Marine Mammal Scientific Support Research Programme MMSS/001/11

USD 5 Report

Assessing the impact of the observed and estimated levels of mortality on seal populations at a local, national and international level

Executive summary

Aerial surveys have detected alarming declines in the counts of harbour seals (*Phoca vitulina*) in several regions across Scotland. Available demographic data and simple models are used to examine the recent declines in the numbers of harbour seals counted in one population within a Special Area of Conservation (SAC) on the east coast of Scotland. The models suggest that the continuation of current trends would result in the species effectively disappearing from this area within the next 20 years.

While the cause of the decline is unknown, it must be reducing adult survival because the high rate of decline cannot be wholly accounted for by changes in other demographic parameters. Recovery of the population to the abundance when the SAC was designated is likely to take at least 40 years, even if the cause of the decline is immediately identified and rectified.

The models suggest that partial removal of the cause will have only limited benefits to population recovery, and there are unlikely to be any long-term benefits from introducing or reintroducing additional individuals while the problem persists. Therefore, if the population of harbour seals in this area is to recover it is essential that the sources of the increased mortality are identified and measures are put in place to manage these.

A total of 36 harbour seal carcasses with characteristic spiral wounds have been recorded in the vicinity of the Firth of Tay and Eden estuary since 2010. This level of mortality is estimated to be unsustainable and likely to be a major factor in the decline.

Less information is available from other regions, but a comparison with potential biological removal (PBR) estimates suggests that the same mechanism of injury may become important in the Moray Firth and possibly Orkney if the level of reporting is low.