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Scottish marine Special Protection Area Network Assessment:

Consultation comments and responses

June 2019

Contents

1 Introduction

In 2018 Scottish Natural Heritage (SNH) undertook a Network Assessment, commissioned by Marine Scotland, covering the 15 marine proposed Special Protection Areas (pSPAs) that were the subject of public consultation in 2016/17. The results of this Network Assessment were used by Marine Scotland to inform the options considered by their Strategic Environmental Assessment (SEA, 2018) on the pSPAs. The Network Assessment report and supporting species assessments, were published alongside the SEA Environment Report on 14 September 2018 to inform a public consultation on the SEA, which ran until 9 November 2018. As part of this SEA consultation, comments were also invited on the Network Assessment.

Five respondents to the SEA consultation (two local authorities, two nature conservation NGOs and an individual submitted comments under the heading "*Please provide any relevant comments on the findings of the SPA Network Assessment"* which are published in full on the Marine Scotland consultation web page [1]; one of the local authorities also provided Marine Scotland with a detailed report on the Network Assessment as part of their response. A sixth individual respondent, who wished to remain anonymous, provided a general comment which did not relate specifically to the Network Assessment.

This document summarises and responds to comments made by respondents specifically in relation to the Network Assessment. Additional comments made under this heading but relating to other aspects of the marine SPA selection process are not considered here. Those comments that reiterated previous submissions by the same respondents to the 2016/17 consultations are addressed in a separate SNH and JNCC Consultation Report[2]. In addition, the *Overview of the Scottish marine Special Protection Area selection process*[3] published by SNH in August 2018 is relevant to a number of comments made with respect to the site selection process.

2 Comments on the Network Assessment

The comments received with respect to the Network Assessment fell broadly under three themes covering a number of associated topics:

- The purpose and scope of the Network Assessment including geographic coverage, relationship to UK SPA sufficiency reviews and relevance to the identification of most suitable territories.
- The overall process and technical aspects including choice of metrics, data sources and thresholds and the decision principles.
- The findings and implications of the Network Assessment for site selection and wider conservation of marine birds.

The comments made under these three themes and associated topics are summarised and addressed below (sections 2.1 to 2.3).

[1] https://consult.gov.scot/marine-scotland/sea-for-15-proposed-special-protection-areas/consultation/published_select_respondent
[2] https://www.nature.scot/consultation-report-network-proposed-special-protection-areas
[3] https://www.nature.scot/sites/default/files/2018-09/Overview of the Scottish marine Special Protection Area selection process_1.pdf

2.1 Purpose and scope of the Network Assessment

2.1.1 Purpose of the Network Assessment and relationship to the site selection process

A number of comments queried the purpose and timing of the Network Assessment in relation to the site selection process of the pSPAs. This included comment that the Network Assessment should have addressed "a comparative analysis of alternatives to the [proposed sites]" and "should have been undertaken as part of the site selection process and not brought in to support the SEA [and it] consider[s] matters that should have been finalised at the site selection stage". The same respondent also asked whether the Network Assessment was informed by responses to the 2016/17 consultations.

<u>Response</u>
SPAs in the UK are selected further to assessment against the UK SPA Selection Guidelines (JNCC, 1999). The process of site selection for the 15 proposed marine SPAs is outlined in the *Overview of the Scottish marine SPA Selection Process* (SNH, 2018).

The Network Assessment is not a requirement of the UK SPA Selection Guidelines. Marine Scotland commissioned the assessment, as part of the wider consultation process, in response to comments received by SNH and JNCC from stakeholders to the marine pSPA consultations in 2016/17. In particular, these were around:

- the selection of the most suitable territories as pSPAs in Scotland; and,
- the conservation contribution the pSPAs and species represented make to the Scottish Marine Protected Areas (MPA) network.

The three points that Marine Scotland specifically requested the Network Assessment to address (as detailed on the Executive Summary and Purpose sections) were:

- 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 purpose of the Network Assessment (see section 3) was not to consider alternatives. This has already been done as part of the site selection process. SNH's remit was to provide Marine Scotland with an analysis of the conservation justification for the pSPAs selected as most suitable territories, thereby confirming the contribution they and the species represented in them make to the Scottish Marine Protected Areas (MPA) network.

Whilst the Network Assessment was undertaken in response to comments received to the 2016/17 pSPA consultations, the findings and recommendations from the Network Assessment are entirely independent.

SNH and JNCC have considered the Network Assessment findings, together with the responses to the 2016/17 pSPA consultations as part of their post-consultation process of completing their advice to Scottish Ministers on the final network of pSPAs recommended for classification. SNH and JNCC's Final Advice[4] was submitted to Marine Scotland in December 2018.

[4] https://www.nature.scot/marine-special-protection-areas-final-advice-scottish-government

2.1.2 Geographic scope

A local authority noted that the UK, rather than Scotland, is a member state of the EU and is responsible for reporting to the European Commission on the conservation status of Natura sites across the UK. Given this, the respondent suggested that the Network Assessment should have considered the proposed and existing SPA network across the UK in order to demonstrate that the pSPAs are "most suitable territories".

Response

The Birds Directive requires Member States to establish networks of SPAs on land and at sea within their areas of jurisdiction (see also SNH, 2018). In order to select the most suitable territories, and specifically with reference to maintaining species' range, SPAs are selected to represent the main components of the range and principle occurrences in relevant regions of the UK (Stroud *et al*., 2001). Scotland is at the northern or southern end of many species' ranges in the UK and is the main UK stronghold for species such as non-breeding great northern diver and breeding red-throated diver. As such, Scotland is taken as one region and SNH select SPAs on the basis of covering "as wide a geographic coverage across the species' range as possible" (Stage 2.2 of the guidelines). No comparison across the UK is required by the UK SPA Selection Guidelines.

The geographic scope of the Network Assessment reflects this and is specifically designed to highlight the significance of Scottish waters in comparison to the rest of the UK for the species included in the network (attribute 2). The Network Assessment considers whether the 15 marine pSPAs, together with existing Scottish marine and estuarine SPAs, meet appropriate levels of representation for 53 species-seasons, given the relative value that protected areas in Scotland's marine environment could make to each of these in Europe.

With respect to reporting to the EU, the Article 12 report to the EC provides information at a UK level on the conservation status of bird species, rather than on Natura sites (i.e. SPAs).

2.1.3 Topic scope

A conservation organisation stated "[Scotland's marine SPAs] also play a valuable role in supporting Scotland's Ecologically Coherent Network of Marine Protected Areas under OSPAR. As such any network assessment - in addition to replication - should consider adequacy/viability, representivity and connectivity". Another respondent noted that while the Network Assessment is described as not including an assessment of functional connectivity or coherence within the Scottish SPA or wider MPA network, functional links are mentioned several times and appear to be a consideration.

Response

The focus was on the "network" in the sense of this being the particular set of pSPAs identified by the site selection process as representing the most suitable territories. Hence, the Network Assessment does not include any formal analyses of connectivity or potential functional linkages within the marine environment and across the marine pSPAs; this would be a substantial additional piece of work requiring variable levels of supporting evidence. However, for individual species the potential for linkages between existing estuarine SPAs and adjacent marine pSPAs (e.g. where birds may feed both within intertidal and adjacent subtidal waters) and also between terrestrial SPAs, most notably for breeding seabirds, and the marine pSPAs is considered.

2.1.4 Relationship to UK SPA sufficiency reviews

A conservation organisation expressed disappointment that "more of the recommendations in the 3rd SPA review[5] are not reflected within the proposed suite" while a local authority asked why it was not appropriate to use existing UK sufficiency assessments.

One conservation organisation asked for clarification of how the Network Assessment sits in relation to the UK's Marine SPA Sufficiency Review (*in prep*) and a second proposed that "a full assessment (including terrestrial and marine sites, ideally at a UK scale) of the sufficiency for all species with a marine component to their SPA suite" be carried out.

<u>Response</u>
The 3rd SPA review (Stroud *et al.,* 2016) was a terrestrial SPA review and does not address SPA sufficiency in the marine environment. Some of the recommendations from earlier terrestrial SPA reviews, where these could be accommodated in marine SPAs (i.e. SPAs for roosting wintering gulls), have been reflected in the Scottish marine pSPA network. However, the timing of the most recent review did not align with the marine SPA programme of work required for the selection process including consultation, which was undertaken in 2016 and early 2017.

The purpose of the Network Assessment is outlined in our response under section 2.1.1. It is not intended to be a sufficiency review. In addition, some of the attributes used in the existing UK sufficiency assessments rely on expert judgment, whereas a requirement of the Scottish Network Assessment was that it should be based on publically available information.

In the terrestrial environment, SPA selection has been followed by UK sufficiency assessments to establish if there are any gaps in the SPA network. The UK Government have undertaken to complete a UK's Marine SPA Sufficiency Review , similar to those previously completed for terrestrial sites, in order to assess the adequacy of the UK's network of marine SPAs once the current programme of designation is complete. A working group, led by JNCC, has already made progress on this but the results are not yet publically available. The intention of the Network Assessment was not to duplicate this UK level marine SPA sufficiency review. Marine Scotland however anticipates that the Network Assessment will complement the UK Sufficiency Review and help prioritise any potential gaps in Scotland.

2.1.5 Regularly occurring migratory species and "most suitable territories"

A conservation organisation stated that under Article 4 of the Birds Directive "the most suitable territories should be SPAs" and on this basis queried the legitimacy and purpose of the Network Assessment with respect to regularly occurring migratory species for which the UK has a small proportion of the biogeographic population. The same respondent also expressed concern that the inclusion within the Network Assessment of concepts such as European conservation status, replication and local geographic replication adds "additional criteria that species must be measured against, above and beyond the SPA selection guidelines" and could result in removal of features from sites previously identified as 'most suitable'.

[5] Stroud, D.A. et al. (2016) The status of UK SPAs in the 2000s: the Third Network Review, JNCC

Response

As mentioned under section 2.1.1, site selection was based on rigorous application of the UK SPA Selection Guidelines (JNCC, 1999) and all relevant Annex 1 and regularly occurring migratory species were included in this process[6].

Guidelines 1.1 to 1.3 require specific population thresholds to be met for species to qualify. Many regularly occurring migratory species did not meet the required population thresholds and therefore would not have qualified without the multi-species approach developed by SNH using Stage 1.4 guideline. This guideline gives latitude for the exercise of scientific judgement where the application of guidelines 1.1–1.3 is considered to identify insufficient SPAs; if site-based protection is an appropriate conservation response for the species, sites may be selected. Generally, this is through the addition of species as a qualifying feature to potential areas already meeting the Stage 1 guidelines for one or more species, and providing one or more of the Stage 2 guidelines in any season are met. The approach adopted by SNH is not explicit in the guidelines but the process is outlined in the *Overview of the Scottish marine SPA Selection Process* (SNH, 2018).

The Network Assessment does not introduce any additional criteria to the site selection process, but considers the network as a whole and provides clarification for the basis of scientific judgements made during application of guidelines 1.4 and Stage 2. By considering attributes such as importance of Scottish waters within a GB context and international conservation status, the Network Assessment, and in particular the commentary in section 7.3, addresses a number of concerns and specific questions raised by stakeholders in responses to the 2016/17 consultations. These were around:

- the value of including regularly occurring migratory species for which GB and Scotland hold very small proportions of international populations within the Scottish marine SPA network; and, therefore
- why site-based protection at the number of sites proposed for each of these species in Scottish waters is an appropriate conservation measure for regularly occurring migratory species that do not meet Stage 1.2 or 1.3.

There is no requirement under the Birds Directive to classify all potentially suitable territories and there are no guidelines set out in the UK SPA Selection Guidelines on the number of SPAs required for each species. However, the Stage 2.2 guideline indicates that “Areas selected for a given species provide as wide a geographic coverage across the species' range as possible”. Geographic range is considered within the Network Assessment species accounts under “Contribution to Scottish SPA network”.

The Network Assessment goes beyond what is required by the UK SPA Selection Guidelines. It applies attributes that complement rather than substitute or add to those applied in the Guidelines to consider the proposed network as a whole and it identifies both potential over-representation and potential under-representation of species.

2.2 Quality and technical aspects

2.2.1 Overall quality and process

One local authority commented “the network assessments themselves are thorough, logical and provide much useful information to enable site selection. They are also valuable in their

[6] The respondent explicitly supported exclusion of Cory’s shearwater, Balearic shearwater, Mediterranean gull, glaucous gull and roseate tern from the Network Assessment

own right as baseline analysis." Another local authority stated "In general, the approach taken appeared largely reasonable" but questioned the independence of the Advisory Panel. The same respondent also stated that the assessment "is based on ornithological data which are inadequate, patchy and out of date".

A conservation organisation felt that the process was difficult to follow but supported the use of published sources of data and also commented "This Network Assessment provides useful insight into the methodology of identifying how well marine birds in Scotland are represented in the pSPA network". This respondent also raised a specific point about the process diagram at Figure 2 of the Network Assessment.

Response

We note the positive comments around the overall value of the Network assessment.

The members of the Advisory Panel were senior ornithological advisers and policy staff drawn from Marine Scotland Science, JNCC and SNH who were independent of the SNH staff tasked with undertaking the species assessments. The approach and documentation adopted was approved by members of SNH's Scientific Advisory Committee MPA subgroup, which included independent experts, prior to submission to Marine Scotland.

The data requirements for the Network Assessment (e.g. to inform metrics such as distribution within GB seas and/or coastal waters) are distinct from JNCC's programme of survey and analyses that informed identification of pSPAs and calculation of population estimates for individual sites. The Network Assessment used the most recent available sources of relevant published data, including Balmer *et al* (2014), Bradbury *et al* (2017), Furness (2015) and WeBS data for the years 2011/12 to 2015/16.

With respect to the process diagram we accept the potential for confusion. Essentially the central (purple) box is checking if the reality (i.e. actual number of pSPAs proposed for each species) matches what is expected as a result of the Network Assessment. A 'No' answer is triggered where the number of sites is either below or above what is expected. Where above the proposals were reviewed by the Advisory Panel, taking consideration of any key considerations supporting replication above the minimum, and where below it was concluded that additional designations and/or other conservation measures could be considered.

2.2.2 Choice of metrics, data sources and threshold, and interpretation

Definitions and choice of metrics

A conservation organisation asked for clarification of how attributes acknowledged as relevant to assessing the importance of site-based protection, in particular degree of aggregation, but that could not be included in the formal scoring process were considered.

The same respondent felt that the concept of 'local geographic replication' applied at Step 2 was poorly defined and only seemed to affect the Northern Isles.

A local authority asked why OSPAR regions were considered at Step 2 when considering replication within the pSPA network.

Response

Degree of aggregation is an attribute which together with those formally included at Step 1 (*Species assessments*) is relevant to assessing the relative importance of site-based protection for marine birds. However, it is not a sole proxy for value of site-based protection and there was no published data source that could provide an objective and quantitative

measure of this attribute, which is why it was not included within the formal Step 1 scoring. However, where relevant (i.e. for either species that show high levels of aggregation, particularly some wintering waterfowl, or, conversely, are highly dispersed across Scottish waters) aggregation was included qualitatively in the discussions under Section 4 of the species assessments.

The areas used in consideration of "local geographic representation" are shown in Figure 3 in the Network Assessment; in addition to Northern Isles these were Hebrides, West Coast Mainland and East Coast, all covering similar geographic scales. In practice, the only instances where "local geographic representation" was identified were within the Northern Isles, most commonly between North Orkney pSPA and Scapa Flow pSPA. The term "local" was used to distinguish from the consideration of OSPAR Regions (see below). Cases where "local replication" was identified were referred to the Advisory Panel, who considered not just replication but overall geographic representation of species-season features within the network.

The rationale for use of OSPAR Regions when considering replication is given in section 5.2.1 of the Network Assessment. The marine bird species included in the pSPA network have very different distributions, with species distributions often also differing between seasons. This makes it difficult to identify robust rules that could be used to define regions on an ecological basis. The Network Assessment therefore adopted the OSPAR regions as representative of the different broad-scale biogeographic characteristics defining Scotland's seas. OSPAR regions are similarly used to underpin assessment of the contribution that Nature Conservation MPAs make to the Scottish MPA network.

Choice of data sources to characterise marine distribution of inshore waterbird species
Two respondents commented on choice of data sets used to characterise marine distributions of inshore waterbird species.

A local authority expressed concern that while the Network Assessment acknowledges that neither the BTO Atlas 2007 – 2011 (Balmer *et al.* 2014) nor Wetland Bird Surveys (WeBS) data are particularly suited to coastal and nearshore waterfowl but were used due to the absence of any other, more suitable data source. They commented "no further consideration appears to be given to account for the mismatch between the data source and the purpose it is being used for". This respondent also considered that the analysis of the level of correlation between the BTO Atlas and WeBS data was of lesser value than the plot showing that each species is present in a higher percentage of counts in the BTO Atlas data than the WeBS counts.

The same respondent also stated that Bradbury *et al.* (2017) was not a suitable source for assessment of distribution of waterfowl features (specifically long-tailed duck, European shag, red-breasted merganser and great-northern diver) as they are "considered by JNCC to be inshore waterbirds" and suggested that relatively low occupancy levels for "predominantly coastal species … on left side of Figure A2.3 in [the Network Assessment] … are likely due to the methodology for the underlying data, rather than a useful indication of the relative distribution of these species across Great Britain".

A conservation organisation acknowledged that "some inshore waterbird species are poorly represented by Bradbury *et al*. but raised similar concerns about suitability of BTO/WeBS data, and suggested that it would be useful to supplement use of these data sources with a review of the raw aerial /boat survey data available.

Response

When deciding which data sets to adopt to characterise distributions of waterfowl species in the non-breeding season for the Network Assessment, SNH examined and compared the species maps in Bradbury *et al.* (2017) and the BTO Atlas (Balmer *et al.* 2014) and also checked the degree of correlation between Atlas and WeBS data. The BTO Atlas data relate to 10km grid squares containing coastline while WeBS data are derived from coastal count sectors of varying sizes, so it is to be anticipated that the % occupancy figures would be different irrespective of overall coverage. The plot at Figure A2.2 in the Network Assessment simply illustrates that the relative positioning for each species was similar, giving added confidence in application of these data sets.

Given the acknowledged limitations of all three data sources care was taken not to over interpret them; specifically only two categories with respect to GB coastal or marine distribution (Restricted or Widespread) were identified.

For nine species (black-throated diver, common eider, common goldeneye, common scoter, goosander, great crested grebe, greater scaup, Slavonian grebe and velvet scoter) with predominantly coastal/nearshore distributions both JNCC[7] and SNH concluded that Bradbury *et al.* (2017) was not a suitable data source for characterising distribution and SNH used a combination of occupancy scores for BTO Atlas squares and WeBS count sectors in the Network Assessment.

For three species (European shag, great northern diver and red-throated diver) both the JNCC and SNH used the JNCC occupancy scores[5] from the Bradbury *et al.* (2017) data sets. For long-tailed duck, the JNCC analysis noted that the modelling in Bradbury *et al.* was restricted to the Seamast area, such that the southern part of the UK was not included; hence for this species SNH cross-checked the JNCC occupancy score against WeBS occupancy; these scores were in alignment with respect to categorising GB distribution.

For red-breasted merganser JNCC[5] applied the occupancy score derived from Bradbury *et al*. (2017) whereas, because it is a nearshore species SNH considered the BTO Atlas and WeBS scores as better suited to indicating what proportion of the sea area that it could potentially use is actually occupied. Bradbury *et al.* (2017) consider occupancy across the entire UK marine area, the majority of which is not relevant to coastal species such as red-breasted merganser.

The Network Assessment working group were satisfied with the decisions made with respect to choice of data sources for all waterfowl species in the non-breeding season.

It would not have been feasible within the timescale available for completion of the Network Assessment to review raw aerial and boat survey data and, given that these data are unpublished and deemed insufficient to support modelling within Bradbury *et al.* (2017), there would be legitimate questions around their application to this exercise.

Choice of threshold values

A conservation organisation acknowledged the inherent challenges in developing relevant metrics and associated thresholds based solely on published data sources: “many of the thresholds used to score species/seasons have had to rely on a degree of judgement but we also accept that this is a consequence of the complicated nature of developing a scoring approach for such metrics”.

[7] Analyses undertaken by JNCC (unpublished) of the underlying modelled datasets in Bradbury *et al.* (2017).

The same respondent and a local authority had some detailed questions around the choice of threshold values used for the scoring of the GB coastal or marine distribution and relative importance of Scotland attributes (as described in Annex 2 to the Network Assessment). These specific questions are summarised alongside our responses in the table below.

Response

The Network Assessment is intended to objectively assess whether the number of proposed SPAs in the current network is appropriate. Of relevance to all these questions is that the selection of category boundary values was purely to enable objective and even categorisation of the species with respect to their occurrence and that no biological significance was attributed to the values selected. In addition, multiple sources were cross-referenced where possible and visual inspection of maps based on these data was used to sense check the decisions made on boundary values.

Comment or question	**Response**
The 'obvious step change' in the WeBS data used to define the 25% threshold isn't the most obvious available; similarly, there are two step changes in the BTO Atlas data that are greater than the one used to determine the 45% threshold. There is a good correlation between WeBS and Atlas data but Atlas occupation is consistently higher than Webs occupation and this should be noted; it may help justify why a higher threshold is used for Atlas compared to WeBS.	As stated in the text around Figure A2.1 in the Network Assessment, the selection of category boundary values was to enable objective categorisation of the species considered with respect to their occurrence. The boundary values chosen reflect the characteristics of the supporting data sets and have no inherent biological significance. Obvious step changes in the data that divided the species into two roughly equal cohorts were adopted. Given their strong correlation, the consideration of the WeBS and BTO Atlas data sources together strengthens the overall approach. The threshold of 25% of WeBS count sections occupied corresponds to c.45% of BTO Atlas coastal squares. Had the higher step in the WeBS data referred to been used, this would have implied that species occupying c.65% of BTO Atlas coastal squares have a restricted distribution. This presents a less robust interpretation of 'restricted' and therefore, could be open to challenge. The Network Assessment working group were satisfied that the 25% and 45% thresholds represent robust and readily defendable interpretations of identifying whether species have a restricted or widespread distribution.
No detail on how the threshold of '30% of inland squares occupied' was determined.	This was a judgement call that species occurring in fewer than 30% of BTO Atlas inland squares are showing high level of dependency on the marine environment.
More detail is needed on how the relative importance of Scotland was determined from WeBS data, e.g. why notable numbers were defined as "≥10, ≥50 or ≥100 as appropriate", and which one was appropriate for which species.	This reflects the different overall populations of the various species and their distributions (e.g. 10 Slavonian grebe at one location is notable whereas 10 eider are not). The use of this information was supplementary to visual inspection of the BTO Atlas relative abundance maps and is an example of where the approach to categorisation was strengthened by using more than one information source.

Comment or question	Response
For seabirds and inshore waterbirds with more marine distributions, the choice of category boundary values (from Figure A2.3 showing UK marine area occupancy scores) appears to be subjective. Were these values cross-checked with the maps to make sure they made sense?	The data shown in Figure A2.3 are percentages of cells within the UK marine area in which the modelled density value exceeded 1% of the 95th centile density value (excluding cells in which CV was >0.5). The underlying datasets are those represented within the maps in Bradbury *et al.* (2017) and hence the scores reflect these mapped distributions across UK waters. These maps were examined to sense-check the boundary values adopted.
How were the 75% and 50% thresholds used to categorise relative importance of Scotland within GB for seabirds (Table A2.2a) defined? They set a high bar for determining the importance of Scottish waters.	Scotland's waters make up c.70% of UK total marine area and therefore we do not consider that these thresholds set a high bar with respect to determining their relative importance to wide-ranging seabirds. The Network Assessment working group were satisfied that the 75% and 50% thresholds represent robust and readily defendable interpretations of the relative importance of Scotland within GB.

2.2.3 Interpretation of distribution data

A local authority questioned the interpretation of the BTO Atlas data as indicating that velvet scoter, Slavonian grebe and black-throated diver have restricted GB coastal or marine distributions and in particular, why velvet scoter was considered the most restricted given "distribution in winter around most of the south and east coast of Great Britain as well as Liverpool Bay in the Irish Sea".

<u>Response</u>
As detailed in Annex 2 to the Network Assessment two metrics informed the scoring of GB distribution and relative importance of Scottish populations.

The first of these relates to pattern of occurrence around the GB coastline. Figure A2.1b in the Network Assessment shows the BTO Atlas winter occupancy scores for coastal squares; these are the same data set as used to produce the winter occupancy maps in the BTO Atlas and so reflect relative overall occurrence. The occupancy scores were also sense checked against the BTO Atlas relative winter abundance maps. Figures 1 to 3 (below) [8] show maps for velvet scoter, Slavonian grebe and black-throated diver. While all three species occur in small numbers around the UK coast the highest concentrations, particularly of velvet scoter, occur at a relatively few locations so these three species were all categorised as having a restricted GB distribution. Figure 4[6], shows the same maps for the widespread species red-breasted merganser. It can clearly be seen that red-breasted merganser is more widely and evenly distributed than the other three species.

For consideration of relative importance of Scottish waters in a GB context, the Network Assessment also used the relative winter abundance maps (e.g. Figures 1b, 2b, 3b, 4d) from the BTO Atlas. Figure 1b shows this map for velvet scoter which illustrates that the majority of the GB wintering population is found in Scotland.

[8] All maps reproduced from Bird Atlas 2007–11, which is a joint project between, BTO, BirdWatch Ireland and the Scottish Ornithologists' Club. Map reproduced with permission from the British Trust for Ornithology

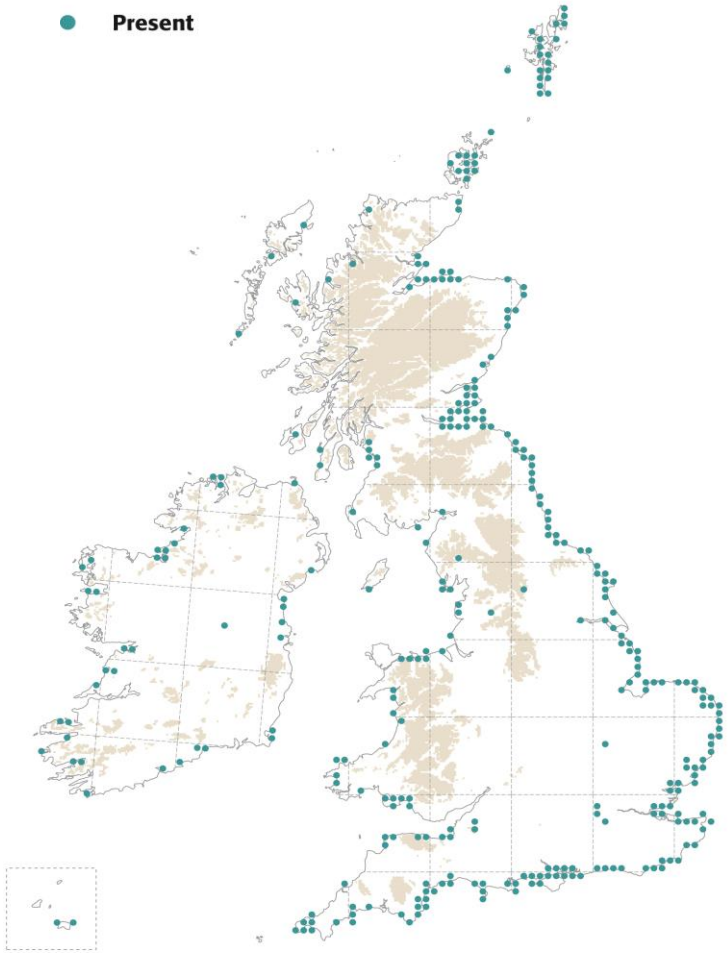

Fig.1a Velvet scoter winter occurrence

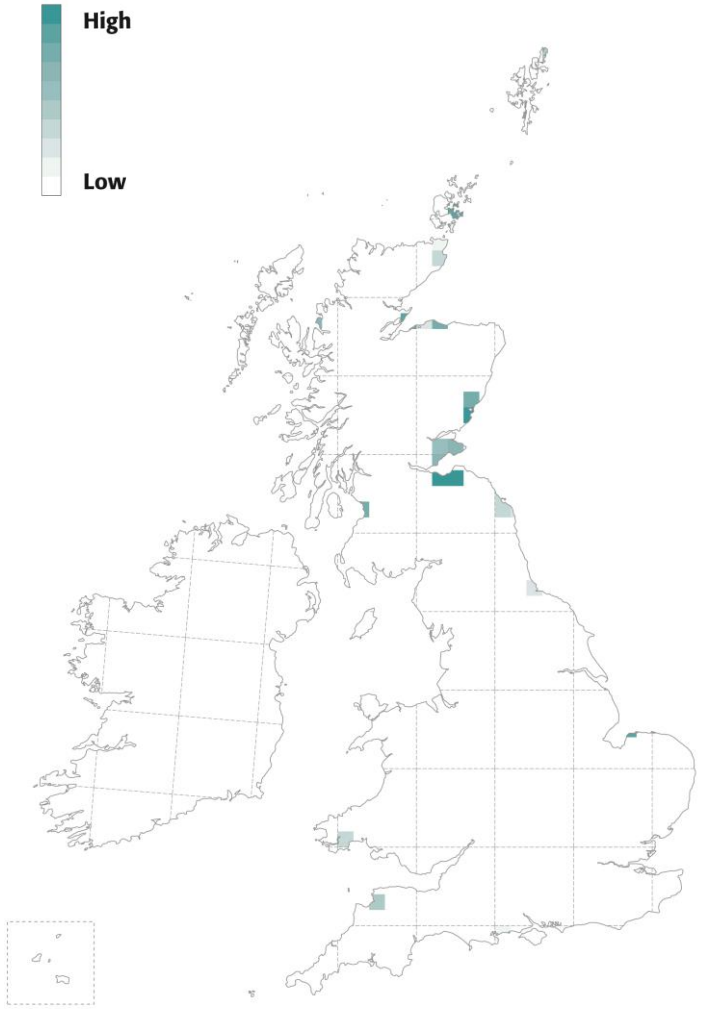

Fig.1b Velvet scoter winter relative abundance

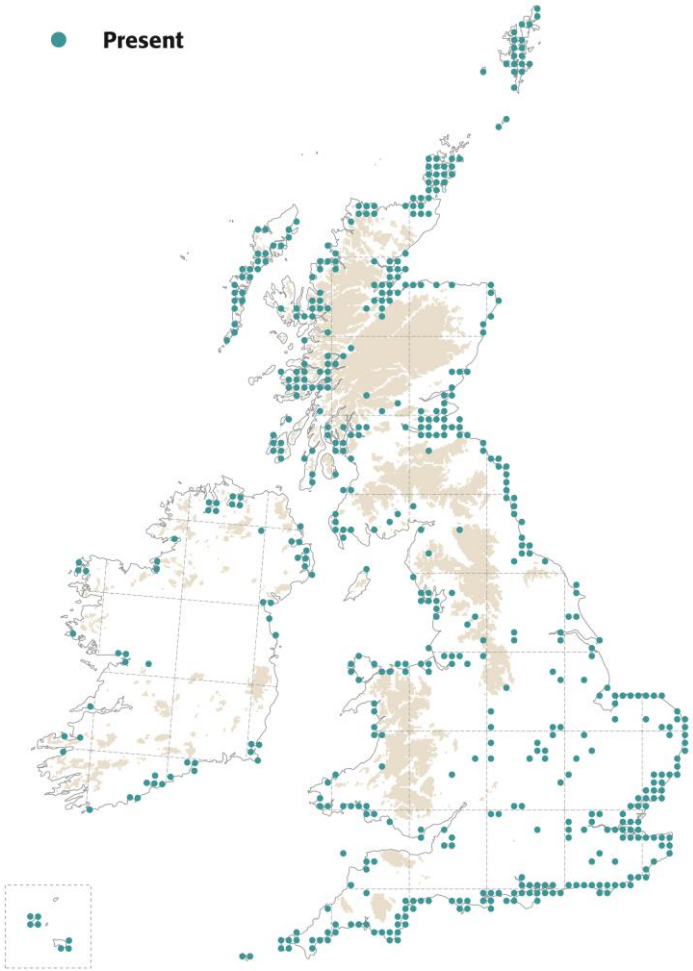

Fig.2a Slavonian grebe winter occurrence

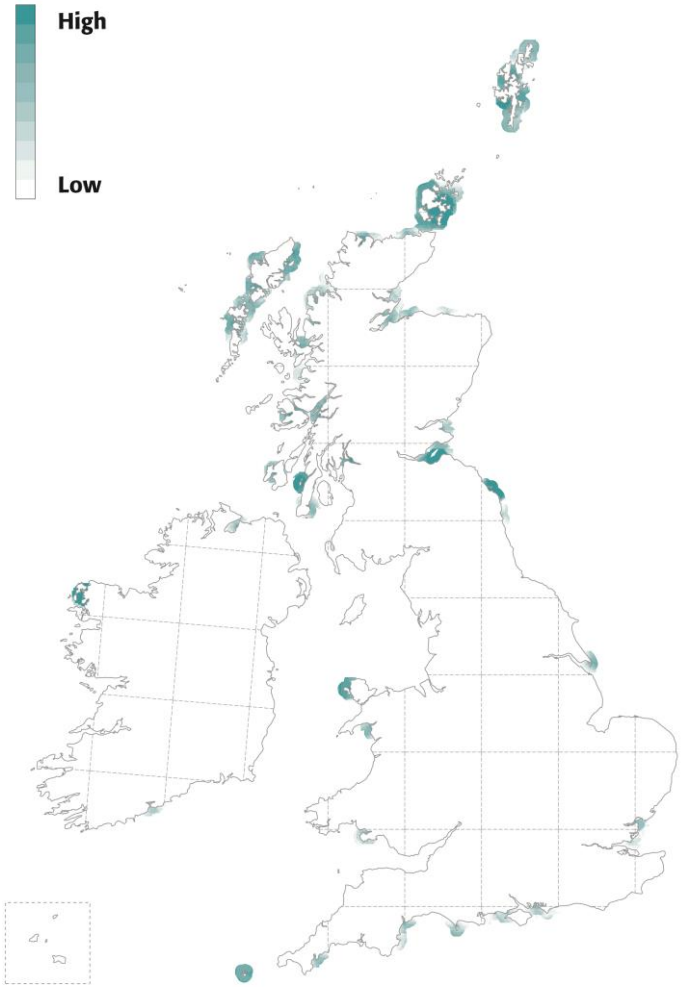

Fig.2b Slavonian grebe winter relative abundance

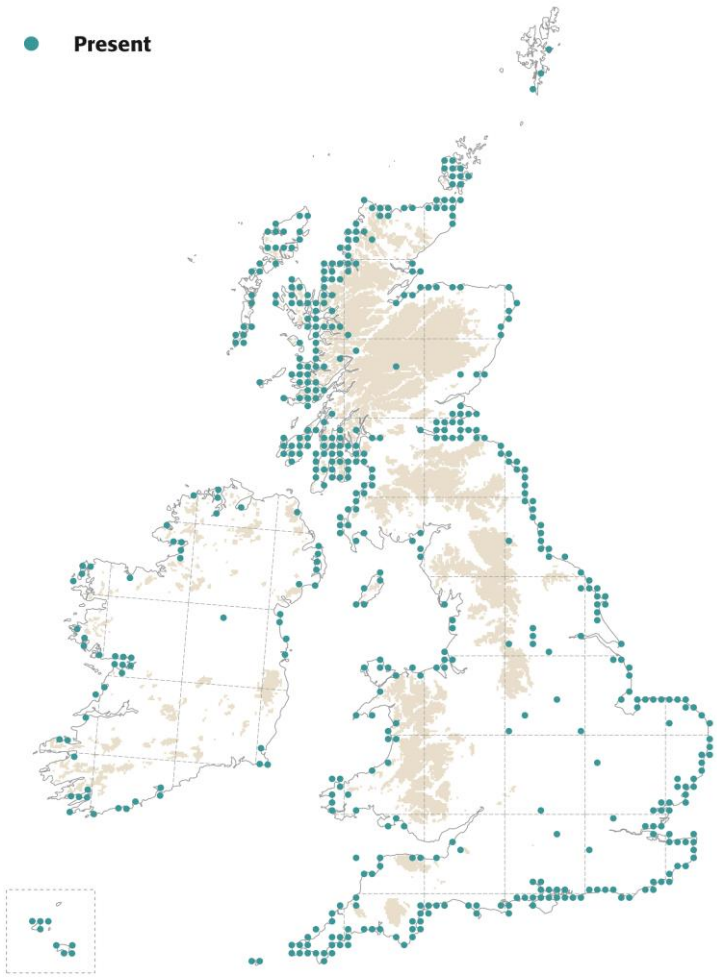

Fig.3a Black-throated diver winter occurrence

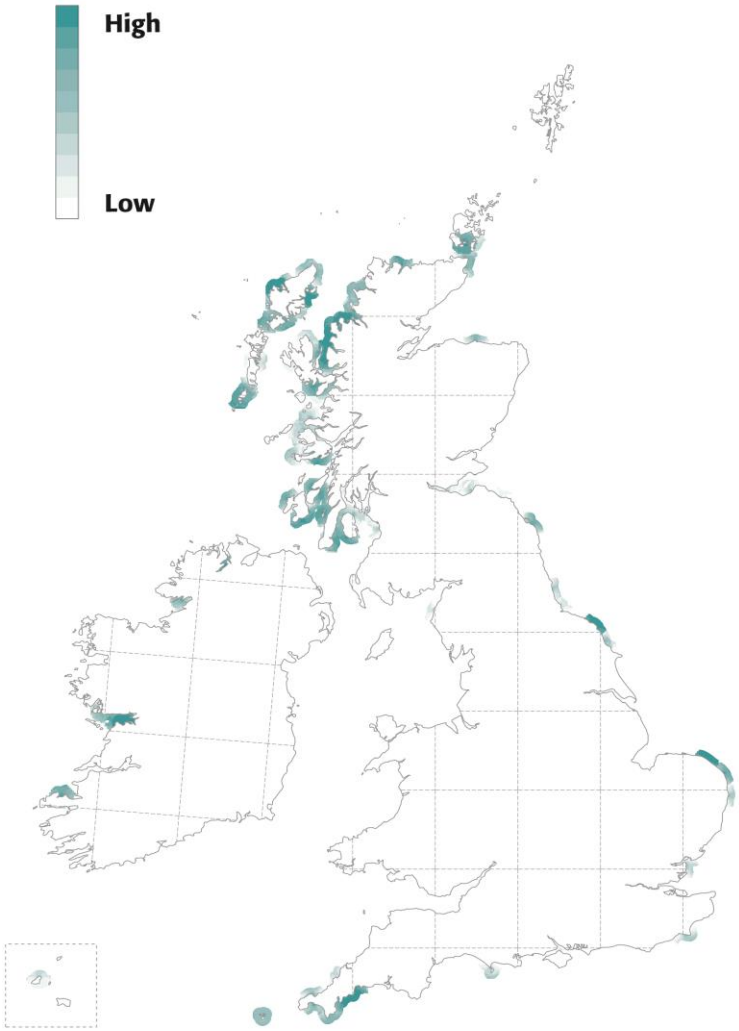

Fig.3b Black-throated diver winter relative abundance

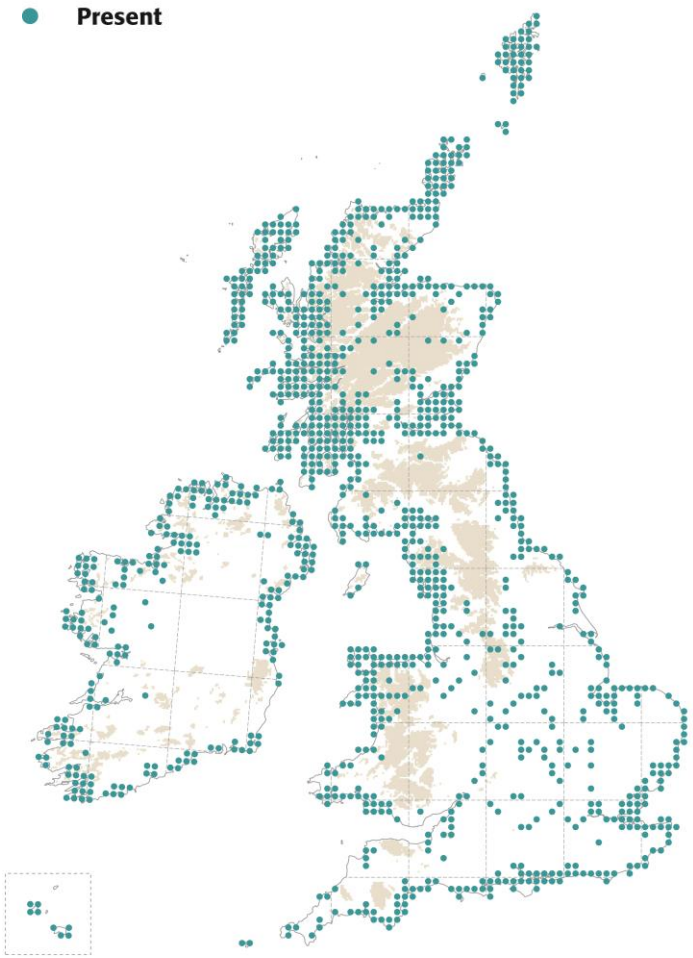

Fig.4a Red-breasted merganser winter occurrence

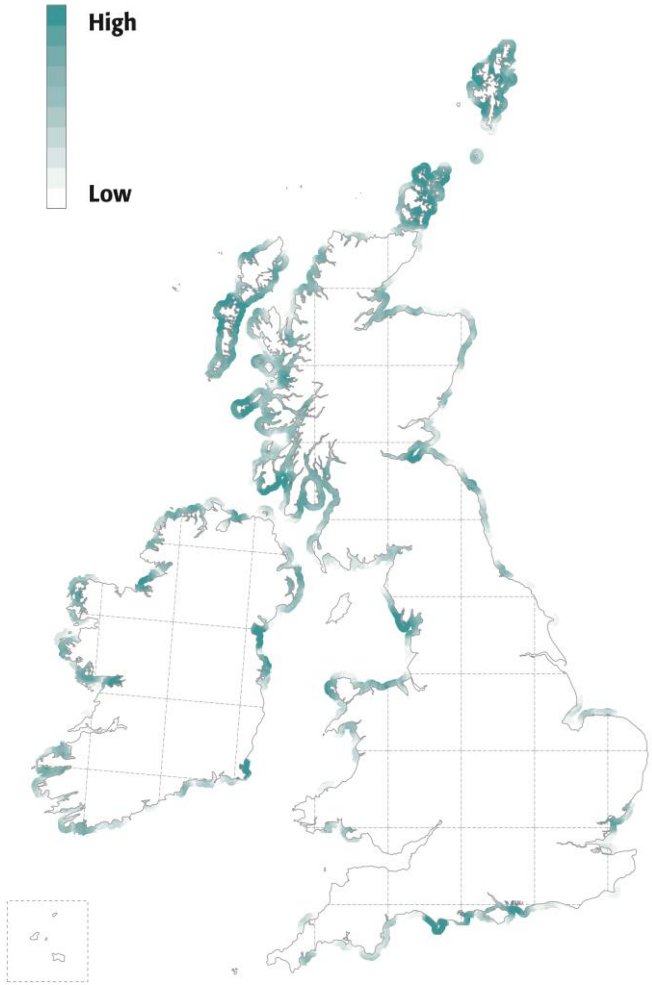

Fig.4b Red-breasted merganser winter relative abundance

2.2.4 Decision principles

A conservation organisation suggested that precautionary principle should have been applied to the second decision principle (section 4 Annex 2 in Network Assessment) such that the combined score would default to high, rather than medium, where the two attributes to be combined are high and low.

Response

The scoring approach objectively summarises information from a range of equally weighted attributes[9] and sets relatively high and hence, robust bars for the value of protected areas in Scotland's marine environment to the conservation of a species to be assessed as either high or very high. This approach strengthens the conservation justification for designations and, for most species, the Network Assessment compliments and provides added strength/justification for the inclusion of these species in the number of pSPAs they are represented in.

2.3 Findings of the Network Assessment and implications

Three respondents commented on the findings of the assessment. A local authority interpreted the results as being "to remove five qualifying features from the North Orkney pSPA and [one from] the Scapa Flow pSPA".

A conservation organisation expressed concern about possible removal of bird features from some sites, in particular non-breeding European shag and breeding red-throated diver from North Orkney given that these species had "been identified as at or under the minimum level of replication in the network". This respondent suggested that the North Orkney and Scapa Flow pSPAs should be amalgamated.

Another conservation organisation proposed that greater scaup should be included as a qualifying feature of the Solway Firth SPA marine extension and that Loch Ryan and Loch Indaal should be considered as additional sites for this species. This organisation also questioned why Arctic tern were not included within any pSPAs in Shetland and stated their support for identification of additional sites for features including the *faeroeensis* sub-species of common eider in Shetland.

One of these two respondents expressed a view that the Network Assessment "finds the Scottish SPA network substantially incomplete" and both advocated further work to identify appropriate conservation actions, including but not necessarily confined to site-based protection, for all those species-season combinations for which the Network Assessment concluded that pSPA provision is below the minimum level of representation expected.

Response

Some elements of these responses suggest that it was not understood that the conclusions of the Advisory Panel with respect to which bird features in which proposed SPAs are advisory only. The Network Assessment identifies species and sites which "provide the weakest cases for retention based on the relative value of protected areas in Scotland's marine environment to the conservation of the species in Europe".

[9] The only exception was in Table A2.3 where scores were adjusted to reflect magnitudes of international populations.

The Network Assessment, together with the responses to the pSPA consultations, have informed SNH and JNCC's final advice to Scottish Government but it is ultimately for Scottish Ministers to decide on which sites and qualifying features they wish to classify.

The UK SPA Selection Guidelines do not identify a pre-requisite number of SPAs required for each species. Generally, the number of SPAs selected for any one species is based on expert judgement and knowledge of the significance of the pSPAs by applying the Stage 2 guidelines to identify the most suitable territories. In the terrestrial environment, SPA selection has been followed by UK sufficiency assessments to establish if there are any gaps in the SPA network (Stroud *et al*. 2001 and 2016) and a similar approach is underway for assessing the adequacy of the marine SPA network.

With respect to greater scaup within the Solway Firth marine extension, the mean of peak population estimate calculated from available WeBS data did not exceed the relevant population thresholds required for consideration as a qualifying feature or named qualifier of an assemblage. The mean of peak population taken from the aerial survey data did exceed the 1% of the GB population threshold, but the numbers of greater scaup present only exceeded this threshold in one of the three survey seasons (Lawson *et al*. 2015). Consequently, qualifying numbers could not be considered to be occurring on a regular basis, as required under the Stage 1 guidelines. Therefore, greater scaup was not included in the final list of qualifying features for the Solway Firth marine extension, but it remains a qualifying feature of the existing SPA.

High numbers of greater scaup were recorded at Loch Indaal and Loch Ryan but neither population exceeded the 1% of biogeographic population threshold required to meet the Stage 1.2 selection guidelines. These locations were not selected as the 'most suitable territories' for any Annex 1 inshore wintering waterfowl species and therefore greater scaup could not be considered under the Stage 1.3 or 1.4 guidelines (for which 1% GB population is the relevant population threshold).

The Network Assessment recognises absence of Arctic tern foraging area pSPAs in Shetland and the potential value of further site provision, but also notes that major declines and erratic breeding performance in SPA colonies since the Seabird 2000 census pose a challenge to robust site identification.

Subsequent to the publication of the Network Assessment, the migratory 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.

We disagree that the Network Assessment finds the Scottish SPA network "substantially incomplete". Site-based protection is one element of the wider three-pillar approach to marine conservation in Scotland and there are a number of species for which site-based measures are not an appropriate protection mechanism or it is not feasible to identify the 'most suitable territory'. Given the range of pressures and threats to seabird populations, and their varied ecologies and distribution patterns, the SPA network alone is unlikely to be able to effectively conserve all seabirds. Scottish Government has therefore committed to

progressing a Seabird Conservation Strategy[10]. Work on the Strategy, involving a range of organisations including RSPB, commenced in autumn 2018 and aims to identify key pressures and threats to bird populations and evaluate which management measures, site-based or otherwise, will deliver the most effective conservation benefits.

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[10] See https://blogs.gov.scot/rural-environment/2018/10/03/programme-for-government-2018-19-environmental-commitments/