Briefing: Site integrity and seagrass beds

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The 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 seagrass beds can be used to show their worth, both as an intrinsic ecosystem (the plants and roots/rhizomes themselves) and in relation to the species they support.

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. 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.

2. Integrity of seagrass itself – direct and indirect impacts

Geologically, seagrass beds are ancient structures that bind sediments, preventing coastal erosion. They provide support for the protection of beaches and coastal infrastructure. They are vital for primary production, and act as carbon sinks for the oceans. Pollution, excessive sedimentation, coastal re-alignment for development, trawling and anchor damage are the most damaging activities for seagrass beds, particularly as these activities have the potential to kill or smother living green shoots, and pull up rhizomes. Anchors and mooring chains also cause damage to the integrity of the feature, its constituent species and ecosystem function (Collins, 2010). Pollutants and excess nutrients are also extremely damaging as they can lay waste to the living exposed shoots, killing entire seagrass beds. This is in contrast to physical damage, which has a more direct but often more localised impact (Unsworth, 2015; Maxwell, 2016). Finally, recent evidence suggests that overfishing is also compromising the health of ecosystems supporting seagrass beds (Östman, 2016).

Growth and recovery can occur, but may take a long time, and species within the bed will suffer from having their habitat disturbed. In this context, it is worth noting that the European Court of Justice has ruled[4] that, where there is lasting, damage even to small areas of Natura 2000 sites, this will be regarded as adversely affecting a site's integrity (ClientEarth and MCS, 2013).

3. The meaning of site integrity for the ecosystem and its typical species

In the case of Annex 1 seagrass bed habitats, 'typical species' might include different species of fish, crustaceans, worms, molluscs and gastropods (e.g. crustaceans, worms, molluscs, corals, sponges and bryozoans), which must therefore also achieve favourable conservation status.

Many species may use the habitat only sporadically, such as bass, sharks, rays, eels, squid and cuttlefish. Some will use the habitat for breeding (e.g. catsharks and cuttlefish), as nursery areas (e.g. cod) (Lilley, 2014; Bertelli, 2014) or as feeding areas (e.g. predatory fish), whilst others are permanent residents (molluscs, crustaceans). There is no reason why the former should not 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 seagrass bed community.

The key here is to use the arguments to limit the over-exploitation of species associated with the seagrass habitat, as well as the seagrass beds themselves (McCloskey, 2015). This interpretation is in line with the underlying principle of 'ecosystem-

[1] This includes protected sites required 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.

[4] 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. 43, 48.

based management' found in the current EU marine policy, 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. Protection for areas that *could* host seagrass beds in the site

Many of the measures introduced in the UK to protect seagrass beds from potentially damaging activities have created buffer areas around locations of the seagrass beds within sites. This is essential to support the potential for outward growth of the bed. Article 6 of the Habitats Directive provides that adverse effects on site integrity must be avoided. This means that fishing activities that are potentially damaging to the site's features or typical species, and thus threaten their conservation status, must be appropriately managed. This includes ensuring that the potential for the site's features or the features' typical species to *recover* to favourable conservation status, is not being inhibited. If ongoing damaging activities might restrict the area of the seagrass beds to a smaller area than the natural range of the bed, then that activity must be prevented.

For example, trawling has been shown to be damaging to Annex I seagrass bed features and its typical associated species. Therefore, ensuring that adverse effects on 'site integrity' are avoided in the case of Annex I seagrass bed features means prohibiting the trawling over the seagrass bed *and* in a significant buffer area around the bed. This is in order to allow for the potential recovery of the surrounding seabed to its natural 'seagrass bed' assemblage of species. 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 seagrass bed-features is not allowed to occur.

In addition, because the precautionary principle is embedded in Article 6 of the Habitats Directive, activities that may have adverse effects on site integrity may not be permitted unless the operator of the activity can prove *beyond scientific doubt* that the activity is not having adverse effects on site integrity.

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