

Written evidence from Marine Conservation Society (MCS) (PAE0017)

20th April 2023

Dear Lady Baroness Parminter,

Written Evidence: The House of Lords Environment and Climate Change Committee.

I write on behalf of the Marine Conservation Society (MCS) in response to the call for evidence to assist the short inquiry into protected areas by the House of Lords Environment and Climate Change Committee. The [Marine Conservation Society](#) is the UK's leading ocean charity, fighting for cleaner, better-protected, healthier seas. The charity works to highlight the importance of our ocean, and the life within it, through working with government, industry and education, to take action to restore and protect the marine environment. The Society's response to the call for evidence is below under the questions posed by the Committee:

1. What is the current environmental state of the marine protected areas in England which might be included in the commitment to protect 30% of land and sea by 2030?

1.1 Condition Assessments and the Global Biodiversity Framework

Recommendations:

- A. Resources should be provided to ensure there is accessible and suitable data to inform policy interventions, particularly to monitor progress towards the Kunming-Montreal Global Biodiversity Framework (KMGBF) goals and targets with respect to Marine Protected Areas.
- B. To ensure removal of monitoring bias, and the effectiveness of the Marine Protected Area network of sites, a standardised quantitative based strategy should be developed to monitor progress at "sentinel site" Marine Protected Areas, which inform management effectiveness of the wider network to enhance biodiversity, ecosystem function and services, ecological integrity, and connectivity.
- C. Whilst welcoming the establishment of condition assessment-related targets for MPAs, the Marine Conservation Society recommends that the Government demonstrate how such indicators will show progress towards the enhancement and restoration of functioning ecosystems.
- D. With regard to Recommendation C, consideration should be given to developing a whole-site approach to management for MPAs designated for benthic features in order to demonstrate progress, and inform adaptive management, towards the targets and goals of the KMGBF.

1.1.1 Marine Protected Areas (MPAs) comprise Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) under the Habitats Regulations

and Marine Conservation Zones under (MCZs) under the Marine and Coastal Access Act (2009).

- 1.1.2 The Society notes the UK Government's stated target of 70% of designated features within the MPA network to be in favourable condition by 2042, with the remainder of features being in recovering condition (Environment Act 2021). With respect to the current condition of MPAs in England we would draw the Committee's attention to the Office of Environmental Protection (OEP) *Progress in improving the natural environment in England, 2021/ 2022* report, which indicated that the condition of offshore MPAs could not be assessed as only "30% of offshore MPAs have accessible condition monitoring survey data." (OEP 2022 p.35).
- 1.1.3 We further note the finding of the OEP (2022) that "*there is little, easily accessible monitoring data for Marine Protected Areas*" and that "*without adequate condition monitoring, there can be limited confidence in the successful design of policy interventions*" (OEP 2022 p.114). It is therefore unlikely that the UK will bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030 without the necessary data to monitor progress and adapt priorities; thereby failing to fulfil the Kunming-Montreal Global Biodiversity Framework (KMGBF) Targets for MPAs.
- 1.1.4 The route to meet the goals and targets within the Framework has also yet to be established, along with how the Government will achieve the commitment within their own 2030 Strategic Framework for International Climate and Nature Action (2023) to "*drive global ambition to protect and restore land and sea...by championing and supporting implementation of the Kunming-Montreal Global Biodiversity Framework (KMGBF) targets*"...and lead "*by example in protecting and restoring land and sea at home*" through "*enhanced protections to our marine protected areas.*" (HM Government 2023, p51-52.)
- 1.1.5 The Marine Conservation Society also notes that due to the paucity of data, condition assessments (Natural England 2020) used to inform the *Environmental Targets (Marine Protected Areas) Regulations (2022)* are currently largely based on a qualitative assessment process, albeit informed by limited quantitative data where it exists (see above) and comparison between similar sites. Such expert-based judgements for MPAs can be prone to bias due to linguistic uncertainty, lack of clarity and overconfidence in assertions (Addison et al 2017, Burgass et al 2017). In turn, this can undermine the effectiveness in reaching conservation goals and the credibility of conservation management decisions (Burgman et al 2011). These concerns are reflected in the OEPs recommendations for the Joint Fisheries Statement being strengthened with respect to MPAs to provide "*clearly defined framework policies for how the network should be administered. Included within these policies should also be an explanation of the monitoring and enforcement methods that will be used to safeguard against non-compliance*" (OEP 2022 p.82).
- 1.1.6 To succeed in protecting and promoting marine habitats in line with the KMGBF, there will be a need to address these bias issues by resourcing for

quantitative based assessments which clearly demonstrate recovery of marine ecosystems and the effectiveness of MPAs in doing this in a timely and adaptive manner. In England & Wales this is only currently being effectively undertaken at very few locations – Lyme Bay and Lundy in SW England, and Skomer Island in Wales are good exemplars. These MPAs have long-term datasets on benthic invertebrates, vulnerable habitats, fish populations and the influence of fisheries restrictions on fish, commercial fish and shellfish. In order to consider the impact of the wider MPA network we need finance regional 'sentinel site' MPAs – *at least* one for each of the Irish Sea, Southwest, Southeast, East and Northeast regions, in order to better understand and support the policy of MPAs and their delivery in separate UK regions. The MCS would recommend that condition assessments for MPAs move swiftly to a standardised quantitative approach, which provides confidence in the Government's conservation efforts through transparent validation and verification of monitoring results. Universities are able to carry out this research on behalf of government and local stakeholders.

- 1.1.7 The approach being applied by *The Environmental Targets (Marine Protected Areas) Regulations (2022)* with respect to protecting 30% of sea by 2030 is prone to error because it bases measurement of condition in recent times (the last 20 – 30 years). Monitoring the condition of key features will only help to realistically test whether sites have reached "favourable condition" based on an ecosystem that has already been impacted by over 100 years of industrial fishing and other activities (e.g. ports, shipping, pollution). Another factor that affects our impression of 'favourable condition' is that the past 140 years has seen increased marine 'urbanisation' (sea defences, aggregate dredging, land claim, oil and gas development, renewables structures, pipelines, cables, etc.) of coastal and marine environment from the mid 19th Century to today. So reaching a 'favourable condition' has to be taken into this temporal context of the very busy and industrialised nature of our marine environment. However, MCS believes that 'trajectories of recovery' can be recorded when pressures are removed that will account for 'improved' rather than necessarily 'favourable' condition being attained.
- 1.1.8 For example, activities such as demersal bottom trawling have degraded marine seabed/ benthic habitats when compared to a pre-industrial scale fishing undamaged baseline. The Government's current MPA management measures do not consider this context, as the designated 'features' of MPAs are only a small fraction of their former historical extent. Comparison of existing, impacted communities by Callaway et al (2007) using epibenthic (seabed) surveys for the 1900s, 1980s and 2000s demonstrates that MPAs can currently protect denuded habitats. From the early 1900s, as the impact of industrial fishing has grown, there have been declines in epibenthic species in the North Sea due to the removal of large-bodied fauna (e.g. horse mussel, queen scallop, fan mussels), damage to vulnerable fragile shell organisms (e.g. transparent razor shell) or those with vulnerable tests (e.g. the heart urchins). Epibenthic communities have therefore changed to favour small robust species that can escape the direct impact of trawled gear or have the capability to survive, regenerate or have higher reproductive rates. Loss of sessile or

biogenic species that provide habitats for other species (e.g. horn wrack, dead man's fingers or, most sponges, smaller bryozoans and ross coral) may have indirectly led to the decline of associated species (e.g. porcelain crab, velvet shell and sea slugs) (Callaway et al 2007). Given the level of community change, conservation targets should therefore be based on the earliest available data as natural baselines, and not the key features identified at the time of designation post 2000. Some previously mentioned MPAs that have reasonably moderate temporal closures to bottom towed fishing (e.g. Isle of Man – over 20 years, Lyme Bay, over 15 years, Arran (Scotland), over 15 years, Skomer Island over 30 years) do show much improved seabed condition, and for that of condition for settlement and increased abundance of commercial fish and shellfish (e.g. juvenile cod, haddock, scallops, lobsters).

1.1.9 The reliance on “favourable condition” of key indicators rather than returning a site to the natural integrity of a pre-damaged functioning ecosystem may merely reinforce a failure in marine conservation by maintaining a degraded and denuded environment. Plumeridge and Roberts (2017) have demonstrated that where the area containing an MPA has been subject to a long history of human exploitation, the use of present day rather than historical data will lead to unambitious recovery targets that underestimate the previous alteration of a site’s ecosystem. Reliance solely on condition of key indicators may therefore not be ecologically meaningful as it does not consider other biotic or abiotic factors which may obstruct or contribute to the restoration of ecosystem structure and function (Smit et al 2021). So, whilst the MCS welcomes the approach by Government to set condition targets for MPA features as a step forward, the Society would question how the approach will demonstrate progress towards ecological integrity and functioning ecosystem-based targets within the KMGBF.

1.1.10 Determining the integrity of a site’s ecological structure and function, particularly for MPAs designated for benthic features, would appear to be a more appropriate means of measuring and attaining the goals and targets of the KMGBF. The whole-site approach promotes the maintenance of health for wider marine ecosystems, their species, diversity, function and ecological resilience to withstand stress (e.g. climate change) and a capacity for adaption to environmental change whilst retaining essential functions (such as breeding habitat, nesting and recruitment habitat, filtration capacity, shoreline protection (Rees et al 2020). The whole-site approach meets the requirements of the KMGBF by taking account of similar ecological characteristics (i.e. biodiversity, structure, function and ecological process) (Solandt et al 2020).

2. What works well, what do you expect to work well, and what improvements could be made in the regulatory regime for MPAs, HMPAs, and other marine protection designations?

2.1 Highly Protected Marine Areas

Recommendations

E. DEFRA should incorporate community support building, possibly through existing partnerships, as part of the development of coastal HPMAs.

- 2.1.1 The Society welcomes the Government's actions following the Benyon Review in establishing pilot Highly Protected Marine Areas (HPMAs). Unfortunately, it is regrettable that the selection process only achieved three, instead of the proposed five, pilot sites. The area to be designated represents less than 0.5% of the UK sea area and the Society's position is that *our marine habitats must be given the opportunity to recover and provide the maximum benefits to us - including biodiversity restoration, carbon storage and supporting fisheries recovery. A network of HPMAs covering at least 10% of English seas should be established by 2030 to allow our seas to thrive* (MCS 2023 https://media.mcsuk.org/documents/MCS_Highly_Protected_Marine_Areas_statement_27.02.23.pdf)
- 2.1.2 The Society engaged with the HPMA consultation process (see Attachment 1- HPMA Consultation Response 28/09/2023) and supports the proposed development by DEFRA of the next tranche of sites to fulfil the pilot requirements in 2023. We, however, note two areas of concern that should be rectified before DEFRA (alongside the MMO and Natural England) undertakes this work.
- 2.1.3 Firstly, proposed site selection precluded areas that had existing infrastructure (cables, pipelines, oil/ gas installations, windfarms, etc). Proposals were limited to changes in stakeholder activity focused mainly on exclusion of seabed impacting fishing practice and water quality improvements. Secondly, whilst stakeholders were engaged, proposals were fixed with little flexibility in management/ conservation objectives. Proposed changes were limited primarily to variations of the HPMA boundary. Engagement was effectively confined to supporting or opposing proposed sites.
- 2.1.4 It should be noted that prior to the consultation on the proposed HPMA at Lindisfarne, the Northumberland Inshore Fisheries and Conservation Authority (NIFCA) had established a bylaw banning bottom towed gear without the need for an HPMA, this demonstrates the ability of locally imbedded authorities to establish lighter forms of protection/ sustainable use compatible with local community ambitions using the Marine and Coastal Access Act (2009).
- 2.1.5 The IFCAs need to be adequately resourced. We know that – at current reduced capacity, relative the extent of the large MPA networks in their waters - they cannot carry out their statutory functions to effectively monitor (with MMO, JNCC and NE), and enforce/protect the condition of MPAs without outside support (e.g. NGOs, Universities and scientific grants). Sadly, they have lost staff, and their enforcement capacity has been cut. They cannot use GIS/iVMS *alone* to bring errant and illegal fishing activities to account (from a seminal court case over an offending vessel in Devon waters). As such, and if the courts won't allow such

evidence to be used in isolation, these excellent regional regulators need greater enforcement capacity both in the water, and in additional satellite or drone capacity such that important prosecutions can be brought to those that damage the MPA network. Given the difficulty in carrying out their existing legal function, additional work involving gaining community support for new HPMA designations may not be possible.

2.2 Socio-economic assessments

Recommendations

- F. Decisions concerning MPA designation and management should not be weighted towards short-term interests of certain sectors over the long-term public interest.
- G. Decisions concerning MPA designation and management should be made to consider the long-term interests of society.

2.2.1 We know that certain fishing activities are not in the wider societal interest – such as the landings and minimum size landings for crab or lobster. Also, the use of certain fishing gears at the moment, such as line and trap fishing is currently not in the public interest in the collateral impact of life-supporting ecosystem services. Similarly, any bottom trawling, from otter to beam trawling and dredging has a disproportionate impact on vital ecosystem services beneficial to aiding life-supporting services that the seas, and the natural habitats these provide. Slowly society, and the functions of regulators – the MMO, IFCA is adopting the ‘natural capital approach’ to influencing such factors as bottom trawling to properly account for its impact. Such an approach can be used to influence all fisheries decisions, and for the better health of the seas.

2.2.3 The Marine Conservation Society recently produced the *Marine Natural Capital At Risk- Retained EU Law (Revocation and Reform) Bill* report (Attachment 2). The report details available data including the Office for National Statistics information which values the UK’s marine natural capital assets at £211bn (ONS, 2021). Figure 1 is taken from the latest marine natural capital accounts, showing total asset values for UK marine natural capital. These do not capture all the valuable services that the marine environment provides, such as coastal protection, which is worth between £3.1 billion and £33.2 billion per year to the UK economy (Government Office for Science, 2018).

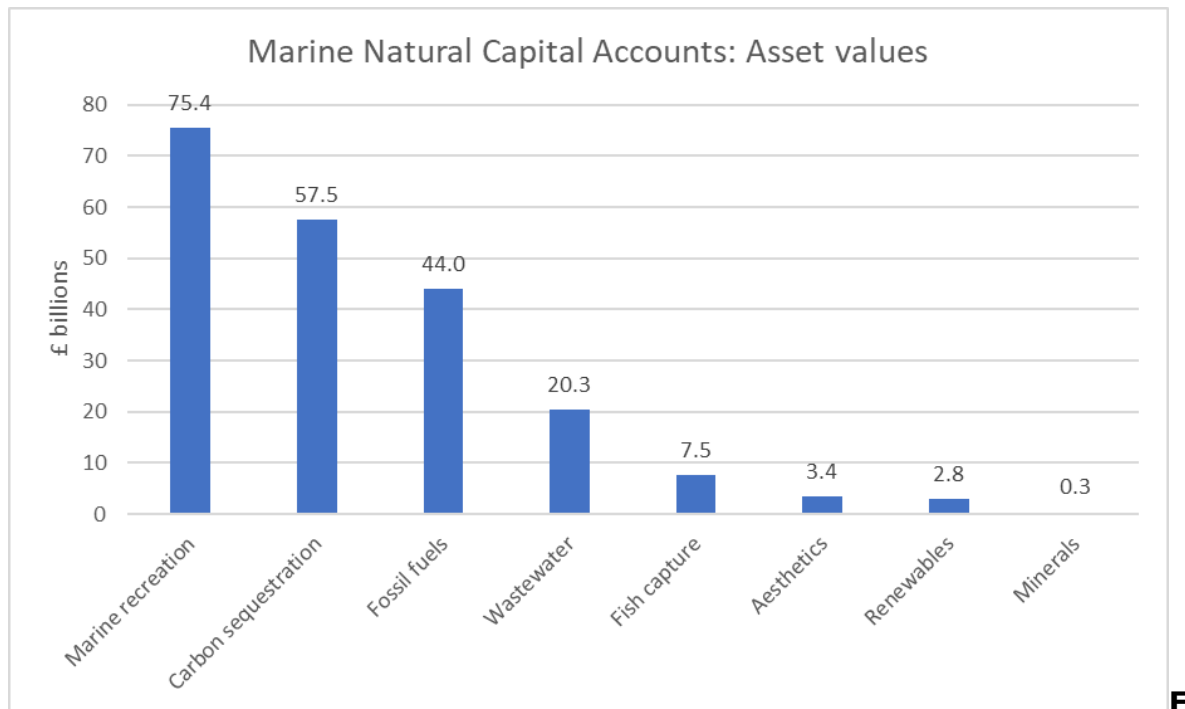


figure 1: The value of different natural capital assets outlined in the UK's marine natural capital accounts (ONS, 2021). Marine recreation and carbon sequestration make up over half of the total value of marine natural capital assets (£211 billion). The value of these assets is linked to the health of our marine environment and functioning of ecosystems.

- 2.2.4 Marine Protected Areas (MPAs) are commonly designated to protect biodiversity assets (Defra, 2022). In its *Future of the Sea: Marine Biodiversity* report, the *Government Office for Science* (2018) states that UK marine biodiversity can be worth up to £2,670 billion. This figure was based on ecosystem service valuations taken from 2002-2004 and a modern assessment with more data would probably increase this value.
- 2.2.5 The benefits of MPAs vary from site to site, but for tourism and recreation services alone the benefits can be as much as £10 million per MPA (RPA, 2020). A *UK National Ecosystem Assessment* report by Kenter *et al.* (2013) considered economic value of recreational ecosystem services in UK MPAs. The annual recreational values calculated at the time were £1.87 – £3.39 billion for England.
- 2.2.6 According to Hughes *et al.* (2022), properly enforced MPAs can play a valuable role in nitrogen regulation to control the impacts of human-caused nutrient enrichment (e.g. agricultural runoff and sewage discharges into river catchments, estuaries and coastal waters) within marine ecosystems. Continental shelf sediments are estimated to have a denitrification rate of 800 kg of N per km² per year which would increase to 880-4000 kg N km⁻² yr⁻¹ if sediments were properly protected from damaging activities such as bottom-trawling. The monetary value across 80 – 120 years of nitrogen removal is estimated at £2.2 – 12 million per km² based on the price of terrestrial nitrogen credits.

2.2.7 In addition to their role in marine conservation, MPAs play a key purpose in safeguarding marine habitats and ecosystems that sequester and store carbon (Jankowska *et al.*, 2022).

2.3 Fishing Byelaws and Enforcement

Recommendations

H. Following the introduction of byelaws to protect MPAs, fisheries enforcement should move rapidly to introduce Remote Electronic Monitoring (REM) to ensure reliable enforcement of fisheries byelaws.

2.3.1 The MCS welcomes the first tranche of fisheries byelaws introduced by the Marine Management Organisation (MMO) to protect MPAs from damaging bottom towed fishing gear in four offshore sites. The Society is engaging with MMO to assist the next tranches of byelaws to further protect the wider offshore MPA network.

2.3.2 Once fisheries management measures are introduced into a MPA they must be properly and effectively enforced. Current enforcement is largely based on Vessel Management System (VMS) data transmitted from larger fishing vessels (>12m). But if a small 9.9m scallop dredger operates in any location, it can fish without any surveillance in much of UK's waters. This is no longer tenable now we know about the impacts of such fishing regardless of the size of the vessel. VMS is needed the further we are from the coast (further away from a practical 'eyes on' monitoring and surveillance that is costly and time-consuming). Newly 'managed' offshore sites a long way from shore such as 'the Canyons MCZ' – a Marine Protected Area designated to protect deep-sea reef, sponge and mud habitats in the far south-western extent of the UK continental shelf requires such surveillance, and REM would be a superlative addition to ensuring compliance. Following the introduction of a byelaw to protect the site, the Society notes that potentially damaging activity still continues in small parts this area.

2.3.3 Analysis of publicly available vessel tracking data shows that since the bylaw closing much of Canyons MCZ site to bottom towed gear came into force in June 2022, incursions of vessels using prohibited gear-types have taken place. In addition, the recent (2022) Start Point to Plymouth Sound and Eddystone SAC legal case where a conviction was dismissed on appeal due to the original prosecution relying solely on fishing vessel VMS data indicates the need for corroborating (e.g. 'eyes on' that the vessel was seen to be actively fishing) information. The Society therefore strongly recommends that vessels should be equipped with Remote Electronic Monitoring (REM) technology so that the responsible authority (MMO) can ensure that the fisheries management byelaws, introduced to safeguard important benthic species and habitats, are correctly observed. This will also help our IFCA's undertake enforcement too.

3. Beyond the regulatory regime for protected areas, how could the Government more effectively use other policy tools (e.g., marine spatial planning), to improve the state of protected areas at sea?

3.1 Marine Compensation

Recommendations

- I. Marine Spatial Planning is used to identify “go to areas” for development that avoids sensitive/ vulnerable habitats and ecosystems, specifically MPAs.
 - J. Policy and legislation should ensure that when planning, and considering consent for developments, the Mitigation Hierarchy should be used to make every effort to sequentially work through and consider options to ‘avoid, reduce, mitigate’ impacts to marine ecosystems/ MPAs; exhausting the possibilities of one level before proceeding to consider the next. Compensatory measures should only be considered as a “last resort”.
 - K. Under Marine Spatial Planning, the protection and avoidance of habitats with low potential for restoration should have priority over compensatory restoration attempts.
 - L. Compensation using habitat restoration/creation should only be considered where measures will be effective in reinstatement of ecosystem function and structure similar to the natural biological integrity of the affected site, demonstrated by the historical baseline for the site and/or region.
 - M. Given uncertainty in the ability to reinstate habitats of similar ecological function, compensation should be linked to Marine Net Gain using an agreed “over-compensation” basis in the level of ecosystem restoration (e.g. in net terms, increase the spatial area of affected habitat by 10% as a result of the new area assigned for compensation).
 - N. MPAs should not be adversely or irreversibly impacted until compensation measures are in place, with effective conservation outcomes validated by long-term quantitative condition monitoring which enables adaptive management of MPAs.
 - O. The long-term implementation of compensatory measures should be legally and financially secured before implementation.
 - P. Compensation should be ‘nearby’ the affected site – not in another region, and particularly not in another bio-geographic region.
 - Q. Recommendations I-P should be incorporated into the Energy Bill.
- 3.1.1 The Marine Conservation Society draws the attention of the Committee to the forthcoming Energy Bill and our concern that existing policy tools may be degraded or made less effective by this Bill in combination with the REUL Bill. The Energy Bill is reliant on the powers and duties of public bodies and statutory agencies (e.g. Natural England, Marine Management Organisation and Crown Estate) when assessing applications for marine licenses and other consents, particularly the requirements for Appropriate Assessment (AA) and Environmental Impact Assessment (EIA). In 2022, the Marine Conservation Society published *Deregulate and Damage: Implications of Government Energy, Economic Growth and Deregulation Policy to Marine Protected Areas* (Attachment 3) which details our concerns with respect to loss of protection to the marine environment and

MPAs. Attachment 2 sets out the value of the marine ecosystem at risk from reduced protection as a result of the REUL Bill.

- 3.1.2 Focusing on the content of the Energy Bill (<https://bills.parliament.uk/bills/3311>), we note that the Mitigation Hierarchy is not set out within the Bill for new offshore renewable developments- instead being reliant on the powers of statutory agencies and public bodies (Section 241) that risk being lost or downgraded by the REUL Bill.
- 3.1.3 The Society notes the Government's previous assertion within public consultation that compensation is seen as a method for addressing marine habitat and biodiversity loss as part of proposals to augment Marine Net Gain and is thought applicable to marine protected areas (SPAs, SACs and MCZs). The UK Government has defined Net Gain as *"an approach to development that aims to leave the natural environment in a measurably better state than beforehand"* (DEFRA 2022, p.34). Compensation may be used *"when an adverse impact on an MPA cannot be ruled out but a development that has gained consent in line with the requirements of the Habitats Regulations or MaCAA (as appropriate)"* (DEFRA 2022, p.7) The Government has further defined a *"compensatory measures as required under applicable legislation, to offset the negative environmental impacts of developments. Compensatory measures include relevant compensation under the Habitats Regulations and MEEB [Measures of Equivalent Environmental Benefit] under MCAA"*. (DEFRA 2022, p.33). With a previous MPA specific definitions stating that compensatory measures are *"used to compensate for the risk of impact on features, habitats or species within all MPAs. This term encompasses compensatory measures in respect of 'IROPI derogations' for SACs and SPAs and 'MEEB' for MCZs, unless otherwise specified."* (DEFRA 2021, p.16)
- 3.1.4 Within a marine context, the UK Government has defined the Mitigation Hierarchy as *"The principle that environmental harm resulting from a development should be avoided (through locating development where there will be less harmful impacts), adequately mitigated, or, as a last resort, compensated for."* (DEFRA 2022, p.35). In 2021 the UK Government indicated that *"when developers are considering an activity / development they should make every effort to work through the 'avoid, reduce, mitigate' hierarchy in a sequential manner, exhausting the possibilities of one level before proceeding to consider the next."* (DEFRA 2021, p.5), with compensation (MEEB) only considered for MCZs where *"the developer must demonstrate that there is no other means of proceeding with the act which would create a substantially lower risk of hindering the achievement of an MCZ's conservation objectives; that the benefit to the public of proceeding with the act clearly outweighs the risk of damage to the environment that will be created by proceeding with it; and that the person seeking the authorisation will undertake, or make arrangements for the undertaking of, MEEB to the damage which the act will or is likely to have in or on the MCZ."* (DEFRA 2021, p.5).

- 3.1.5 In the case of former Natura 2000 sites it should be noted that in 2021, the Government indicated that a responsible authority (e.g. MMO or NE) “cannot consent to any plan or project that cannot rule out an adverse effect on site integrity (SACs/SPAs) or to any act that has a significant risk of hindering the achievement of a site’s conservation objectives (MCZs)” (DEFRA 2021, p.6) unless there is a derogation for Imperative Reasons of Overriding Public Interest (IROPI) despite an adverse effect on site integrity (SPAs or SACs).
- 3.1.6 However, no such legal provisions are contained within the proposed Energy Bill. Instead, the draft legislation specifically identifies the use of *compensation* (Section 241) in respect to renewable energy developments which impact on MPAs (Section 241). No mention is made of avoidance of MPAs in favour of other sea areas via the use of Marine Spatial Planning (MSP) or Mitigation Hierarchy, with the proposed Bill being reliant on statutory duties of public bodies (i.e. requiring Appropriate Assessment and Environmental Impact Assessment) that may be amended by the REUL Bill. Equally concerning is that the Energy Bill appears to contain provision (Section 30, (1b)) to remove the requirement for environmental assessment of Government plans and policies. The Marine Conservation Society suggests that this is a retrograde step in ensuring Government policy will protect the marine environment. The Society recommends the Bill is strengthened to undertake development within an MSP Framework that promotes “go to” areas for civil engineering projects such as renewables.
- 3.1.7 Currently, the government has yet to define the practical meaning of *compensation*. In respect to the marine environment, the MCS does note that the use of habitat creation and restoration to offset terrestrial biodiversity losses are methods promoted to achieve compensation. The following section discusses this application to marine habitats.
- 3.1.8 It is recognised that the restoration of marine habitats following disturbance (e.g. from fishing and/or construction damage) can take decades to centuries (Lotze et al 2011). It is therefore likely that passive or unassisted techniques (i.e. merely removing the activity and/ or increasing the level of protection) will not readily lead to restored marine ecosystems where the geographical location of the disturbance and ecosystem type to be restored are important factors in the success of restoration (Fraschetti et al 2021), particularly when there has been fundamental loss of the physical nature of the seabed habitat (e.g. a once mixed shell and sand seabed that has not had additional living biogenic reef to create additional shell material for juvenile bivalve settlement will not be able to recruit new bivalve reefs (e.g. native oyster, mussel, horse mussel and fan mussel beds). As such, there will need to be some form of active restoration, such as that being promoted in Essex (ZSL project) and the Dornoch Firth (DEEP project) in order to facilitate habitat recovery by depositing very large amounts of shell gravel to facilitate recovery.
- 3.1.9 In conclusion, a key factor is the level of historical damage to the habitat that is proposed for restoration, noting that much of the UK seabed

(including MPAs) has been disturbed by at least a century of commercial fishing (see above). In addition, a key question to be addressed by Government policy is when does restoration-based compensation succeed? If it restores an MPA to “favourable condition” of its key features, it is unlikely to reflect the natural integrity of the area’s ecosystem from pre-commercial fishing times (see above). A key to Government Policy successfully achieving the KMGBF goals and targets by 2030 will be the restoration of functioning ecosystem processes with a community structure (e.g. species composition) that reflects the original natural integrity of the ecosystem (Lockwood and Pimm 1999). Importantly, the reliance on condition assessments (see above) is unlikely to demonstrate the outcomes of restoration where there is a need for a coherent data recording format for such projects (Egar et al 2022). At present the current and proposed MMO offshore MPA Fisheries Byelaws and measures within the Energy Bill appears to be replacing one damaging impact (commercial fishing using bottom towed gear) within an MPA with another (commercial renewable energy generation) without sufficient data to indicate if such conflicting policies will enable the UK to meet KMGBF goals and targets by 2030.

- 3.1.10 Previously damaged marine habitats can be the most costly, hardest & longest to restore (Fraschetti et al 2021). The Society is therefore concerned that restoration proposals to compensate for damage caused by renewables development may be unsuccessful, leading to further degradation of already denuded marine habitats when avoidance and spatial prioritisation (using MSP) of MPAs to avoid windfarm colocation may produce better conservation outcomes (Fraschetti et al 2021). We are also concerned that the Government, basing policy predominantly on *compensation*, is relying on untested scaling up of inshore restoration techniques (e.g. saltmarsh and seagrass) that have limited relevance to attempting restoration at larger seascape scales (Saunders et al 2020, Frascchetti et al 2021).
- 3.1.11 The review by Saunders et al (2020) indicates that marine coastal restoration projects are typically small scale, have short duration (1-2 years), are expensive (>US \$100,000s ha⁻¹) and have low levels of long-term survival (where known). Successful restoration projects appear to be confined to coastal initiatives for a limited range of ecosystems (Saunders et al 2020, Danovaro et al 2021, Basconi et al 2020) that do not reflect the full range of seabed subtidal habitats within the UK MPA network, particularly offshore (where the windfarms are currently being built). Previous restoration is largely restricted to coastal inshore projects such as saltmarsh habitats restoration with other successful but more difficult restoration of seagrass beds (by planting and re-seeding), and oyster beds (by creating artificial shell habitat onto which juvenile oysters are scattered after being lab-reared, and/or installing native oyster ‘brood stocks’ from which oyster larvae are released). There are, however, almost no examples of UK offshore marine habitat restoration from active intervention.
- 3.1.12 An important conclusion of the Saunders et al (2020) review is that marine restoration is in its initial stages when compared with terrestrial

equivalents and that scaling up of successful restoration is confined to coastal habitats (Saunders et al 2020). With such limited knowledge, we question the appropriateness of developing an energy policy which is reliant on compensatory actions within deeper water MPAs. The lack of knowledge on successful outcomes in such environments indicates that reliance by Government policy (e.g. the Energy Bill) on compensatory practices to achieve measurably better natural environments that offset negative impacts to MPA features habitats and species is flawed and that the mitigation hierarchy of avoid, minimise or mitigate should take primacy and be worked through sequentially. Compensation should only be as a last resort following a clear demonstration that such techniques can restore habitats of equal biodiversity value, structure and function to those lost or damaged. Poor compensation efforts could lead to further damage of the marine environment (e.g. if a sandbank is 'made' by moving dredge spoil into another area for example) than that is intended.

Thank you for providing the Marine Conservation Society with an opportunity to provide evidence to the Committee. Please do not hesitate to contact us if you require any additional information.

Yours Sincerely,

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