English Seabird Conservation and Recovery Pathway

Summary of Technical Report

August 2024

Natural England Technical Information Note **TIN218**

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English Seabird Conservation and Recovery Pathway - Technical report

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July 2024

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Project details

This report should be cited as: Banks, A. Blyth-Skyme, V. Elliott, J. Hodgkiss, R. Jones, R. Kober, K. Rogerson, K. Smibert, L. Walker, P. Ziemann, J.2024. English Seabird Conservation and Recovery Pathway. Natural England Technical Information Note. TIN 218

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Keywords

Seabirds, marine waterbirds, vulnerability assessment, sensitivity, conservation, nature recovery, pressures, climate change, seabird colonies.

Further information

This report can be downloaded from the Natural England Access to Evidence Catalogue: http://publications.naturalengland.org.uk/ . For information on Natural England publications contact the Natural England Enquiry Service on 0300 060 3900 or e-mail **enquiries@naturalengland.org.uk.**

Acknowledgements

The authors thank all of the colleagues within Natural England who have input to the report, including those involved in analysis, technical reporting, management and oversight.

Data Analysis: Jasmine Elliott, Andy Graham, Chloe Honess, Paul Ivory, Ruth Porter, Lucy Smibert, Peter Walker, Sarah Wren, Jo Ziemann.

NE Ornithology input: Alex Banks, Richard Berridge, Richard Caldow, Bart Donato, Becky Hodgkiss, Rebecca Jones, Kate Rogerson, Helen Rowell, Matt Stone.

Other NE specialist input: Jacob Bentley, Viv Blyth-Skyrme, Steve Clifton, Victoria Copley, Helen Donald, Mark Duffy, Alex Fawcett, Martin Kerby, Jan Maclennan, Maija Marsh, Suzie Qassim, Christina Relf, Hazel Selley, Emma Thorpe, Duncan Vaughan, Libby West, Rob Whiteley, Amanda Yeoman-Roberts, Charitos Zapitis.

NE Managers: James Bussell, Jon Butterfield, Jane Everett, Tim Frayling, Fay Lutkin, Fiona Neale, Jed Nicholson, Jim Robinson, Tom Wild, Nick Williams.

NE Quality Assurance: Andy Brown, Jonathan Burney.

We thank Kerstin Kober at the Joint Nature Conservation Committee (JNCC) for valuable input and the Department for Environment, Food & Rural Affairs (Defra) team for oversight and support.

Thank you to British Trust for Ornithology, MARINElife, Royal Society for the Protection of Birds, Joint Nature Conservation Committee and all data providers for licenses to use data in the spatial analysis work.

Thanks to the RSPB (Leigh Lock and Chantal MacLeod-Nolan) for work on colony audit and sharing information, and thanks to marine policy colleagues for feedback.

Thanks to Nigel Taylor at the University of Cambridge for valuable input into climate change chapter.

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Background

Many seabirds and marine waterbirds[1] are faring poorly in England, with declining abundance and changes in distribution driven by various human pressures. Defra commissioned Natural England to undertake a vulnerability assessment for seabirds in light of the pressures they face and develop recommendations which together form the English Seabird Conservation and Recovery Pathway (ESCaRP). The review considered pressures at sea, at breeding colonies, and from climate change, for 36 species breeding in England and / or using English waters.

For birds at sea, a vulnerability assessment analysed the spatial overlap between marine bird distribution and 25 pressures of relevance. Built into this was a renewed understanding of seabird sensitivity to these pressures, such that analysis of vulnerability factored in both exposure and sensitivity to pressures of relevance.

For birds at breeding colonies, an in-depth review of issues affecting nesting birds was developed with relevant site managers. Results from the review were combined with other sources of evidence to provide an expert overview of significant issues.

Where vulnerability at sea or at colonies was assessed as ‘high’, the sufficiency of existing measures, including legislation and conservation activities, was considered. Wherever existing measures were found to be insufficient, a recommendation for action was formed.

A final set of 19 recommendations was formed, relating to breeding, feeding, surviving and knowledge; each considered timeframes, climate change, stakeholders, spatial extent, and were prioritised by perceived urgency and adequacy of existing measures. They include a ‘pathway to action’, comprised of a series of steps necessary to enact the recommendation.

These recommendations could promote effective recovery of England’s internationally important seabird populations, contribute to Good Environmental Status under the UK Marine Strategy, and restore these crucial marine predators for the ecological and cultural benefits they bring.

[1] Collectively referred to as ‘seabirds’ to avoid repetition.

Assessing the evidence

Figure 1 outlines the process by which evidence was assessed, and recommendations were formed. Further detail is provided below.

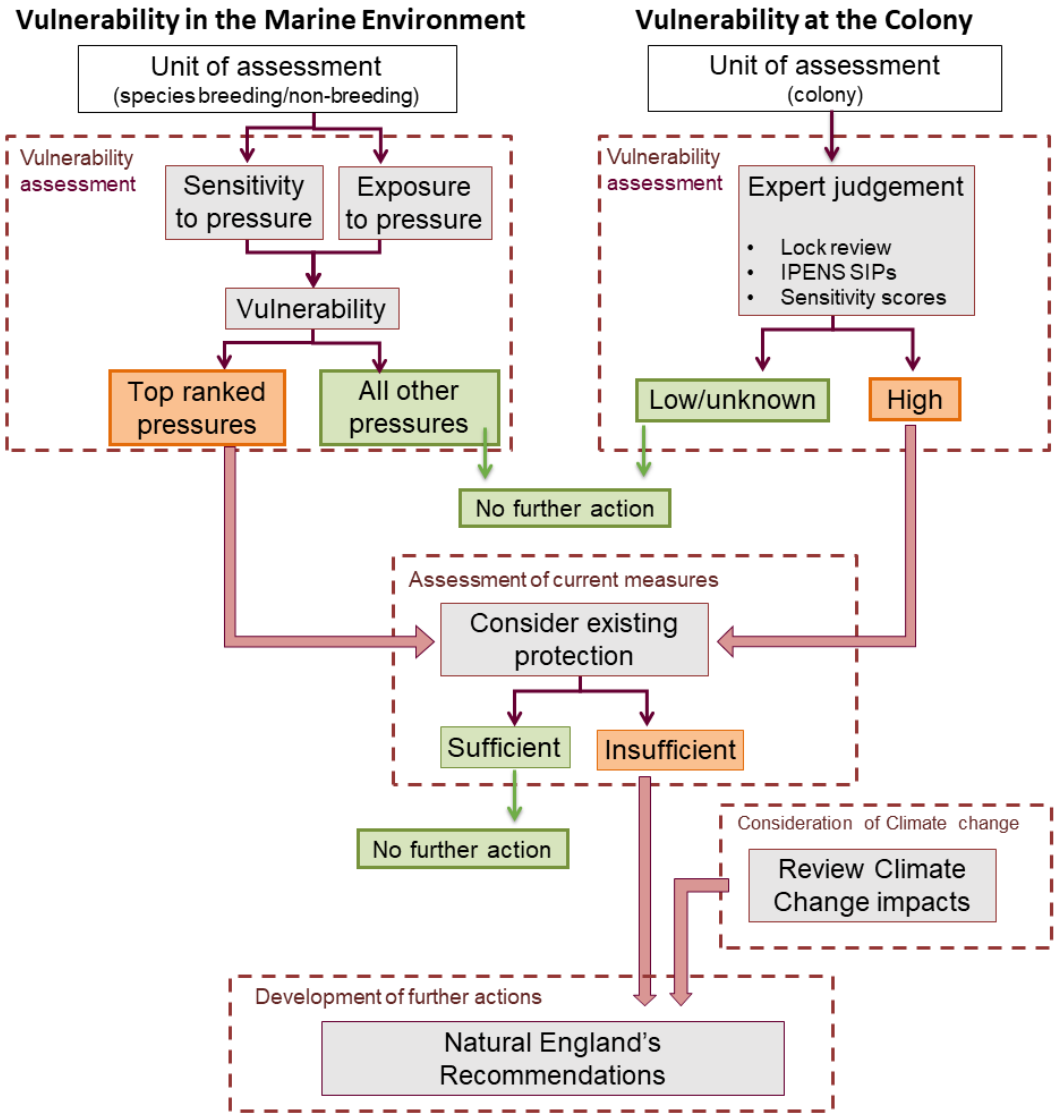

Figure 1. Process to develop recommendations for the ESCaRP

Vulnerability in the marine environment

Pressures

Twenty-five pressures, defined as the mechanism through which an activity has an effect on seabirds, were assessed as directly relevant to the species of interest. They included removal of food sources, sources of disturbance, mortality, disease, litter, pollution, non-native species and changes to habitat / marine processes.

Sensitivity

Seabird sensitivity is defined as the ability of a seabird species to resist (or tolerate) a pressure, and the ability of the species to recover from any negative effects. Available evidence for the relevant species was reviewed, leading to a sensitivity assessment for each species * pressure combination, factoring in the season (breeding / non-breeding) within which the species is present in England (the 'Unit of Assessment' (UoA) representing the species * season combination). Sensitivity scores were generated for each UoA * pressure combination (reported in Spencer and others (2022)).

Exposure (birds x activity)

Each pressure is caused by an activity; for instance, the pressure 'collision above water' could be linked to the activity 'offshore wind operation and maintenance'. To ascertain the spatial overlap between the distribution of activities and the bird species of relevance, datasets were compiled allowing mapping of pressures and bird density in grid cells covering English waters, divided into ten regions. From this exercise, exposure scores were generated using a matrix of categorical bird density and pressure presence / absence.

Vulnerability

Sensitivity and exposure scores were combined in a matrix to produce vulnerability assessments for each UoA * region * pressure combination (producing 23,600 results). From these results, the ten pressures that triggered most 'high' and 'high-moderate' vulnerability assessments were identified (Table 1).

Table 1. Top 10 Pressures ordered with the pressure associated with the most "High" and "High-Moderate" vulnerability results (combined) at the top.

Pressure
Removal of target species
Removal of non-target species
Hydrocarbon & PAH contamination
Litter
Reduction in the quantity or quality of available food due to direct removal of food resources by anthropogenic activities
Collision ABOVE water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)
Introduction of microbial pathogens

Pressure
Transition elements & organo-metal (e.g. TBT) contamination
Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals)
Visual disturbance

Vulnerability at breeding sites

Lock review

For the 24 species of relevance that breed in England, Lock and others (2022) reviewed the pressures affecting 123 seabird colonies through direct engagement with reserve managers and others with specific expert knowledge of issues at nesting sites.

Site Improvement Plans (SIPs)

Site Improvement Plans exist for Special Protection Areas (SPAs) in England. They summarise issues considered to be affecting 'features' of SPAs, including seabirds. Twenty-eight SIPs were reviewed covering 36 SPAs. The key issues were extracted from the SIPs to ascertain which pressures were of most relevance.

Sensitivity assessments

The Spencer and others (2022) review of seabird sensitivity included pressures of relevance to breeding birds at their nest sites, as well as when at sea. This information was compiled to categorise those pressures to which breeding seabirds are most sensitive.

Vulnerability

Table 2 shows the pressures identified as most important for seabirds at breeding sites in England. Largely the three elements produce the same results, with variations usually because of differences in method or objective.

Table 2. Summary of seabird vulnerability to pressures at breeding sites. X represents the pressure was identified as important in the assessments. Empty cells indicate that the pressure was not identified as important.

Pressure	Lock review	IPENS SIP	Sensitivity Assessment
Disturbance	X	X	X

Pressure	Lock review	IPENS SIP	Sensitivity Assessment
Predation	X	X	X
Invasive species	X	X	X
Reduction in habitat	X	X	X
Reduction in food resources		X	X
Pollution/litter		X	X
Removal of target species			X
Introduction of microbial pathogens			X

Existing measures

The top 12 ranked pressures from the marine and colony vulnerability assessments were tested against existing measures which may address some of the impacts involved. Adequacy of existing measures was assessed by expert judgement, and confidence in these assessments was appraised.

Existing measures include conservation actions associated with the UK Marine Strategy, domestic legislation and the protected site network (including SPAs on land and at sea, as well as Sites of Special Scientific Interest and Marine Conservation Zones).

For all but one pressure of importance (removal of target species, ranked first in the marine vulnerability assessment but considered effectively managed under current methods of regulation), existing measures were not considered sufficient to fully address the issues identified by the vulnerability assessments (Table 3). This formed the basis of the recommendations and associated actions – that is, such actions were designed to address the gap between existing measures and pressures affecting seabirds.

Table 3. Most important pressures from marine vulnerability assessment, breeding site vulnerability assessment and review of existing measures, ordered by pressure importance from expert judgement. Empty cells indicate the pressure was not the most important in the assessment.

Key pressures	Ranking from marine vulnerability assessment	Ranking from vulnerability at breeding sites assessment	Insufficient existing measures (Red/Amber)
Reduction in the quantity or quality of available food due to direct removal of food resources by anthropogenic activities	5	4	Red
Removal of non-target species	2		Red
Visual Disturbance	10	1	Amber
Collision ABOVE water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)	6		Amber
Introduction or spread of invasive non-indigenous species (INIS)		2	Red
Litter	4	5	Red
Introduction of microbial pathogens	7		Red
Hydrocarbon & PAH contamination	3	5	Amber
Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals)	9	5	Amber
Transition elements & organometal (e.g. TBT) contamination	8		Amber
Permanent and/or irreversible change in the extent or quality of available supporting habitat		3	Amber

Impacts of climate change

A comprehensive review of factors relating to climate change and resulting impacts on seabirds was undertaken. Impacts include changes to marine ecosystems from e.g. ocean

warming, affecting seabird prey; effects of extreme weather, such as nest flooding; effects of sea level rise, including nesting habitat loss; and effects of non-native species, pathogens and parasites, such as increased prevalence of diseases including Highly Pathogenic Avian Influenza ('bird flu').

Vulnerability of seabirds in England to these impacts was considered, and methods of impacting mitigation were incorporated into recommendations.

Recommendations

Nineteen recommendations were developed as a result of the various assessments. These recommendations contained 74 actions, and could be divided into four categories: feeding, breeding, surviving and knowledge. These were rated according to expert judgement of urgency required. The associated technical report includes details of actions underpinning recommendations, as well as stakeholders, timeframes, spatial extent and supporting evidence.

Table 4. Summary of recommendations and their priority (U: Urgent, LU: Less Urgent and WB: Watching Brief)

Category and Code	Status	Recommendation title
Feeding F1	U	Develop a Forage Fish Policy (or similar mechanism) to implement an ecosystem approach to fisheries management decisions that consider the importance of prey for seabirds
Feeding F2	LU	Effective protection, conservation and restoration of seabird marine habitats
Breeding B1	U	Conservation, restoration and creation of seabird breeding habitats at colonies
Breeding B2	U	Increased site management to help safeguard breeding seabirds against disturbance and predation
Breeding B3	U	Improve and increase efforts to reduce the emergence, spread and impacts of pathogens and parasites in seabirds
Breeding B4	LU	Eradication of invasive terrestrial mammalian predators from existing (and potentially suitable) breeding seabird islands and implementation of associated island biosecurity measures
Surviving S1	U	Develop mitigation and monitoring best practice for key seabird bycatch risk areas (identified through improved understanding)
Surviving S2	U	Strengthen the use of mitigation hierarchy to reduce impacts to seabirds and promote recovery through strategic sustainable development (especially from offshore wind farms)
Surviving S3	LU	Effective protection, conservation and restoration of seabird marine habitats

Category and Code	Status	Recommendation title
SurvivingS4	WB	Reduce marine litter and its impacts on seabirds
Surviving S5	WB	Continue to work towards GES for contaminants and reduce the impacts of contaminants on seabirds
Knowledge K1	n/a	Fund long-term monitoring of key seabird colonies in England to ensure representative picture
Knowledge K2	n/a	Increase funding of bird monitoring schemes to inform seabird conservation requirements
Knowledge K3	n/a	Implement a system of recording and investigating seabird mass mortality events (“wrecks”)
Knowledge K4	n/a	Improve the evidence base relating to the causes, prevalence, and impacts of disease in seabirds
Knowledge K5	n/a	Increase and improve long-term monitoring of seabird prey and marine ecosystem health
Knowledge K6	n/a	Improve understanding of scale and spatio-temporal distribution of seabird bycatch to drive targeted action where and when required
Knowledge K7	n/a	Develop an up-to-date, live database to describe cumulative anthropogenic impacts on seabird populations and prioritise action
Knowledge K8	n/a	Promote and enable strategic baseline and impact monitoring of seabirds in relation to marine infrastructure *(*especially offshore wind farms)

The English Seabird Conservation and Recovery Pathway

The recommendations are published in a full technical report ‘English Seabird and Conservation Recovery Pathway Technical Report’. The recommendations can be used by Defra and its stakeholders as a template for seabird conservation and recovery in England, aiming to move species of relevance to Good Environmental Status under the UK Marine Strategy, contribute to species targets and other statutory commitments made in the Environment Improvement Plan, and help to improve the fortunes of seabirds for which England is especially important.

Full report

The full technical report can be accessed here.