

Scottish MPA Project
Draft Fisheries Management Guidance

Ocean Quahog *Arctica islandica*

July 2014

Please note that this advice is currently in draft format pending external peer review, and so may be subject to change.

The draft fisheries management guidance has been produced to provide advice on the impact various fishing activities may have on MPA search features in Scotland's seas. The advice is organised by features and gear types. Fishing gears are grouped to combine those with broadly similar impacts, but where there is likely to be variation within a group of features (e.g. for high and low energy sand habitats), this has been taken into account. Where possible the guidance has been based on evidence from peer-reviewed scientific journals.

The draft advice on fisheries management falls into three broad categories:

- Gear/feature combinations that are unlikely to cause unacceptable impacts (except possibly at very high levels of effort) and so no additional management is likely to be required;
- Gear/feature combinations that are likely to cause unacceptable impacts and for which no possible mitigation measures could be identified at this stage other than closure to that gear;
- Gear/feature combinations that are likely to cause some degree of impacts but for which management may be possible to mitigate the effects (e.g. modification or restriction of certain gears, partial or temporary area closures, effort limitation).

In the last type of cases in particular, further site-specific evidence gathering and discussion with stakeholders will be required to determine the appropriate management measures.

The fisheries management guidance has been used, along with the [Features Activities Sensitivities Tool \(FEAST\)](#), to inform the development of management options papers for each MPA.

Document version control		
Version 0.1	T Blasdale. 20/05/2012	First Draft
Version 0.2	T Blasdale. 11/02/2014	Incorporated comments and edits from D. Donnan, SNH and Marine Scotland science
Version 0.3	M Tasker 11/07/14	Comments and suggestions
Version 0.4	D Donnan 16/07/14	Document review

Ocean Quahog *Arctica islandica*

The ocean quahog is a long-lived burrowing bivalve mollusc which may live for over 400 years (Wanamaker et al. 2008). It is large for a bivalve and slow growing, reaching 11-13cm in length. It lives in sandy and muddy sediment to depths of c6cm, it is most abundant in water depths of 10-280m, although may be found as deep as 480m.

Impacts

All demersal towed and hydraulic gears (including beam trawl, demersal otter trawl, seine net, scallop dredge, diver operated hydraulic gears etc.)

Arctica islandica are caught or damaged by beam trawls (Witbaard and Klein 1994; Klein & Witbaard 1993) with an individual pass of the gear causing around 20% mortality (Bergman and van Santbrink 2000). This has been suggested as the cause of an observed decline in abundance over the last century in the south-eastern North Sea (Rumohr et al 1998). A study in Dutch waters showed that quahog population density was inversely related to beam trawling effort. (Craymeersch et al, 2000)

There is some evidence that otter trawl doors may impact ocean quahogs by bringing them to the surface (Rumohr & Krost 1991) however there is insufficient evidence to assess the mortality caused by this gear at a population level. The northern North Sea is primarily fished by otter trawls and ocean quahog do not appear to have declined to the same extent as seen in southern areas.

No evidence was found on the effects of shellfish dredging. However, the physical effects of scallop dredging on seabed sediments are similar to those of beam trawls (penetration to depths >5cm) and so the effects on ocean quahog are likely to be similar. Hydraulic gears penetrate sediments more deeply than other gears and so could be expected to cause a

greater mortality, particularly where ocean quahog is the target species (although there is no known direct exploitation of the species in this country).

All demersal static gears (including pots, traps, lines and nets)

Static gears do not generally create the type of pressure to which this species is sensitive (sub-surface abrasion) and so they are unlikely to have any effect.

JNCC/SNH advice

Demersal towed and hydraulic gears – gears that penetrate the sediment (beam trawls, dredges and hydraulic gears including those operated by divers) are likely to reduce the abundance of ocean quahogs. The degree of impact will depend on the intensity of fishing. Further research will be required to determine the amount of fishing with these gears (if any) that would be compatible with maintaining the feature in good condition. Current evidence suggests that additional management is unlikely to be required for otter trawling. However, to determine the effects of otter trawl at high levels of effort would require further research.

Demersal static gear – No additional management is likely to be required for these gears.

Confidence in advice

Demersal towed gears - Medium certainty. The conclusions are supported by good quality, directly relevant scientific information however there is limited evidence on the effects otter trawls and dredges.

Demersal static gears – Low certainty. No direct evidence was found and the conclusions were based on an understanding of sensitivity to pressures.

References

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