The Establishment and Expansion of the Scottish Marine Protected Area Network
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Scotland has made significant progress in realising international targets relating to marine protected areas (MPAs) or similar area-based measures, but considerable work is still required on the management, representation, integration, and connectivity of the established sites in order for Scotland’s MPA network to be effective in achieving its objectives of promoting the enhancement of marine biological diversity. Current trends show continued loss of biodiversity, with major negative and potentially irreversible consequences. This policy brief considers various international instruments and their application to the establishment and management of the Scottish MPA network, with a view to proposing recommendations for the further development of the network.

**Policy Recommendations**

- Outstanding MPA proposals for those search features that have not yet received protection (e.g. basking shark, minke whale and Risso’s dolphin) should be progressed as soon as possible, with management measures introduced contemporaneously.
- Further data collection should continue for all other OSPAR threatened or declining species for which MPA coverage is not yet sufficient (e.g. common skate) or inexisten (e.g. cod, thornback ray) with a view to designating MPAs for these.
- The Scottish Government should accept an enhanced target of protecting at least 30% of marine areas under their jurisdiction.
- The Scottish Government should consider proposing as MPAs any areas which have high levels of biological productivity, diversity or naturalness, even if no other MPA search features are present, thereby fully implementing key international guidance that has been adopted under the auspices of the OSPAR Commission and the Convention on Biological Diversity.
- A system of small but highly protected marine reserves should be introduced to supplement the existing network of MPAs in order to ensure strong protection for marine biological diversity, thereby strengthening the resiliency of key ecosystems.
- Management plans with accompanying management measures should be developed in a systematic and transparent manner for all designated MPAs.
- There is a need to ensure that adequate enforcement capacity is in place so that protection is effective in practice.

**International Goals for the Protection of the Oceans**

The 2015 UN Sustainable Development Goals (SDG) and the 2010 Aichi Biodiversity Targets both reflect the importance of the conservation of the marine environment and the central role that MPAs play in achieving this objective. These instruments call for the creation of well-connected systems of MPAs and other effective area-based conservation measures, which should be managed effectively and equitably.

**SDG Goal 14.2:**
By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

**SDG Goal 14.5:**
By 2020, conserve at least 10 percent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.

**Aichi Target 11:**
By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Integrated networks of MPAs are necessary to prevent habitat fragmentation, which could have negative implications for biodiversity and the functioning of larger ecological systems. Biodiversity underpins all fishing as well as other marine activities and it should therefore be conserved and managed effectively and equitably to ensure the availability of these resources to current and future generations.

**International Obligations to Protect Marine Biodiversity**

Whilst the SDGs and the Aichi Biodiversity Targets are themselves not legally binding, they are underpinned by a number of treaties which do impose legal obligations to protect biological
diversity and establish protected areas. For example, the Convention on Biological Diversity (CBD) requires parties to establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity and countries must report approximately every five years on their implementation. The international institutions responsible for oversight of these obligations have also developed various criteria in order to assist states in meeting their commitments. Of particular importance in the North-East Atlantic are the criteria developed under the OSPAR Convention, which themselves are based upon the criteria for the identification of Ecologically and Biologically Significant Marine Areas (EBSAs) under the CBD. What is important about these criteria is that they not only emphasise the need to protect the habitats of depleted, threatened or endangered species, as is required by the 1982 United Nations Convention on the Law of the Sea (UNCLOS), but that they call for the protection of areas which are hotspots for biological productivity/diversity or areas which are simply examples of naturalness/undisturbed ecosystems.

CBD EBSA criteria:
- Uniqueness or rarity; Special importance for life-history stages of species; Importance for threatened, endangered or declining species and/or habitats; Vulnerability, fragility, sensitivity, or slow recovery; Biological productivity; Biological diversity; Naturalness.
- OSPAR MPA criteria:
  - Threatened or declining species and habitats/biotopes; Important species and habitats/biotopes; Ecological significance; High natural biological diversity; Representativity; Sensitivity; Naturalness.

The selection of MPAs can further be informed by the selection criteria for the establishment of a representative network of MPAs developed by the CBD Conference of the Parties and the OSPAR Commission. Developing networks of protected areas ensures that the designation and management of MPAs and their surrounding areas foster a connected, functional ecological network.

CBD Network criteria:
- Ecologically and biologically significant areas; Representativity; Connectivity; Replicated ecological features; Adequate and viable sites.
- OSPAR Network criteria:
  - Features; Representativity; Connectivity; Resilience; Management.

Implementation in Scotland

The Marine (Scotland) Act 2010 empowers the Scottish Ministers to designate Nature Conservation MPAs within the territorial sea of Scotland for the purpose of conserving marine flora and fauna, habitats, or geological or geomorphological features of interest. While the 2010 Act does not provide significant guidance on the selection of MPA sites, section 68(2) requires the Scottish Ministers to publish guidance on the criteria that will inform their designation of MPAs. This guidance was published in 2011 and it explains that selection will be based primarily on the presence of Priority Marine Features (PMFs) which would benefit from area-based measures - known as MPA search features. The list of PMFs was compiled by Scottish Natural Heritage and the Joint Nature Conservation Committee and includes 81 species or habitats included in conservation strategies from OSPAR, the UK Biodiversity Action Plan under the CBD, the Scottish Biodiversity Strategy, and the EU Habitats and Birds Directives. From this list of PMFs, a more limited selection of MPA search features was developed to cover the range of features of importance in Scotland's seas for which MPAs were considered to be an appropriate measure and for which sufficient data were likely to be available to support an assessment against the MPA Selection Guidelines. The final list of 41 search features covered 21 habitats, 5 low or limited mobility species, 10 mobile species, and 5 large geological scale features.

To date, 18 Nature Conservation MPAs have been designated in the Scottish territorial sea and internal waters under the 2010 Act. However, the network of MPAs in Scotland is comprised of other kinds of site, including offshore marine protected areas established under the Marine and Coastal Access Act 2009, marine sites designated under EU law as Special Areas of Conservation (SACs) or Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs) with a marine component, Ramsar sites, and other area-based measures such as fishery closures. According to the Scottish Government, by August 2017, there were 217 sites for the protection of nature conservation within the Scottish MPA network, both within the territorial sea and in the exclusive economic zone, reflecting a wide variety of area-based measures and totaling 17.6% of the Scottish zone, meaning that at least in terms of areas designated, Scotland has exceeded the Aichi and SDG targets of 10%.

The 2018 MPA report by the Scottish Ministers to the Scottish Parliament suggests that the network is almost complete and on-going work is focused on improving the representation of habitats and species, and delivery of any required management measures. Scotland has clearly made good progress in creating a network of MPAs, but it can be argued that there is still room to further develop the Scottish MPA network on a number of grounds and key areas for improvement are highlighted in the following sections.

Completing the MPA Network

Whilst MPAs have been introduced for most MPA search features, key gaps still remain. In 2014, Scottish Natural Heritage recommended the establishment of four Nature Conservation MPAs for minke whales, Risso's dolphin, and basking shark, but the Scottish Government has been slow to make progress on designating these proposed sites. The Scottish Government did finally launch a consultation on this subject in June 2019. However, this is not the only instance of tardy action by the Scottish Government in progressing the designation of MPAs; in October 2018, the European Court of Justice held that the United Kingdom (including the Scottish Government) had failed in its duties to designate protected areas for harbour porpoise under the Habitats Directive. It is also acknowledged that more action is needed to protect the marine habitats of seabirds. The Scottish Government must ensure that outstanding MPAs are designated as soon as possible and there is no justification for further delay in this respect.

In addition, once designated, each site needs a comprehensive management plan which addresses all possible threats to the protected features, with accompanying management measures to restrict harmful activities. Management measures have been promised for some sites, such as the Small Isles MPA, but no action has yet been taken. Unless an MPA is effectively and equitably managed, it cannot contribute to the Aichi targets. There are a range of tools available for this purpose as are discussed in an accompanying policy brief in this series.
Increasing the Representation of the MPA Network

Representativity of an MPA network refers to the range of species and habitats that are protected, in order to ensure that the network best represents the ecological components and processes present within the area. In Scotland, there are a number of other MPA search features that have not yet received protection as insufficient data was available to order to propose suitable sites and therefore the network cannot be considered as representative yet. For example, the European Spiny Lobster was removed as MPA Search Feature on these grounds and no further action has been taken, despite the fact that SNH recognises that evidence suggests that the population has been declining since the 1970s. Similarly, challenges were encountered when trying to identify suitable sites for the white-beaked dolphin, burrowing sea anemone aggregations and heart cockle aggregations and no site has been yet identified for inshore deep mud with burrowing heart urchins, although further survey work continues to look for examples of this latter feature. According to the precautionary approach, a lack of evidence does not justify inaction and it is therefore recommended that further data collection should continue for all of these species, with a view to taking action once relevant information is obtained.

There are other species on the OSPAR list of threatened and declining species, found in Scottish waters, which are also not covered by the current MPA network, such as cod and several species of rays (e.g. thornback ray, spotted ray), and which should arguably also be prioritised as a species requiring protection. It is not entirely clear why these species were not considered as MPA Search Features in the first instance, as the OSPAR Commission has recommended that MPAs should be established for each of these species. For example, known critical habitat, including spawning areas or nursery grounds, for cod could be considered for designation, a step which would not only protect marine biodiversity but may also have longer term benefits for the fishing industry.

In order for the MPA network to be effective, it is also necessary that there is sufficient replication of protection for species, wherever possible. Yet, this is a significant weakness in the Scottish network for several species. For example, it has been highlighted that current designations for common skate are inadequate and the single MPA that has been designated does not reflect the known geographic range in Scottish waters. Given that the common skate is included on the OSPAR list of threatened and declining species and the OSPAR Commission has explicitly recommended that contracting parties consider whether any sites within its jurisdiction justify selection as Marine Protected Areas for the protection of relict populations of, and critical habitats for, common skate species complex, further progress on this front should be prioritised. Similar observations apply to the fan mussel and European oyster, both of which only have one site designated in Scotland at present.

In general, more work needs to be done on developing the MPA network in order to ensure adequate protection for all PMFs and related ecosystems. To this end, continuing efforts must be made to collect data which will allow the adequacy of the existing MPAs to be assessed on an ongoing basis, with additional sites being proposed when new evidence emerges.

Developing a More Ambitious Target for the MPA Network

Whilst Scotland has clearly already met and the 10% target for MPAs to date, at least in terms of areas designated, many people believe that this target is insufficient in order to provide adequate protection to the world’s oceans. Indeed, the International Union for Conservation of Nature (IUCN) has called for an increased target of 30% of the world’s oceans to be protected by 2030 and this has been echoed by the UK Secretary of State. If the Scottish Government is to provide the leadership in marine environmental governance to which it aspires, it should commit itself to meeting this increased target through the further expansion of its MPA network. The following sections consider other policy initiatives through which such an expansion could be achieved.

Increasing Strict Protection for Scotland’s Seas Through Marine Reserves

International law requires both the designation of MPAs and their effective and equitable management for the conservation of marine and coastal areas. A combination of measures should be deployed in order to attain the biodiversity goals reflected in the 2050 CBD Vision for Biodiversity while also reaching broader socio-economic objectives. Included are measures to reduce ecosystem degradation and fragmentation, maintain biodiversity and ecosystem functions and services through proactive spatial planning, expand protected areas strategically, and reduce overexploitation of fisheries and other biological resources. The 2019 MPA Governance Framework promoted by the United Nations Environment Programme (UNEP) further advises on the application of a diverse set of governance approaches, which are designed to alter behaviour to support strategic policy outcomes (e.g. biodiversity conservation).
International best practice also suggests that integrated networks of MPAs should include two categories of protected areas.31 Firstly, multi-purpose MPAs, where extractive uses may be allowed and threats are managed for the purpose of biodiversity conservation and/or sustainable use. Secondly, representative MPAs, where the integrity, structure and functioning of ecosystems is maintained or recovered by excluding extractive uses and removing or minimising other human pressures. Researchers have noted that MPAs where extractive uses are excluded have benefits for fisheries in surrounding areas, for communities, sustainable tourism, and other economic activities within and outside the MPAs.32 Indeed, it has been suggested that highly protected areas are necessary if certain benefits of a MPA network are to be delivered with any degree of certainty.33 To this end, Decision VII/6 of the CBD Conference of the Parties calls for ‘an appropriate balance’34 between MPAs where extractive uses are allowed and those where they are prohibited. This is reiterated by the IUCN which has called for at least 30% of MPAs to have no extractive activities35 and the UK Government has announced a review into the establishment of a network of highly protected marine areas in English waters.36

In contrast, the Scottish Government has established a presumption of multiple-use of MPAs and at present the MPA network includes only one no-take zone that was designated for conservation objectives, the Lamlash Bay no-take zone within the South Arran MPA. This is clearly insufficient if international best practice is to be achieved in this respect.

The exclusion of activities from all Scottish waters covered by existing MPAs may have disproportionate impacts on coastal communities who are dependent on the use of marine resources for their livelihoods. Rather, it is recommended that a power to introduce a new category of marine reserve is established under primary legislation. This power could then be used to designate small areas in which all uses would be prohibited apart from authorised scientific research or some forms of recreation. Best practices from other jurisdictions can be drawn upon, particularly New Zealand where there is a well-established network of marine reserves that have been operating for a number of decades. While the Marine Reserves Act 1971, the Governor-General may declare any area as a marine reserve, which shall then be ‘preserved as far as possible in [its] natural state.’37 The public may, subject to conditions and restrictions, access marine reserves for educational purposes and they shall also be available for the purposes of scientific study.38 Otherwise reserves shall be managed ‘in the interests of the conservation, propagation, and preservation of species, and ensure the protection and well-being of marine life of reserve’.39 Whilst the legislation does not prescribe the size of marine reserves, the majority of the 33 marine reserves designated to date are relatively small in size, with the majority being under 10 km². Nevertheless, they are held up as a prime example of marine protection.40


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References

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- Scottish Natural Heritage. Advice to the Scottish Government on the selection of Nature Conservation Marine Protected Areas (MPAs) for the development of the Scottish MPA Network (SNH Commissioned Report No 547, 2012) 16.

These are the Sea of Hebrides MPA proposal, the Shiant East Bank MPA proposal, the North-east Lewis MPA proposal, and the Southern Trench MPA proposal; see Scottish Natural Heritage management of at least 10% of marine areas, but several Scottish MPAs currently lack management measures.

- Scottish Natural Heritage, Scotland’s Seas Guidelines on the selection of marine reserves as Scottish waters covered by existing MPAs may have disproportionate impacts on coastal communities who are dependent on the use of marine resources for their livelihoods. Rather, it is recommended that a power to introduce a new category of marine reserve is established under primary legislation. This power could then be used to designate small areas in which all uses would be prohibited apart from authorised scientific research or some forms of recreation. Best practices from other jurisdictions can be drawn upon, particularly New Zealand where there is a well-established network of marine reserves that have been operating for a number of decades. While the Marine Reserves Act 1971, the Governor-General may declare any area as a marine reserve, which shall then be ‘preserved as far as possible in [its] natural state.’ The public may, subject to conditions and restrictions, access marine reserves for educational purposes and they shall also be available for the purposes of scientific study. Otherwise reserves shall be managed ‘in the interests of the conservation, propagation, and preservation of species, and ensure the protection and well-being of marine life of reserve’. While the legislation does not prescribe the size of marine reserves, the majority of the 33 marine reserves designated to date are relatively small in size, with the majority being under 10 km². Nevertheless, they are held up as a prime example of marine protection.

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While Scotland has made steady progress towards meeting international targets for MPA designation, biological conservation cannot be guaranteed due to shortcomings both in the scope of the Scottish MPA network and in its effective management. An ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, when managed effectively and equitably, can be pivotal in attaining the broader SDGs on the protection of life below water, to which the Scottish Government has committed itself. Scotland is often regarded as a pioneer in environmental measures by the international community. In order to uphold this status, and set a best practice standard for the international community, the Scottish Government should be more ambitious in developing and effectively and equitably managing its MPA network in order to conserve biodiversity in its extensive marine waters. More effort is needed in order to ensure that adequate management is in place for all designated MPAs and management plans should be developed in a systematic and transparent manner. In addition, there needs to be adequate enforcement capacity in order to ensure that measures are complied with in practice. This may involve Scottish Government working with local communities to empower them to gather relevant and credible evidence where a breach of regulations is suspected.

Conclusion

While Scotland has made steady progress towards meeting international targets for MPA designation, biological conservation cannot be guaranteed due to shortcomings both in the scope of the Scottish MPA network and in its effective management. An ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, when managed effectively and equitably, can be pivotal in attaining the broader SDGs on the protection of life below water, to which the Scottish Government has committed itself. Scotland is often regarded as a pioneer in environmental measures by the international community. In order to uphold this status, and set a best practice standard for the international community, the Scottish Government should be more ambitious in developing and effectively and equitably managing its MPA network in order to conserve biodiversity in its extensive marine waters. More effort is needed in order to ensure that adequate management is in place for all designated MPAs and management plans should be developed in a systematic and transparent manner. In addition, there needs to be adequate enforcement capacity in order to ensure that measures are complied with in practice. This may involve Scottish Government working with local communities to empower them to gather relevant and credible evidence where a breach of regulations is suspected.
This policy brief was written by Meggie Salomonsz, Maia Perraudeau and Prof James Harrison.

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For further information, contact us:

Prof James Harrison
Professor of Environmental Law
Edinburgh Law School
james.harrison@ed.ac.uk
www.law.ed.ac.uk