

# STRATEGIC SURVEYS OF MARINE MAMMALS AND SEA BIRDS IN SCOTLAND

## Background

Marine Scotland has done a lot of work in Scotland's seas to understand how offshore wind, wave and tidal projects might affect marine wildlife, including the identification of a network of Marine Protected Areas.

Recent developments in technology now also allow us to carry out some of the required surveys using modern digital aerial survey methods.



GREY SEAL, AUGUST 2014



MINKE WHALE, AUGUST 2014



GANNET FLIGHT, AUGUST 2014



MARINE SCOTLAND SURVEY AIRCRAFT

## How surveys are conducted

HiDef Aerial Surveying Ltd has been contracted to provide video cameras for use in modified Marine Scotland aircraft. They will conduct survey flights and analyse the footage to find and identify marine mammals, such as whales, dolphins and seals, and other large animals such as basking sharks as well as birds.

For this, extreme high resolution video cameras are used that are able to detect even the smallest object in the sea from an aircraft flying at nearly 2000 feet above the sea (high enough to avoid disturbing marine wildlife beneath).

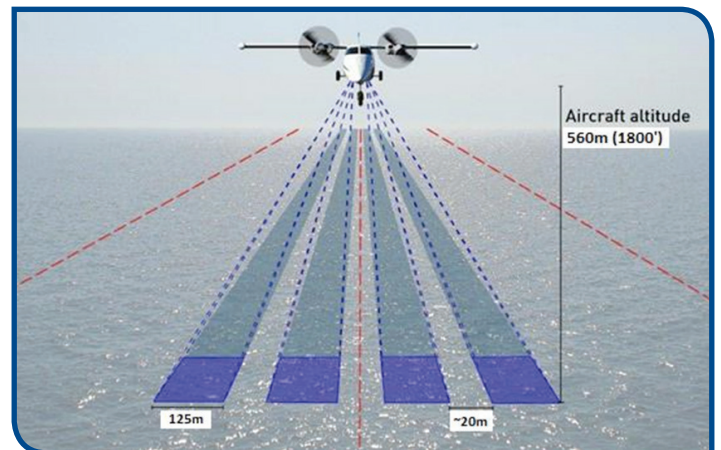


ILLUSTRATION OF CAMERA SWATHE FOR DIGITAL VIDEO SURVEYS

The objectives of the programme are to:

- Provide data to inform habitat association models to improve our understanding of the distribution of marine mammals across the east coast of Scotland.
- Allow comparison of data collected using digital survey methods and moored acoustic loggers.
- Trial methods for digital aerial surveys of small wave and tidal sites.
- To develop capabilities and a strategy for surveying Scottish waters using digital aerial methods.

The first surveys are looking at areas known to be important for harbour porpoise and bottlenose dolphins off the east coast of Scotland (see Figure 1). The data will add to information being collected from acoustic loggers already moored in these areas, which record the presence of these species. By combining digital aerial survey data (which has good spatial coverage) with moored acoustics data (which has good temporal coverage), we can gather a fuller picture of where and when marine mammals, such as harbour porpoise, are likely to interact with human uses of the sea. This will be useful for informing assessments of the impacts of renewables on marine mammals, and for determining whether particular areas should be protected. lines.

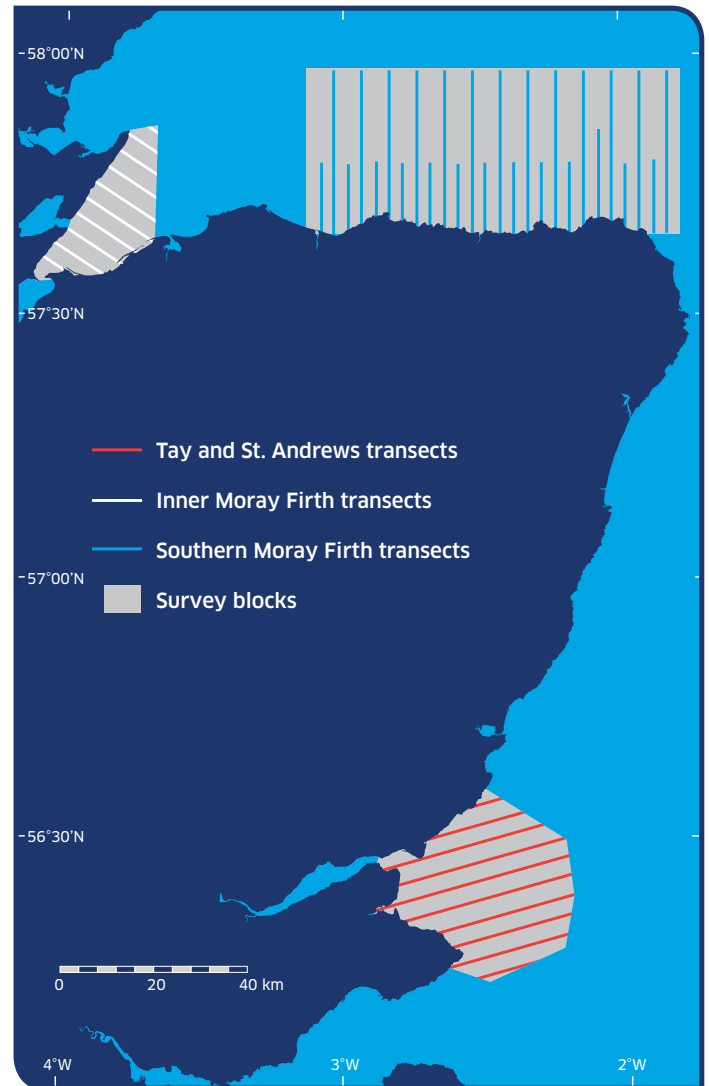


FIGURE 1  
SURVEY AREAS AND FLIGHT TRACKS FOR EAST  
SCOTLAND WHALE AND DOLPHIN SURVEYS