Review and Evaluation of the Marine Protected Area networks in England and Northern Ireland

Non-technical Summary

A report commissioned by the Office for Environmental Protection

HMC were commissioned by the Office for Environmental Protection to undertake a review and evaluation of the MPA network in England and Northern Ireland. The views provided in this report are those of HMC and do not represent the opinion or position of the OEP.

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1 Introduction

The development of the marine protected area (MPA) networks in England and Northern Ireland has taken place incrementally over the last 50 years and is considered an essential tool for protecting and enhancing the health of marine habitats and species, improving marine ecosystem functioning, and building ecosystem resilience against the impacts of climate change.

The UK is signatory to several international commitments, most notably through Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) and the Convention on Biological Diversity (CBD), that set targets to have 30% its marine area covered by MPAs with effective management in place by 2030. Domestic legislation, such as the Marine and Coastal Access Act 2009 and the Marine Strategy Regulations 2010, further require the UK to bring the designated features of MPAs into favourable condition and the wider UK marine environment into 'Good Environmental Status' (GES).

The UK Government and Northern Ireland Executive have identified the MPA network as a key tool for achieving these targets, including the achievement of GES. However, while both MPA networks are well established, questions remain over how effectively they are managed and monitored, and to what extent they contribute towards GES.

To gain a better understanding of the functioning and impact of the MPA networks in England and Northern Ireland, the Office for Environmental Protection (OEP) commissioned Howell Marine Consulting (HMC) to conduct an evaluation of the MPA network, focusing on the following three key actions:

- Review and evaluate the current approach to managing the MPA network in England and Northern Ireland waters.
- Review and evaluate the plans and methodologies in place to monitor and assess the MPA network in England and Northern Ireland.
- Provide a high-level assessment of progress towards achievement of UK marine targets and assess their interactions.

This Non-technical Summary provides a high-level overview of the findings from the evaluation conducted by HMC.

2 MPA Network

The MPA network in England and Northern Ireland is well-established, comprising 232 sites that cover 40% of England's inshore and offshore waters (51% of inshore and 37% of offshore) and 38% of Northern Ireland's inshore region. Both networks have developed incrementally over the last five decades, underpinned by a range of domestic and international legislation. Key pieces of legislation include the Marine and Coastal Access Act (MACAA) 2009 for England and the Marine Act (Northern Ireland) 2013 for Northern Ireland, both of which enact the need to create a network of MPAs. The subsequent Environment Act 2021 was established to create a long-term legal framework for environmental protection in the UK following its exit from the European Union and set clear timebound and measurable targets for MPAs to reach favourable and recovering conditions.

Due to the range of legislation that has influenced the designation of MPAs in England and Northern Ireland, there are different types of MPAs that make up the networks:

- Marine Conservation Zones (MCZs),
- Highly Protected Marine Areas (HPMAs),
- Special Areas of Conservation (SACs),
- Special Protection Areas (SPAs),
- Special Sites of Scientific Interest (SSSIs) (England only),
- Areas of Special Scientific Interest (ASSIs) (Northern Ireland only), and
- Ramsar sites.

In most cases, MPAs are designated to protect specific features (habitats and/or species) and managed in a manner that aims to achieve specific conservation objectives – the ecological aims for the habitat and/or species feature(s). Statutory Nature Conservation Bodies (SNCBs) are responsible for providing conservation advice and setting conservation objectives at the time of MPA designation. Condition assessments of MPA features are subsequently conducted, informed by data collected through MPA monitoring programmes.

3 MPA Management

The management of MPAs differs between England and Northern Ireland. The governance structure of MPAs in England involves several public authorities with distinct responsibilities. For example, the Marine Management Organisation (MMO) is responsible for managing marine activities across England's marine area (0-200 nm) apart from fisheries between 0-6 nm, which are managed by Inshore Fisheries Conservation Authorities (IFCAs). In Northern Ireland, the Department for Agriculture, Environment, and Rural Affairs (DAERA) is responsible for all inshore activities and fisheries in offshore waters; the MMO manages all other offshore activities. SNCBs provide advice to regulators on marine activities: Natural England (0-12 nm in England) and JNCC (12-200 nm England and Northern Ireland). DAERA advises on marine activities in Northern Ireland inshore waters (0-12 nm). This governance structure, acknowledged by key government stakeholders during interview, is complex and has resulted in challenges with coordination and the development of a coherent network-wide approach. In Northern Ireland, however, a simpler structure places DAERA as the primary responsible authority for inshore waters, with JNCC (Joint Nature Conservation Committee) advising on offshore waters.

The management of pressures that could affect MPAs generally falls into three key areas: fisheries management, marine non-licensable activities (MNLAs), and marine planning and licensing.

For the management of fisheries and MNLAs, management measures focus on removing or reducing an existing pressure (e.g., bottom towed fishing gear or anchoring), which can be delivered through a range of tools, such as statutory byelaws that prohibit an activity and voluntary approaches developed by multiple stakeholders. Marine planning and licensing focus on mitigating the potential pressures of future activities, such as seafloor impacts from offshore wind farm developments. This can be carried out through the development of marine plans that provide a strategic framework to guide decision makers, and through licensing where Habitat Regulations Assessments (HRAs) and MCZ Assessments (MCZAs)

are used to assess whether a proposed activity, occurring inside or outside of an MPA, will have an impact on MPA features.

The designation of HPMAs that go beyond the feature-based approach used in other MPA types has created interest in the whole site approach (WSA) to MPA management. The WSA focuses more on ecosystem health and protects all habitats and species within an MPA. However, despite interest in the WSA, it has not yet been clearly defined, which has led to different interpretations of what it is, how it could be implemented, and what the benefits/challenges are with its implementation.

There are certain versions of a WSA in place across the UK's MPA network, such as HPMAs that prohibit all destructive, depositional, and extractive activities, and fisheries byelaws that prohibit a specific activity (i.e., bottom-towed fishing gear) across the entire MPA. Findings from this project indicate that, while there is general agreement that a WSA could provide benefits beyond bringing designated features into a favourable condition (e.g., natural capital and ecosystem service benefits), a WSA was not necessarily required for all MPAs to meet their conservation objectives.

3.1 Reflections on MPA Management

- Although the MPA networks in England and Northern Ireland are well established, many MPAs are still without formal management measures. Therefore, although the percentage area of England and Northern Ireland's seas covered by MPAs exceeds the 30% target, it cannot be said that they have effective management in place.
- The incremental and disjointed approach to designating MPAs in England has led to the creation of a complex network of MPAs with a mixture of conservation objectives, management measures, and assessment processes.
- The siloed approach to fisheries management in England, particularly for inshore waters (0-6 nm) can make it difficult to demonstrate that MPA management measures are being effective, with the risk that measures put in place are ineffective due to the unmanaged pressures from other activities (e.g., water pollution from land-based sewage systems).
- The single-body approach to MPA management in Northern Ireland, where DAERA is responsible for managing all marine activities in inshore and jointly with MMO for offshore waters, enables greater oversight of marine activities and can result in more efficient and aligned decision making.
- In England, the aim to implement byelaws for all MPAs by 2024 was missed, which means the features of 46 offshore MPAs (approximately 40% of the total) continue to be exposed to potentially damaging fishing pressure.
- The designation of HPMAs in England opens the discussion on what the overarching purpose of the MPA network should be and whether the current MPA conservation objectives and management measures are maximising the opportunities the MPA network presents.

4 MPA Monitoring

The UK is required to monitor and report on the status of its MPA network under national and international obligations. Monitoring activity is carried out by a range of government

departments and SNCBs, including Natural England (NE), JNCC, Centre for the Environment, Fisheries and Aquaculture Science (Cefas), IFCAs, DAERA, and Agri-Food and Biosciences Institute (AFBI), which can make it challenging to develop a coherent monitoring approach. Further, surveying marine habitats is extremely challenging when compared to terrestrial habitats, particularly due to the dynamic nature of the environment, long-term drivers like climate change, and the higher costs of operating in the marine environment. Detecting trends and linking them to specific interventions, such as MPA management measures, adds further complexity.

A dedicated programme for offshore and deep-sea MPAs has been in place since 2014 and 2016, respectively, but the number of sites monitored remains limited. A key limiting factor associated with MPA monitoring is a lack of resources for conducting surveys at the required frequency and spatial scale. Further, the incremental development of monitoring programmes has led to poor coordination across the network and a fragmentation of reporting.

Monitoring data is used to conduct condition assessments for MPA features. If a feature is not considered to be meeting the conservation objectives, management actions may be required to recover the condition of the feature. However, the limited resource for monitoring MPAs oftens results in data collection being insufficient to adequately assess the impact of management measures and feature condition. In cases where a condition assessment cannot take place, a vulnerability assessment, which uses activity data and feature sensitivity evidence, may be conducted. Vulnerability assessments are used by DAERA (Northern Ireland inshore MPAs) and JNCC for offshore MPAs. Natural England, however, do not conduct vulnerability assessments for inshore MPAs in England because the changing use of the marine environment can lead to vulnerability assessments quickly becoming out of date. The majority of offshore MPA condition assessments are carried out using vulnerability assessments.

In England inshore waters, monitoring is conducted in approximately 12-16% of MPAs each year. For offshore MPAs, JNCC has capacity to conduct monitoring in only two MPAs per year, one in Scotland and one in England. Further, JNCC are only able to monitor at the "desired frequency to detect change"[1] in nine offshore MPAs across the UK (out of 76), which have been used as 'sentinel' sites to represent the wider network of offshore sites. Defra's most recent MPA Network Report 2019-24, states that 44% of MPAs in England are in favourable condition. In Northern Ireland, designated features in inshore MPAs are monitored on a six-year rolling cycle, with DAERA's most recent report for 2019-24 stating that 86% of inshore MPA features are in good condition.

4.1 MPA Monitoring Reflections

- The most recent UK MPA Network Assessment submitted to OSPAR in 2023 indicates that monitoring of MPAs is lacking (only 10% have monitoring in place, 79% partial) and, therefore, only 3% of MPAs across the UK have a high level of confidence in the assessment findings.

[1] JNCC: Parliamentary Written Evidence - JNCC's evidence did not state what the desired frequency is, but it will likely vary depending on the biological traits of the species/habitat being protected. For example, slower growing habitats (e.g., Maerl beds) may not require annual monitoring.

- The single-body approach in Northern Ireland, where monitoring and condition assessments are conducted within DAERA, creates a lack of transparency and confidence in the assessment findings.
- The feature-based approach to monitoring makes it difficult to assess the condition of the MPA network as a whole and does not align with reporting on GES descriptors.
- The design of the current approach to MPA monitoring has resulted in a lack of monitoring taking place outside of MPAs, which creates challenges for assessing the effectiveness of MPA management measures.
- There are several authorities conducting MPA monitoring, particularly in England but also in Northern Ireland, which has resulted in a lack of strategic oversight. The fragmented reporting of MPA monitoring creates further complexities for assessing the health of the network and its contribution towards GES.
- Where direct monitoring of an MPA is not feasible and a condition assessment cannot be conducted, vulnerability assessments are the best available option and can provide an indication of whether recovery is expected or not. However, their findings should be treated with caution as data gaps in feature distribution/extent and human activity within MPAs can lead to low levels of confidence in the findings.

5 MPA network contribution to GES

The MPA network in England and Northern Ireland will play an important role in protecting marine ecosystems and maintaining biodiversity by safeguarding critical habitats and species and will contribute towards achieving and maintaining GES, particularly for the following descriptors[2]:

- Descriptor 1 – Marine Biodiversity
- Descriptor 4 – Food webs
- Descriptor 6 – Seabed integrity

When assessing the contribution of MPAs to GES, it is important to consider the entire MPA network, rather than each MPA individually. At a single-site scale, protection may be afforded to specific features but collectively, on a network scale, MPAs can support and connect a wider, more diverse community of species.

GES is reported on a regional seas scale (i.e., The Greater North Sea and the Celtic Seas), which includes the marine areas outside of the MPA network. Currently, about 80% of benthic data feeding into the GES assessment comes from MPA monitoring programmes, which could give a biased impression of the health of the marine region.

While the MPA network will play a role in the achievement of GES, it cannot achieve it alone. For example, the total area of the MPA network in England and Northern Ireland covers 11.5% of the UK's total marine area (this increases to 38% if MPAs in Scotland and Wales are included[3]). Therefore, the contribution of the MPA network in England and Northern Ireland towards achieving GES will likely be small. The size of the contribution to GES comes further into question when considering the displacement, rather than removal, of

[2] European Commission: Descriptors under the MSFD
[3] JNCC: UK MPA network statistics

fishing activity to areas outside of the MPA network and that several MPAs are still without effective management measures in place.

In principle, the MPA network makes a positive contribution towards the achievement of GES by sustainably managing and reducing pressures on important marine habitats and species. However, it is not possible to quantitatively determine the extent of this contribution to GES largely due to the misalignment between MPA conservation objectives and monitoring programmes, and the criteria against which GES is reported. Further, the differences in geographical scale at which MPAs are managed and monitored versus the regional scale of GES reporting make it difficult to link improvements to MPA features with the achievement of broader GES targets.

6 Ecological coherence and connectivity

A well-designed MPA network will contain MPAs of a size appropriate to the different habitats and species, connected through movements of adult species and larvae, with a range of protection levels, to protect biodiversity.[4] A coherent network can, therefore, function to protect multiple habitats and species and support a variety of key habitats and life stages of species.[5]

UK waters contribute to the MPA network for OSPAR Region II Greater North Sea and Region III Celtic Seas. In the most recent 2023 assessment[6], the UK nominated 389 OSPAR MPAs, covering a total area of 238,883km^2. The 2023 OSPAR summary assessment suggests that the MPA network is a well distributed network in both OSPAR Regions II (North Sea) and III (Celtic Seas).

Defra's most recent report on the MPA network[7] suggests that the adequacy and representativity of the network for England and Northern Ireland is largely complete, which was supported by the third tranche of MCZ designations in 2019 that addressed ecological gaps identified by JNCC in 2014.[8]

In Northern Ireland, the current suite of MPAs in the inshore region was considered by JNCC to be very close to delivering an ecologically coherent network.[9,10] Approximately 86% of inshore MPA features are reported by DAERA to be in favourable condition, although some additional designations will be required to achieve the target of being ecologically coherent.[11]

The most comprehensive assessment of ecological coherence, undertaken by JNCC at the request of Defra[12], found that the MPA network for the UK meets the criteria for ecological

[4] Joint Administrations Statement Defra, DOE, Scottish Government, Welsh Government 2012. UK Contribution to Ecologically Coherent MPA Network in the North East Atlantic

[5] Joint Administrations Statement Defra, DOE, Scottish Government, Welsh Government 2012. UK Contribution to Ecologically Coherent MPA Network in the North East Atlantic

[6] OSPAR 2023 Report and assessment of the status if the OSPAR network of Marine Protected Areas in 2023.

[7] Defra 2024 Marine Protected Areas Network Report 2019 – 2024

[8] JNCC: Assessing progress towards an ecologically coherent network of MPAs in Secretary of State waters in 2014

[9] Cornthwaite, A., et al. 2018. Assessing progress towards an ecologically coherent network of Marine Protected Areas in the Northern Ireland inshore region. Report for JNCC and DAERA.

[10] DAERA: Report on the creation of a Network of Conservation Sites in the Northern Ireland inshore region: progress toward establishing an ecologically coherent network of well managed MPAs

[11] NISRA, 2024. Northern Ireland Environmental Statistics Report 2024.

[12] JNCC: Assessing the progress towards an ecologically coherent MPA network in Secretary of State waters in 2016: Methodology

coherence at the scale of Secretary of State waters, however with some shortfalls when considered at a biogeographic region scale for:

- feature representation,
- adequacy (based on the spatial area protected rather than management effectiveness),
- replication, and
- connectivity for broadscale habitats,

While the MPA network in England and Northern Ireland has made significant strides towards ecological coherence in terms of representativity and distribution, further work is needed to fully understand and ensure effective connectivity, particularly for specific habitats and species. More detailed analysis that considers various physical and biological factors influencing dispersal is required. Prioritising ecological coherence and connectivity remains vital for maximising the effectiveness of the MPA network in protecting marine biodiversity and enhancing its resilience to environmental changes.

7 Climate change resilience

Climate change poses a significant threat to MPAs by affecting the marine environment, most notably through increasing water temperatures, ocean acidification, and rising sea levels. To gain a better understanding of how climate change will affect the MPA network in England and Northern Ireland, it is essential to identify which MPAs are most at risk. However, identifying these MPAs using a feature-based approach is challenging due to the diversity of climate change impacts, the unknown intensity of these impacts on marine species and habitats, and the difficulty in determining their cumulative effect. Therefore, a review of specific MPA traits that make them more resilient to climate change was carried out, which included:

- MPA size – larger MPAs are more resilient to climate change
- MPA age – older MPAs that have had management measures in place for longer are more resilient to climate change
- MPA shape – simple shaped MPAs (e.g., square or circle) are less affected by edge effects and, therefore, more resilient to climate change
- MPA management type – MPAs with higher levels of protection (e.g., HPMAs) are more resilient to climate change
- MPA connectivity – MPAs that are well connected are more resilient to climate change.

While MPAs should be assessed on a case-by-case basis, the above traits can provide a useful starting point for identifying areas of vulnerability to climate change within the MPA network.

Further, MPAs with management measures and monitoring already in place will be better placed to detect the impacts of climate change and identify adapt management measures where necessary/possible to try to mitigate these impacts. For MPAs with little management and/or monitoring in place, the ability to detect climate change impacts on designated features will be difficult and, therefore, leave the MPA at greater risk.

8 Recommendations

Management

Completion of MPA management measures

Ensure all MPAs have appropriate management measures in place. MPAs without management measures in place should be addressed.

Review objectives of the MPA network

While individual MPAs have clear conservation objectives, there is a need to reflect upon the network as a whole and consider, for example, the following key questions:

- Should the overarching purpose of the MPA network be extended beyond the current legal requirements to protect and enhance conservation to other objectives, such as climate change resilience?
- Are the MPA management measures currently in place adequate for maximising the ecological benefit?
- Where are the opportunities to optimise the impact of the MPA network?

Explore further the potential for integrating whole site approaches to MPA management

Identify which MPAs could benefit most from a WSA and assess the potential benefits for the network as a whole. Key to advancing this work will be to, through stakeholder engagement, define what a WSA is and how it could be implemented and enforced.

Integrate marine natural capital and ecosystem services into MPA conservation objectives

By broadening out MPA conservation objectives to include marine natural capital and associated ecosystem services, the wider benefits of MPAs, such as carbon sequestration, coastal protection, and socio-economic benefits, can be protected and enhanced.

Explore opportunities for assessing the effectiveness of MPA management measures that provide insights beyond the condition of protected features.

As required by OSPAR and the CBD Target 3, MPAs are required to be effectively managed. Through the use of assessment tools that provide insights into MPA effectiveness, a strategic level Protected Area Management Effectiveness assessment would enable a regular, systematic approach to inform and improve all aspects of MPA management as well as ensuring that the UK is fully meeting CBD and OSPAR targets on the MPA networks in England and Northern Ireland.

Monitoring

Review the efficiency of the current approach to MPA monitoring

The development of an overarching MPA monitoring strategy that incorporates and is developed by all responsible public bodies could be valuable in reducing duplication of effort and avoiding missed opportunities, such as the integration of other data sources (e.g., assessments carried out for marine licensing).

Develop condition indicator metrics and thresholds for all MPA features

As highlighted in the report, several MPA features do not have defined indicator metrics and thresholds to assess condition against. Without these metrics, it is not possible to confidently determine if a feature is in a favourable condition or, subsequently, if an MPA is delivering its conservation objectives. Addressing these gaps would enable a more comprehensive assessment of the status of the MPA network.

Monitor fewer sites but monitor them well

Review the MPA network to identify optimal sites that could be used as sentinel sites to support a more efficient use of resources and provide greater insights into the effectiveness of management measures.

Increase monitoring outside of MPAs

Focus more monitoring effort to areas outside of the MPA network to provide a greater understanding of whether MPA management measures are being effective, enable natural changes in environmental condition and their impact on marine species and habitats to be identified, and increase the data available on the status of the wider marine environment for GES reporting, particularly with regard to the displacement of fishing activity to outside MPAs.

Good Environmental Status

Review how the MPA network contributes towards achieving GES

Review the MPA network within the context of GES to identify which descriptors each MPA contributes towards and further understanding how the MPA network as a whole contributes. Opportunities for maximising the networks contribution to GES could be identified.

Better alignment of MPA monitoring programmes with GES reporting requirements

A review of the current MPA monitoring approach through the lens of GES reporting could identify opportunities to optimise MPA monitoring effort and better align data collection with GES descriptors and indicators.

Climate Change

Identify MPAs most at risk from climate change

Explore in greater detail the impacts of climate change on MPA features to enable priority management actions to be identified that could increase MPA resilience to climate change.

Review of MPA network resilience to climate change

Review the extent to which the MPA network can absorb the impacts of climate change while still delivering effective conservation and identify adaptive management opportunities that consider ecological coherence, connectedness, and representativity. Such a review could also include an assessment of legislative barriers in England and Northern Ireland that

restrict the options for adaptive management (e.g., altering MPA shape, size, location, and/or conservation objectives).

Socio-economic impact

Explore opportunities to optimise stakeholder involvement in the MPA management process that focus on maximising socio-economic benefits.

While not a focus of this study, the importance of stakeholder engagement in the development of MPA management measures was clear. The requirement to incorporate social and economic impact/benefit into the development of management measures is featuring more strongly in marine legislation (e.g., Fisheries Act 2020), which opens the potential to explore the opportunity to include natural capital and associated ecosystem service benefits (such as wellbeing) in MPA conservation objectives.