Scottish MPA Project
Fisheries Management Guidance

CARBONATE MOUND COMMUNITIES

JULY 2013[1]

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

CARBONATE MOUND COMMUNITIES

Carbonate mounds are distinct elevations of various shapes, which may be up to 350m high and two kilometres wide at their base. They occur offshore in water depths of 500-1100m. Carbonate mounds may have a sediment veneer, typically composed of carbonate sands, muds and silts. The cold-water reef-building corals *Lophelia pertusa* and *Madrepora oculata*, as well as echiuran worms are characteristic fauna of carbonate mounds. Where cold-water corals (such as *Lophelia*) are present on the mound summit, coral debris may form a significant component of the overlying substratum[1].

Impacts

All demersal towed gears (including otter trawl, beam trawl)

The characteristic fauna of carbonate mounds include the cold-water reef-building corals *Lophelia pertusa* and *Madrepora oculata,* which are known to be highly sensitive to physical disturbance[7]. The resulting impacts can have long-lasting consequences as a result of the low recovery potential of the structurally and biologically diverse coral communities ([2,3,4,7]). Biomass and diversity of associated communities are reduced in areas impacted by trawling[2,4]. Recovery from such damage is estimated to be measured in decades, depending on the environmental conditions[4,6].

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

Impacts can arise from hooks, lines, nets and ropes becoming entangled with corals and other fragile erect species, including 'plucking' them from the seabed during hauling[5,4]. The individual impact of a single fishing operation may be slight but cumulative damage can be significant[4]. Given the slow growth rate of cold water corals, structurally and biologically diverse coral communities may take centuries to recover[2,4] from damage, if at all.

JNCC/SNH fisheries management 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 vulnerable seabed communities/features are located.

Confidence in advice

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

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

Evidence

[1]Ospar, 2008 [2]Fosså *et al*., 2000 & 2002; [3]Hall-Spencer *et al*., 2002; [4]ICES advice, 2005 – 2010; [5]Grehan *et al.,* 2004; [6]Clark *et al.,* 2010 ; [7]Soffker *et al.,* 2011
No direct evidence has been found that specifically addresses the long-term impact of towed gears on carbonate mounds however, there is abundant evidence for the effects of trawling on cold water coral reefs which are considered biologically similar. The evidence relates mainly to Norwegian and Irish waters but this is considered to be sufficiently similar to Scottish waters for the quality of the evidence

to be considered high. No direct evidence has been found that specifically addresses the long-term impact of static gears on carbonate mounds however, there is abundant evidence for the effects of nets and lines on cold water coral reefs, which are considered biologically similar. The evidence relates mainly to Norwegian and Irish waters but this is considered to be sufficiently similar to Scottish waters for the quality of the evidence to be considered high. There is no direct evidence of impacts from pots on this habitat.							
Directly relevant peer reviewed literature	✔	Directly relevant grey literature	✔	Inference from studies on comparable habitats, gears or geographical areas.	✔	Expert judgement or anecdotal evidence	