Scottish MPA Project
Assessment against the MPA Selection Guidelines

| LOCH SUNART TO THE SOUND OF JURA  |
| NATURE CONSERVATION MPA         |
| SEPTEMBER 2014                 |

Further information on Nature Conservation MPAs, the wider network and protected areas management is available at -

www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork

For the full range of MPA site documents and more on the fascinating range of marine life to be found in Scotland’s seas, please visit -

www.snh.gov.uk/mpas or www.jncc.defra.gov.uk/scottishmpas
### Document version control

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Author(s)</th>
<th>Reason / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version 1</td>
<td>20/02/2013</td>
<td>Siobhan Mannion and Peter Wright</td>
<td>Revised protected feature / possible MPA format, updating original MPA search location format (ver. 3).</td>
</tr>
<tr>
<td>Version 2</td>
<td>04/03/2013</td>
<td>Laura Clark</td>
<td>Review and minor edits.</td>
</tr>
<tr>
<td>Version 3</td>
<td>16/05/2013</td>
<td>Ben James</td>
<td>Review.</td>
</tr>
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<td>Version 4</td>
<td>17/05/2013</td>
<td>John Baxter</td>
<td>QA review.</td>
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<td>Version 5</td>
<td>17/05/2013</td>
<td>Ben James</td>
<td>Refinements in response to initial QA review. Finalisation for SNH Scientific Advisory Committee.</td>
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<td>Ben James</td>
<td>Incorporation of comments from SNH SAC for discussion with MSS.</td>
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<td>Version 7</td>
<td>05/06/2013</td>
<td>Peter Wright and Ben James</td>
<td>Refinements following MSS review and commentary over feature status.</td>
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<td>Version 8</td>
<td>10/06/2013</td>
<td>Ben James</td>
<td>Insertion of updated map following application of boundary setting principles.</td>
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<tr>
<td>Version 9</td>
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<td>John Baxter</td>
<td>Final proof check and sign-off on behalf of SNH. Clearance to issue.</td>
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<tr>
<td>Version 10</td>
<td>18/08/2014</td>
<td>Ben James</td>
<td>Updated into MPA format with refinements in response to 2013 consultation and IER feedback.</td>
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### Distribution list

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<tr>
<th>Format</th>
<th>Version</th>
<th>Issue date</th>
<th>Issued to</th>
</tr>
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<td>20/05/2013</td>
<td>SNH Scientific Advisory Committee members.</td>
</tr>
<tr>
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<td>5</td>
<td>20/05/2013</td>
<td>Peter Wright (Marine Scotland Science).</td>
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<tr>
<td>Electronic</td>
<td>6</td>
<td>31/05/2013</td>
<td>Peter Wright and Francis Neat (Marine Scotland Science).</td>
</tr>
<tr>
<td>Electronic</td>
<td>7</td>
<td>05/06/2013</td>
<td>Marine Scotland officials.</td>
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<tr>
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<td>24/07/2013</td>
<td>SNH web publication [B1208988 / 24(#25)].</td>
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<tr>
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<td>01/09/2014</td>
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<td>SNH web publication [A1333263 / 12(#12)].</td>
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Purpose

This document provides details of the assessment of Loch Sunart to the Sound of Jura Nature Conservation MPA against the [Scottish MPA Selection Guidelines](#). It presents the assessment for each of the protected features.

We have used the terminology set out in the Selection Guidelines to describe the five main stages in the assessment process from the identification of MPA search locations through to the development of MPA proposals. This area has now become a Nature Conservation MPA following designation by Scottish Ministers.

*The main terms used are described below.*

**MPA search location** - this describes a location identified at stage 1 until it passes the assessment at stage 4.

**Potential area for an MPA** - if an MPA search location passes the assessment at stage 4 it goes on to become a potential area for an MPA for consideration at stage 5.

**MPA proposal** - a potential area for an MPA that has passed the assessment at stage 5 and which has been formally recommended for designation by SNH and/or JNCC to Scottish Ministers.

**Possible MPA** - an MPA proposal approved by Scottish Ministers for public consultation. From this time the location is given policy protection as if it were designated.

**MPA search features** - specified marine habitats, species and large-scale features that underpin the selection of Nature Conservation MPAs.

**Geodiversity features** - specified geodiversity interests of the Scottish sea bed categorised under themed ‘blocks’ that are analogous to the MPA search features for biodiversity.

**Representative features** - habitats and/or species which are not MPA search features or geodiversity features. They have been assessed to determine whether they would add to the broader representativity of the MPA network.

**Protected feature** - any feature (habitats, species, large-scale features [MPA search features and/or representative features] and/or geodiversity features) specified within the site Designation Order.

History of development

Loch Sunart to the Sound of Jura Nature Conservation MPA was identified for one MPA search feature (common skate) and one geodiversity feature (Quaternary of Scotland).

Loch Sunart to the Sound of Jura Nature Conservation MPA encompasses some of the areas and one of the features identified within four discrete third-party MPA proposals from the Scottish Sea Angling Conservation Network (SSACN).

Details of supporting evidence are provided in the Loch Sunart to the Sound of Jura data confidence assessment.
LOCH SUNART TO THE SOUND OF JURA NATURE CONSERVATION MPA - APPLICATION OF THE MPA SELECTION GUIDELINES

Stage 1 - Identifying search locations that would address any significant gaps in the conservation of MPA search features

Summary of assessment

Loch Sunart to the Sound of Jura MPA is home to relatively high numbers of the critically-endangered common skate\(^2\) (IUCN red list of threatened species - Dulvy et al., 2006). The protected features also include geodiversity interests from the Quaternary of Scotland. It is within a number of the deep glaciated channels associated with this geodiversity feature that large, reproductively mature common skate are resident (Marine Scotland Science, 2012; Neat et al., 2014). Subtidal reef habitats are a designated feature of two existing marine Special Areas of Conservation (Sunart and the Firth of Lorn) with which the MPA overlaps.

<table>
<thead>
<tr>
<th>Protected features</th>
<th>Guideline 1a</th>
<th>Guideline 1b</th>
<th>Guideline 1c</th>
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<tr>
<td>Biodiversity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common skate(^2)</td>
<td>✓</td>
<td>✓ OSPAR T&amp;D(^3)</td>
<td></td>
</tr>
<tr>
<td>Geodiversity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quaternary of Scotland (glaciated channels / troughs)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
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</table>

Guideline 1a: Presence of key features (MPA search features and geodiversity equivalents)

Guideline 1b: Presence of features under threat and/or subject to rapid decline

Guideline 1c: Functional significance for the overall health and diversity of Scottish seas

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1. All protected features of the MPA (rather than just the MPA search features) are listed in the stage 1 detailed assessment table and subsequently assessed against the MPA Selection Guidelines (wherever practicable).

2. Recent studies have shown that the original common skate MPA search feature is in fact two distinct species - the flapper skate and the blue skate. It is the flapper skate \textit{Dipturus intermedia} that is predominantly recorded in Scottish waters and is the feature of interest within Loch Sunart to the Sound of Jura MPA.

3. OSPAR list of Threatened and/or Declining species and habitats (see OSPAR, 2008 a & b).
Map of Loch Sunart to the Sound of Jura MPA showing the known distribution of protected features
### Stage 2 - Prioritisation of search locations according to the qualities of the MPA search features they contain

| Summary of assessment | Loch Sunart to the Sound of Jura MPA is a key area for common skate (*D. intermedia*), with aggregations of reproductively mature individuals and high site-fidelity (residency) within the deep glaciated channels associated with the Quaternary of Scotland geodiversity feature (Marine Scotland Science, 2012; Neat et al., 2014). There is a medium cumulative risk of significant future damage occurring to the protected features as a result of human activities. | Four of the five Stage 2 guidelines have been met (2a, 2c - 2e). Guideline 2b is not applicable. |

#### Detailed assessment

**Guideline 2a** The search location contains combinations of features, rather than single isolated features, especially if those features are functionally linked

Loch Sunart to the Sound of Jura MPA has been designated for two functionally linked protected features (reproductively mature common skate are resident within the deep glaciated channels associated with the Quaternary of Scotland geodiversity feature). **Guideline met.**

The approach and rationale behind the selection of MPAs for common skate were outlined within a position paper presented to the 4th MPA stakeholder workshop in March 2012 (Marine Scotland Science, 2012).

**Guideline 2b** The search location contains example(s) of features with a high natural biological diversity

This guideline applies to seabed habitats only

**Guideline 2c** The search location contains coherent examples of features, rather than smaller, potentially more fragmented ones

*Common skate* *D. intermedia* is a large (to 285 cm long and over 100 kg), long-lived (in excess of 50 years), and late-maturing species (>11 years at first maturity) with low fecundity, inhabiting waters of 10 - 600 m depth. No information is available on the size of area required to support a viable population of common skate but the species has been shown to exhibit high site fidelity (Wearmouth and Sims, 2009). The MPA contains a significant coastal population of mature common skate and it is believed that they may breed here. Areas such as these that represent critical habitat (e.g. those identified through the Scottish Shark Tagging Programme - SSTP⁴ - see Neat et al., 2014) are considered to offer the best opportunities for spatial protection measures to contribute to the conservation of this species. **Guideline met.**

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

*Common skate* As their name suggests, common skate were once widespread and abundant throughout Scottish waters. They are sensitive to trawling and long-line fisheries and have shown a marked decline and significant range contraction over the past century, largely as a consequence of removal by fisheries (Walker and Hislop, 1998). Since the 1970s they have become very rare in the North Sea.

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⁴ For more information on the Scottish Shark Tagging Programme (SSTP) see - [http://www.tagsharks.com/about](http://www.tagsharks.com/about)
### Guideline 2d

**The search location contains features considered least damaged / more natural, rather than those heavily modified by human activity**

| Common skate | D. intermedia are still widespread on the west coast of Scotland, albeit at a relatively low density. The population within the MPA is likely to have been modified by human activity but late juveniles and large mature individuals are being caught (and returned) regularly by anglers. The tag-recapture data suggest that up to 400 individuals are resident within the Sound of Jura (Neat et al. 2014), but it is not clear how many individuals inhabit the full extent of the MPA. Egg cases have been found within the MPA and it is believed that small juveniles are also present within the population (Marine Scotland Science, 2012). |
| Geodiversity features | Glaciated channels / troughs (mapped component of the Quaternary of Scotland geodiversity feature) are distributed across the MPA. These are entirely natural in origin and are not considered to have been modified by human activity. Additional components such as moraines have yet to be fully delineated. |

| 2d - Result | Guideline met. |

### Guideline 2e

**The search location contains features considered to be at risk of significant damage by human activity**

| Common skate | Loch Sunart to the Sound of Jura MPA lies within the West MPA region. On the basis of a risk assessment undertaken at the level of the MPA region, there is considered to be a medium risk of significant damage to this feature arising from human activity (a cumulative assessment considering the range of activities known to be taking place in the MPA region). Within the region, the risk of damage from otter trawling or scallop dredging is considered medium, and creel fishing, line fishing and aquaculture present low risks. There is a mandatory release order in place which is likely to reduce mortality arising from otter trawling, although egg cases may still be exposed and sensitive to dredging activity. |
| Geodiversity features | Regional risk assessments have not been completed for geodiversity features. However, information is available on the likely sensitivity of these features to pressures arising from human activity (Brooks, 2013). Glaciated channels / troughs are highly resistant to human activities (having been formed originally by glacial scouring) and are either considered not sensitive or to have a low sensitivity to pressures arising from human activities. Moraines are considered highly sensitive to removal of substrates and have a medium sensitivity to changes in tidal water flow, wave exposure and sub-surface abrasion. In the vast majority of instances, however, most pressures associated with marine anthropogenic activities will not be sufficient to impact geological and geomorphological seabed features (Brooks, 2013). |

| 2e - Result | Guideline met. |

This is not an assessment of activities that require management within the MPA. That assessment is provided in the management options paper.

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5 The degree to which an MPA search feature is exposed to activities / pressures to which it is sensitive in each MPA region was assessed to provide a qualitative measure of risk. Risk assessments for the various activities were examined to produce an overall qualitative risk assessment by MPA region (Chaniotis et al., 2014). The conclusions may therefore not reflect the level of risk at the scale of the MPA. Site-specific activities and pressures are considered in further detail within the management options paper produced for this MPA.

6 The seas around Scotland were split into five MPA regions (East, North, West, South-west and Far West) at the outset of the MPA Project to aid the identification of MPA search locations and the preliminary appraisal of these against the MPA Selection Guidelines (e.g. the completion of regional risk assessments). This approach provided a useful framework for the initial stages of assessment. Within SNH and JNCC’s formal MPA network advice (SNH and JNCC, 2012) the MPA proposals and remaining MPA search locations were then cast within the context of broader OSPAR regions.
Stage 3 - Assessing the appropriate scale of the search location in relation to search features it contains

**Assessment**

The size of the search location should be adapted where necessary to ensure it is suitable for maintaining the integrity of the features for which the MPA is being considered. Account should also be taken where relevant of the need for effective management of relevant activities.

Around the UK, *Dipturus intermedia* are found almost exclusively in Scottish waters (Griffiths et al., 2010). They were once widespread across the northern North Sea. The size and shape of the MPA reflects the known extent of movements of skate tagged in the area. A tag-recapture programme first established by Glasgow Museum in the 1970s (Sutcliffe, 1994; Little, 1995, 1997, 1998) and more recent electronic tagging programmes (Wearmouth and Sims, 2009; Neat et al., 2014) provide considerable evidence for high site fidelity of mature common skate in the sea lochs, inner firths and sounds. In the Loch Sunart / Sound of Mull area, out of over 500 skate tagged and released, 38% have been recaptured. Of the recaptures 90% were from the release area, with the remaining 10% recaptured from the neighbouring Firth of Lorn. More recently within the Sound of Jura, out of 280 individuals tagged and released, 74 (approximately 25%) have been recaptured (33 were recaptured on multiple occasions) in this area (Neat et al., 2014). Across the MPA a number of individuals have been recaptured multiple times over many years providing strong evidence for limited home ranges in some mature individuals (Neat et al., 2014). The boundary provides good representation of the Quaternary of Scotland geodiversity feature. **Guideline met.**

Stage 4 - Assessing the potential effectiveness of managing features within a search location as part of a Nature Conservation MPA

**Summary of assessment**

The MPA passed the assessment against the Stage 4 guideline. This resulted in the MPA search location progressing as a potential area for an MPA to Stage 5.

**Detailed assessment**

There is a high probability that management measures, and the ability to implement them, will deliver the objectives of the MPA.

The conservation objective for the Quaternary of Scotland geodiversity feature within this MPA is to ‘conserve’. The feature is considered to be in good condition. The conservation objective for common skate is to ‘conserve (feature condition uncertain)’. The estimated level of mortality within the skate population is currently considered to be above sustainable levels but this is subject to some uncertainty (Neat et al., 2014).

A number of activities are considered capable of affecting the protected features (see 2e above) and there is therefore a need to consider whether additional management is required.

Statutory mechanisms exist (e.g. Fisheries Orders or Marine Conservation Orders) to support the introduction of spatial / temporal measures to conserve the features within the MPA. For example, Fisheries Orders have already been used to underpin management of marine Special Areas of Conservation. There is therefore potential for management measures to be implemented successfully and the conservation objectives of the MPA to be achieved. Further discussion is required with those involved in using the MPA to provide clarification on interactions between the protected features and known / potential activities / developments.

Additional details are provided in the management options paper produced for this MPA.

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7 Setting the size and shape of a Nature Conservation MPA considers the distribution of both MPA search features and relevant geodiversity features. The latter, which are analogous to the biodiversity search features, were defined after the publication of the MPA Selection Guidelines (refer to Brooks et al., 2013).
Stage 5 - Assessment of the contribution of the potential area to the MPA network

**Summary of assessment**
The MPA passed the assessment against the Stage 5 guideline. The MPA has now been designated and will make a significant contribution to the MPA network.

**Detailed assessment**
The potential area contributes significantly to the coherence of the MPA network in the seas around Scotland

### Assessment of biodiversity features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Representation</th>
<th>Replication</th>
<th>Linkages</th>
<th>Geographic range &amp; variation</th>
<th>Resilience</th>
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<tbody>
<tr>
<td>Common skate</td>
<td>Strong evidence for presence of resident, mature individuals (Neat et al., 2014). Egg cases have been found within the MPA and it is believed that small juveniles are also present within the population.</td>
<td>Only one MPA for common skate has been identified (in OSPAR Region III), based on local fidelity. Replication cannot be achieved within the Scottish MPA network or between regions without further information on fidelity in other regions (see SNH and JNCC, 2012; SNH, 2014).</td>
<td>Not applicable - only one MPA has been identified. It is therefore not currently possible to assess linkages.</td>
<td>Common skate have been recorded in trawl data across Scottish shelf seas and the continental slope (although see comments under resilience). Around the UK, common skate is now almost exclusively found within waters to the west of Scotland. The MPA does not reflect the full known geographic range in Scottish waters.</td>
<td>Common skate is included on the OSPAR T&amp;D list. Common skate is known to have declined within Scotland’s seas. The geographic range has contracted significantly and the species is now only rarely recorded in the North Sea. A greater proportion of common skate should be included within the network.</td>
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### Assessment of geodiversity features

**Geodiversity features**

Loch Sunart to the Sound of Jura MPA (in conjunction with Loch Creran MPA) encompasses part of the Loch Linnhe and Loch Etive key geodiversity area (Brooks et al., 2013) providing representation of the Quaternary of Scotland geodiversity feature. This area is scientifically important because it contains sedimentary sequences and bedform features which reveal key information about the depositional history of Scotland’s fjords during the last deglacial period. This is also a critical region for furthering scientific understanding of the Younger Dryas ice (re)advance episode. The fjordic morphology leads to the trapping of sediment originating from the land and from the sea surface which in turn can provide critical information on the past glacial dynamics along fjord basins - this is crucial to understanding the processes associated with the larger ice masses that fed these outlets (McIntyre and Howe, 2010). The deep glaciated channels associated with this geodiversity feature shelter reproductively mature common skate in relatively high numbers (Marine Scotland Science, 2012; Neat et al., 2014). Further information on the coverage of geodiversity features within the MPA network is provided in Gordon et al. (2013).

Source: Brooks et al., 2013 (and references therein).

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For geodiversity the stage 5 assessment primarily considers the potential contribution to the principal ‘networks’ of marine geodiversity interests present in Scottish waters (representation).
Bibliography


