

Identifying marine sites for conservation of breeding red-throated divers in Scotland

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The EU Birds Directive requires Member States to identify Special Protection Areas (SPAs) to protect rare, vulnerable and migratory birds, both on land and at sea. In the UK, JNCC is in the process of identifying a network of marine areas that regularly support aggregations of these birds during winter and summer. Scotland is an important area for red-throated divers, with the entire UK breeding population breeding in Scotland.

We developed a habitat suitability model for breeding red-throated divers in Scotland in order to identify the most suitable marine areas for inclusion within an indicative marine SPA network. At-sea distribution data were collected over five years (2003-2007) around representative red-throated diver breeding territories in Shetland, Orkney, and the Outer Hebrides. A Generalised Additive Model was used to describe the marine habitat of the species based on a range of environmental parameters. Predicted habitat suitability was then used in combination with observed nest distribution to predict use of marine waters near breeding sites. A mathematical tool known as maximum curvature was applied to predicted use to delineate boundaries around the areas of greatest use; the most suitable of these are likely to be proposed for designation as SPAs.