

What is site integrity? Applying current ecological knowledge to evolving marine policy.



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European Union Habitats Directive (92/43/EEC)

Article 6.1 requires the establishment of necessary '**conservation measures**' corresponding to the ecological requirements of the Annex I habitats and the Annex II species present at the sites

Article 6.2 requires Member States to '**... take appropriate steps** to avoid, in the special areas of conservation, the deterioration of natural habitats and species as well as disturbance of the species for which the areas have been designated

Article 6.3 requires an '**appropriate assessment**' of the implications of 'plans or projects' for the site, in view of its conservation objectives. The plan or project may only be granted permission to proceed if it can be 'ascertained **that it will not adversely affect the integrity of the site concerned**'



Most SACs remain multiple use



Only the Annex I or II habitat or species is considered



On-going activities that pre-date SAC designation (including licenced fishing) need not be subject to an 'appropriate assessment'

A change....

European Court of Justice demonstrate that the protection offered to SACs by Articles 6.2. and 6.3 of the Habitats Directive is equal (['the Waddenzee case' Case C-127/02 2004](#); [Commission v French Republic Case C-241/08, 2010](#); [Commission v Ireland Case C-418/04, 2007](#)).

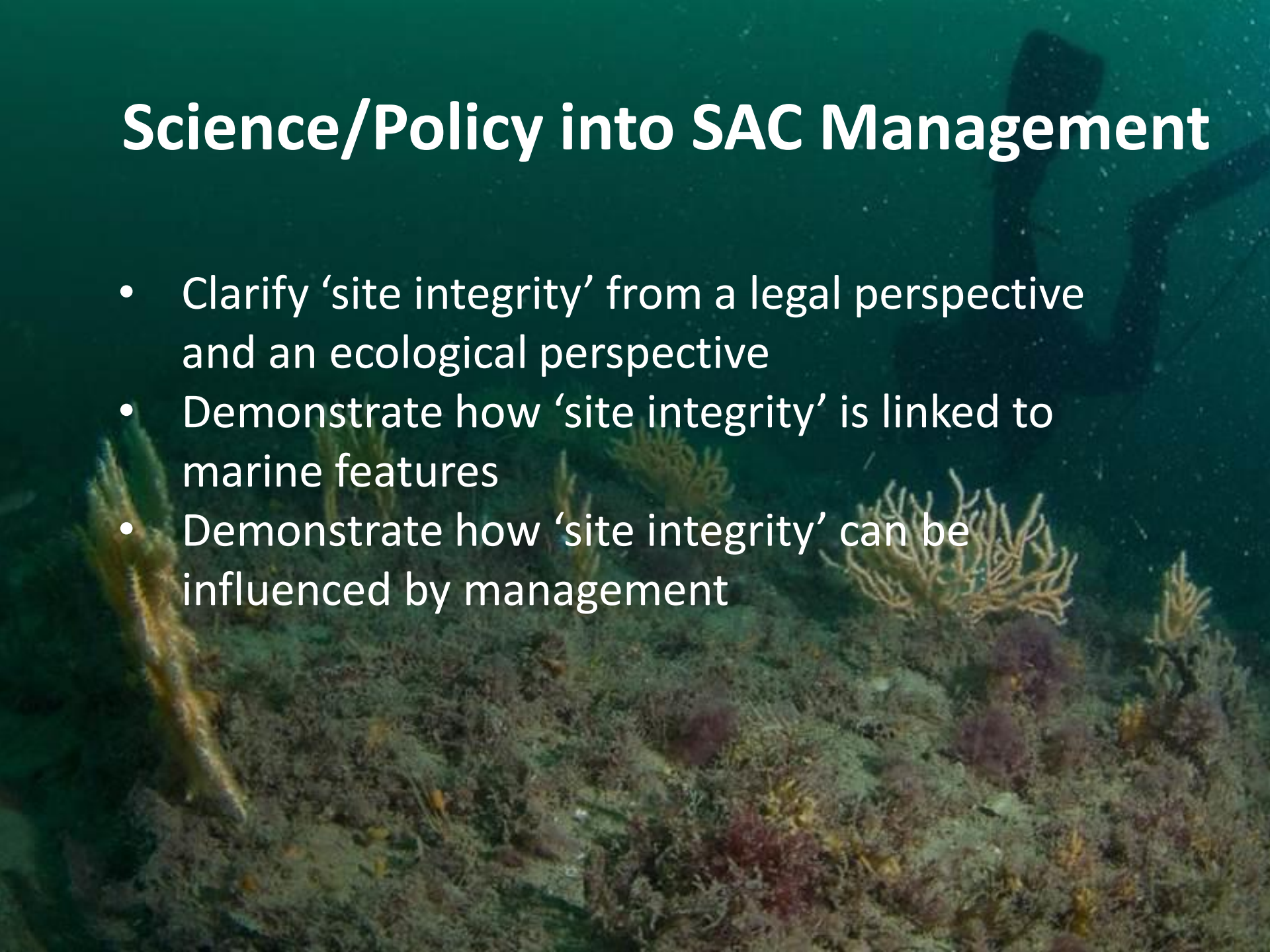




The UK Government is in breach of Article 6.2 for failing to deal with damaging fishing activity within SACs that leads to 'deterioration of natural habitats' and Article 6.3 for failing to subject fishing license grants and renewals to 'appropriate assessments' ([Client Earth and Marine Conservation Society, 2011](#)).

Science/Policy into SAC Management

- Clarify 'site integrity' from a legal perspective and an ecological perspective
- Demonstrate how 'site integrity' is linked to marine features
- Demonstrate how 'site integrity' can be influenced by management



Lyme Bay



What is site integrity?



What is site integrity?

Legal

- 'Site' is 'a geographically defined area whose extent is clearly delineated' (Article 1(j) of the Habitats Directive).
- The overarching requirement of the Habitats Directive is to **achieve 'favourable conservation status'** of Annex I habitats and Annex II species (Articles 3.1 and 4.4).
- Article 1(e) that the conservation status of a designated habitat will only be taken to be favourable when the conservation status of its **typical species** is itself favourable.
- The EC Guidance ([2000](#)) states that the 'integrity of the site' may be defined as 'the **coherence of the site's ecological structure and function, across its whole area**'. A site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for **self-repair and self-renewal under dynamic conditions is maintained**' (European Commission 2000).

cSAC Annex I reef features, their associated (typical) species of conservation importance, ecological function, and ecological processes



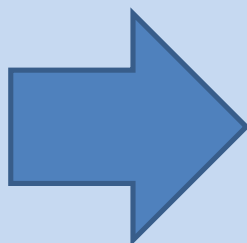
Ecological functions*		Ecological processes*
Habitats		
Annex I reef habitat^a	Production	Primary production; secondary production; larval/gamete supply; formation of species habitat; species diversification; formation of physical barriers
Species		
Alcyonium digitatum^b Dead man's fingers	Production; geological processes; ecological interactions	Formation of species habitat; species diversification; food web dynamics
Axinella dissimilis^b Erect branching sponge	Production; geological processes; ecological interactions	Formation of species habitat; species diversification; food web dynamics
Eunicella verrucosa^{c,d,e} Pink sea fan	Production; geological processes; ecological interactions	Formation of species habitat; species diversification; food web dynamics
Leptopsammia pruvoti^{c,d,e,f} Sunset cup coral	Production; ecological interactions	Formation of species habitat
Pentapora fascialis^b Ross coral	Production; geological processes; ecological interactions	Formation of species habitat; species diversification; food web dynamics
^a Habitats Directive (REF) ^b Nationally important marine features ^c Wildlife & Countryside Act 1981 ^d the UK Biodiversity Action Plan 1995 (UK BAP) ^e The International Union for Conservation of Nature (IUCN) Red Data List ^f Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)		



* Fletcher, S., Saunders, J., Herbert, R., Roberts, C. and Dawson, K. 2012. Description of the ecosystem services provided by broad-scale habitats and features of conservation importance that are likely to be protected by Marine Protected Areas in the Marine Conservation Zone Project area. Natural England Commissioned Reports, Number 088.

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Supporting the social-ecological system



Management and site integrity

- Recovery of the Annex I reef habitat (Sheehan et al 2013; PLoS ONE 8(12))
- Recovery has also been observed for certain individual species (such as the ross coral (*Pentapora fascialis*), sea squirt (*Phallusia mammillata*) and king scallop (*Pecten maximus*) (Sheehan et al 2013; PLoS ONE 8(12))
- Positive socio economic effects for the recreation industry (Rees et al 2014 in prep)
- Positive socio economic effects for fishers using pots and nets (Mangi et al 2011; Ambio)
- Recovery 'between the reefs' (Sheehan et al 2013; Marine Pollution Bulletin).



Some points to take forward?

Site Integrity and Appropriate Assessments

- Site v Feature based management
- include 'typical species' in appropriate assessments?
- Allow for 'self-repair and self-renewal' within the 'site' (e.g. between the reefs, storms)
- Cumulative effects?

Rees, S.E., Sheehan, E.V., Jackson, E.L., Gall, S.C., Cousens, S.L., Solandt, J.-L., Boyer, M., Attrill, M.J., 2013. A legal and ecological perspective of 'site integrity' to inform policy development and management of Special Areas of Conservation in Europe. Marine Pollution Bulletin, Volume 72 (1) 14-21.



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