

**Scottish MPA Project
Fisheries Management Guidance**

HORSE MUSSEL BEDS

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

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The horse mussel *Modiolus modiolus* forms scattered clumps, thin layers or dense raised beds several metres in height and length. Raised beds are formed of horse mussels, bound together by a matrix of byssus threads which accumulate sediment of silt, organically rich faeces and shells, further increasing bed height. They significantly modify sedimentary habitats and provide hard substratum, refuge and ecological niches for a wide variety of organisms^{8,2}.

Impacts

Demersal towed gear (including scallop dredges and otter trawls)

The characteristics of horse mussel beds are such that sensitivity to physical disturbance is high. Demersal towed gears have the potential to cause damage to individual mussels, to the structural integrity of the clumps and to epifauna, as documented in Strangford Lough^{3,4,5} and implicated in loss of beds off the south east of the Isle of Man⁶. The potential for recovery is limited by slow growth and sporadic recruitment¹

Demersal static gears (including pots, traps, lines and nets)

Sensitivity of horse mussel beds to static gears is lower than for mobile. However, depending on the type of epifauna present this may increase if sustaining high fishing intensity⁷. Further research would be required to determine the level of fishing effort that would be compatible with the feature.

JNCC/SNH fisheries management Advice

Demersal towed gear - Given the characteristics of horse mussel beds and the potential for impact even from low levels of activity, JNCC and SNH advise that use of demersal towed gear should be avoided on this feature.

Demersal static gears - The potential for adverse impact from static gear is likely to be directly related to fishing intensity. Fishing activity at low levels is not expected to adversely impact the feature, however further research will be required to determine the level of fishing that would be compatible with the feature.

Confidence in advice

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

Demersal static gears - Low certainty. There is no published evidence specifically for static gear impacts on this feature, analogy with other habitats for which evidence does exist has been used to determine advice. Evidence to support this assumption is limited.

Evidence

¹Holt *et al.* 1998; ²Jones *et al.* 2000; ³Magorrian and Service 1998; ⁴Roberts *et al.* 2004; ⁵Brown 1989; ⁶Jones 1951; ⁷Tillin *et al.* 2010; ⁸Lieberknecht *et al.* 2004

The evidence for towed gears is from dredging and trawling for scallops in UK waters and the Isle of Man and so is considered to be directly applicable.

No study has been found that addresses directly the impact of static gears on horse mussel beds. Our

advice is therefore based on our interpretation of sensitivity assessments.

Directly relevant peer reviewed literature	✓	Directly relevant grey literature	✓	Inference from peer reviewed or grey literature relating to a comparable habitat, gear or geographical area.	✓	Expert judgement	✓
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