

Response to Planning Scotland's Seas: 2013 - Possible Nature Conservation Marine Protected Areas Consultation

by Marine Conservation Society

Date: 26 November 2013 (extension requested)

Summary

- An ecologically coherent network of Marine Protected Areas is essential to protect and recover Scotland's world-class marine biodiversity, whilst enhancing the overall health of Scotland's seas and the goods and services that they provide.
- MCS strongly supports the development of an ecologically-coherent network of Marine Protected Areas in Scotland's Seas, which must include the designation of *at least* 29 of the possible Nature Conservation MPAs, in accordance with the JNCC/SNH scientific advice.
- The Firth of Forth Banks Complex pMPA must be designated and sandeels included as a protected feature to ensure future ecological coherence of the MPA network. Omission of Firth of Forth Banks pMPA will undermine the emerging network, the scientific advice from SNH/JNCC and the integrity of the entire MPA project.
- MCS strongly support progress of the Southern Trench, Skye to Mull, Eye Peninsula to Butt of Lewis and Shiant East Bank MPA search locations toward new pMPAs for basking sharks, minke whales, Risso's dolphins, shelf banks and mounds and northern sea fan and sponge communities.
- Given the context of ecological concern and deterioration set out in Scotland's Marine Atlas; the large extent of seabed considered to be not Least Damaged/Most Natural, particularly in inshore waters; and that there are only seven pMPAs in entirely new areas considered to be *not* Least Damaged/More Natural, MCS is particularly disappointed that in only three of 33 pMPAs individual features' conservation objectives are set to 'recover', with all the rest set to 'conserve'. We are therefore concerned that the recommended objectives and management options will not help deliver the marine ecosystem recovery needed to meet the Ministerial duty to enhance the health of Scotland's seas and ultimately risks Scotland's seabed and wider marine biodiversity not meeting Good Environmental Status.
- The MPA and PMF processes have not adequately addressed the protection needs of migratory and mobile species such as seabirds, basking sharks and cetaceans.
- Given the current undesirable ecological baseline as set out in Scotland's Marine Atlas, pMPA management options must be ambitious and lead to the enhancement of the wider ecological status of the pMPAs (not just of the protected features) and of Scotland's marine ecosystem more broadly. MCS assert that there is compelling emerging evidence from the Windsock Fisheries Area, Isle of Man, Lyme Bay, Lamlash Bay, Firth of Lorn and elsewhere of the wider ecological, and ultimately socio-economic, benefits of areas being closed to damaging towed/active fishing gear.
- MCS does not accept that other area-based measures, though possibly already providing marine ecosystem benefits through spatial management, can legally contribute to the developing network of marine protected areas unless they are designated as nature conservation MPAs under s.67 of the Marine (Scotland) Act 2010, then managed, monitored and reported on to Parliament under the relevant provisions of the Act.
- The conservation option 'conserve (feature condition uncertain)' has been used for all biodiversity features in the offshore possible MPAs even though all these features are considered likely to have already sustained damage from human activities. We only support this option on the condition that management options are based on an evidence-based assessment of vulnerability and risk of further damage from human activity, and application of the precautionary principle.

- MCS support addition of circalittoral sand and coarse sediment communities, circalittoral muddy sand communities, serpulid aggregations, white cluster anemone, ocean quahog and herring spawning grounds as protected features. However, a “wider range of features” must consider many more species and habitats in Scotland’s seas if the network is to help protect and recover overall marine ecosystem health. Managing a ‘patchwork’ of features on a feature-by-feature basis is both impracticable and will provide limited ecological benefit.
- MCS is not confident that the developing network delivers ecological coherence for both representative (EUNIS Level 3) and rare/threatened/declining habitats based purely on presence/absence assessments with no guidance on connectivity. A more detailed baseline assessment will be needed that considers proportion of habitat protected against OSPAR Guidelines incorporating the latest science on site connectivity.
- MCS is concerned that the socio-economic impact data presented overstates the costs to industry, such as fisheries, renewables and oil & gas, whilst failing to consider the cost of *not* designating and inadequately considering the ecosystem and socio-economic benefits of designating. MCS recommends using an ecosystem goods and services approach to present the socio-economic benefits of MPAs together with the socio-economic costs of not designating the network. The 2013 study ‘*A report on the value of Marine Protected Areas in the UK to divers and anglers*’, shows the value of MPAs outweighing the costs of designating and managing them.
- MCS supports the LINK conclusion that *“the inconsistency in information provided in the management options, the socio-economic assessment and the strategic environmental assessment, most notably the contradictory assumptions made regarding the displacement of activities, makes the results of these documents inappropriate for use in ministerial decision making.”*

Introduction

The Marine Conservation Society (MCS) is the leading UK charity for the protection of our seas, shores and wildlife. The voice of our seas for over 25 years, MCS champions better protection for marine wildlife, promotion of sustainable fisheries and clean seas and beaches. MCS is a cross-border UK charity registered both in Scotland and in England & Wales.

MCS has operated a dedicated Scotland marine conservation programme since April 2000 and has consistently called on the need for new marine protected areas. MCS in Scotland has therefore welcomed the opportunity to be engaged with the Scottish MPA project, including sharing of data, inputting to the five MPA workshops and the opportunity to respond to this historic consultation.

MCS is a member of, and convenes, the Scottish Environment LINK Marine Taskforce. As a substantive contributor to and signatory of the Scottish Environment LINK response to the ‘Planning Scotland’s Seas: 2013 - Possible Nature Conservation Marine Protected Areas Consultation’, **MCS also fully supports and endorses the Scottish Environment LINK response in its entirety.**

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General Comments

International agreements, including the OSPAR convention, the World Summit on Sustainable Development and the EU Marine Strategy Framework Directive, and domestic legislation, chiefly the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, provide legal, regulatory and policy imperatives for designating an ecologically-coherent network of Marine Protected Areas in UK waters, including the Scottish marine area and UK offshore waters adjacent to Scotland. However, MCS believes the most pressing imperative for establishing such a network is ecological. Scotland's Marine Atlas¹ clearly shows that the health of virtually every littoral and sublittoral broadscale habitat type in Scottish waters is declining and/or a matter of some or many concerns and that Scotland's seabird, harbour seal and shark, skate and ray populations are declining and a matter of serious concern. Furthermore, an independent report on Recovering Scotland's Marine Environment² concluded that *"It is unlikely that there remain any "pristine" (i.e. completely natural and free from human influence) ecosystems on the Scottish continental shelf, and even the deep waters beyond the shelf edge are now subject to significant human impacts in the form of deep-water trawling."*

Against this backdrop of an undesirable baseline of considerable anthropogenic modification and ecological deterioration, MCS warmly welcomes the creation of an ecologically coherent MPA network as the single most important conservation measure in the history of Scotland's seas. Although we might not agree on all aspects of the approach taken by Marine Scotland, SNH and JNCC, MCS acknowledge and welcome the considerable body of work and stakeholder engagement that has gone into providing the suite of MPA proposals to be consulted on³. We support the 'best 29' MPA proposals going forward for designation as the absolute minimum next step in building the ecologically coherent MPA network. The proposed MPAs must meet the objectives set out in the Marine (Scotland) Act 2010⁴ (hereafter 'the Act') and Marine and Coastal Access Act 2009. MCS recognise that adequately protecting and enhancing the health of Scotland's seas will also require the successful deployment of the two other pillars of the Scottish Government's marine nature conservation strategy: effective wider seas measures, such as marine planning and fisheries management, that are ecosystem-based and put the environment first, and adequate species protection measures.

Scotland's Marine Atlas states *"There are two significant pressures on the Scottish marine area which are widespread:*

- *Human activity contributing to climate change*
- *Fishing, which impacts on the seabed and species"*

The ecological imperative for the emerging MPA network to be developed and managed to help make our seas more resilient to climate change and to help reduce the ecological footprint of damaging fishing activities on the seabed and marine species, therefore couldn't be more stark. Other human activities that cause acute, though less widespread, marine ecological damage must also be appropriately managed to ensure protection and enhancement of MPAs and the wider sea. Scotland's seas need an ecologically-coherent network of Marine Protected Areas and for that network to deliver real marine ecosystem protection and enhancement. New and existing MPAs must not be 'paper parks'. If a well-managed, functioning network of MPAs is established, Scotland's society more widely stands to benefit from the ecosystem goods and services thus secured and enhanced.

Meeting network requirements

In keeping with the approach to use best-available science as set out in the MPA selection guidelines⁵ and in line with the commitment from Scotland's Cabinet Secretary for Rural Affairs and the

¹ <http://www.scotland.gov.uk/Publications/2011/03/16182005/0>

² Hughes, D. and Nickell, T. (2009) Recovering Scotland's Marine Environment. Report to Scottish Environment LINK. Scottish Association of Marine Science pp50

³ Marine and Coastal Access Act 2009 <http://www.legislation.gov.uk/ukpga/2009/23/contents>

⁴ Marine (Scotland) Act 2010 http://www.oqps.gov.uk/legislation/acts/acts2010/pdf/asp_20100005_en.pdf

⁵ From paragraph 11.4 *"MPA designation will be based upon the use of best available scientific data"*

Environment to the (then) Rural Affairs and Environment Committee⁶ that socio-economic considerations will be considered in the decision making process “*only when it is clear that the ecological requirements of the network can be met*”, MCS asserts that Firth of Forth Banks pMPA must be designated. The SNH and JNCC advice to the Scottish Government⁷ states that:

“as a result of concern from the renewables sector, Marine Scotland requested that JNCC identify science-based alternatives for the representation of those features for which Firth of Forth Banks Complex is being considered.”

JNCC were unable to identify ecologically equivalent alternatives to Firth of Forth Banks and therefore presented substitute areas as ‘science-based alternatives’. In the light of this advice we are disappointed that these are considered in the consultation as substitutes of equal value. This is not only our view, the SNH and JNCC advice states:

“JNCC concluded from assessment of the evidence that [the science-based alternatives] do not make equivalent contributions to the network to that made by the Firth of Forth Banks Complex.”

and further:

“There is evidence to support our view that the shelf bank and mound features present within the Firth of Forth Banks Complex are of functional significance to the overall health and diversity of Scotland’s seas more widely.”

MCS therefore assert that for the future ecological coherence of the network and the integrity of the entire MPA process the Firth of Forth Banks Complex must be designated a Nature Conservation Marine Protected Area.

Similarly, the SNH and JNCC advice to the Scottish Government⁸ states that:

“As a result of concern from the fishing sector, Marine Scotland requested that JNCC identify science-based alternatives for representation of those features for which Central Fladen is being considered.”

JNCC were unable to identify ecologically equivalent locations and the SNH/JNCC report states:

“Western Fladen and South-east Fladen options have been identified as science-based alternative proposals for the representation of the seapens and burrowing megafauna component only.”

MCS therefore assert that for the future ecological coherence of the network, allowing scope for buffering and enhancement of the relic tall sea pen population, Central Fladen must be designated a Nature Conservation Marine Protected Area in its entirety.

Commitment to completing the network

MCS welcome and acknowledge the progress made to date in identifying an ecologically coherent MPA network, however the network currently proposed is (i) incomplete, (ii) will not achieve ecological

⁶ “I am taking this opportunity, prior to the debate on Stage 3 of the Marine (Scotland) Bill, to reassure you that science remains the primary consideration when identifying MPAs for inclusion in the network...When considering MPAs, only when it is clear that the ecological requirements of the network can be met, will socioeconomic considerations figure in the decision making process.”

[http://www.scottish.parliament.uk/S3_Bills/Marine%20\(Scotland\)%20Bill/BBV142_Final.pdf](http://www.scottish.parliament.uk/S3_Bills/Marine%20(Scotland)%20Bill/BBV142_Final.pdf)

⁷ Scottish Natural Heritage and the Joint Nature Conservation Committee. Advice to the Scottish Government on the selection of Nature Conservation Marine Protected Areas (MPAs) for the development of the Scottish MPA network. Scottish Natural Heritage Commissioned Report No. 547 (2012). <http://jncc.defra.gov.uk/page-5510>

⁸ Scottish Natural Heritage and the Joint Nature Conservation Committee. Advice to the Scottish Government on the selection of Nature Conservation Marine Protected Areas (MPAs) for the development of the Scottish MPA network. Scottish Natural Heritage Commissioned Report No. 547 (2012). <http://jncc.defra.gov.uk/page-5510>

coherence, and (iii) will fail to meet obligations under the OSPAR⁹ convention and the EU Birds and Habitats Directives¹⁰. Even when considered alongside existing European Marine Sites and existing fisheries measures (the ecological coherence of which has not been proven and, in the latter case, the legal underpinning lacking), the proposed network of sites fails to include and protect a representative range of Scottish marine species and habitats. The SNH and JNCC advice and the report to Parliament clearly indicate these gaps remain.

Four areas remain as MPA search locations that have not been progressed to formal site proposals while further research is being carried out. Sites derived from these search locations are needed for adequate protection of basking shark, minke whale, Risso's dolphin, white-beaked dolphin, northern sea fan and sponge communities, circalittoral sands and mixed sediment communities and shelf banks and mounds. MCS also note that key areas provided as third party proposals have been ignored and that some features, such as common skate and prospectively (should the MPA search location progress to pMPA status) Risso's dolphin, are only protected in a single site and further sites will be needed. Depending on the outcome of progressing the basking shark MPA search location, which theoretically could result in more than one proposed MPA, it may be that further replication for basking shark is also needed within the emerging network, therefore we recommend further study of other possible hotspots such as the Firth of Clyde and Western Isles.

Five features which were previously identified by the Scottish Government as MPA search features have been dropped entirely: European spiny lobster (*Palinurus elephas*), burrowing sea anemone (*Aracnanthus sarsi*) aggregations, native oyster (*Ostrea edulis*) aggregations, heart cockle (*Glossus humanus*) aggregations and low and variable salinity habitats. Although data are lacking for these features, this does not mean they no longer need protection and sets a poor precedent. Indeed, lack of data may be an indication of reduced extent and greater vulnerability of these features and a pressing need to deliver area-based protection once suitable locations have been identified. We therefore ask that these features remain as MPA search features that are included in future iterations of MPA proposals and, as a precautionary measure, that they are listed as protected features on the schedule of any pMPA for which records are confirmed (e.g. listing European spiny lobster on the Loch Sunart to Sound of Jura pMPA). The low and variable salinity habitats search feature is no longer represented in the network since it was dropped from the Upper Loch Fyne and Loch Goil pMPA. We seek clarification on how protection for these search features is to be progressed.

The contribution of existing measures, which includes Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) and other area-based measures (which MCS contend must be designated, managed, monitored and reported on as nature conservation Marine Protected Areas to be considered part of the network), to the developing network will also currently fail to adequately protect the Scottish marine area for the wider range of species and habitats present in Scotland's seas. Marine SACs have been designated for non-bird species populations and habitat types and occurrences of European importance throughout Scotland's seas and SPAs for seabird populations of European importance along Scotland's coastline. However, both ignore marine and seabird species populations and habitat occurrences (e.g. subtidal sandbanks supporting maerl and seagrass and reef, whether rock or biogenic) that are of national (but not international) importance, and the SPA network ignores at-sea feeding seabird 'hotspots'. We support new sites for nationally important marine species and seabird populations (including at-sea foraging sites for seabirds) and new sites for nationally important occurrences of SAC-listed habitats such as sandbanks and reef. We note for example that there are no existing or proposed area-based measures for the protection of reefs on the east coast mainland of Scotland between the Isle of May SAC (grey seal and reef) and Noss Head pMPA (horse mussel biogenic reef). For example, MCS co-ordinated Seasearch data highlighted five rock reef sites of biological importance to the Northeast Scotland Local Biodiversity Action Plan which merit further consideration.

⁹ OSPAR Commission for the protection of the marine environment of the North-East Atlantic. More information at: <http://www.ospar.org/>

¹⁰ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora and Council Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds (codified version), enacted in Scotland through The Conservation (Natural Habitats, etc) Regulations 1994 (as amended, 2004) information at: <http://www.scotland.gov.uk/library3/nature/habd-00.asp>

MCS also supports nature conservation Marine Protected Areas and Special Areas of Conservation for harbour porpoise, and listing of cetaceans on pMPAs and existing SACs (e.g. bottlenose dolphin in the Sound of Barra SAC) as protected features.

Sea trout should have been an MPA search feature and has not been adequately dealt with in the MPA selection process. Sea trout is a Priority Marine Feature, important to Scotland's marine ecosystem, delivers important socio-economic benefits and should be protected in the coastal MPAs on the west coast.

We also note that Fishery Management Areas that are not also designated as nature conservation Marine Protected Areas cannot legally be considered part of the network under s.79(4) of the Act. We would support these sites being designated, managed, monitored and reported on to Parliament according to the provisions of the Act.

The science of site connectivity is in its infancy and therefore, even with the above gaps plugged, we would be unable to declare the network coherent. There would remain a question of whether there were enough sites, whether they were large enough and whether they were close enough together to enable them to be self-sustaining (for features with low larval dispersion) and/or mutually sustaining (for features with high larval dispersion).

MCS understand that JNCC is carrying out work to evaluate the contribution of UK's MPAs to an ecologically coherent network at the OSPAR level. We recommend that the outcome of this work is considered with a view that additional MPAs could be designated in Scottish waters if required as part of the UK's contribution to an ecologically coherent network. We note that the selection guidelines for Nature Conservation MPAs state that:

'as our understanding improves, and/or the environment changes, there may be a need to select additional new Nature Conservation MPAs...'

MCS warmly welcome and support the statement from The Scottish Government's 2020 challenge for Scotland's biodiversity¹¹:

An ecologically coherent network of Marine Protected Areas will protect the best of Scotland's marine nature, promote sustainable use and aid recovery of commercially valuable fish and shellfish.

Third Party proposals

MCS has welcomed the opportunity for third parties, including our own organisation, to contribute proposals for possible MPAs. Along with our partners in LINK, we would like to acknowledge in particular, the contributions made by local communities: Small Isles Community Council (SICC) for the Small Isles pMPA; Community of Arran Seabed Trust (COAST) for the South Arran pMPA, Gairloch and Wester Loch Ewe Community for the North-west sea lochs and Summer Isles pMPA and Fair Isle Marine Environment and Tourism Initiative for Fair Isle (although this was not catalogued as an ncMPA proposal). MCS agree that these contributions demonstrate the high value that local communities place on the local marine environment, and their commitment to protecting its health and biodiversity.

Establishing appropriate management

If the network of Marine Protected Areas is to meet the objectives set out in section 79.3 of the Act, it is vital that effective management measures are established for the entire network, including existing European Marine Sites, many of which are still lacking management measures ('designation without management'). Appropriate management measures must be established for the network to contribute to protecting and enhancing Scotland's seas. In line with the conclusions in the "Making the case for the

¹¹ <http://www.scotland.gov.uk/Resource/0042/00425276.pdf>

sound management of Marine Protected Areas¹² report, we believe that activities which do not damage the features and ecological function of a site may be permitted and indeed encouraged and that there is no reason to suppose that activities and MPAs could not co-exist. However, we are concerned that the management options presented will not manage all activities in MPAs in ways that protect and recover its constituent species, habitats and ecosystem function. This is of particular concern in light of the widespread concerns and declines for seabed habitats documented in Scotland's Marine Atlas coupled with the fact that of the 37 pMPAs and search locations, 20 are enhancement opportunities to existing measures and 12 are derived from least damaged/more natural locations, where activity would be expected to be limited anyway.

1. Protecting Scotland's Species and Habitats

MPA search features were identified in the MPA Guidelines because they were *“considered likely to be representative of a wider range of features which would also benefit from spatial protection and inclusion in the network”*. While we acknowledge and welcome the addition of six other features (circalittoral sand and coarse sediment communities, circalittoral muddy sand communities, serpulid aggregations, white cluster anemone, ocean quahog and herring spawning grounds) as protected features, we believe that a “wider range of features” must consider many more species and habitats in poor, or uncertain, status in Scotland's seas if the network is to achieve its full potential and help protect and recover the health of Scotland's seas overall. We believe that the present proposals could provide protection and benefits to a much wider group of species and habitats, if those were included as MPA protected features (as specifically allowed for in the MPA Selection Guidance) and in the management options currently being developed. As an example, LINK partners have evidence showing the importance of the Firth of Forth Banks Complex for sandeels, kittiwake, guillemot, gannet, puffin, harbour porpoise, minke whale and other cetacean species. MCS, along with LINK partners, would welcome further discussion and an opportunity to input information.

2. Network coherence

The MPA selection guidelines make it clear that, as part of meeting the OSPAR guidelines for an ecologically coherent network that

“An assessment will also be made of other marine habitats and species which may be present within the potential areas in terms of the contribution that could be made to the broader representivity of the network.”

To achieve the MPA network goal of ecological coherence, the further step of management considerations should be included for how these MPAs, in conjunction with other, wider seas measures (such as marine planning and fisheries management) and species-specific measures, would assist in the protection of all listed Scottish Priority Marine Features (PMFs). These management considerations should include how the proposed management objectives in the MPA documents, could affect other PMF habitats and species. MCS support prioritisation of the consideration of marine mammals and sea birds which are, other than black guillemot, absent from the list of proposed MPAs being consulted on.

The management options must account for each site's ecological function so that its protection and possible enhancement can contribute to the overall health of Scotland's seas. Such a process needs to consider *all* species and habitats supported by the protected features, since many non-Priority Marine Features are also likely to benefit from area-based protection. In the case of mobile species or broadcast spawning sessile invertebrates, benefits beyond the site boundary should be considered in keeping with an approach to MPA management which considers the flow of ecosystem goods and services that we would support (Potts *et al*, 2013¹³).

3. Conservation Objectives

¹² Bell, E.; Brennan, R.; Nickell, T.; Potts, T.; Valcic, B.; Wilson, H. (2011). Making the Case for the Sound Management of Marine Protected Areas. (Scottish Environment LINK, Trans.) (pp. 99), Scottish Association for Marine Science.

¹³ Potts, T.; Burdon, D.; Jackson, E.; Atkins, J.; Saunders, J.; Hastings, E. and Langmead, O. (2013). Do marine protected areas deliver flows of ecosystem services to support human welfare? Marine Policy (in press)

MCS has specific concerns over the setting of individual conservation objectives, particularly in some of the inshore possible MPAs, and these are detailed in the individual site responses.

MCS fully support the following consideration of conservation objectives for offshore pMPAs as derived for the LINK response:

In the offshore sites there is universal use of the conservation objective 'conserve (feature condition uncertain)'. In the sensitivity analysis performed for assessment against the MPA selection guidelines, Guideline 2d is:

"Guideline 2d. The search location contains features considered least damaged / more natural, rather than those heavily modified by human activity".

This guideline is not considered to be met for **any** of the biodiversity features of offshore possible MPAs except for sandeels in North-west Orkney and Turbot Bank (and those assessments are disputed by LINK and RSPB based on seabird decline data as a proxy for sandeel decline). In all cases this guideline is not considered to be met because analysis of the sensitivity to human activities that are known to be present leads to the conclusion that the features are likely to have been damaged. Some direct evidence of damage is cited in the consultation documents (e.g. Hughes *et al.*, 2011)¹⁴.

We consider that this assessment of vulnerability, of likely damage already having been sustained, and none of the biodiversity features in offshore sites meeting guideline 2d, suggests a designation of 'recover' under the designation principles laid out in the management options papers:

"A conserve objective is used where evidence exists that a protected feature of an MPA is in good condition or where limited evidence exists and therefore there is uncertainty concerning the condition of a feature. A recover objective will be used where evidence exists that a species or habitat of an MPA is declining and/or damaged, to the point where it is not considered to be in a good condition."

However, we recognise the difficulties inherent in a 'recover' objective when the current state and the ability of features to recover are poorly known. So we are prepared to support the use of 'conserve (feature condition uncertain)' as long as the likely damaged condition and vulnerability of protected features to human activities is properly taken account of in the management options. The management options must be chosen using an evidence-based approach and with the application of the precautionary principle. It is on this basis that we have supported the conserve (feature condition uncertain) designation in the offshore sites.

The starting point for the MPA search was Least Damaged/More Natural, and almost all the offshore sites were brought forward under this process. However, in none of these sites are the biodiversity features thought to meet the Guideline 2d *"contains features considered least damaged / more natural, rather than those heavily modified by human activity"*. This is a telling indictment of the state of our seas.

We also strongly recommend that conservation objectives are set with appropriate consideration of both the species' overall status and the site based population. For example, the Sound of Canna fan mussel bed in the Small Isles MPA proposal, which we think is likely a relic population given proxy protection from damaging towed/active fishing gears by topography and a dredge-spoil disposal site, is singularly in good condition and is set as 'conserve'. However, the species is not in good condition, in suitable habitat, throughout the rest of the Small Isles pMPA and is in overall poor condition in Scotland's seas and needs strong management measures in this site as well as elsewhere for its recovery. For mobile species the situation can also be complicated.

4. Managing Activities

¹⁴ Hughes, D.J., Nickell, T. and Gontarek, S. (2011). Biotope analysis of archived stills from the SEA7 region of Scotland's seas. Report prepared by SAMS for the Joint Nature Conservation Committee. In prep.

In line with LINK partners, MCS urge that the 9th principle from the original MPA Selection Guidelines (“...activities which are not compatible with the conservation objectives of a nature conservation MPA will be restricted”) is a key consideration as management options are drafted. This is particularly pertinent based on comments made by Cabinet Secretary for Rural Affairs and the Environment Richard Lochhead to the Rural Affairs, Climate Change and Environment (RACCE) Committee on 8 May 2013:

“the purpose of the Marine (Scotland) Act 2010 is to protect our marine environment, so the outcome has to be that we find a way in which we can allow economic activity at sea while protecting the marine environment, which has to be the number one priority.”

MCS recognise the role of zonal management within MPAs. However, we would emphasise that zonal management should not be used to allow an activity to operate up to the absolute limit of a protected feature’s geographic extent, since the network’s ability to meet the enhancement duty set out in the Marine Act may be inhibited by such a *de minimis* approach. In particular, utilising zonal management in this parsimonious way will fail to diminish pressures on a feature, will prevent its geographical recovery, and will make management difficult to establish and costly to enforce. Protected features should have substantial buffer zones to allow for an increase in extent, and the setting of the management zones should give consideration to the wider ecosystem benefits of that protection.

We understand that the Marine Protected Areas draft management handbook¹⁵ indicates the process for defining management options will be based on the risk current activities place on a site’s protected features:

“Management options will be developed by considering the risk of not achieving the conservation objectives of the protected features by looking at the likely interaction between protected features and activities”.

It is unclear how this accounts for (i) activities that may increase in intensity in the future, (ii) new activities that may expand into a site in the future but that do not need licensing, resulting in combined and cumulative impacts, and (iii) increased overlap that may occur if the habitat expands once properly protected. We would like these considered as part of each site’s management plans, particularly given that the sectoral ambitions indicated in the National Marine Plan consultation documents will increase pressures on the marine environment either directly or indirectly through the displacement of other activities.

CONSULTATION QUESTIONS

1. Do you support the development of an MPA network in Scotland’s Seas?

Yes No

MCS asserts that the creation of this MPA network is the most important marine conservation measure in Scotland’s history. We therefore strongly support the development of an ecologically-coherent network of marine protected areas comprising Nature Conservation Marine Protected Areas, Special Areas of Conservation, Special Protection Areas, intertidal SSSI sites and Ramsar sites.

In line with s.67 of the Act, MCS will only consider ‘other area-based measures’ such as fisheries measures, Ministry of Defence measures and exclusion zones around renewables installations, as contributing to the network unless they are designated as nature conservation MPAs and then managed, monitored and

¹⁵ Planning Scotland’s Seas: Marine Protected Areas Draft Management Handbook. <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/handbook>

reported on to Parliament under the relevant provisions of the Act.

Individual possible Nature Conservation MPAs

2. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Clyde Sea Sill* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Clyde Sea Sill pMPA to protect black guillemot, fronts and circalittoral sand and coarse sediment communities. We support the conservation objectives for the protected features within the Clyde Sea Sill pMPA of 'conserve' for all features.

In addition to black guillemot, other seabird species must be added to the list of species protected in the Clyde Sea Sill MPA and bottlenose dolphin, harbour porpoise and basking shark, all known to use the area, should be considered during site management.

MCS would like kelp habitats added as a protected feature to support wider ecosystem function, including black guillemot feeding.

As stated in the consultation: "fronts can concentrate nutrients and plankton creating feeding hotspots for fish which in turn attract other higher marine predators". Species that benefit from the effects of the front, particularly including mobile species, should be afforded protection where qualifying criteria dictate.

Management Options:

Yes No

MCS support the detailed comments by LINK and RSPB Scotland regarding management of renewables and fisheries in this important site.

Renewables

Other factors to consider are the moorings and cables used in renewable developments which are particularly important considerations for basking sharks, minke whales and foraging birds, that can become entangled. Entanglement of minke whales is a considerable issue in Scottish waters¹⁶, where half of stranded minke whales show signs of having been entangled.

Fishing

MCS supports the management option to remove or avoid set nets from within the site, and throughout the site. We agree that reducing or limiting pressures from demersal mobile/active gear should be considered to meet guidelines on

¹⁶ Northridge, S, Cargill, A., Coram, A. (SMRU), Mandelberg L., Calderan, S (HWDT), Reid, B. (SAC) (2010) Entanglement of minke whales in Scottish waters; an investigation into occurrence, causes and mitigation. Final Report to Scottish Government CR/2007/49

circalittoral sand and coarse sediment communities.

Given the close association between black guillemot and kelp beds (and other habitats rich in algae), MCS suggests that this MPA is considered in the parallel draft seaweed policy statement consultation, and particularly with regards to guidance developed for the harvest of wild seaweed.

Socio-economic Assessment: Yes No

The potential value of the Clyde Sea Sill possible MPA to divers and sea anglers has been estimated at £7.1 to £14.9 million based on willingness-to-pay measures (Kenter *et al.*, 2013)¹⁷. Kenter *et al.* also found important emotional and well-being benefits associated with the Clyde Sea Sill possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual, transformative and social wellbeing indicator values.

All of the above: Yes No

MCS strongly supports the Scottish Government proposal to designate the Clyde Sea Sill MPA to protect black guillemot, circalittoral sand and coarse sediment communities, and fronts. Where present, kelp habitats ought also to be protected in this pMPA to support wider ecosystem function, including black guillemot feeding.

3. Do you have any comments on the case for designation, management options and socio-economic assessment for the *East Caithness Cliffs* possible Nature Conservation MPA?

Designation: Yes No

MCS supports the designation of the East Caithness Cliffs possible Nature Conservation MPA to protect black guillemot populations and support the conservation objective of 'conserve'.

MCS would like kelp habitats added as a protected feature to support wider ecosystem function, including black guillemot feeding.

Management Options: Yes No

MCS strongly supports the management option to remove set nets from, or avoid their introduction to, the whole possible MPA site. MCS strongly supports the management measure to reduce or avoid the spread of mammalian predators.

MCS supports the management measure to reduce or avoid the spread of

¹⁷ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

mammalian predators, in line with biosecurity recommendations made by RSPB, and welcome the alignment of this possible MPA with the existing East Caithness Cliffs SPA. Management measures should be applied in a way that provides benefits to the entire species assemblage across MPA and SPA.

This site should be considered in the parallel draft seaweed policy statement consultation, particularly with regards to guidance developed for the harvest of wild seaweed.

Socio-economic Assessment: Yes No

Costs have been identified in the BRIA which relate to port and harbour activities, although this sector does not feature in the management options paper. Further clarity is required here to merit inclusion in the BRIA.

The potential value of the East Caithness Cliffs possible MPA to divers and sea anglers has been estimated at £6.7 to £14.1million based on willingness-to-pay measures (Kenter *et al.*, 2013)¹⁸. Kenter *et al.* also found important emotional and well-being benefits associated with the East Caithness Cliffs possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, transformative and social wellbeing indicator values.

All of the above: Yes No

4. Do you have any comments on the case for designation, management options and socio-economic assessment for the *East of Gannet and Montrose Fields* possible Nature Conservation MPA?

Designation: Yes No

MCS supports the designation of the East of Gannet and Montrose Fields possible Nature Conservation MPA for the protection of ocean quahog aggregations (including sands and gravels as their supporting habitat) and offshore deep-sea muds.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that there is a risk that features have been modified by human activity.

Management Options: Yes No

¹⁸ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

Given the uncertain condition of the protected features, management options must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle.

MCS support large zones prohibiting all forms of disturbance by towed/active fishing gear to ensure sizable proportions of the features and supporting habitat are fully protected from disturbance and have the opportunity for future enhancement. This position is heightened by the 'many concerns' status assessment of shelf subtidal sediments in the Forties area of the North Sea, in which this possible MPA sits, as highlighted by Scotland's Marine Atlas.

Socio-economic Assessment:

Yes No

Even the upper management scenario from the Sustainability Appraisal estimates loss in value of fishery landings as £0.22million. That the value of fish landed does not appear to be substantial is consistent with much of the possible MPA being considered Least Damaged/More Natural. Given the context of 'many concerns' across the Forties region, it would therefore make sense to enhance the naturalness of the seabed in this already less used part of the North Sea by prohibiting towed/active fishing gear from the deep sea-mud and known ocean quahog aggregations at the very least, and provide buffer zones around them to enable their enhancement.

All of the above:

Yes No

5. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Faroe-Shetland sponge belt* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Faroe-Shetland sponge belt possible Nature Conservation MPA for the protection of deep-sea sponge aggregations, ocean quahog aggregations (including sands and gravels as their supporting habitat), offshore subtidal sands and gravels and geodiversity features (including continental slope channels, iceberg ploughmark fields, prograding wedges, slide deposits, sand wave fields and sediment wave fields). The boundary of the possible MPA is fully supported. This possible MPA has no ecological equivalent for the features and offers the only representation of the particular variant of deep sea sponge aggregations in OSPAR II as well as ocean quahog at the northern extent of its range in OSPAR II. The large-scale feature 'continental slope' should be added to this site, together with appropriate management measures for the associated biodiversity.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that

there is a risk that features have been modified by human activity.

Management Options:

Yes No

Given the uncertain condition of the protected features, management options must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle.

We fully support the removal of pressures associated with bottom contact (both static and mobile) fishing gear to achieve protection and enhancement of the protected features. Indeed, MCS is calling for the protection of our deep-sea vulnerable marine ecosystems including a ban on the most damaging fishing practices - bottom trawling and gillnetting - below 600m, implemented throughout all waters including within this pMPA. This position is further reinforced by the 'declining' status assessment of deepsea habitats and 'many concerns' and 'declining' status of shallow and shelf subtidal sediments in the Faroe-Shetland Channel, in which this possible MPA sits, highlighted by Scotland's Marine Atlas.

MCS understands that this site is known to be used by white-sided dolphin, sperm whale, long-finned pilot whale and fin whale, species which should be considered when developing management options and in the socio-economic assessment.

Socio-economic Assessment:

Yes No

The benefits of conserving deep sea biodiversity in an area of this degree of richness far outweigh the minimal and short lived benefits of the limited amount of bottom-contact fishing in such areas. Indeed, MCS is calling for a moratorium on all bottom-trawling and bottom gill net fishing below 600m (see below).

MCS is concerned about the inappropriate assumptions made in the socio-economic assessment when calculating the costs of designation.

All of the above:

Yes No

MCS supports the designation of the Faroe-Shetland sponge belt possible Nature Conservation MPA. MCS is a member of the Deep Sea Conservation Coalition (www.savethehighseas.org) and would like to see EU regulation for the management of deep-sea fishing in the Northeast Atlantic contain the following key elements, all of which we would wish to apply to deep-sea fishing in the Faroe-Shetland Channel pMPA, and indeed throughout our seas:

1. A phase-out of deep-sea bottom trawling and bottom gillnet fishing;
2. Require prior environmental impact assessments for all deep-sea bottom fisheries, including deep-sea fishing in existing fishing areas as well as new fishing areas, before allowing any deep-sea fishing to take place and that the impact assessments be conducted consistent with the globally agreed standards established by the UN General Assembly and the UN FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;
3. Ensure that the catch of all deep-sea species is regulated and that fishing only be permitted if the catch, including any bycatch or catch of non-target species, can be limited to sustainable levels based on a clear scientific understanding of

the status of the species and the impact of fishing;

4. Require deep-sea fisheries to be managed to prevent the catch of vulnerable, threatened, or endangered species such as deep-sea sharks;
5. Ensure that all deep-sea fisheries are managed to prevent adverse impacts on vulnerable deep-sea ecosystems such as deep-sea coral, sponge and seamount ecosystems, including through requiring that areas are closed to deep-sea bottom fishing where vulnerable marine ecosystems are known or likely to occur unless conservation and management measures are in place that will prevent significant adverse impacts on such ecosystems.

6. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Fetlar to Haroldswick* possible Nature Conservation MPA?

Designation: Yes No

MCS supports the designation of the Fetlar to Haroldswick possible Nature Conservation MPA for the protection of biodiversity features: black guillemot; circalittoral sand and coarse sediment communities; horse mussel beds; kelp and seaweed communities on sublittoral sediments; maerl beds; and shallow tide-swept coarse sands with burrowing bivalves; and geodiversity features: marine geomorphology of the Scottish shelf seabed. The boundary of the site is supported.

The management options paper notes that *'maerl beds and horse mussel beds are considered highly sensitive to certain pressures associated with finfish farming'* and *'any impacts to the horse mussel beds, maerl beds, and kelp and seaweed communities on sublittoral sediment will have already occurred'*. On this basis, and following the MPA guidelines, the conservation objective for these features should be set to 'recover' to reverse some of these historic impacts.

MCS would like kelp habitats added as a protected feature to support wider ecosystem function, including black guillemot feeding.

We support the conservation objectives of conserve for the other features.

Management Options: Yes No

Management should ensure no new finfish and shellfish aquaculture sites are developed within the possible MPA and, where there is risk of damage to protected features, existing facilities should be relocated. Towed/active gear should be removed from areas with the following features to ensure their protection and enable their recovery: maerl beds, horse mussel beds¹⁹, shallow tide-swept coarse sands with burrowing bivalves, kelp and seaweed communities on sublittoral sediment, shallow tide-swept coarse sands and circalittoral sand and coarse sediment communities. The existing scallop dredging restrictions are welcome but

¹⁹ Cook R, Fariñas-Franco JM, Gell FR, Holt RHF, Holt T, et al. (2013) The Substantial First Impact of Bottom Fishing on Rare Biodiversity Hotspots: A Dilemma for Evidence-Based Conservation. PLoS ONE 8(8): e69904

in line with the above preference should be extended to cover the known extent of the features listed with a buffer area to enable their recovery.

MCS strongly supports the management measures for black guillemot, to reduce or avoid the spread of mammalian predators. Black guillemot are known to feed in kelp beds and while current threats may be small this site should also be considered in the parallel draft seaweed policy statement consultation, particularly with regards to guidance developed for the harvest of wild seaweed.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, the precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

We note that displacement of fishing activity from the Fetlar to Haroldswick possible MPA is estimated to have zero impact on loss of landings, therefore further restricting towed/active gear to allow greater scope for feature recovery is unlikely to have significant socio-economic impact. The potential value of the Fetlar to Haroldswick possible MPA to divers and anglers has been estimated at £5.7million to £12million based on willingness-to-pay measures (Kenter *et al.*, 2013)²⁰. Kenter *et al.* also found important emotional and well-being benefits associated with the Fetlar to Haroldswick possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual and transformative wellbeing indicator values.

All of the above:

Yes No

MCS supports the designation of the Fetlar to Haroldswick possible Nature Conservation.

7. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Hatton-Rockall Basin* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Hatton-Rockall Basin possible Nature Conservation MPA for the protection of deep-sea sponge aggregations, offshore deep-sea muds and sediment drift and polygonal fault system geodiversity features. Whilst there is good evidence of the presence of some extremely important examples of features requiring protection, evidence of distribution is not as good, therefore it is difficult to comment on the exact boundaries of the site. However it is clear that the precautionary principle would require some form of protection for this area, particularly in light of our concerns about the impact of deep-sea fishing on

²⁰ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

fragile deep-sea communities.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that there is a risk that features have been modified by human activity.

Management Options:

Yes No

Management options for protected features of uncertain condition must be evidence-based, account for the known vulnerability of the protected features to human activities and the precautionary principle must be applied. The need for precaution is acutely emphasised by the deteriorating condition of deep-sea habitats identified in Scotland's Marine Atlas.

The fishery closure management options suggested are absolutely necessary to achieve conservation of the features. However, as the area lies outside the UK fishery limits and does not include Annex 1 Habitats it will be necessary to rely on NEAFC²¹ to introduce the measures necessary to enforce this closure. The reliability of this process remains to be tested. Indeed, MCS is calling for the protection of our deep-sea vulnerable marine ecosystems including a ban on the most damaging fishing practices - bottom trawling and gillnetting - below 600m, implemented throughout all waters including within this pMPA. This position is further reinforced by the 'declining' status assessment of deepsea habitats in the Rockall regional sea area, which neighbours the far offshore (>200nm) waters in which the pMPA sits, highlighted by Scotland's Marine Atlas.

Socio-economic Assessment:

Yes No

The benefits of conserving deep sea biodiversity in an area of this degree of richness and vulnerability far outweigh the minimal and short-lived benefits of trawling in such areas.

All of the above:

Yes No

The proposed MPA and suggested management measures are fully justified by the habitats and species known to be present, the deteriorating status of deep sea habitats highlighted by Scotland's Marine Atlas and their potential vulnerability to deep sea fishing. Further research is needed to clarify the type and extent of fishery in the area and to identify the full extent of sponge aggregations and document their species richness. It is likely that the area will support a large number of as yet un-described species.

MCS is a member of the Deep Sea Conservation Coalition (www.savethehighseas.org) and would like to see EU regulation for the management of deep-sea fishing in the Northeast Atlantic contain the following key elements, all of which we would wish to apply to deep-sea fishing in the Hatton-Rockall Basin pMPA, and indeed throughout our seas:

²¹ NEAFC – North East Atlantic Fisheries Commission.

1. A phase-out of deep-sea bottom trawling and bottom gillnet fishing;
2. Require prior environmental impact assessments for all deep-sea bottom fisheries, including deep-sea fishing in existing fishing areas as well as new fishing areas, before allowing any deep-sea fishing to take place and that the impact assessments be conducted consistent with the globally agreed standards established by the UN General Assembly and the UN FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;
3. Ensure that the catch of all deep-sea species is regulated and that fishing only be permitted if the catch, including any bycatch or catch of non-target species, can be limited to sustainable levels based on a clear scientific understanding of the status of the species and the impact of fishing;
4. Require deep-sea fisheries to be managed to prevent the catch of vulnerable, threatened, or endangered species such as deep-sea sharks;
5. Ensure that all deep-sea fisheries are managed to prevent adverse impacts on vulnerable deep-sea ecosystems such as deep-sea coral, sponge and seamount ecosystems, including through requiring that areas are closed to deep-sea bottom fishing where vulnerable marine ecosystems are known or likely to occur unless conservation and management measures are in place that will prevent significant adverse impacts on such ecosystems.

MCS understand that long-finned pilot whale and northern bottlenose whale are known to use this site and should be included in the management options and socio-economic assessments.

8. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Loch Creran* possible Nature Conservation MPA?

Designation: Yes No

MCS supports the designation of the Loch Creran possible Nature Conservation MPA for the protection of flame shell beds and geodiversity feature, quaternary of Scotland. The boundary and area of the possible MPA is fully supported. This possible MPA (overlying the existing SAC for biogenic reefs) will be important to protect and enhance serpulid worm aggregations, flameshell beds and horse mussel beds. The area has already been declared an SAC and management will need to refer to, and align with, the objectives of the SAC. The congruence of the boundaries will simplify this.

Without better resolution data of fishing effort, it is impossible to determine whether the extant distribution of flameshell beds is likely to have been in any way constrained by pressure to date. Furthermore, the modelled distribution west of Creagan narrows is surprisingly small and, based on flameshell distribution in other sea loch narrows, might be expected to be larger in extent given the chance to recover. On the basis of lack of pressure data and expected potential extent, we would prefer a conservation objective of 'recover' for flameshell beds.

Management Options: Yes No

The management options to remove or avoid impact to these benthic communities are supported. We recommend designation of zones prohibiting all forms of disturbance by mobile and static gear, diver-operated hydraulic methods and expansion of new aquaculture ventures. As well as the direct impact of finfish aquaculture we would draw attention to the need to limit overall nutrient input to a loch with such limited circulation as Loch Creran as this is particularly likely to affect communities in the Shian Narrows.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA it is imperative that the precautionary approach be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

The area is hugely important for marine tourism, including sailing, angling and diving. The assessment in the Loch Creran partial BRIA does not adequately consider this nor the potential for expansion or synergy with the possible MPA. The potential value of the Loch Creran possible MPA to divers and sea anglers has been estimated at £6 to £12.7million based on willingness-to-pay measures (Kenter *et al.*, 2013)²². Kenter *et al.* also found important emotional and well-being benefits associated with the Loch Creran possible MPA, with divers and anglers responding to a questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, transformative, spiritual and social wellbeing indicator values.

All of the above:

Yes No

Loch Creran contains a complex mosaic of rare and vulnerable benthic species and habitats, including those designated as SAC features and proposed for the MPA. Overlaid on this is a dense pattern of socio-economic uses within a very small area. Careful management will therefore be necessary to ensure that these are all compatible. Further research is needed to determine the impacts of the existing aquaculture operations remote from their immediate footprint. The interaction between finfish and shellfish aquaculture should also be investigated.

9. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Loch Sunart* possible Nature Conservation MPA?

Designation:

Yes No

MCS support the designation of the Loch Sunart possible Nature Conservation MPA for the protection of flame shell beds; northern feather star aggregations on mixed substrata and serpulid aggregations. The boundary and area of the Loch

²² Kenter, J.O., Bryce, R., Davies, A., Jobstvogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

Sunart possible MPA is fully supported. The area has already been designated as a Special Area of Conservation (SAC) for biogenic reefs (serpulid aggregations and horse mussel beds) and management will need to refer to, and align with, the objectives of the SAC.

Until a clearer understanding of historic pressures and current extent is arrived at, we would conclude that the status of the features in their historic context is uncertain and should not default to 'conserve'.

Management Options:

Yes No

We support advice to remove damaging pressures from the proposed protected features. The management options to regulate and minimise impact to these benthic communities are supported. We recommend designation of zones prohibiting all forms of disturbance by mechanical and static fishing gear, anchors, moorings, diver-operated hydraulic methods and expansion of new aquaculture ventures, to ensure the full known extent of these sensitive communities are fully protected from disturbance and, with a suitable buffer zone around them, have opportunity for future enhancement.

MCS also look forward to the outcome of the risk-based review of fishing activities in European Marine Sites, which will help inform management of Loch Creran SAC and in turn the pMPA.

Existing aquaculture ventures will need to ensure they are compliant with updated or revised Environmental Management Systems to ensure operations minimise local and diffuse cumulative impacts, particularly with respect to water quality, erosion, sedimentation and disease.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, a precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

MCS submitted Loch Sunart as a third party MPA proposal, supported by our Seasearch data on flame shell bed and Celtic featherstar distribution and our Your Seas Your Voice data on community-of-interest support. We therefore welcome the inclusion of the pMPA in the consultation and support its designation.

The socio-economic impact data presented in the BRIA indicates the small costs associated with designation and restriction of damaging activities will be outweighed by the medium to long term benefit of protecting the ecological integrity of the possible MPA so it can continue to provide ecosystem services to Scotland's inshore waters. The potential value of the Loch Sunart possible MPA to divers and sea anglers has been estimated at £7.2 to £15.2million based on willingness-to-pay measures (Kenter *et al.*, 2013)²³. Kenter *et al.* also found important emotional and well-being benefits associated with the Loch Sunart possible MPA, with divers

²³ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

and anglers responding to a questionnaire scoring >4 (out of a maximum score of 5) for engagement, identify, therapeutic, transformative, spiritual and social wellbeing indicator values.

All of the above:

Yes No

MCS understand that harbour porpoise are known to use this site and should be protected in the MPA and considered in the management options and the socio-economic assessment, as well as being considered for designation as part of the Natura 2000 SAC network.

10. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Loch Sunart to the Sound of Jura* possible Nature Conservation MPA?

Designation:

Yes No

We support the designation of the Loch Sunart to Sound of Jura possible MPA for common skate. We understand that common skate are found throughout Scottish waters, certainly off the west and northern coasts and islands, but that the data supporting the Loch Sunart to Sound of Jura possible MPA suggests a core of resident animals meriting area-based protection. However, further scientific study of common skate throughout Scottish waters is urgently needed to find at least one other possible MPA to contribute toward replication for this MPA search feature. Protecting Loch Sunart to Sound of Jura alone will not provide sufficient area-based protection for this rare and vulnerable giant.

The conservation objective of conserve (feature condition uncertain) is supported.

Management Options:

Yes No

We note that further information on the impact of aquaculture (finfish and shellfish), mooring and anchoring on common skate eggs is needed before management recommendations can be made, therefore think it premature to previously state that 'No additional management' will be needed for these activities. On the contrary, additional management may be needed for some or all of these preceding activities if new impact data arises. We support the management options for fishing as presented, particularly the recommendation to remove bottom set-nets and long lines from the possible MPA. We would recommend capping existing bottom-towed fishing effort, until more information is gathered on towed/active fishing gear effort and its interaction with common skate in the area.

Socio-economic Assessment:

Yes No

MCS acknowledges the important contribution of the Scottish Sea Angling Conservation Network in bringing this possible MPA to the consultation stage, an excellent example of the value that communities of both place and interest place on the health of the marine environment.

The potential value of the Loch Sunart to Sound of Jura possible MPA to divers and sea anglers has been estimated at £8.2 to £17.2million based on willingness-to-pay measures (Kenter *et al*, 2013)²⁴. The upper limit for sea anglers alone was £14.3million, second only to South Arran possible MPA, not surprising given the obvious interest of healthy common skate populations to sea anglers. There are also important emotional and well-being benefits associated with the Loch Sunart to Sound of Jura possible MPA, with divers and anglers responding to a questionnaire scoring >4 (out of a maximum score of 5) for engagement, transformative, spiritual and social wellbeing indicator values (Kenter et al 2013)

All of the above:

Yes No

We note and welcome the fact that removing bottom set-nets and longlines from Loch Sunart to Sound of Jura possible MPA would provide consequential protection for European spiny lobster (*Palinurus elephas*), itself a MPA search feature (for which suitable MPA sites have not been put forward) and a component of the Reef protected feature in the Firth of Lorn SAC. We would therefore support the inclusion of European Spiny Lobster as a protected feature for this pMPA.

11. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Loch Sween* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Loch Sween possible Nature Conservation MPA for the protection of burrowed mud, maerl beds, native oysters and sublittoral mud and mixed sediment communities. The boundary is fully supported though the information pertaining to the seaward part (Keillmore, Loch na Cille, Macormaic Isles) is not well presented. This is a region of complex underwater topography and very high tidal streams, in marked contrast to the rest of the site. It is likely that maerl beds are more extensive than shown here.

Without a more detailed assessment of fishing levels, we are unable to support the conservation objectives. We would support removal of fishing pressure from maerl beds and native oysters and reduction of pressure on mud habitats. If fishing and anchoring activity has not previously been excluded from areas of maerl and oyster, a precautionary approach would suggest that they have been impacted and therefore the conservation objective for these features should be set to 'recover'.

Management Options:

Yes No

The management options discussed need a more realistic assessment of fishing levels. We are also concerned about the impact of recreational anchorages on

²⁴ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

maerl in outer Scotnish narrows and ask that this recreational anchorage be reviewed to ensure it is not in the vicinity of any maerl habitat. If it is in the vicinity we would request that it be moved in order to minimise impact on maerl.

Socio-economic Assessment:

Yes No

MCS submitted Loch Sween as a third party MPA proposal, supported by our Seasearch data on feature distribution and Your Seas Your Voice data on community-of-interest support. We therefore welcome the inclusion of the pMPA in the consultation and support its designation.

The MPA documents are deficient in their assessment of current levels of fishing. For instance the creeling pressure is assumed to be for crabs whereas most is currently for *Nephrops* and therefore affects a different habitat type. Mobile gear is only likely to affect sites over 10m depth and Linnhe Mhuirich is inaccessible except to boats of shoal draft. Scallop dredging has been intense in the region of Keillmore - Macormaic Isles in 2013.

The potential value of the Loch Sween possible MPA to divers and sea anglers has been estimated at £7.6 to £15.9 million based on willingness-to-pay measures (Kenter *et al.*, 2013)²⁵. Kenter *et al.* also found important emotional and well-being benefits associated with the Loch Sween possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual, transformative and social wellbeing indicator values

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, a precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

All of the above:

Yes No

Loch Sween is a remarkable sea loch both in terms of its physiography and its ecology and MCS fully support its designation. Clarification of fishing pressures is urgently needed. The habitats/species present in the complex topography around the Macormaic Isles are not well described.

12. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Lochs Duich, Long and Aish* possible Nature Conservation MPA?

Designation:

Yes No

²⁵ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

MCS supports the designation of the Lochs Duich, Long and Alsh possible Nature Conservation MPA for the protection of burrowed mud and flame shell beds. The boundary and area of the possible MPA is fully supported. The pMPA exhibits the most significant population of flame shells recorded in Scotland (and possibly the world), and is the only known loch where a wild (non-translocated) fan mussel has been recorded. The possible MPA also represents the most significant remnant burrowed mud communities in sheltered and shallow sea lochs of Scotland. We note this possible MPA overlaps with a previously designated SAC (primarily for protection of reef habitat) and management will need to refer to, and align with, the objectives of this SAC.

We support the conservation objective for the flameshell beds within the Lochs Duich, Long and Alsh pMPA to be 'conserve', due to its already great extent. However, fishing pressure from towed/active gear should be removed, not just reduced, from the most sensitive burrowed mud features, particularly fireworks anemones. Burrowed mud should therefore be set to 'recover' since given the high sensitivity of this species to mobile fishing gear (Scotland's Marine Atlas), historic fishing pressure is likely to have reduced the extent of this local population of nationally scarce species. Fan mussel needs to be added to the protected features list for this pMPA and a conservation objective set to 'recover', both for this local individual/ population (we cannot confirm whether the record is isolated or not) and to contribute to population recovery throughout Scotland. Although not an aggregation, addition of the species would be in line with the case for adding native oyster to Loch Sween and Northwest Scotland sea lochs.

Management Options:

Yes No

Management activities associated with deep water burrowed mud habitat requires revision. We recommend designation of zones prohibiting all forms of disturbance by mobile and static gear, anchors, moorings diver-operated hydraulic methods, and expansion of new aquaculture ventures, to ensure sizable proportions of flame shell, fan mussel and burrowed mud communities, particularly those supporting fireworks anemones, are fully protected from disturbance and have the opportunity for future enhancement. We particularly support closure of activities that impact on flame shell beds in the Kyle Akin area, and this management regime should be extended to deeper water habitats particularly the sensitive fireworks anemones of Loch Duich.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, a precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

MCS submitted Lochs Duich, Long and Alsh as a third party MPA proposal, supported by our Seasearch data on firework anemone distribution and our Your Seas Your Voice data on community-of-interest support, and also acknowledge the third-party proposal submitted by the National Trust for Scotland to help bring this possible MPA to the consultation stage. We therefore welcome the inclusion of the pMPA in the consultation and support its designation.

The socio-economic impact data presented in the BRIA indicates the small costs associated with designation and restricting damaging activities (less than £0.02 million pa GVA) will be outweighed by the medium to long term benefit of protecting the ecological integrity of the possible MPA so it can continue to provide ecosystem services to Scotland's inshore waters. It is possible that the existing creel fishery, provided it is sustainably managed, will benefit from reduction in mobile gear which impacts on benthic communities. With the protection and enhancement of benthic habitats, there is likely to be improvement in recreational fish catch in the medium to long term.

The potential value of the Lochs Duich, Long and Alsh possible MPA to divers and sea anglers has been estimated at £6.9 to £14.6million based on willingness-to-pay measures (Kenter *et al.*, 2013). Kenter *et al.* also found important emotional and well-being benefits associated with the Lochs Duich, Long and Alsh possible MPA, with interviewed local users and visitors scoring >4 (out of a maximum score of 5) for engagement, identity, spiritual, therapeutic, transformative and social wellbeing indicator.

All of the above:

Yes No

Existing aquaculture ventures will need to ensure they are compliant with updated or revised Environmental Management Systems to ensure operations minimise local, and diffuse cumulative, impacts, particularly with respect to water quality, erosion, sedimentation and disease.

13. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Monach Isles* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Monach Isles possible Nature Conservation MPA for the protection of black guillemot and geodiversity features marine geomorphology of the Scottish shelf seabed and quaternary of Scotland. The proposed site boundaries hold a significant proportion of Scotland's black guillemot population.

We support the conservation objective of 'conserve'.

Where present, MCS would like kelp habitats added as a protected feature to support wider ecosystem function, including black guillemot feeding.

Management Options:

Yes No

MCS supports the management option to remove set nets from, or avoid their introduction to, the site. MCS also supports the management measure to reduce or avoid the spread of mammalian predators and support RSPB recommendations for biosecurity.

MCS suggests that this MPA is considered in the parallel draft seaweed policy statement consultation, particularly with regards to guidance developed for the

harvest of wild seaweed.

Socio-economic Assessment: Yes No

Costs have been identified in the BRIA which relate to port and harbour activities. However, management of these activities have not been proposed in the management options paper.

The potential value of the Monach Isles possible MPA to divers and sea anglers has been estimated at £5.3 to £11.2 million based on willingness-to-pay measures (Kenter *et al.*, 2013)²⁶. Kenter *et al.* also found important emotional and well-being benefits associated with the Monach Isles possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, identity, therapeutic, spiritual, transformative and social wellbeing indicator values

All of the above: Yes No

Strategic Environmental Assessment:

MCS support RSPB recommendations to establish biosecurity on the islands, thus also contributing to safeguarding northern fulmar, European shag, cormorant, common tern and Arctic tern breeding on the islands.

14. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Mousa to Boddam* possible Nature Conservation MPA?

Designation: Yes No

MCS supports the designation of the Mousa to Boddam possible Nature Conservation MPA for the protection of sandeels and geodiversity features marine geomorphology of the Scottish shelf seabed.

However, MCS does not support the proposed site boundary. Acoustic and historic data suggest the population of sandeels has a far greater extent. The MPA site boundaries must therefore be reconsidered to ensure the site is effective for the population which it seeks to protect, or risk failing MPA selection guideline stage 4.

The conservation objective for the sandeel feature should be 'recover'. MCS supports the RSPB argument that seabird declines are proxy evidence that sandeels in the site are in poor condition and potentially undersize as they have been in other parts of the North Sea (Wanless *et al.*, 2004²⁷; Frederiksen *et al.*,

²⁶ Kenter, J.O., Bryce, R., Davies, A., Jobstovogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

²⁷ Wanless, S., Wright, P.J., Harris, M.P., Elston, D.A. 2004. Evidence for decrease in size of lesser sandeels *Ammodytes marinus* in a North Sea aggregation over a 30-yr period. *Marine Ecology Progress Series* 279:237–246

2011²⁸). Setting the conservation objective of this feature to recover will therefore ensure the benefits this site provides to the wider seas are restored.

Management Options:

Yes No

MCS strongly supports the statement made by Marine Scotland Science and SNH that a targeted sandeel fishery should not be permitted within the possible MPA.

MCS strongly supports the proposal to remove or avoid demersal hydraulic gear from this pMPA.

Further research is required to investigate the impact of demersal dredge on sandeel. Before this pressure can be dismissed in this site, robust evidence must be presented that shows it is not impacting on the achievement of the conservation objective for sandeels.

Socio-economic Assessment:

Yes No

MCS endorses LINK and RSPB concerns about decreasing spawning stock biomass of sandeels resulting in higher cannibalism in cod and whiting.

The potential value of the Mousa to Boddam possible MPA to divers and sea anglers has been estimated at £5.3 to £11.2 million based on willingness-to-pay measures (Kenter *et al.*, 2013)²⁹. Kenter *et al.* also found important emotional and well-being benefits associated with the Mousa to Boddam possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for therapeutic, spiritual and transformative wellbeing indicator values.

All of the above:

Yes No

15. Do you have any comments on the case for designation, management options and socio-economic assessment for the *North-east Faroe Shetland Channel* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the North-east Faroe Shetland Channel possible Nature Conservation MPA for the protection of deep-sea sponge aggregations, offshore deep-sea muds, offshore subtidal sands and gravels, continental slope and a wide range of features of geological importance, including the Pilot Whale Diapirs. The proposed boundary is supported although we have some concerns

²⁸ Frederiksen, M., Elston, D.A., Edwards, M., Mann, A.D., Wanless, S. 2011. Mechanisms of long-term decline in size of lesser sandeels in the North Sea explored using a growth and phenology model. *Marine Ecology Progress Series* 432: 137–147

²⁹ Kenter, J.O., Bryce, R., Davies, A., Jobstovogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

that only the lower section of continental slope is included, omitting the shelf break and upper slope, a region of high productivity and biodiversity.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that there is a risk that features have been modified by human activity.

Management Options:

Yes No

Management options for protected features of uncertain condition must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle.

Towed/active gear should be removed from areas with deep-sea sponge aggregations and be reduced in areas with offshore deep-sea mud and offshore subtidal sands and gravels in order to ensure their protection. Indeed, MCS is calling for the protection of our deep-sea vulnerable marine ecosystems including a ban on the most damaging fishing practices - bottom trawling and gillnetting - below 600m, implemented throughout all waters including within this pMPA. This position is further reinforced by the 'declining' status assessment of deepsea habitats and 'many concerns' and 'declining' status of shallow and shelf subtidal sediments in the Faroe-Shetland Channel, in which this possible MPA sits, as highlighted by Scotland's Marine Atlas.

As part of the reduction in effort across the much larger areas with offshore deep-sea mud and offshore subtidal sands and gravels, it is important that some areas of those more broadscale habitat are also fully protected from towed/active gear in order for them to attain a full climax community, providing more productive larval sources for the surrounding extent of the habitat which will remain subject to some pressure from active gear. Static gear should be removed from all areas with deep sea sponge aggregations.

Licensed activities such as oil and gas exploration should not be consented where they overlap the very limited extent of deep-sea sponge aggregations, or where they are sufficiently in the vicinity of those aggregations to risk their conservation status from down or up-current events. For offshore deep-sea muds, offshore subtidal sands and gravels, it is critical that licenses e.g. for oil and gas development, are only granted where the licensing authority are sufficiently satisfied that there is no significant risk of the activity hindering the conservation status of those more widespread features.

We are concerned that no management options are provided for the MPA search feature continental slope, an important large-scale feature that supports increased primary production and biodiversity. Management options to protect the continental slope in the pMPA from damaging activities should be included.

Socio-economic Assessment:

Yes No

The benefits of conserving deep sea biodiversity in an area of this degree of richness far outweigh the minimal and short lived benefits of trawling in such areas. We are concerned about the inappropriate assumptions made in the socio-economic assessment when calculating the costs of designation.

All of the above:

Yes No

This area is known to be used by white-sided dolphin, sperm whale, long-finned pilot whale and fin whale and these species should be included in the setting of management options and assessing the socio-economic effects of designation and management. Furthermore, fin and sperm whales are mentioned specifically in all documents pertaining to this site for 'migration' purposes, yet no assessment has been made of the effects that industry (i.e. oil and gas) may have on them. Should the area be designated, there needs to be greater coherence between spatial and wider protection measures here regarding the interaction between the oil and gas industry and marine mammals.

16. Do you have any comments on the case for designation, management options and socio-economic assessment for the *North-west Orkney* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the North-west Orkney possible Nature Conservation MPA for the protection of sandeel larvae and a range of geological features formed by the action of tides and currents, including sand banks, sand wave fields and sediment wave fields. The JNCC advice clearly states that "No other possible MPAs for which sandeels are being considered are thought to be of equal ecological value".

No strategic sandeel monitoring has taken place in the area and therefore the status of the species is not known. MCS therefore agree with the RSPB conclusion that using local seabird population health status as a proxy, sandeels in this site are likely to be in poor condition and potentially undersize as has been found in other parts of the North Sea (Wanless et al., 2004³⁰; Frederiksen et al, 2011³¹) and as has also been surmised earlier in this submission for Mousa to Boddam pMPA. Since according to JNCC advice, the pMPA provides known benefits to much of the North Sea, the conservation objective of this feature should be set to recover to ensure the benefits this site provides to the wider seas are restored.

Since the health of the sandeel population also relies upon the status of the sedimentary habitat in which they shelter, 'offshore subtidal sands and gravels' should also be added as a protected feature to this pMPA and the impact of towed/active gear on the seabed considered.

Management Options:

Yes No

MCS supports the statement made by Marine Scotland Science and SNH that a targeted sandeel fishery should not be permitted within the possible MPA.

The proposal currently suggests no additional management. We believe additional

³⁰ Wanless, S., Wright, P.J., Harris, M.P., Elston, D.A. 2004. Evidence for decrease in size of lesser sandeels *Ammodytes marinus* in a North Sea aggregation over a 30-yr period. *Marine Ecology Progress Series* 279:237–246

³¹ Frederiksen, M., Elston, D.A., Edwards, M., Mann, A.D., Wanless, S. 2011. Mechanisms of long-term decline in size of lesser sandeels in the North Sea explored using a growth and phenology model. *Marine Ecology Progress Series* 432: 137–147

management will be needed in order for the North-west Orkney pMPA to contribute to protecting and, where appropriate enhancing, the health of Scotland's marine environment. Indeed, since the health of the sandeel population also relies upon the status of the sedimentary habitat in which they shelter, 'offshore subtidal sands and gravels' should also be added as a protected feature to this pMPA and the impact of towed/active gear on the seabed managed within this pMPA.

Socio-economic Assessment:

Yes No

MCS endorses LINK and RSPB concerns about decreasing spawning stock biomass of sandeels resulting in higher cannibalism in cod and whiting.

The potential value of the North-west Orkney possible MPA to divers and sea anglers has been estimated at £4.0 to £8.6 million based on willingness-to-pay measures (Kenter *et al.*, 2013)³². Kenter *et al.* also found important emotional and well-being benefits associated with the North-west Orkney possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual, transformative and social wellbeing indicator values.

All of the above:

Yes No

Strategic Environmental Assessment:

MCS supports RSPB and LINK comments made in relation to this site.

17. Do you have any comments on the case for designation, management options and socio-economic assessment for the *North-west sea lochs and Summer Isles* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the North-west sea lochs and Summer Isles possible Nature Conservation MPA for the protection of burrowed mud, circalittoral muddy sand communities, flame shell beds; kelp and seaweed communities on sublittoral sediments, maerl beds, maerl or coarse shell gravel with burrowing sea cucumbers and northern feather star aggregations on mixed substrata, and for geodiversity features – marine geomorphology of the Scottish shelf seabed, seabed fluid and gas seep, submarine mass movement, and quaternary of Scotland. MCS support inclusion of the circalittoral muddy sand communities to contribute toward representation of broad-scale habitats in the network.

Seagrass beds should be added as a protected feature in the possible MPA. Although the distribution of *Zostera marina* in south-east Gruinard Bay is patchy,

³² Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

together with the beds in Loch Gairloch these are described as 'possibly the richest examples on the mainland coastline of northern Scotland from at least Loch Alsh to the Moray Firth.'³³ Additionally the seagrass records in Gruinard Bay were identified as having the potential to be protected through enhancing the existing Little Loch Broom and Gruinard Bay Fisheries restriction Area (CA59) with MPA designation³⁴.

We support the conservation objectives, particularly to recover the maerl and flameshell beds. We note that flame shell beds are not covered in the introduction to the management options paper.

Management Options:

Yes No

MCS support the exclusion of towed/active gear types and diver hydraulic methods from flame shell beds, maerl beds and maerl or coarse gravel with burrowing sea cucumbers. Management to reduce the pressure on maerl and burrowed mud by static gear is also supported. We support proposals to relocate the disposal site to an area of less sensitivity and further assessments to determine impact of the Loggie Bay anchorage and moorings in Loch Broom on flame shells beds.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, the precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

MCS acknowledges the enormously important contribution of the Gairloch and Wester Loch Ewe Community to bringing this possible MPA to the consultation stage, an outstanding example of the value that communities (of both place and interest) place on the health of the marine environment.

Inclusion of seagrass beds as a protected feature in this MPA could have additional socio-economic benefits as they are important spawning grounds for herring and nursery habitat for small scallops, lobsters, crabs and juvenile cod.

The potential value of the North-west sea lochs and Summer Isles possible MPA to divers and sea anglers has been estimated at £6.7 to £14.2 million based on willingness-to-pay measures (Kenter *et al.*, 2013)³⁵. Kenter *et al.* also found important emotional and well-being benefits associated with the North-west sea lochs and Summer Isles possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual, transformative and social wellbeing indicator values.

³³ Moore, C. G., Harries, D. B., Trigg, C., Porter, J. S. and Lyndon, A. R. (2011). The distribution of Priority Marine Features and MPA search features within the Ullapool Approaches: a broadscale validation survey. Scottish Natural Heritage Commissioned Report No. 422.

http://www.snh.org.uk/pdfs/publications/commissioned_reports/422.pdf

³⁴ <http://www.snh.gov.uk/docs/B1000612.pdf>

³⁵ Kenter, J.O., Bryce, R., Davies, A., Jobstvogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

All of the above:

Yes No

Research is required to investigate the Interactions between active/mobile gear and northern featherstar aggregations, kelp and seaweed on sublittoral sediments and circalittoral muddy sand communities.

MCS understand that harbour porpoise are known to use this site and should be protected in the MPA and considered in the management options and the socio-economic assessment, as well as being considered for designation as part of the Natura 2000 SAC network.

18. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Noss Head* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Noss Head possible Nature Conservation MPA to protect horse mussel beds. We support the position of the boundary. We note that the extent is currently predictive and therefore, given the importance of this site as the largest known UK horse mussel bed, support the boundary providing a buffer around the predicted distribution.

The conservation objective of 'conserve' is supported.

Management Options:

Yes No

Spoil dredge disposal and use of towed/active gears is incompatible with the health of the horse mussel beds and should be excluded from the possible MPA. Recent findings³⁶ of the damaging impact of towed/active gear on horse mussel beds in the Isle of Man provide further compelling evidence of the need to exclude such gear. Static gear activity should be limited, subject to further study, for both shellfish stock management and biodiversity (horse mussel bed) protection purposes.

Socio-economic Assessment:

Yes No

The potential value of the Noss Head possible MPA to divers and anglers has been estimated at £4.7million to £9.9million based on willingness-to-pay measures (Kenter *et al.*, 2013)³⁷. Kenter *et al.* also found important emotional and well-being benefits associated with the Noss Head possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic and transformative wellbeing indicator values.

³⁶ Cook R, Fariñas-Franco JM, Gell FR, Holt RHF, Holt T, et al. (2013) The Substantial First Impact of Bottom Fishing on Rare Biodiversity Hotspots: A Dilemma for Evidence-Based Conservation. PLoS ONE 8(8): e69904

³⁷ Kenter, J.O., Bryce, R., Davies, A., Jobstvogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

All of the above:

Yes No

MCS supports the designation of the Noss Head possible Nature Conservation MPA to protect horse mussel beds. We also note the importance of horse mussel beds for wider ecosystem function, providing a range of important services such as drawing down and consolidating sediment to the seabed, sequestering carbon and providing a cryptic, biogenic habitat to support wider biodiversity, including juvenile commercial fish and shellfish species. Protection and management of this site provides an excellent opportunity to further study the important ecosystem function of horse mussel beds.

19. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Papa Westray* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Papa Westray possible Nature Conservation MPA for the protection of black guillemot and geodiversity features – marine geomorphology of the Scottish shelf seabed.

We support the conservation objective ‘conserve’ for the above features.

MCS would like kelp habitats added as a protected feature to support wider ecosystem function, including black guillemot feeding.

Management Options:

Yes No

MCS support the management option to remove set nets from, or avoid their introduction to, the site and the management measure to reduce or avoid the spread of mammalian predators. MCS support RSPB recommendations on biosecurity measures for this pMPA.

MCS suggests that this MPA is considered in the parallel draft seaweed policy statement consultation, and particularly with regards to guidance developed for the harvest of wild seaweed.

Socio-economic Assessment:

Yes No

The potential value of the Papa Westray possible MPA to divers and sea anglers has been estimated at £4.9 to £10.4 million based on willingness-to-pay measures (Kenter *et al.*, 2013)³⁸. Kenter *et al.* also found important emotional and well-being benefits associated with the Papa Westray possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, spiritual and transformative wellbeing indicator values.

³⁸ Kenter, J.O., Bryce, R., Davies, A., Jobstvogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

All of the above:

Yes No

Strategic Environmental Assessment

MCS support RPSB and LINK comments on this issue for this pMPA.

20. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Rosemary Bank Seamount* possible Nature Conservation MPA?

Designation:

Yes No

MCS support the designation of the Rosemary Bank Seamount possible Nature Conservation MPA to protect deep-sea sponge aggregations, seamount communities and the Rosemary Bank Seamount and associated geodiversity features (including the seamount scour moat, sediment drifts, sediment drifts and the Rosemary Bank Seamount itself). The boundary and area of the Rosemary Bank Seamount possible MPA is fully supported on the basis of the information provided. The area represents only one of three seamount habitat ecosystems detected in Scotland's offshore water, and is reported to comprise a rich diversity of deep-sea sponge aggregations, cold-water corals and deep-water fish (e.g. orange roughy and blue ling). Such an area is likely to be highly productive, indicated by observations of migratory whales (sperm and pilot) in high numbers.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that there is a risk that features have been modified by human activity.

Management Options:

Yes No

Management options for protected features of uncertain condition must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle.

Although we acknowledge uncertainty in the evidence of the condition of the seamount habitat, the area is likely to be enhanced by restriction of damaging fishing activities such as otter trawling and gill netting. Indeed, along with other members of the Deep Sea Conservation Coalition, MCS is calling for the protection of our deep-sea vulnerable marine ecosystems including a ban on the most damaging fishing practices - bottom trawling and gillnetting - below 600m, implemented throughout all waters including within this pMPA. Our position is further reinforced by the 'declining' status assessment of deepsea habitats in the Bailey regional sea area, in which the Rosemary Bank pMPA sits, highlighted by Scotland's Marine Atlas.

We also support the prohibition of future proposals for mining and exploration for new oil and gas extraction.

We are concerned that no management options are provided for the large-scale MPA search feature seamounts. Seamounts are included as a MPA search feature

due to their important wider ecosystem function, enabling nutrient upwelling that in turn supports biodiversity and feeding hotspots. Management options to protect this search feature and its wider ecosystem function must be included.

Socio-economic Assessment:

Yes No

The socio-economic impact data presented in the BRIA indicates a relatively modest displacement cost (less than £0.2 million pa GVA) in relation to the ecological and natural value gains offered by the possible MPA. The BRIA report indicates impacts to the fishing sector are likely be offset by opportunities in other locations. In addition, the relatively modest displacement costs by restricting damaging activities will be outweighed by the medium to long term benefit of protecting the ecological integrity of the pMPA so it can continue to provide ecosystem services to Scotland's offshore waters.

MCS is a member of the Deep Sea Conservation Coalition (www.savethehighseas.org) and would like to see EU regulation for the management of deep-sea fishing in the Northeast Atlantic contain the following key elements, all of which we would wish to apply to fishing activity at the Rosemary Bank Seamount pMPA, and indeed through our seas:

1. A phase-out of deep-sea bottom trawling and bottom gillnet fishing;
2. Require prior environmental impact assessments for all deep-sea bottom fisheries, including deep-sea fishing in existing fishing areas as well as new fishing areas, before allowing any deep-sea fishing to take place and that the impact assessments be conducted consistent with the globally agreed standards established by the UN General Assembly and the UN FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;
3. Ensure that the catch of all deep-sea species is regulated and that fishing only be permitted if the catch, including any bycatch or catch of non-target species, can be limited to sustainable levels based on a clear scientific understanding of the status of the species and the impact of fishing;
4. Require deep-sea fisheries to be managed to prevent the catch of vulnerable, threatened, or endangered species such as deep-sea sharks;
5. Ensure that all deep-sea fisheries are managed to prevent adverse impacts on vulnerable deep-sea ecosystems such as deep-sea coral, sponge and seamount ecosystems, including through requiring that areas are closed to deep-sea bottom fishing where vulnerable marine ecosystems are known or likely to occur unless conservation and management measures are in place that will prevent significant adverse impacts on such ecosystems.

All of the above:

Yes No

MCS support the LINK comments regarding the ecological importance of seamounts and the particular importance of Rosemary Seamount for cetaceans. It is vital therefore that whales and dolphins are considered in the management of this pMPA.

21. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Small Isles* possible Nature Conservation MPA?

Designation:

Yes No

MCS support the designation of the Small Isles possible Nature Conservation MPA to protect black guillemot, burrowed mud, circalittoral sand and mud communities, fan mussel aggregations, horse mussel beds, northern feather star aggregations on mixed substrata, northern sea fan and sponge communities, shelf deeps and white cluster anemones, and geodiversity features - quaternary of Scotland. The boundary and area of Small Isles possible MPA is fully supported. We also recommend that the future designation should include the basking shark, minke whale and (to support wider ecosystem function including black guillemot feeding) kelp habitats as protected features.

We support the setting of conservation objectives for the protected features within the Small Isles possible MPA to 'conserve' for all features other than the fan mussel and northern feather star aggregations. The latter are both scarce in Scottish waters, and the fan mussel aggregation possibly unique pending any further aggregation find, and the opportunity should be taken to enhance these features. In particular, fan mussel status throughout Scotland's seas is plainly critical, since this is the only known aggregation, and the Small Isles population should therefore be enhanced in order to provide scope to assess the potential to re-seed the historic range of this fragile giant mollusc and ecosystem engineer. The status for both fan mussel aggregations and northern feather star aggregations should therefore be set to 'recover'.

Management Options:

Yes No

MCS support the designation of large zones in the Sound of Canna prohibiting all forms of disturbance by mobile and static fishing gear, anchors, moorings and expansion of new aquaculture ventures, to ensure sizable proportions of sensitive communities are fully protected from disturbance and have opportunity for future enhancement, particularly fan mussel aggregations, northern sea star, feather star, sponge communities, horse mussel beds and burrowed mud communities. We also recommend that the licensed dredge spoil sites be rescinded for the Sound of Canna.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA it is imperative that the precautionary approach be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

MCS acknowledges the important contribution of Small Isles Community Council in bringing this possible MPA to the consultation stage. This contribution is an outstanding demonstration of the high value that local communities place on the integrity of their marine environment. MCS supported Seasearch activity contributed to the evidence-base for the Small Isles proposals, therefore we can corroborate the presence of northern seafan and sponge communities in the

Sound of Canna.

The involvement of the local community in this MPA proposal is an excellent example of the existence of the non-use value of MPAs that has been largely omitted from the economic assessments. The socio-economic impact data presented in the BRIA indicates the costs of designation (less than £0.42 million pa GVA) and restricting damaging activities will be outweighed by the medium to long term benefit of protecting the ecological integrity of the possible MPA so it can continue to provide ecosystem services to Scotland's inshore waters.

The potential value of the Small Isles possible MPA to divers and sea anglers has been estimated at £7.3 to £15.3 million based on willingness-to-pay measures (Kenter *et al.*, 2013)³⁹. Kenter *et al.* also found important emotional and well-being benefits associated with the Small Isles possible MPA, with interviewed local users and visitors scoring >4 (out of a maximum score of 5) for engagement, identity, spiritual, therapeutic, transformative and social wellbeing indicator.

All of the above:

Yes No

The Small Isles possible MPA is the only representative site for burrowed mud communities outside sea lochs on the west coast of Scotland, and considered by marine biodiversity specialists as the most significant relic deep water mud habitat in Scotland. There is a rich and unique mosaic of habitats associated in one area due to a combination of the complex topography and existing disposal site preventing use of bottom-towed fishing gear.

As this is the best remaining area of deep burrowed mud in inshore waters it is essential to set up a monitoring programme that allows assessment of the expansion and recovery of the species and habitats in areas adjacent to the core zone.

Further surveys in the deep basins adjacent to the Sound of Canna are needed in order to identify relic deep mud features and assess the potential for expansion of sensitive species such as the fan mussel.

MCS understand that harbour porpoise are known to use this site and should be protected in the MPA and considered in the management options and the socio-economic assessment, as well as being considered for designation as part of the Natura 2000 SAC network.

22. Do you have any comments on the case for designation, management options and socio-economic assessment for the *South Arran* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the South Arran possible Nature Conservation MPA to protect burrowed mud, herring spawning grounds, kelp and seaweed

³⁹ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

communities on sublittoral sediments, maerl beds, maerl or coarse shell gravel with burrowing sea cucumbers, ocean quahog, seagrass beds, shallow tide-swept coarse sands with burrowing bivalves. We support the boundary of the possible MPA. This MPA will make a valuable contribution to protecting habitats representative of the areas of the Clyde more exposed to prevailing wind, wave and tidal action.

MCS has some concerns over the conservation objectives for this site. Seagrass beds should be set to 'recover' as they will have likely suffered some damage from the existing anchorage in Whiting Bay. Remaining habitats should be set to 'recover' since the ecological status of the possible MPA is only 'moderate' as a result of morphological alteration from commercial fishing.

MCS hold the world's largest basking shark database and can confirm the Firth of Clyde as a body of water from which reports are regularly received. Consideration should therefore be given to adding basking shark as a protected species to the South Arran pMPA, although this should not be at the expense of ensuring protection for areas arising from analysis of any new effort-correct data and/or from welcome habitat modelling and tagging work throughout Scotland's seas.

Management Options:

Yes No

MCS believes that anchorages should be removed from seagrass beds in Whiting Bay; creel pressure should be reduced or limited on burrowed mud, maerl beds and seagrass beds, that hydraulic fishing methods be removed from the entire MPA, that use of towed/active gear should be removed from maerl beds, maerl or coarse shell gravel with burrowing sea cucumbers and seagrass beds and that targeted fishing for ocean quahog and use of towed/active gear in ocean quahog habitat should be excluded.

In order to ensure that burrowed mud features are protected and enhanced, towed/active gear should be removed from those features. The waters of South Arran are considered of 'moderate' ecological status⁴⁰ as a result of 'Morphological alterations' from commercial fishing⁴¹. Since all the surrounding waters of Arran are also 'moderate' ecological status as result of commercial fishing altering the morphology of the seabed, removal of towed/active gear from South Arran MPA would contribute to both the possible MPA meeting its conservation objectives and the water body meeting Good Ecological Status. As the latter is currently 'moderate' it is also likely to rank similarly with regard to 'seafloor integrity' under the forthcoming Marine Strategy Framework Directive if this pressure is not removed.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA it is imperative that the precautionary approach be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

We would like to acknowledge the enormously important contribution of the

⁴⁰ http://www.environment.scotland.gov.uk/our_environment/water/water_body_classification.aspx

⁴¹ <http://apps.sepa.org.uk/wbody/2011/200019.pdf>

Community of Arran Seabed Trust to bringing this possible MPA to the consultation stage. This contribution is an outstanding demonstration of the high value that local communities place on the integrity of their marine environment. MCS supported Seasearch activity contributed to the evidence-base for the COAST proposals. We can therefore corroborate the presence of maerl off iron rock ledges southwest of Arran, seagrass beds in Whiting Bay, maerl and seagrass in Lamlash Bay and tideswept algal and animal communities off the south coast.

The involvement of the local community in this MPA proposal is an excellent example of the existence of the non-use value of MPAs that has been largely omitted from the economic assessments. The potential value of the South Arran possible MPA to divers and anglers has been estimated at £8.3million to £17.5million based on willingness-to-pay measures (Kenter *et al.*, 2013)⁴². Kenter *et al.* also found important emotional and well-being benefits associated with the South Arran possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual, transformative and social wellbeing indicator values.

All of the above:

Yes No

We note that the South Arran possible MPA contains the Lamlash Bay marine algae Important Plant Area.

23. Do you have any comments on the case for designation, management options and socio-economic assessment for *The Barra Fan and Hebrides Terrace Seamount* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Barra Fan and Hebrides Terrace Seamount possible Nature Conservation MPA to protect burrowed mud, offshore subtidal sands and gravels, offshore deep-sea muds, an area of the Hebridean continental slope, the Hebrides Terrace Seamount and associated features, including orange roughly and seamount communities, and geodiversity features representative of the The Barra Fan and Peaches Slide Complex Key Geodiversity Areas. The boundary and area of the possible MPA is fully supported on the basis of the information provided. It should be noted that the possible MPA lies on the boundary between the Scottish and Irish marine areas. The Hebrides Terrace Seamount, while mostly in Scottish waters, straddles the boundary.

The seamount is thought to be significant to the health of Scotland's seas due to its effect on movement of underwater currents, which bring food to the area. The resulting rich diversity supports many fish species, which in turn attract larger marine animals, such as sharks and cetaceans.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that

⁴² Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

there is a risk that features have been modified by human activity.

Management Options:

Yes No

Management options for protected features of uncertain condition must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle.

Although we acknowledge uncertainty in the evidence of the condition of the seamount habitat, the area is likely to be enhanced by restriction of damaging activities by mobile and static gear (e.g. otter trawling and gill netting). We assert that these activities do impact on habitats such as burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels and their constituent species. Indeed, MCS is calling for the protection of our deep-sea vulnerable marine ecosystems including a ban on the most damaging fishing practices - bottom trawling and gillnetting - below 600m, implemented throughout all waters including within this pMPA. Our position is further reinforced by the 'declining' status assessment of deepsea habitats in the Rockall regional sea area, in which this pMPA sits, highlighted by Scotland's Marine Atlas.

We are concerned that no management options are provided for the large-scale MPA search features seamounts and continental slope. Seamounts and continental slope are included as MPA search features based on their important contribution to ecosystem function in this area. Management options to protect this wider ecosystem function, and underpinning marine biodiversity, should be included.

There is limited attention in the management options document concerning pelagic trawling and purse seining activity, and as such no informed assessment can be made regarding sustainable harvesting of associated pelagic and demersal fish species. We support the prohibition of all forms of future disturbance by mining and exploration, and new oil and gas facilities.

Limiting these activities will ensure the Barra Fan & Hebridean Terrace Seamount communities are fully protected from disturbance in perpetuity, and have opportunity for future enhancement. For any proposed licensed activities, they must be managed through a stringent consenting process, as directed by the Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010. However, we emphasise that the expansion of licenced activities in possible MPAs should be avoided if alternative less sensitive sites can be located.

It is important that management of this possible MPA takes account of its position on the Scottish/Irish waters boundary. Every effort should be made to make sure that management of activities, particularly over the seamount, are consistent across the boundary.

Socio-economic Assessment:

Yes No

The socio-economic impact data in the BRIA report indicates the relatively modest, worst case, costs of designation for commercial fisheries as £0.3 - £0.4 million pa. As indicated in the comments under Management Options Report, it is difficult to make informed comment on the contribution of the Barra Fan & Hebrides Terrace Seamount possible MPA to pelagic and demersal fish stocks, and associated fishing activity options. Relatively modest displacement costs associated with

fisheries with habitat damaging activities that employ bottom mobile gear will be outweighed by the medium to long term benefit of protecting the ecological integrity of the possible MPA so it can continue to provide ecosystem services to Scotland's offshore waters. MCS is a member of the Deep Sea Conservation Coalition (www.savethehighseas.org) and would like to see EU regulation for the management of deep-sea fishing in the Northeast Atlantic contain the following key elements, all of which we would wish to apply to deep-sea fishing in the Barra Fan and Hebrides Terrace Seamount pMPA, and indeed throughout our seas:

1. A phase-out of deep-sea bottom trawling and bottom gillnet fishing;
2. Require prior environmental impact assessments for all deep-sea bottom fisheries, including deep-sea fishing in existing fishing areas as well as new fishing areas, before allowing any deep-sea fishing to take place and that the impact assessments be conducted consistent with the globally agreed standards established by the UN General Assembly and the UN FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;
3. Ensure that the catch of all deep-sea species is regulated and that fishing only be permitted if the catch, including any bycatch or catch of non-target species, can be limited to sustainable levels based on a clear scientific understanding of the status of the species and the impact of fishing;
4. Require deep-sea fisheries to be managed to prevent the catch of vulnerable, threatened, or endangered species such as deep-sea sharks;
5. Ensure that all deep-sea fisheries are managed to prevent adverse impacts on vulnerable deep-sea ecosystems such as deep-sea coral, sponge and seamount ecosystems, including through requiring that areas are closed to deep-sea bottom fishing where vulnerable marine ecosystems are known or likely to occur unless conservation and management measures are in place that will prevent significant adverse impacts on such ecosystems.

The BRIA report indicates expected costs of undertaking stringent environmental impact assessment procedures for oil and gas sector proposals may range from £1.6 - £5.8 million. Along with other LINK members, MCS assert that these projected costs would be absorbed by the economic value and wealth of this industry, with likely alternative sites and opportunities being accessible in the short to medium term.

All of the above:

Yes No

Representative seamount habitat ecosystems are essential for Scotland's MPA network due to their biological diversity and important ecosystem drivers. Seamount ecosystems are relatively uncommon worldwide. There are concerns with the negative impact of fishing on seamount ecosystems, with well-documented cases of stock decline, for example orange roughy decline due to overfishing in the vicinity of seamounts off Tasmania. Ecological damage is mainly caused by bottom trawling, and large demersal netting which exploit populations of fish that exhibit mass aggregation behaviour in the vicinity of seamounts.

MCS understand that sperm whales are known to use this region and should be considered in the management options.

24. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Turbot Bank* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Turbot Bank possible Nature Conservation MPA to protect sandeels. The site includes a population of sandeels outside of the North-east Sandeel Closure (CA1) which would benefit from the additional protection provided by this MPA.

MCS also recognises the importance of this area for offshore subtidal sands and gravels. MCS welcomes the addition of this protected feature to Turbot Bank pMPA but only on condition that the Firth of Forth Banks Complex, a pMPA that is fundamentally required for the coherence of this network, *must* go forward for designation.

The conservation objective for the sandeel feature should be set to recover, since group-0 sandeels have been shown to be undersize in other parts of the North Sea (Wanless et al., 2004⁴³; Frederiksen et al, 2011⁴⁴).

MCS understand that many seabirds from mainland colonies use this site, a fact which should be considered when setting up management arrangements, should the site progress for sandeels as we would wish.

Management Options:

Yes No

MCS supports the statement made by Marine Scotland Science and SNH that a targeted sandeel fishery should not be permitted within the possible MPA. The Turbot Bank management option paper does not discuss towed/active gear impact on sandeels, despite the fact that such gear is used within the site. Before this pressure can be dismissed, MCS agrees that robust evidence must be presented that shows that it is not impacting on the achievement of the conservation objective for sandeels.

MCS supports the proposal to remove/avoid pressures associated with oil and gas activities.

Were offshore subtidal sands and gravels to be added as a protected feature, MCS would support the management options that reduce the risk of not achieving its conservation objective to the lowest possible level.

Socio-economic Assessment:

Yes No

⁴³ Wanless, S., Wright, P.J., Harris, M.P., Elston, D.A. 2004. Evidence for decrease in size of lesser sandeels *Ammodytes marinus* in a North Sea aggregation over a 30-yr period. *Marine Ecology Progress Series* 279:237–246

⁴⁴ Frederiksen, M., Elston, D.A., Edwards, M., Mann, A.D., Wanless, S. 2011. Mechanisms of long-term decline in size of lesser sandeels in the North Sea explored using a growth and phenology model. *Marine Ecology Progress Series* 432: 137–147

MCS endorses LINK and RSPB concerns about decreasing spawning stock biomass of sandeels resulting in higher cannibalism in cod and whiting.

The potential value of the Turbot Bank possible MPA to divers and sea anglers has been estimated at £4.7 to £10.0million based on willingness-to-pay measures (Kenter *et al.*, 2013)⁴⁵. Kenter *et al.* also found important emotional and well-being benefits associated with the Turbot Bank possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for transformative wellbeing indicator values.

All of the above:

Yes No

Strategic Environmental Assessment:

MCS supports RSPB and LINK comments regarding the SEA for this site.

25. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Upper Loch Fyne and Loch Goil* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the Upper Loch Fyne and Loch Goil possible Nature Conservation MPA to protect burrowed mud, flame shell beds, horse mussel beds, ocean quahog, sublittoral mud and mixed sediment communities. The presence of fireworks anemones (*Pachycerianthus multiplacatus*) in Loch Goil is confirmed and needs to be added to the protected features. Loch Goil is also the only known location where the Arctic relic seasquirt *Styela gelatinosa* has been recorded and merits recognition as a feature that would get consequential protection. Both sea lochs also have excellent examples of sheltered rock reefs which merit listing as protected features (in line with the general point regarding representation of EUNIS Level 3 habitats in answer to question 35).

MCS supports the conservation objective of 'recover' for flame shell beds. Conservation objectives for all other features, listed as conserve (feature condition uncertain) should also be set to recover following a precautionary approach.

Management Options:

Yes No

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, the precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must

⁴⁵ Kenter, J.O., Bryce, R., Davies, A., Jobstvogt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

be precautionary.

Moorings – the Fireworks anemones in upper Loch Goil that are near the moorings were recently surveyed during an MCS Seasearch survey. They don't appear impacted but we would recommend no new moorings deeper than 15m at the head of the loch (to allow a buffer zone from where the anemones start at 15m) or at the very least robust EIAs that locate anemones before positioning mooring blocks away from them.

Fishing – we are concerned about the resolution of sensitivity mapping for burrowed mud since it doesn't resolve the presence of fireworks anemones or mud volcano worms which are highly sensitive to mobile gear. Burrowed mud should therefore be rated as high sensitivity following the precautionary approach assuming presence of fireworks anemones (unless fireworks anemones have been proved not to be present). So we disagree with the advice to only consider reducing or limiting pressure of towed gear on burrowed muds, in the absence of finer resolution information on the distribution of mud volcano worms and fireworks anemones.

We support the removal of towed/active fishing pressure from flame shell beds and horse mussel beds, but also from ocean quahog areas and muds which may contain mud volcano worms and fireworks anemones. Simpler both in management terms, and to ensure protection and enhancement of the sheltered and fragile sea loch ecosystem, would be to exclude towed/active gear from the MPA.

MCS believe that static gear fisheries should be removed from areas with flame shell beds, horse mussel beds, fireworks anemone aggregations and mud volcano worm mounds in order to protect these features and enable their recovery.

Fishing – diver collection. The recommendation in the management option paper should be to 'remove pressure' since the advice that follows is to 'exclude' diver-operated hydraulic methods and targeted fishing for horse mussel and ocean quahog from the site. MCS support the exclusion of these activities from the pMPA.

Socio-economic Assessment:

Yes No

MCS submitted upper Loch Fyne as a third party MPA proposal, supported by our Seasearch data on flame shell bed and firework anemone distribution and our Your Seas Your Voice data on community-of-interest support. We therefore welcome the inclusion of the pMPA in the consultation and support its designation.

The potential value of the Upper Loch Fyne and Loch Goil possible MPA to divers and sea anglers has been estimated at £7.7 to £16.1 million based on willingness-to-pay measures (Kenter *et al.*, 2013)⁴⁶. Kenter *et al.* also found important emotional and well-being benefits associated with the Upper Loch Fyne and Loch Goil possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, therapeutic, spiritual, transformative and social wellbeing indicator values.

⁴⁶ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

All of the above:

Yes No

Comments

26. Do you have any comments on the case for designation, management options and socio-economic assessment for the *West Shetland Shelf (formerly Windssock)* possible Nature Conservation MPA?

Designation:

Yes No

MCS supports the designation of the West Shetland Shelf (formerly Windssock) pMPA to protect a wide variety of offshore subtidal sand and gravel habitats. The boundary and area are supported based on the advice provided that the area represents a rich mosaic of offshore sand and gravel biotopes, and diverse constituent species, at the northern extent of their range on the continental shelf in Scotland's seas. This pMPA will provide vital protection for nursery grounds for a range of fish species associated with sand and gravel beds, including but not limited to flatfish, bass, skates, and rays, some species of which are recognised mobile Priority Marine Features, including the commercially-targeted cod (*Gadus morhua*), which has been protected from fishing in the overlapping Windssock Fisheries area since 2001.

We accept the conservation objective of 'conserve - feature condition uncertain'. However, we note that selection guideline 2d was not considered to be met for the protected biodiversity features in this site as sensitivity analyses concluded that there is a risk that features have been modified by human activity.

Management Options:

Yes No

Management options for protected features of uncertain condition must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle.

We note that the possible MPA overlaps with the current Windssock Fisheries Area which is managed for the recovery of the commercial cod industry which effectively prohibits the use of bottom-contact mobile fishing gear, but static fishing gear (e.g. creels and pots) are still in use. We recommend that the prohibition of this fishing gear be maintained. The closure is particularly welcome, not just for cod stock recovery plans, but also given the 'many concerns' status assessment of 'shelf subtidal sediments' in the North Scotland Coast status assessment area, in which West Shetland Shelf pMPA sits, highlighted by Scotland's Marine Atlas. We therefore also encourage designation of zones within the possible MPA prohibiting static gear, to ensure sizable proportions of marine fauna experience reduced pressure from harvesting and have an even greater opportunity for future enhancement. MCS supports prohibition of all forms of possible future disturbance by mining and exploration, and new oil and gas facilities.

Limiting these activities will ensure the West Shetland Shelf communities are fully protected from damaging activities in perpetuity, have opportunity for future enhancement and can continue to provide support for wider ecosystem function in

this regional sea. For any proposed licensed activities, they must be managed through a stringent consenting process, as directed by the Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010. However, we emphasise that the expansion of licenced activities in all possible nature conservation MPAs should be avoided if alternative less sensitive sites can be located.

Socio-economic Assessment:

Yes No

The socio-economic impact data presented in the BRIA indicates relatively small costs of designation (less than £0.2 million pa) compared to the ecological and natural value gains offered by the possible MPA. It is noted that as fisheries closures were implemented in the Woodstock Fisheries Area in 2001, there would be no foreseeable additional displacement costs with the designation of this possible MPA. The BRIA report indicates minimal impacts are only expected to costs of undertaking additional stringent environmental impact assessment procedures for proposed oil and gas proposals. The relative cost of undertaking industry EIA reports and consents would be absorbed by the economic value and wealth of this industry, with likely alternative sites and opportunities being accessible in the short to medium term.

Overall, the relatively small displacement costs of restricting damaging activities will be outweighed by the medium to long term benefit of protecting the ecological integrity of the pMPA so it can continue to provide ecosystem services to Scotland's offshore waters. Indeed, we note the conclusion from the Windsock Area Closure study⁴⁷ that, although more time would be needed to fully assess scope for recovery of demersal fish species, "*Some commercial species, such as large cod and haddock, showed positive trends...*" and, of additional significance for the wider protection and enhancement of Scotland's marine ecosystem, that "*The most evident effect of the closure was found for a non-commercial species, lesser spotted dogfish, which increased markedly in the Windsock area following the closure. Other elasmobranchs, although much less abundant in the study area, responded to the closure similarly to lesser spotted dogfish.*" These results of closure to towed/active gear are particularly welcome and noteworthy given the context of population decline and 'many concerns' for shark, skate and ray populations in all Scottish waters catalogued in Scotland's Marine Atlas.

All of the above:

Yes No

All forms of industry licence proposals, decommissioning and maintenance must be regulated under the direction of Marine Scotland (or equivalent responsible public authority) and meet best practice EIA protocols and consents, supported by transparent monitoring and reporting requirements. We do not support licenced activities of any nature within MPAs that are undertaken by voluntary industry standards.

27. Do you have any comments on the case for designation, management options and socio-economic assessment for the *Wyre and Rousay Sounds* possible Nature Conservation MPA?

⁴⁷ www.scotland.gov.uk/Uploads/Documents/SISP0209.pdf

Designation:

Yes No

MCS supports the designation of the Wyre and Rousay Sounds pMPA to protect the excellent examples of kelp and seaweed communities on sublittoral sediment and maerl beds, and geodiversity feature marine geomorphology of the Scottish shelf seabed. The boundary is fully supported. The proposed MPA contains excellent examples of maerl in an area of the largest discontinuous extent of the feature anywhere in the UK, in largely unmodified condition forming an important habitat mosaic with kelp and seaweed communities.

Since no indicators of damage were recorded for maerl and kelp and seaweed on sublittoral sediment in this pMPA, the conservation objective 'conserve' for all features is supported.

Management Options:

Yes No

We note that the distribution of features within the site limits the ability to apply zoned management. We support the prohibition of maerl extraction from the site and the exclusion of towed/active fishing gear within the entirety of the site to protect maerl and kelp and seaweed communities on sublittoral sediment. Careful monitoring of the static gear and hand-derived bivalve fishery will be required to ensure no impact on conservation objectives.

In the absence of detailed information relating to the impacts of aquaculture on proposed protected features within an MPA, the precautionary approach must be applied. Discussions with finfish farming interests cannot be used as a proxy for specific, detailed information and where doubt exists management measures must be precautionary.

Socio-economic Assessment:

Yes No

It is possible that the existing static gear and dived fisheries, providing they are sustainably managed, will benefit from a reduction in mobile gear which impacts on benthic communities.

The potential value of the Wyre and Rousay Sounds possible MPA to divers and sea anglers has been estimated at £5.0 to £10.6 million based on willingness-to-pay measures (Kenter *et al.*, 2013)⁴⁸. Kenter *et al.* also found important emotional and well-being benefits associated with the Wyre and Rousay Sounds possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for engagement, spiritual and transformative wellbeing indicator values.

All of the above:

Yes No

The possible MPA provides an opportunity to protect excellent examples of important features in this region and an opportunity to apply management

⁴⁸ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

measures across the whole site.

We also note that this pMPA is adjacent to area TN2 tidal scoping area of search. Should tidal energy development be licensed in TN2, it is imperative that any possible impact on changes to the tidal regime affecting the excellent quality habitats in Wyre and Rousay Sound should be fully considered.

Choices to represent features in the MPA Network

28. Recognising the scientific advice from JNCC included alternatives for representing offshore subtidal sands and gravels, ocean quahog and shelf banks and mounds in the Southern North Sea, do you have a preference or comments on the following combinations to represent these features, bearing in mind Turbot Bank will need to be designated to represent sandeel in this region:

- Firth of Forth Banks Complex
- Turbot bank and Norwegian Boundary Sedimentary Plain
- Or Firth of Forth Banks Complex, Turbot bank and Norwegian Boundary Sedimentary Plain

MCS supports the designation of the Firth of Forth Banks Complex possible Nature Conservation MPA.

MCS asserts that Firth of Forth Banks Complex *must* be designated. Its alternatives are of a lesser ecological value and it is one of the most important areas in the northern North Sea regional sea, supporting wider marine ecosystem function through its importance for and provision of sandeels⁴⁹. MCS also notes that JNCC state “it (Firth of Forth Banks Complex) *would represent the range and diversity of offshore subtidal sands and gravel habitats present, as well as the ocean quahog (juvenile and adult) populations distributed across the area. There is evidence to support our view that the shelf bank and mound features present within the Firth of Forth Banks Complex are of functional significance to the overall health and diversity of Scotland’s seas more widely*”.

We draw attention to the JNCC advice, repeated in the management options paper, that the two ‘science-based’ alternatives “*do not make equivalent contributions to the network to that made by the Firth of Forth Banks Complex possible MPA*” and that “*the Firth of Forth Banks Complex is JNCC’s preferred possible MPA to go forward for designation*”. We strongly support this position.

MCS would therefore consider designation of any alternative as a failure to follow the scientific advice provided by JNCC and a contradiction with the ministerial commitment to only consider socio-economic factors when deciding between sites of *ecological equivalence*. **It is absolutely clear from the JNCC advice, that the Firth of Forth Banks Complex has no ecological equivalents.**

MCS strongly support this designation on the incontrovertible basis that this possible MPA represents a more diverse habitat mosaic, a wider range of constituent marine species and a more valuable, indeed unique, ecosystem

⁴⁹ Greenstreet S. P. R., Armstrong E., Mosegaard H., Jensen H., Gibb I. M., Fraser H. M., Scott B., et al. Variation in the abundance of sandeels *Ammodytes marinus* off southeast Scotland: an evaluation of area-closure fisheries management and stock abundance assessment methods. ICES Journal of Marine Science 2006;63:1530-1550

function in the northern North Sea, compared to the science-based alternatives identified by JNCC in response to stakeholder representations.

However, MCS also notes that the possible MPA contains a significant population of sandeels, and that this feature plays an extremely important role in the North Sea ecosystem, particularly for piscivorous predators in the northern North Sea which rely on this species, including grey seal⁵⁰, harbour seal^{51 52}, harbour porpoise⁵³, common guillemot, razorbill, black-legged kittiwake^{54 55}, puffin⁵⁶ and northern gannet⁵⁷. On this basis, we urge the Scottish Government to add sandeels as a protected feature within this site and support all the comments made by LINK and RSPB on this ecologically key point.

MCS also fully support the designation of the ocean quahog aggregations and offshore subtidal sands and gravels search features, noting from the Detailed Assessment against the MPA Selection Guidelines that *'there is a risk that ocean quahog populations and sand and gravel habitat within the possible MPA may have been modified by human activity'*.

MCS would also query the proposed archipelago pMPA boundary presented within the consultation package which we feel does not cover the extent of all proposed MPA search features. We would prefer the pMPA boundary to be continuous, thus more accurately encompassing the features for which the site is being proposed. For example, Marr Bank, which by definition is a 'shelf bank and mound', and associated confirmed records of ocean quahog (*Arctica islandica*) and circalittoral sediment habitat point records, has as much ecological merit for inclusion as the Scalp and Wee Bankie (which to be clear we also support being included in the pMPA site boundary). MCS would query why Marr Bank is not included in the pMPA and would welcome its inclusion within the site boundary. Similarly, for ecological integrity, we would like to see the boundary of the Montrose Bank pMPA 'island' extended westward to encompass the full extent of the mapped 'shelf bank and mound'.

29. Do you have any comments on the case for designation, management options and socio-economic assessments for the preference you have indicated in the question above, regarding alternatives for representing offshore subtidal sands and gravels, ocean quahog and shelf banks and mounds in the Southern North Sea?

Yes No

Management options for protected features of uncertain condition must be

⁵⁰ Hammond, P. S., Hall, A. J., and Prime, J. H. 1994. The diet of grey seals around Orkney and other island and mainland sites in northeastern Scotland. *Journal of Applied Ecology*, 31:340-350.

⁵¹ Pierce, G. J., Thompson, P. M., Miller, A., Diack, J. S. W., Miller, D., and Boyle, P. R. 1991. Seasonal variation in the diet of common seals (*Phoca vitulina*) in the Moray Firth area of Scotland. *Journal of Zoology*, 223: 641-646.

⁵² Tollit, D. J., and Thompson, P. M. 1996. Seasonal and between year variations in the diet of harbour seals in the Moray Firth, Scotland. *Canadian Journal of Zoology*, 74: 1110-1121.

⁵³ Santos, M. B., and Pierce, G. J. 2003. The diet of harbour porpoise (*Phocoena phocoena*) in the northeast Atlantic. *Oceanography and Marine Biology*, 41: 355-390.

⁵⁴ Tasker, M. L., and Furness, R. W. 1996. Estimation of food consumption of seabirds in the North Sea. *ICES Cooperative Research Report*, 216: 6-42.

⁵⁵ Furness, R. W., and Tasker, M. L. 2000. Seabird-fishery interactions: quantifying the sensitivity of seabirds to reductions in sandeel abundance, and identification of key areas for sensitive seabirds in the North Sea. *Marine Ecology Progress Series*, 202: 253e264.

⁵⁶ Wanless, S., Harris, M. P., and Greenstreet, S. P. R. 1998. Summer sandeel consumption by seabirds breeding in the Firth of Forth, southeast Scotland. *ICES Journal of Marine Science*, 55: 1141-1151.

⁵⁷ Wakefield, E.D., Bodey, T.W., Bearhop, S., Blackburn, J., Colhoun, K., Davies, R., Dwyer, R.G., Green, J., Gremillet, D., Jackson, A.L., Jessopp, M.J., Kane, A., Langston, R.H.W., Lescroel, A., Murray, S., Le Nuz, M., Patrick, S.C., Peron, C., Soanes, L., Wanless, S., Votier, S.C., Hamer, K.C. 2013. Space Partitioning Without Territoriality in Gannets *Science* 1-5

evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle. We therefore encourage designation of large zones prohibiting those forms of disturbance by towed/active and static gear that could have a significant impact on the features to ensure sizable proportions of sensitive communities are fully protected from disturbance and have the opportunity for future enhancement. Proposed offshore renewable licences for wind farm construction must be undertaken on the basis of a stringent and transparent EIA, HRA and appropriate consent conditions. Currently, there is minimal information on the impact of wind farms on this ecosystem type and its constituent features. Aside from the impact to benthic species and habitats due to the ecological footprint of these built assets, aerial turbine blades may impact populations of seabird species such as gannets.

MCS understand that the area is also important for seals, which have been locally in decline for the last 10 years. MCS understand that minke whale, harbour porpoises, dolphins and occasionally basking shark are also recorded in the area. It is recommended that protected features to be added to this possible MPA include seals, cetaceans and seabirds. A further recommendation for the addition of minke whale as a protected feature may be made pending forthcoming data.

We would like to reiterate that the Guidelines for designation of Marine Protected Areas state that socio-economic factors should only be used to select between 'ecologically equivalent' alternatives. The JNCC advice clearly states that the alternatives are *not* ecologically equivalent. Therefore, socio-economic factors should not influence the designation decision. However, we acknowledge that socio-economic factors remain important when evaluating the management options which best meet the conservation objectives.

The socio-economic impact data presented in the BRIA indicates that cost of managing damaging commercial fisheries (£0.28 - £0.33 million pa GVA). The Firth of Forth Banks Complex possible MPA option presents a marginally higher cost for commercial fisheries than the Turbot Bank and Norwegian Boundary Sediment Plain possible MPA option, but lower costs to the oil and gas sector. However the Norwegian Boundary Sediment Plain is not comparable in ecological significance to the Firth of Forth Banks Complex.

Further, the socio-economic impact data presented in the BRIA forecasts a £43 million possible additional cost for future wind farm development in the Firth of Forth Banks Complex possible MPA under the highest scenario. This cost is due to the possible need for 'graded scour protection' around installations. These figures appear to have been provided in an informal way, with no supporting evidence, by Seagreen energy who have submitted applications for consent to construct two offshore wind farms in the Firth of Forth Offshore Wind Zone. We strongly contend that Seagreen energy represent a vested interest with an incentive to overestimate the possible costs, and as such these figures should be rejected.

The potential value of the Firth of Forth Banks Complex possible MPA to divers and sea anglers has been estimated at £5.2 to £11.1 million based on willingness-to-pay measures (Kenter *et al.*, 2013)⁵⁸. Kenter *et al.* also found important emotional and well-being benefits associated with the Firth of Forth Banks Complex possible MPA, with divers and anglers responding to questionnaire scoring >4 (out of a maximum score of 5) for transformative and social wellbeing

⁵⁸ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

indicator values.

In line with fellow LINK members, the Firth of Forth Banks Complex possible MPA is our only supported option for designation as a MPA for offshore subtidal sands and gravels, ocean quahog and shelf banks and mounds in the southern North Sea. We would also wish sandeels to be added as protected features. Proposed wind farm development areas/sites should be explored outside the possible MPA boundaries to minimise impact to the possible MPAs diverse assemblage of seabed habitats and unique ecosystem function in the northern North Sea. All EIA, SEA and HRA must meet the conservation objectives of the possible MPA, which MCS contend due to the risk of modification by human activity and following the precautionary principle should be to 'recover' and not just 'conserve' the features. Negotiation with industry is vital when considering development options.

30. Recognising the scientific advice from JNCC included alternatives for representing the burrowed mud feature in the Fladens, do you have a preference or comments on the following combinations to represent these features, bearing in mind the part of Central Fladen (known as Central Fladen (Core)) containing tall seapen (*Funiculina quadrangularis*) will need to be designated to represent tall seapen in this region:

Central Fladen possible MPA only

The tall sea-pen component of Central Fladen, plus Western Fladen

Or the tall sea-pen component of Central Fladen, plus South-East Fladen.

MCS fully supports the designation of Central Fladen (core) with Central Fladen possible MPA. The boundary of this possible MPA offers the best opportunity for the protection, and possible expansion, of the tall sea pen (*Funiculina quadrangularis*) population component of the burrowed mud MPA search feature. The adjacent Central Fladen option exhibiting the burrowed mud – sea pens and burrowing megafauna MPA search feature, if adequately protected, offers the best opportunity for buffering and potential enhancement of the likely remnant tall sea pen population.

31. Do you have any comments on the case for designation, management options and socio-economic assessments for the preference you have indicated in the question above, regarding alternatives for representing the burrowed mud feature in the Fladens?

Yes No

We support conservation objectives for the protected features within the Central Fladen possible MPA to 'conserve' for all features, other than tall sea pen. Since the tall sea pen population is likely a remnant population, protected by North Sea oil and gas infrastructure where there is limited operation of towed/active gear, we would suggest that the conservation objective for tall sea pens be set to 'recover'. We further recommend designation of large zones prohibiting all forms of disturbance by mobile and static gear to ensure sizable proportions of sensitive communities are fully protected from disturbance and have opportunity for future

enhancement. This possible MPA, if highly protected, offers opportunity to benchmark against and compare gear activity and catch effort in the adjacent option areas (western Fladen and South-East Fladen) which we recommend could be designated as Demonstration and Research MPAs. We further recommend designation prohibiting all forms of possible future disturbance by mining and exploration, and new oil and gas facilities. Limiting these activities will ensure the Central Fladen and Central Fladen (core) MPA search features are fully protected from disturbance, and have opportunity for future enhancement. For any proposed licensed activities, they must be managed through a stringent consenting process, as directed by the Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010. However, we emphasise that the expansion of licenced activities in possible MPAs should be avoided if alternative less sensitive sites can be located.

MCS agree with the argument put forward by LINK that the displacement costs of restricting damaging activities will be outweighed by the medium to long term benefit of protecting the ecological integrity of the possible MPA so it can continue to provide ecosystem services to the Fladen Grounds and wider North Sea.

It is possible that the densely populated tall sea pen community of the Central Fladen (core) possible MPA may be a result of *de facto* protection arising from restricted fishing activity within 500 m of the oil and gas pipeline, and fishing vessel avoidance from the wider vicinity of the pipeline. The Central Fladen (core) and Central Fladen possible MPA is the preferred option, providing scope for the enhancement of what may be the only remaining tall sea pen population in the North Sea and scope for useful comparative research into the effect of different management regimes by comparison with west and southeast Fladen. MCS fully supports MPA designation for Central Fladen and Central Fladen (core).

32. Recognising the scientific advice from JNCC included alternatives for representing offshore subtidal sands and gravels, offshore deep sea mud, and burrowed mud in OSPAR Regions III and V, do you have a preference or comments on the following combinations to represent these features:

South-West Sula Sgeir and Hebridean slope

Or Geikie slide and Hebridean slope

MCS supports the designation of the Geikie Slide and Hebridean Slope pMPA since it offers the most significant representation of northwest continental shelf slope species and communities, such as burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels. MCS understand that the Geikie Slide and Hebridean Slope pMPA exhibits greater sighting records for whales and dolphins than the South-West Sula Sgeir and Hebridean slope option. MCS also support designation to protect pelagic features, which could also provide benefits for adjacent internationally listed seabird colonies.

33. Do you have any comments on the case for designation, management options and socio-economic assessments for the preference you have indicated in the question above, regarding alternatives for representing offshore subtidal sands and gravels, offshore deep sea mud, and burrowed mud in OSPAR Regions III and V?

Yes No

Management options for protected features of uncertain condition must be evidence-based, account for the known vulnerability of the protected features to human activities and make appropriate use of the precautionary principle. The need for precaution is highlighted by the 'declining' condition of deep sea habitats in the Bailey regional sea as highlighted by Scotland's Marine Atlas, and our aforementioned concern that damaging fishing activities should not take place deeper than 600m.

MCS is a member of the Deep Sea Conservation Coalition (www.savethehighseas.org) and would like to see EU regulation for the management of deep-sea fishing in the Northeast Atlantic contain the following key elements, all of which we would wish to apply to deep-sea fishing in the Geikie Slide and Hebridean Slope pMPA, and indeed throughout our seas:

1. A phase-out of deep-sea bottom trawling and bottom gillnet fishing;
2. Require prior environmental impact assessments for all deep-sea bottom fisheries, including deep-sea fishing in existing fishing areas as well as new fishing areas, before allowing any deep-sea fishing to take place and that the impact assessments be conducted consistent with the globally agreed standards established by the UN General Assembly and the UN FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;
3. Ensure that the catch of all deep-sea species is regulated and that fishing only be permitted if the catch, including any bycatch or catch of non-target species, can be limited to sustainable levels based on a clear scientific understanding of the status of the species and the impact of fishing;
4. Require deep-sea fisheries to be managed to prevent the catch of vulnerable, threatened, or endangered species such as deep-sea sharks;
5. Ensure that all deep-sea fisheries are managed to prevent adverse impacts on vulnerable deep-sea ecosystems such as deep-sea coral, sponge and seamount ecosystems, including through requiring that areas are closed to deep-sea bottom fishing where vulnerable marine ecosystems are known or likely to occur unless conservation and management measures are in place that will prevent significant adverse impacts on such ecosystems.

We therefore recommend designation of large zones prohibiting damaging mobile and static gear to ensure sizable proportions of sensitive communities are fully protected from disturbance and have the opportunity for future enhancement. The information presented to the possible impacts (if any) of gill netting and line fishing is insufficient to make informed comment. However, this highlights the need for greatly improved fisheries management protocols, monitoring and surveillance for these activities.

We are concerned that no management options are provided for the large-scale MPA search feature continental slope. Continental slope is included as a MPA search feature based on the important ecosystem function, and associated marine biodiversity, that it provides in this regional sea area. Management options to protect this large scale MPA search feature should be included.

The socio-economic impact data presented in the BRIA indicates that the costs incurred in removing damaging activities are not significantly different between the

Geikie Slide & Hebridean Slope possible MPA option (£5 - £7 million Present value, total over 20 years) compared to the South-west Sula Sgeir and Hebridean Slope possible MPA option (£5 - £6.5 million). MCS contend that the costs of restricting damaging activities will be outweighed by the medium to long term benefit of protecting and enhancing the biodiversity and ecological integrity of Geikie Slide & Hebridean Slope possible MPA so it can continue to provide ecosystem services, and for those to be improved, in Scotland's offshore waters.

MCS understand that the area is used by white-sided dolphin and sperm whale which should be included as protected features and considered in developing management options and assessing socio-economic impacts.

Sustainability Appraisal

34. Do you have any comments on the Sustainability Appraisal of the MPA network as a whole?

Yes No

In keeping with the approach to use best-available science as set out in the MPA selection guidelines⁵⁹ and as committed to by Scotland's Cabinet Secretary for Rural Affairs and the Environment in writing to the (then) Rural Affairs and Environment Committee⁶⁰, MCS considers that the socio-economic data contained in the consultation documentation should not be used to influence the designation of individual possible MPAs, or to inform choices between sites.

MCS agrees with LINK that *"much of the information provided in the Sustainability Appraisal is flawed and, as written, should not be used to inform the ministerial decisions regarding individual site designations or to select management options."* An unbalanced view appears to be presented, with 'worst case' estimates of costs associated with designation (e.g. complete loss of fishery income) contrasting with best case scenarios for non-designation (i.e. no further degradation regardless of the increasing pressures being experienced by our marine biodiversity now and on the horizon). Such an asymmetric view contrasts with the Scottish Government's 2020 Challenge for Scotland's Biodiversity⁶¹:

*An ecologically coherent network of Marine Protected Areas will protect the best of Scotland's marine nature, promote sustainable use and **aid recovery of commercially valuable fish and shellfish.***

We welcome the 2020 Challenge document recognising the important role and ecologically coherent network can make toward aiding the recovery of commercially valuable fish and shellfish, which we believe would be the case through protection of benthic habitats that also function as some important nursery and feeding grounds. Additional areas of functional importance for the life-history of commercially valuable fish and shellfish beyond the emerging MPA network

⁵⁹ From paragraph 11.4 "MPA designation will be based upon the use of best available scientific data"

⁶⁰ "I am taking this opportunity, prior to the debate on Stage 3 of the Marine (Scotland) Bill, to reassure you that science remains the primary consideration when identifying MPAs for inclusion in the network...When considering MPAs, only when it is clear that the ecological requirements of the network can be met, will socioeconomic considerations figure in the decision making process."

[http://www.scottish.parliament.uk/S3_Bills/Marine%20\(Scotland\)%20Bill/BBV142_Final.pdf](http://www.scottish.parliament.uk/S3_Bills/Marine%20(Scotland)%20Bill/BBV142_Final.pdf)

⁶¹ <http://www.scotland.gov.uk/Resource/0042/00425276.pdf>

would of course also benefit from spatial protection.

We would also like to highlight the very limited efforts to value the non-use benefits of designation. The importance of these values has been demonstrated by the third party MPA proposals submitted by environmental groups, interest groups, and most particularly local community groups – Small Isles Community Council, Community of Arran Seabed Trust, Gairloch and Wester Loch Ewe Community and Fair Isle Marine Environment and Tourism Initiative (FIMETI).

Socio-Economic Assessment and BRIAs

MCS is a contributor to and signatory of the LINK response and, given the importance of the concerns in relation to Socio-Economic Assessments and BRIAs, would like to take the opportunity below to reiterate the comments collectively made therein.

Attempts to assess the socio-economic costs of the proposed MPAs are based on some false assumptions, and little effort has gone into quantifying the potential benefits of a well-managed marine environment.

1. Management costs

The cost estimates make use of many management scenarios for the proposed MPAs which have not been presented in the Government's proposals, or are unlikely to be implemented once sites are established.

For example, in most instances cost estimates for commercial fisheries in MPAs are made based on a complete closure of the area, yet this is rarely a management option. In many cases this has caused a significant overestimate of costs for the designation of sites for which very little actual restriction is being proposed. The costs should therefore either be recalculated for realistic management options or ignored entirely.

The problem is not confined to the fishing sector. A further example is an estimate for the use of graded scour protection in the Firth of Forth Banks Complex proposal. The estimate of the costs associated with this specialist measure is very high, and yet there is no clear indication of why this cost must be considered and whether it will make the achievement of the conservation objectives more likely. Furthermore, the quoted cost is an unsupported estimate obtained from a company with a vested interest in developing wind energy on the site.

In other instances the costs relate to activities that have been scoped out of proposed management entirely, an estimate of costs (£0.02m) to ports and harbours in East Caithness Cliffs is provided in the Socio-economic Assessment, although they were considered "activities not considered to be capable of affecting the protected features" in the management options paper.

The estimation of the impact of management appears inconsistent. Cost estimations for commercial fishing make the assumption that all effort currently falling within an MPA will be lost or displaced. This contrasts starkly with the proposed management options which suggest that discussion with stakeholders will limit restriction overall, and therefore limit loss or displacement. The costs also contradict the SEA which assumes displacement only. In the individual Business and Regulatory Impact Assessments, costs are presented for both the socio-economic impacts of lost effort and the environmental impacts of displaced effort in the same table. This is potentially misleading as both impacts cannot occur.

Cost to aquaculture should be seen in the light of the ambitious growth objectives

outlined in the draft NMP. The quoted cost of £0.61 million corresponds to just a few months of such growth. Potential costs to the fishing industry, even given the worst case scenario adopted, amount to only approximately 0-2% of the total value of landings in 2011. This is significantly less than the annual variability in the value of landings between 2008 and 2012 according to Scottish Government data⁶².

We question the assumption that a reduction in employment in the commercial fishing sector will cause an increase in crime. We believe the Scottish public are able to adapt to changes in employment in responsible ways. A recent report for Marine Scotland's Marine Analytical Unit 'The Impact of Sea Fishing on Social Well-being in Scottish Fishing Communities' concluded that *"fishing income and employment do not appear to be key drivers of social change, because fishing is a small economic component as other sectors have taken up the slack as well household responses, e.g. holding two or more jobs, are preventing deprivation."*

2. Baseline

The quantitative estimates of costs of designating MPAs, particularly on the commercial fishing sector, have been calculated to represent 'worst case estimates'. No account is taken of possible displacement rather than loss or of the possibility of zonal management. However, this 'worst case' approach has not been repeated elsewhere, particularly in estimating the costs associated with not designating MPAs. There is an assumption that if no MPAs are designated, the current situation would continue and there would be no cost to any activity. Given that parallel consultations are under way on a National Marine Plan which contains sectoral objectives to increase aquaculture, offshore renewable installations and other marine activities and maximise oil and gas extraction this is clearly not the case. In fact, the Scottish marine environment, and the economic benefits flowing from it, will change dramatically depending on the level of protection it is provided. The declining health of Scotland seas would cost many of our marine sectors dearly.

The marine wildlife tourism sector, which has not been considered in this sustainability appraisal, contributes £63 million to Scotland's economy annually, based on the Scottish Government figures⁶³. There has been a general deterioration in the condition of the marine environment, as shown in the Scottish Government's Marine Atlas. Marine Protected Areas have been promoted, through the Marine (Scotland) Act 2010, as well as other internationally policies, to halt or recover from this decline. This Sustainability Appraisal must account for the ongoing decline in the baseline, so that the value the proposed MPAs could provide in halting or reversing the decline can be considered.

3. Benefits

Little attempt has been made to quantify the possible benefits of MPA designation. There are obvious potential benefits in the tourism sector which could have been quantified at least as reliably as the sectors which are discussed.

A report regarded as the best available approach to value transfer, given the very limited evidence and resources available, estimated the benefits arising from a theoretical marine protected area network in Scotland (González-Álvarez 2012⁶⁴) as £6.3 billion - £10 billion. Whilst there are acknowledged difficulties in this piece

⁶² <http://www.scotland.gov.uk/Topics/Statistics/Browse/Agriculture-Fisheries/TrendSeaFisheries>

⁶³ <http://www.scotland.gov.uk/Resource/Doc/311951/0098489.pdf>

⁶⁴ González-Álvarez, J. (2012). Valuing the benefits of designating a network of Scottish MPAs in territorial and offshore waters. A report to Scottish Environment MCS. Institute of Natural Resources & Spatial Planning at the University of Oviedo, Spain.

[http://www.scotMCS.org/files/publication/MCSReports/Valuing_the_benefits_MPA_Network_Scotland_Report_\(final\).pdf](http://www.scotMCS.org/files/publication/MCSReports/Valuing_the_benefits_MPA_Network_Scotland_Report_(final).pdf)

of value-transfer work, the report highlights that the value provided by the contribution of a network of Marine Protected Areas to marine ecosystem services throughout Scotland's seas is likely to be considerable. Scotland's Marine Atlas was unable to evaluate Ecosystem Services (ES) value and health and wellbeing values provided by Scotland's seas. The work by Kenter et al (2013)⁶⁵ is a useful start at evaluating the indirect and non-use value of MPAs, but in order to assess MPA network benefits to the wider marine ecosystem, and indeed of the status and trends in ecosystem goods and services provision in the wider sea, all marine ecosystem values (including from the MPA network as a subset) need further and more accurate quantifying.

There needs to be a focus on the long term health of the seas and the increased benefits and services which they could provide, not on speculative short term costs.

MCS supports the LINK conclusion that the *"inconsistency in information provided—between the management options, the socio-economic assessment and the strategic environmental assessment (most notably the contradictory assumptions made regarding the displacement of activities)—makes the results of these documents inappropriate for use in ministerial decision making."*

Final Thoughts

35. On the basis of your preferences on which possible MPAs should be designated, do you view this to form a complete or ecologically coherent network, subject to the completion and recommendations of SNH's further work on the 4 remaining search locations?

Yes No

Towards an ecologically coherent network

MCS has serious concerns about the ecological coherence of the network. Some of these are associated with connectivity, which we recognise is a difficult area which requires more research. On this basis, at best we could consider it to be a step towards an ecologically coherent MPA network.

Other concerns we have relate to the wider management measures, and consideration of features beyond the possible MPA protected features. This is explicitly required by the MPA selection guidelines, and included in the OSPAR guidance, for assessing ecological coherence, but is not adequately addressed in the management options presented

Below we have considered whether, if all our expressed MPA preferences are designated, this will form an ecologically coherent network. We have taken the interpretation of the OSPAR criteria from the Ministerial Statement in Annex 4 of the MPA Selection Guidelines as a guide: representation, replication, size of site, adequacy, connectivity and management.

⁶⁵ Kenter, J.O., Bryce, R., Davies, A., Jobstovgt, N., Watson, V., Ranger, S., Solandt, J.L., Duncan, C., Christie, M., Crump, H., Irvine, K.N., Pinard, M., Reed, M.S. (2013). The value of potential marine protected areas in the UK to divers and sea anglers. UNEP-WCMC, Cambridge, UK.

MCS is a substantive contributor to the LINK response and, given the core importance of the concerns regarding the ecological coherence of the emerging MPA network to the charitable objects of our organisation, would like to take the opportunity below to reiterate the contribution made to the LINK response.

Representation

The Scottish MPA Network Guidelines reflect OSPAR (legally enacted via s.79(3)(b) of the Marine (Scotland) Act 2010 and s.123(3)(b) of the Marine and Coastal Access Act 2009) in requiring that areas that best represent the range of species, habitats and ecological processes (for which MPAs are a suitable measure) should be considered for inclusion in the network. While we welcome the inclusion of rare, threatened and declining features, some broadscale representative features (e.g. offshore subtidal sands and gravels, offshore deep sea muds) and large-scale features that support ecosystem function (e.g. shelf banks and mounds, shelf deeps) as MPA search features, a 'representative network' ought to represent the full range of marine biodiversity. We are concerned that gaps will remain, even if the scientific advice presented to Parliament in December 2012 is followed fully as we would hope.

Most conspicuously, seabirds (other than black guillemot), cetaceans and basking sharks are missing from the 33 proposed MPAs. We therefore support the progression of the four MPA search locations to MPA proposals at the earliest opportunity to deliver MPAs for minke whale, white-beaked dolphin, Risso's dolphin and basking shark. Although we recognise that offshore Special Protection Areas for seabirds are being identified, we do not believe these will be sufficient to deliver protection of feeding grounds for nationally and internationally important seabird populations on the basis of results already presented and because, Scotland's seabirds are unlikely to aggregate in the numbers needed to meet international (SPA) criteria. We support LINK partners in continuing to press for seabird MPAs at sea. We do not consider European spiny lobster, burrowing sea anemone (*Aracnanthus sarsi*) aggregations and heart cockle aggregations to have been 'accounted for' in the process. These must remain as MPA search features so that if suitable areas for MPA protection are identified in future, the opportunity remains to protect them. This is crucial given that the presence of one of few previously recorded *A.sarsi* in the Firth of Lorn could not be re-confirmed during a MCS Seasearch expedition in September 2013.

To 'best represent' the range of marine biodiversity, a useful starting point is the broadscale habitats classified to EUNIS Level 3. While the MPA Search Features include some EUNIS Level 3 habitats, and there is *a posteriori* consideration of representation to EUNIS Level 3 in the advice to Marine Scotland, a limited range has been used to drive the search for new MPAs. Our concern is that assumptions have been made on a presence/absence basis regarding the degree to which existing sites in the Natura 2000 network adequately represent species and habitats. We therefore cannot support the assertion that nine MPA search features were adequately protected by existing protected areas, not least because several of those features (coral gardens, kelp and seaweed communities on sublittoral sediment, maerl or coarse shell gravel with burrowing sea cucumbers, northern sea fan and sponge communities and seagrass beds) were added as protected features to the MPA proposals that were identified using other MPA search features as drivers, and the geographical range and variation of 'maerl or coarse shell gravel with burrowing sea cucumbers' is not reflected in the MPA network, even after being added to South Arran and North West sea lochs pMPAs. To be clear, we support the addition of those features to the resultant MPA proposals but, by definition, if they had been deemed 'adequately protected by existing measures' they would then not need to be added later in the process. The corollary of this is that these features were not adequately protected by existing measures. We would

wish to see a comprehensive spatial assessment of the degree to which EUNIS Level 3 habitats, and critical sub-habitats, are represented in the developing network, and their degree of connectedness.

To give one example of a EUNIS Level 3 habitat, we are not convinced that the existing network of marine Special Areas of Conservation provides sufficient area-based protection measures to represent the full range of Infralittoral and Circalittoral rock habitats in Scottish waters. For example, kelp habitats on (by definition) infralittoral rock are recognised as important to support wider biodiversity, for coastal protection and to sequester carbon. We are therefore concerned that only very particular kelp biotopes on sediment or low or variable salinity habitat have been listed. Kelp communities on rock are also of nature conservation importance, particularly in the context of harvesting proposals and potential risks from new types of marine development, therefore the following kelp habitats also merit area-based protection: Kelp with cushion fauna and/or foliose red seaweeds, sediment-affected or disturbed kelp and seaweed communities and Kelp and red seaweeds. As we set out in response to the consultation on the MPA Guidelines, *“if [Natura] species or habitats were excluded, we would point out that there would need to be far more Natura sites (and/or a revised definition of “internationally important” to cover both range/ numbers) to ensure a genuinely “coherent network” of marine protected areas.”* Whilst some kelp habitats may be protected in some reef SACs, nationally important locations for kelp habitats on rock (other than in ‘tide-swept algal communities’) have been overlooked in this process. Black guillemot have an ecological association with kelp habitats, in which they feed and which ought also to be protected when present in black guillemot pMPAs.

Infralittoral and Circalittoral rock is just one example of a EUNIS Level 3 habitat that may erroneously be deemed to be ‘sufficient’ for the developing network due to presence within existing marine SACs. A similar assessment could be made for Circalittoral rock communities, for which the east coast of Scotland and extensive Skye coast are lacking in sites to protect rock reef (and in the case of the Isle of Skye, most other) communities.

Notwithstanding all the above, we would like to take the opportunity to welcome the description and suggested protection of a ‘new’ biotope equating to ‘deep sea coarse sediment’ in pMPAs in OSPAR regions I, II and V.

The scientific advice from SNH and JNCC on one hand *“conclude(s) that there would be no gaps in the representation and replication of seabed habitats across the network”* (based purely on presence/absence) and yet on the other acknowledges that *“spatial distribution was based on a descriptive approach”* and thereafter that *“We understand these factors will form the basis of future more detailed assessments of any ecologically coherent MPA networks”*. In short, we do not think it adequate to consider representivity and replication of EUNIS Level 3 habitats simply on a presence/absence basis by OSPAR region, without considering the proportion protected and a more detailed assessment of the extent and status of the habitats. Such an assessment would need to look at EUNIS Level 3 habitat distribution (and species population distributions) from first principles, irrespective of current coverage in marine SACs, for which coverage of some features (e.g. rock reef) may still not be sufficient. This concern also incorporates aspects of size of site (viability), adequacy and connectivity raised below.

Replication

We support the scientific case for replicating features within, *at the very least*, each OSPAR region in the Scottish MPA project area, to meet the OSPAR requirements

for biogeographic representation and resilience, spreading the risk against damaging events throughout Scotland's seas. It is therefore entirely appropriate that: a greater proportion of five MPA search features distributed widely throughout Scotland's seas (horse mussel beds, maerl beds, ocean quahog aggregations, black guillemot and sandeel) is included to ensure that natural variation is covered; and that in keeping with OSPAR Principle 11 ("*replication...in each biogeographic area is desirable where it is possible*"), MPA search features with a much broader distribution within Scotland's seas (burrowed mud, offshore deep sea muds and offshore sands and gravel) are replicated within each OSPAR region that they are recorded. This is especially important for burrowed mud which is an OSPAR rare, threatened and/or declining habitat. Due to their threatened and/or declining and sensitive status, we also strongly support the recommendation to include a greater proportion of flame shell beds and northern feather star aggregations in the one OSPAR region in which they are found.

Diluting this existing level of replication would undermine the developing resilience of the network. Indeed, we would assert that the existing degree of replication is *de minimis*, and think that even greater replication is merited, particularly given that the inshore is "*generally dominated by finer scale processes than the offshore*" (OSPAR Guidelines) and that species such as Celtic featherstar and northern seafan for which inshore MPAs have been identified have relatively short pelagic larval dispersion phases (Gallego *et al*, 2013⁶⁶). We remain of the view that replication should be considered and sought at the biogeographic scale most appropriate to Scotland within a UK sea context, the JNCC regional seas, of which there are six in Scottish waters. This would also have the secondary advantage of aligning consideration of MPA network coherence and the success or otherwise of site management to the biogeographic assessment units of the State of Scotland's Seas (a requirement of the Marine (Scotland) Act 2010 and a useful reporting tool when considering progress toward Good Environmental Status).

We also support the case that some existing features are not sufficiently replicated, even if, as is recommended and we support, the four MPA search locations progress to MPA proposals at the earliest opportunity. We therefore strongly support the case to identify replicate MPA proposals for basking shark, common skate and white-beaked dolphin in future. Should science identify other areas at sea that are important for orange roughy and Risso's dolphin, we would also support their progression to pMPA status. We also recognise that the geographic range and variation of 'maerl on coarse gravel with burrowing sea cucumbers' is not reflected in the network, and therefore further sites will be needed for this feature. When considering maerl more broadly, maerl only appears in two pMPAs in Orkney and Shetland, yet these northern archipelagos are a key stronghold for this habitat-forming coralline algae.

We disagree that fan mussel aggregations can be considered sufficiently replicated. The scientific advice should clarify that only all the *known* Scottish records of fan mussel aggregations are included within the MPA proposals. Evidence presented in the Least Damaged/More Natural paper⁶⁷, Scotland's Marine Atlas⁶⁸ and regarding the particular set of circumstances that appear to have protected the Sound of Canna population (topography and a known disposal site), suggest this may be a relic population. Historic records suggest the fan mussel was formerly much more widespread in shallow waters but declined following the advent of benthic trawl fisheries⁶⁹, therefore the possibility should be

⁶⁶ Connectivity of benthic marine species within the Scottish MPA network. A Gallego, F M Gibb, D Tulett and P J Wright. Scottish Marine and Freshwater Science 4(2), 2013

⁶⁷ <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/engagement/workshop2/draftreport>

⁶⁸ <http://www.scotland.gov.uk/Publications/2011/03/16182005/0>

⁶⁹ Solandt J-L, 2003 The Fanshell: a species of Conservation Concern, British Wildlife 14(6): 423-426

kept open for discovery of further remnant population/s worthy of protection and possible enhancement in Scottish (and indeed wider UK) waters. We note that MCS Seasearch divers have recorded individual wild fan mussels in Loch Duich and Scapa Flow, which could form the basis of future MPA searches.

Any dilution of the level of replication in the current proposals will totally undermine the developing coherence of the network. Even more feature representivity and replication is in fact needed.

Size of site

Determination of the size of the proposed MPAs has primarily been driven by the known extent of the biological and geological features being protected. Network design elsewhere has sought to incorporate best available knowledge regarding larval dispersal distances to arrive at guidance for minimum size of MPAs and minimum distance apart. Whilst we recognise that the science of site connectivity and larval dispersal is in its infancy, we would welcome these considerations to be incorporated into the network design as new science becomes available. However, given that many inshore sites are entire sea lochs and many of the offshore sites are already very large, we recognise the case for extending MPA size may only apply in a few cases. Of greater concern are the related concepts of adequacy and connectivity.

Adequacy

The MPA network must be of adequate size to deliver its ecological objectives. Sites must be big enough and numerous enough collectively to contribute to the protection and, where appropriate, enhancement, of the health of Scotland's seas. OSPAR guidance (Reference 2006-3: Annex I) suggests that 20-90% of rare/threatened/declining features (habitat or species population) and 10-20% of representative features (habitat or species population) should be protected in the network. Whilst we recognise that percentage targets were not incorporated in the design process, to ensure well-evidenced pMPAs were identified based on sound science in accordance with cross-stakeholder consensus, consideration of proportion and extent of the various features protected is necessary as part of an iterative assessment of progress toward coherence. We would like to see an assessment of developing coherence that determines whether the sites are big enough and whether they collectively protect a suitable known proportion of each search feature, whether habitat or species population, in order to ensure they contribute toward the enhancement of Scotland's seas.

Connectivity

As well as being big enough and numerous enough, sites need to be close enough together to be mutually supporting, particularly for those features which have longer larval dispersal distances. It is difficult to assess the connectivity of the possible MPA network as research is still in its early stages. Perhaps the most comprehensive attempt so far comes from Gallego *et al.* (2013)⁷⁰

Gallego *et al.* (2013) attempt to assess the connectivity of benthic priority marine species within the Scottish MPA network. Using a model of the physical oceanography together with information and assumptions about the larval stages of benthic species, their work suggests connections exist particularly between offshore MPAs and for species with longer mobile larval stages. Currents flow

⁷⁰ Connectivity of benthic marine species within the Scottish MPA network. A Gallego, F M Gibb, D Tulett and P J Wright. Scottish Marine and Freshwater Science 4(2), 2013

generally clockwise around Scotland, into the northern North Sea, and across to Norway, with larvae unable to move any significant distance against this flow. This highlights the need for wider cooperation with countries whose sea areas lie both upstream and downstream of Scotland's.

Inshore flows are generally weaker than offshore, suggesting that inshore MPAs need to be closely spaced if they are to be considered a network. Connectivity is much more difficult to achieve for species with short pelagic larval durations (e.g. Celtic feather star, northern sea fan, pink soft coral) and inshore populations may be effectively isolated. This further underlines the importance of considering whether more sites for these features are needed in Scotland's inshore waters.

There is more work required here. The model they used did not stretch right in to the shore (leading to some strange results like an apparent overland route for northern sea fan from Loch Sween to South Arran), and assumptions about larval behaviour led to results such as no larvae remaining in the MPA where they spawned for the offshore MPAs. The iterative assessment of developing network coherence must therefore also consider emerging findings from the study of larval dispersal.

Management

MPAs should be managed to ensure both the protection of the features for which they were selected and to support the functioning of an ecologically coherent network. We would recommend using an ecosystem goods and services approach to managing MPAs as recommended in Potts *et al* (2013)⁷¹, recognising the contribution that protected marine species and habitats can make to wider ecosystem health, function and goods and services provision. Perhaps one of the best understood provisions of ecosystem goods is food. A meta-analysis by Lester *et al* (2009)⁷² determined that fully protecting temperate marine areas led to more than a five-fold increase in biomass and more than a doubling in diversity, and that these temperate results were more marked than in tropical systems. An earlier meta-analysis by Lester and Halpern (2008)⁷³ concluded that *"while partially protected areas may confer some benefits over open access areas, no-take reserves generally show greater benefits and yield significantly higher densities of organisms within their boundaries relative to partially protected sites nearby."* Important recent findings from Lamlash Bay, Isle of Arran suggest corroboration of these findings in a Scotland context. Howarth (2012)⁷⁴ concluded *"that ecological communities within Lamlash Bay are more diverse and more abundant within the NTZ than outside, and that scallop populations within the NTZ are made up of older, larger and a greater number of individuals."*

Further evidence of the scope for marine ecosystem enhancement can be found from the Windsock Area Closure study (<http://www.scotland.gov.uk/Uploads/Documents/SISP0209.pdf>). Although the report acknowledged more time would be needed to fully assess scope for recovery of demersal fish species, it nonetheless concluded that *"Some commercial species, such as large cod and haddock, showed positive trends..."* and, most significantly for wider ecosystem protection and enhancement, that *"The*

⁷¹ Potts, T.; Burdon, D.; Jackson, E.; Atkins, J.; Saunders, J.; Hastings, E. and Langmead, O. (2013). Do marine protected areas deliver flows of ecosystem services to support human welfare? Marine Policy (in press)

⁷² Lester, Sarah E., Benjamin S. Halpern, Kirsten Grorud-Colvert, Jane Lubchenco, Benjamin I. Ruttenberg, Steven D. Gaines, Satie Aïramé, and Robert R. Warner. "Biological effects within no-take marine reserves: a global synthesis." *Marine Ecology Progress Series* 384 (2009): 33-46.

⁷³ Lester, Sarah E., and Benjamin S. Halpern. "Biological responses in marine no-take reserves versus partially protected areas." *Marine Ecology Progress Series* 367 (2008): 49-56

⁷⁴ Howarth, L.M, 2012 Exploring the fishery and ecological effects of Lamlash Bay No-Take Zone)

most evident effect of the closure was found for a non-commercial species, lesser spotted dogfish, which increased markedly in the Windsock area following the closure. Other elasmobranchs, although much less abundant in the study area, responded to the closure similarly to lesser spotted dogfish.” These results of closure to towed/active gear are particularly noteworthy given the context of population decline and ‘many concerns’ for shark, skate and ray populations in all Scottish waters catalogued in Scotland’s Marine Atlas.

Whilst we recognise and support the policy that the proposed MPAs will be managed on the principle of sustainable use, and therefore not creating *de facto* no-take zones, where higher levels of protection *are* merited, which is the case for parts of many of the MPAs particularly those for fragile benthic features, secondary benefits of increased fish and shellfish protection and production may flow, as results from Lamlash Bay, the Windsock closure and from global meta-analyses show. Opportunities should therefore be taken to research these possible fishery co-benefits of ecologically required protection and any lessons then learned applied to wider sustainable fisheries management.

In order for the entire network to be considered well-managed, existing area-based protection measures also need to be well managed. We remain particularly concerned with the poor management in the existing marine SAC suite, and look forward to the application of a risk-based approach to site management as is being progressed by the MMO, IFCA and other relevant authorities in England.

Conversely, other than those that have been put forward as MPA proposals as part of the 33 open for consultation, we do not recognise those other area-based measures, most significantly the fisheries management areas that are deemed to contribute to the developing MPA network (East Coast Scotland FRA, North West Rockall, West Rockall Mound, Darwin Mounds, Hatton Bank and two Blue Ling Management areas) as *de facto* parts of the network. Under s.79(4) of the Marine (Scotland) Act 2010 it is clear that, unless designated as nature conservation MPAs, other area-based measures, including fishery management areas, cannot legally be considered part of the network. In order for other area-based measures to be considered as contributing to the MPA network, they need to be designated as nature conservation MPAs, managed appropriately for the features listed, monitored and reported on to Parliament under the relevant provisions of the Act. For example, how would s.80 of the Act on advice from SNH apply? Would the offences under s.94 and s.95 apply? Would such sites be reported against as per s.103? Would the relevant sections of Part 7 apply to these ‘other’ sites? If these conditions cannot be met we do not believe that it is appropriate to include ‘other area-based measures’ as part of the MPA network.

Geological features – we are unclear as to how geological features will be managed in order to ensure their protection and, where appropriate, enhancement. The geology of the seabed provides the very matrix for species colonisation and benthic community formation. Management of geological features could therefore help underpin that for the biological communities they support.

Should pMPAs progress to designation as we would wish, more detailed discussions will need to take place regarding site management. All comments on management options submitted are in relation to current understanding. As new science emerges, MCS views on management options appropriate for the different pMPAs may therefore evolve.

Marine mammals and ecological coherence

MCS support the case made in submissions by LINK and WDC for improved

representation of marine mammals in the emerging MPA network.

36. Do you have any other comments on the case for designation, management options, environmental or socio-economic assessments of the possible MPAs, or the network as a whole?

Yes No

Research and Demonstration MPAs

We seek clarity on the progress of the designation of Demonstration & Research MPAs. These form an important component of marine conservation enabling, for example, the development of new approaches to marine management, addressing issues through original research or considering the applicability of a management approach in a new area.

Benefits of protection and assigning buffer areas

MCS strongly advocates that protected features within our future MPAs be afforded protection compatible with meeting their conservation objective, and that protected zones be adequate in size and shape so that species and habitats have the opportunity to recover and enhance beyond their present range.

There is considerable published evidence that demonstrates the potential of MPAs to conserve and recover species, fisheries, habitats, ecosystems, and ecological functions and services and buffer against the ecological effects of climate change (Fox et al. 2012)⁷⁵.

MPAs can restore fisheries and ecosystems both within and beyond MPA boundaries. A meta-analysis by Lester *et al* (2009)⁷⁶ determined that fully protecting temperate marine areas led to more than a five-fold increase in biomass and more than a doubling in diversity, and that these temperate results were more marked than in tropical systems. Recent findings from Lamlash Bay, Arran (2012)⁷⁷ suggest similar effects are attainable in Scottish waters. Even more recently, Sheehan *et al.* (2013)⁷⁸ found that reef associated fish species within an MPA, protected from towed demersal fish gear, at Lyme Bay (SW England) were able to colonise outside the MPA boundary and expand their range into adjoining habitat after 3 years from the commencement of prohibition. The potential for enhancing wider marine ecosystem health and function is therefore great.

MPAs may be particularly useful as a conservation intervention in data poor contexts (the norm rather than the exception) in which the MPA can provide insurance against over harvest and provide valuable ecological data on which to base future management decisions (Edgar *et al.* 2009)⁷⁹. For example, Friedlander

⁷⁵ Fox, H.E.; Mascia, M.B.; Basurto, X.; Costa, A.; Glew, L. et al. (2012). Re-examining the science of marine protected areas: MCSing knowledge to action. *Conservation Letters* 5: 1–10.

⁷⁶ Lester, Sarah E., Benjamin S. Halpern, Kirsten Grorud-Colvert, Jane Lubchenco, Benjamin I. Ruttenberg, Steven D. Gaines, Satie Aïramé, and Robert R. Warner. "Biological effects within no-take marine reserves: a global synthesis." *Marine Ecology Progress Series* 384 (2009): 33-46.

⁷⁷ Howarth, L.M., 2012 Exploring the fishery and ecological effects of Lamlash Bay No-Take Zone

⁷⁸ Sheehan EV, Cousens SL, Nancollas SJ, Stauss C, Royle J and Attrill MJ (2013). Drawing lines at the sand: Evidence for functional vs. visual reef boundaries in temperate Marine Protected Areas. *Marine Pollution Bulletin* (doi: 10.1016/j.marpolbul.2013.09.004.).

⁷⁹ Edgar, G.J.; Barrett N.S. and Stuart-Smith, R.D. (2009). Exploited reefs protected from fishing transform over decades into conservation features otherwise absent from seascapes. *Ecol Appl* 19:1967–1974.

et al. (2007)⁸⁰ found up to 2.6 fold increase in fish abundance across 11 marine protected areas off Hawaii within a few years of declaration.

However, the widespread concerns and declines for species and seabed habitats documented in Scotland's Marine Atlas, the fact that of the 37 pMPAs and search locations, 20 are enhancement opportunities to existing measures and 12 are derived from least damaged/more natural locations (where activity would be expected to be limited anyway) and the fact that only three features of limited extent have 'recover' as an objective, suggests there is an urgent need to realise this excellent potential.

Support and enforcement

MCS preference is for MPA site management measures for fisheries, aquaculture and other industry sectors to be statutory. For the emerging MPA network to be successfully managed, attaining the conservation objectives for individual sites and ensuring that their management contributes to protection and enhancement of those sites and the wider sea, will be dependent on a combination of, ideally, local community support and, for when breaches of any relevant statutory management measures occur, effective enforcement. Effective community engagement is crucial to gain support from both communities of place and of interest, but, where breaches do occur, MCS is concerned that the means to enforce is not adequately resourced. The Scottish Government should be planning to put resources in place to effectively manage the network, and the management measures should be drafted with enforcement in mind so that it is effective but not overly costly or time-consuming. Our ideal scenario would be communities of place and of commercial, recreational and environmental interest supporting MPA management objectives, thus fostering a culture of compliance through an understanding of the socio-economic benefits that would flow from well-managed sites and a well-managed MPA network.

⁸⁰ Friedlander, A.M.; Brown, E.K. and Monaco, M.E. (2007). Coupling ecology and GIS to evaluate efficacy of marine protected areas in Hawaii. *Ecol Appl.* 17: 715-730.