottish regions, for example, 76% in Orkney since 2000, and up to 90% in other areas of northern and eastern Scotland.

To date, the data has provided SMRU with an invaluable 3D representation of each animal's activity. This remarkable and detailed insight into the secret lives of these seals allows SMRU scientists to:

- Identify the seals' feeding areas at sea and to characterise what makes these areas special;
- Thus identify where to collect water and food samples, which may hold the key to regional declines. This could offer an insight into whether the seals are exposed to toxins from harmful algae blooms;
- Determine which haul-out sites the seals use when they rest on land. This has guided SMRU's photo-identification effort aimed at assessing the long-term breeding status and survivorship of females identified by their unique fur markings; and

Vodafone UK
Vodafone House, The Connection, Newbury, Berkshire RG14 2FN, England
www.vodafone.co.uk

Vodafone UK Media Relations
Telephone: +44 (0) 1635 693 693

Registered Office: Vodafone House, The Connection, Newbury, Berkshire RG14 2FN. Registered in England No: 1471587

- Understand the rate of interchange of seals between Orkney and the Scottish mainland. Quantifying this connectivity of seals between regions helps inform appropriate seal conservation plans. In this study, one of the ten tagged seals moved to the mainland. Another travelled 100 km south to the Moray Firth, and then back again to Orkney.

SMRU's Deputy Director Dr Bernie McConnell said: "Over the last 15 years, many of the harbour seal populations in the Northern Isles and on the north and east coasts of Scotland have been declining. Marine data collected during this project on Orkney is helping to assess the causes, and possible mitigation options, in relation to the harbour seal decline. This is just the start and we will be analysing the data further before presenting the findings to Scottish Government."

Vodafone UK's Corporate and External Affairs Director Helen Lamprell added: "We are keen to break down technological barriers so that government, the scientific community and the private sector can work together in order to ensure we have the best informed policy decisions for the environment. Vodafone has a long-history in extending mobile coverage across the world, especially in developing countries and helping the most vulnerable of people, but we also want to go back to our roots in the UK and help protect one of the things our society cherishes – our sea – and the bio-system it supports."

- ends -

Note to Editors

Two new videos are available from the following links:

Extended version

Shorter version

About SMRU

The Sea Mammal Research Unit is based at the Gatty Marine Laboratory at the University of St Andrews and is funded by NERC (the Natural Environment Research Council).

SMRU's in-house engineering Instrumentation Group (SMRU-IG) developed the world's first data capture and relay tags in 1982 and has progressively improved their design and functionality for SMRU's own use in the UK and by similar research establishments elsewhere in Europe, North and South America, Asia and Australia. A marine smart tag, connected to Vodafone's global M2M platform, is lightweight, no larger than a mobile phone, but can withstand depths of up to 500 metres.

Vodafone UK
Vodafone House, The Connection, Newbury, Berkshire RG14 2FN, England
www.vodafone.co.uk

Vodafone UK Media Relations
Telephone: +44 (0) 1635 693 693

Registered Office: Vodafone House, The Connection, Newbury, Berkshire RG14 2FN. Registered in England No: 1471587

Sea Mammal Research Unit
Instrumentation

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.

For further information:

Vodafone UK Media Relations
Telephone: 01635 693 693
http://mediacentre.vodafone.co.uk/

Dr Bernie McConnell
Sea Mammal Research Unit,
Scottish Oceans Institute, University of St Andrews,
St Andrews, Fife, KY16 8LB, Scotland.
Direct +44 (0)1334 463280
Mobile +44 (0)7764 161891
Skype berniemcconnell

The University of St Andrews Communications Office
01334 467310
proffice@st-andrews.ac.uk.