



Scottish Natural Heritage
Dualchas Nàdair na h-Alba

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JNCC

Joint Nature Conservation Committee

Final advice and recommendations on a network of proposed marine Special Protection Areas:

Bluemull and Colgrave Sounds proposed SPA (UK9020312)

East Mainland Coast, Shetland proposed SPA (UK9020311)

Coll and Tiree proposed SPA (UK9020310)

Moray Firth proposed SPA (UK9020313)

Orkney Inshore Waters (UK9020333)

Rum SPA (additional marine feature) (UK9001341)

Seas off Foula proposed SPA (UK9020331)

Seas off St Kilda proposed SPA (UK9020332)

**Outer Firth of Forth and St Andrews Bay Complex proposed SPA
(UK9020316)**

**Solway Firth proposed SPA (a composite of the existing Upper
Solway Flats and Marshes SPA and a proposed marine extension)
(UK9005012)**

Sound of Gigha proposed SPA (UK9020318)

West Coast of the Outer Hebrides (UK9020319)

**Ythan Estuary, Sands of Forvie and Meikle Loch SPA (proposed
marine extension) (UK9002221)**

6th December 2018

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Executive summary

This paper presents Scottish Natural Heritage's (SNH) and the Joint Nature Conservation Committee's (JNCC) final advice and recommendations to Scottish Ministers on the proposals to classify a network of marine Special Protection Areas (SPAs)¹. It summarises the findings of the Consultation Report (SNH and JNCC, December 2018) prepared in response to the public consultations (including subsequent dialogue), and the [Network Assessment](#) (SNH, September 2018) prepared by SNH on behalf of Marine Scotland. SNH's advice also references a separate consultation report prepared by Natural England on behalf of UK Ministers with respect to the cross-border Solway Firth proposed SPA.

SNH and JNCC are satisfied that all substantive scientific comments and objections arising from the public consultations with respect to the 14 pSPAs solely within Scottish territorial and offshore waters have been addressed. SNH is also satisfied that all substantive scientific comments arising from the public consultations with respect to the Solway Firth pSPA have been addressed. Accordingly, the outcomes from the Consultation Report and Network Assessment have been consolidated to form our final advice and recommendations.

SNH² and JNCC³ recommend that Scottish Ministers consider the classification of nine of the pSPAs in Scottish waters without modifications to our previous advice:

- Bluemull and Colgrave Sounds
- Coll and Tiree
- Moray Firth
- Outer Firth of Forth and St Andrews Bay Complex
- Rum SPA (proposed addition of a marine feature to an existing site)
- Seas off Foula
- Seas off St Kilda
- West Coast of the Outer Hebrides
- Ythan Estuary, Sands of Forvie and Meikle Loch SPA (proposed marine extension)

Furthermore, SNH recommend that Scottish Ministers consider the classification of three of the pSPAs with modifications to our previous advice:

- East Mainland Coast, Shetland (with the removal of common eider, long-tailed duck and red-breasted merganser as qualifying features in the non-breeding season).
- Orkney Inshore Waters (new proposal combining the previous North Orkney pSPA and Scapa Flow pSPA with the removal of common goldeneye as a qualifying feature in the non-breeding season).
- Sound of Gigha (with the addition of Slavonian grebe as a qualifying feature in the non-breeding season).

SNH further recommend that Scottish Ministers consider the classification of Solway Firth (a composite of the existing Upper Solway Flats and Marshes SPA and a proposed marine extension) without modifications to our previous advice and with reference also to the Consultation Report prepared for UK Ministers by Natural England. The conclusions of the

¹ At this phase of the selection process, SPA proposals are referred to as potential SPAs in England and proposed SPAs in Scotland. For the purpose of this paper we have referred to all proposals as 'proposed' SPAs when written in full, as most proposals lie entirely within Scottish territorial waters.

² All of the listed pSPAs.

³ Outer Firth of Forth and St Andrews Bay Complex pSPA, Pentland Firth pSPA, Seas off Foula pSPA and Seas off St Kilda pSPA.

SNH and JNCC Consultation Report and the Natural England consultation report are in alignment with respect to the Solway Firth pSPA.

Scottish Ministers are also advised that the Pentland Firth pSPA has been withdrawn based on substantive objections with respect to the site selection process and boundary setting.

The proposals that we are recommending for classification cover over 15,650 km² of Scotland's seas (including the Solway Firth, which also includes English territorial waters) and overall will provide protection for 31 species of marine birds. The proposals include important areas for non-breeding divers, grebes and sea ducks, aggregations of foraging seabirds, and foraging areas for breeding red-throated diver and four tern species: Arctic tern, common tern, little tern and Sandwich tern.

1 Introduction

Special Protection Areas (SPAs) are classified under the Birds Directive (EC Directive on the conservation of wild birds (2009/147)) to protect rare, vulnerable and regularly occurring migratory wild birds. A key component of the Directive is for member states to establish a national network of SPAs on land and at sea as one of several conservation measures that contribute to the protection of bird species.

The Birds Directive states (Article 4.1) that “...*Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species [listed in Annex 1 of the Directive], taking into account their protection requirements in the geographical sea and land area where this Directive applies*”.

And (Article 4.2) further requires that “*Member States shall take similar measures for regularly occurring migratory species not listed in Annex I, bearing in mind their need for protection in the geographical sea and land area where this Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes.*”

This paper presents SNH’s and JNCC’s final advice and recommendations to Scottish Ministers on the proposals to classify a network of marine proposed Special Protection Areas (SPAs)¹ in fulfilment of our obligations under the Birds Directive. This paper also presents SNH’s final advice and recommendations to Scottish Ministers on the proposals to classify a marine SPA in the Solway Firth.

2 Roles and responsibilities

SNH⁴, JNCC⁵ and Natural England⁶ provide scientific advice on the selection of SPAs and the development of an ecologically coherent network. SNH advises on SPA proposals in Scottish territorial waters (within 12 nm), Natural England is responsible for recommending potential SPAs in English territorial waters (within 12 nm) and JNCC advises on proposals in offshore waters (beyond 12 nm).

Where pSPAs encompass territorial and offshore waters or Scottish and English territorial waters, the relevant SNCBs have been working closely together to progress the pSPAs and address the consultation submissions.

With respect to pSPAs within Scottish territorial waters, the responses presented in the Consultation Report represent SNH’s view, taking into consideration data analyses carried out by JNCC. With respect to sites in Scottish offshore waters, responses represent SNH’s and JNCC’s collective view. For Solway Firth pSPA, the responses represent SNH’s view, noting that the conclusions of the SNH and JNCC Consultation Report and the Natural England consultation report with respect to this site are in alignment.

3 The final advice package

Our final advice and recommendations to Scottish Ministers incorporates the conclusions of the following areas of work:

⁴ For those pSPAs either partly or entirely within Scottish territorial waters.

⁵ For Outer Firth of Forth and St Andrews Bay Complex pSPA, Pentland Firth pSPA, Seas off Foula pSPA and Seas off St Kilda pSPA.

⁶ For Solway Firth only (a composite of the existing Upper Solway Flats and Marshes SPA and a proposed marine extension)

- our review of responses to the two public consultations and detailed in the Consultation Report (SNH and JNCC, 2018);
- the [Network Assessment](#) (SNH, 2018a) prepared by SNH on behalf of Scottish Ministers; and
- further considerations on rationalising the two Orkney water pSPAs into one site (Orkney Inshore Waters pSPA).

The final advice package therefore comprises this paper, the Consultation Report and the Network Assessment.

4 Consultation Report

4.1 Background to proposals and consultations

In 2016, Scottish Ministers approved consultations on proposals to classify 15 marine SPAs. The aim of the proposals is to meet the objectives of the Birds Directive (2009/147/EC) by helping to protect marine birds and their supporting habitats.

The 2016 consultation on 10 pSPAs (July-October 2016) was undertaken by Scottish Natural Heritage (SNH) on behalf of Scottish Ministers. This was followed by a second consultation (October 2016 to January 2017) on the remaining five pSPAs undertaken by SNH, the Joint Nature Conservation Committee (JNCC) and Natural England⁷ on behalf of Scottish and UK Ministers⁷.

The 15 proposed SPAs consulted on were (*indicates the five pSPAs consulted on during the 2016/17 consultation):

- Bluemull and Colgrave Sounds
- Coll and Tiree
- East Mainland Coast, Shetland
- Moray Firth
- North Orkney
- Outer Firth of Forth and St Andrews Bay Complex*
- Pentland Firth*
- Rum SPA (proposed addition of a marine feature to an existing site)
- Scapa Flow
- Seas off Foula*
- Seas off St Kilda*
- Sound of Gigha
- Solway Firth*
- West Coast of the Outer Hebrides
- Ythan Estuary, Sands of Forvie and Meikle Loch SPA (proposed marine extension)

A total of 730 responses were submitted to the two consultations (208 to the 2016 consultation and 522 to the 2016/17 consultation), with some individuals and organisations submitting responses to both consultations. The 2016 consultation also received 691 submissions to a campaign initiated by a conservation organisation.

4.2 Main findings from the consultations

Most respondents supported taking forward the classification of the proposed network of SPAs with **605 supporting all or some of the proposals** and **85 opposing all or some of the proposals**; the remainder were either undecided, did not know or did not express a

⁷ With respect to the Solway Firth pSPA only.

view. All **691 of the campaign responses supported the 10 pSPAs** covered by the 2016 consultation.

Organisations that submitted a response to the consultations included statutory bodies representing the views of their constituents and non-government organisations (conservation and tourism and recreation), community groups and different industry groups (aquaculture, fisheries and ports and harbours) representing the views of their members. A full break down of responses to each consultation is provided in section 4 of the Consultation Report. With respect to local authorities, five local authorities supported all or some of the proposals within their area of interest and two local authorities were opposed to the proposed SPAs within their areas of interest. Detailed technical reports opposing the Moray Firth pSPA, Outer Firth of Forth and St Andrews Bay Complex pSPA and the proposed SPAs in Orkney waters were received from three statutory authorities (including one local authority). Our responses to these are provided in the relevant site sections and Annex B of the Consultation Report.

The main reasons given in support of the proposals were a) the need to protect important bird populations and marine habitats as part of a coherent network of marine protected areas and b) the scientific cases presented fully justify classification.

The main reasons given by those who did not support the proposals related to:

- concerns over potential negative socio-economic impacts;
- the scientific cases do not justify classification, particularly in relation to the age of data, survey techniques and coverage and calculations of population estimates;
- the site selection process and;
- boundary locations.

In addition, comments were received on the Advice to Support Management documents and the Business and Regulatory Impact Assessments (BRIAs). Our responses to comments on the Advice to Support Management are presented in sections 6-21 of the Consultation Report. The majority of comments received on the Advice to Support Management documents related to potential economic impacts and restrictions (see section 6.1.1 of the Consultation Report). All comments raised on potential economic impacts of the pSPAs have been forwarded to Marine Scotland to review and update the BRIAs further to any decisions on classification.

4.3 Review of consultation responses

Decisions on the classification of SPAs under the Birds Directive 2009/147/EC must be based on scientific evidence^{8,9}. Our final advice and recommendations therefore concentrate on the substantive scientific comments raised by respondents to the consultation.

SNH, JNCC and Natural England⁷ have considered all substantive scientific comments and objections raised by respondents and, where appropriate, carried out further analysis. We (in agreement with Marine Scotland and Marine Scotland Science (MSS)) are satisfied that all substantive scientific comments and objections arising from the public consultations have been addressed. Our responses to these are detailed in sections 5, 7 to 21 and Annex B of the Consultation Report.

⁸ The Habitats and Birds Directives do not permit socio-economic considerations to influence the choice of Natura 2000 sites (SPAs and Special Areas of Conservation) or their boundaries.

⁹ European Court Judgements C-44/95 and C-71/99.

4.4 Conclusions from the Consultation Report

SNH and JNCC conclude there are no substantive scientific considerations which would warrant changes to our previous advice on the following proposals:

- Bluemull and Colgrave Sounds
- Coll and Tiree
- East Mainland Coast, Shetland
- Moray Firth
- North Orkney
- Outer Firth of Forth and St Andrews Bay Complex
- Rum SPA (proposed addition of a marine feature to an existing site)
- Seas off Foula
- Seas off St Kilda
- Solway Firth (a composite of the existing Upper Solway Flats and Marshes SPA and a proposed marine extension)
- West Coast of the Outer Hebrides
- Ythan Estuary, Sands of Forvie and Meikle Loch SPA (proposed marine extension)

With respect to the Solway Firth cross-border site, the conclusions within the SNH and JNCC Consultation Report to Scottish Ministers and those in Natural England's separate consultation report to UK Ministers are in alignment.

SNH conclude there is a substantive scientific consideration which would warrant changes to our previous advice on the following proposal:

- Sound of Gigha (with the addition of Slavonian grebe as a qualifying feature in the non-breeding season).

SNH and JNCC¹⁰ conclude there are substantive scientific objections which would warrant changes to our previous advice on the following proposals:

- Scapa Flow (boundary change at South Ronaldsay¹¹ based on substantive objections with respect to the site selection process and boundary setting); and
- Pentland Firth pSPA (withdrawal of the proposal based on substantive objections with respect to the site selection process and boundary setting).

Our conclusions from the Consultation Report have been considered in parallel with the findings of the Network Assessment and consolidated in Annex 1 to form our final advice and recommendations.

5 Network Assessment

5.1 Background to the Network Assessment

The Network Assessment was prepared by SNH on behalf of Scottish Ministers. The purpose of the assessment is to clearly set out why the groups of sites proposed are considered the most suitable territories and confirm the contribution the proposed SPAs and the species represented make to the Scottish Marine Protected Areas (MPA) network. Specifically, Marine Scotland requested that the Network Assessment address the following points:

¹⁰ For Pentland Firth pSPA only.

¹¹ In part due to withdrawal of the Pentland Firth pSPA and no longer any overlap of qualifying features.

- why we have a particular number of sites for individual species;
- why sites for the same species are required in the vicinity of each other; and
- why it is necessary to incorporate migratory species for which the UK has a small proportion of the biogeographic population.

The 15¹² proposed SPAs were identified as the most suitable territories in accordance with the UK SPA Selection Guidelines. The Network Assessment goes beyond the remit of the Stage 2 guidelines by introducing concepts such as European conservation status and replication. Consequently, the Network Assessment should be regarded as additional information providing clarity on the conservation justification for the number of proposed SPAs for each species. This is based on an assessment of the relative value of protected areas in Scotland's marine environment to the conservation of each species in Europe.

The Network Assessment provides a transparent, repeatable and robust approach which results in a clear conservation justification for the number of proposed SPAs being considered for each species.

5.2 Main findings from the Network Assessment

SNH, JNCC and Marine Scotland Science (MSS) are satisfied that there are strong conservation justifications for all of the sites being proposed.

The Network Assessment (SNH, 2018a) provides a clear conservation justification for the number of sites for 23 species-seasons¹³. The assessment highlights that a further 23 species-seasons are represented in the network fewer times than expected¹⁴ (with no SPA proposals for 12 species-seasons, largely because the SPA programme of marine bird surveys did not identify potential sites where the species met one of the UK SPA Selection Guidelines Stage 1 population estimate thresholds). Six species-seasons¹⁵ are represented in more sites than expected (see Annex 4 of the [Network Assessment](#)).

The Assessment also reviewed eight¹⁶ species-seasons that are qualifying features of more than one proposed SPA that are in close geographic vicinity to each other and could be viewed as having 'local geographic replication'.

All proposed SPAs that have qualifying features represented in more sites than expected and/or having local geographic replication were reviewed by an Advisory Panel (comprising representatives from SNH, JNCC and MSS). The Advisory Panel concluded the following species-seasons at the respective proposed SPAs provide the weakest cases for retention as qualifying features based on the findings of the Network Assessment:

- Common goldeneye (non-breeding) at Scapa Flow pSPA.

¹² Following withdrawal of the Pentland Firth pSPA (see section 5.1) and proposed amalgamation of the Scapa Flow and North Orkney sites (see section 6.1) only 13 sites are being recommended for progression to classification, but the Network Assessment considered all 15 original pSPAs.

¹³ The term 'species-seasons' reflects that species can be represented as a qualifying feature in the breeding and/or non-breeding seasons.

¹⁴ The assessment also provides preliminary advice on where additional conservation measures could be considered as part of a seabird conservation strategy.

¹⁵ common scoter (non-breeding), common goldeneye (non-breeding), common eider *mollissima* subspecies (non-breeding), long-tailed duck (non-breeding), red-breasted merganser (non-breeding) and common tern (breeding)

¹⁶ great northern diver (non-breeding), Slavonian grebe (non-breeding), red-throated diver (breeding), European shag (non-breeding), common guillemot (breeding), common eider *mollissima* subspecies (non-breeding), long-tailed duck (non-breeding) and red-breasted merganser (non-breeding)

- Common eider *mollissima* subspecies (non-breeding), long-tailed duck (non-breeding), red-breasted merganser (non-breeding), European shag (non-breeding) and red-throated diver (breeding) at North Orkney pSPA.
- Long-tailed duck (non-breeding) and red-breasted merganser (non-breeding) at East Mainland Coast, Shetland pSPA.

The Network Assessment highlighted that these species-seasons could therefore be considered for removal as qualifying features from their respective proposed SPAs resulting in changes to the qualifying features at three proposed SPAs.

5.3 Conclusions from the Network Assessment

The Advisory Panel conclusions have been considered by SNH's Scientific Advisory Committee (MPA sub-group) and Protected Areas Committee. The members of these committees concluded that the scientific case for inclusion of all species except common goldeneye at Scapa Flow continues to be robust.

Members also concluded that the site selection of North Orkney for breeding season red-throated diver (Annex 1 species) under Stage 1.1 of the guidelines continues to be robust and provides protection to feeding grounds used by red-throated diver from terrestrial SPAs.

Members also agreed that the site selection case for the SPA network as a whole would be stronger if the species qualifying under Stage 1.4 of the UK SPA Selection Guidelines identified as the weakest cases by the Advisory Panel were not included in the network of marine pSPAs.

Details of the site selection process are provided in [Overview of the Scottish marine Special Protection Area selection process](#) (SNH, 2018b).

As a result of the Network Assessment, SNH recommends the following changes to our previous advice:

- East Mainland Coast, Shetland pSPA (removal of long-tailed duck and red-breasted merganser as qualifying features).

This change would not lead to any changes in management advice at the proposed SPA.

SNH does not recommend that the changes identified through the Network Assessment to the qualifying interests of the North Orkney pSPA are taken forward. This is because the consideration of qualifying features in this pSPA has been superseded by the subsequent decision to amalgamate the Scapa Flow pSPA (subject to boundary amendments identified in the Consultation Report - see section 4.4) and North Orkney pSPA into a single Orkney site (see Section 6.1).

However, SNH recommends that the removal of common goldeneye from the Scapa Flow site, also identified through the Network Assessment, should also apply to the single Orkney site.

Our conclusions from the Network Assessment have been considered in parallel to the findings of the Consultation Report and consolidated in Annex 1.

6 Further considerations

6.1 Orkney Inshore Waters pSPA

The findings of the Consultation Report and Network Assessment presented an opportunity to review the composition of the network of proposed SPAs. This review focussed on the option to combine the two inshore pSPAs in Orkney waters, provided this did not compromise the scientific case or site selection process.

Re-analysis of the high density areas and population estimates for a potential combined site was carried out by JNCC. The scientific and site selection case for a combined site is accepted as there is no change to the underpinning scientific data.

Marine Scotland accept both approaches are equally scientifically valid and there is a compelling case to rationalise the two pSPAs to aid future management. Therefore, they have advised that the two Orkney water pSPAs are combined into one site (Orkney Inshore Waters pSPA).

SNH supports this decision and therefore recommends changes to our previous advice on the following proposals:

- North Orkney pSPA and Scapa Flow pSPA are progressed as a single site: Orkney Inshore Waters pSPA.

The findings of the Consultation Report and Network Assessment with respect to the removal of common goldeneye as qualifying feature of the former Scapa Flow pSPA remain valid, as does the boundary change at South Ronaldsay.

6.2 Migratory status of common eider *faeroeensis* sub-species

The status of eider in Shetland (*faeroeensis* sub-species) was considered by the SPA and Ramsar Scientific Working Group at a meeting on 10th October 2018. The decision of this working group was that for SPA identification purposes the eider that occur in Shetland should be regarded as a non-migratory distinct population of the sub-species *Somateria mollissima faeroeensis*. Consequently, this population cannot be considered as a migratory species for the purposes of identifying SPAs under Article 4.2 of the Birds Directive. The status of the nominate race *Somateria m. mollissima* is unaffected.

SNH therefore recommends a change to our previous advice on the following proposal:

- East Mainland Coast, Shetland - removal of common eider as a qualifying feature in the non-breeding season.

7 Summary of final advice and recommendations on the proposed Scottish SPA network

In light of the conclusions arising from the Consultation Report (section 4), Network Assessment (section 5), review of options for Orkney sites (section 6.1) and amendment to status of eider in Shetland (section 6.2) SNH¹⁷ and JNCC¹⁸ recommend that Scottish Ministers consider the classification of ten of the pSPAs without modifications to our previous advice. Site Selection Documents are provided separately:

¹⁷ For those pSPAs either partly or entirely within Scottish territorial waters.

¹⁸ For Outer Firth of Forth and St Andrews Bay Complex pSPA, Pentland Firth pSPA, Seas off Foula pSPA and Seas off St Kilda pSPA.

- Bluemull and Colgrave Sounds
- Coll and Tiree
- Moray Firth
- Outer Firth of Forth and St Andrews Bay Complex
- Rum SPA (proposed addition of a marine feature to an existing site)
- Seas off Foula
- Seas off St Kilda
- Solway Firth (a composite of the existing Upper Solway Flats and Marshes SPA and a proposed marine extension)
- West Coast of the Outer Hebrides
- Ythan Estuary, Sands of Forvie and Meikle Loch SPA (proposed marine extension)

With respect to the Solway Firth cross-border site, the conclusions within the SNH and JNCC Consultation Report to Scottish Ministers and Natural England's separate consultation report and advice to UK Ministers are in alignment.

Furthermore, we recommend that Scottish Ministers consider the classification of three of the pSPAs with modifications to our previous advice. Site Selection Documents are provided in Annex 2:

- East Mainland Coast, Shetland (with the removal of common eider, long-tailed duck and red-breasted merganser as qualifying features in the non-breeding season and minor change to boundary to reflect removal of common eider and align boundary with high density area for great northern diver).
- Orkney Inshore Waters (new proposal combining the previous North Orkney pSPA and Scapa Flow pSPA with the removal of common goldeneye as a qualifying feature in the non-breeding season and boundary change at South Ronaldsay).
- Sound of Gigha (with the addition of Slavonian grebe as a qualifying feature in the non-breeding season).

SNH and JNCC's recommendations on the proposed Scottish marine SPA network are shown in Figure 1 below.

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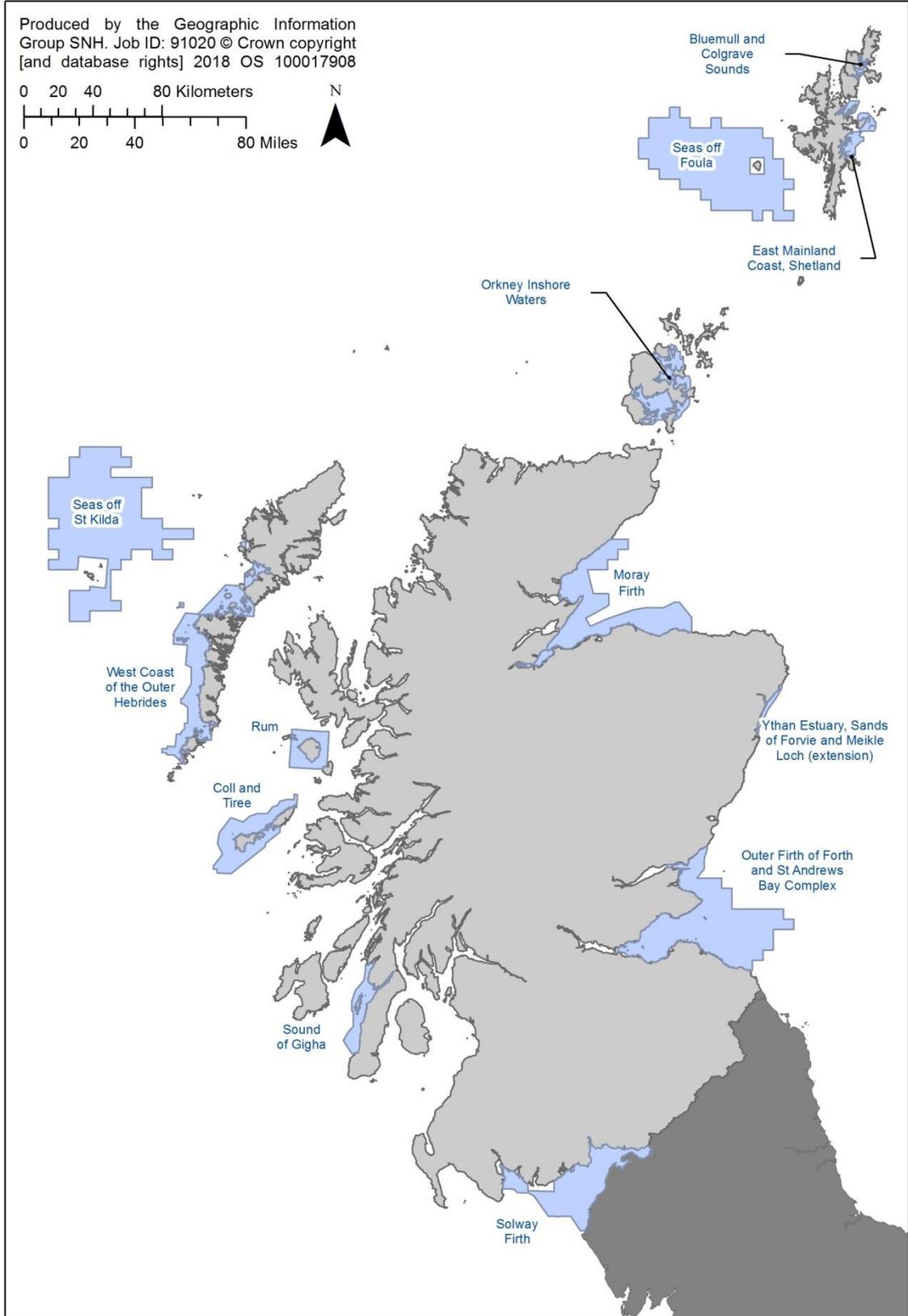
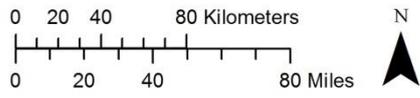


Figure 1: Proposed Scottish marine SPA network.

Annex 1: Summary of findings, conclusions and recommendations

Table 1: Consolidated findings of the Consultation Report and Network Assessment

Proposed SPA	Consultation Report: Substantive scientific responses ¹⁹	Network Assessment: Findings ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
Bluemull and Colgrave Sounds	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; and • the methods used to derive population estimates for red-throated divers. 	Strong conservation justification for proposal and inclusion of breeding red-throated diver.	<p>Consultation: SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 7.1 – 7.6 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Bluemull and Colgrave Sounds pSPA for foraging breeding red-throated diver.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirms our recommendation that the proposal to classify Bluemull and Colgrave Sounds SPA, under the Birds Directive, is referred to Scottish Ministers for approval without modification to our previous advice.</p>	<p>Minor correction to Site Selection Document.</p> <p>No other changes.</p>
East Mainland Coast, Shetland	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; 	Strong conservation justification for proposal and inclusion of non-breeding great northern	<p>Consultation: SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our</p>	Removal of non-breeding long-tailed duck, common eider

¹⁹ Includes responses to scientific evidence, site selection process and boundary setting.

²⁰ Where breeding and non-breeding terms are used in relation to a species, this refers to either the breeding or non-breeding seasons.

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
	<ul style="list-style-type: none"> the methods used to derive population estimates for red-throated divers; and extent of boundary. 	<p>diver, Slavonian grebe, common eider (<i>faeroeensis</i> sub-species) and breeding red-throated diver.</p> <p>Weak conservation justification for inclusion of non-breeding long-tailed duck and red-breasted merganser.</p>	<p>responses to these are detailed in sections 5 and 8.1 – 8.6 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting East Mainland Coast, Shetland pSPA for non-breeding great northern diver, Slavonian grebe, common eider (<i>faeroeensis</i> sub-species) and breeding red-throated diver.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal. However, we recommend that non-breeding long-tailed duck and red-breasted merganser are removed as qualifying features.</p> <p>SNH therefore recommends the proposal to classify East Mainland Coast, Shetland SPA, under the Birds Directive, is referred to Scottish Ministers with modifications (as detailed in section 7) to our previous advice.</p>	<p>and red-breasted merganser as qualifying features.</p> <p>Minor change to boundary to reflect removal of common eider and align boundary with high density area for great northern diver.</p> <p>Site Selection Document revised accordingly.</p>
Coll and Tiree	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> age of data supporting the scientific case; concerns over population estimates; and adequacy of survey coverage. 	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 9.1 – 9.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Coll and Tiree</p>	No changes.

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
			<p>pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirms our recommendation that the proposal to classify Coll and Tiree SPA, under the Birds Directive, is referred to Scottish Ministers for approval without modification to our previous advice.</p>	
<p>Sound of Gigha</p>	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; and • concerns over population estimates, <p>Additional substantive points not opposing the pSPA:</p> <ul style="list-style-type: none"> • inclusion of Slavonian grebe as a qualifying feature. 	<p>Strong conservation justification for proposal and inclusion of all qualifying species.</p>	<p>Consultation: SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 10.1 – 10.4 of the Consultation Report.</p> <p>The consultation has identified a substantive consideration that supports the inclusion of non-breeding Slavonian grebe as a qualifying feature.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Sound of Gigha pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific objections that warrant changes to our previous advice and there is a strong conservation justification for the proposal. However, we accept the scientific case for inclusion of Slavonian grebe (non-breeding) as a qualifying feature.</p>	<p>Addition of Slavonian grebe (non-breeding) as a qualifying feature.</p> <p>No other changes.</p>

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
			SNH therefore recommends the proposal to classify Sound of Gigha SPA, under the Birds Directive, is referred to Scottish Ministers with modifications (as detailed in section 7) to our previous advice.	
Moray Firth	<p><i>Substantive points opposing the pSPA:</i></p> <ul style="list-style-type: none"> • age of data supporting the scientific case; • concerns over population estimates; • adequacy of survey coverage; • data considered not to be of high enough resolution for inclusion of all areas within the pSPA; and • methods used to define the boundary. 	Strong conservation justification for proposal and inclusion of all qualifying species.	<p><i>Consultation:</i> SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 11.1 – 11.4 of the Consultation Report.</p> <p><i>Network Assessment:</i> The Network Assessment further supports the conservation rationale for selecting Moray Firth pSPA for all qualifying species.</p> <p><i>Conclusion and recommendation:</i> We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirms our recommendation that the proposal to classify Moray Firth SPA, under the Birds Directive, is referred to Scottish Ministers for approval without modification to our previous advice.</p>	No changes.

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
North Orkney	<p><i>Substantive points opposing the pSPA:</i></p> <ul style="list-style-type: none"> • age of data supporting the scientific case; • derivation of mean of peak population estimates from different types of survey; • only two seasons' survey data available for Slavonian grebe, velvet scoter and European shag; • uncertainty around national populations of great northern diver and Slavonian grebe; • extent of (aerial) survey coverage in some areas and implications for boundary setting; • methods used to derive site population estimates for red-throated divers; • limited (aerial) survey coverage in some areas; • application of Stage 1.4 guideline; • pSPAs not considered the most suitable territories; • inconsistencies around boundary setting (infrastructure); 	<p>Strong conservation justification for proposal and inclusion of non-breeding great northern diver, Slavonian grebe, velvet scoter, and breeding red-throated diver.</p> <p>Weak conservation justification for inclusion of non-breeding long-tailed duck, common eider, red-breasted merganser and European shag.</p>	<p><i>Consultation:</i> SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 12.1 – 12.5 and Annex B2 of the Consultation Report.</p> <p>The consultation has identified substantive scientific objections that warrant minor changes to the proposed boundary.</p> <p><i>Network Assessment:</i> The Network Assessment further supports the conservation rationale for selecting North Orkney pSPA for non-breeding great northern diver, Slavonian grebe, velvet scoter and breeding red-throated diver.</p> <p><i>Conclusion and recommendation:</i> We conclude there is a strong conservation justification for the proposal. However there are substantive scientific objections that warrant changes to our previous advice. These have been considered in parallel with our advice on Scapa Flow pSPA.</p> <p>SNH recommends the North Orkney pSPA and Scapa Flow pSPA are combined into one site: Orkney Inshore Waters pSPA (as detailed in section 6) and that the proposal to classify Orkney Inshore Waters SPA, under the Birds Directive, is referred to Scottish Ministers for approval.</p>	<p>Combined site: Orkney Inshore Waters pSPA.</p> <p>Changes to the proposed boundary:</p> <ul style="list-style-type: none"> - minor changes around infrastructure. - removal of discrete area of maximum curvature for common eider around South Ronaldsay.

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
Scapa Flow	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; • derivation of mean of peak population estimates from different types of survey; • application of Distance sampling methods; • standard of boat-based surveys for inshore wintering waterfowl and breeding red-throated diver; • uncertainty around national populations of great northern diver and Slavonian grebe; • extent of (aerial) survey coverage in some areas and implications for boundary setting; • methods used to derive site population estimates for red-throated divers; • limited (aerial) survey coverage in some areas; • application of Stage 1.4 guideline; • pSPAs not considered the most suitable territories; and • inconsistencies around boundary setting (infrastructure). 	<p>Strong conservation justification for proposal and inclusion of non-breeding great northern diver, black-throated diver, Slavonian grebe, common eider, long-tailed duck, red-breasted merganser, European shag and breeding red-throated diver.</p> <p>Weak conservation justification for inclusion of non-breeding common goldeneye.</p>	<p>Consultation: SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 13.1 – 13.5 and Annex B2 of the Consultation Report.</p> <p>The consultation has identified substantive scientific objections that warrant changes to the proposed boundary.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Scapa Flow pSPA for all qualifying species except non-breeding common goldeneye.</p> <p>Conclusion and recommendation: We conclude there is a strong conservation justification for the proposal. However there are substantive scientific objections that warrant changes to our previous advice and we recommend the removal of common goldeneye as a qualifying feature. These have been considered in parallel with our advice on North Orkney pSPA.</p> <p>SNH recommends the North Orkney pSPA and Scapa Flow pSPA are combined into one site: Orkney Inshore Waters pSPA (as detailed in section 6) and that the proposal to classify Orkney Inshore Waters SPA, under the Birds Directive, is referred to Scottish Ministers for approval.</p>	

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
Pentland Firth	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; • adequacy of survey coverage; • use of predictive modelling to identify Arctic tern foraging areas; • validity of using existing citation population estimates for Arctic tern; • use of guillemot distribution data to determine boundaries of seabird assemblage feature; and • application of UK SPA Selection Guidelines (breeding seabird assemblage and named qualifiers). 	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: SNH and JNCC have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 14.1 – 14.5 and Annex B2 of the Consultation Report.</p> <p>The consultation has identified substantive scientific objections that lead us to conclude that the Pentland Firth pSPA should not be progressed to classification.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Pentland Firth pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there is a strong conservation justification for the proposal. However there are substantive scientific objections that lead us to conclude that the Pentland Firth pSPA should be withdrawn.</p>	Proposal withdrawn.
Outer Firth of Forth and St Andrews Bay Complex	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; • quality of data in respect of non-breeding inshore waterfowl (diver, grebes and seaduck) and little gull including: low sample size; low confidence in some data estimates; differences 	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: SNH and JNCC have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 15.1 – 15.4 and Annex B3 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Outer Firth of</p>	<p>Minor correction to Site Selection Document.</p> <p>No other changes.</p>

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
	<p>in extrapolation methods from different survey types;</p> <ul style="list-style-type: none"> • differences in approaches (seabird aggregations) and reliability of population estimates (all species); • seeming difference in approach taken between different pSPA sites; • need for a review of population trends in order to determine how representative the baseline population data are for the pSPA; and • methods used to define the boundary. 		<p>Forth and St Andrews Bay Complex pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirms our recommendation that the proposal to classify Outer Firth of Forth and St Andrews Bay Complex SPA, under the Birds Directive, is referred to UK and Scottish Ministers for approval without modification to our previous advice.</p>	
<p>Rum SPA (proposed addition of a marine feature to an existing site)</p>	<p><i>There were no substantive points opposing the pSPA</i></p>	<p>Strong conservation justification for proposal and inclusion of breeding red-throated diver as a marine feature to existing SPA.</p>	<p>Consultation: SNH has considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 16.1 – 16.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Rum SPA for breeding red-throated diver.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p>	<p>No changes.</p>

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
			SNH therefore confirms our recommendation that the proposal to include breeding red-throated diver as an additional marine feature to Rum SPA, under the Birds Directive, is referred to Scottish Ministers for approval without modification to our previous advice.	
Seas off Foula	<i>There were no substantive points opposing the pSPA</i>	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: JNCC and SNH have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 17.1 – 17.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Seas off Foula pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>JNCC and SNH therefore confirm our recommendation that the proposal to classify Seas off Foula SPA, under the Birds Directive, is referred to UK and Scottish Ministers for approval without modification to our previous advice.</p>	No changes.

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
Seas off St Kilda	<i>There were no substantive points opposing the pSPA</i>	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: JNCC and SNH have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 18.1 – 18.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Seas off St. Kilda pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>JNCC and SNH therefore confirm our recommendation that the proposal to classify Seas off St. Kilda SPA, under the Birds Directive, is referred to UK and Scottish Ministers for approval without modification to our previous advice.</p>	No changes.
Solway Firth	<i>There were no substantive points opposing the pSPA</i>	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: SNH have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 (including: 5.1.1.1, 5.1.2.1, and 5.2.2.1) and 19.1 – 19.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting Solway Firth</p>	No changes.

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
			<p>pSPA (proposed marine extension) for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirm our recommendation that the proposal to classify Solway Firth SPA, under the Birds Directive, is referred Ministers for approval without modification to our previous advice.</p>	
<p>West Coast of the Outer Hebrides</p>	<p>Substantive points opposing the pSPA:</p> <ul style="list-style-type: none"> • age of data supporting the scientific case; • questioning if data meets the population thresholds; and • not appropriate to include breeding and non-breeding birds in the same pSPA 	<p>Strong conservation justification for proposal and inclusion of all qualifying species.</p>	<p>Consultation: SNH have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 20.1 – 20.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting West Coast of the Outer Hebrides pSPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirms our recommendation that the proposal to classify West Coast of the Outer Hebrides SPA, under the Birds Directive, is referred to Scottish Ministers for approval without modification</p>	<p>No changes.</p>

Proposed SPA	Consultation Report: <i>Substantive scientific responses</i> ¹⁹	Network Assessment: <i>Findings</i> ²⁰	SNH and JNCC conclusions and recommendations	Summary of changes
			to our previous advice.	
Ythan Estuary, Sands of Forvie and Meikle Loch SPA (proposed marine extension)	<i>There were no substantive points opposing the pSPA</i>	Strong conservation justification for proposal and inclusion of all qualifying species.	<p>Consultation: SNH have considered all substantive scientific comments and objections raised by respondents and where appropriate, carried out further analysis. Our responses to these are detailed in sections 5 and 21.1 – 21.4 of the Consultation Report.</p> <p>Network Assessment: The Network Assessment further supports the conservation rationale for selecting a proposed marine extension to the Ythan Estuary, Sands of Forvie and Meikle Loch SPA for all qualifying species.</p> <p>Conclusion and recommendation: We conclude there are no substantive scientific considerations that warrant changes to our previous advice and there is a strong conservation justification for the proposal.</p> <p>SNH therefore confirms our recommendation that the proposal to classify a marine extension to the Ythan Estuary, Sands of Forvie and Meikle Loch SPA, under the Birds Directive, is referred to Scottish Ministers for approval without modification to our previous advice.</p>	No changes.

Annex 2: Site Selection Documents – with modifications from previous advice

- East Mainland Coast, Shetland SPA (Annex 2a)
- Orkney Inshore Waters SPA (Annex 2b)
- Sound of Gigha SPA (Annex 2c)

Annex 2a: East Mainland Coast, Shetland SPA



**East Mainland Coast, Shetland
Special Protection Area (SPA)
NO. UK9020311**

**SPA Site Selection Document:
Summary of the scientific case for site selection**

6th December 2018

Document version control		
Version and date	Amendments made and author	Issued to and date
Version 1	Formal advice submitted to Marine Scotland on draft SPA. Nigel Buxton & Greg Mudge.	Marine Scotland 10/07/14
Version 2	Updated to reflect change in site status from draft to proposed in preparation for possible formal consultation. Shona Glen, Tim Walsh & Emma Philip	Marine Scotland 30/06/15
Version 3	Updated with minor amendments to address comments from Marine Scotland Science in preparation for the SPA stakeholder workshop. Emma Philip	Marine Scotland 23/02/16
Version 4	Creation of new site selection document. Susie Whiting	Emma Philip 17/05/16
Version 5	Document updated to address requirements of revised format agreed by Marine Scotland. Glen Tyler & Emma Philip	Greg Mudge 19/06/16
Version 6	Quality assured Greg Mudge	Emma Philip 20/6/16
Version 7	Final draft for approval Emma Philip	Andrew Bachell 22/06/16
Version 8	Final version for submission to Marine Scotland	Marine Scotland 24/06/16
Version 9	Minor amendments further to consultation. Emma Philip	Marine Scotland 03/02/17
Version 10	Revised draft Site Selection Document with amendments to remove of common eider, long-tailed duck and red-breasted merganser as qualifying features and change status to SPA (subject to final decision). Draft indicative maps presented. Lucy Quinn	Sally Thomas, 10/10/18
Version 10	No amendments requested.	SNH's Scientific Advisory Committee MPA sub-group – Bob Furness, Ben Wilson, Beth Scott & Aileen Mill 17/10/18
Version 10	No amendments requested.	Sally Thomas on behalf of SNH's Senior Leadership Team 15/11/18
Version 11	Updated to include finalised maps and corresponding text.	Protected Areas Committee – Aoife Martin, Angus

		Campbell, Ian Gilles & Bob Furness 15/11/18
Version 11	No amendments requested. Final version for submission to Marine Scotland	Marine Scotland 06/12/18

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1. Introduction

This document provides Scottish Natural Heritage's (SNH) advice on the classification of a Special Protection Area (SPA) in the marine waters of "East Mainland Coast, Shetland" for inshore wintering waterfowl and foraging areas for breeding red-throated diver. It summarises the evaluation for each of the species of interest according to the UK SPA Selection Guidelines (JNCC, 1999) and provides an overview of how the site boundary was developed.

The marine area off East Mainland Coast, Shetland has been selected to provide protection to important wintering grounds used for feeding, moulting and roosting by waterfowl, many of which migrate to Scotland every year to overwinter or to stop off at as one of their staging posts while on migration. The inshore area is also selected as an important foraging area for breeding red-throated diver, falling within foraging range of a high concentration of nesting territories. The protection of these inshore waters will make a key contribution to the maintenance of these species in their natural range in UK marine waters and form part of a coherent network of sites at a European level.

The importance of the marine environment for birds which spend all or part of their lives around our coasts is well recognised, particularly in Scotland. A total of 106 species of bird are thought to use UK marine waters of which 45 occur in numbers greater than fifty each year and are dependent on the marine environment for a large part of their lifecycle ([JNCC Overview of marine bird species](#)). All of these 45²¹ species except one (black guillemot²²) are considered rare or vulnerable bird species (Annex 1), or regularly occurring migratory species by the Birds Directive (EC Directive on the conservation of wild birds (amended) - 2009/147/EC). This means that all Member States are obliged to take account of the requirements of Article 4 of the Birds Directive for each of these 44 species.

With respect to Annex 1 species, Article 4.1 states that "Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies". Similar measures are required for migratory species under Article 4.2. [European Commission guidance](#) on the establishment of SPAs in the marine environment (2007) sets out the groups of marine birds for which SPAs should be considered in the marine environment. This includes sites for wintering waterfowl and feeding areas for breeding divers, including those used by birds from existing terrestrial SPAs to ensure they have continued access to key food sources.

The Scottish Government is committed to identifying a network of SPAs in the marine environment. The programme of classifying marine SPAs in Scotland is already well underway. To date, 31 marine extensions to seabird colonies have been classified in Scottish waters. These extensions are a crucial step forwards in the conservation of breeding seabirds, providing protection of the seas immediately surrounding the colony and used by seabirds (including fulmar, gannet, puffin, guillemot, razorbill and/or Manx shearwater) for maintenance and socialization behaviours such as preening, displaying, rafting, roosting and bathing (Webb & Reid, 2004). Some estuarine SPAs also provide protection for marine habitats above the Mean Low Water Springs (MLWS) used by divers, sea ducks, grebes and some seabird species (e.g. cormorant and Sandwich tern). The existing network of sites is not considered sufficient to meet the requirements of Articles 4.1

²¹ Note that common eider *Somateria mollissima* subspecies *faeroeensis* in Shetland is considered a distinct non-migratory population (SPA & Ramsar Scientific Working Group, 2018) and therefore the sub-species is not considered for site selection purposes under Article 4.2 of the Birds Directive.

²² Nature Conservation Marine Protected Areas were designated in August 2014 for black guillemot.

and 4.2 because it currently does not include suitable territories at sea for marine species that the UK has a responsibility for.

The East Mainland Coast, Shetland SPA is being classified as part of a network of marine sites that aim to fulfil the requirements for SPAs in the marine environment for rare or vulnerable birds and regularly occurring migratory birds in the UK. As required by Article 4 of the Directive, the classification of this site will enable the application of special conservation measures concerning the habitat of Annex 1 and regularly occurring migratory birds in order to ensure their survival and reproduction in their area of distribution.

Full details of the site survey methodologies, data and analysis used to inform the selection of this site are provided in Lawson *et al.* (2015) for non-breeding inshore waterfowl and Black *et al.* (2014) for breeding red-throated diver. All scientific work received full external independent peer review at key stages.

2. Site Summary

The East Mainland Coast, Shetland Special Protection Area (SPA) stretches from Fish Holm and Lunna Ness in the north southwards, encompassing Whalsay, to the north coast of Bressay.

The area included within the SPA supports populations of European importance of the following Annex 1 species:

- Great northern diver (*Gavia immer*)
- Red-throated diver (*Gavia stellata*)
- Slavonian grebe (*Podiceps auritus*)

East Mainland Coast, Shetland SPA comprises in total an area of 233.33 km².

Through much of the site water depths are generally less than 40 metres (m), but to the north depth of Whalsay rapidly increases (Barne *et al.* 1997). The east coast of Shetland is relatively sheltered compared to the west and much of the shore is cliff, albeit well interspersed with sandy beaches and bays such that the sediments are largely gravel and sand.

Seaweed cover is common throughout but variable in extent and composition. Invertebrates are common, including a diversity of polychaete worms, gasteropod and bivalve molluscs dependent upon the sediments present. Both pelagic and demersal fish shoal and spawn in the seas surrounding Shetland, with the inshore waters forming nursery areas for a number of species including sandeels. The invertebrates and fish all form potential prey for waterbirds frequenting the area.

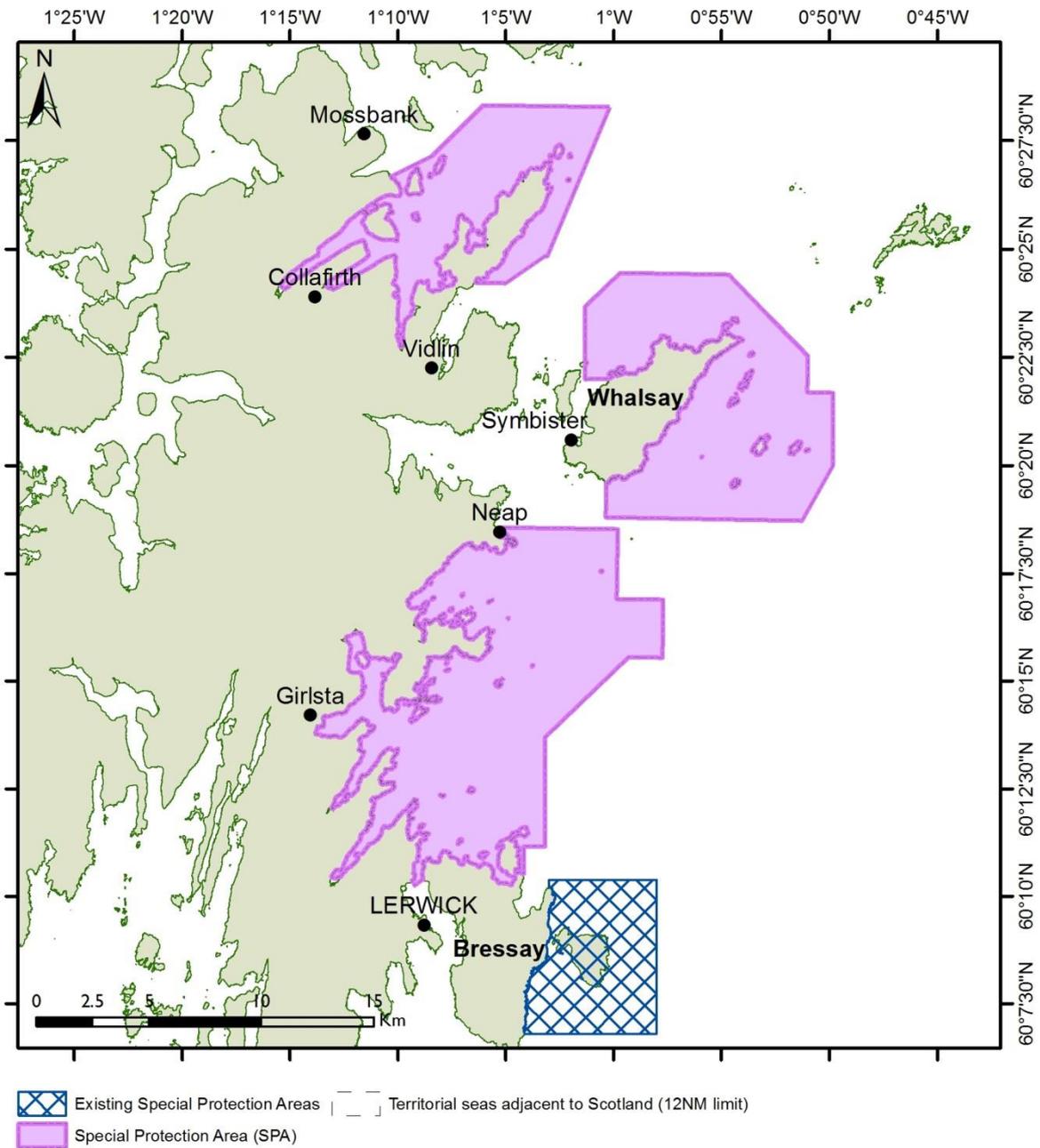
Divers feed on a wide variety of fish that are associated with a range of seabed substrates. These birds catch fish by diving from the surface and pursuing their prey underwater. The fish species taken will be influenced by what is locally most readily available, but the diet of divers and merganser includes haddock *Melanogrammus aeglefinus*, cod *Gadus morhua*, herring *Clupea harengus*, sprats *Sprattus sprattus* and gurnard *Eutrigla gurnardus* along with smaller species such as sand-eels *Ammodytidae*, pipefish *Syngathidae*, gobies *Gobiidae*, flatfish *Pleuronectidae* and butterflyfish *Pholis gunnellus*.

Slavonian grebes feed on small fish species but their diet also includes small amphipods and other crustaceans. Great northern divers also feed opportunistically on small crustaceans.

Diving activity varies among species but average foraging dive depths for most are shallower than 15m. However, substantially greater maximum dive depths have been recorded for some species, particularly great northern diver (maximum dive depth of 55m; Ropert-Coudert *et al.* 2016).

The presence of high densities of wintering waterfowl in this area is indicative of the importance of these productive waters at this time of year. Great northern divers and Slavonian grebes migrate long distances from their northern breeding grounds to reach their wintering grounds.

Shetland supports nearly one third of the UK's breeding red-throated divers which feed almost exclusively at sea within a limited foraging range. During the summer months, East Mainland Coast, Shetland is an important foraging area for a high concentration of red-throated diver nesting territories on the adjacent mainland.



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Figure 1: Location of the East Mainland Coast, Shetland SPA.

3. Bird survey information

Inshore wintering waterfowl (divers, grebes and seaduck)²³

Areas of Search

Existing data (including Wetland Bird Surveys (WeBS), Important Bird Areas (IBA) defined by BirdLife International, existing survey data and an atlas of seabird distributions) and information from published scientific literature were used to determine which initial areas might be important for inshore wintering waterfowl. Based on this initial assessment, 46 Areas of Search were identified across the UK, with 21²⁴ of these in Scotland. East Mainland Coast, Shetland was one of the Areas of Search identified as holding potentially large numbers of birds and therefore merited further survey.

A combination of aerial survey and boat surveys were conducted between 2007 and 2011.

Aerial transect (2007/08-2009/10)

Line transect aerial surveys were carried out on five occasions on 13th February 2008, 26th March 2008, 9th February 2009, 20th March 2009 and 10th February 2010. All of these surveys were conducted by the Joint Nature Conservation Committee (JNCC) (Lawson *et al.* 2015). Surveys were conducted between November and March to enable estimates of non-breeding populations to be made. No data were collected during migration periods or for aggregations of moulting birds.

The data from the aerial transect surveys were used to produce density distribution maps for each species of interest and to calculate mean maximum counts of individuals (population estimate) for great northern diver. The population estimates were compared against the relevant national and/or biogeographic reference population estimates (Musgrove *et al.* 2013 or Wetlands International, 2014) to provide a percentage of the reference population for each species of interest (Lawson *et al.* 2015).

Boat transects (2006/07 – 2010/11)

Aerial surveys are one of the most effective methods for surveying inshore concentrations of birds over large areas. However, certain species are not amenable to survey from aircraft and some species that remain very close to the shore may often be missed, as the aircraft makes sharp turns at the shoreline. Grebes and are not easily detected during aerial surveys.

Accordingly, boat-based surveys were undertaken in the five non-breeding seasons (November–March) of 2006/07 to 2010/11 to complement the aerial surveys. These surveys were undertaken for the Shetland Oil Terminal Environmental Advisory Group (SOTEAG).

Boat surveys provided detail on the number and distribution of Slavonian grebes.

The data from the boat surveys were used to calculate mean maximum counts of number of individuals (population estimates) for Slavonian grebe. The population estimates were compared against the relevant national and/or biogeographic reference population estimates (Musgrove *et al.* 2013 or Wetlands International, 2014) to provide a percentage of the reference population for each species of interest (Lawson *et al.* 2015).

²³ Full details of the methodologies, data and analysis used are provided in the Joint Nature Conservation Committee (JNCC) Report 567: Lawson *et al.* 2015 and the JNCC generic document 'Identification of important marine areas for inshore wintering waterbirds'. JNCC Report 567 received full external independent peer review.

²⁴ There were originally 22 Areas of Search but the Greater Firth of Clyde and Inner Firth of Clyde, lying adjacent to each other were combined by JNCC to form the Firth of Clyde Area of Search.

Feeding areas of breeding red-throated divers²⁵

The breeding distribution of red-throated divers in the UK is limited to Scotland and is largely restricted to the north and west of the country, with major strongholds in Shetland, Orkney, and the Outer Hebrides (Gibbons *et al.* 1993; Dillon *et al.* 2009).

The selection of foraging areas for breeding red-throated divers is based on modelled outputs underpinned by survey data from the red-throated diver national survey undertaken in 2006 (Dillon *et al.* 2009) and boat-based surveys to inform the habitat model (Black *et al.* 2015). To inform the habitat model, four main survey areas were chosen at which to undertake detailed data collection. These were selected to focus on the most important breeding areas, representing the geographical spread of breeding areas, and be practical in terms of field work logistics. The selected study areas were Unst, Yell and Fetlar (northern Shetland); Shetland Mainland; Isle of Hoy (Orkney); and North Uist (Outer Hebrides).

A national survey of red-throated diver provided data on breeding populations. Models were then developed to map predicted foraging distributions within maximum foraging flight range of breeding sites (Black *et al.* 2015). These models used observed correlations between environmental variables and diver distribution, as recorded in boat-based transect surveys and by visual or radio tracking of individual birds in four areas between 2003 and 2007, to predict areas that divers are likely to use in un-surveyed areas of sea. The data underpinning the models included locations in Shetland where boat survey and visual tracking data were collected in 2003.

Estimating numbers of birds within an SPA boundary

SPA boundaries were derived by analysing the distributions of inshore wintering waterfowl species which occurred in qualifying numbers in the relevant Area(s) of Search (section 4). Those areas which contained the highest densities for each species were selected and overlaid to generate the SPA boundary. Further details are in [Defining SPA Boundaries At Sea](#) and the derivation of the boundary for East Mainland Coast, Shetland is described at section 5.

The numbers of birds of each qualifying species within the SPA boundary were then recalculated to exclude birds within the original Area(s) of Search but outwith the final SPA boundary. For those species for which numbers were derived from aerial survey data, this was done with reference to density surfaces derived from the survey data using a species specific grid size. ArcGIS was used to calculate the area of each cell, or partial cell, located within the SPA boundary and the number of individual birds in each cell was then estimated by multiplying the cell area by the density value for that cell. The population estimate for each species within the SPA boundary was then provided by summing all cell totals within the boundary. For those species for which numbers were derived from shore counts, only sea areas within the final site boundary were included in the final SPA population estimates.

To provide population estimates for red-throated diver foraging areas, the number of breeding sites within foraging range was used as an estimate of number of pairs potentially using the area. Further information is described in [Red-throated diver marine SPA identification: Data collection and analysis](#).

The number of birds within the SPA boundary was then reassessed against the UK SPA Selection Guidelines to ensure the site still qualified for consideration as an SPA.

²⁵ Full details of the methodologies, data and analysis used are provided in the Joint Nature Conservation Committee (JNCC) Report 541: Black *et al.* 2014 and the JNCC generic document 'Red-throated diver marine SPA identification: Data collection and analysis' JNCC Report received full external independent peer review.

4. Assessment against the UK SPA Selection Guidelines

The UK SPA Selection Guidelines establish a two stage process for SPA identification (JNCC, 1999).

Stage 1

Stage 1 allows identification of areas that are likely to qualify for SPA status. To qualify under Stage 1 the area needs to meet one or more of the following four guidelines.

- 1.1. The area is used regularly by 1% or more of the Great Britain population of a species listed in Annex I to the Birds Directive in any season.
- 1.2. The area is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex I) in any season.
- 1.3. The area is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) or 20,000 seabirds in any season.
- 1.4. The area which meets the requirements of one or more of the Stage 2 guidelines in any season, where the application of Stage 1 guidelines 1.1-1.3 for a species does not identify an adequate network of most suitable sites for the conservation of that species.

Additionally, it is established practice to apply a minimum threshold of 50 individuals to be regularly present at a site before it can be considered for site selection. Exception to this rule however applies where its application would preclude the selection of any suitable territories and therefore prevent the fulfilment of UK obligations under the Birds Directive. This exemption applies to non-breeding Slavonian grebe ([SPARSWG, 2015](#)), therefore UK SPAs are selected on the basis of meeting the 1% GB population threshold.

Stage 2

Those areas that meet one or more of the Stage 1 guidelines undergo further consideration using one or more of the ecological guidelines set out in Stage 2. There are seven Stage 2 guidelines. These guidelines are used to facilitate the selection of the most suitable areas from the areas identified at Stage 1 to produce a network of marine SPAs in Scotland. The Stage 2 guidelines are:

- 2.1 Population size and density.
- 2.2 Species range.
- 2.3 Breeding success.
- 2.4 History of occupancy.
- 2.5 Multi-species area.
- 2.6 Naturalness.
- 2.7 Severe weather refuges.

Assessment against Stage 1 of the UK SPA Selection Guidelines

Great northern diver, red-throated diver (breeding) and Slavonian grebe are Annex 1 species and present in numbers at or above 1% of the GB population. These species all met Stage 1.1 of the SPA guidelines (Table 1).

Table 1: Assessment against Stage 1 of the UK SPA Selection Guidelines.

Species and season	Annex 1 or migratory	Population estimate in site ²⁶	% of GB population ²⁷	Stage 1 guideline met
Great northern diver (non-breeding)	Annex 1	182	7.3	1.1
Red-throated diver (breeding)	Annex 1	205 (pairs)	15.8	1.1
Slavonian grebe (non-breeding)	Annex 1	54	4.9	1.1

Assessment against Stage 2 of the UK SPA Selection Guidelines

One or more of the Stage 2 guidelines are used to identify the most suitable areas for classifying as SPA from those areas that meet the Stage 1 guidelines. The focus for considering which areas were most suitable concentrated on three of the seven guidelines; population size and density, species range and multi-species areas. Population densities were only considered for non-breeding Annex 1 species.

Fourteen²⁸ areas around Scotland (from the initial 21 Areas of Search²⁹) were identified as meeting Stage 1.1 for non-breeding Annex 1 species (great northern diver, black-throated diver, red-throated diver and Slavonian grebe). To help identify the most suitable sites for SPAs from the initial 14 areas, the non-breeding Annex 1 species were ranked for each site according to their population size, density and number of other non-breeding qualifying species also present within each area. Particular emphasis was placed on identifying areas that function as “hotspots” for many species rather than just a few. The results of the ranking exercise for East Mainland Coast, Shetland Area of Search are provided in Table 2.

East Mainland Coast, Shetland supports two non-breeding Annex 1 species, with it being the fifth most important site for Slavonian grebe, and seventh most important site for great northern diver.

Table 2: Summary of initial Annex 1 ranking and overlapping multi-species interest.
nb = non-breeding season

Assessment/ Qualifying feature	Ranked importance for non-breeding Annex 1 species ³⁰
Great northern diver (nb)	7 th most important Area of Search in Scotland
Red-throated diver (nb)	Not qualifying
Slavonian grebe (nb)	5 th most important Area of Search in Scotland

²⁶ The population estimates are based on the mean maximum population estimates provided in Lawson *et al.* 2015 for all inshore aggregations of non-breeding waterfowl, Black *et al.* 2014 for red-throated diver and amended, where appropriate to the site boundary.

²⁷ Reference populations are from Musgrove *et al.* 2013 and Wetlands International, 2014. The percentages of the bio-geographic populations are given in parentheses.

²⁸ Originally 15 prior to combination of the Firth of Forth and Firth of Tay to form the Outer Firth of Forth and St Andrews Bay Complex pSPA.

²⁹ There were originally 22 Areas of Search but the Greater Firth of Clyde and Inner Firth of Clyde, lying adjacent to each other were combined by JNCC to form the Firth of Clyde Area of Search.

³⁰ Ranking was only applied to non-breeding Annex 1 species to provide an initial short-listing of most suitable areas that could then be subject to further checks for other marine bird interests. Ranking combines population size, density and multi-species interest to provide an overall rank.

East Mainland Coast, Shetland SPA has also been selected because the marine waters are predicted to support the largest concentration of foraging red-throated diver during the breeding season in the UK. The site is an important component of the species northern breeding range.

Following the initial ranking of Annex 1 species (Table 2), consideration was given to the stage 2.2 guideline (geographic range) for those Annex 1 species qualifying at stage 1.1 (great northern diver and Slavonian grebe) (Table 3). Table 3 summarises the steps in the Stage 2 assessment.

East Mainland Coast Shetland represents the most northerly concentration of great-northern divers in their GB range and is an important component in the north and easterly part of the GB wintering range for both great northern diver and Slavonian grebe.

With regard to the other Stage 2 guidelines, all sites were considered largely 'natural', guidelines on breeding success were irrelevant for inshore wintering waterfowl and no information was available to provide further consideration to 'severe weather refuge'.

Full details on the selection process are provided in 'Overview of the Scottish marine Special Protection Area selection process' (SNH, 2018).

Table 3: Summary of assessment against Stage 2 of the UK SPA Selection Guidelines.
nb – non-breeding season, b – breeding season

Stage 2 guideline/ Qualifying features	Population estimate	Species range	Influence on site boundary?
Great northern diver (nb)	7 th largest population in Scotland ³¹ .	Most northerly site in GB and important component in the north and easterly part of their range in GB.	Principal species influencing boundary
Slavonian grebe (nb)	4 nd largest population in Scotland ³⁰ .	Important population in the north and easterly part of their range in GB.	No influence on boundary.
Red-throated diver (b)	Largest population of all Scottish marine SPAs ³² .	Largest population in the north of their GB range.	No influence on boundary.
Stage 2 guideline (whole site)			
Multi-species area	Two non-breeding Annex 1 species (great northern diver and Slavonian grebe) occur in nationally important numbers during winter in close association. The SPA makes a contribution to each species range representation. In addition, a further Annex 1 species, the red-throated diver, uses most of the area for feeding during the breeding season. A total of four qualifying species regularly occur in the SPA.		
History of occupancy	East Mainland Coast, Shetland has a recognised history for presence of non-breeding waterfowl (e.g. Venables & Venables, 1955; Pennington <i>et al.</i> 2004 and this site's importance is recognised by the long-term monitoring programme undertaken by SOTEAG (e.g. Heubeck & Mellor, 2015). Red-throated diver has been known to breed for many years and since the 1980s the National and local surveys have shown that the population is being maintained at high densities (Pennington <i>et al.</i> 2002). Further detail is provided in section 6.		

³¹ Based on population estimates from Lawson *et al.* (2015). Two of the SPAs, Orkney Inshore Waters and Outer Firth of Forth and St Andrews Bay Complex, each encompass two of the original Areas of Search (North Orkney with Scapa Flow and Firth of Forth with Firth of Tay respectively) described in Lawson *et al.* (2015). The combined populations in these Areas of Search have been used when ranking populations here.

³² Based on population estimates from the Site Selection Documents 2018.

5. Site status and boundary

The name for this site is the “East Mainland Coast, Shetland SPA”.

Marine sites present few obvious or distinct physical features (other than underwater terrain/topography and islands) which can be of use for defining boundaries of protected areas for birds within the marine environment. The method used for the boundary setting is therefore based on an analysis of the bird distributions and aims to delineate areas with only the highest bird densities. The statistical method used for this is known as maximum curvature analysis; a non-technical summary of this method is provided in the supplementary document: [Defining SPA Boundaries At Sea](#). This technique is specifically used to avoid subjective judgements on SPA boundary placement and to provide an objective and repeatable method. Models were underpinned by species-specific survey data.

Great northern divers were recorded in good numbers from aerial survey and these data were used to establish mean density surfaces for each species and then applying maximum curvature to determine a density threshold. Threshold densities identified by maximum curvature were 0.46 birds.km⁻² (Lawson *et al.* 2015). A line was then drawn around all cells that exceed the density threshold to produce a species-specific boundary.

The area covering the species-specific boundary for great northern diver (qualifying under Stage 1.1) was then compared with the distributions of other wintering wildfowl to establish the degree of overlap. At East Mainland Coast, Shetland SPA, the distribution of great northern diver encompasses a substantial proportion of the shore-counts for Slavonian grebe. These combined distributions were used to produce an inshore wintering waterfowl composite species boundary.

The final boundary was created by drawing the boundary as tight as possible to the composite species boundary ensuring all cells exceeding density thresholds (maximum curvature) were included within the boundary. To avoid creating an over-complex boundary however, some rationalisation of the final boundary was required, resulting in small areas with cells not exceeding the density threshold also being included in the final boundary. Whilst these areas did not exceed the density threshold, they are still likely to support lower densities of the qualifying species.

The SPA boundary encompassing the inshore wintering waterfowl composite distributions was further checked for overlapping interests with respect to other marine bird interests. The boundary included a predicted high density foraging area (derived from models) for foraging red-throated diver during the breeding season. Analysis of numbers of breeding pairs of red-throated diver within foraging range of the predicted foraging area showed that the SPA is important for more than 1% of the GB breeding red-throated diver population and therefore, breeding red-throated diver also qualified as an additional feature for the site. The inclusion of breeding red-throated diver however had no influence on the boundary.

The site extends to 233.33 km². Boundary co-ordinates for the SPA are given on the site map in Annex 1.

Boundary co-ordinates for the SPA are given on the site map in Annex 1.

6. Information on qualifying species

Great northern diver

Great northern divers were widely distributed through the area especially north of Bressay and around the island of Whalsay (Figure 2). Numbers exceeded the Stage 1.1 threshold of 1% of the GB population (25 birds) and the default site selection threshold of 50 birds (see section 4) in four of the five aerial line transect surveys between February 2007/08 and February 2009/10 and also in four out of five boat-based surveys between 2006/07 & 2010/11. Great northern diver therefore meets the definition of regularly occurring (JNCC, 1999). The maximum population estimate of 206 birds was recorded in March 2008. Overall, the data indicate a mean of peak annual non-breeding population estimate of 182 great northern divers (7.3% of the current GB population estimate) in the East Mainland Coast, Shetland SPA.

Population size and density

The northern and western seabords of Scotland are the winter strongholds of the great northern diver population in Great Britain. This is the smallest of the two non-breeding populations of great northern divers (182 birds) in SPAs in the Northern Isles, but larger than the other east coast population that is in the Moray Firth. Densities within the site ranged between 0.1 birds/km² and 2.0 birds/km², with much of the site supporting densities greater than 0.5 birds/km².

Distribution within the site

Great northern diver is the principal species influencing the extent of the boundary (Figure 2).

Species range

The species occurs during winter round much of the British coastline. The maximum concentrations are to the north and west of Scotland, numbers being sparse or local south of Duncansby Head in Caithness and around the Clyde estuary and throughout much of England. The west of Ireland, and to a considerable degree Ireland's south coast, is also important. This SPA is important in representing the northern-most part of the range in Great Britain, where the majority of birds are concentrated.

History of occupancy

There is evidence to suggest that the area has been important for great northern divers with the earliest record of its occurrence in the general area relating to the first half of the 19th century. Its continued abundance has been noted many times throughout the 20th and 21st centuries, suggesting this area has true long-term viability (Lack, 1986; Pennington *et al.* 2004).

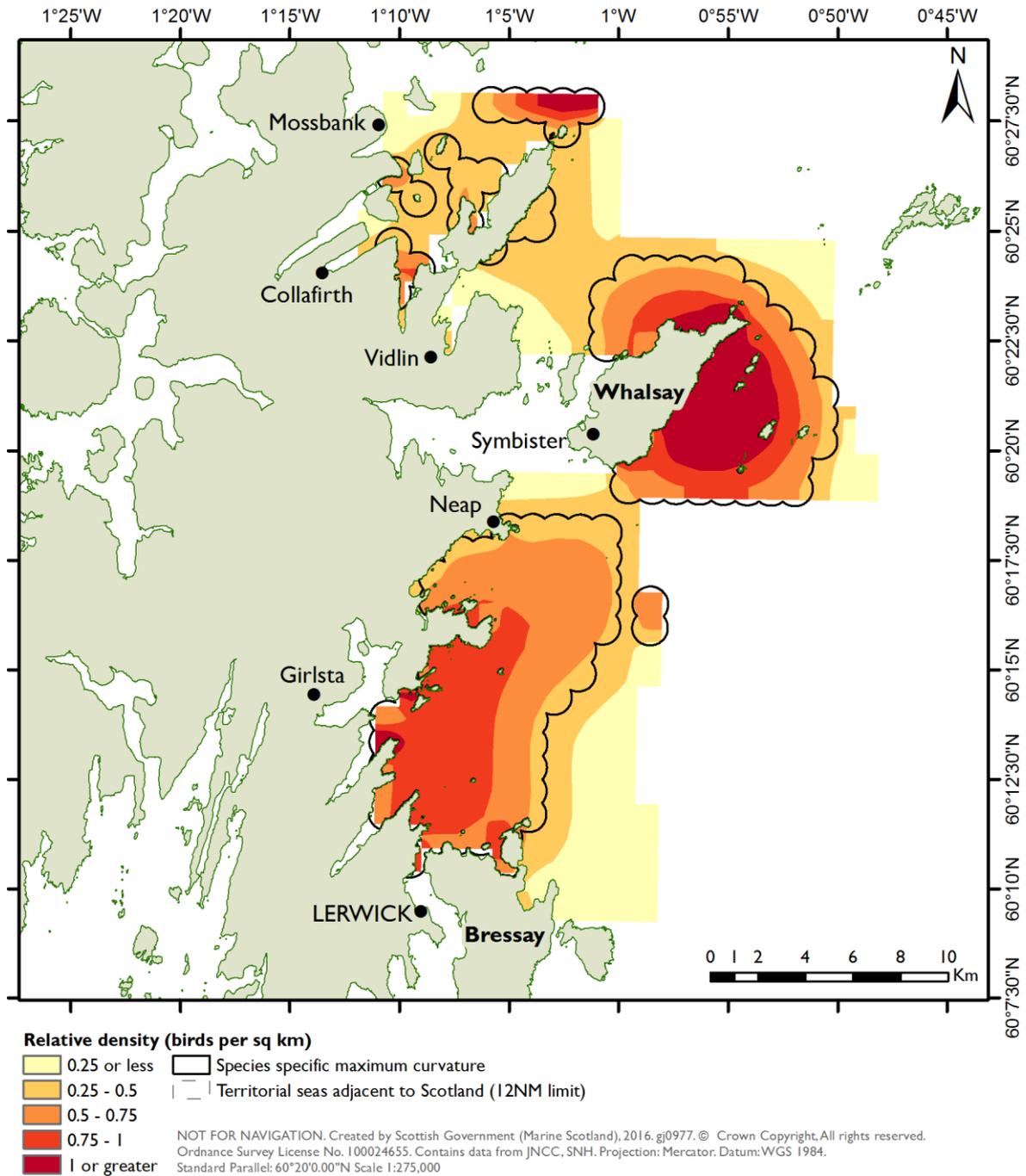


Figure 2: The distribution of great northern divers in the East Mainland Coast, Shetland SPA.

Slavonian grebe

Slavonian grebes are largely confined to the inner voes of the East Mainland Coast, Shetland SPA (Figure 3). Numbers of Slavonian grebe in the non-breeding season (54 birds) exceeded the Site Selection Stage 1.1 threshold of 1% of the GB population (11 birds) and the default site selection threshold of 50 birds (see section 4) in four out of the five years of survey between 2006/07 and 2010/11.

Population size and density

The north and west seaboard of Scotland are the stronghold of this species in Great Britain and, whilst there are other British locations with concentrations, notably the Firth of Forth area and the Moray Firth in Scotland, Shetland along with Orkney and the Outer Hebrides stand out. The mean annual number of birds in East Mainland Coast, Shetland SPA is 54 individuals (more than 4.9% of the GB population) and an important concentration in Shetland. In the light of further more recent counts this site total may be a minimal estimate (Harvey & Heubeck, 2012), but gives an average density across the whole site of 0.17 birds per km².

Distribution within the site

The Slavonian grebe distribution at this site falls entirely within that identified for great-northern diver and therefore this species does not influence the site boundary (Figure 3).

Species range

The species occurs in small numbers round the coasts of Great Britain with concentrations in specific localities. There are few significant populations and recent detailed surveys have shown Shetland is particularly important. The East Mainland Coast, Shetland SPA is therefore an important site at the extreme northern edge of the species range in Scotland and Great Britain.

History of occupancy

There is evidence to suggest that the area has been important for Slavonian grebes for decades. Detailed records in the 19th and early 20th centuries are few but in the latter half of the 20th century and the first years of the 21st century detailed bird surveys have shown the importance of Shetland for the species, especially in the east and west coast voes (Lack 1986; Pennington *et al.* 2004; Balmer *et al.* 2013).

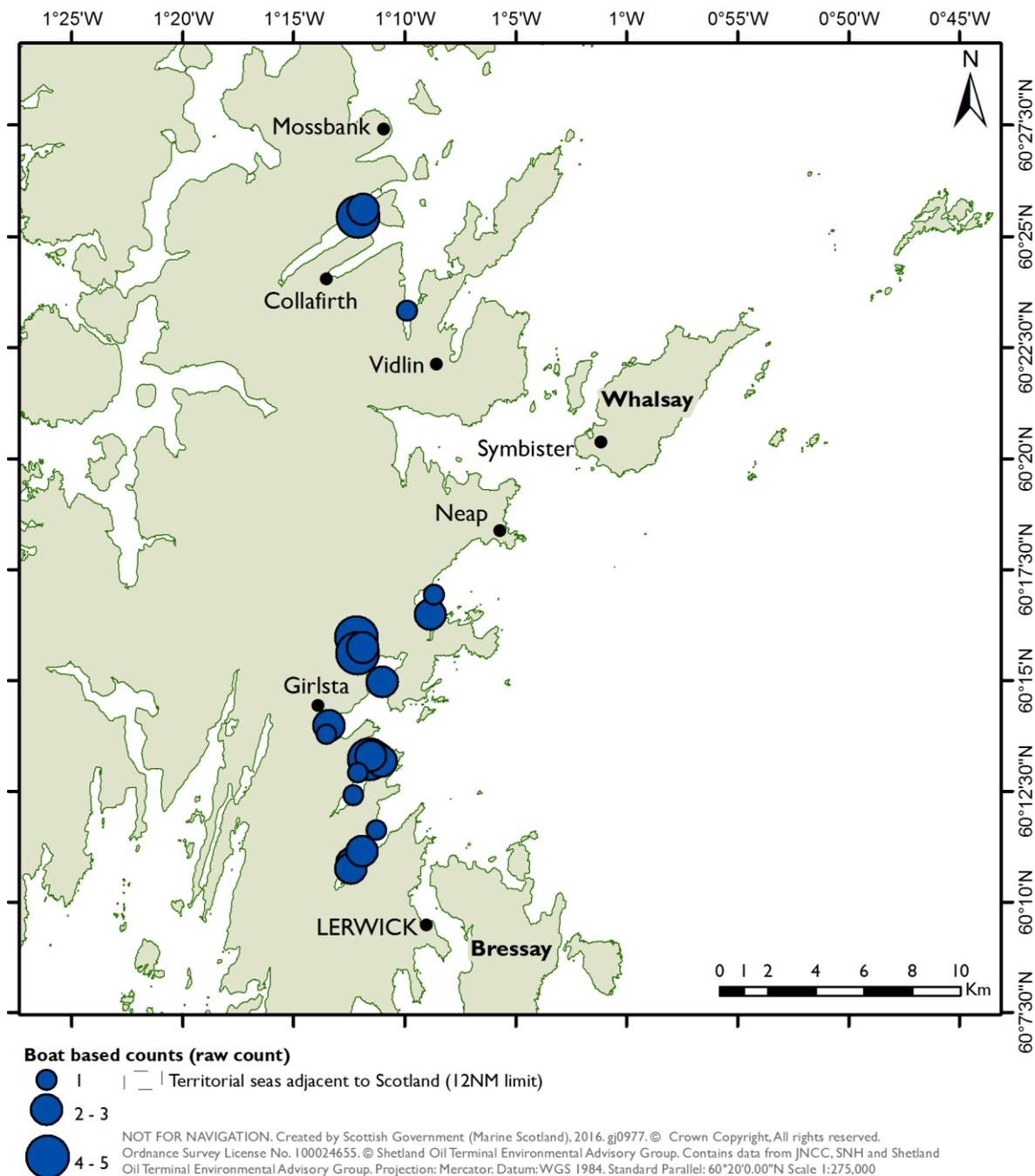


Figure 3. The distribution of Slavonian grebes in the East Mainland Coast, Shetland SPA. Point symbols represent the relative number of Slavonian grebe in each count sector.

Red-throated diver

Red-throated divers nest throughout the islands surrounding the East Mainland Coast, Shetland SPA (Figure 4). It is one of two SPAs predicted to provide important feeding areas for breeding red-throated divers in Shetland. Based on the 2006 national survey (Dillon *et al.* 2009), it is within foraging range of 205 pairs (15.8% of the GB population in 2006) breeding on the nearby islands, including Otterswick and Graveland, Ronas Hill – North Roe and Tingon, and Hermaness, Saxa Vord and Valla Field SPAs.

Nesting territories tend to be traditional and are occupied repeatedly with birds habitually using the marine areas within 10km of the nest site for foraging. Nesting territories are reported present on surrounding islands every year (Shetland Bird Club Annual Reports). The model outputs, combined with known information on nest distributions and foraging distances from nests, provide a robust indication of where the highest usage areas are and ensure that the most important foraging areas within boundaries have been captured. There is a high confidence in regularity of use of the site for foraging by breeding red-throated divers.

Population size and density

East Mainland Coast, Shetland comprises the largest of the six red-throated diver marine feeding areas identified and one of two marine areas identified in Shetland. The national survey (2006) identifies 205 pairs (15.8% of the GB population, as calculated from modelled data) of red-throated diver nesting within a 10km foraging range of the SPA.

Distribution within the site

The species is distributed widely throughout the SPA, with the numbers of birds derived from the area of the SPA based on the winter wildfowl composite boundary. Therefore this species has no influence on the boundary itself (Figure 4).

Species range

Shetland lies at the extreme north of the range of breeding red-throated divers in GB; a range which is restricted to Shetland, Orkney, the Hebrides and north and west mainland Scotland. The bulk of the population (40.2%) lies in the Northern Isles, with (32.4%) in Shetland. Located on the northern edge of the British range, East Mainland Coast, Shetland SPA is an important component of the core range of the species.

History of occupancy

There is evidence to suggest that the area has been associated with breeding red-throated divers for decades. The species has been mentioned in the literature on Shetland for at least 100 years (Buckley & Evans, 1899; Venables & Venables, 1955) and was recorded as a widely distributed breeding species throughout the islands in the two earlier breeding atlas periods. (Sharrock, 1976; Gibbons *et al.* 1993).

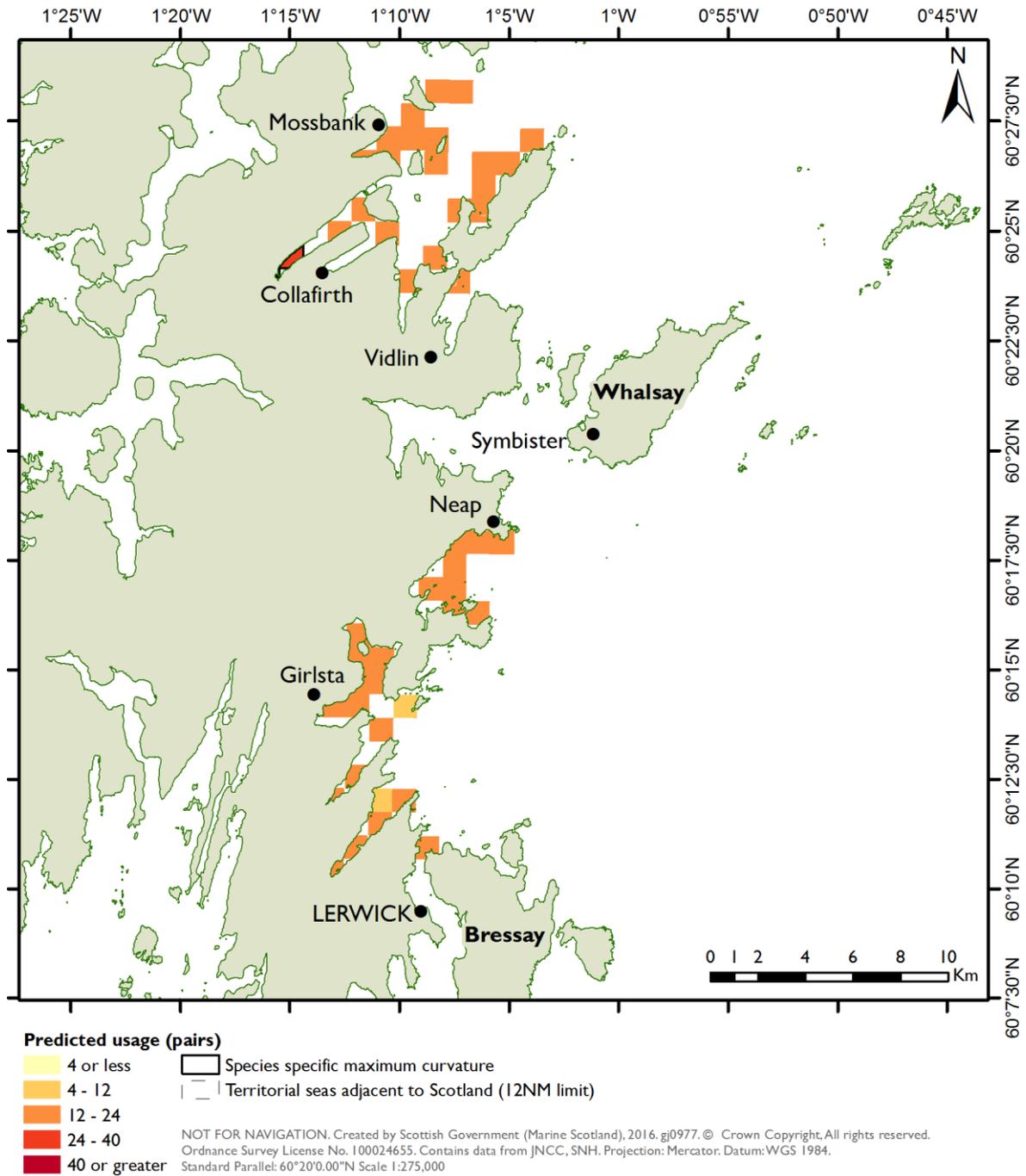


Figure 4. The predicted usage of red-throated divers in Shetland, including within the East Mainland Coast, Shetland SPA.

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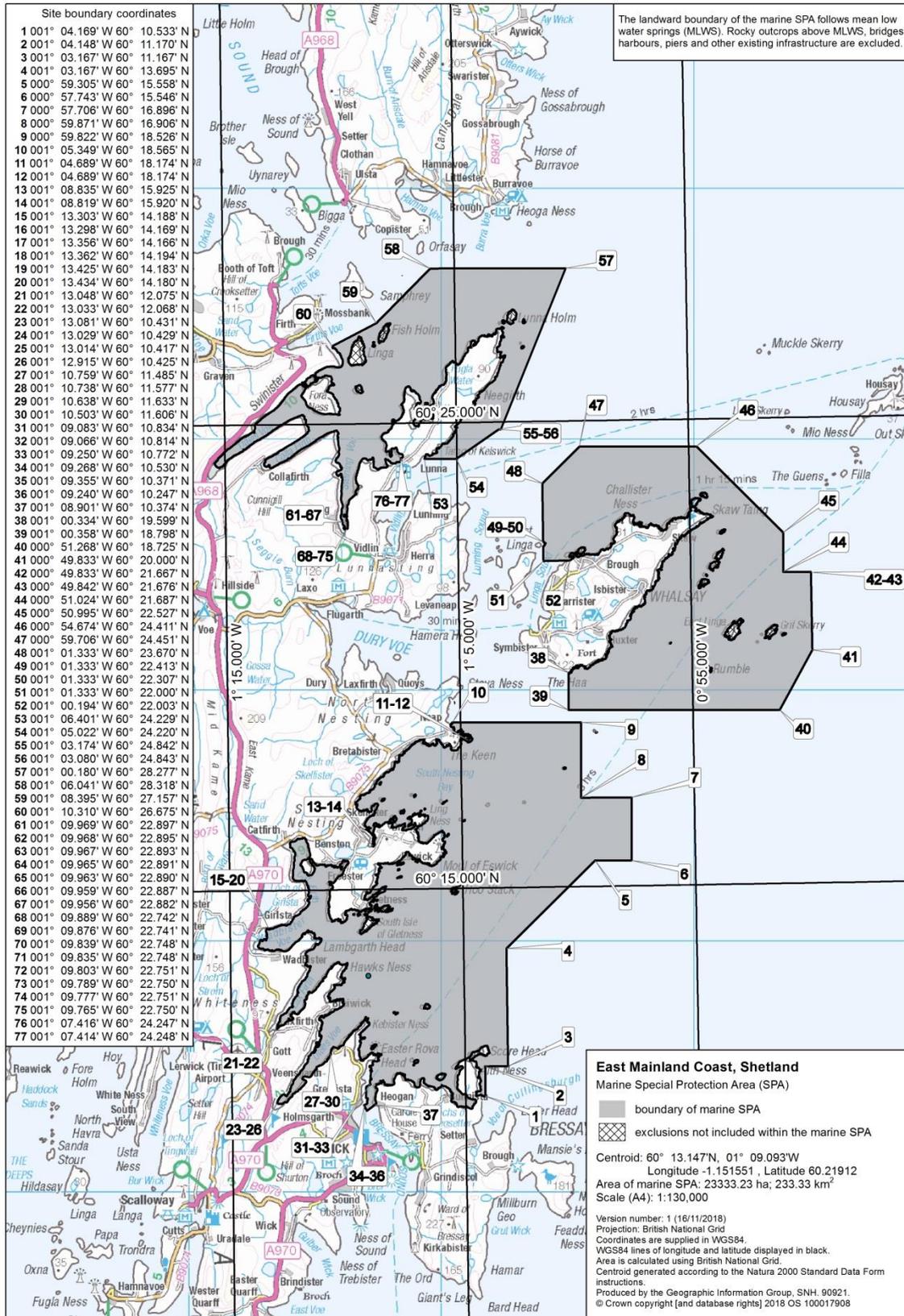
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Annex 1. Site map



Annex 2. Citation

Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended)

CITATION FOR SPECIAL PROTECTION AREA (SPA)

EAST MAINLAND COAST, SHETLAND (UK9020311)

Site Description:

The East Mainland Coast, Shetland Special Protection Area (SPA) stretches from Fish Holm and Lunna Ness in the north southwards, encompassing Whalsay, to the north coast of Bressay. Through much of the site water depths are generally less than 40 metres (m) but in the north depth rapidly increases. The east coast of Shetland is relatively sheltered compared to the west and much of the shore is cliff albeit well interspersed with sandy beaches and bays such that the sediments are largely gravel and sand. The diversity of fish, polychaete worms, gasteropod and bivalve molluscs dependent upon the sediments and seaweeds present form potential prey for waterbirds frequenting the area.

Qualifying Interest:

The East Mainland Coast, Shetland Special Protection Area (SPA) qualifies under **Article 4.1** by regularly supporting a non-breeding population of European importance of the following **Annex 1** species: **great northern diver** *Gavia immer* (a mean peak annual non-breeding population of 182 individuals (7.3% of the Great Britain (GB) population) for the years 2007/08 to 2009/10) and **Slavonian grebe** *Podiceps auritus* (a mean peak annual non-breeding population of 54 individuals (4.9% of the GB population) for the years 2006/07 to 2010/11).

The site also qualifies under **Article 4.1** by regularly supporting a population of European importance of the Annex 1 species **red-throated diver** *Gavia stellata* during the breeding season. The foraging area is available to 205 pairs of birds breeding on the nearby islands (15.8% of the GB population in 2006).

Area: 233.33 km² (23,333.237 ha).

Location: 60° 13.147' N, 001° 09.093' W

OS Sheet: 1:50,000 - 2, 3 & 4

06/12/2018

Scottish Natural Heritage

Annex 2b: Orkney inshore Waters, SPA



**Orkney Inshore Waters
Special Protection Area (SPA)
NO. UK9020333**

**SPA Site Selection Document:
Summary of the scientific case for site selection**

6th December 2018

Document version control		
Version and date	Amendments made and author	Issued to and date
Version 1 ³³	First draft following policy decision by Marine Scotland (28 September 2018): Kate Thompson and Emma Philip	Sally Thomas 10/10/18
Version 2	No amendments requested.	SNH's Scientific Advisory Committee MPA sub-group – Bob Furness, Ben Wilson, Beth Scott & Aileen Mill 17/10/18
Version 2	No amendments requested.	Sally Thomas on behalf of SNH's Senior Leadership Team 15/11/18
Version 3	Updated to include finalised maps and corresponding text.	Protected Areas Committee – Aoife Martin, Angus Campbell, Ian Gilles & Bob Furness 15/11/18
Version 3	No amendments requested. Final version for submission to Marine Scotland	Marine Scotland 06/12/18

³³ This relates solely to this Site Selection Document for Orkney Inshore Waters SPA. Full audit information for the North Orkney pSPA and Scapa Flow pSPA is provided in the Document Version Control tables within the Site Selection Documents for these sites that were provided for the public consultations in 2016.

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1. Introduction

This document provides Scottish Natural Heritage's (SNH) advice on the classification of a Special Protection Area (SPA) in the marine waters of "Orkney Inshore Waters" for inshore wintering waterfowl and shag and foraging areas for breeding red-throated diver. It summarises the evaluation for each of the species of interest according to the UK SPA Selection Guidelines (JNCC, 1999) and provides an overview of how the site boundary was developed.

Orkney Inshore Waters SPA has been selected to provide protection to important wintering grounds used for feeding, moulting and roosting by non-breeding shag and by waterfowl, many of which migrate to Scotland every year to overwinter or to stop off at as one of their staging posts while on migration. The inshore area is also selected as an important foraging area for breeding red-throated diver, falling within foraging range of a high concentration of nesting territories, including those in the Hoy and Orkney Mainland Moors SPAs. The protection of these inshore waters will make a key contribution to the maintenance of these species in their natural range in UK marine waters and form part of a coherent network of sites at a European level.

The importance of the marine environment for birds which spend all or part of their lives around our coasts is well recognised, particularly in Scotland. A total of 106 species of bird are thought to use UK marine waters of which 45 occur in numbers greater than fifty each year and are dependent on the marine environment for a large part of their lifecycle ([JNCC Overview of marine bird species](#)). All of these 45³⁴ species except one (black guillemot³⁵) are considered rare or vulnerable bird species (Annex 1), or regularly occurring migratory species by the Birds Directive (EC Directive on the conservation of wild birds (amended) - 2009/147/EC). This means that all Member States are obliged to take account of the requirements of Article 4 of the Birds Directive for each of these 44 species.

With respect to Annex 1 species, Article 4.1 states that "Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies". Similar measures are required for migratory species under Article 4.2. [European Commission guidance](#) on the establishment of SPAs in the marine environment (2007) sets out the groups of marine birds for which SPAs should be considered in the marine environment. This includes sites for wintering waterfowl and shags and feeding areas for breeding divers, including those used by birds from existing terrestrial SPAs to ensure they have continued access to key food sources.

The Scottish Government is committed to identifying a network of SPAs in the marine environment. The programme of classifying marine SPAs in Scotland is already well underway. To date, 31 marine extensions to seabird colonies have been classified in Scottish waters. These extensions are a crucial step forwards in the conservation of breeding seabirds, providing protection of the seas immediately surrounding the colony and used by seabirds (including fulmar, gannet, puffin, guillemot, razorbill and/or Manx shearwater) for maintenance and socialization behaviours such as preening, displaying, rafting, roosting and bathing (Webb & Reid, 2004). Some estuarine SPAs also provide protection for marine habitats above the Mean Low Water Springs (MLWS) used by divers,

³⁴ Note that common eider *Somateria mollissima* subspecies *faeroeensis* in Shetland is considered a distinct non-migratory population (SPA & Ramsar Scientific Working Group, 2018) and therefore the sub-species is not considered for site selection purposes under Article 4.2 of the Birds Directive.

³⁵ Nature Conservation Marine Protected Areas were designated in August 2014 for black guillemot.

sea ducks, grebes and some seabird species (e.g. cormorant and Sandwich tern). The existing network of sites is not considered sufficient to meet the requirements of Articles 4.1 and 4.2 because it currently does not include suitable territories at sea for species that the UK has a responsibility for.

Orkney Inshore Waters is being classified as part of a network of marine sites that aim to fulfil the requirements for SPAs in the marine environment for rare or vulnerable birds and regularly occurring migratory birds in the UK. As required by Article 4 of the Directive, the classification of this site will enable the application of special conservation measures concerning the habitat of Annex 1 and regularly occurring migratory birds in order to ensure their survival and reproduction in their area of distribution.

Full details of the site survey methodologies, data and analysis used to inform the selection of this site are provided in Lawson *et al.* (2015) for non-breeding inshore waterfowl and shag and Black *et al.* (2014) for breeding red-throated diver. All scientific work received full external independent peer review at key stages.

2. Site summary

The Orkney Inshore Waters Special Protection Area (SPA) (Figure 1) is located within the Orkney Islands. The site encompasses Scapa Flow and inshore waters of northern South Ronaldsay, Burray and south-east Mainland together with sounds between the islands of Mainland, Shapinsay, Rousay, Egilsay, Wyre, Gairsay and Eynhallow, including Deer Sound, Shapinsay Sound and Wide Firth. These sheltered and productive waters provide feeding, resting and moulting grounds for numerous divers, grebes, seaduck and shags.

The area included within the SPA supports a population of European importance of the following Annex 1 species:

- Great northern diver (*Gavia immer*)
- Red-throated diver (*Gavia stellata*)
- Black-throated diver (*Gavia arctica*)
- Slavonian grebe (*Podiceps auritus*)

It also supports migratory populations of European importance of the following species:

- European shag (*Phalacrocorax aristotelis*)
- Common eider (*Somateria mollissima*)
- Long-tailed duck (*Clangula hyemalis*)
- Red-breasted merganser (*Mergus serrator*)
- Velvet Scoter (*Melanitta fusca*)

Orkney Inshore Waters SPA comprises in total an area of 536.42 km².

In the southern part of the site, Scapa Flow is an enclosed sea area, sheltered by Orkney Mainland to the north, Hoy, South Walls and Flotta to the west and south and Burray and South Ronaldsay to the east. Scapa Flow is typically around 30 metres (m) deep, but there is a deeper trench at Brings Deeps reaching just over 60m depth. Sea depths in the channels between Mainland, Shapinsay, Rousay and other islands in the northern part of the site are rarely greater than 20m. Numerous shallow bays of varying aspect are found throughout the site (e.g. Bay of Ireland, Houton, Swanbister, Waukmill, Scapa, St Mary's, Water Sound, Holm Sound, Deer Sound, Inganess Bay and Wide Firth).

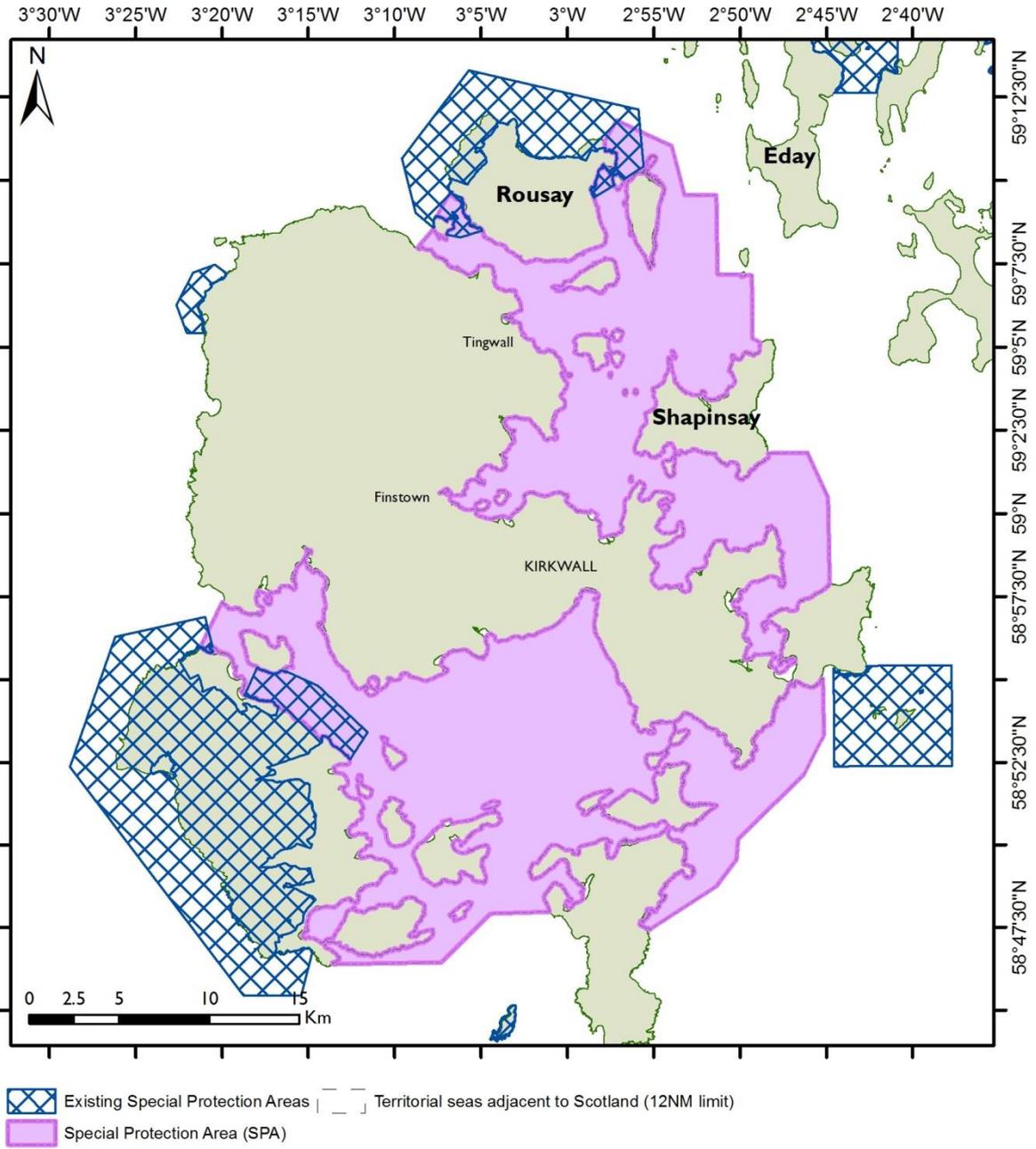
Sediments are primarily mixtures of mud sand and gravel but become cleaner and coarser in areas where tidal currents are stronger, such as between the main islands and in Hoy Sound and Hoxa Sound (Barne *et al.* 1997). Kelp forests occur on bedrock and boulder slopes and there are maerl beds in the vicinity of Graemsay and in the Sounds between Rousay and adjacent islands. The varied habitats across the site support a high diversity of marine life including polychaete worms, crustaceans, bivalve molluscs, pelagic and demersal fish species (e.g. Murray *et al.* 1999) and the complex topography provides numerous sheltered areas where birds can moult, roost, rest and feed.

Divers, grebes, mergansers and shags forage by surface diving and pursuing their prey through the water column and feed on a wide variety of fish that are associated with a range of seabed substrates. The fish species taken will be influenced by what is locally most readily available, but the diet of divers and mergansers can include haddock *Melanogrammus aeglefinus*, cod *Gadus morhua*, herring *Clupea harengus*, sprats *Sprattus sprattus* and gurnard *Eutrigla gurnardus* along with smaller species such as sandeels *Ammodytidae*, pipefish *Syngathidae*, gobies *Gobiidae*, flatfish *Pleuronectidae* and butterfish *Pholis gunnellus*. Sandeels are favoured by shags during the breeding season, but adult birds take a wide variety of species. Great northern divers also feed opportunistically on small crustaceans while Slavonian grebes feed on small fish together with amphipods and other crustaceans. Common eider, long-tailed duck and velvet scoter feed almost exclusively on molluscs and small crustaceans, diving from the surface to pluck their prey from the seabed.

Diving activity varies among species but average foraging dive depths for most are shallower than 15 m. However, substantially greater maximum dive depths have been recorded for some species, particularly European shag and great northern diver (maximum dive depth of 55m; Ropert-Coudert *et al.* 2016).

The presence of high densities of wintering waterfowl in Orkney Inshore Waters is indicative of the importance of these sheltered, shallow and productive waters at this time of year when frequent storms affect the surrounding North Sea and eastern Atlantic. European shag and common eider are resident throughout the year, but long-tailed duck, velvet scoter, great northern diver, black-throated diver and Slavonian grebe migrate long distances from their northern breeding grounds to reach wintering grounds such as Orkney Inshore Waters. Red-breasted mergansers are typically short distance migrants, using coastal areas in winter.

Orkney is a stronghold for breeding red-throated divers which feed almost exclusively at sea within a limited foraging range of their nesting sites in freshwater lochs and lochans. During the summer months, Orkney Inshore Waters include important foraging areas for a high concentration of red-throated diver nesting territories on adjacent islands including within Hoy SPA and Orkney Mainland Moors SPA.



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Figure 1. Location of Orkney Inshore Waters SPA

3. Bird survey information

Inshore wintering waterfowl (divers, grebes and seaduck)³⁶

Areas of Search

Existing data (including Wetland Bird Surveys (WeBS), Important Bird Areas (IBA) defined by BirdLife International, existing survey data and an atlas of seabird distributions) and information from published scientific literature were used to determine which initial areas might be important for inshore wintering waterfowl. Based on this initial assessment, 46 Areas of Search were identified across the UK, with 21³⁷ of these in Scotland. In the nearshore waters around Orkney two Areas of Search were identified as holding potentially large numbers of birds and therefore merited further survey. These two areas were: Scapa Flow and adjacent coastal waters; and, Shapinsay and Deer Sounds together with Sounds of Wyre, Rousay and Gairsay. In the following text these Areas of Search are referred to as Scapa Flow and North Orkney; this follows the terminology in Lawson *et al.* (2015).

A combination of aerial survey and shore-based surveys were conducted in the Scapa Flow and North Orkney Areas of Search between 1998/99 and 2008/09. As for all the Areas of Search for inshore wintering waterfowl, surveys were conducted between November and March to enable estimates of non-breeding populations to be made. No data were collected during migration periods or for aggregations of moulting birds. Data from these surveys were used to map species distributions and to calculate mean maximum counts of numbers of individuals (population estimates) for each species of interest. The population estimates were compared against the relevant national and/or biogeographic reference population estimates (Musgrove *et al.* 2013 or Wetlands International, 2014) to provide a percentage of the reference population for each species of interest (Lawson *et al.* 2015).

Aerial transect (2002/03-2005/06)

Within the Scapa Flow Area of Search, line transect aerial surveys were carried out on 5 occasions on 12th December 2002, 12th February 2004, 7th March 2005 and 29th January and 22nd February 2006. The count in December 2002 was confined to Scapa Flow itself. In the North Orkney Area of Search, line transect aerial surveys were carried out on two occasions on 18th February 2007 and 15th March 2008. All of these surveys were conducted by the Joint Nature Conservation Committee (Lawson *et al.* 2015).

The data from these aerial transect surveys were used to produce density distribution maps for great northern diver, common eider and long-tailed duck.

Shore-based and boat surveys

Aerial surveys are one of the most effective methods for surveying concentrations of birds over large inshore areas. However, species such as velvet scoter, Slavonian grebe and European shag are not easily detected during aerial surveys and divers can be challenging to identify to species, particularly in areas where several species may be present. Some species that remain very close to the shore, such as red-breasted merganser, may often be missed, as the aircraft makes sharp turns at the shoreline.

Accordingly, shore-based and boat-based surveys were also carried out to complement the aerial surveys. In the Scapa Flow Area of Search these comprised shore-based surveys of near-shore areas with boat-based survey of the central area of the Flow in the winter seasons (November–March) of 1998/99, 2000/01 and 2006/07. In the North Orkney Area of

³⁶ Full details of the methodologies, data and analysis used are provided in the JNCC Report 567: Lawson *et al.* 2015 and the JNCC generic document 'Identification of important marine areas for inshore wintering waterbirds'. JNCC Report 567 received full external independent peer review.

³⁷ There were originally 22 Areas of Search but the Greater Firth of Clyde and Inner Firth of Clyde, lying adjacent to each other were combined by JNCC to form the Firth of Clyde Area of Search.

Search shore-based surveys were undertaken in the winter seasons of 2007/2008 and 2008/2009 and provided coverage of most of this area, with the exception of the section between the north coast of Shapinsay and Egilsay. Count sectors south of Gairsay were counted 13 times over two seasons, those north of Gairsay 6 times over one season.

Wetland Bird Survey (WeBS) data were limited to small areas in eastern Scapa Flow and the south east of the North Orkney Area of Search; those from 2006/07-2010/11 were assessed, but not used to provide population estimates.

The data from the shore based counts, including boat survey of central Scapa Flow, were used to calculate mean maximum count of number of individuals (population estimate) for black-throated diver, Slavonian grebe, velvet scoter, red-breasted merganser and European shag. Data from shore and boat based counts within the Scapa Flow Area of Search and from a mix of aerial and shore based counts within the North Orkney Area of Search were used to calculate mean maximum count of number of individuals (population estimate) for great northern diver, common eider and long-tailed duck.

Feeding areas of breeding red-throated divers³⁸

The breeding distribution of red-throated divers in the UK is limited to Scotland and is largely restricted to the north and west of the country, with major strongholds in Shetland, Orkney, and the Outer Hebrides (Gibbons *et al.* 1993; Dillon *et al.* 2009).

The selection of foraging areas for breeding red-throated divers is based on modelled outputs underpinned by survey data from the red-throated diver national survey undertaken in 2006 (Dillon *et al.* 2009) and boat-based surveys to inform the habitat model (Black *et al.* 2015). To inform the habitat model, four main survey areas were chosen at which to undertake detailed data collection. These were selected to focus on the most important breeding areas, representing the geographical spread of breeding areas, and be practical in terms of field work logistics. The selected study areas were Unst, Yell and Fetlar (northern Shetland); Shetland Mainland; Hoy (Orkney); and North Uist (Outer Hebrides).

A national survey of red-throated diver provided data on breeding populations. Models were then developed to map predicted foraging distributions within maximum foraging flight range of breeding sites (Black *et al.* 2015). These models used observed correlations between environmental variables and diver distribution, as recorded in boat-based transect surveys and by visual or radio tracking of individual birds in four areas between 2003 and 2007, to predict areas that divers are likely to use in un-surveyed areas of sea. The data underpinning the models included locations within Orkney (around Hoy) where boat survey and visual tracking data were collected in summer 2005.

Estimating numbers of birds within an SPA boundary

SPA boundaries were derived by analysing the distributions of inshore wintering waterfowl species which occurred in qualifying numbers in the relevant Area(s) of Search (section 4). Those areas which contained the highest densities for each species were selected and overlaid to generate the SPA boundary. Further details are in [Defining SPA Boundaries At Sea](#) and the derivation of the boundary for Orkney Inshore Waters is described at section 5.

The numbers of birds of each qualifying species within the SPA boundary were then recalculated to exclude birds within the original Area(s) of Search but outwith the final SPA boundary. For those species for which numbers were derived from aerial survey data, this

³⁸ Full details of the methodologies, data and analysis used are provided in the Joint Nature Conservation Committee (JNCC) Report 541: Black *et al.* 2014 and the JNCC generic document 'Red-throated diver marine SPA identification: Data collection and analysis' JNCC Report received full external independent peer review.

was done with reference to density surfaces derived from the survey data using a species specific grid size. ArcGIS was used to calculate the area of each cell, or partial cell, located within the SPA boundary and the number of individual birds in each cell was then estimated by multiplying the cell area by the density value for that cell. The population estimate for each species within the SPA boundary was then provided by summing all cell totals within the boundary. For those species for which numbers were derived from shore counts, only sea areas within the final site boundary were included in the final SPA population estimates.

To provide population estimates for red-throated diver foraging areas, the number of breeding sites within foraging range was used as an estimate of number of pairs potentially using the area. Further information is described in [Red-throated diver marine SPA identification: Data collection and analysis](#).

The number of birds within the SPA boundary was then reassessed against the UK SPA Selection Guidelines to ensure the site still qualified for consideration as an SPA.

4. Assessment against the UK SPA Selection Guidelines

The UK SPA Selection Guidelines establish a two stage process for SPA identification (JNCC, 1999). Stage 1 allows identification of areas that are likely to qualify for SPA status.

Stage 1

To qualify under Stage 1 the area needs to meet one or more of the following four guidelines:

- 1.1. The area is used regularly by 1% or more of the Great Britain population of a species listed in Annex I to the Birds Directive in any season.
- 1.2. The area is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex I) in any season.
- 1.3. The area is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) or 20,000 seabirds in any season.
- 1.4. The area meets the requirements of one or more of the Stage 2 guidelines in any season, where the application of Stage 1 guidelines 1.1-1.3 for a species does not identify an adequate network of most suitable areas for the conservation of that species.

Additionally, it is established practice to apply a minimum threshold of 50 individuals to be regularly present on a site before it can be considered for site selection. An exception to this rule however applies where its application would preclude the selection of any suitable territories, and therefore prevent the fulfilment of UK obligations under the Birds Directive. This exception applies to non-breeding Slavonian grebe ([SPARSWG, 2015](#)) therefore UK SPAs are selected on the basis of meeting the 1% GB population threshold.

Stage 2

Those areas that meet one or more of the Stage 1 guidelines undergo further consideration using one or more of the ecological guidelines set out in Stage 2. There are seven Stage 2 guidelines, which are used to facilitate the selection of the most suitable areas from those identified at Stage 1 to produce a network of marine SPAs in Scotland. The Stage 2 guidelines are:

- 2.1 Population size and density
- 2.2 Species range
- 2.3 Breeding success

- 2.4 History of occupancy
- 2.5 Multi-species area
- 2.6 Naturalness
- 2.7 Severe weather refuges

Application of Stage 1.4

Ten species of non-breeding migratory waterfowl and seabirds (non-Annex 1) frequently occur in Scottish marine waters in substantial numbers. All of these species have very large biogeographic populations often spread over extensive areas. This means that applying guideline 1.2 (area regularly used by 1% or more of the biogeographical population of a regularly occurring migratory species), which has been helpful in identifying important areas on land, would largely fail to identify important areas at sea for these non-breeding migratory species. It is SNH and JNCC's view that the absence of these species from a network of marine SPAs would not satisfy the requirements of Article 4.1 of the Birds Directive.

Therefore, to ensure these species are represented they were considered using guideline 1.4. This is specifically designed to capture cases where a species' population status, ecology or movement patterns may mean that an adequate number of areas cannot be identified from guidelines 1.1-1.3 alone.

Our experience is that marine bird 'hotspots' usually support several species in substantial numbers potentially resulting in an SPA with rich biodiversity. In applying this fourth guideline, SNH only considered sites that had already been identified as potential SPAs for one or more species using guidelines 1.1-1.3. This approach allows for all ten species of non-breeding migratory birds (non-Annex 1) to be represented in the SPA network.

To assess which sites may be considered as suitable areas for those migratory birds that did not meet the threshold of 1% or more of their biogeographical population, SNH focused on three of the Stage 2 guidelines (population size and density, species range and multi-species area).

To provide a consistent and quantifiable population threshold for species that may be considered using guideline 1.4, species only became candidates for inclusion in a site where they occurred in numbers in excess of 1% of their GB population. This population threshold is consistent with the population threshold used to identify named qualifiers of a waterbirds or seabird assemblage selected under guideline 1.3.

At this SPA, common eider, long-tailed duck, velvet scoter and red-breasted merganser have been identified using this approach. The numbers of these four species exceed 1% of their GB populations and for each a high proportion of their distribution overlaps that of the qualifying Annex 1 species. The approach has been reviewed and supported by SNH's Scientific Advisory Committee.

Assessment against Stage 1 of the UK SPA Selection Guidelines

Great northern diver, black-throated diver, red-throated diver and Slavonian grebe are Annex 1 species and were present in numbers at or above 1% of the GB population. These species all met Stage 1.1 of the SPA guidelines (Table 1).

European shag is a regularly occurring migratory species present in numbers at or above 1% of the biogeographical population. This species therefore met Stage 1.2 of the SPA guidelines (Table 1).

Common eider, long-tailed duck, velvet scoter and red-breasted merganser, all regularly occurring migratory species, did not occur in numbers at or above 1% of their biogeographical population and therefore did not meet Stage 1.2 of the guidelines. All four

species did however exceed 1% of the GB population and could therefore be considered under Stage 1.4 (Table 1).

Table 1. Assessment against Stage 1

Species and season	Annex 1 or migratory	Population estimate in site ³⁹	% of GB population ^{40,41}	Stage 1 guideline
Great northern diver (non-breeding)	Annex 1	817	32.7	1.1
Red-throated diver (breeding)	Annex 1	102 pairs	7.8	1.1
Black-throated diver (non-breeding)	Annex 1	61	10.9	1.1
Slavonian grebe (non-breeding)	Annex 1	255	23.2	1.1
European shag (non-breeding)	Migratory	4671	4.2(2.3)	1.2
Common eider (non-breeding)	Migratory	3450	5.8(0.33)	1.4
Long-tailed duck (non-breeding)	Migratory	2332	21.2(0.15)	1.4
Velvet scoter(non-breeding)	Migratory	160	6.4(0.04)	1.4
Red-breasted merganser (non-breeding)	Migratory	883	10.5(0.52)	1.4

Assessment against Stage 2 of the UK SPA Selection Guidelines

One or more of the Stage 2 guidelines are used to identify the most suitable areas for classifying as SPA from those areas that meet the Stage 1 guidelines. The focus for considering which areas were most suitable concentrated on three of the seven guidelines; population size and density, species range and multi-species areas. Population densities were only considered for non-breeding Annex 1 species.

Fourteen⁴² areas around Scotland (from the initial 21 Areas of Search⁴³) were identified as meeting Stage 1.1 for one or more non-breeding Annex 1 species (great northern diver, black-throated diver, red-throated diver and Slavonian grebe). To help identify the most suitable sites for SPAs from these initial 14 areas, the non-breeding Annex 1 species were ranked for each site according to their population size, density and number of other non-breeding qualifying species also present within each area. Particular emphasis was placed on identifying areas that function as “hotspots” for many species rather than just a few. The results of the ranking exercise for Annex 1 species within the two areas of search that underpin the Orkney Inshore Waters SPA are provided in Table 2.

³⁹ The population estimates are based on the mean maximum population estimates provided in Lawson *et al.* 2015 for all inshore aggregations of non-breeding waterfowl, Black *et al.* 2014 for red-throated diver and amended, where appropriate to the site boundary.

⁴⁰ Reference populations are from Musgrove *et al.* 2013 and Wetlands International, 2014.

⁴¹ Figures in parenthesis show % of relevant biogeographical populations from Wetlands International Waterbird Population Estimates online database.

⁴² Originally 15 prior to combination of the Firth of Forth and Firth of Tay to form the Outer Firth of Forth and St Andrews Bay Complex pSPA.

⁴³ There were originally 22 Areas of Search but the Greater Firth of Clyde and Inner Firth of Clyde, lying adjacent to each other were combined by JNCC to form the Firth of Clyde Area of Search.

Table 2: Summary of initial Annex 1 ranking and overlapping multi-species interest in Scapa Flow and North Orkney Areas of Search (AoS).
nb = non-breeding season

Assessment/ Qualifying feature	Ranked importance for non-breeding Annex 1 species ⁴⁴	
	Scapa Flow AoS	North Orkney AoS
Great northern diver (nb)	4th most important site in Scotland	3rd most important site in Scotland
Black-throated diver (nb)	Most important site in Scotland	Not qualifying
Red-throated diver (nb)	Not qualifying	Not qualifying
Slavonian grebe (nb)	Most important site in Scotland	2 nd most important site in Scotland

Orkney Inshore Waters supports three Annex 1 species in the non-breeding season. It is the most important site in Scotland for black-throated diver and Slavonian grebe and the underpinning Areas of Search were individually the third and fourth most important sites for great northern diver.

Orkney Inshore Waters also supports the largest concentration of wintering European shag in GB, one of only two sites holding numbers in excess of the 1% bio-geographical population threshold. Additionally, this site supports some of the largest concentrations of other non-breeding waterfowl, so is an important multi-species site.

Following the initial ranking of Annex 1 species (Table 2), consideration was given to the stage 2.2 guideline (geographic range) for those Annex 1 species qualifying at stage 1.1 (great northern diver, black-throated diver and Slavonian grebe) and migratory species qualifying at stage 1.2 (European shag). Stage 2 guidelines were also assessed for the other non-breeding species considered at stage 1.4 on the basis of their populations exceeding 1% of the GB population (common eider, long-tailed duck, velvet scoter and red-breasted merganser) to ensure it was appropriate to include these species within the Orkney Inshore Waters site. Table 3 summarises these steps in the Stage 2 assessment.

Orkney Inshore Waters represents the only concentration of black-throated divers in the north of their GB range and the population of great northern diver is the largest in the east and north of Scotland. For the remaining species, which are more widely distributed, Orkney Inshore Waters is one of the main concentrations in the north of their GB wintering ranges. With regard to the other Stage 2 guidelines, all sites were considered largely 'natural', guidelines on breeding success was irrelevant for inshore wintering waterfowl and no information was available to provide further consideration to 'severe weather refuge'.

Full details on the selection process are provided in 'Overview of the Scottish marine Special Protection Area selection process' (SNH, 2018).

⁴⁴ Ranking was only applied to non-breeding Annex 1 species to provide an initial short-listing of most suitable areas that could then be subject to further checks for other marine bird interests. Ranking combines population size, density and multi-species interest to provide an overall rank.

Table 3: Summary of assessment against Stage 2 of the UK SPA Selection Guidelines.
nb – non-breeding season, b – breeding season

Stage 2 guideline/ Qualifying features	Population estimate ⁴⁵	Species range	Influence on site boundary?
Great northern diver (nb)	2 nd largest population in Scotland.	Important component in the north and easterly part of their range in GB.	Predominant species influencing boundary
Black-throated diver (nb)	Equal largest population in Scotland.	Most northern site in GB, only site in northeast of their range.	No influence on boundary.
Slavonian grebe (nb)	Largest population in Scotland and GB.	Largest concentration in the north and easterly part of their range in GB.	Influence in multi-species areas only ⁴⁶
Common eider (nb)	3 rd largest population in Scotland.	Largest concentration in the north of their range in GB.	Minor influence on eastern boundary as single species and elsewhere in multi-species areas only ⁴⁶ .
Long-tailed duck (nb)	2 nd largest population in Scotland.	Largest concentration in the north of their range in GB.	Minor influence on eastern boundary as single species and elsewhere in multi-species areas only ⁴⁶ .
Velvet scoter (nb)	3 rd largest population in Scotland.	Largest concentration in the north of their range in GB.	Influence in multi-species areas only ⁴⁶
Red-breasted merganser (nb)	Largest population in Scotland.	Largest concentration in the north of their range in GB.	Minor influence as single species in some bays in Scapa Flow and elsewhere in multi-species areas only ⁴⁶
European shag (nb)	2 nd largest population in Scotland ⁴⁷ .	Largest concentration in the north of their range in GB.	Influences a slightly extended distribution at some locations beyond that of great northern diver.

⁴⁵ Based on population estimates from Lawson *et al.* (2015). Two of the SPAs, Orkney Inshore Waters and Outer Firth of Forth and St Andrews Bay Complex, each encompass two of the original Areas of Search (North Orkney with Scapa Flow and Firth of Forth with Firth of Tay respectively) described in Lawson *et al.* (2015). The combined populations in these Areas of Search have been used when ranking populations here.

⁴⁶ Areas of multi-species interest lying outwith the great northern diver species-specific boundary and European shag distribution.

⁴⁷ Orkney Inshore Waters had largest population of non-breeding shag identified from shore-based counts, but ESAS data analysis (Kober *et al.* 2012) identified Moray Firth as largest population across the Areas of Search.

Red-throated diver (b)	3 rd largest of all Scottish marine SPAs ⁴⁸	Important component in the northern part of their range in GB.	Minor influence as single species in waters around Eynhallow.
Stage 2 guideline (whole site)			
Multi-species area	Three non-breeding Annex 1 species (great northern diver, black-throated diver and Slavonian grebe) with four other inshore waterfowl species occur in nationally important numbers during winter in close association, together with European shag (>1% bio-geographical population). The pSPA makes a contribution to each species range representation. In addition, a further Annex 1 species, the red-throated diver, uses at least part of the area for feeding during the breeding season. A total of nine qualifying species regularly occur in the pSPA.		
History of occupancy	Scapa Flow and surrounding waters have long been recognised for presence of non-breeding waterfowl (e.g. Buckley & Harvie- Brown, 1891; Baxter & Rintoul, 1953; Booth <i>et al.</i> 1984; Lack, 1986) and this site's importance to the species listed was confirmed by initial systematic surveys in the 1970s (Lea, 1980). Wintering shags have been recorded in Scapa Flow for over 50 years (Lack, 1986) and Lea (1980) estimated presence of several thousand birds. In the northern part of the site, shore-based surveys in 2001/02 (Williams, 2002) covering Eynhallow, Rousay and Gairsay Sounds support conclusion of 'regular' occurrence of notable populations of wintering waterbirds and additional data confirming the importance of North Orkney dSPA to wintering waterfowl are collated in Barton & Pollock (2004). Place names in Orkney indicate presence of breeding red-throated divers since Norse times and since the 1980s regular surveys on Hoy indicate that the population is being maintained at high densities (Booth <i>et al.</i> 1984, E.J. Williams, unpublished data and Orkney Bird Reports		

⁴⁸ Based on population estimates from the Site Selection Documents 2018.

5. Site status and boundary

The name for this site is the “Orkney Inshore Waters SPA”.

Marine sites present no visual surface features by which a seaward boundary can be identified. A site boundary was developed by reviewing the distribution of each species and selecting those areas which contained the highest densities. Great northern diver, common eider and long-tailed duck were recorded in good numbers from aerial survey and these data were used to establish mean density surfaces for each species and then applying maximum curvature to determine a density threshold. Threshold densities identified by maximum curvature were: 0.38 birds.km⁻² (great northern diver), 3.90birds.km⁻² (common eider) and 1.83 birds.km⁻² (long-tailed duck). For each species, a line was then drawn around all cells that exceed the density threshold to produce a species-specific boundary. Further details are in [Defining SPA Boundaries At Sea](#).

The area covering the species-specific boundary for great northern diver (qualifying under guideline 1.1) was then compared with the distributions of black-throated diver and Slavonian grebe (qualifying under guideline 1.1), European shag (qualifying under guideline 1.2) and other non-breeding species (qualifying under guideline 1.4) to establish the degree of overlap.

At Orkney Inshore Waters SPA, the distribution of great northern diver, together with the other three qualifying 1.1 and 1.2 species encompasses a substantial proportion of the species-specific boundaries for the 1.4 qualifiers common eider and long-tailed duck, as well as the most important shore count sectors for velvet scoter and red-breasted merganser. These combined distributions were used to produce an inshore wintering waterfowl and European shag composite species boundary.

The final boundary was created by drawing the boundary as tight as possible to the composite species boundary ensuring all cells exceeding density thresholds (maximum curvature) were included within the boundary. To avoid creating an over-complex boundary however some rationalisation of the final boundary was required, resulting in small areas with cells not exceeding the density threshold also being included in the final boundary. Whilst these areas did not exceed the density threshold, they are still likely to support lower densities of the qualifying species.

The SPA boundary encompassing the inshore wintering waterfowl and European shag composite distributions was further checked for overlapping interests with respect to other marine bird interests. The boundary included an area of maximum curvature, derived from models, identified for foraging Annex 1 red-throated diver during the breeding season. Analysis of numbers of breeding pairs of red-throated diver within foraging range of the SPA showed that the site was important for more than 1% of the GB breeding red-throated diver population and therefore breeding red-throated diver also qualified as an additional feature for the site. The maximum curvature boundary for red-throated diver also supported slight extension of the site boundary in the waters around Eynhallow.

The site extends to 536.42 km². Boundary co-ordinates for the SPA are given on the site map in Annex 1.

6. Information on qualifying species

Great northern diver

Great northern divers were present on all aerial surveys and distributed generally throughout deeper waters such as central Scapa Flow and to the south east of Egilsay and Wyre (Figure 2). Numbers of the species exceeded the Stage 1.1 threshold of 1% of the Great Britain population (25 birds) and the default site selection threshold of 50 birds (for those scarce species with a small population or where the population is not known with certainty) in all 6 of the aerial survey days within the site across the five winter seasons from 2003/04-2007/08. Numbers of great northern divers recorded in shore and boat based surveys also exceeded these stage 1 thresholds in all five survey seasons between 1998/99 and 2008/09. The consistent presence of qualifying numbers of great northern divers within the site across a total of 8 seasons meets the definition of regularly occurring, with a maximum single count of 781 birds (in the Scapa Flow section of the site only) in March 1999. Overall, the data indicate a mean of peak annual non-breeding population estimate of 817 great northern divers, equivalent to 32.7% of the current Great Britain population estimate of 2,500 birds (Musgrove *et al.* 2013) in the Orkney Inshore Waters SPA, clearly exceeding the Stage 1.1 threshold.

Population size and density

The northern and western seabords of Scotland are the non-breeding strongholds of the great northern diver population of Great Britain. The area supports second largest population of great northern divers in the SPA network and by far the largest population on the east and north coasts of Scotland, with only that off the west coast of the Hebrides being larger. Densities detected by aerial surveys within the site ranged from less than 0.1 birds/km² to 4.0 birds/km².

Distribution within the site

Great northern diver was the main species influencing the extent of the boundary (Figure 2).

Species range

The species occurs during winter round much of the British coastline. The maximum concentrations are to the north and west of Scotland, numbers being sparse or local south of Duncansby Head in Caithness and around the Clyde estuary. The west of Ireland, and to a considerable degree, its south coast is also important. This SPA is an important component of the north and easterly part of the range in Great Britain.

History of occupancy

There is no evidence to suggest that this area has ever been anything but important for the species. The earliest record of its occurrence relate to the first half of the 19th century and its continued presence has been noted many times throughout the 20th and 21st centuries, suggesting this area has true long-term viability (Buckley & Harvie-Brown, 1891; Baxter & Rintoul, 1953; Lea, 1980; Booth *et al.* 1984; Lack, 1986; Forrester & Andrews, 2007).

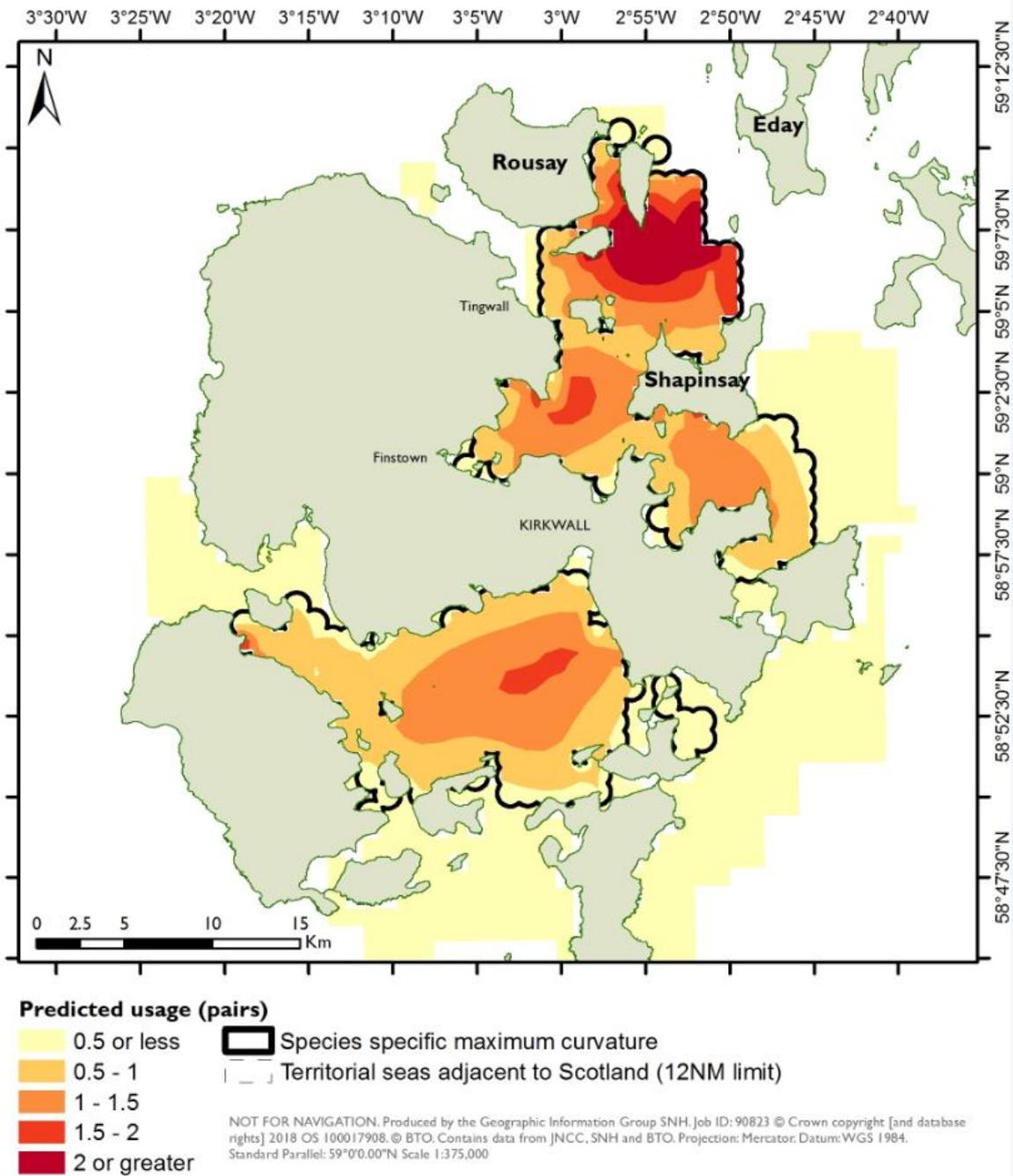


Figure 2. The distribution of great northern divers in the Orkney Inshore Waters SPA.

Black-throated diver

Black-throated divers within the Orkney Inshore Waters are largely confined to Scapa Flow, and are most frequently seen around the shores of Hoy, Mainland and South Ronaldsay (Figure 3). With a mean of peaks estimate of 61 individuals during the period 1998/99-2008/09, numbers of black-throated diver exceeded the Site Selection Stage 1.1 (1% or more of the GB population of an Annex 1 species), which for black-throated diver is 6 birds. The Scapa Flow Area of Search was also one of only two that exceeded the default level of 50 birds for species with small total population numbers (for black-throated diver estimated to be currently about 600 birds in Great Britain). This is the largest concentration in the marine SPA network.

Population size and density

Four non-breeding concentrations of black throated divers are known around the shores of Great Britain. The population of 61 birds in Orkney Inshore Waters is the largest in the marine SPA network and one of the two largest known in Scotland. The population within the SPA boundary exceeds the 1% of the Great Britain population level for Annex 1 species. This is a scarce wintering species such that average density across the SPA is low (0.11 birds km⁻²) but densities within favoured inshore areas are substantially greater (Figure 3).

Distribution within the site

The black-throated diver distribution at this site (Figure 3) falls entirely within that identified for great-northern diver (Figure 2) and/or European shag (Figure 9), and therefore this species does not influence the site boundary.

Species range

As a scarce non-breeding species in Great Britain only four concentrations have been identified; the largest, with just over 100 birds, on the south Cornish coast. This site, along with the West Coast of the Outer Hebrides and south Cornwall, gives good representation of the species range around Great Britain.

History of occupancy

The species has undoubtedly been present in small numbers for over a century although records are few, especially in the 19th century. However with the increase in popularity of bird watching its presence is confirmed throughout the last 50 years of the 20th century into the 21st century (Lack, 1986).

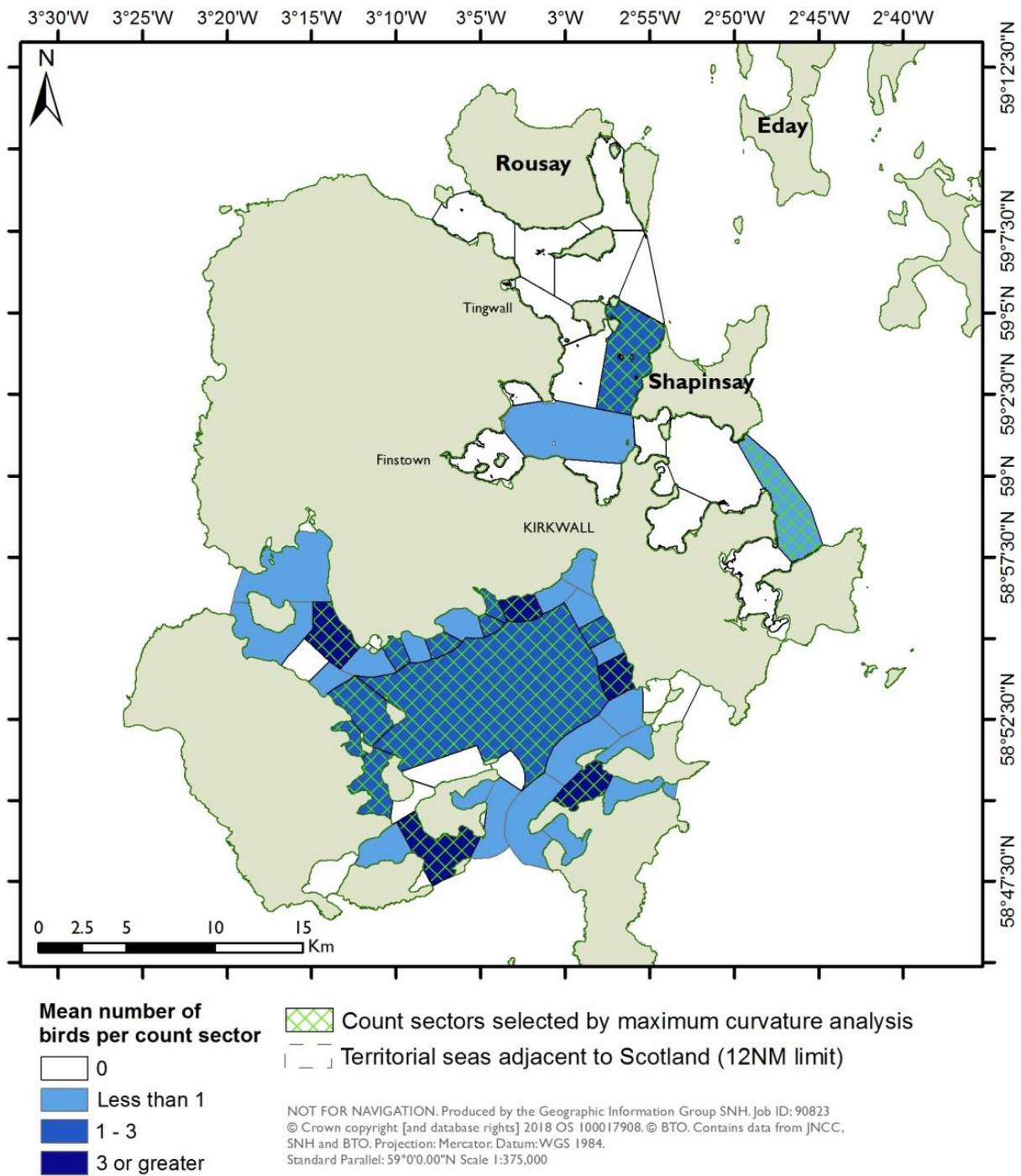


Figure 3. The distribution of black-throated divers in the Orkney Inshore Waters SPA.

Slavonian grebe

Slavonian grebes occurred in sheltered shallow coastal waters within the Orkney Inshore Waters SPA, most numerous along the south-eastern shore of Mainland and the northern shores of Burray and South Ronaldsay in Scapa Flow and in Wide Firth, Inganess Bay and Deer Sound (Figure 4). In all five seasons between 1998/99 and 2008/09 when land based surveys were undertaken within the site boundary, numbers of Slavonian grebes recorded exceeded both the Site Selection Stage 1.1 threshold of 1% of the GB population (11 birds) and the default site selection threshold of 50 birds (for those scarce species with a small population or where the population is not known with certainty) thereby meeting the definition of regularly occurring. The maximum single count of 141 birds (in the Scapa Flow section of the site only) was in January 2001. Overall, the mean of the peak annual non-breeding populations was 255 birds (23.2% of the Great Britain population).

Population size and density

The north and west seaboard of Great Britain are the stronghold of this species in Great Britain and, whilst there are other Scottish locations with concentrations, notably the Firth of Forth area and the Moray Firth in Scotland, Orkney along with the Outer Hebrides and Shetland stand out. The island groups of Orkney and Shetland are clearly important as a whole to the species but Orkney Inshore Waters stands out as an individually important location with the largest of all populations recorded (255 individuals (up to 23.2% of the GB population). The average density of 0.47 birds km⁻² across the whole site is considerably exceeded in the sheltered bays, particularly on the east side of Scapa Flow and off the coast of Mainland that are favoured by this species.

Distribution within the site

The distribution of Slavonian grebe at this site (Figure 4) falls largely within that identified for great-northern diver (Figure 2), but with red-breasted merganser (Figure 8) and European shag (Figure 9) extends the site boundary in Eynhallow Sound. Slavonian grebe, with four other inshore wintering species, also influences the boundary at Deer Sound and together with red-breasted merganser and common eider (Figure 5) at North Bay (Figure 4).

Species range

The species occurs in small numbers round the coasts of Great Britain with concentrations in specific localities but there are few significant populations. Orkney Inshore Waters supports the largest concentration in Great Britain. This site is therefore an important component in range representation for Scotland and Great Britain.

History of occupancy

Records are sparse in the 19th and early 20th centuries. However, over at least a 60 year period, through the second half of the 20th century and first few years of the 21st century the species has been recorded in significant numbers and the consistent importance of this area confirmed (Buckley & Harvie-Brown, 1891; Baxter & Rintoul, 1953; Lea, 1980; Booth *et al.* 1984; Lack, 1986; Forrester & Andrews, 2007).

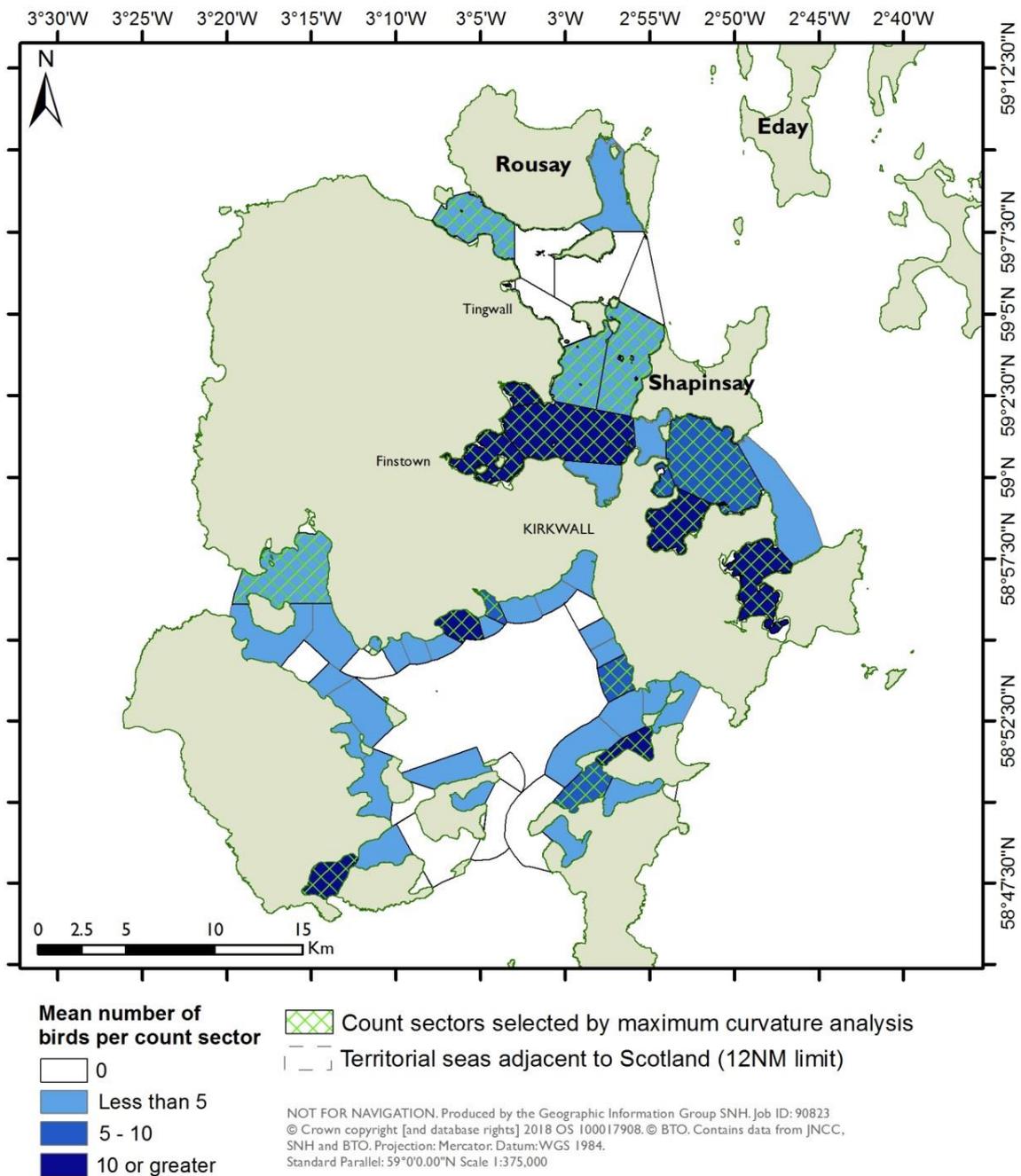


Figure 4. The distribution of Slavonian grebes in the Orkney Inshore Waters SPA.

Common eider

Eiders in mainland Great Britain belong to the biogeographical race *Somateria .m. mollissima* whilst those in Shetland belong to a different and more restricted biogeographic race *Somateria m. faeroeensis* (Furness *et al.* 2010). The race of those residing in Orkney is, as yet, undetermined and numbers in Orkney are assessed against the mainland race.

Common eider within Orkney Inshore Waters overlap extensively in distribution with great northern diver (Figures 2 & 5). In Scapa Flow the highest densities were generally in more shallow areas, especially off the south-east coast of Hoy and across the western and southern reaches while in the northern part of the site the highest densities were in waters extending north from Wide Firth around Gairsay and Wyre (Figure 5). Notable densities were also found round the exposed southern and eastern coasts of South Ronaldsay and Burray.

Numbers did not exceed those needed to meet the Stage 1.2 guideline (1% or more of the biogeographic population), 10,300 birds but considerably exceeded the level of 1% of the Great Britain total (600 birds) in all 6 of the aerial survey days within the site across the five winter seasons from 2003/04-2007/08 and in all five seasons between 1998/99 and 2008/09 when shore and boat based surveys were carried out. The consistent presence of qualifying numbers of common eider within the site across a total of 8 seasons meets the definition of regularly occurring. Overall the mean peak annual non-breeding population was 3,450 birds (5.8 % of the GB population).

Population size and density

For a species which has a very sizeable biogeographic population of about 1,030,000 birds, no location in Great Britain nearly reaches the 1% selection level to meet the Stage 1.2 Guideline. Nevertheless, Great Britain supports a large national population, with most in Scotland, and hence a mean of peak estimates population of 3,450 birds (5.8 % of the GB population) identifies Orkney Inshore Waters as an important site. Common eider is therefore included under SPA site selection guideline 1.4.

Density estimates derived from aerial surveys ranged from 0.2 – 19.4 birds/km² comparable with those on the West Coast of the Outer Hebrides but lower than maxima in the Firths of Tay and Forth where there are sizeable local breeding colonies.

Distribution within the site

The common eider distribution at this site (Figure 5) fell largely within that identified for great northern diver (Figure 2). The species-specific boundary for common eider extends the boundary to the east of northern South Ronaldsay (Figure 5) and, along with long-tailed duck (Figure 6) influences the site boundary to the east of Burray and south-east of East Mainland. Some of the waters around South Ronaldsay identified as falling within the maximum curvature boundary for common eider within the Scapa Flow Area of Search were not included within the Orkney Inshore Waters pSPA (Figure 1) as no other qualifying species were identified as occurring at high densities within these areas (see section 7.1.4 in ['Overview of the Scottish marine Special Protection Area selection process'](#) (SNH, 2018) on principles for inclusion of species under Stage 1.4).

Species range

Whilst eiders are widely distributed and, during winter, may occur round virtually the whole UK coastline, the range is predominantly in northern England and especially mainland Scotland and the Scottish island groups. Orkney Inshore Waters is one of the main non-breeding concentrations of eiders in the Northern Isles, and along with the Firths of Forth & Tay, Montrose Basin and Aberdeen Bay on the east mainland coast, represents the northern part of the distribution of the nominate race in Great Britain.

History of occupancy

The presence of eiders in Orkney has been long noted; records going back to the first half of the 19th century (MacGillivray, 1837) with detailed records since the second half of the 20th century (Buckley & Harvie-Brown, 1891; Baxter & Rintoul, 1953; Lea, 1980; Booth *et al.* 1984; Lack, 1986; Forrester & Andrews, 2007).

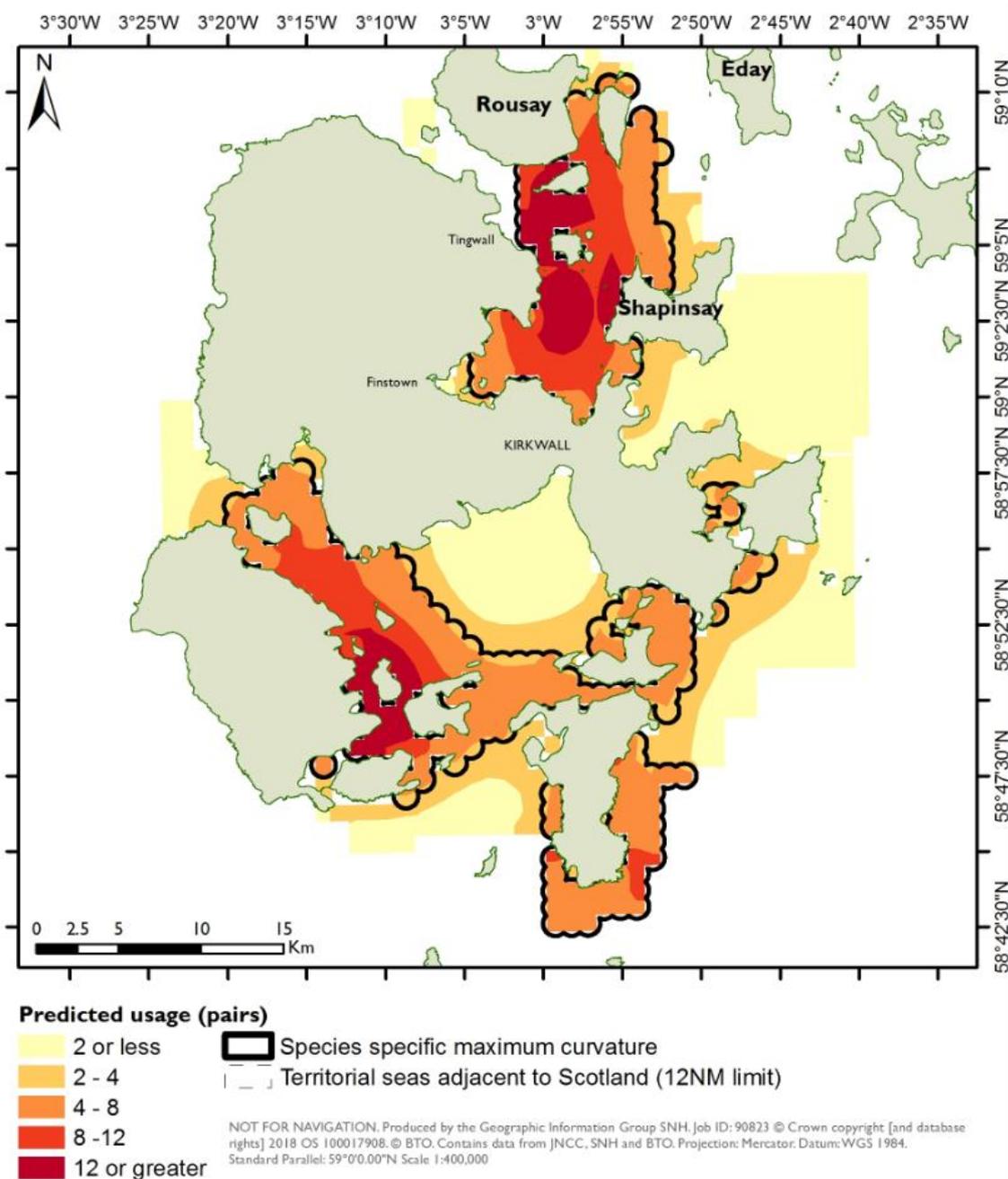


Figure 5. The distribution of common eiders in and adjacent to the Orkney Inshore Waters SPA.

Long-tailed duck

Long-tailed ducks were widely recorded across shallower coastal areas of Orkney Inshore Waters SPA, with noticeable concentrations in western Scapa Flow, between north-east Hoy and Mainland, between Burray and east Mainland, to the east of Rousay and around Egilsay (Figure 6). Numbers of long-tailed duck did not exceed those needed to meet the Stage 1.2 guideline (16,000 birds) but considerably exceeded the level of 1% of the Great Britain total (110 birds) in all 6 of the aerial survey days within the site across the five winter seasons from 2003/04-2007/08 and in all five seasons between 1998/99 and 2008/09 when shore and boat based surveys were carried out. The consistent presence of qualifying numbers of long-tailed duck within the site across a total of 8 seasons meets the definition of regularly occurring. Overall, the area supported a mean peak annual non-breeding population for the survey years of 2,332 individuals (21.2% of the GB population).

Population size and density

The population of long-tailed ducks in Orkney Inshore Waters, albeit only a small proportion of the biogeographic population, is one of the largest in Scotland (and Great Britain) when compared to the other notable concentrations on east mainland Scotland, Shetland and on the west coast of the Outer Hebrides. Whilst the population in the Moray Firth and Firth of Forth/Tay are the largest in Great Britain, that in Orkney Inshore Waters is the second largest and most important in the Northern Isles. The maximum density recorded in aerial surveys was 15.7 birds km⁻² and the mean peak count of 2,332 birds represents an average density across the SPA of 4.32 birds km⁻².

Distribution within the site

The long-tailed duck distribution at this site (Figure 6) fell largely within that identified for great northern diver (Figure 2). The species-specific boundary for long-tailed duck extends the boundary to the east of Rousay (Figure 6) and, along with common eider (Figure 5) influences the site boundary to the east of Burray and East Mainland.

Species range

The species occurs right round the coast of Great Britain during winter, but the main distribution is eastern Scotland and the island groups. Within that broad range, locations where long-tailed duck are abundant are few and widely spaced except in Scotland. The Orkney Inshore Waters SPA is an important component in the northern part of that range.

History of occupancy

The written record refers to long-tailed ducks being common in the area in the first few decades of the 19th century (MacGillivray, 1837). However detailed numerical data are relatively few until the second half of the 20th century; from then till the present, a period exceeding 50 years, birds have been consistently recorded. (Buckley & Harvie-Brown, 1891; Baxter & Rintoul, 1953; Lea, 1980; Booth *et al.* 1984; Lack, 1986; Owen *et al.* 1986; Forrester & Andrews, 2007; Balmer *et al.* 2013).

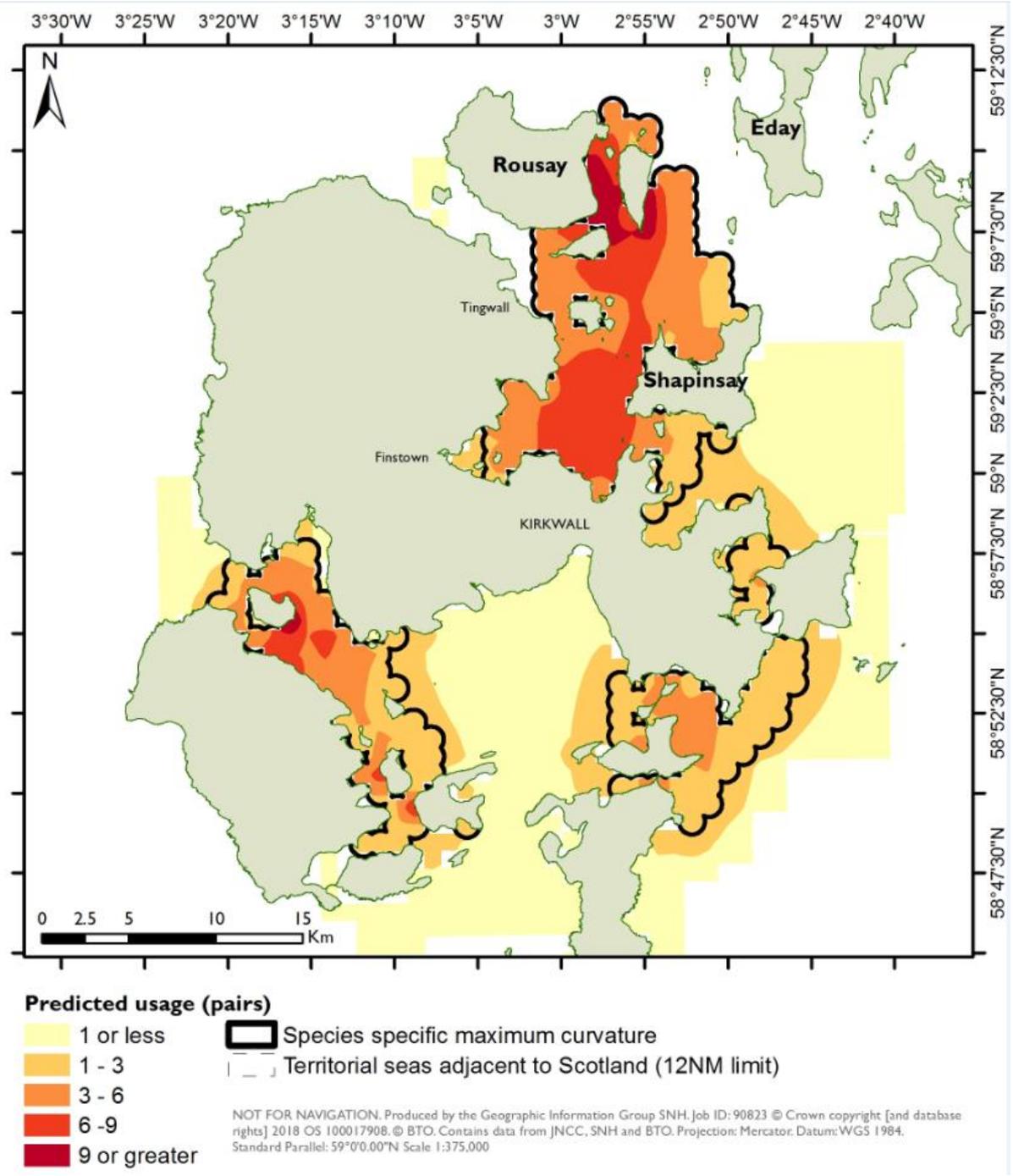


Figure 6. The distribution of long-tailed ducks in the Orkney Inshore Waters SPA.

Velvet scoter

Scotland is the UK stronghold for non-breeding velvet scoters with Orkney Inshore Waters being one of a very small number of locations in Great Britain, all but the Wash in Scotland, which support more than a few birds. Velvet scoters were recorded in shore based surveys throughout the northern part of the site, with highest numbers in sheltered Mainland bays and up to 19 birds were also found in Scapa Flow (Figure 7). Numbers did not exceed the Site Selection Stage 1.2 for migratory species in the SPA. However numbers did exceed both 1 % of the GB population (25 birds), and the default selection threshold of 50 birds (for those scarce species with a small population or where the population is not known with certainty), in both years of shore-based surveys within the North Orkney Area of Search (peak counts of 165 in 2007/08 and 129 in 2008/09).

Only two years of shore based counts were available for this species within its core range in the Orkney Inshore Waters SPA and therefore, although present in sizeable numbers within the area utilised by great northern divers each year, it did not meet the strict definition of regular in the Site Selection Guidelines. However, counts of velvet scoter within small sections of the SPA from several locations along the north shore of Orkney Mainland between Wide Firth and Deer Sound are reported in the annual Orkney Bird Reports and from 2009/10 to 2012/13 the maximum reported partial counts were 65, 66, 42 and 138 respectively. The presence of numbers of velvet scoter substantially in excess of the 1% GB population threshold (25 birds) in six successive winter seasons confirms the species' regular occurrence within the Orkney Inshore Waters SPA and the exceptional count of 138 birds in Deer Sound in March 2013 is close to the peak mean of 147 birds for the two years when the whole site was systematically surveyed. Given these additional data, and that only three sites in Scotland hold numbers above 1% GB, velvet scoter is included as a qualifying feature of Orkney Inshore Waters SPA.⁴⁹

Population size and density

With a population of 160 birds (6.4% of the Great Britain population) this is the smallest, and furthest north, of the three Scottish sites. The average density across the SPA is 0.30 birds km⁻² with substantially higher densities in favoured locations within the site (Figure 7).

Distribution within the site

The distribution of velvet scoter at this site (Figure 7) falls largely within that identified for great-northern diver (Figure 2) and/or European shag (Figure 9). However, with four other inshore wintering species, velvet scoter influences the boundary at Deer Sound (Figure 7).

Species range

The species occurs sparsely right round the coast of Great Britain during winter, with the main distribution being east mainland Scotland and Orkney. The Orkney Inshore Waters SPA supports the most sizeable population in the north of the core range.

History of occupancy

The written record refers to velvet scoters being recorded in the Orkney area in the latter half of the 19th century (MacGillivray, 1837). However detailed numerical data are relatively few until the second half of the 20th century; from then till the present, a period exceeding 50 years, birds have been consistently recorded (Buckley & Harvie-Brown, 1891; Lack, 1986) and partial surveys of waters around Wyre in the mid-1970s recorded up to 81 velvet scoter (Lea, 1980).

⁴⁹ Additional systematic shore-based surveys in winter 2017/18 included a peak count of 244 velvet scoters within the North Orkney Area of Search (Upton *et al.* 2018)

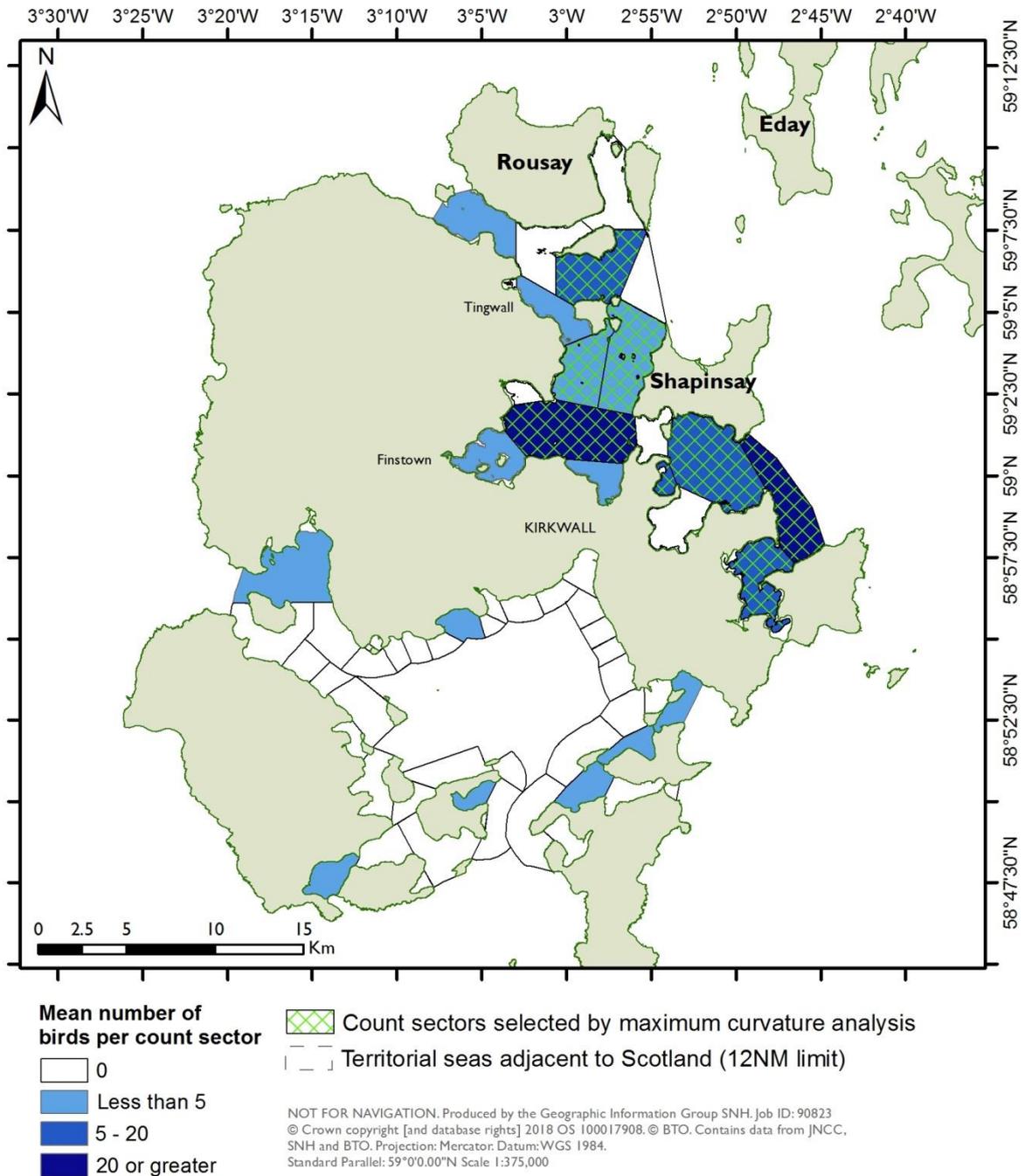


Figure 7: The distribution of velvet scoter in the Orkney Inshore Waters SPA

Red-breasted merganser

Red-breasted mergansers were widely distributed in coastal waters and channels between islands throughout the Orkney Inshore Waters SPA (Figure 8). Numbers of red-breasted merganser in the SPA did not exceed those needed to meet the Stage 1.2 guideline (1,700 birds). Numbers detected in aerial surveys were consistently lower than in shore-based counts but considerably exceeded the level of 1% of the Great Britain total (84 birds) in 3 of the 5 winters between 2003/04 and 2007/08. Shore –based counts in all 5 seasons covered between 1998/99 and 2008/09 detected up to 628 birds in Scapa Flow and 409 in the northern part of the site. Overall, a mean peak annual non-breeding population in the area for the survey years of 883 birds (10.5% of the GB population) was estimated.

Population size and density

The non-breeding red-breasted merganser population is distributed inshore in relatively sheltered areas throughout the United Kingdom and the Republic of Ireland with few areas supporting more than 200 birds. In Scotland, the species is notably concentrated around the west mainland, the Outer Hebrides and the Northern Isles. On the mainland, birds tend to number around 150-200 although numbers in the Northern Isles tend to be greater. The Orkney Inshore Waters SPA with a mean population of peak estimates of 883 birds (10.5% of the GB population), along with the Moray Firth and the Firths of Forth and Tay, support the largest populations in eastern Scotland. The population estimates derived from boat and shore based counts give an average density across the site of 1.64 birds km⁻² but this is greatly exceeded in locations such as the bays off Mainland where red-breasted mergansers congregate (Figure 8).

Distribution within the site

Red-breasted merganser is one of several inshore wintering waterfowl species that influence the site boundary in locations outwith the species-specific boundaries for great northern diver (Figure 2). In particular, red-breasted merganser influences the boundary at North Bay between Walls and Hoy and at Widewall Bay (Figure 8). Together with Slavonian grebe (Figure 4) and European shag (Figure 9) it also extends the site boundary in Eynhallow Sound and with four other inshore wintering species it influences the boundary at Deer Sound (Figure 8).

Species range

Red-breasted mergansers occur right round the coastline of the UK and the Republic of Ireland but are notably concentrated in west mainland Scotland, the Outer Hebrides and the Northern Isles with only local abundance along the east mainland coast. The Orkney Inshore Waters SPA supports the most significant population in Orkney and Shetland in the north of the range.

History of occupancy

Whilst in the early years records are sparse, the presence of red-breasted mergansers in the area has been noted for almost two hundred years with more detailed data available from the second half of the 20th century (Buckley and Harvie-Brown, 1891; Baxter & Rintoul, 1953; Lea, 1980; Booth *et al.* 1984; Lack, 1986; Forrester & Andrews, 2007; Balmer *et al.* 2013).

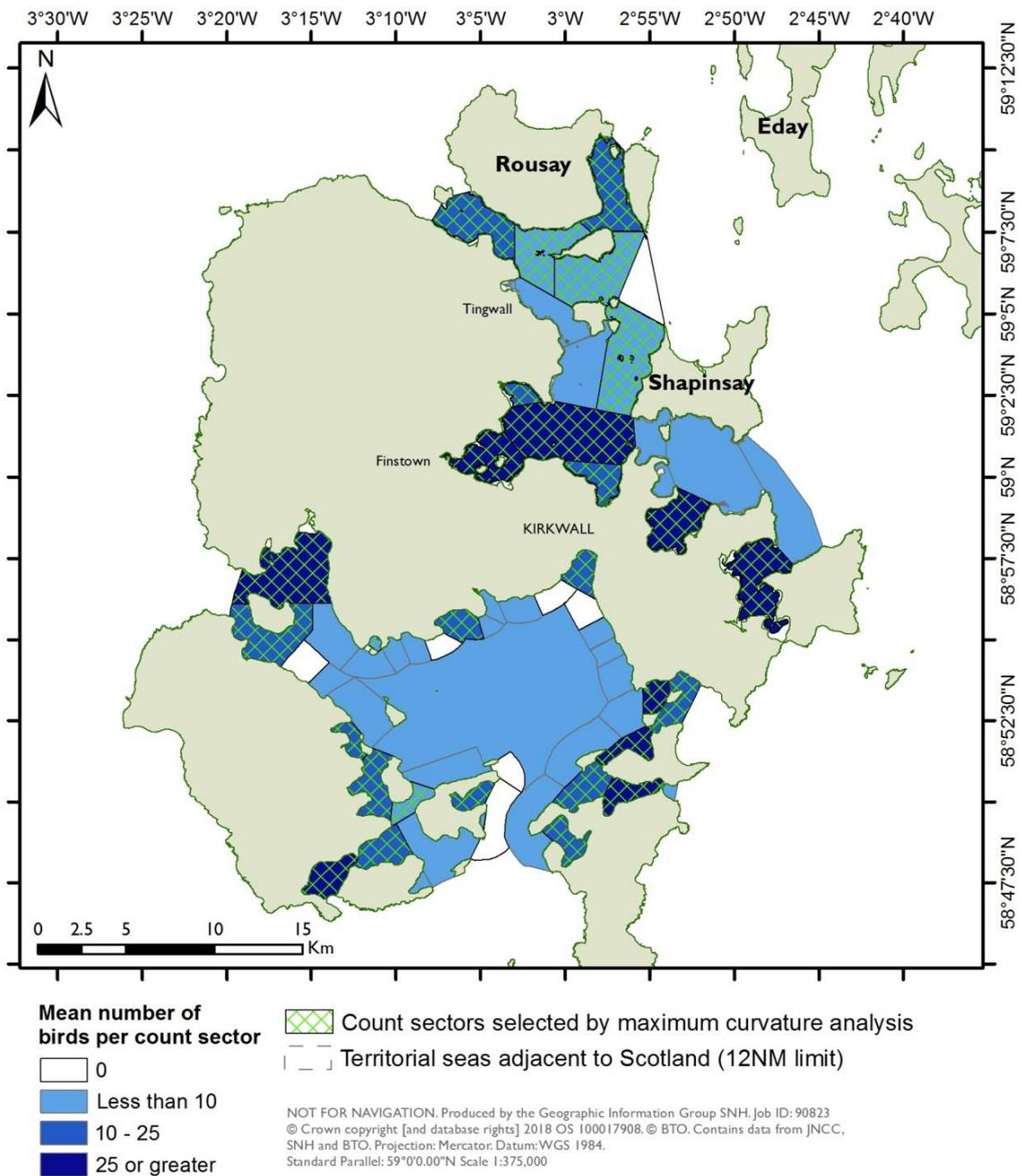


Figure 8. The distribution of red-breasted mergansers in the Orkney Inshore Waters SPA.

European shag

European shags were widely distributed across the Orkney Inshore Waters SPA, with the most notable concentrations in the Mainland bays in the north of the site and in tidal channels, such as Eynhallow Sound and around Graemsay and Switha in Scapa Flow (Figure 9). During winter numbers of European shag in the area exceeded those needed to meet the Stage 1.2 guideline (1% or more of the biogeographic population), in this case 2,000 birds, within the Scapa Flow Area of Search in each of the three seasons of shore-based surveys there between 1998/99 and 2006/07, confirming regular use of the site by qualifying numbers. Surveys in the North Orkney area of search in 2007/08 and 2008/09 found up to 1856 birds. Overall, the mean peak annual non-breeding population for survey years was 4671 birds (4.2 % of the GB population and 2.3% of the biogeographic population).

In addition, while not informing site selection, shore-based surveys in both Scapa Flow and North Orkney in the winter of 2017/18 found peak counts of 3950 and 2968 European shag respectively (Jackson *et al.* 2018; Upton *et al.* 2018).

Population size and density

Whilst non-breeding shags are widely distributed they are concentrated in the north of Great Britain round all the coasts and islands of Scotland, with only a local concentration in England in the south-west. All significant inshore counts are in the north, particularly in Orkney and Shetland and the population in Orkney Inshore Waters 4671 birds (4.2 % of the GB population and 2.3% of the biogeographic population) is the largest by far, representing an average density of 8.67 birds km⁻², with much higher densities at some locations within the site (Figure 9). Only populations identified in the Moray Firth during analysis of European Seabird at Sea data were shown to be larger overall (Kober *et al.* 2012).

Distribution within the site

The distribution of European shag largely overlaps the distribution of great northern diver, extending it slightly into Bay of Ireland and Switha Sound in Scapa Flow. European shag with Slavonian grebe (Figure 4) and red-breasted merganser (Figure 8) also influences inclusion of Eynhallow Sound in the north of the site (Figure 9).

Species range

In Great Britain shags during winter are distributed very much round the whole coastline. However, in contrast to cormorants, the bulk of the inshore population is distributed round Scottish coasts, especially the north and west. Hence this site lies in the core distribution of the species and is one of the most important concentrations in Great Britain.

History of occupancy

There are records of shags in the area for over 50 years (Lack, 1986; Forrester & Andrews, 2007; Balmer *et al.* 2013) and Lea (1980) noted the use of Scapa Flow by several thousand wintering shag in the 1970s.

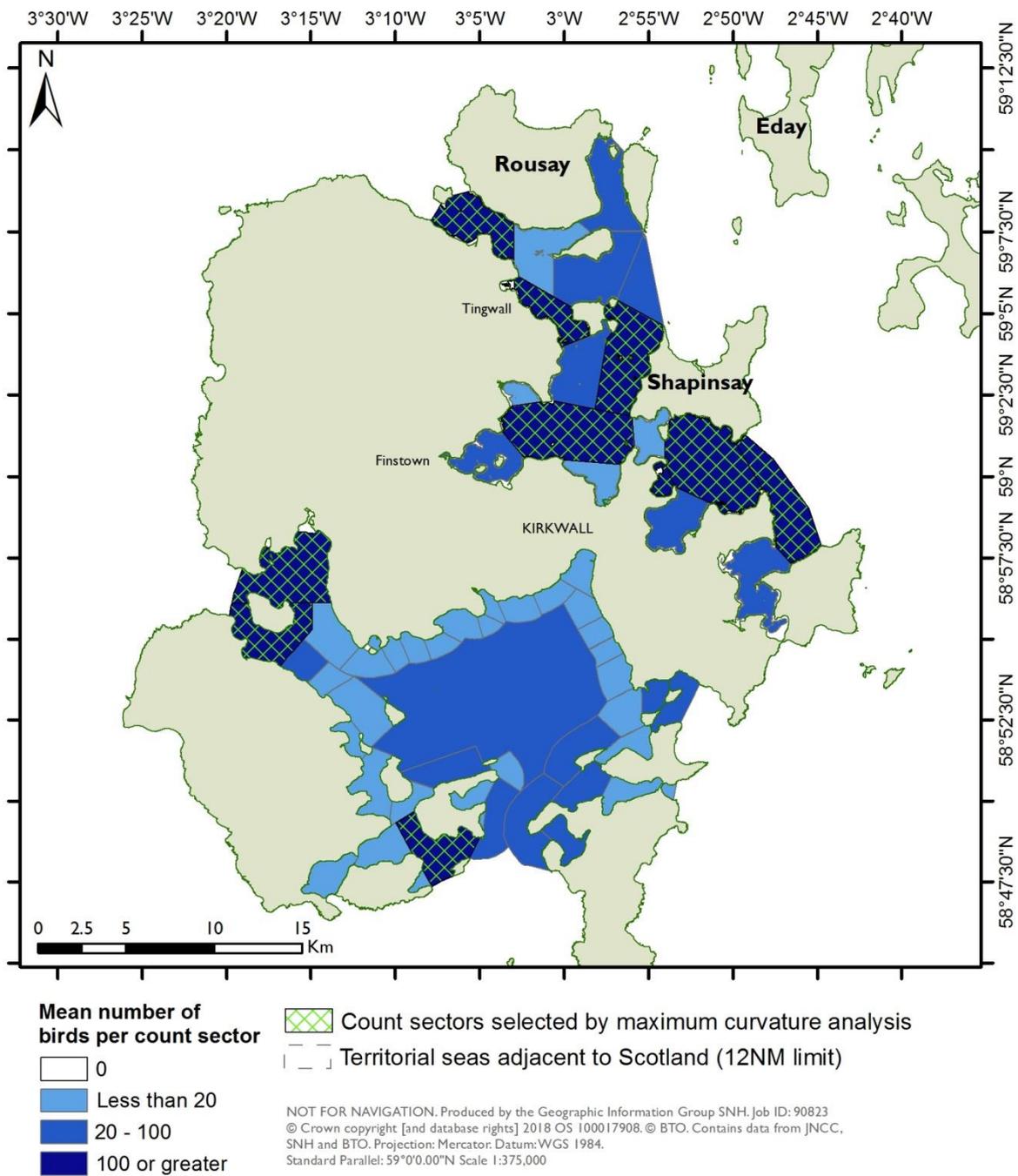


Figure 9. The distribution of European shags in the Orkney Inshore Waters SPA.

Red-throated diver

The breeding range of red-throated divers in Great Britain is restricted to Scotland, with the coastal waters adjacent to many nesting localities being of particular importance for feeding as breeding birds have a foraging range of less than 10km. The birds able to forage in the Orkney Inshore Waters SPA (102 pairs in 2006; 7.8% of the Great Britain (GB) population) nest on the surrounding islands (Figure 10) and form a large concentration in the core Scottish range.

Nesting territories tend to be traditional and are occupied repeatedly, with birds habitually using the marine areas within 10km of the nest site for foraging. Nesting territories are present on surrounding and adjacent land every year (annual Orkney Bird Reports). There is a high confidence in regularity of use of the site for foraging by breeding red-throated divers.

Population size and density

The national survey (2006) identifies 102 pairs of red-throated diver nesting within a 10km foraging range of the SPA. The Orkney Inshore Waters SPA forms the biggest potential feeding site for red-throated diver in Orkney and the third largest in the site network after the two in Shetland.

Distribution within the site

The red-throated diver distribution at this site falls almost entirely within the inshore wintering waterfowl composite boundary, but extends it slightly in waters around Eynhallow at western end of Eynhallow Sound (Figure 10).

Species range

Red-throated divers nest only in the northern and western Highlands of Scotland and in the offshore island groups with the core range being the north mainland and the three island groups Orkney, Shetland and the Outer Hebrides. During the breeding season birds feed in coastal waters with suitable habitat around all these areas. Orkney Inshore Waters SPA is part of the core of these feeding areas.

History of occupancy

Red-throated divers have been known to nest in Orkney for 200 years (MacGillivray, 1837). Feeding habits are unlikely to have greatly changed over that period and detailed information on birds in the Orkney Inshore Waters area are most available from the 2nd half of the 20th century (Gibbons *et al.* 1997; Dillon *et al.* 2009; annual Orkney Bird Reports).

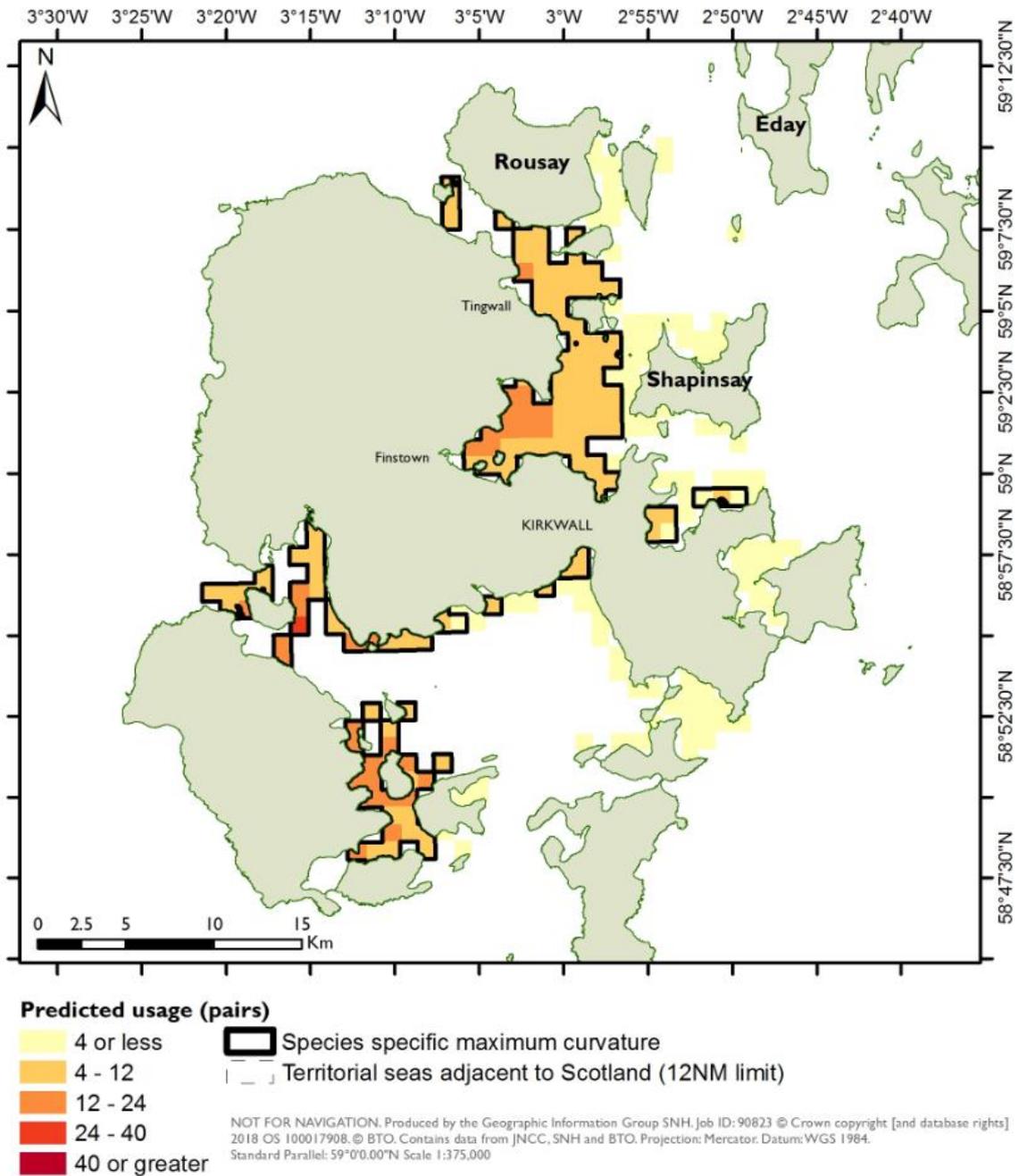


Figure 10. The predicted distribution of feeding red-throated divers in Orkney, including the Orkney Inshore Waters SPA.

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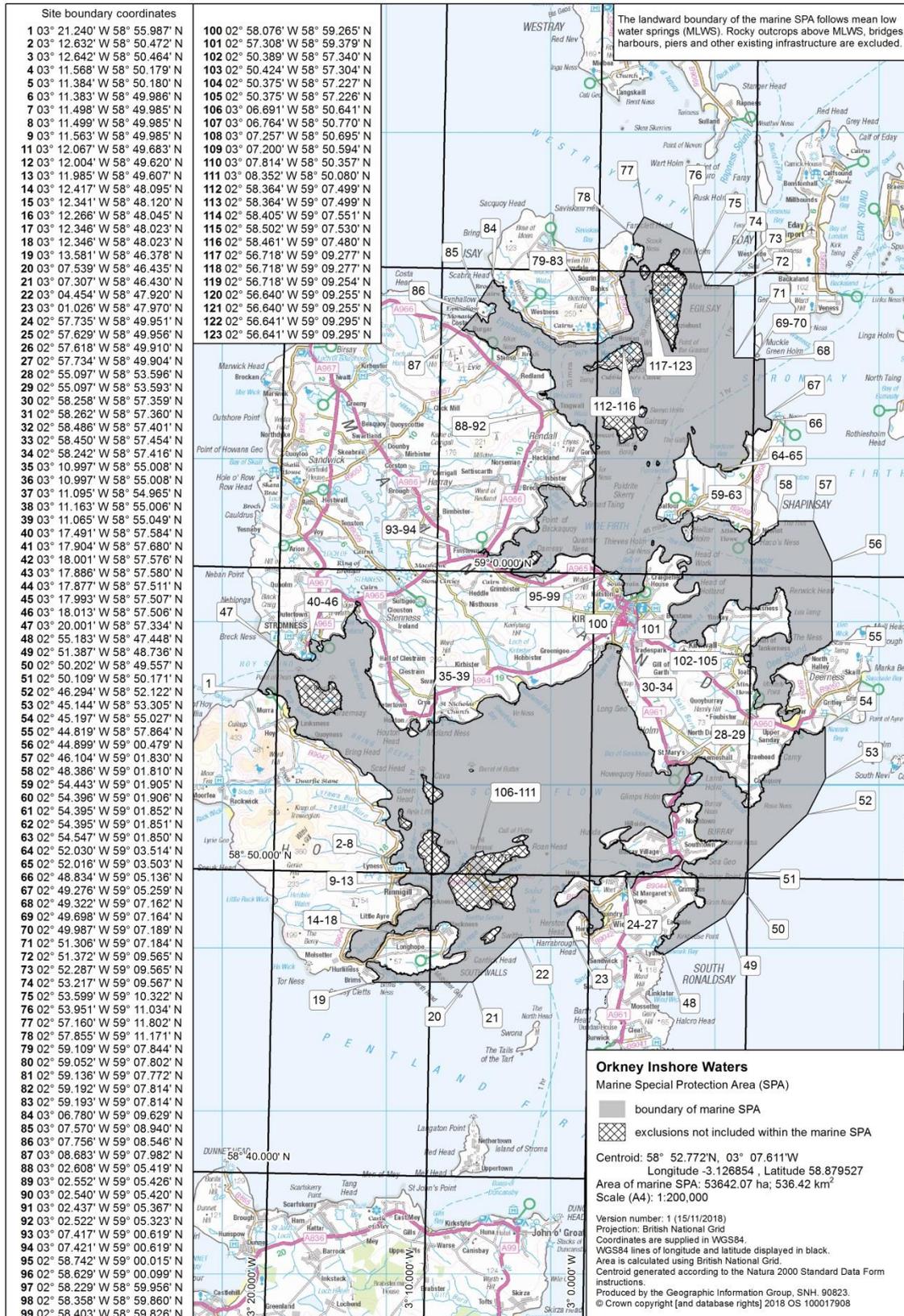
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Annex 1. Site map



Annex 2. Citation

Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended)

CITATION FOR SPECIAL PROTECTION AREA (SPA)

ORKNEY INSHORE WATERS (UK9020333)

Site Description:

The Orkney Inshore Waters Special Protection Area (SPA) is located within the Orkney Islands. The site encompasses Scapa Flow and inshore waters of northern South Ronaldsay, Burray and south-east Mainland together with sounds between the islands of Mainland, Shapinsay, Rousay, Egilsay, Wyre, Gairsay and Eynhallow, including Deer Sound, Shapinsay Sound and Wide Firth. These sheltered and productive waters provide feeding, resting and moulting grounds for numerous divers, grebes, seaduck and shags.

Scapa Flow is typically around 30 metres (m) deep, but there is a deeper trench at Brings Deeps reaching just over 60 m depth. Sea depths in the channels between Mainland, Shapinsay, Rousay and other islands in the northern part of the site are rarely greater than 20 m. Numerous shallow bays of varying aspect are found throughout the site (e.g. Bay of Ireland, Houton, Swanbister, Waukmill, Scapa, St Mary's, Water Sound, Holm Sound, Deer Sound, Inganess Bay and Wide Firth).

Sediments are primarily mixtures of mud sand and gravel but become cleaner and coarser in areas where tidal currents are stronger, such as between the main islands and in Hoy Sound and Hoxa Sound (Barne *et al* 1997). Kelp forests occur on bedrock and boulder slopes and there are maerl beds in the vicinity of Graemsay and in the Sounds between Rousay and adjacent islands. The varied habitats across the site support a high diversity of marine life. These rich sheltered waters support large numbers of waterfowl, particularly in the winter months when frequent storms affect the surrounding North Sea and eastern Atlantic. Orkney is also a stronghold for breeding red-throated diver which feed almost exclusively at sea close to their breeding sites.

Qualifying Interest:

The Orkney Inshore Waters Special Protection Area (SPA) qualifies under **Article 4.1** by regularly supporting a non-breeding population of European importance of the following **Annex 1** species: **great northern diver** *Gavia immer* (a mean peak annual non-breeding population of 817 birds (32.7% of the GB population) for the years 1998/99-2008/9), **black-throated diver** *Gavia arctica* (a mean peak annual non-breeding population of 61 birds (10.9% of the GB population) for the years 1998/99-2008/9) and **Slavonian grebe** *Podiceps auritus* (a mean peak annual non-breeding population of 255 birds (23.2% of the GB population) for the years 1998/99-2008/9).

The site also qualifies under **Article 4.1** by regularly supporting a population of European importance of the following **Annex 1** species during the breeding season: **red-throated diver** *Gavia stellata* (up to 102 pairs (7.8% of the GB population) in 2006).

The site further qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory species: **common eider** *Somateria mollissima* (a mean peak annual non-breeding population of 3450 birds (5.8% of the GB population) for the years of 1998/99 to 2007/8), **long-tailed duck** *Clangula hyemalis* (a mean peak annual non-breeding population of 2,332 birds (21.2% of the GB population) for the years of 1998/99 to 2008/9), **velvet scoter** *Melanitta fusca* (a mean peak annual non-breeding

SPA classification subject to final decision

population of 160 birds (6.4% of the GB population) for the years 1998/99 to 2008/9), **red-breasted merganser** *Mergus serrator* (a mean peak annual non-breeding population of 883 birds (10.5% of the GB population) for the years of 1998/99 to 2008/09), and **European shag** *Phalacrocorax aristotelis* (a mean peak annual non-breeding population of 4671 birds (2.3% of the biogeographic population) for the years of 1998/99 to 2006/07).

Area: 536.42 km² (53,642.07 ha)

Location: 58° 52.772' N, 003° 07.611' W (coordinates are supplied in WGS 1984)

OS Sheet: 1:50,000 - 6 & 7

06/12/18

Scottish Natural Heritage

SPA classification subject to final decision

Annex 2c: Sound of Gigha, SPA

SPA classification subject to final decision



**Sound of Gigha
Special Protection Area (SPA)
NO. UK9020318**

**SPA Site Selection Document:
Summary of the scientific case for site selection**

6th December 2018

SPA classification subject to final decision

Document version control		
Version and date	Amendments made and author	Issued to and date
Version 1	Formal advice submitted to Marine Scotland on draft SPA. Nigel Buxton & Greg Mudge.	Marine Scotland 10/07/14
Version 2	Updated to reflect change in site status from draft to proposed and addition of SPA reference number in preparation for possible formal consultation. Shona Glen, Tim Walsh & Emma Philip	Marine Scotland 30/06/15
Version 3	Creation of new site selection document. Susie Whiting	Emma Philip 17/05/16
Version 4	Document updated to address requirements of revised format agreed by Marine Scotland. Kate Thompson & Emma Philip	Greg Mudge 17/06/16
Version 5	Quality assured Greg Mudge	Emma Philip 17/6/16
Version 6	Final draft for approval Emma Philip	Andrew Bachell 22/06/16
Version 7	Final version for submission to Marine Scotland	Marine Scotland, 24/06/16
Version 8	Revision to include Slavonian grebe as an additional feature. Emma Philip	SAC MPA sub-group, 13/01/17
Version 9	Minor amendments to incorporate SAC MPA sub group comments. Final draft for approval Emma Philip	Andrew Bachell 16/01/17
Version 10	Minor amendments to presentation of site map and coordinates. Emma Philip	Marine Scotland 03/02/17
Version 11	Amendments to update change status to SPA (subject to final decision). Lucy Quinn	Sally Thomas 10/10/18
Version 11	No amendments requested.	SNH's Scientific Advisory Committee MPA sub-group – Bob Furness, Ben Wilson, Beth Scott & Aileen Mill 17/10/18
Version 11	No amendments requested.	Sally Thomas on behalf of SNH's Senior Leadership Team 15/11/18

SPA classification subject to final decision

Version 11	No amendments requested.	Protected Areas Committee – Aoife Martin, Angus Campbell, Ian Gilles & Bob Furness 15/11/18
Version 11	No amendments requested. Final version for submission to Marine Scotland	Marine Scotland 06/12/18

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1. Introduction

This document provides Scottish Natural Heritage's (SNH) advice on the classification of a Special Protection Area (SPA) in the marine waters of "Sound of Gigha" for inshore wintering waterfowl. It summarises the evaluation for each of the species of interest according to the SPA site selection guidelines (JNCC, 1999) and provides an overview of how the site boundary was developed.

Sound of Gigha has been selected to provide protection to important wintering grounds used for feeding, moulting and roosting by non-breeding great-northern diver, Slavonian grebe, common eider and red-breasted merganser. The protection of these inshore waters will make a key contribution to the maintenance of these species in their natural range in UK marine waters and form part of a coherent network of sites at a European level.

The importance of the marine environment for birds which spend all or part of their lives around our coasts is well recognised, particularly in Scotland. A total of 106 species of bird are thought to use UK marine waters of which 45 occur in numbers greater than fifty each year and are dependent on the marine environment for a large part of their lifecycle ([JNCC Overview of marine bird species](#)). All of these 45⁵⁰ species except one (black guillemot⁵¹) are considered rare or vulnerable bird species (Annex 1), or regularly occurring migratory species by the Birds Directive (EC Directive on the conservation of wild birds (amended) - 2009/147/EC). This means that all Member States are obliged to take account of the requirements of Article 4 of the Birds Directive for each of these 44 species.

With respect to Annex 1 species, Article 4.1 states that "Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies". Similar measures are required for migratory species under Article 4.2. [European Commission guidance](#) on the establishment of SPAs in the marine environment (2007) sets out the groups of marine birds for which SPAs should be considered in the marine environment. This includes sites for wintering waterfowl.

The Scottish Government is committed to identifying a network of SPAs in the marine environment. The programme of classifying marine SPAs in Scotland is already well underway. To date, 31 marine extensions to seabird colonies have been classified in Scottish waters. These extensions are a crucial step forwards in the conservation of breeding seabirds, providing protection of the seas immediately surrounding the colony and used by seabirds (including fulmar, gannet, puffin, guillemot, razorbill and/or Manx shearwater) for maintenance and socialization behaviours such as preening, displaying, rafting, roosting and bathing (Webb & Reid, 2004). Some estuarine SPAs also provide protection for marine habitats above the Mean Low Water Springs (MLWS) used by divers, sea ducks, grebes and some seabird species (e.g. cormorant and Sandwich tern). The existing network of sites is not considered sufficient to meet the requirements of Articles 4.1 and 4.2 because it currently does not include suitable territories at sea for species that the UK has a responsibility for.

The Sound of Gigha SPA is being classified as part of a network of marine sites that aim to fulfil the requirements for SPAs in the marine environment for rare or vulnerable birds and

⁵⁰ Note that common eider *Somateria mollissima* subspecies *faeroeensis* in Shetland is considered a distinct non-migratory population (SPA & Ramsar Scientific Working Group, 2018) and therefore the sub-species is not considered for site selection purposes under Article 4.2 of the Birds Directive.

⁵¹ Nature Conservation Marine Protected Areas were designated in August 2014 for black guillemot.

regularly occurring migratory birds in the UK. As required by Article 4 of the Directive, the classification of this site will enable the application of special conservation measures concerning the habitat of Annex 1 and regularly occurring migratory birds in order to ensure their survival and reproduction in their area of distribution.

Full details of the site survey methodologies, data and analysis used to inform the selection of this site are provided in Lawson *et al.* (2015). All scientific work received full external independent peer review at key stages.

2. Site summary

The Sound of Gigha Special Protection Area (SPA) is centred around the island of Gigha, which lies some 4 kilometres (km) off the west coast of the Kintyre peninsula in Argyll and Bute (Figure 1). The SPA extends from Macrihanish Bay in the south to the entrance of Loch Caolisport off Knapdale to the North. It includes the sheltered waters of the Sound of Gigha between the island and the mainland and of West Loch Tarbert.

The area included within the SPA supports a population of European importance of the following Annex 1 species:

- Great northern diver (*Gavia immer*)
- Slavonian grebe (*Podiceps auritus*)

It also supports migratory populations of European importance of the following species:

- Common eider (*Somateria mollissima*)
- Red-breasted merganser (*Mergus serrator*)

The SPA covers a total area of 363.27km².

This region of the western seaboard has a complex bathymetry due to a combination of the deepening of sea lochs and major channels by the scouring action of ice, which created locally-enclosed deeps with shallower seaward terminations ('sills'), and variation in resistance to erosion of the bedrocks. Consequently to the west of Islay the sea floor is generally flat and lies at a depth of between 40-80 metres (m), but to the east there are narrow, deep channels extending seawards from the sea lochs and separating the islands. Hence, in contrast to the Outer Hebrides and other islands further north, the waters close inshore to Gigha tend to be deeper (up to 50m) and rapidly deepen in places to over 100m. The SPA encompasses a band of relatively shallow water off the Kintyre coast.

The area also experiences a wide range of physical conditions, which in turn lead to a high diversity of habitats. West-facing open coasts, such as those off Macrihanish are fully exposed to the force of the Atlantic, while the sea lochs and sounds are protected from the prevailing winds and are, for the most part, sheltered from wave action. There are many rocks and skerries, as well as small sheltered bays around Gigha. Gigha Sound is scoured by north-south channels, but offshore the sediments are a mixture of mud, sand and gravel while the very sheltered waters of West Loch Tarbert overlie soft mud sediment (Barne *et al.* 1997). This complexity in physical conditions provides for a locally diverse range of habitats and associated fauna.

There is limited direct information on benthic habitats and species. Beds of seagrass, sea pens and gastropods are found in West Loch Tarbert while strong tidal streams at the entrance to Loch Caolisport overlie coarser sediments supporting burrowing species such as

heart urchins and sea cucumbers. The presence of large numbers of eiders in the Sound of Gigha indicates the presence of beds of molluscs such as blue mussel.

Great northern divers and mergansers feed on a wide variety of fish that are associated with a range of seabed substrates. These birds catch fish by diving from the surface and pursuing their prey underwater. The fish species taken will be influenced by what is locally most readily available, but can include haddock *Melanogrammus aeglefinus*, cod *Gadus morhua*, herring *Clupea harengus*, sprats *Sprattus sprattus* and gurnard *Eutrigla gurnardus* along with smaller species such as sand-eels *Ammodytidae*, pipefish *Syngathidae*, gobies *Gobiidae*, flatfish *Pleuronectidae* and butterfish *Pholis gunnellus*.

Slavonian grebes feed on small fish species but their diet also includes small amphipods and other crustaceans. Great northern divers will also feed opportunistically on small crustaceans.

Common eiders feed almost exclusively on molluscs and small crustaceans, diving from the surface to pluck their prey from the seabed.

Diving activity varies among species but average foraging dive depths for Slavonian grebe, eider and red-breasted merganser are shallower than 15m. However, substantially greater maximum dive depths of 55m have been recorded for great northern diver (Ropert-Coudert *et al.* 2016).

Great northern diver and Slavonian grebe are long distance migrants, moving annually between northern breeding grounds and more southerly wintering grounds such as those in the Sound of Gigha SPA. Eider and red-breasted merganser are resident in this area throughout the year.

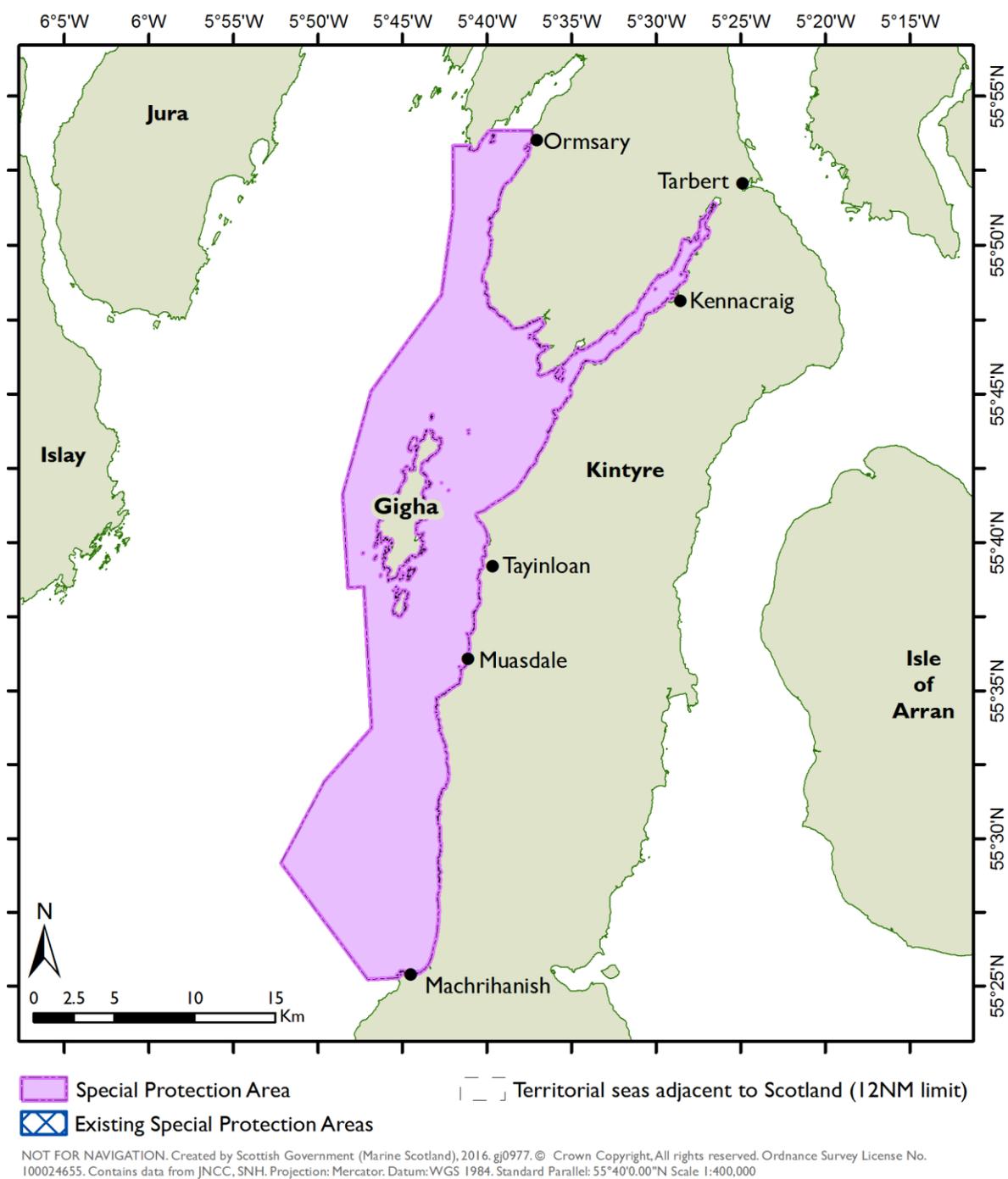


Figure 1. Location of the Sound of Gigha SPA

3. Bird survey information

Inshore wintering waterfowl (divers, grebes and seaduck)⁵²

Areas of Search

Existing data (including Wetland Bird Surveys (WeBS), Important Bird Areas (IBA) defined by BirdLife International, existing survey data and an atlas of seabird distributions) and information from published scientific literature were used to determine which initial areas might be important for inshore wintering waterfowl. Based on this initial assessment, 46 Areas of Search were identified across the UK, with 21⁵³ of these in Scotland. An area encompassing the entire Sound of Gigha SPA was one of the Areas of Search identified as holding potentially large numbers of birds and therefore merited further survey.

Aerial transect (2004/05-2007/08)

Line transect aerial surveys, covering the entire Area of Search, were carried out on five occasions; on 9th March 2005, 12th December 2005, 18th & 20th March 2006, 23rd March 2007 and 11th February 2008. All of these surveys were conducted by the Joint Nature Conservation Committee (Lawson *et al.* 2015). Surveys were conducted between November and March to enable estimates of non-breeding populations to be made. No data were collected during migration periods or for aggregations of moulting birds.

The data from the aerial transect surveys were used to produce density distribution maps for great northern diver, common eider and red-breasted merganser.

Shore-based and boat counts

Aerial surveys are one of the most effective methods for surveying inshore concentrations of birds over large areas. However, certain species, such as Slavonian grebe, are less amenable to survey from aircraft and species such as red-breasted merganser that remain very close to the shore may often be missed, as the aircraft makes sharp turns at the shoreline.

In addition to the data from the bespoke aerial surveys, the Argyll Bird Club counted great northern divers and Slavonian grebes in the sound between Gigha and Kintyre using boat and land-based surveys in each of seven winters between 2000/01 and 2006/07. Additional land-based counts covering parts of West Loch Tarbert and the coast northwards from Tayinloan were also collated from the most recent five years of available WeBS data, 2008/09 to 2012/13.

Data used to derive population estimates

The population estimates for great northern diver, eider and red-breasted merganser were derived solely from the aerial surveys. As such, they are likely to underestimate the numbers of red-breasted merganser which are a coastal species more readily detected in land-based surveys than aerial surveys. The boat and land-based count data supported the findings of the aerial surveys, but were not used in calculations of population estimates across the Area of Search as a whole, given their much more limited spatial coverage.

WeBS data were used to provide the mean of peak population estimate for Slavonian grebe. WeBS data provided annual counts over a five year period (2008/09 to 2012/13) and higher estimates of the SPA population than the boat and land-based count data. Due to the

⁵² Full details of the methodologies, data and analysis used are provided in the JNCC Report 567: Lawson *et al.* 2015 and the JNCC generic document 'Identification of important marine areas for inshore wintering waterbirds'. JNCC Report 567 received full external independent peer review.

⁵³ There were originally 22 Areas of Search but the Greater Firth of Clyde and Inner Firth of Clyde, lying adjacent to each other were combined by JNCC to form the Firth of Clyde Area of Search.

limited spatial coverage of the WeBS data however the population estimate for Slavonian grebe is likely to be an underestimate.

The population estimates were compared against the relevant national and/or biogeographic reference population estimates (Musgrove *et al.* 2013 or Wetlands International, 2014) to provide a percentage of the reference population for each species of interest (Lawson *et al.* 2015).

Estimating numbers of birds within an SPA boundary

SPA boundaries were derived by analysing the distributions of inshore wintering waterfowl species which occurred in qualifying numbers in the relevant Area(s) of Search (section 4). Those areas which contained the highest densities for each species were selected and overlaid to generate the SPA boundary. Further details are in [Defining SPA Boundaries At Sea](#) and the derivation of the boundary for Sound of Gigha is described at section 5.

The numbers of birds of each qualifying species within the SPA boundary were then recalculated to exclude birds within the original Area(s) of Search but outwith the final SPA boundary. For those species for which numbers were derived from aerial survey data, this was done with reference to density surfaces derived from the survey data using a species specific grid size. ArcGIS was used to calculate the area of each cell, or partial cell, located within the SPA boundary and the number of individual birds in each cell was then estimated by multiplying the cell area by the density value for that cell. The population estimate for each species within the SPA boundary was then provided by summing all cell totals within the boundary. For those species for which numbers were derived from shore counts, only sea areas within the final site boundary were included in the final SPA population estimates.

The number of birds within the SPA boundary was then reassessed against the UK SPA Selection Guidelines to ensure the site still qualified for consideration as an SPA.

4. Assessment against the UK SPA Selection Guidelines

The UK SPA Selection Guidelines establish a two stage process for SPA identification (JNCC, 1999).

Stage 1

Stage 1 allows identification of areas that are likely to qualify for SPA status. To qualify under Stage 1 the area needs to meet one or more of the following four guidelines:

- 1.1. The area is used regularly by 1% or more of the Great Britain population of a species listed in Annex I to the Birds Directive in any season.
- 1.2. The area is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex I) in any season.
- 1.3. The area is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) or 20,000 seabirds in any season.
- 1.4. The area meets the requirements of one or more of the Stage 2 guidelines in any season, where the application of Stage 1 guidelines 1.1-1.3 for a species does not identify an adequate network of most suitable areas for the conservation of that species.

Additionally, it is established practice to apply a minimum threshold of 50 individuals to be regularly present at a site before it can be considered for site selection. Exception to this rule however applies where its application would preclude the selection of any suitable territories and therefore prevent the fulfilment of UK obligations under the Birds Directive.

This exemption applies to non-breeding Slavonian grebe ([SPARSWG, 2015](#)), therefore UK SPAs are selected on the basis of meeting the 1% GB population threshold.

Stage 2

Those areas that meet one or more of the Stage 1 guidelines undergo further consideration using one or more of the ecological guidelines set out in Stage 2. There are seven Stage 2 guidelines. These guidelines are used to facilitate the selection of the most suitable areas from the areas identified at Stage 1 to produce a network of marine SPAs in Scotland. The Stage 2 guidelines are:

- 2.1 Population size and density
- 2.2 Species range
- 2.3 Breeding success
- 2.4 History of occupancy
- 2.5 Multi-species area
- 2.6 Naturalness
- 2.7 Severe weather refuges

Application of Stage 1.4

Ten species of non-breeding inshore wintering waterfowl and seabirds (non-Annex 1) frequently occur in Scottish marine waters in substantial numbers. All of these species have very large biogeographic populations often spread over extensive areas. This means that applying guideline 1.2 (area regularly used by 1% or more of the biogeographical population of a regularly occurring migratory species), which has been helpful in identifying important areas on land, would largely fail to identify important areas at sea for these non-breeding migratory species. It is SNH and JNCC's view that the absence of these species from a network of marine SPAs would not satisfy the requirements of Article 4.1 of the Birds Directive.

Therefore, to ensure these species are represented they were considered using guideline 1.4. This is specifically designed to capture cases where a species' population status, ecology or movement patterns may mean that an adequate number of areas cannot be identified from guidelines 1.1-1.3 alone.

Our experience is that marine bird 'hotspots' usually support several species in substantial numbers potentially resulting in an SPA with rich biodiversity. In applying this fourth guideline, SNH only considered sites that had already been identified as potential SPAs for one or more species using guidelines 1.1-1.3. This approach allows for all ten species of non-breeding migratory birds (non-Annex 1) to be represented in the SPA network. Without prejudice to any forthcoming review of marine SPA sufficiency, our view is that inclusion of these species in the network will provide an adequate number of areas for these species.

To assess which sites may be considered as suitable areas for those migratory birds that did not meet the threshold of 1% or more of their bio-geographical population, SNH focused on three of the Stage 2 guidelines (population size and density, species range and multi-species area).

To provide a consistent and quantifiable population threshold for species that may be considered using guideline 1.4, species only became candidates for inclusion in a site where they occurred in numbers in excess of 1% of their Great Britain (GB) population. This population threshold is consistent with the population threshold used to identify named qualifiers of a waterbirds or seabird assemblage selected under guideline 1.3.

At this SPA, common eider and red-breasted merganser have been identified using this approach (>1% GB population), each with a high proportion of their distribution overlapping

qualifying Annex 1 species. The approach has been reviewed and supported by SNH's Scientific Advisory Committee.

Assessment against Stage 1 of the UK SPA Selection Guidelines

Great northern diver and Slavonian grebe⁵⁴ are Annex 1 species and were present in numbers at or above 1% of the GB population. Both species met Stage 1.1 of the SPA guidelines (Table 1).

Common eider and red-breasted merganser are regularly occurring migratory species that did not occur in numbers at or above 1% of their biogeographical populations and therefore did not meet Stage 1.2 of the guidelines. Both species did however exceed 1% of the GB population and could therefore be considered under Stage 1.4 (Table 1).

Table 1: Assessment against Stage 1 of the UK SPA Selection Guidelines

Species and season	Annex 1 or migratory	Population estimate in site ⁵⁵	% of GB population ⁵⁶	Stage 1 guideline met
Great northern diver (non-breeding)	Annex 1	505	20.2	1.1
Slavonian grebe (non-breeding)	Annex 1	37	3.4	1.1
Common eider (non-breeding)	Migratory	1295	2.2 (0.1) ⁵⁷	1.4
Red-breasted merganser (non-breeding)	Migratory	117	1.4 (0.1) ⁵⁵	1.4

Assessment against Stage 2 of the UK SPA Selection Guidelines

One or more of the Stage 2 guidelines are used to identify the most suitable areas for classifying as SPA from those areas that meet the Stage 1 guidelines. The focus for considering which areas were most suitable concentrated on three of the seven guidelines; population size and density, species range and multi-species areas. Population densities were only considered for great northern diver.

Fourteen⁵⁸ areas around Scotland (from the initial 21 Areas of Search⁵⁹) were identified as meeting Stage 1.1 for one or more non-breeding Annex 1 species, including great northern diver to help identify the most suitable sites for SPAs from the initial 14 areas, the non-breeding Annex 1 species were ranked for each site according to their population size, density and number of other non-breeding qualifying species also present within each area. Particular emphasis was placed on identifying areas that function as "hotspots" for many species rather than just a few. The results of the ranking exercise for Annex 1 species within the Sound of Gigha Area of Search are provided in Table 2.

⁵⁴ Slavonian grebe is one of five Annex 1 species for which the minimum threshold of 50 individuals does not apply (UK SPA Scientific Working Group, 2015)

⁵⁵ The population estimates are based on the mean maximum population estimates provided in Lawson *et al.* 2015 for all inshore aggregations of non-breeding waterfowl and amended, where appropriate to the site boundary.

⁵⁶ Reference populations are from Musgrove *et al.* 2013 and Wetlands International, 2014.

⁵⁷ The %s of the bio-geographic populations are given in parentheses

⁵⁸ Originally 15 prior to combination of the Firth of Forth and Firth of Tay to form the Outer Firth of Forth and St Andrews Bay Complex pSPA.

⁵⁹ There were originally 22 Areas of Search but the Greater Firth of Clyde and Inner Firth of Clyde, lying adjacent to each other were combined by JNCC to form the Firth of Clyde Area of Search.

Sound of Gigha has been selected because it supports the second largest aggregation of the non-breeding Annex 1 species, great northern diver in Scotland, representing over 20% of the GB wintering population. Additionally, this site supports significant numbers of three other non-breeding waterfowl, so is an important multi-species site.

Table 2: Summary of initial Annex 1 ranking and overlapping multi-species interest for inshore non-breeding waterbirds.

nb = non-breeding season.

Assessment/ Qualifying feature	Ranked importance for non-breeding Annex 1 species ⁶⁰
Great northern diver (nb)	2 nd most important Area of Search in Scotland
Black-throated diver (nb)	Not qualifying
Red-throated diver (nb)	Not qualifying
Slavonian grebe (nb)	Excluded from analysis as species added further to a review of data post-consultation.

Following the initial ranking of Annex 1 species (Table 2), consideration was given to the stage 2.2 guideline (geographic range) for Annex 1 species qualifying at stage 1.1 (great northern diver). Stage 2 guidelines were also assessed for Slavonian grebe, which was not included in the initial ranking (see Table 2), and for the non-breeding species considered at stage 1.4 on the basis of their populations exceeding 1% of the GB population (common eider and red-breasted merganser). Table 3 summarises these steps in the Stage 2 assessment.

This analysis supported the value of this area, particularly given its location in Scotland and importance to the south-western part of the range of both great northern diver and Slavonian grebe.

With regard to the other Stage 2 guidelines, all sites were considered largely 'natural', guidelines on breeding success were irrelevant for inshore wintering waterfowl and no information was available to provide further consideration to 'severe weather refuge'.

Full details on the selection process are provided in the 'Overview of the Scottish marine Special Protection Area selection process (SNH, 2018).

⁶⁰ Ranking was only applied to non-breeding Annex 1 species to provide an initial short-listing of most suitable areas that could then be subject to further checks for other marine bird interests. Ranking combines population size, density and multi-species interest to provide an overall rank.

Table 3: Summary of assessment against Stage 2 of the UK SPA Selection Guidelines.

nb = non-breeding season

Stage 2 guideline/ Qualifying features	Population estimate ⁶¹	Species range	Influence on site boundary?
Great northern diver (nb)	3 rd largest population in Scotland	Representative of the south- western range in Scotland.	Predominant species influencing seaward boundary
Slavonian grebe (nb)	7 th largest population in Scotland.	Representative of the south- western range in Scotland.	No influence on boundary.
Common eider (nb)	7 th largest population in Scotland.	Important component of the western range in Scotland.	Almost complete overlap with great northern diver; some influence west of Gigha.
Red-breasted merganser (nb)	9 th largest population in Scotland.	Important component of the western range in Scotland.	No influence on boundary.
Stage 2 guideline (whole site)			
Multi-species area	The most prominent species in the area is the great northern diver with three other waterfowl species occurring in nationally important numbers during winter in close association. The SPA makes a contribution to each species range representation. A total of four qualifying species regularly occur in the SPA.		
History of occupancy	Great northern divers and eiders have been known to frequent the west coast of Scotland for almost 200 years (Gray, 1871; Lack, 1986). The Sound of Gigha in particular is known to be an important wintering area for Slavonian grebe (Thom, 1986; Lack, 1986; Evans, 2000). Red-breasted mergansers have similarly been noted as wintering on the west coast for a long period of time but, as with many seaduck outwith the big firths have only been surveyed in detail during the last 50 years (Lack, 1986; Lawson <i>et al.</i> 2015).		

⁶¹ Based on population estimates from Lawson *et al.* (2015). Two of the SPAs Orkney Inshore Waters and Outer Firth of Forth and St Andrews Bay Complex, each encompass two of the original Areas of Search (North Orkney with Scapa Flow and Firth of Forth with Firth of Tay) described in Lawson *et al.* (2015) and the combined populations in these Areas of Search have been used when ranking populations here.

5. Site status and boundary

The name for this site is the “Sound of Gigha SPA”.

Marine sites present few obvious or distinct physical features (other than underwater terrain/topography and islands) which can be of use for defining boundaries of protected areas for birds within the marine environment. The method used for the boundary setting is therefore based on an analysis of the bird distributions and aims to delineate areas with only the highest bird densities. The statistical method used for this is known as maximum curvature analysis; a non-technical summary of this method is provided in the supplementary document: [Defining SPA Boundaries At Sea](#). This technique is specifically used to avoid subjective judgements on SPA boundary placement and to provide an objective and repeatable method.

Great northern diver, common eider and red-breasted merganser were recorded in good numbers from aerial survey and these data were used to establish mean density surfaces for each species and then applying maximum curvature to determine a density threshold. Threshold densities identified by maximum curvature were: 0.84 birds.km⁻² (great northern diver), 2.38 birds.km⁻² (common eider) and 0.65 birds.km⁻² (red-breasted merganser). A line was then drawn around all cells that exceed the density threshold to produce a species-specific boundary.

The area covering the species-specific boundary for great northern diver (qualifying under guideline 1.1) fully encompasses the species-specific boundary for red-breasted merganser and the majority of that for common eider, both of which are 1.4 qualifiers. These combined distributions were used to produce an inshore wintering waterfowl composite species boundary. This boundary also fully encompassed the distribution of Slavonian grebe covered by the WeBS counts.

The final boundary was created by drawing the boundary as tight as possible to the composite species boundary ensuring all cells exceeding density thresholds (maximum curvature) were included within the boundary. To avoid creating an over-complex boundary however some rationalisation of the final boundary was required, resulting in small areas with cells not exceeding the density threshold also being included in the final boundary. Whilst these areas did not exceed the density threshold, they are still likely to support lower densities of the qualifying species.

The site extends to 363.27 km². Boundary co-ordinates for the SPA are given on the SPA map in Annex 1.

6. Information on qualifying species

Great northern diver

Great northern divers were concentrated in three locations (Figure 2), with the highest density areas around the north end of Gigha and in the channel between the mainland and the island. Numbers exceeded the Stage 1.1 threshold of 1% of the GB population and the default site selection threshold of 50 birds (SPA threshold for species with small or poorly quantified populations) on all five aerial line transect surveys between March 2005 & February 2008. Overall, the data meet the definition of regularly occurring and indicate a mean of peak annual wintering population estimate of 505 great northern divers (20.2% of the GB population estimate) in the Sound of Gigha SPA, clearly exceeding the SPA selection threshold for an Annex 1 species.

Population size and density

The northern and western seaboard of Scotland are the winter strongholds of the great northern diver population in Great Britain. The Sound of Gigha is the second largest population of great northern divers in Scotland and one of only four populations that exceed 400 birds. With 505 birds, the site holds over 20% of Great Britain's non-breeding population. Densities within the site ranged between 0.1 birds/km² and 3.7 birds/km² with much of the SPA supporting the higher densities.

Distribution within the site

Great northern diver was the main species influencing the extent of the boundary (Figure 2).

Species range

The species occurs during winter round much of the UK coastline. The maximum concentrations are to the north and west of Scotland, numbers being sparse or local south of Duncansby Head in Caithness and around the Clyde estuary. The west of Ireland, and to a considerable degree its south coast, is also important. This SPA is important in representing the south-western part of the range in Scotland.

History of occupancy

Great northern divers have been known to frequent the west coast of Scotland for almost 200 years (Gray, 1871; Lack, 1986) and the core density areas for this species within the SPA are well known as prime locations for observing large numbers (Argyll Bird Reports).

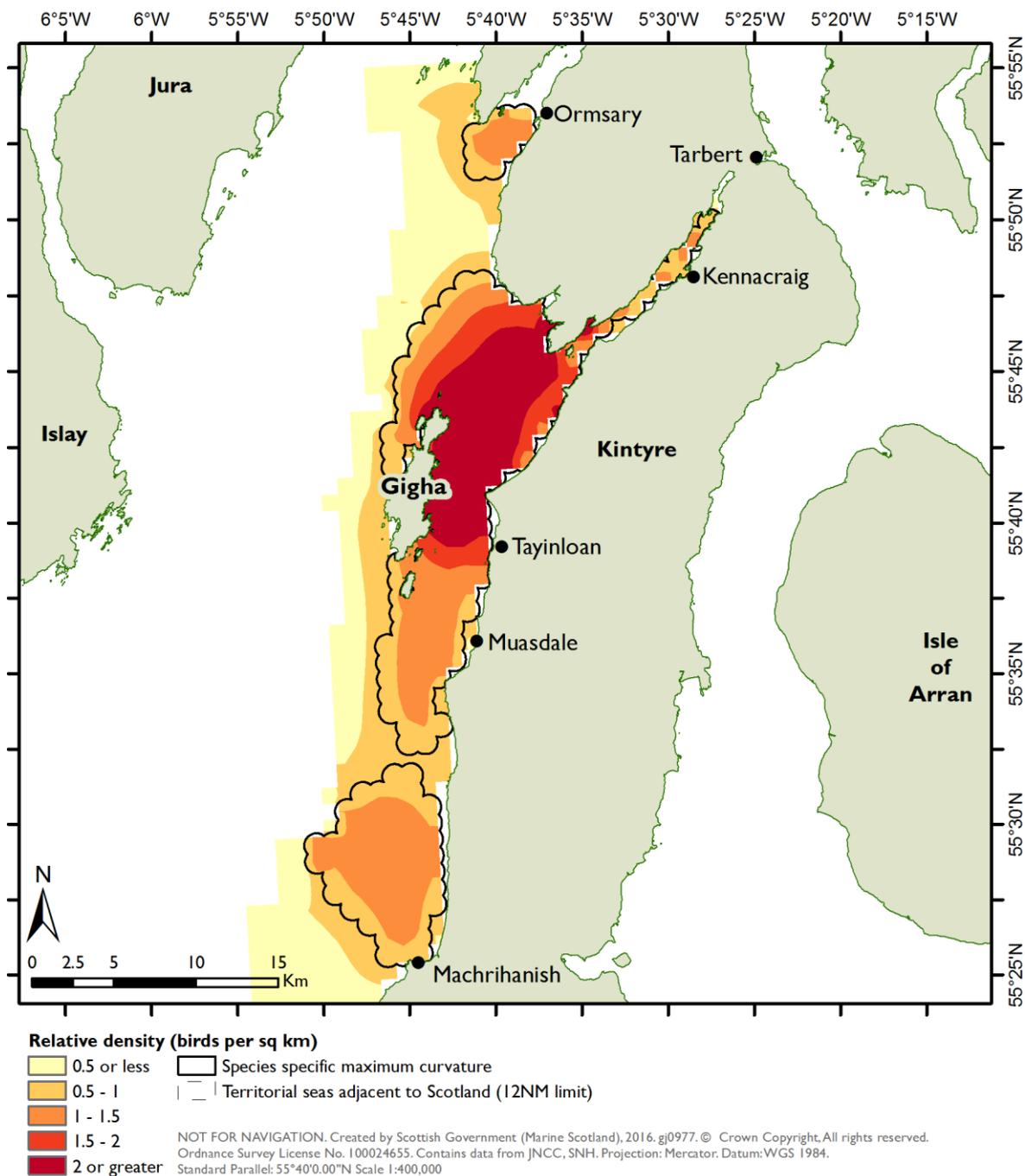


Figure 2. The distribution of great northern divers within the Sound of Gigha SPA

Slavonian grebe

Numbers of Slavonian grebes recorded off the coast north of Tayinloan exceeded the Stage 1.1 threshold of 1% of the GB population in three of the four boat-based counts (seasons 2000/01, 2002/03 and 2005/06) and four of the five seasons of WeBS counts (2008/09 to 2012/13, with 2011/12 being less than 1% GB). Overall, the data meet the definition of regularly occurring and indicate a mean of peak annual wintering population estimate of 37 Slavonian grebes (3.4% of the GB population estimate) in the Sound of Gigha SPA, clearly exceeding the SPA selection threshold for an Annex 1 species.

Slavonian grebe (Annex I species) is excluded from the SPA minimum threshold of 50 birds because application of this rule would constrain selection of an appropriate SPA network (UK SPA Scientific Working Group, 2015).

Population size and density

The population of Slavonian grebes in the Sound of Gigha (37 birds, 3.4% of the Great Britain population) during the period 2008/09-2012/13) (Figure 3) is one of the largest on the coast of south-west Scotland; the only other notable concentration being in Firth of Clyde.

Recent data on Slavonian grebe collected by the Argyll Bird Club have also been reviewed (Argyll Bird Reports 2002 – 2015). These data cover the same area as the WeBs counts and confirm that this area continues to support high numbers of Slavonian grebes on a regular basis. Counts from 2002 to 2015 show a median peak of 41 individuals with numbers being particularly high in 2008, 2009 and 2014 (89, 63 and 58 individuals respectively). Lower counts were recorded in 2006, 2007, 2011 and 2012 (12, 14, 13 and 7 individuals respectively).

The limited spatial coverage of the WeBS data also suggests that the population estimate for Slavonian grebe is likely to be an underestimate.

Distribution within the site

The recorded Slavonian grebe distribution at this site is mostly in inshore waters from close to Rhunahaorine Point (north of Tayinloan) and fully encompassed within the distribution of great northern diver. The addition of Slavonian grebe does not influence the overall site boundary (Figure 3).

Species range

The species occurs during winter round much of the UK coastline with the highest concentrations occurring in the Northern Isles. The Sound of Gigha is the only site representing the south-western part of their range in Scotland.

History of occupancy

The core density area for Slavonian grebe within the SPA is well known as a prime location for observing large numbers (Thom, 1986; Lack, 1986; Evans, 2000; Ap Rheinallt *et al.* 2007, Argyll Bird Reports).

SPA classification subject to final decision



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 Ordnance Survey License No. 100024655. Contains data from JNCC, SNH. Projection: Mercator. Datum: WGS 1984. Standard Parallel: 55°40'0.00"N Scale 1:400,000

Figure 3. The distribution of Slavonian grebe within the Sound of Gigha SPA

Common eider

Common eiders were concentrated in two locations (Figure 4), with the highest density area around the north end of Gigha and in the channel between the mainland and the island. Numbers did not exceed those needed to meet the Stage 1.2 guideline (10,300 birds) but considerably exceeded the level of 1% of the Great Britain total (600 birds) in all of the five aerial surveys conducted between March 2005 and February 2008. In two years the population estimate was considerably over 1,000 birds. Overall, the mean peak annual wintering population for the years from 2004/05 to 2007/08 was 1,295 birds (2.2 % of the GB population).

Population size and density

For a species which has a very sizeable biogeographic population of about 1,030,000 birds, no location in Great Britain nearly reaches the 1% selection level to meet the Stage 1.2 Guideline. Nevertheless, Great Britain supports a large national population, with most in Scotland, and hence with a mean of peak estimates population of 1,295 birds (2.2% of the GB population) identifies the Sound of Gigha SPA as an important site. Four localities (the Sound of Gigha, the coasts of Tiree and Coll, the west coasts of the Outer Hebrides and the Firth of Clyde) support the majority of the eiders on the west coast of Scotland.

Density estimates range from less than 0.3 – 12.4 birds/km² comparable with those on the West Coast of the Outer Hebrides but lower than maxima in the Firths of Tay and Forth where there are sizeable local breeding colonies.

Distribution within the site

The eider distribution at this site falls almost entirely within that identified for great northern diver. However, the boundary of the SPA to the west of Gigha reflects presence of significant densities of eider in that area (Figure 4).

Species range

Whilst eiders are widely distributed and, during winter, may occur round virtually the whole of the coastline of Great Britain the range is predominantly in northern England and especially mainland Scotland and the Scottish island groups. The Sound of Gigha is one of the main winter concentrations in Scotland, especially off the west coast of Scotland.

History of occupancy

Common eiders have been known to frequent the locality for over 200 years (Gray, 1871; Lack, 1986).

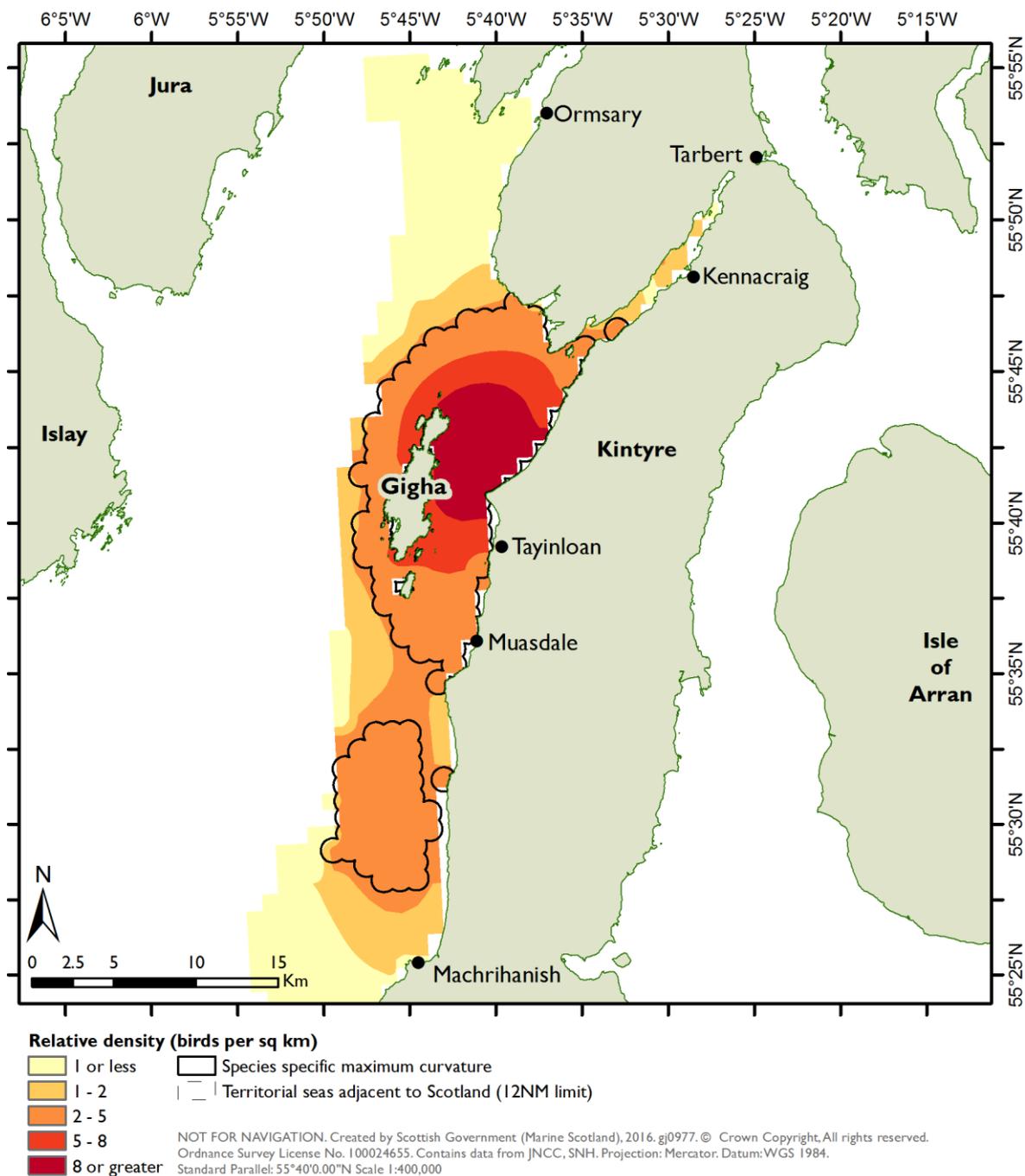


Figure 4. The distribution of common eiders within the Sound of Gigha SPA.

Red-breasted merganser

Red-breasted mergansers are a coastal species and occurred largely within the narrow confines of West Loch Tarbert and the channel between Gigha and the mainland (Figure 5). Numbers did not exceed those needed to meet the Stage 1.2 guideline (1,700 birds) but considerably exceeded the level of 1% of the GB population (84 birds) in two of the five⁶² aerial surveys between 2004/05 and 2007/08. The highest count was 211 birds in 2005/06. Overall, a mean peak annual wintering population for the five survey years was estimated to be 117 birds (1.4% of the GB population). As explained in section 4, this species qualifies under Stage 1.4 of the UK SPA Selection Guidelines.

Population size and density

One hundred and seventeen birds (more than 1% of the GB population) were estimated to be present in the SPA. The 1% GB numerical threshold was attained in two of the five survey seasons, but the aerial counts on which it is based are likely to have substantially underestimated numbers of this coastal species. This is clearly an important site in a network for the species with densities of up to 8.1 birds km⁻² detected.

Distribution within the site

The distribution of red-breasted mergansers within this site falls entirely within the area identified for Annex 1 great northern diver and does not influence the site boundary (Figure 5).

Species range

Red-breasted mergansers are distributed widely around the coast of Great Britain wherever there are sheltered locations – estuaries, firths, bays, sealochs and sounds. Abundance is low on the east coast especially south of the Firth of Forth and on the east coast of England. However, whilst having a wide range, it occurs only locally in substantial numbers and then densities are low because the areas used are large. The west coast of Scotland and the three offshore island groups of the Outer Hebrides, Orkney and Shetland, are particularly important.

History of occupancy

Red-breasted mergansers have been noted as wintering on the west coast for a long period of time but, as with many seaduck outwith the big firths, have only been surveyed in detail during the last 50 years (Lack, 1986; Lawson, 2015).

⁶² Meets the Ramsar definition of regularly: the requisite number of birds is known to have occurred in two thirds of the seasons for which adequate data are available, the total number of seasons being not less than three.

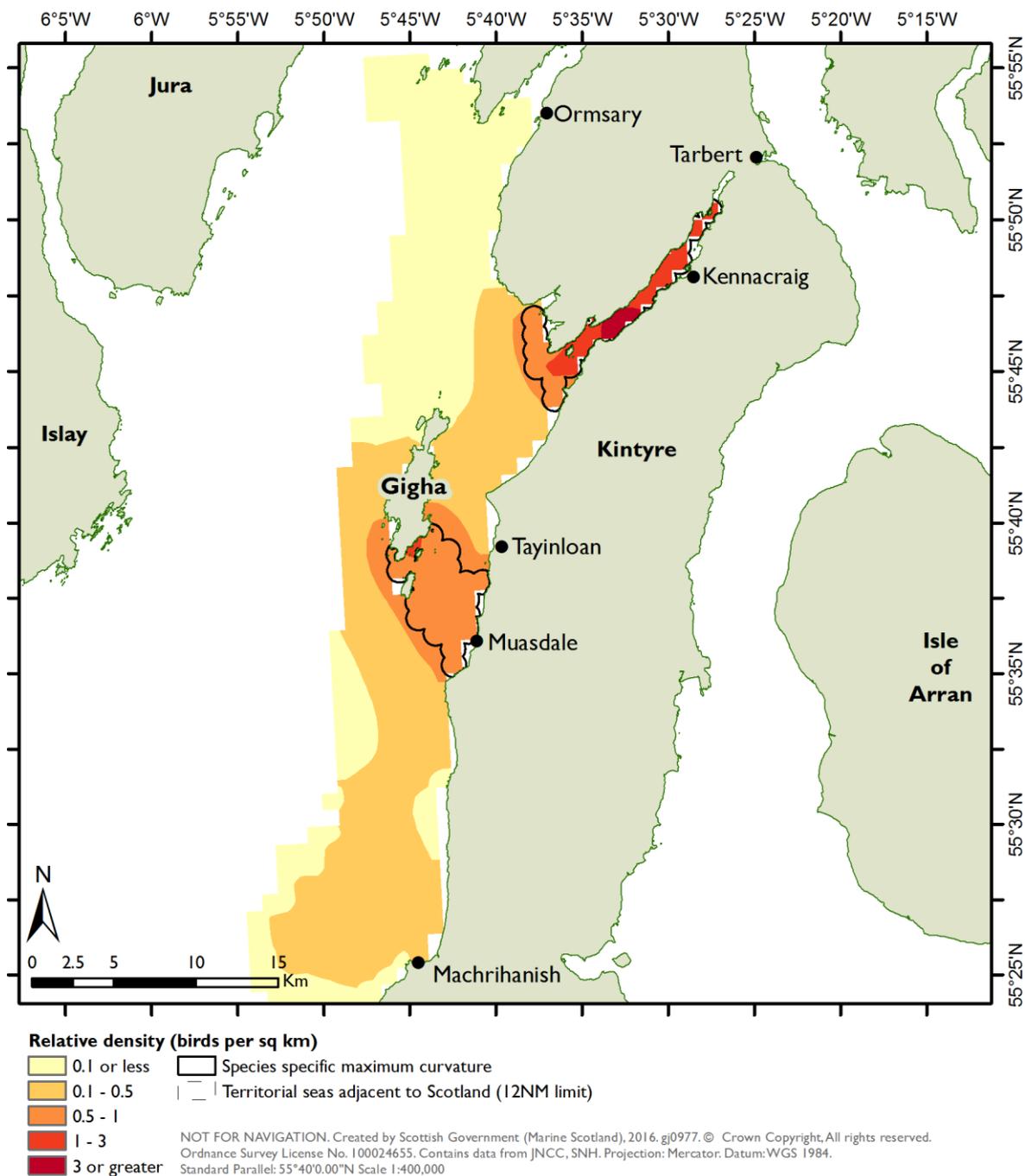


Figure 5. The distribution of red-breasted mergansers within the Sound of Gigha SPA.

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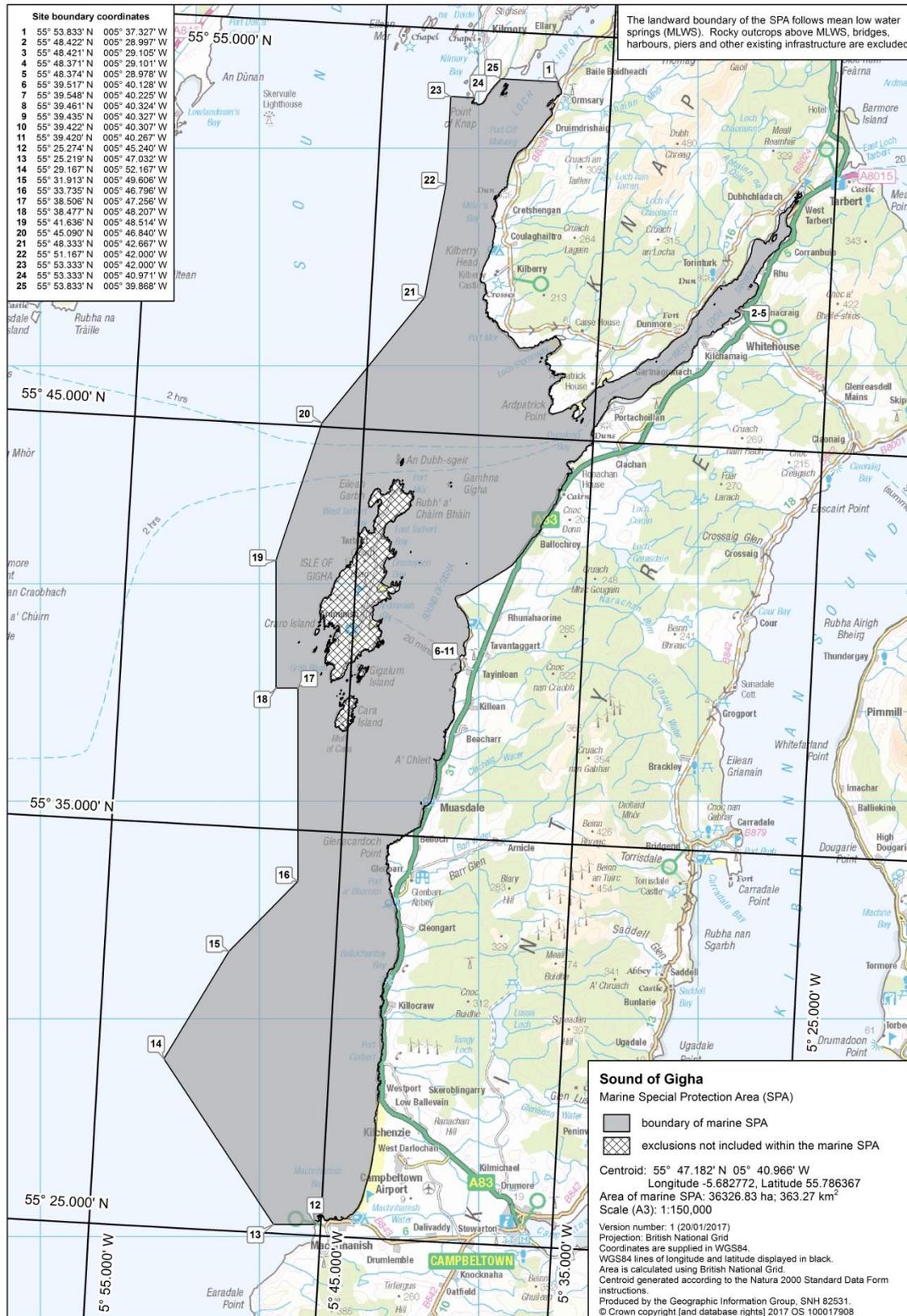
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Annex 1. Site Map



Annex 2. Citation

Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended)

CITATION FOR SPECIAL PROTECTION AREA (SPA)

SOUND OF GIGHA (UK9020318)

Site Description:

The Sound of Gigha Special Protection Area (SPA) lies off the west coast of the Kintyre peninsula in Argyll and Bute and is centered around the island of Gigha. It extends from Macrihanish Bay in the south to the entrance of Loch Caolisport off Knapdale to the North, including West Loch Tarbert.

The area has a complex bathymetry, and also varies greatly in exposure to prevailing winds and Atlantic waves. There are many rocks and skerries as well as small sheltered bays around Gigha itself, and Gigha Sound is scoured by north-south channels. Offshore, the sediments are a mixture of mud, sand and gravel while the very sheltered waters of West Loch Tarbert overlie soft mud sediment. This complexity in physical conditions provides for a locally diverse range of habitats and associated marine fauna which in turn support notable populations of wintering waterfowl.

Qualifying Interest:

The Sound of Gigha Special Protection Area (SPA) qualifies under **Article 4.1** by regularly supporting a wintering population of European importance of the following **Annex 1** species: **great northern diver** *Gavia immer* (for the years 2004/05 to 2007/08 a mean peak annual wintering population of 505 individuals (20.2% of the Great Britain population)) and **Slavonian grebe** *Podiceps auritus* (for the years 2008/09 to 2012/13 a mean peak annual wintering population of 37 individuals (3.4% of the Great Britain population)).

The site further qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory species: **common eider** *Somateria mollissima* (for the years of 2004/05 to 2007/08 a mean peak annual wintering population of 1,295 individuals (2.2% of the Great Britain population)) and **red-breasted merganser** *Mergus serrator* (for the years of 2004/05 to 2007/08a mean peak annual wintering population of 117 individuals (1.4% of the Great Britain population)).

Area: 363.27 km² (36,326.83 ha)

Location: 55° 47.182' N, 005° 40.966' W (coordinates are supplied in WGS 1984)

OS Sheet: 1:50,000 - 62 & 68

06/12/2018

Scottish Natural Heritage