

National Parks and Wildlife Service

Conservation Objectives Series

Inishbofin, Inishdooey and Inishbeg SPA 004083



NPWS

An tSeirbhís Páirceanna
Náisiúnta agus Fiadhúlra
National Parks and Wildlife
Service

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Citation:

**NPWS (2025) Conservation Objectives: Inishbofin, Inishdooey and Inishbeg SPA
004083. Version 1. National Parks and Wildlife Service, Department of Housing,
Local Government and Heritage.**

**Series Editors: Maria Long and Colin Heaslip
ISSN 2009-4086**

Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

** indicates a priority habitat under the Habitats Directive*

004083 Inishbofin, Inishdooey and Inishbeg SPA

A045 Barnacle Goose *Branta leucopsis*

A122 Corncrake *Crex crex*

A182 Common Gull *Larus canus*

A183 Lesser Black-backed Gull *Larus fuscus*

A194 Arctic Tern *Sterna paradisaea*

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	2007
Title :	Seabird Productivity at East and South coast colonies in Ireland in 2007: Site accounts
Author :	Trewby, M.; Burt E.; Newton, S.
Series :	Unpublished report to NPWS
Year :	2013
Title :	A review of the SPA network of sites in the Republic of Ireland
Author :	NPWS
Series :	Published Report
Year :	2019
Title :	Irish wetland bird survey: waterbird status and distribution 2009/10-2015/16
Author :	Lewis, L.J.; Burke, B.; Fitzgerald, N.; Tierney, T.D.; Kelly, S.
Series :	Irish Wildlife Manuals No. 106
Year :	2021
Title :	Estimated foraging ranges of the breeding seabirds of Ireland's marine special protected area network
Author :	Power, A.; McDonnell, P.; Tierney, T.D.
Series :	Published NPWS report
Year :	2022
Title :	Rockabill Tern Report, 2022
Author :	Allbrook, D.; Dunne, S.; Fink, A.; Newton, S.
Series :	BirdWatch Ireland Seabird Conservation Report to NPWS
Year :	2022
Title :	Lady's Island Lake Tern Report 2022
Author :	Stubbings, E.; Büche, B.; Murray, T.; Newton, S.
Series :	BirdWatch Ireland Seabird Conservation Report to NPWS
Year :	2023
Title :	Lady's Island Lake Tern Report 2023
Author :	Stubbings, E.; Büche, B.; Murray, T.; Newton, S.
Series :	BirdWatch Ireland Seabird Conservation Report to NPWS
Year :	2023
Title :	Rockabill Tern Report 2023
Author :	Fihey, A.; Crowley, C.; Fitzgerald, M.; Newton, S.
Series :	BirdWatch Ireland Seabird Conservation Report to NPWS
Year :	2024
Title :	Lady's Island Lake Tern Report 2024
Author :	Stubbings, E.; Büche, B.; Doyle, H.; Burke, B.; Newton, S.
Series :	BirdWatch Ireland Seabird Conservation Report to NPWS
Year :	2024
Title :	Rockabill Tern Report 2024
Author :	Coughlan, K.; Roberts, E.; Streker, R.; Newton, S.
Series :	BirdWatch Ireland Seabird Conservation Report to NPWS

Year : 2024

Title : Surveys of breeding seabirds in North Donegal in 2024: Tory Island, Inishbofin Group and Horn Head [Seabird census report]

Author : Colhoun, K.; Trapp, S.

Series : Unpublished report to NPWS

Other References

Year : 1900

Title : The Birds of Ireland: An Account of the Distribution, Migrations and Habits of Birds as Observed in Ireland, with All Additions to the Irish List

Author : Ussher, R.J.; Warren, R.

Series : Gurney and Jackson

Year : 1954

Title : The Birds of Ireland. Their Migrations and Habits. Assessed by G.R. Humphreys

Author : Kennedy, P.G.; Ruttledge R.F.; Scroope, C.F.

Series : London: Oliver and Boyd

Year : 1973

Title : Population Dynamics of Barnacle Geese, *Branta leucopsis*, in Ireland

Author : Cabot, D.

Series : Proceedings of the Royal Irish Academy. Section B: Biological, Geological, and Chemical Science, 73, 415–443

Year : 1985

Title : The 1984 all Ireland tern survey

Author : Whilde, A.

Series : Irish Birds 3: 1-32

Year : 1995

Title : Impacts of hunting disturbance on waterbirds - a review

Author : Madsen, J.; Fox, A.D.

Series : Wildlife Biology 1(4):193-207

Year : 1996

Title : The ecology of the Corncrake, with special reference to the effect of mowing on breeding production

Author : Tyler, G.

Series : PhD thesis, University College Cork

Year : 1997

Title : The status and distribution of breeding sandwich, roseate, common, arctic and little terns in Ireland in 1995

Author : Hannon, C.; Berrow, S.D.; Newton, S.F.

Series : Irish Birds, 6: 1-22

Year : 1997

Title : Populations, ecology and threats to the Corncrake *Crex crex* in Europe

Author : Green, R. E.; Rocamora, G.; Schäffer, N.

Series : Vogelwelt, 118, 117-134

Year : 1999

Title : The Corncrake (*Crex Crex*) in Ireland

Author : Mc Devitt, A. M.; Casey, C.

Series : Proceedings International Corncrake Workshop 1998, Hilpoltstein/Germany. Eds. Schaffer & Mamme, U. (eds.)

Year :	1999
Title :	Managing grassland for wild geese in Britain: a review
Author :	Vickery, J.; Gill, J.
Series :	Biological Conservation, 89(1), pp.93-106
Year :	2001
Title :	The effects of flooding lowland wet grassland on soil macroinvertebrate prey of breeding wading birds
Author :	Ausden, M.; Sutherland, W.; James R.
Series :	Journal of Applied Ecology 38: 320–338
Year :	2003
Title :	Implications for seaward extensions to existing breeding seabird colony Special Protection Areas
Author :	McSorley, C.A.; Dean, B.J.; Webb, A.; Reid J.B.
Series :	JNCC Report No. 329
Year :	2004
Title :	Seabird populations of Britain and Ireland
Author :	Mitchell, P.I.; Newton, S.F.; Ratcliffe, N.; Dunn, T.E.
Series :	Poyser, London
Year :	2014
Title :	The Lesser Black-backed Gull <i>Larus fuscus</i> in England: how to resolve a conservation conundrum
Author :	Ross-Smith, V.H.; Robinson, R.A.; Banks, A.N.; Frayling, T.D.; Gibson, C.C.; Clark, J.A.
Series :	Seabird, 27 (October), pp.41-61
Year :	2019
Title :	Desk-based revision of seabird foraging ranges used for HRA screening
Author :	Woodward, I.; Thaxter, C.B.; Owen, E.; Cook, A.S.C.P.
Series :	BTO Research Report No. 724
Year :	2019
Title :	Report under Article 12 of the Birds Directive Period 2013-2018
Author :	EEA
Series :	European Environment Agency. European Topic Centre on Biological Diversity. Pp 1-9. https://cdr.eionet.europa.eu/Converters/run_conversion?file=ie/eu/art12/envxztxxq/IE_birds_reports_20191031-130157.xml&conv=612&source=remote
Year :	2019
Title :	Use of microsatellite-based paternity assignment to establish where Corn Crane <i>Crex crex</i> chicks are at risk from mechanized mowing
Author :	Green, R. E.; Brekke, P.; Ward, H.; Slaymaker, M.; van der Velde, M.; Komdeur, J.; Dugdale, H. L.
Series :	Ibis, 161 (4), 890-894
Year :	2020
Title :	Arctic tern (<i>Sterna paradisaea</i>), version 1.0. In Birds of the World (S. M. Billerman, Editor)
Author :	Hatch, J. J.; Gochfeld, M.; Burger, J.; Garcia, E. F. J.
Series :	Cornell Lab of Ornithology, Ithaca, NY, USA
Year :	2020
Title :	Lesser Black-backed Gull (<i>Larus fuscus</i>), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors)
Author :	Burger, J.; Gochfeld, M.; Kirwan, G. M.; Christie, D. A.; de Juana, E
Series :	Cornell Lab of Ornithology, Ithaca, NY, USA

Year :	2020
Title :	Diet of corncrakes <i>Crex crex</i> and prey availability in relation to meadow management
Author :	Arbeiter, S.; Flinks, H.; Grünwald, J.; Tanneberger, F.
Series :	Ardea, 108 (1), 55-64
Year :	2021
Title :	Common Gull (<i>Larus canus</i>), version 1.1. In Birds of the World (S. M. Billerman, Editor)
Author :	Moskoff, W.; Bevier, L.R.; Rasmussen, P.C.
Series :	Cornell Lab of Ornithology, Ithaca, NY, USA
Year :	2023
Title :	Seabirds Count: a census of breeding seabirds in Britain and Ireland (2015-2021)
Author :	Burnell, D.; Perkins, A.J.; Newton, S.F.; Bolton, M.; Tierney, T.D.; Dunn, T.E.
Series :	Lynx Nature Books, Barcelona
Year :	2023
Title :	Home range of a long-distance migrant, the Greenland Barnacle Goose <i>Branta leucopsis</i> , throughout the annual cycle
Author :	Doyle, S.; Cabot, D.; Griffin, L.; Kane, A.; Colhoun, K.; Redmond, C.; Walsh, A.; McMahon, B.J.
Series :	Bird Study, 70(1-2), pp.37-46
Year :	2024
Title :	Seabird Population Trends and Causes of Change: 1986–2023, the annual report of the Seabird Monitoring Programme
Author :	Harris, S.J.; Baker, H.; Balmer, D.E.; Bolton, M.; Burton, N.H.K.; Caulfield, E.; Clarke, J.A.E.; Dunn, T.E.; Evans, T.J.; Hereward, H.R.F.; Humphreys, E.M.; Money, S.; O'Hanlon, N.J.
Series :	BTO Research Report 771

Conservation Objectives for : Inishbofin, Inishdooley and Inishbeg SPA [004083]

A045 Barnacle Goose *Branta leucopsis*

To maintain the Favourable conservation condition of Barnacle Goose in Inishbofin, Inishdooley and Inishbeg SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of wintering Barnacle Goose in Ireland has increased by 102% from 1993 - 2018 (Lewis et al., 2019) as monitored by the International Census of Greenland Barnacle Goose. During the baseline assessments to inform SPA designation, 387 Barnacle Goose were estimated to be using this SPA and Horn Head to Fanad Head SPA (4 year mean of census counts for baseline period 1993 - 2003; see NPWS, 2013). More recent data showed a population of 1,231 Barnacle Goose used these SPAs during the period 2013 - 2023 (4 year mean of census counts from the International Census of Greenland Barnacle Goose). This represents a population increase of 218% since the baseline period, significantly greater than the national trend
Winter spatial distribution	Hectares, time and intensity of use	Sufficient area and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas are likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering site	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and distribution	The impact of any significant disturbance (direct or indirect) to the wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends (see, for example, Madsen and Fox, 1995). Factors such as intensity, frequency, timing and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population trend and spatial distribution
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside the SPA will ultimately affect the achievement of targets for population trend and/or spatial distribution. Factors such as the number, location, shape and area of potential barriers must be taken into account to determine their potential impact. Access to ecologically important sites outside the SPA must also be considered as a single SPA may not satisfy all the ecological requirements of the wintering population, and it may require access to other SPAs or sites for certain activities, such as foraging when preferred foraging areas are unavailable due to disturbance, extensive flooding, or other factors

Forage spatial distribution, extent and abundance	Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	This species is a grazing herbivore. Historically, in Ireland, foraging habitat included salt marsh, but currently the species is typically associated with open coastal pasture, mostly improved and semi-improved agricultural grasslands. Barnacle Goose grazes on leaves, stems, rhizomes, roots and seeds, with grass and <i>Plantago/Bellis/Festuca</i> swards comprising preferred food sources (Cabot, 1973). This species selects a preferred sward height of <10cm but birds can feed on swards >15cm if preferred areas are depleted (based on birds in Islay, see Vickery and Gill, 1999). Birds are highly likely to exhibit foraging site fidelity and may be found foraging on offshore islands as well as commuting to forage on the mainland. Maximum foraging distance is approximately 7km for wintering birds (Doyle et al., 2023)
Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Roosting is a critical ecological requirement for the wintering population. When roosting, this species uses open habitats (primarily pastures) that provide wide sightlines for the birds and which are typically adjacent to water bodies; thus, offshore islands are commonly used. Birds exhibit strong roost site fidelity (Doyle et al., 2023). Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA for foraging and roosting. The extent, availability and quality of these supporting habitats may be of importance for the resilience of the SPA population. Suitable supporting habitats include those highlighted in the attributes for foraging and roosting habitat

Conservation Objectives for : Inishbofin, Inishdooney and Inishbeg SPA [004083]

A122 Corncrake *Crex crex*

To maintain the Favourable conservation condition of Corncrake in Inishbofin, Inishdooney and Inishbeg SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population size	Number of calling males	Maintain the numbers of calling males at an average of at least 13 per year in any consecutive 5-year period	The breeding season of this migratory bird is mid-April to mid-September. The measure of 'calling males' is as per previous (Green et al., 1997) and recently adapted Corncrake census methods (NPWS internal files). Determination of the SPA population size involves recording calling males within suitable/known areas between 20 May - 10 July (BST 11:00 - 03:00hrs), though calling males outside this period/time are also recorded as potential breeding sites. Where multiple birds occur in close proximity, survey visits are increased to keep track of movements of individuals and refine records. For the period 2020-24, the SPA held an average of 31 calling males. Agricultural practices incompatible with their breeding ecology is considered the main cause of sub-optimal breeding habitats in this SPA (NPWS internal files). Figures for the baseline period 2003-07 indicate that numbers of calling males ranged from 10-15, with an average of 13 for that period (NPWS, 2013; NPWS internal files)
Population trend	Percentage change in number of calling males	Long-term population trend is stable or increasing	The national population of breeding Corncrake for the period 2003-07 ranged from 131-162 calling males, with an average of 150 for that period, fewer than the Republic of Ireland total of 165 calling males in 1993 (McDevitt and Casey, 1999) and lower than all-Ireland figures presented in Green et al. (1997) of 174. More recent figures for the period 2019-23 indicate that the population has risen to an average of c.182 calling males (151-218). The national population trend can be considered increasing since 2003-07 and for the SPA, the average of 31 calling males for the period 2020-24 indicates an increase of 138.5% from the baseline period. SPA totals include any calling males located outside the SPA but ≤250m from the boundary. For the Corncrake SPA network overall, the population trend is considered broadly stable, with an average of 102 calling males for the period (2019-23), on par with an average of 99 calling males for the network for the period (2003-07)
Spatial utilisation by breeding pairs	Percentage	Maintain the spatial utilisation of the SPA by breeding pairs at at least 50-75%	Core areas used by breeding Corncrake can be broadly defined by calculating the portion that lies within 250m of all confirmed calling males, albeit independent flightless chicks will range further (Green et al., 2019). Optimal resilience for the population relies on birds utilising suitable habitat to the maximum extent, with the population well dispersed across the SPA and not confined to isolated locations. The target range is informed by 2016-23 census data for the SPA, and includes estimated usage figures for the SPA where numbers of calling males in any given year were ≥ the SPA baseline figures presented in NPWS (2013). The target area is informed by typical home ranges (Tyler, 1996) and baseline population density. The mean estimated spatial distribution of Corncrake for this SPA was 72.7% for the period 2019-23. Meeting other targets, including that for the 'extent and condition of nesting and foraging habitat', should help achieve the spatial utilisation target

Extent and condition of nesting and foraging habitat	Hectares; condition assessment	At least maintain the extent and quality of this resource to support the targets relating to population size, population trend and spatial utilisation	Given its extended breeding season, the provision of tall-herb species via the creation of early and late cover areas (ELCs) in spring/autumn is beneficial to Corncrake. A ground-nesting rail, it prefers tall, well structured grass vegetation ($\geq 20\text{cm}$) in hay, arable or silage fields, rough pastures, and in stands of herbaceous species such as Yellow Iris (<i>Iris pseudacorus</i>) and Nettle (<i>Urtica dioica</i>) (e.g. Green et al., 1997; Tyler, 1996; NPWS internal files). ELCs support adults by providing invertebrate prey species (NPWS internal files) and nesting habitat when meadows are unsuitable, thereby improving breeding success (e.g. via nest concealment allowing better protection from predators) and by allowing breeding to start earlier or end later. Wildlife-friendly mowing provides Corncrake with continuous cover by maintaining low mowing speeds to allow adults/young chicks escape to edges of fields rather than centres i.e. into safety of field margins/neighbouring fields
Forage spatial distribution, extent, abundance and availability	Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available prey biomass to support the population targets	Nesting Corncrake are most at risk to habitat loss due to activities related to grass/crop harvesting and continuous grazing, particularly by sheep. Omnivorous in its diet, it feeds mainly on arthropods, molluscs, worms and seeds (Tyler, 1996; Arbeiter et al., 2020). The availability of earthworms and molluscs in moist habitats may explain why moist unfertilised grassland is good Corncrake habitat, as well as the suitability of the vegetation structure of some marsh vegetation (Green et al., 1997). Insects and molluscs may be vital for Corncrake in floodplain habitats, as areas with long winter floods have a lower abundance of earthworms (Ausden et al., 2001). Suitable and well-connected forage areas, with an open sward structure, $\geq 20\text{cm}$ in height, offer optimum concealment and cover to adults and young birds, which are flightless for up to 40 days post-hatching. Restoring/maintaining inter-connected mosaics of forage/refuge areas across the SPA and wider hinterland is fundamental
Disturbance to breeding sites	Level of impact	Disturbance occurs at levels that do not significantly impact upon breeding Corncrake	Factors such as intensity, frequency, timing and duration of a potentially disturbing activity (e.g. grass/crop harvesting; recreational activities; summer grazing; development requiring planning permission) must be taken into account to determine the potential impact upon the targets which relate to population demographics (i.e. population size, population trend) and the spatial utilisation of the SPA by breeding Corncrakes. Agricultural activities and associated land-use in/adjacent to the SPA may cause disturbance to breeding sites and may directly impact breeding success, by confining Corncrake to limited locations; thereby increasing mortality risk and resource competition. Late summer harvesting of grass (post 15 Aug) using wildlife-friendly mowing and the retention of refuge areas significantly lowers risk to flightless chicks/moulting adults

Conservation Objectives for : Inishbofin, Inishdooney and Inishbeg SPA [004083]

A182

Common Gull *Larus canus*

To restore the Favourable conservation condition of Common Gull in Inishbofin, Inishdooney and Inishbeg SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Breeding population size	Number of Apparently Occupied Nests (AON)	Long term SPA population trend is stable or increasing	County Donegal was described as being home to the largest colonies of Common Gull in Ireland in the 19th century (Ussher and Warren, 1900; Kennedy et al., 1954). An estimated 25 pairs of Common Gull bred on Inishdooney in 2002 (Mitchell et al., 2004). In 2016, the population was estimated to be 16 pairs (Burnell et al., 2023). The most recent population estimate for this SPA in 2024 recorded 20 pairs on Inishdooney, which equates to an overall decline of 20% since 2002 (Colhoun and Trapp, 2024). At the national level the Common Gull population estimate has increased by 89% between surveys in 1998 - 2002 and 2015 - 2021 (Burnell et al., 2023)
Productivity rate	Number of fledged young per breeding pair	Sufficient to maintain a stable or increasing population	There was no productivity data available for this species in this SPA. A lack of comprehensive Irish data precludes the identification of a minimum productivity rate for this species at the site and at the national level. Common Gull productivity in Scotland between 2000 and 2020 was below 0.6 chicks per breeding pair; in this time period the Scottish population of Common Gull was decreasing (Harris et al., 2024)
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population	Distribution encapsulates the number of locations and area of potentially suitable nesting habitat for the breeding population and its availability for use. The suitability and availability of habitat areas may vary through time. This will affect the spatio-temporal patterns of use of the habitats by Common Gull. Common Gull breeding near marine environments typically nest on small inshore rocky stacks, islets and islands, grassy and rocky slopes, sand dunes, and the foreshore (Moskoff et al., 2021). Common Gull in this SPA have primarily nested on Inishdooney
Forage spatial distribution, extent, abundance and availability	Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Diet varies by location and season. Birds foraging in marine environments feed on fish and marine invertebrates (Moskoff et al., 2021). Based on several studies, Woodward et al. (2019) estimate that the maximum foraging range of a Common Gull from the nest site during the breeding season is 50km (see Power et al., 2021)
Disturbance at the breeding site	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on birds at the breeding site	Disturbance events at the nest site/breeding colony level can result in a reduction of overall productivity and even lead to the abandonment of the breeding colony. The impact of any significant disturbance (direct or indirect) to the breeding population will ultimately affect the achievement of targets for population size and/or spatial distribution. Disturbance contributes to increased energetic expenditure, which can result in increased likelihood of mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends. Factors such as intensity, frequency, timing, and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population size and spatial distribution
Disturbance at areas ecologically connected to the colony	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on breeding population	Seabird species can make extensive use of the marine waters adjacent to their breeding colonies for non site-specific maintenance behaviours (e.g. courtship, bathing, preening) as defined in McSorley et al. (2003)

Barriers to connectivity	Number, location, shape, and area (ha)	Barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA	Seabirds, particularly during the breeding season, require regular and efficient access to marine waters ecologically connected to the colony in order to forage, as well as, to engage in other maintenance behaviours. Based on several studies, Woodward et al. (2019) estimate that the maximum foraging range of a Common Gull from the nest site during the breeding season is 50km (see Power et al., 2021)
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Conservation Objectives for : Inishbofin, Inishdooney and Inishbeg SPA [004083]

A183 Lesser Black-backed Gull *Larus fuscus*

To restore the Favourable conservation condition of Lesser Black-backed Gull in Inishbofin, Inishdooney and Inishbeg SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Breeding population size	Number of Apparently Occupied Nests (AON)	Long term SPA population trend is stable or increasing	Kennedy et al. (1954) noted that Inishdooney once held mainly breeding pairs of Lesser Black-backed Gull but that the island had since been vacated. In 2002, the population was estimated to be 81 pairs (Mitchell et al., 2004). The population declined significantly to 20 pairs in 2018 (Burnell et al., 2023). The most recent population estimate for this SPA in 2024 saw the population recover somewhat to 31 pairs but this still represents an overall decline of 62% since 2002 (Colhoun and Trapp, 2024). The natural-nesting population of this species in Ireland is estimated to have increased by 163% between surveys in 1998 - 2002 and 2015 - 2021 (Burnell et al., 2023)
Productivity rate	Number of fledged young per breeding pair	Sufficient to maintain a stable or increasing population	There was no productivity data available for this species in this SPA. Trewby et al. (2007) reported that the mean productivity of Lesser Black-backed Gull from Lambay Island SPA was 1.66 ($\pm$ 0.14 SE) chicks fledged per pair in 2007 (18 pairs across three subplots). Further monitoring and research work is required in order to identify a minimum productivity rate for this species at this site and at the national level. Ross-Smith et al. (2014) summarise Lesser Black-backed Gull productivity in some UK colonies, and colonies with productivity rates above 1.0 had increasing population trends
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population	Distribution encapsulates the number of locations and area of potentially suitable nesting habitat for the breeding population and its availability for use. The suitability and availability of habitat across the SPA may vary through time. Lesser Black-backed Gull nests colonially, often with other gull species on offshore islands and coastal cliffs (Mitchell et al., 2004). Records indicate that Lesser Black-backed Gull in this SPA have only nested on Inishdooney
Forage spatial distribution, extent, abundance and availability	Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	The diet of Lesser Black-backed Gull is diverse and opportunistic. This species can forage over both terrestrial and aquatic habitats. Frequent prey items include small fish, aquatic invertebrates, bird's eggs and chicks, trawler discards, rodents, and berries (Burger et al., 2020). Based on several studies, Woodward et al. (2019) provide estimates of foraging ranges from the nest site during the breeding season (i.e. overall mean, mean of maximum distances across all studies, and maximum distance recorded) for Lesser Black-backed Gull, which are 43km, 127km, and 533km respectively (see Power et al., 2021)
Disturbance at the breeding site	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on birds at the breeding site	Disturbance events at the nest site/breeding colony level can result in a reduction of overall productivity and even lead to the abandonment of the breeding colony. The impact of any significant disturbance (direct or indirect) to the breeding population will ultimately affect the achievement of targets for population size and/or spatial distribution. Disturbance contributes to increased energetic expenditure, which can result in increased likelihood of mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends. Factors such as intensity, frequency, timing, and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population size and spatial distribution

Disturbance at areas ecologically connected to the colony	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on breeding population	Seabird species can make extensive use of the marine waters adjacent to their breeding colonies for non site-specific maintenance behaviours (e.g. courtship, bathing, preening), as defined in McSorley et al. (2003)
Barriers to connectivity	Number, location, shape, and area (ha)	Barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA	Seabirds, particularly during the breeding season, require regular and efficient access to marine waters ecologically connected to the colony in order to forage as well as to engage in other maintenance behaviours. Based on several studies, Woodward et al. (2019) provide estimates of foraging ranges from the nest site during the breeding season (i.e. overall mean, mean of maximum distances across all studies, and maximum distance recorded) for Lesser Black-backed Gull, which are 43km, 127km, and 533km respectively (see Power et al., 2021)

Conservation Objectives for : Inishbofin, Inishdooney and Inishbeg SPA [004083]

A194

Arctic Tern *Sterna paradisaea*

To restore the Favourable conservation condition of Arctic Tern in Inishbofin, Inishdooney and Inishbeg SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Breeding population size	Number of Apparently Occupied Nests (AON)	Long term SPA population trend is stable or increasing	The coastline of Co. Donegal was described by Ussher and Warren (1900) as home to several enormous colonies of Arctic Tern. These islands were surveyed as part of the all-Ireland tern surveys in 1984 and 1995. An estimated 120 pairs bred on Inishbofin in 1984 (Whilde et al., 1985). The population declined to 72 pairs in 1995 where breeding was recorded on Inishbofin and on Inishdooney (Hannon et al., 1997). The population decreased to just 10 pairs in 2016 and was restricted to Inishbofin (Burnell et al., 2024). The most recent population estimate for this SPA in 2024 saw the population recover somewhat to 25 pairs on Inishbofin and Inishdooney (Colhoun and Trapp, 2024), this equates to an overall decline of 65% since 1995. In contrast, the national population of Arctic Tern is estimated to have increased by 46% between 1985 - 1988 and 2015 - 2021 (Burnell et al., 2023)
Productivity rate	Number of fledged young per breeding pair	Sufficient to maintain a stable or increasing population	There was no productivity data available for this species in this SPA. Annual productivity estimates are available from the wardened tern colonies of Rockabill and Lady's Island Lake. Over a three-year period (2022 - 2024) the average productivity estimates were 0.24 and 0.93 chicks per nest respectively (Stubbings et al., 2022, 2023 and 2024; Coughlan et al., 2024, Fihey et al., 2023; and Allbrook et al., 2022). As this species is long-lived there is a possibility that a population could be returning to a nest site annually but not fledging any chicks. Caution should be taken when interpreting the results of tern breeding numbers, especially on offshore islands, without having productivity data
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population	Distribution encapsulates the number of locations and area of potentially suitable nesting habitat for the breeding population and its availability for use. The suitability and availability of habitat across the SPA may vary through time. This will affect the spatio-temporal patterns of use of the habitats by Arctic Tern. Terns are ground nesting birds. Typically colonies are found in open areas close to the shore, frequently in areas with loose substrate or low vegetation (Hatch et al., 2020). In Ireland all known large colonies are situated on marine or inland islands of varying distances from the mainland/shore. Arctic Tern in this SPA have nested on both Inishbofin and Inishdooney
Forage spatial distribution, extent, abundance and availability	Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Arctic Tern are largely piscivorous. The most frequent fish prey are small, schooling species commonly caught in open water, at tide rips, and over predators (e.g. jellyfish and marine mammals). These are usually 1- or 2-year-old fish from the Clupeidae (herring), Gadidae (cod, pollock) and Ammodytidae (sandeel) families (Hatch et al., 2020). Based on several studies, Woodward et al. (2019) provide estimates (i.e. overall mean, mean of maximum distances across all studies, and maximum distance recorded) of Arctic Tern foraging ranges from the nest site during the breeding season, which are 6km, 26km, and 46km respectively (see Power et al., 2021)

Disturbance at the breeding site	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on birds at the breeding site	Disturbance events at the nest site/breeding colony level can result in a reduction of overall productivity and even lead to the abandonment of the breeding colony. The impact of any significant disturbance (direct or indirect) to the breeding population will ultimately affect the achievement of targets for population size and/or spatial distribution. Disturbance contributes to increased energetic expenditure, which can result in increased likelihood of mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends. Factors such as intensity, frequency, timing, and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population size and spatial distribution
Disturbance at areas ecologically connected to the colony	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on breeding population	Seabird species can make extensive use of the waters adjacent to their breeding colonies for non site-specific maintenance behaviours (e.g. courtship, bathing, preening) as defined in McSorley et al. (2003). Additionally, some species may engage in maintenance behaviours outside of the breeding colony but not in the water. For example, terns may roost on rocky islets or beaches away from the breeding colony
Barriers to connectivity	Number, location, shape, and area (ha)	Barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA	Seabirds, particularly during the breeding season, require regular access to waters ecologically connected to the colony in order to forage, as well as to engage in other maintenance behaviours. Based on several studies, Woodward et al. (2019) provide estimates (i.e. overall mean, mean of maximum distances across all studies, and maximum distance recorded) of Arctic Tern foraging ranges from the nest site during the breeding season, which are 6km, 26km, and 46km respectively (see Power et al., 2021)

