Briefing: Site integrity and sandbanks

February 2017

Interactions between the habitats listed in Annex I of the Habitats Directive and the typical species associated with them are at the core of the meaning of site integrity and the management of marine protected areas covered by Article 6 of the Habitats Directive (marine Natura 2000 sites).[1] The available scientific research undertaken on temperate sandbank communities should be used to show their worth, both as an intrinsic ecosystem and in relation to the species they support. The relative intensity of wave and tidal energy associated with sandbanks makes them more or less biodiverse, and has major bearing on the range of associated typical species (Eliott, 1998).

1. The meaning of site integrity – brief legal background

Article 6 of the Habitats Directive imposes a duty on Member States to avoid adverse effects on the integrity of marine Natura 2000 sites. 'Site integrity' is not defined by the legislation. However, the primary goal of the Habitats Directive is the achievement of 'favourable conservation status' for habitats listed in Annex I of the Habitats Directive, and species listed in Annex II.[2] It follows that favourable conservation status for these features must be achieved, in order to avoid adverse effects on site integrity.

Importantly, 'site integrity' operates at the entire site level. In addition, the legal definition of 'favourable conservation status' and interpretation of these words by the European Court of Justice[3] in the context of avoiding adverse effects on site integrity, confirm that factors beyond the state of the designated feature itself must also be considered. Specifically, in order to avoid adverse effects on site integrity, the **'typical species'** associated with Annex 1 habitats must also be maintained at, or restored to, favourable conservation status (ClientEarth and MCS, 2013; Rees et al., 2013). Therefore, assessments of the impact of activities on 'site integrity' (and consequent management measures) must not only look at the feature(s) for which a site has been designated but must also take account of the wider ecological context of the site as a whole.

The requirement under Article 6 of the Habitats Directive that adverse effects on site integrity must be avoided means that the potential for the site's features or typical species to *recover* to favourable conservation status, must not be inhibited.

2. 'Typical species' associated with rich sandbank communities

In the case of sandbanks, 'typical species' might include constituent populations and communities of species of seaweeds (e.g. maerl), fish (Kaiser, 2004), crustaceans, worms, molluscs (bivalves), polychaetes and echinoderms. Some of these species serve an ecosystem function that is essential to the health of, and oxygen exchange with, subsurface sediment layers (Braeckman, 2014). Some 'typical species' that have a major ecological impact on sandbank features happen to be of commercial value. This concerns a number of fish species (sandeels, flat fish, sharks and demersal fish). Other mobile species with reasonably large home ranges may use the site(s) only sporadically, such as dolphins, seals, bass, and some shark species. Some will migrate to certain parts of the habitat within marine protected areas for feeding and breeding (e.g. cod, plaice, dab, sole) (Ellis, 2012), whilst others are more resident (e.g. sandeels) (Scottish Natural Heritage, *N.D.*). There is no reason why mobile or migratory species should not also be considered 'typical species' associated with these types of habitats.

As explained above, all 'typical species' must be at favourable conservation status on and within the sandbank community.

3. Enhancing ecological communities and ecosystem function

In the UK sandbank sites are predominantly offshore and are at high risk of damage from bottom-towed fishing gears. This is particularly the case in less dynamic areas of sandbank, which generally that host more static communities. These areas are

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[1] This includes protected sites required by the Wild Birds Directive.

[2] Article 2(2), 3(1) and 4(4), Habitats Directive.

[3] Article 1(e), Habitats Directive and Case C-258/11 *Peter Sweetman, Ireland, Attorney General, Minister for the Environment, Heritage and the Local Government v An Bord Pleanála* [2014] P.T.S.R. 1092 (Sweetman), see in particular paras 37-39.

generally characterised by larger, more long-lived species that find it more difficult to recover from the disturbance caused by trawling activities (Foden et al., 2010; Blyth et al., 2004).

Furthermore, sandbank sites also have the potential – in some areas – to host and recover biogenic reef communities, such as horse mussel reefs, *Sabellaria* worm reefs and oysters (Cook, 2016). To that end, it is particularly important to control damaging trawling activities in areas of sandbank where there is the potential for worm reefs (e.g. *Sabellaria spinulosa*) or bivalve reefs (e.g. oysters and mussels) to develop. The historical loss of biogenic bivalve reef, such as horse mussels (*Modiolus modiolus*), Pinnate bivalves (*Pinna nobilis*) and oysters from trawling has resulted in completely different ecosystem function of entire swathes of the continental shelf of the shallow seas around the UK (Thurstan, 2013). The regeneration/recovery of such seabed assemblages is not possible with continued bottom trawling. In these cases, ensuring that adverse effects on 'site integrity' are avoided means prohibiting damaging trawling activities over these areas of sandbank and in a significant buffer area around the relevant area, in order to enable the expansion of sandbank-related communities. The site is not being maintained at, or allowed to recover to, favourable conservation status if this potential for re-growth or re-establishment of sandbank communities is not allowed to occur.

Allowing for the recovery of such assemblages is in line with the underlying principle of 'ecosystem-based management' found in the current EU marine policy such as the Marine Strategy Framework Directive, which looks at all interactions within an ecosystem and considers humans to be part of this ecosystem. It reflects the idea that the sea should be managed in a sustainable way.

4. The precautionary principle and partial protection of sandbank sites

Activities that may have adverse effects on site integrity may not be permitted unless it is proven *beyond scientific doubt* that the activity will not have adverse effects on site integrity. In this way the precautionary principle is embedded in Article 6 of the Habitats Directive.

If ongoing or new damaging activities are likely to be causing the conservation status of species associated with sandbanks to be unfavourable, then that activity must be prevented, as per Article 6(2) and 6(3) of the Habitats Directive. The site is being damaged if the potential for re-growth or re-establishment of these species is not allowed to occur. The industry/developer must scientifically prove that their activity is having no effect on the sandbanks' biological community development *before* being allowed to occur, or continue.

Proposed management measures[4] in many of the marine Natura 2000 sites in the UK that protect sandbank ecosystems offer only 'partial protection' for sites, i.e. only part of the site, and indeed only part of the sandbank in the site, is proposed to be closed to bottom towed gear. However, in many cases, a lack of available or conclusive scientific evidence and data means that Article 6 and the precautionary principle preclude such an approach as a legally compliant management option. Generally speaking, protection is necessary to prevent continuing or new damage to the recruitment, growth, feeding and breeding of typical species of the features across the entirety of the site.

In some cases, a zoned approach to management measures *may* be appropriate, where the available data can support a finding of 'no adverse effect on site integrity' despite some areas of the site remaining open to bottom towed gear. Sandbanks are complex features, composed of a variety of biotopes each with differing levels of sensitivity to various activity types. There may also be variation in the condition of different biotopes, e.g. due to historic trawling activities in the area. Some biotopes are therefore more sensitive to certain activities and some need to be restored while others may need to be maintained, meaning that different management strategies for different parts of the same feature *may* be appropriate. However, this is subject to the following caveats:

1. Decisions need to be based on robust scientific principles and knowledge. Data collection at a site must be based on a scientifically robust sampling strategy to determine the spatial distribution *and condition* of each biotope at the site. Transferring knowledge and understanding from other marine sites may also be necessary in order to inform an appropriate management strategy.
2. The impacts of indirect effects must be properly assessed. For example, sediment mobility caused by activities such as trawling can cause negative impacts on adjacent or nearby biotopes.

[4] At time of writing of this note (February 2017).

3. A consistent approach to management must be taken across similar or the same biotope types in different areas of a site. The only times when it may be appropriate to deviate from this principle are when either (i) the condition of two areas of similar or the same biotope type has been assessed as being at different levels; or (ii) indirect impacts have been identified in connection with one area of the site but not in connection with another. In both cases, additional protections for the area that has suffered damage/where indirect impacts are more likely, may be needed.

In all cases, where there is insufficient scientific evidence to reach a conclusion that there will be no adverse effect on site integrity (e.g. because the extent or sensitivity of different biotope types cannot be mapped with adequate certainty), bottom towed gears must not be authorised. This will need to be assessed on a site-by-site basis.

5. Case study – The Wash: 'partial' management of the *Sabellaria* worm reef within a sandbank site.

The Wash is an area close to the coast of the northern East Anglian coast in the UK. This marine protected area hosts sandbank, mudflat, seagrass and biogenic worm reefs (*Sabellaria spinulosa*) Annex 1 features. Research undertaken on the importance of *Sabellaria* to commercial fish and other species has shown that, as well as acting as a habitat for many invertebrate organisms (in terms of shelter / attachment), reefs and emerging reefs of the species are directly eaten as significant proportions of the diet of resident plaice, dab and sole (Pearce, 2011). During the development of management plans by local fisheries regulators, the Marine Conservation Society strongly argued that large tracts of sites will need protection from trawling to ensure *Sabellaria* can grow and function effectively in and around 'core reef areas' – and can therefore have the opportunity to expand over time. This has led to a considerable increase in the extent of buffer zones around 'core reef areas' designated by UK regulators within this inshore site. It has also led to more expansive precautionary management measures for the nearby Haisborough, Hammond and Winterton site that includes both inshore and offshore waters.

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