



Dialectics of nature: The emergence of policy on the management of commercial fisheries in english European Marine Sites

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A B S T R A C T

European Marine Sites (EMS), designated under either the Habitats or Birds Directives, protect the biodiversity of the European Union (EU) and contribute to the implementation of the 1992 UN Convention on Biological Diversity [1]. The introduction of this form of marine protected area (MPA), as a consequence of EU conservation directives, introduced new legal obligations in waters long exploited by inshore fishing communities. Although the Habitats and Birds Directive have been in place since 1992 and 1979 respectively (the 1979 Directive updated in 2009), it has not been until more recently (2014) that ongoing inshore fisheries activities in England, which predate designation of sites, have been systematically assessed and managed, for their impact in protected sites. In practice it was assumed by many MPA practitioners that at the time of designation of EMS, ongoing activities would be compatible with the conservation objectives of these sites. This paper illustrates the introduction of a general and systematic “revised approach” to managing fisheries in all English EMSs, and how this represented a change in government policy which can be traced directly to a legal campaign between 2008 and 2012 by two UK environmental Non-Governmental Organisations (eNGOs). The paper elucidates this iterative marine policy process analysing the dialogue between government bodies and eNGOs and show how the resulting interpretation of conservation law, has sought to resolve the tensions between the precautionary approach as emphasised by the eNGOs and the Government's desire for proportionality of response.

1. Introduction

Conventional approaches to the management of marine fisheries have emerged through policy processes largely distinct from those addressing the general protection of the marine environment [13]. While both are preoccupied with the conservation of natural marine resources, the emergence of ecosystem protection, as exemplified by the European Union Habitats Directive (92/43/EEC) and Birds Directive (2009/147/EC), is in contrast to the traditional single species measures used for fisheries management [14]. Nevertheless, both approaches are rational when measured against their goals and challenges. Many commercial fish species for example have wide ranging and/or migratory distributions and most are at risk primarily from overfishing. Conversely more general conservation of the marine environment must address a wide variety of risks, not least in rapidly degrading coastal seas. There is, arguably, a more fundamental

difference: while fisheries management has traditionally had an exclusively anthropocentric motivation being essentially socio-economic in nature (protecting food supply, national economies and livelihoods), the underlying motivations of the general conservation movement (while wide ranging and to an extent unresolved) are rooted nearer the eco-centric end of the spectrum. Such that in practice human benefit is best served by a general principle in which the natural world should not be degraded.

In policy terms the two traditions are not necessarily incompatible, to the extent for example that there is now a widespread recognition of the “sustainable development” goal which explicitly recognises conservation, social and economic imperatives. This is also encompassed in ecosystem-based management, where individual aspects of resource extraction are considered for their wider ecosystem impact ([12,23] beyond such broad commitments lies the challenging process of resolving differences of emphasis and detail at the points of policy

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implementation; where the two traditions intersect; where case law is still emerging; and where stakeholder priorities differ. These generally are manifest within Marine Protected Areas where eco-centric goals are explicit. Yet increasing numbers and coverage of MPAs has made this a challenging time for implementing effective protection measures (e.g [33]).

2. Statutory framework for the protection of EMSs

The term ‘EMS’ (EMS) describes Special Areas of Conservation (SACs), and Special Protection Areas (SPAs) that protect some of the most important marine and coastal habitats and species. SACs contain animals, plants and habitats that are considered rare, special or threatened within Europe while SPAs protect important bird species and their supporting habitats. SACs and SPAs are designated under the European Union (EU) Habitats and Birds Directives respectively, and form part of the European-wide Natura 2000 network of internationally important sites. EMS are an important component of the Marine Protected Area (MPA) network in the UK which also includes designations under national legislation and wider international treaties. There have been various tranches of designation of EMS, most notably in 2000, 2005, and 2010–12. In English Coastal Waters (to 6 nm) there are 89 EMS, covering some c.11,500 km² which is over a third of this total inshore area (2015 data).

The overall conservation concept of a EMS appears in the sixth recital of the Habitats Directive which requires the restoration or maintenance of designated natural habitats and species at a “favourable conservation status”. The conservation status of a natural habitat is taken as ‘favourable’ when: its natural range and areas are stable or increasing, and the ecological structure and functions necessary for its long-term maintenance are likely to continue to exist for the foreseeable future. ‘Typical species’ associated with the habitat must also be at favourable conservation status. Favourable status for a species is similarly dependent on (inter alia) maintenance of range and long term viability.

The area of contention, which is the focus of this paper, relates to Article 6 of the Habitats Directive which defines how Natura 2000 sites are managed and protected. Articles 6(1) and 6(2) are concerned with the general regimes for the Natura 2000 sites and Articles 6(3) and 6(4) with the procedures for new developments. These are summarised in Table 1.

The implementation of Article 6(1) is central to achieving the objectives of the Habitats Directive since it is the primary clause for introducing positive measures to help maintain or restore favourable conservation status. Article 6(2) requires that Member States avoid damaging activities that could cause deterioration. Articles 6(3) and 6(4) set out the procedures to be followed where a ‘plan or project’ is proposed in or near a SAC or SPA and therefore are engaged in relation to new developments. All these provisions apply in both the marine and terrestrial context.

Whilst the provisions of Article 6(1) technically apply specifically to SACs, analogous provisions apply to SPAs by virtue of Article 4.1 and 4.2 of the Birds Directive which require that Member States ensure the specified (Annex 1) species are subject to special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Further, by virtue of Article 7 of the Habitats Directive, the provisions of Articles 6(2), 6(3) and 6(4) apply directly to SPAs. This means that SPAs are subject to virtually the

same protection regime as SACs.

The Conservation of Habitats and Species Regulations 2010 as amended, transpose the Directives requirements for the management of EMS into English Law and place duties on regulators to exercise their functions in order to achieve the objectives of the Directives.

In practice this creates a general requirement for a “competent authority” to manage ongoing activities and, before giving consent for a new development, which is likely to have a significant effect on an EMS, to subject that “plan or project” to an “appropriate assessment” of the implications for that site in view of its conservation objectives.

In the UK, as with many other EU Member States, the process for consent for new developments: (i.e. plans or projects) under Article 6(3) and exceptionally 6(4) has been systematic and attracted a developed body of case law to support interpretations of the Directive. In contrast, “activity” within EMSs refers to an ongoing use, and the management of such activities (under Article. 6(2)) did not evolve at a similar pace to that for plans or projects. How long-established fishing activity is interpreted in this context (as an activity or a plan or project) was the particular subject of contention.

3. The issue of commercial fishing activity

In England in 2014 the fishing industry had 3128 registered fishing vessels of which 2573 were less than 10 m in length. Although not all active, the number of smaller vessels in the English fishing fleet is indicative of the scale and relative importance as a component of commercial fishing in England. Whilst information on the location of inshore fishing activity in Europe is very limited (as there is no statutory satellite monitoring of smaller vessels (15 m length before 2012, 12 m thereafter). Breen et al. [6] shows how heterogeneous the distribution of fishing activity is within English Coastal waters.

Mobile demersal fishing gear towed across the sea bed will have an impact on the sea bed and is likely to influence associated biological communities. The scale of influence varies depending on the nature and scale of fishing, the substrate type and the exposure of the seabed to other natural or human induced factors, for example sheer stress. The environmental impact of fishing with such mobile gear ranges from high levels of bycatch [15], reduced benthic community biomass and productivity [17], reduced benthic species richness [8] and direct physical impacts on benthic habitats [21]. In temperate seas, areas protected from bottom towed gear fishing in inshore waters regularly recover benthic species richness [4,5] and reproductive potential of commercial species ([16]; [22]) in both reef and sedimentary habitats [32].

The regulation of marine inshore fisheries in England is ultimately the responsibility of the Government’s Department for Environment, Food & Rural Affairs (DEFRA), which superseded the Ministry of Agriculture Fisheries & Food (MAFF) in 2002. DEFRA delegates regulatory responsibilities to the Marine Management Organisation (MMO), which licences commercial fishing boats, and ten Inshore Fishery and Conservation Authorities (IFCAs) who regulate their areas through local byelaws and other management measures. This combination of central and local governmental organisations was a consistent feature of inshore fisheries regulation over the period in question, although the names, scope and powers of the organisations changed over time to reflect new statutes, demands and responsibilities. In particular the MMO replaced the earlier Marine & Fisheries Agency (MFA) and the IFCAs replaced Sea Fisheries Committees (SFCs).

The UK Government’s international commitments under the EU’s

Table 1
Summary of the requirements of Article 6 of the Habitats Directive.

Article 6	General Regime for all Natura 2000 Sites	6(1) Positive and proactive Conservation Measures
	Procedures for new developments	6(2) Avoidance of habitat deterioration and significant disturbance of species. 6(3) Step-by-step procedures for development plans and projects affecting EMS 6(4) Imperative reasons of overriding public interest

conservation regime were reflected in a number of new regulations which required Sea Fisheries Committees to exercise their functions in such a way as to secure compliance with the Habitat Regulations (The Conservation (Natural Habitats & c) 1994) and to control fisheries for environmental as well as fisheries management reasons (The Environment Act 1995). However, Government guidance to the Sea Fisheries Committees on implementation of these new regulations stated:

“As a major marine activity it is essential that full account is taken of fishing in the management of sites. The emphasis of the (Habitats) Directive is on sustainable development and the maintenance of biodiversity taking account of economic, social, cultural and regional requirements. Sustainable fishing should be compatible with this. Sites will have been selected in the light of their nature conservation quality which persists in association with existing activities. The presumption is therefore that existing activities will remain unaffected unless it can be shown that they are likely to damage the features for which a site has been designated” [3]

While for some years this advice was the basis of reassurance for the English inshore fishing fleets that by-and-large their activities would not be affected, it subsequently proved highly contentious. But the controversy, which can be traced back to this 1995 document, took fifteen years to fully emerge.

It is clear from the 1995 Guidance that the Government assumed that: firstly, continuing established fishing activity would be generally compatible with the requirements of the Habitats Directive; secondly, that demonstration of likely damage would be necessary to curtail fisheries for conservation objectives, (rather than the demonstration of favourable conservation status or the application of precaution); and thirdly that an existing fishing effort was an “activity”, rather than a plan or project and as such did not require an appropriate assessment under article 6(3) of the Habitats Directive. As a result of such guidance many authorities informed the inshore industry, that the designation of an EMS would have little effect on ongoing commercial fishing activities. However in the event all three assumptions proved susceptible to legal challenge by conservation Non-Governmental Organisations (NGOs).

The British Government’s position first became legally questionable through proceedings which originated elsewhere in Europe. Regularly licenced commercial fisheries were judged to be plans or projects under European Court of Justice case law (Waddenzee ECJ case c172/02) [36]. In this test case, the Court found that long established, but annually licenced, cockle dredging was indeed a ‘plan or project’ under Article 6(3). This meant that the fishery was required to pass Article 6(3) tests in order to get licence renewals on an annual basis. In practice, this meant that the fishery had to prove that its activities would have no adverse impact on the features for which the site was designated (by taking cockles) before receiving its annual licence. As all commercial fishing operations in UK seas are licenced every 2 years, this judgment strongly suggested that UK fisheries are also ‘plans or projects’, and must be assessed upon licence renewal for Article 6(3) impacts.

This precedent is relevant due to parallels with the UK system of fishing vessel licensing through two UK statutes: The Sea Fish Licensing Order 1992 which states that *“fishing anywhere by fishing boats which are registered in the United Kingdom or are British-owned is hereby prohibited unless authorised by a licence”* and The Conservation of Habitats and Species (Amendment) Regulations 2012 which states that *“The appropriate authority, the (statutory) nature conservation bodies and, in relation to the marine area, a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the Directives”*.

Therefore the willingness of the European Courts to interpret “plans

or projects” broadly and the consequential outcome of the Waddenzee judgment, conflicted with a procedural reluctance to deal with ongoing fishing activities within EMSs in England.

In short, through the ruling that the Waddenzee cockle fishery was not an “activity” but effectively a “plan or project” a legal precedent was established that reversed the Government’s interpretation. The onus shifted from requiring a conservation response only after “likely damage” to designated features was demonstrated, to requiring a proactive demonstration of the absence of damage before issuing fishing licences.

Consequently there was an increasing problem of EMS designation without a systemic aligned approach to managing the sites in relation to fishing. Whilst EMS requirements under Article 6(3) were instrumental in restricting major infrastructural development of ports (most notably the Falmouth port dredge application in 2011, and Dibden Bay port expansion proposals in 2004) fishing was falling through the net.

4. The role of Non-Governmental Organisations

The 2004 ECJ [36] ruling resulted from a challenge by two conservation NGOs: The Netherlands Association for the Protection of Birds (Nederlandse Vereniging tot Bescherming van Vogels) and the National Association for Conservation of the Wadden Sea (Landelijke Vereniging tot Behoud van de Waddenzee). Letters and papers by Natural England and Sea Fisheries Committees demonstrate an immediate consideration of the consequences of the precedent for particular EMS fisheries in England.

Over the period 2001–2008, the Waddenzee judgement, combined with pressure from the Marine Conservation Society and other local campaigners and conservation NGOs, led to action in relation to individual high profile cases where evidence of damage was clear. As a result protection by fishing authorities was carried out in offshore EMS at the Darwin Mounds SAC [9], inshore at the Firth of Lorne (Scotland), Strangford Lough (Northern Ireland), and more recently at the Fal and Helford (southwest England) [34]. In all these areas reefs were being damaged, whilst maerl was being damaged in Falmouth Bay (Solandt et al., 2003).

The Marine Conservation Society was cataloguing these examples and more, such as scallop dredging in the Cardigan Bay and Milford Haven Welsh SACs (2009–2010), and incursions using this gear in Berwickshire and North Northumberland SAC, and more recently in South White Maritime (2013).

Nevertheless these local challenges and their resolution did not represent a general and systematic response and at this time commercial fishing licences continued to be issued without any site-specific assessment of the impact of potentially damaging fishing operations on EMSs. In this context, ClientEarth and the Marine Conservation Society, argued that this practice was a breach of Article 6 of the Habitats [28,29] Directive. In a letter to the Marine Management Organisation (MCS/CE, 2011) the NGOs now sought a general prohibition on the use of all types of fishing gear in all EMSs. Furthermore they identified a “perfectly straightforward” way for this to be achieved: by inserting a prohibitory condition in all MMO issued fishing vessel licences (a registration process that applies to all fishing boats regardless of their area of operation).

In taking this position, the Marine Conservation Society and ClientEarth asserted that the granting of a general fishing vessel licence which enables the use of fishing gear and which does not prohibit such activity in EMSs, constituted a “plan or project” under the Habitats Directive. Therefore their proposed prohibitory condition was to remain valid for all sites until such time as the licence holder establishes by an appropriate assessment that a particular activity does not cause adverse effects. In this context they referenced the precautionary principle arguing that *“any regulatory response which involves waiting for damage to take place and be evidenced before any prohibitory measures are taken will not comply with the obligations*

of the Habitats Directive”.

However the question of how an appropriate assessment on one gear type at one site by one fishing operation might bear on the prohibition condition of other operators wanting to use the same gear type at the same or another site was left unexamined. There is reason to suppose from evidence outlined in MSC/CE (2011) that the eNGOs’ dis-inclination to address this point may have been informed by a belief that any such appropriate assessment would be unlikely to demonstrate no adverse impact. In any event by seeking a general prohibition based on fishing vessel licences, they were informed by a belief that the Inshore Fishery and Conservation Authorities (created in 2011 and operating at the regional level) were “..not necessarily effective..” being “..not necessarily willing or able prevent damage from being caused to the sites or...adhere to the precautionary principle”.

The MMO’s response expressed fundamental disagreement with the ClientEarth interpretation asserting that granting of fishing licences (enabling the use of fishing gear in a EMS (and elsewhere)) was not a plan or project within Article 6(3) of the Habitats Directive and rejecting the proposition that they were required by European law to impose a “blanket ban” on fishing activity within English EMSs until they were satisfied that fishing activity would not damage the sites (MMO 2011a para 6). In particular, they described the idea of a blanket ban as being “disproportionate” and in contrast to various local responses that were described as being prioritised by risk (with the help of Natural England) and therefore representing a “necessary and proportionate” response. This concept of proportionality was set in a socio-economic context: a blanket ban “would significantly impact on the livelihoods of fishing licence holders by reducing their opportunity to undertake hitherto legitimate fishing operations”. The MMO also rejected the assertion that any necessary appropriate assessments under the Habitats Directive would be the responsibility of the licence holder as being “not accurate”. Again, socio-economic factors were cited, as individual fishermen “may not have the resources nor expertise to conduct such an appropriate assessment”, which in any event could be an “unnecessary expense”.

Citing the heterogeneity of EMSs, the MMO also noted that “In our judgement, EMS are often best protected through local management decisions that can address local impacts and identify the most effective way of achieving the best short and long term protection for each site’s conservation objectives”. This reference to the regional Inshore Fishery and Conservation Authorities implicitly rejected the NGO notion that they were neither willing nor able to prevent damage.

The NGOs however did not accept the MMO’s position and arguably the third letter in this dialogue presages a significant turning point in the Government position. In response to MMO (2011), the NGOs stated that “you do not engage with what we say about Article 6.3”. The point being that “Implementation by the MMO of the appropriate assessment obligation in Article 6.3 is a legal necessity” and that as a result of their failure in this respect “sites continue to deteriorate”. The NGOs then suggested a solution involving: a risk assessment to rule out activities not likely to have a significant (detrimental) effect on EMSs; and a prohibition on fishing activities not ruled out by the risk assessment (that prohibition only lifted after an appropriate assessment showed no adverse effects in a particular EMS). The letter also rejected the applicability of “proportionality” in this context and challenged the assertion that socio-economic considerations can affect the MMO’s obligations under Article 6 [7].

By August of 2012 Defra was writing to the regional Inshore Fisheries and Conservation Authorities that “Ministers have decided that we need to modify our approach”, and announcing a new “proactive approach” in which a fishing activity with likely significant effect on a EMS would need to undergo an appropriate assessment “before a decision is taken on whether or not that activity can proceed”. The intention was to “move things along quickly” and start with the most vulnerable sites and features, and those fishing activities most likely to impact on them, with bottom-towed gear a priority. Defra

emphasised that the Revised Approach involved neither a blanket ban, nor implementation through the general MMO fishing vessel licences. Instead, local (IFCA) byelaws would provide the regulatory frameworks.

The Revised Approach marked a shift from the Government’s original position, but it was also different in significant ways from that proposed by the NGOs. These aspects will be analysed further in the discussion below after outlining the main features of the Revised Approach as they apply today.

5. The Revised Approach

The Revised Approach was designed to build on existing management measures, such as byelaws and fishing vessel licence variations, with the aim to ensure that all existing and potential commercial fishing activities are subject to an assessment of their impact on EMS, and their designated features.

Where permit-based, systems of fisheries management were already in place, the MMO and IFCA continued to apply the strict provisions of article 6(3) by assessing plans or projects prior to the issuance or renewal of a licence. This mostly this applied in practice to shellfish fisheries with an element of aquaculture (e.g. mussel and oyster fisheries). But where the on-going activity of fishing did not require an explicit permission of use of a particular space, under the Revised Approach the fisheries regulators now had to employ the procedural aspects of article 6(3) to inform decision making as to whether damage or disturbance in relation to ongoing fishing needed to be prevented to comply with article 6(2).

Although the Marine Conservation Society and ClientEarth were of the opinion that a strict application of the law would require all fishing to be closed, and opened on a case by case basis depending on the likely effect of each fishing activity on each sites conservation features, they understood the pragmatic approach of Defra and the regulators for a proportionate ‘phased’ introduction of management measures under the Revised Approach. This hybrid approach is seemingly consistent with emerging case law on the requirements of the Habitats Directive. The Court of Justice of the EU has ruled that Article 6(2) and 6(3) have to be interpreted in a way that ensures that the same standard of protection is achieved and that Articles 6(2) (3) and (4) seek to prevent damage being done to the site or (in exceptional cases where damage has, for imperative reasons, to be tolerated) to minimise that damage by mitigation and compensation. Case law is also clear that, whether making their decision under Article 6(2) or 6(3) and whether in relation to ongoing or newly licenced fishing activity, the decision maker must be certain that there will be no adverse effect on the integrity of the site. By way of example in the case of Sweetman (ECJ case C-258/11) [35] which concerned the destruction of a limestone pavement habitat, Advocate General Sharpston held that the requirement in Article 6(2) is ‘to take all appropriate steps to avoid [the conservation objectives of the site] being prejudiced’. The Court also held that ‘an activity complies with [Article 6(2)] only if it is guaranteed that it will not cause any disturbance likely significantly to affect the objectives of that directive’.

So as to assess fishing impacts on Natura 2000 sites, basic data on the conservation status of individual habitats and species, as well as data for fine-scale distributions of ongoing fishing activities, was required [30]. Through the Revised Approach an assessment of the risk to all EMS from fishing activity, using a risk ‘matrix’ approach, was completed. This assessment shows, at a generic level, the potential risk that particular fishing gear types have on the conservation status for all the features and subfeatures of EMS. Under the Revised Approach matrix (the Matrix), fishing activities are classed as Red, Amber, Green or Blue according to the potential or actual impact of the gear type on the feature(s) for which a site has been designated. This matrix is summarised in Table 2.

The Matrix is designed to provide regulators with an indicator as to

Table 2
Generic risk categories under the Revised Approach.

RED	Where it is clear that the conservation objectives for a feature (or sub-feature) will not be achieved because of its sensitivity to a type of fishing, – irrespective of feature condition, level of pressure, or background environmental conditions in all EMSs where that feature occurs – suitable management measures will be identified and introduced as a priority to protect those features from that fishing activity or activities.
AMBER	Where there is doubt as to whether conservation objectives for a feature (or sub-feature) will be achieved because of its sensitivity to a type of fishing, in all EMSs where that feature occurs, the effect of that activity or activities on such features will need to be assessed in detail at a site specific level. Appropriate management action should then be taken based on that assessment.
GREEN	Where it is clear that the achievement of the conservation objectives for a feature is highly unlikely be affected by a type of fishing activity or activities, in all EMSs where that feature occurs, further action is not likely to be required, unless there is the potential for in combination effects.
BLUE	For gear types where there can be no feasible interaction between the gear types and habitat features, a fourth categorisation of blue is used, and no management action should be necessary.

whether: – a. the activity requires priority management measures to be introduced to protect that feature without further site level assessment on the impacts of that activity on that feature ('red' risk) or; b. a further assessment may be necessary ('amber' risk). To support the Revised Approach Defra provided a general policy statement [10] and a series of protocols to establish the relationship between the government agencies responsible for its delivery [27].

The outcomes of this classification and prioritisation exercise is summarised in Table 3. It provides the information on which to base the management decisions for these sites and, where appropriate, introduce local management measures to prevent damage [25].

Defra, in 'A protocol to inform the matrix' [11], identified that risk management was informed by their initial assessments, but still required further site level assessments. The protocol states. "It is recognised that in many cases level of impact will vary according to the intensity of the activity. However, the completion of the matrix is an exercise at the generic level, irrespective of pressure or natural variation in feature sensitivity, and as such can only act as a guideline to inform site level identification of risks and the prioritisation of assessment and management activity. Site-specific analysis to establish appropriate management of red activities and the quantification of impacts for amber and green (where necessary) may be required in subsequent stages of the process." Statutory nature conservation bodies (SNCBs) were tasked to provide additional advice to the regulators on the level of risk and to support them through the process to apply the generic matrix at the individual site level and develop action plans. Defra established an 'Implementation Group' comprised of the reg-

ulators, eNGOs and industry to provide oversight of the implementation of the Revised Approach.

6. Implementation: The case of towed fishing gear

The transposition by IFCAs of the Risk Matrix into the gear feature interactions relevant to their jurisdictions resulted in 1521 [2] Habitat regulation assessments which indicated management was required. As a consequence by 2015, 18 byelaws [26] were introduced which restrict the activities of, by and large, mobile fishing activity such as scallop dredging, demersal trawling and beam trawling, where this was deemed damaging to features considered sensitive within designated sites. As a result, these activities were made unlawful in 25 EMS: an aggregate area of seabed of 3300 km² including the most vulnerable near shore habitats and in particular 'reef and seagrass features' (Fig. 1).

In 2016, the focus of the work of IFCAs and their partners refocused on activities where there is a more limited understanding of the vulnerability of features, or distribution of those features, and/or the impact of activities, and there is a need for detailed assessment on these sites. Defra and the conservation sector expects further measures to address these 'Amber Risks' to be in place by the end of 2016.

7. Discussion

The adoption, by the UK Government, of the Revised Approach in England represents a general, consistent and systematic approach to

Table 3
A subset of the UK Governments' 'Matrix' of fisheries gear types and EMS protected features where mobile fishing gear is deemed to present a 'red risk' to the sub features of EMSs. Source:Source MMO (2014).

Fishing gear type	Generic sub-features	Maerl	Intertidal and subtidal chalk reef	Subtidal bedrock reef	Subtidal boulder and cobble reef	Sabellaria spp reef	Subtidal mussel bed on rock	Submarine structures made by leaking gases
Towed (demersal)	Beam trawl (whitefish)	R	R	R	R	R	R	R
	Beam trawl (shrimp)	R	A	R	R	R	R	R
	Beam trawl (pulse/wing)	R	R	R	R	R	R	R
	Heavy otter trawl	R	R	R	R	R	R	R
	Multi-rig trawls	R	R	R	R	R	R	R
	Light otter trawl	R	A	R	R	R	R	R
	Pair trawl	R	R	R	R	R	R	R
	Anchor seine	R	R	R	R	R	R	R
	Scottish/fly seine	R	A	R	R	R	R	R
Dredges (towed) Dredges (other)	Scallops	R	R	R	R	R	R	R
	Mussels, clams, oysters	R	A	R	R	R	A	R
	Pump scoop (cockles, clams)	R	B	B	B	R	B	R
	Suction (cockles)	R	B	B	B	R	B	R
	Tractor	B	B	B	B	R	B	B

(R=Red Risk, A=Amber Risk, Blue=No Risk see Table 2 for risk categorisation).

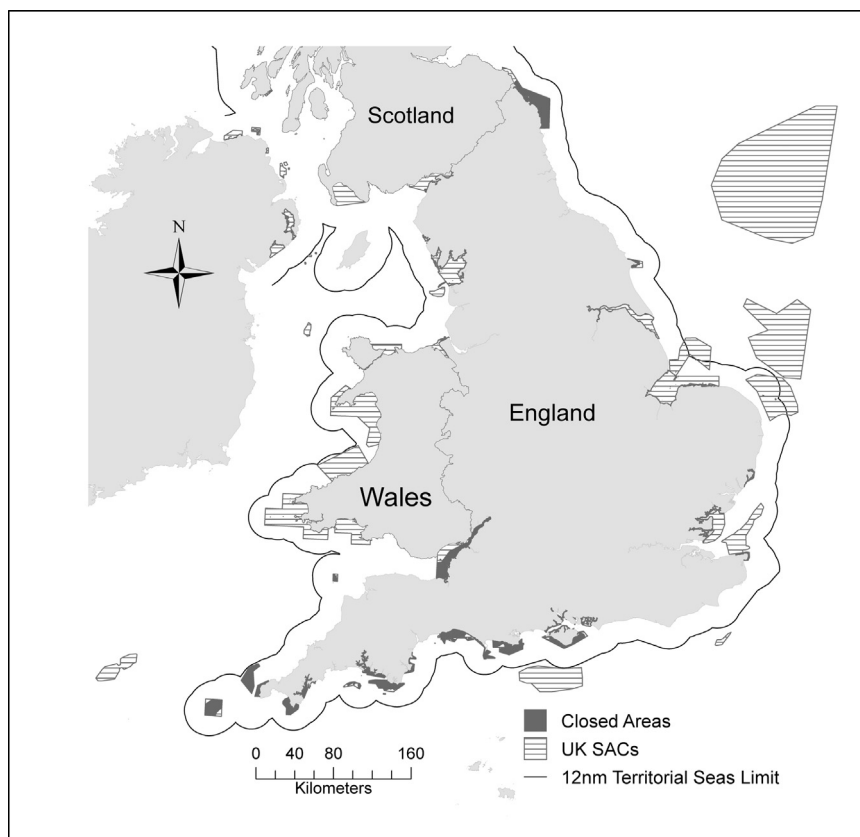


Fig. 1. Inshore areas where 'bottom towed' fishing activity is now restricted as a consequence of the management of 'red risk' activity to protect 'reef and seagrass' beds in EMS.

the protection from damage, caused by fisheries, to the features for which EMS are designated [18]. The 'top down' nature of the designation of EMS, is combined with a regional approach to regulation and management, led by locally accountable public decision making bodies (IFCAs), through an established framework for assessing the effects of fishing, and informed by advice from SNCBs.

An interesting feature of the policy process examined here is that the Revised Approach resembles neither of the initial positions of the main governmental or non-governmental protagonists. While it seems clear that the sustained interventions of the eNGOs were necessary to provoke a significant change to government policy, it is also clear that the Government rejected the eNGOs initial insistence on a centralised approach in which the licensing of fishing boats was seen as the means of achieving an outright ban on commercial fishing in EMS as a starting point, with subsequent permissions granted for benign fishing activities.

Essentially therefore the policy process relating to fishing in English EMSs was dialectical in nature, with the initial positions of both the Government and the eNGOs contributing, through dialogue, to the eventual policy synthesis. Of further interest is that this was achieved despite the contrasting (anthropocentric and eco-centric) ideologies of the two sides. In practice these two 'values' manifested their differences in the respective legal preoccupations of the protagonists: the eNGO commitment to precaution and the Government's determination to achieve proportionality.

This study demonstrates that the central UK government policy approach, and the coordinated engagement by SNCBs, eNGOs and national fishing body representatives, through the establishment of an Implementation Group, provided the focus and framework for the otherwise independent local regulators (IFCAs) in English inshore waters to operate in a coordinated manner. From this there are potentially useful structural lessons for those parts of the UK and EU Member States which do not have similar inshore management

systems, but are also bound by the requirements of the EU Directives.

It is also clear to see from the delivery of the revised approach that there are some activities that can be effectively communicated as 'damaging' to all local stakeholders. However, there are other areas of the law, and its interpretation (over so-called 'amber' interactions), where there is less certainty of cause and effect. Regulators are still to finalise completion of management of these more controversial 'amber' interactions at time of writing.

On a site by site basis it may be still argued, by both eNGOs and the fishing industry (though likely from opposing perspectives), that the response of the local public making decision bodies, the IFCAs, will fail to address the uncertainty and ambiguities surrounding the conservation science underpinning site objectives. This almost inevitably revolves around decisions based on the ability of scientific investigation to achieve certainty about the type and severity of effects of fishing activity in EMS.

As in other areas of policy, the uncertainty inherent in scientific conclusions does not interact well with the needs of policy makers. As a consequence the meaning and significance of scientific evidence for policy formulation is more often than not a political judgement. In this regard, in relation to the appropriate management decisions to be made in the context of scientific uncertainty, there remains a difference of opinion between eNGOs' focus on the legal principle of precaution that underpins the Nature Directives, and the Government's consideration of 'proportionality'.

The IFCAs however have a membership balanced across various interest groups, including commercial, recreational and environmental experts. This structure has a role in providing the elements of deliberative and pragmatic co-management necessary to address certain of the tension in fisheries and conservation management [31]. This degree of inclusivity and their accountability in decision making is therefore of considerable interest in the context of the developing body of study into MPA governance ([19,20,33]).

What is clear is that the 'revised approach' (and similar considerations of the measures needed to meet Article 6 of the Habitats Directive in Welsh and Scottish inshore SACs) has led to extensive spatial management of bottom trawl and dredge fishing in EMS. As such, eNGOs would consider that in inshore waters we are moving away from 'paper park' status towards well-managed MPAs. Elements of enforcement, monitoring and compliance are the final steps to achieving effective MPAs. These will be enabled through effective public resourcing, co-financing, public-private partnerships and effective communication at the local and national level [19].

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