

**Marine Mammal Scientific Support Research Programme MMSS/001/11**

**CSD 6 Report**

**Harbour seal decline workshop II**

**24<sup>th</sup> April, 2014**

**Executive summary**

The persistent decline in the abundance of harbour seals (*Phoca vitulina*) in some regions of Scotland continues to be of concern. Following a workshop held at the Sea Mammal Research Unit in 2012 (Hall *et al.*, 2012) a number of key potential drivers (particularly the potential causes of the spiral seal lacerations, factors affecting prey availability and the effect of toxins from harmful algae) were highlighted as being priority areas for further research. This led to a second workshop, again hosted by the Sea Mammal Research Unit (SMRU), held in April, 2014 and which is the subject of this report. The main aim of the Workshop was to discuss the main candidate drivers responsible for the sharp decline in harbour seal numbers on the Scottish East Coast, Orkney and Shetland and develop an empirical and statistical research approach for investigating their role in future population trajectories.

The workshop acknowledged that there is a need to rapidly identify any anthropogenic drivers of the decline so that mitigation could be implemented before the situation deteriorates any further.

It was agreed that the most important priority was not just to focus on candidate drivers but to estimate the vital population rates that shape the population trends, namely survival and fecundity rates. This would be critical in furthering our understanding of the most likely causes for the declines, which could be different in different regions and may be due to a combination of drivers. Because some regions are declining but others are stable or increasing, this provides a 'natural experiment' in which vital rates can be compared among areas of decline in abundance and those that are not.

Although the workshop participants did not set any recommendations for future research SMRU made recommendations based on the outcomes of the workshop and the discussions that were had. SMRU will now develop a focused programme of research to seek to establish the key life-cycle factors that appear to be driving the decline in some regions but not in others. This will be based around a minimum of two sites (one in an area with a population decline and another in an area with a stable population). It will include investigation of the potential contribution of grey seals (*Halichoerus grypus*) as competitors for prey and other interactions between the two species, the type and availability of prey in the different regions and the potential impact of exposure to toxins (such as domoic acid and saxitoxin) produced by harmful algal blooms. SMRU will continue to research the issue of spiral seal lacerations to inform revised guidance for developers and to explore potential mitigation options.