



1. Requirement overview:

Requirements	To review options and efficacy of non-lethal seal deterrents that can be deployed by fishing vessels in open sea fisheries and recommend a device/devices or practices
Requirement detail	MMO advocates the use of non-lethal deterrents for control of seals from fishing vessels however, a comprehensive understanding of options and their effectiveness in open sea fisheries would improve the specificity of advice.
MMO use	<b>Marine Conservation:</b> <ul style="list-style-type: none"><li>• Inform advice on implementing the Conservation of Seals Act 1970 and to implement Defra policy to try non-lethal deterrents before using the lethal method.</li></ul>
External interest	NE, Cefas
Delivery target	Q4 2018

## 2. Aims and objectives

Aim:

To assess the options for and effectiveness of non-lethal seal deterrents deployed from fishing vessels

Objectives:

- Review the options for and effectiveness of non-lethal seal deterrents deployed from fishing vessels working in open sea fisheries providing a comprehensive assessment of the advantages and disadvantages of each method including the effect on catch rates. This should include options such as using a sacrificial net or adjusting fishing times.
- Work with industry to understand advantages and disadvantages of using non-lethal deterrents and if trials are required develop a program to be carried out by industry.
- Identify a device/devices and or practices that we can advise industry to use for seal control before considering shooting.

## 3. Existing evidence

MMO	None
Academic	<a href="#">Simon Northridge</a> working at SMRU has a large body of work relating to interactions between marine mammals and fishers including on success and implications of using deterrent devices however for pinnipeds this mostly relates to fixed structures like aquaculture cages not on open sea nets. There is also some evidence that what deters some species attracts others.
Other	The Scottish government commissioned research into the topic of pinnipeds and aquaculture installations including a <a href="#">review of acoustic deterrent devices</a> produced in <a href="#">2013</a> which has a section on capture fisheries and seals. Both Canada and the USA have conducted research into non-lethal deterrents for seals including acoustic deterrent devices and electric barriers on fixed fishing nets and structures but not on open water nets.

## 4. Current activity

MMO do not formally gather information on this but anecdotal information from fishermen on depredation from nets has been noted. Apart from this there is currently no evidence gathering by MMO relating to this requirement.

## 5. Associated evidence requirements

No associated evidence requirements.

More information on other requirements is available [here](#)

## 6. Potential delivery route

The MMO will look to partner with organisations of relevance to widen the potential impact of any work undertaken in this area. The MMO will also explore opportunities to influence

the research of others to gather evidence that can be applied within a marine management context. Knowledge exchange is required throughout the duration of this requirement and not limited to when delivery is complete.

### **Influencing the research of others**

This project appears to lend itself well to being carried out by a student researcher at MSc level or above therefore a potential delivery route is to work with academics to carry out a research project to deliver this requirement.

Although we have set out how we think we can deliver this evidence requirement, we would like to hear from anyone interested in working with us to deliver all or part of this requirement.

See table 1 for timescales.

### **7. Contact**

For more information or to add further research to the existing evidence list please email [evidence@marinemanagement.org.uk](mailto:evidence@marinemanagement.org.uk)

