Marine Mammal Scientific Support Research Programme MMSS/001/11

USD 1 & USD 6 Updated Report

Current state of knowledge of the extent, causes and population effects of unusual mortality events in Scottish seals

Executive summary

This report summarises the available information on a newly identified cause of seal deaths around the Scottish coast.

All of the seals had a characteristic wound consisting of a single smooth edged cut that started at the head and spiralled around the body. In most cases the resulting spiral strip of skin and blubber was detached from the underlying tissue. The wound was identified as the cause of death in all cases for which a detailed post mortem examination was carried out.

To date (January 2015) a total of 127 seals with confirmed spiral injuries have been recorded in Scotland; 73 grey seals, 51 harbour seals (*Phoca vitulina*), 1 hooded seal (*Cystophora cristata*) and 2 seals of indeterminate species. These numbers are minimum estimates and will probably represent only a proportion of those animals killed close to shore.

Geographical and seasonal distributions of dead seals with these characteristic wounds are patchy in Scotland. Two concentrations are apparent; one around the Scottish south east coast (mainly comprising the area around the Tay and Eden estuaries and the coast of the Firth of Forth) and the other in Orkney. These patterns indicate strong selectivity in the causal mechanism. The presence of similar injuries around Europe and in Canadian waters is presented, showing that this is a widespread problem.

A range of causal mechanisms have been investigated and the list of potential causes has been reduced to the most likely cause being a rotating blade in a tunnel or housing, i.e. ducted.

The circumstances leading to the injuries and their possible population consequences are discussed.