

**Scottish MPA Project
Fisheries Management Guidance**

DEEP-SEA SPONGE AGGREGATIONS

JULY 2013¹

The 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 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 possible MPA.

¹ Based on Version 1.1 of the fisheries management guidance

DEEP SEA SPONGE AGGREGATIONS

Deep sea sponge aggregations are found on both hard and soft substrates at depths of between 250 – 1300m. They are composed principally of glass sponges (Hexactinellida) and the giant sponges (Desmospongia)^{1,2}. They are thought to support diverse biological communities³, with the sponges increasing habitat complexity and influencing the occurrence of other species³.

Impacts

Demersal towed gears (including otter trawl, beam trawl)

Trawling damages, displaces and removes sponges through direct physical impact, as well as from disturbed sediment resettling and causing smothering beyond the path of the trawl itself^{2,3,4}. Deep-sea sponges have some capacity for recovery from mild damage, but significant disturbance, damage or smothering may result in sponges being unlikely to survive^{3,4}. While the growth of individual sponges to full size is thought to take decades² there is relatively little known about the time the associated communities take to reach their former diversity⁴.

Demersal static gears (including gillnets, trammel nets, longlines, pots and traps)

Sponges may become caught or entangled in static gears and damaged on the seabed or brought to the surface. Such by-catch by longliners of hexactinellid and demospongid sponges has been documented within the North-east Atlantic^{5,6} and in the Antarctic Bowden⁶. While the extent of damage caused by individual static gear fishing events is likely to be lower than that for trawling, the effect of cumulative damage may be significant^{4,5}.

JNCC/SNH Advice

Given the nature of sensitivity to physical disturbance the options for suitable management options to mitigate the effects of fishing are limited. JNCC and SNH therefore advise that the use of demersal bottom contacting gears (static and mobile) should be avoided at locations where this vulnerable feature is located.

Confidence in advice

Demersal towed gears - High certainty. The conclusions are supported by good quality, directly relevant scientific information.

Demersal static gears - Medium certainty. There is some direct evidence but it has been necessary to make assumptions regarding the cumulative effects of repeated exposure.

Evidence

¹Baxter *et al.*, 2011 ; ²OSPAR, 2010; ³ICES, 2007; ⁴ICES 2010; ⁵Muñoz *et al.*, 2011; ⁶Bowden, 2010

There is good evidence for the impacts of trawling on deep sea sponge communities. The evidence is from Scottish offshore waters, Alaska and the Faroes; all considered to be sufficiently relevant for the quality of the evidence to be considered high.

Some relevant scientific information evidence was found for the impacts of static gears on deep sea sponges. Some assumptions were made on the effects of static gear other than that of longlines regarding the likely affect of ropes or anchors on erect epifauna.

Directly relevant	✓	Directly relevant	✓	Inference from	✓	Expert	✓
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peer reviewed literature	grey literature	studies on comparable habitats, gears or geographical areas.	judgement or anecdotal evidence
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