

Examining the distribution of observed carcasses to identify biological and oceanographic patterns and distribution of potential causes to assess the patterns of risk associated with these unexplained seal deaths

Marine Mammal Scientific Support Research Programme MMSS/001/11

USD 4 Report

Examining the distribution of observed carcasses to identify biological and oceanographic patterns and distribution of potential causes to assess the patterns of risk associated with these unexplained seal deaths

Executive Summary

This investigation sought to establish a monitoring protocol for analysing the potential of shipping interactions as the cause of spiral lesions in grey (*Halichoerus grypus*) and harbour (*Phoca vitulina*) seals. Two major projects aimed to: (a) assess fine scale shipping behaviour on an individual stranding, case by case basis and (b) establish the nationwide overlap between vessel traffic and seal usage. Automated Identification Systems (AIS) and radar were the primary sources of data in both cases. In addition telemetry data were used to generate seal usage maps.

A total of 26 strandings between January 2013 and January 2015 were assessed for possible, related fine-scale shipping behaviour. Candidate vessels were identified in all cases when wind-direction and estimated time-of-death were taken into account. Sixteen cases contained at least one identified candidate vessel which had also appeared in another case.

Shipping traffic around the UK was primarily within 100km of the coast, and the heaviest consistent densities were on the south coast of England, in the English Channel and the mouth of the Thames. For both UK species of seal areas of highest occurrence between seals and shipping are within 50km of the coast and coincide with areas of high seal usage. However, there does not appear to be a relationship between stranding locations and areas of high occurrence between seals and shipping.

It was concluded that, although candidate vessels could be identified in all cases, shipping densities illustrate that strandings are not occurring where expected if seal-shipping interactions were the primary cause of spiral lesions. However, this could be due to lack of reporting or identification in areas of high interaction rates. As yet, with the evidence presented here, there is no further reason to assume seal-shipping interactions are causing spiral seal lacerations.