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THE EAST COAST MARINE MAMMAL ACOUSTIC STUDY (ECOMMAS)

FIGURE 1.
BOTTLENOSE DOLPHIN *TURSIOPS TRUNCATUS*
(COURTESY OF THE UNIVERSITY OF ABERDEEN)

FIGURE 2.
HARBOUR PORPOISE *PHOCOENA PHOCOENA*
(COURTESY OF THE UNIVERSITY OF ABERDEEN)

FIGURE 3.
CHELONIA LTD'S CPOD WHICH RECORDS DOLPHIN AND PORPOISE ECHOLOCATION CLICKS

FIGURE 4.
WILDLIFE ACOUSTICS' SM2M MARINE RECORDER WHICH RECORDS UNDERWATER SOUNDS

Introduction

The east coast of Scotland is home to several species of marine mammal, including a protected population of bottlenose dolphins (see Figure 1) and a widely distributed population of harbour porpoise (see Figure 2). These animals are monitored to make sure that the populations are healthy and also to improve our understanding of how and when they use different areas along the Scottish coast. The plans for marine developments along the east coast of Scotland, including the installation of wind farms and significant port re-construction, make it all the more important to continue studies of these populations. Collecting data, especially over time, will give us deeper understanding of how bottlenose dolphin and porpoise use the east coast waters, and allow us to determine whether developments have an impact on their behaviour.

Research programme and methodology

MSS plan to deploy two types of passive acoustic loggers that will collect data on the relative abundance of dolphins and porpoises 24 hours a day along the east coast of Scotland. CPODs (see Figure 3) collect information on the presence and absence of dolphins and porpoises through detecting their echolocation clicks. SM2Ms (see Figure 4) record ambient noise underwater, and these data can then be processed to distinguish between dolphin species.

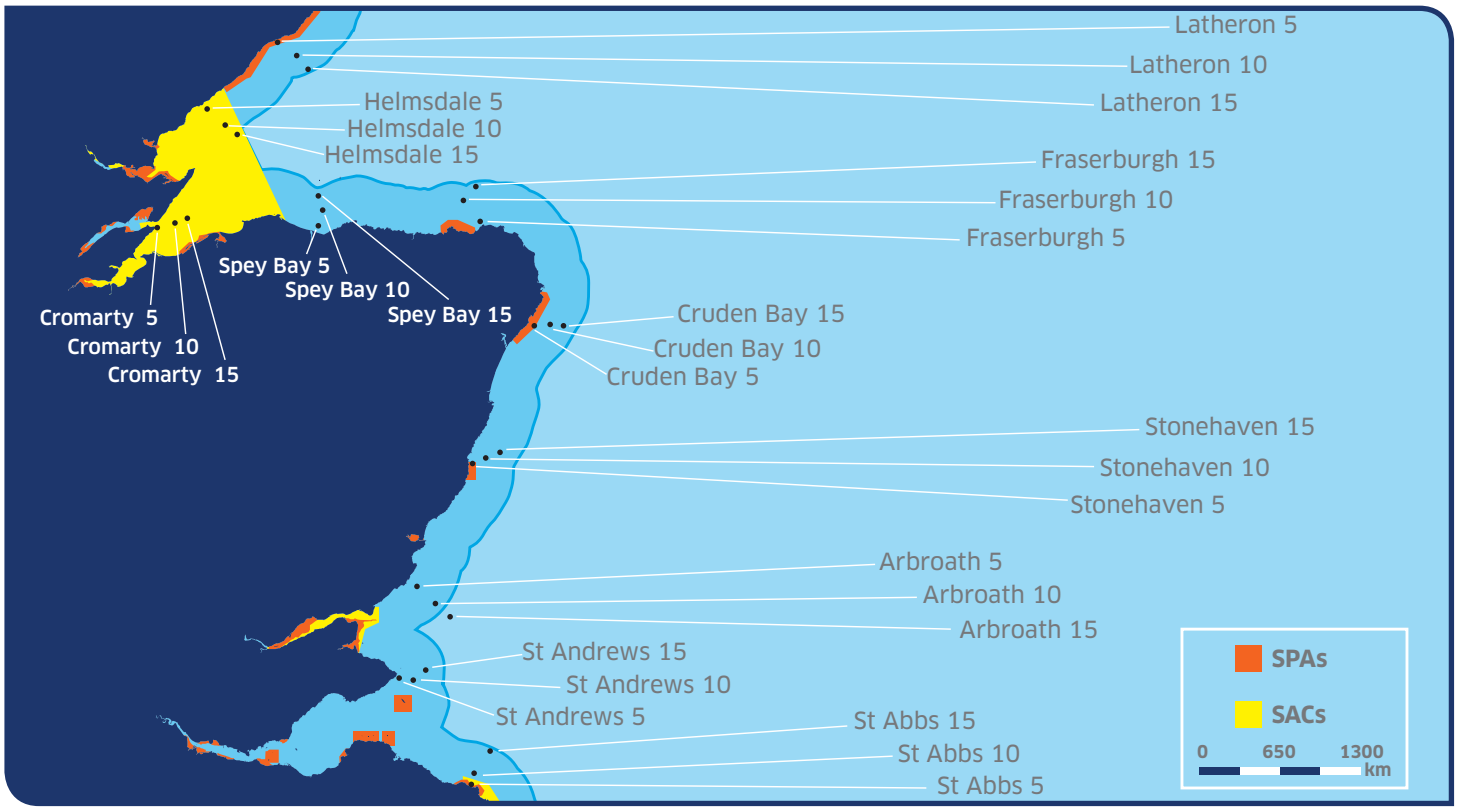

FIGURE 5.
PROPOSED EAST COAST PASSIVE ACOUSTIC MONITORING (PAM) ARRAY

An array of 30 moorings will be laid for five months over the summer of 2013. Every mooring will carry one CPOD while some moorings will comprise both CPODs and SM2M devices. Loggers will be deployed in groups of three at increasing distance from land at 10 locations along the east coast to investigate how the distribution of dolphins and porpoises changes with the distance from the shore (*see* Figure 5). The MSS array will also be integrated with the recently deployed SAMMO network of PAMbuoys (managed by St Andrews University) which also record sounds and transmit them to a base station via the 3G telephone network.

The study will run in collaboration with other work carried out by researchers at the University of St Andrews, who are also using acoustics to study marine mammals, and the University of Aberdeen, who are monitoring the bottlenose dolphin population using photo-ID studies and studying the impact of pile driving at wind farms on harbour porpoise distributions.

Outcomes

The acoustic recordings will be processed to provide new information on the distribution of key marine mammals species in coastal waters. The data will contribute to the long term monitoring of protected species and improve the evidence base for future decisions on developments in coastal waters and their possible impact on dolphins and porpoise.