SEABIRDS OF EUROPE

Current status, main threats and way forward

Summary Report July 2024

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Seabirds of Europe: Current status, main threats and way forward

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EXECUTIVE SUMMARY

Image: Common Guillemot © Piotr Poznan

European seabirds represent almost a quarter of the total global number of seabird species, and their current population trends and status in the region are worrying.

In this report, we provide an overview of the most recent Red List data, and pinpoint solutions and recommendations for decision-makers to tackle threats and enhance seabird conservation. Over one in three species are threatened with extinction according to the latest EU and European IUCN Red List assessments (2020 and 2021 respectively).

The main threats in the region are bycatch, overfishing, invasive alien species, hunting/trapping, pollution, climate change, energy infrastructure, recreational activities, and avian influenza. Solutions to such hazards are mostly known and should be scaled up, tackling the cumulative effects of these perils throughout seabird life cycles. Regulations already in place, especially in the EU, can help populations to recover, but higher levels of implementation and enforcement as well as more robust international cooperation are urgently needed.

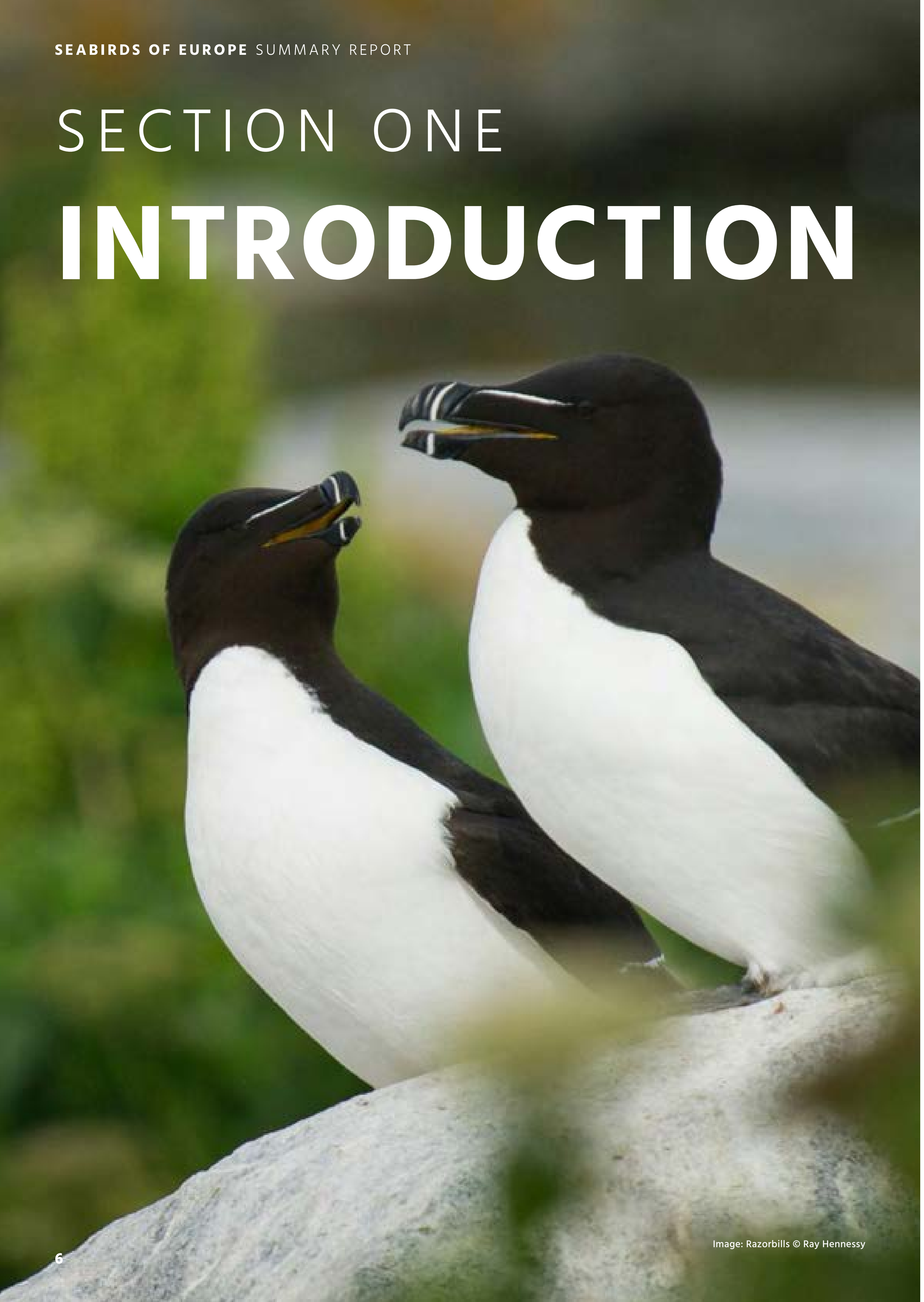


Image: Razorbills © Ray Hennessy

SECTION ONE
INTRODUCTION

Seabirds are adapted to life within the marine environment. They are usually long-lived, reaching sexual maturity quite late compared to other bird families, and tend to have fewer chicks, in which they invest a greater amount of time. These characteristics might be an evolutionary strategy to cope with their highly variable oceanic environment[1]

Seabirds are highly charismatic top predators, which feed at sea (either close to the coast or further offshore in pelagic waters) and play important roles in marine ecosystems. For instance, seabirds bring nutrients from pelagic areas to islands and reefs, contribute to the distribution of organic matter and to the fertilisation of terrestrial, intertidal[a] and subtidal[b] zones with their guano, and even play a role in climate regulation in some parts of the world.[2] Therefore, seabirds are crucial in shaping marine and coastal ecological processes and the provision of ecosystem services for the benefit of both nature and humans in a multitude of ways. This includes in particular directly influencing biodiversity and food webs, which contributes to global inter-habitat connectivity.[3] For example, on the Swedish island of Stora Karlsö in the Baltic Sea, the nutrient release from the high concentration of breeding piscivorous seabirds (mainly Common Guillemot *Uria aalge* and Razorbill *Alca torda*) leads to high concentrations of non-biting midges, which in turn benefit the large nearby colony of insectivorous House Martins *Delichon urbicum*.[4]

Most seabird species are colonial, and many can be considered as ocean wanderers, performing long annual migrations and, in some cases, impressive foraging trips during the breeding season. Some seabirds that breed in Europe can travel thousands of kilometres away from European waters. For instance, the Long-tailed Jaeger *Stercorarius longicaudus*, a long-distance migratory Arctic seabird, migrates to winter in the Benguela Current off the coast of Namibia and South Africa, with a few individuals proceeding even further south-east into the Agulhas Current and the Southern Subtropical Convergence[5].

Another example is the Desertas Petrel *Pterodroma deserta*, which breeds in the Madeira archipelago (Portugal), and maximises prey encounters by covering some of the longest distances known for any animal in a single foraging trip (up to 12,000 km) over deep, pelagic waters.[6]

Europe is a rich region for seabirds, holding over 80 species[c] (see Appendix I), which account for almost a quarter of the total number of seabird species in the world. Some, such as the Yelkouan Shearwater *Puffinus yelkouan* and the Balearic Shearwater *Puffinus mauretanicus*, are endemic to Europe, meaning they are not found anywhere else in the world; some of these endemic species, including the Monteiro's Storm Petrel *Hydrobates monteiroi* and the Zino's Petrel *Pterodroma madeira*, occupy small breeding ranges and have small populations.

Since ancient times, seabirds have been linked to humans by, for example, guiding sailors to land, indicating the location of shoals to fishers and being a food source themselves for hunter-gatherers. The albatross that appears and leads the stuck ship out of the ice jam in Coleridge's poem "The Rime of the Ancient Mariner" symbolises this ancient relationship between humans and sea-dwelling creatures such as seabirds. In more recent times, with the industrialisation of fisheries, seabirds are still following and interacting with fishing vessels, mainly to feed on offal and discards.

This report provides an overview of the status of European seabirds and puts it in a global context. It aims to inform and support key stakeholders (such as local, national, regional and international policy makers, protected area managers, NGOs, industry managers (e.g., fisheries), etc.) in decision-making by highlighting solutions to tackle threats to seabirds and enhance their conservation.

a: Intertidal zone is the part of the littoral zone within the tidal range, represented by the area above water level at low tide and underwater at high tide.

b: Subtidal zone is an area submerged most of the time, exposed briefly during extreme low tides, sometimes referred as the shallower region of the sublittoral zone (zone permanently covered with seawater).

c: "Pan-Europe", or "Europe" comprises 48 countries ranging from Greenland (Denmark) and Svalbard (Norway) in the north, to Malta in the south and from Portugal (including Azores and Madeira) and Spain (including the Canary Islands) in the west, to the Urals and the Caucasus in the east.

SECTION TWO

RED LIST STATUS AND POPULATION TRENDS

Image: Zino's Petrel © Christoph Moning

Pan-European level

In 2021, BirdLife International assessed and updated the Red List status of the bird species breeding and wintering in Europe over the period 2013-2018.[7] The results showed that seabirds, alongside wildfowl, waders and raptors, have the highest proportion of threatened (Critically Endangered (CR), Endangered (EN) or Vulnerable (VU)) and Near Threatened (NT)) species, following the International Union for Conservation of Nature (IUCN) Red List Criteria.[8]

One in three seabird species (32%) were assessed as threatened or NT (Fig. 1a). Fifty-three species were classified as Least Concern (LC) (68%)[d].

Among the most threatened European bird species are the endemic Balearic Shearwater (CR) and the Zino's Petrel (EN), and species with worryingly declining trends such as the Atlantic Puffin *Fratercula arctica* (EN).

d: Five additional species (*Phaethon aethereus, Oceanites oceanicus, Thalasseus bengalensis, Ardenna gravis, Ardenna grisea*) were Not Assessed (NA) as they do not regularly occur in Europe during breeding or wintering seasons (only on passage), and therefore these were not included in the statistics.

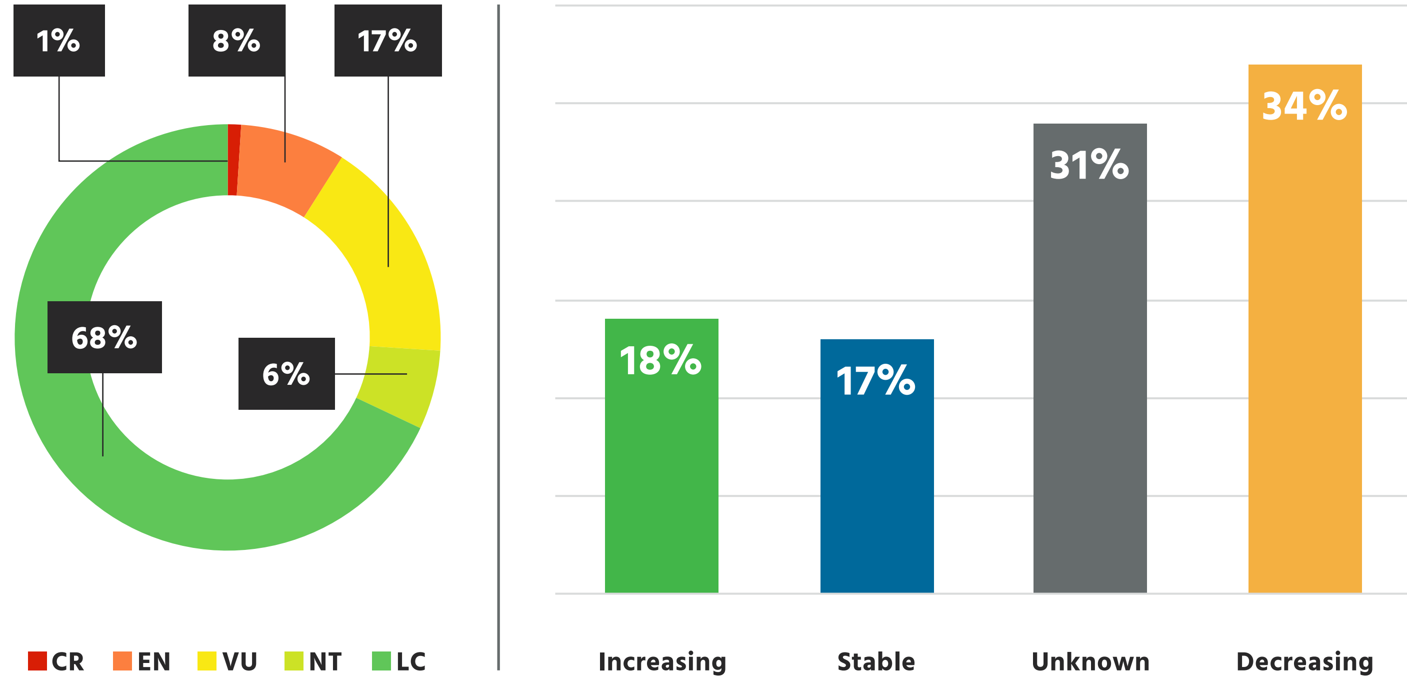


Figure 1a (left): IUCN Red List status of seabirds at pan-European level (2021)[7]
Figure 1b (right): Overview of seabird Red List population trends at pan-European level (2021)[7]

Over a third of seabirds in Europe have decreasing trends (Fig. 1b).[7] Notably, three out of four grebe species show significant population declines at pan-European level. In addition, 50% of sea-duck species are declining in Europe.

Genuine vs non-genuine changes explained

A change in the Red List Status of a species is considered as genuine when there is an actual improvement or deterioration in the population size, trend, range or structure over the time, which is then reflected in a downlisting or uplisting of the species, respectively.

Non-genuine changes (which occur even if there is no actual improvement or deterioration in the species' population) result when a correction is made to a previously erroneous assessment or from a difference in knowledge of the species (e.g., when a previously unknown population is found, or a new monitoring method is used, resulting in an improvement of the estimate of the population size of a species; or, conversely, when the data is now known to be inaccurate or recent data is scarce, resulting in the deterioration of the knowledge on the species).

TABLE 01

Species common & scientific names	2015 IUCN European Red List status	2021 IUCN European Red List status	Type of change in Red List status (Box 1, pg 9)	Justification of change
Common Eider *Somateria mollissima*	VU	EN	Genuine	Based on current data, the rate of decline of the population in the near future will be over 50%.
Red-necked Grebe *Podiceps grisegena*	LC	VU	Genuine	Rapid overall decline currently and in the near future, driven by declines in 6 of the 7 key range countries (hosting the highest proportion of the species' population), but the causes of these declines are unknown.
Black-necked Grebe *Podiceps nigricollis*	LC	VU	Genuine	Rapid overall decline currently and in the near future, driven by its two key range countries (Russia and Ukraine), which hold 70% of the population. The causes of this decline are unknown.
Leach's Storm Petrel *Hydrobates leucorhous*	LC	NT	Genuine	The total breeding area for this species is small, and the population is declining.
Yelkouan Shearwater *Puffinus yelkouan*	LC	VU	Non-genuine	The species underwent rapid declines in the past (which were not previously taken into account), hence this uplisting. However, these declines are no longer sustained.
Ivory Gull *Pagophila eburnea*	LC	VU	Genuine	The ongoing decline of this species' population is exacerbated by its small population size.
Slender -billed Gull *Larus genei*	LC	VU	Genuine	60% of the population is declining at a rate which will drive the overall European population to decline rapidly (by over 30%) in the near future.
Audouin's Gull *Larus audouinii*	LC	VU	Genuine	Based on current declines (15% in 10 years), the population is precautionarily predicted to decline by almost 40% in the near future and over 30% in the longer term.
Arctic Jaeger *Stercorarius parasiticus*	LC	EN	Genuine	Very steep recent declines in the majority of the population, which is expected to continue in the near future.

Reasons for changes in pan-European status of uplisted species[7]

Compared to the European Red List of Birds published in 2015,[9] nine seabird species have been uplisted to a higher threat category, meaning that their conservation status has deteriorated since their previous assessment **(Table 1)**.

Among these, three species have shown a serious decline in their population size, leading to a change in their Red List population trend direction,[e] which is reflected in the change of their Red List status from LC in 2015 to VU in 2021. These species include the Slender-billed Gull *Larus genei*, the Red-necked Grebe Podiceps grisegena, and the Black-necked Grebe *Podiceps nigricollis*.

e: The Red List trend period of a species is equivalent to three times the generation length of that species. This means that the Red List trend period is different for each species but is more comparable between species than a fixed-period trend. The generation length is the average age of parents of the chicks in a given season and reflects the turnover of breeding adults.[8]

TABLE 02

Species common & scientific names	2015 IUCN European Red List status	2021 IUCN European Red List status	Type of change in Red List status (Box 1, pg 9)	Justification of change
Long-tailed Duck *Clangula hyemalis*	**VU**	**LC**	**Genuine**	The decline in the species' population size has now slowed down.
Greater Scaup *Aythya marila*	**VU**	**LC**	**Genuine**	New data has shown that the species' population decline has now slowed down.
Common Loon *Gavia immer*	**VU**	**LC**	**Genuine**	The population trend has now stabilised.
Northern Fulmar *Fulmarus glacialis*	**EN**	**VU**	**Non genuine**	Due to new information about the species' generation length, the species has changed status.
Little Gull *Hydrocoloeus minutus*	**NT**	**LC**	**Genuine**	The species' European population has shown an increase over the past 40 years.
European Herring Gull *Larus argentatus*	**NT**	**LC**	**Genuine**	Declines have been observed in coastal colonies, however, there is not enough information about inland breeding populations to understand whether real population reductions are taking place, or if these are just shifts to other areas. Nevertheless, survival rates indicate that the population is unlikely to be decreasing at a rapid rate anymore.
Razorbill *Alca torda*	**NT**	**LC**	**Genuine**	The species was previously assessed as NT on the basis of future declines, mainly extrapolated from Icelandic data. However, these declines did not occur, and the species' population in Europe is now considered to be increasing.
Common Guillemot *Uria aalge*	**NT**	**LC**	**Genuine**	Recent data has shown that the species' population is currently increasing.

Reasons for changes in pan-European status of downlisted species[7]

Eight species have been downlisted, meaning that their Red List status has improved since the previous assessment carried out in 2015 (Table 2), including the Northern Fulmar *Fulmarus glacialis* (which is still threatened), and species such as the Long-tailed Duck *Clangula hyemalis* and the European Herring Gull *Larus argentatus*, which nevertheless still show decreasing trends.

Eleven species remain threatened with no change to their Red List status since the last European assessment in 2015 (see Appendix I). Some of those species show decreasing trends; this is the case of some strictly pelagic species, such as the White-faced Storm-petrel *Pelagodroma marina*, the Balearic Shearwater and the Black-legged Kittiwake *Rissa tridactyla*.

In addition, ten species classified as LC have decreasing trends, among which are three duck species and three gull species (see Appendix I).

The recently published third HELCOM[f] holistic assessment (HOLAS 3)[10] report of the State of the Baltic Sea 2023 and the OSPAR[g] Quality Status Report 2023[11] support the evidence that marine bird populations are not in a good state at European level. The latter calls attention to the fact that widespread declines in breeding productivity and population abundance have been observed for many species in all OSPAR Regions[h]; the former recognises that the summed impact of pressures and activities is proven to cause, or have direct potential to cause, significant negative effects on ecosystems (i.e., habitats and species combined, including seabirds).

f: HELCOM is the Baltic Marine Environment Protection Commission – also known as the Helsinki Commission – an intergovernmental organisation (IGO) and a Regional Sea Convention in the Baltic Sea area.
g: OSPAR is the mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic - is so named because of the original Oslo and Paris Conventions.
h: OSPAR regions are the following: Region I: Arctic waters, Region II: Greater North Sea, Region III: Celtic Sea, Region IV: Bay of Biscay and Iberian Coast, Region V: Wider Atlantic.

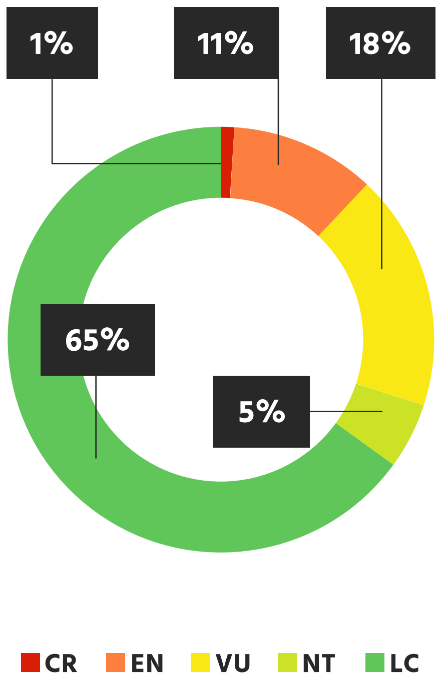
Image: Great Crested Grebe © Dschaef

EU level

In 2020, BirdLife International assessed and updated the Red List status of the bird species breeding and wintering in the 28 countries of the European Union (EU) including the UK, and hereafter referred to as "EU".

The update shows that, at this regional level, 35% of the 66 seabirds assessed are either threatened or NT (23 species). 65% of species are classified as LC (Fig. 2a) and 2 species (Little Auk *Alle alle* and Pallas's Gull *Larus ichthyaetus*) were Not Evaluated (NE).

In the EU, 38% of seabirds have decreasing trends (Fig. 2b). All species of the grebe family have declining trends, as well as 78% of species of the sea-ducks.



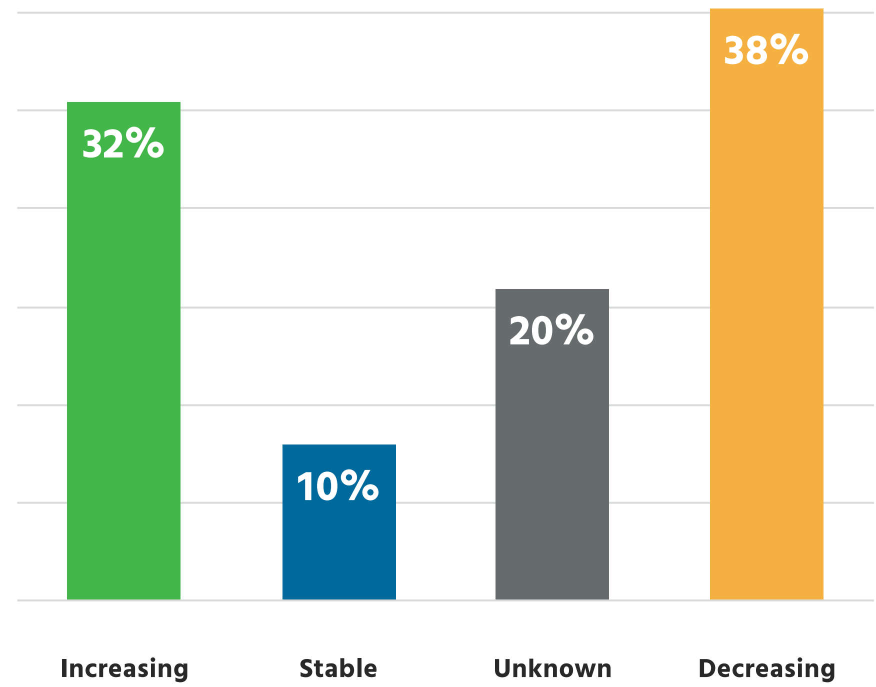


Figure 2a (left). Red List Status of seabirds in the EU (2020)[7]
Figure 2b (right). Overview of seabird Red List population trends in the EU (2020)[7]

TABLE 03

Species common & scientific names	2015 IUCN European Red List status	2021 IUCN European Red List status	Type of change in Red List status (Box 1, pg 9)	Justification of change
Greater Scaup *Aythya marila*	**VU**	**EN**	**Genuine**	The species' relatively small EU population size is undergoing recent rapid declines.
Red-necked Grebe *Podiceps grisegena*	**LC**	**VU**	**Genuine**	The species is experiencing a recent steep decline across the majority of its EU range.
Northern Fulmar *Fulmarus glacialis*	**VU**	**EN**	**Genuine**	Despite non-genuine changes at pan-European level and an update in its generation length, the species has experienced rapid declines since the mid-1990s in the vast majority of its EU population, which are projected to become very rapid in the near future.
Yelkouan Shearwater *Puffinus yelkouan*	**LC**	**VU**	**Non-genuine**	The species was previously classified as VU at global and pan-European levels. Despite little evidence for continuing decline in Europe, and a lack of good trend data for a high proportion of the European population, as the threats to this species have not been addressed, the species has once more been precautionarily, but exceptionally, reassessed as VU at global and pan-European level. If no further evidence of continuing decline comes to light before it is next reassessed, it will be downlisted to LC. As the majority of the global population is found in the EU, the species' status was adjusted to match the global and pan-European assessments.
Black-headed gull *Larus ridibundus*	**LC**	**VU**	**Genuine**	Rapid declines are occurring in the majority of the EU population.
Audouin's Gull *Larus audouinii*	**LC**	**VU**	**Genuine**	As with its change at pan-European level, the species is undergoing declines, which are precautionarily predicted to continue at a rapid rate in the near future **(see case study, pg 20)**.
Great Black-backed Gull *Larus marinus*	**LC**	**NT**	**Genuine**	Despite fluctuating trends in a large part of the population, its overall population is declining at a moderate rate.

Reasons for changes in EU status of uplisted species[7]

Compared to the 2015 EU Red List assessment[9], seven species were uplisted to a higher threat category **(Table 3)**. This includes species which were listed as LC in 2015 and are now threatened, such as the Audouin's Gull *Larus audouinii*, the Great Black-backed Gull ***Larus marinus*** and the Black-headed Gull *Larus ridibundus*.

TABLE 04

Species common & scientific names	2015 IUCN European Red List status	2021 IUCN European Red List status	Type of change in Red List status (Box 1, pg 9)	Justification of change
Long-tailed Duck *Aythya marila*	**VU**	**LC**	**Genuine**	Reduction in the rate of decline during the wintering season shows a potential stabilisation of the population, although it remains depleted (i.e., has not yet recovered from previous declines).
Red-necked Grebe *Podiceps grisegena*	**EN**	**VU**	**Non-genuine**	An update in the generation length has led to a reassessment to VU.
Northern Fulmar *Fulmarus glacialis*	**VU**	**LC**	**Genuine**	The overall trend of the wintering population has stabilised and is considered to be increasing.
Yelkouan Shearwater *Puffinus yelkouan*	**NT**	**LC**	**Genuine**	Although the species is still experiencing a decline, the rate of decline no longer qualifies it as NT.
Black-headed gull *Larus ridibundus*	**NT**	**LC**	**Genuine**	Although it has experienced moderately rapid declines in the past, the species trend currently appears to be stable. The population remains depleted (i.e., has not yet recovered from previous declines).
Audouin's Gull *Larus audouinii*	**NT**	**LC**	**Genuine**	Although declines are occurring in Europe, within the EU the population size is increasing.
Great Black-backed Gull *Larus marinus*	**VU**	**LC**	**Genuine**	Despite a continuing overall decline, the majority of the EU population currently appears to be stable, leading to a reduction in its overall rate of decline.

Image © Dan Gold

Reasons for changes in EU status of downlisted species[7]

Seven species were downlisted (**Table 4**). Among these, the Common Eider *Somateria mollissima* is still threatened, with a decreasing Red List trend direction.

Thirteen species remain threatened with no change to their Red List status since the last EU assessment in 2015 (Appendix I). Four LC species, including the Common Gull *Larus canus*, show both short and long-term decreasing trends[j]. On average, long-term decreasing trends are over -24% in magnitude, while for short-term trends the magnitude is around -14%. Other LC species have experienced rapid declines in recent years. This seems to validate warnings from scientists that many currently abundant species may suffer rapid population declines in the coming decades, as the interacting effects of existing and new human-induced pressures (including climate change) will put additional stress on their populations.

j: As per the EU Birds Directive Art.12 reporting guidelines, a short-term trend period refers to trends over the past 11 years (in this case 2007-2018), whereas a long-term trend refers to the trend from 1980 to the time of reporting (in this case 1980-2018).

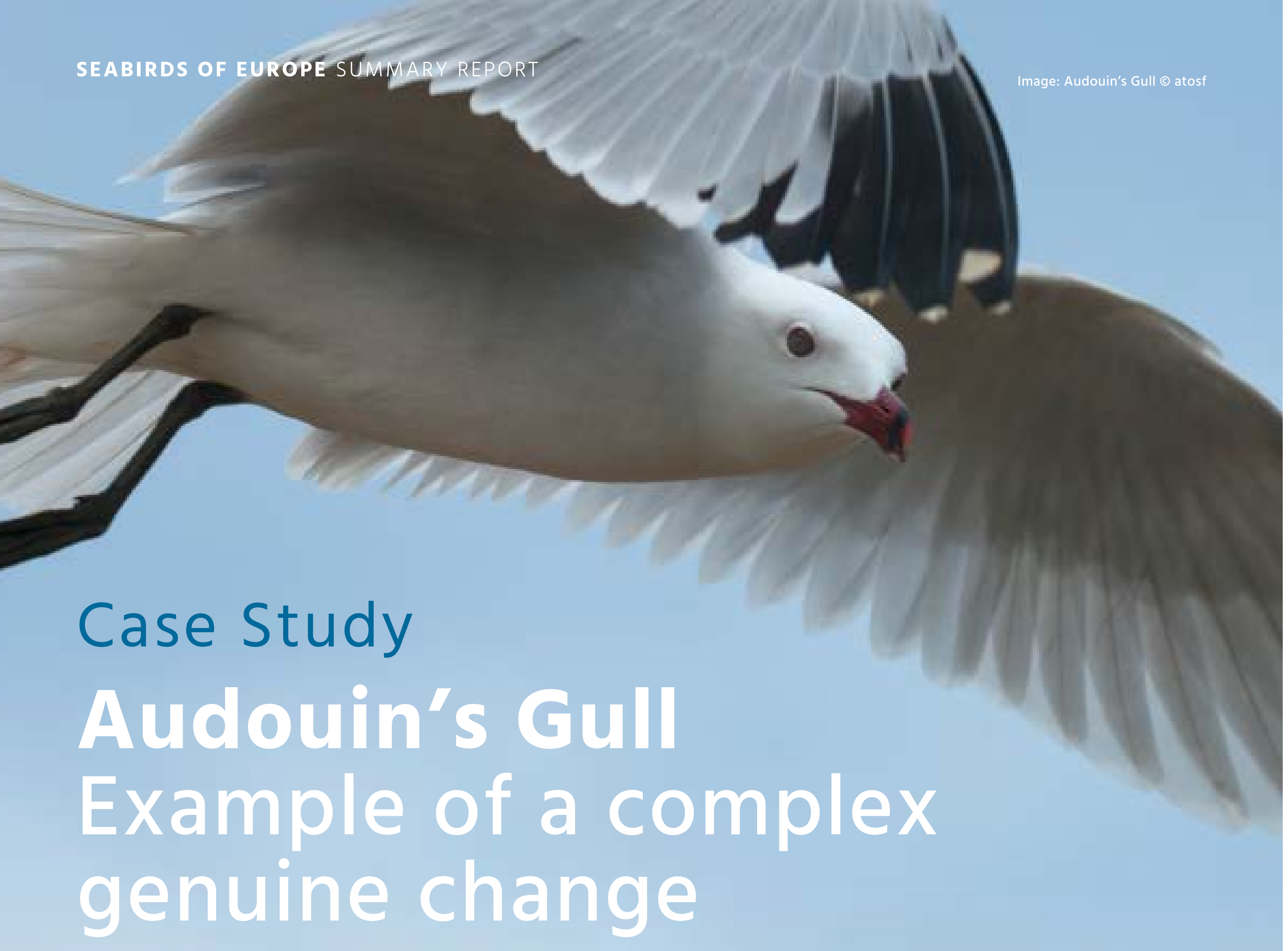


Image: Audouin's Gull © atosf

Case Study

Audouin's Gull
Example of a complex genuine change

The majority of the global Audouin's Gull breeding population, which is estimated around 33,000-46,000 mature individuals is found in Europe, with most of this European population found in the EU[7,12]. Despite the species' long-term increase in the last 40 years, it has undergone a decrease in population size since 2010.

This is thought to be due to increased predation pressure by mammals, the impact of which is rendered worse by a reduction in the availability of breeding habitats, and a reduction in the availability of food from fisheries discards[13,14,15]. The impact of these ongoing threats resulted in low breeding productivity and the subsequent collapse of the Audouin's Gulls' largest breeding colony in the Ebro Delta in Spain. Despite this, as the species is highly mobile, it seems that this collapse may have expediated the formation of new colonies, the most important one now being on the Ilha Deserta de Faro (Portugal)[15]. This colony hosts birds formerly breeding in the Ebro Delta, and has become the biggest known Audouin's Gull colony in the world[16].

It is hoped that due to their ability to easily form new colonies in suitable habitats, the species population size will stabilise and that the current decline represents more of a shift in breeding colony locations than a real reduction in population size[15]. The current threats the species faces may limit the population's capacity to stabilise[13]. These include the degradation of its nesting and foraging habitats due to development, leading it to use suboptimal areas, which may leave it more open to predation, or increase its impact, if breeding success is already reduced. The threat of bycatch and deterioration of fishing stocks in the Mediterranean may further impede the species' stabilisation, and impacts from all these threats could be made worse by pollution and human disturbance[15,17,18,19].

As the threats to Audouin's Gull have not yet been addressed, the decrease in its population size is projected to continue for some years yet, at a rate which reaches the threshold for VU, and it is therefore a genuine change in its Red List status.

TABLE 05

Seabird species which have a different status at EU and pan-European levels[7]

Although the pan-European and the EU regions show similar percentages in terms of Red List status of seabirds, there are a few species-specific differences between these regional assessments, as reflected in the table below **(see Table 5)**. These differences are explained in the **Case Study on pg 22.**

Species common & scientific names	Percentage (%) of pan-European population in the EU	2020 EU Red List status	2021 Pan-European Red List status
Common Eider *Somateria mollissima*	33%	VU	EN
Steller's Eider *Polysticta stelleri*	4%	EN	LC
Greater Scaup *Aythya marila*	2%	EN	LC
Horned Grebe *Podiceps auritus*	61%	VU	NT
Black-necked Grebe *Podiceps nigricollis*	21%	LC	VU
Leach's Storm-petrel *Hydrobates leucorhous*	69%	VU	NT
Northern Fulmar *Fulmarus glacialis*	11%	EN	VU
Black-legged Kittiwake *Rissa tridactyla*	14%	EN	VU
Slender-billed Gull *Larus genei*	21%	LC	VU
Black-headed Gull *Larus ridibundus*	56%	VU	LC
European Herring Gull *Larus argentatus*	79%	VU	LC
Great Black-backed Gull *Larus marinus*	39%	NT	LC
Atlantic Puffin *Fratercula arctica*	15%	LC	EN

Case Study

Atlantic Puffin & the Northern Fulmar

Differences in the Red List status classification of species between EU and pan-European regions

The differences in the Red List status classification of species between the EU and pan-Europe are mainly influenced by the distribution of the majority of the population of a given species.

For example, the Atlantic Puffin is classified as EN at pan-European level and LC at EU level; this is linked with the fact that the majority of the species population is found outside of the EU (47% of the pan-European population breeds in Iceland, 31% in Norway and 10% in the Faroe Islands). These declining populations therefore act as the main driver of the overall rapidly declining pan-European trend, whereas in the smaller EU population this is not the case.

Conversely, the Northern Fulmar is classified as VU at pan-European level and EN at EU level. The EU only holds a small percentage of the total pan-European population, but this small population is declining more rapidly compared to the other pan-European strongholds, explaining the difference between the two regional status.

Additionally, the populations at EU and pan-European levels may meet different population size thresholds, may have contrasting trends or different exposure to threats in the two regions, which can lead to different regional Red List status.

For example, the Leach's Storm-petrel *Hydrobates leucorhous*, for which only 31% of the European population is located outside of the EU, has enough of a difference in range and exposure to threats between the two regions to result into a lower status at pan-European level; furthermore, the difference in the Horned Grebe *Podiceps auritus* population sizes (rather than their trends) was key in determining its status in each region (at pan-European level, its population size was big enough to qualify as a lower threat level).

Image: Atlantic Puffin © Getty Images

TABLE 06

Differences in uplisting and downlisting of seabird species at EU and pan-European levels between 2015 and the latest year of regional assessments[7]

Cells highlighted in orange indicate uplisting, cells in green indicate downlisting and cells in grey indicate no change between the two assessments.

Species common & scientific names	EU IUCN Red List status (2020 compared to 2015)	European IUCN Red List status (2021 compared to 2015)
Common Eider *Somateria mollissima*	VU	EN
Greater Scaup *Aythya marila*	EN	LC
Black-necked Grebe *Podiceps nigricollis*	LC	VU
Leach's Storm-Petrel *Hydrobates leucorhous*	VU	NT
Northern Fulmar *Fulmarus glacialis*	EN	VU
European Shag *Gulosus aristotelis*	LC	LC
Little Gull *Hydrocoloeus minutus*	LC	LC
Slender-billed Gull *Larus genei*	LC	VU
Black-headed Gull *Larus ridibundus*	VU	LC
European Herring Gull *Larus argentatus*	VU	LC
Great Black-backed Gull *Larus marinus*	NT	LC
Caspian Tern *Hydroprogne caspia*	LC	LC
Atlantic Puffin *Fratercula arctica*	LC	EN
Black Guillemot *Cepphus grylle*	LC	LC
Razorbill *Alca torda*	LC	LC
Common Guillemot *Uria aalge*	LC	LC

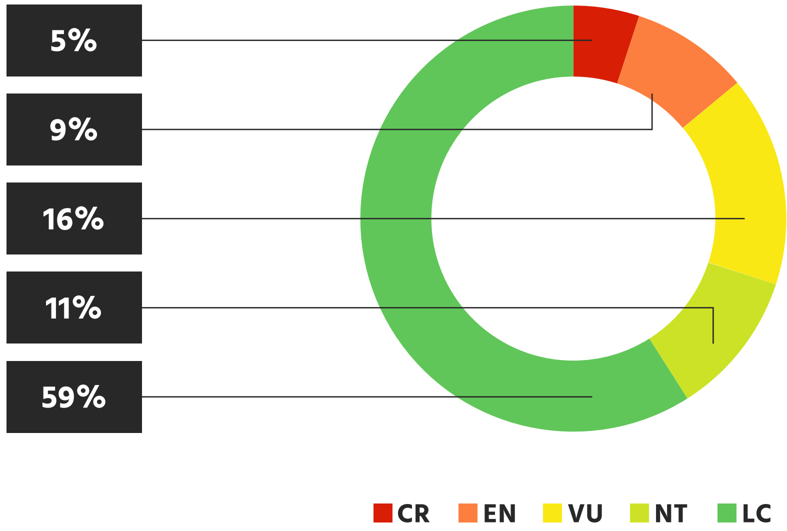
There are some notable differences between the Red List status changes for some species (e.g., a few variations in the different species which were downlisted or uplisted), when comparing EU and pan-European levels (Table 6). For example, Greater Scaup Aythya marila and Northern Fulmar have been uplisted at EU level but downlisted at pan-European level, whereas Common Eider has been downlisted at EU level but uplisted at pan-European level (more information on species' previous status in Appendix I). As mentioned previously, changes in Red List Status may be genuine or non-genuine.

GLOBAL CONTEXT

The proportions of threatened and NT species at EU and European levels are similar to those seen at the global level (Table 7).

Of the 369 seabird species identified worldwide[k], 30% are considered globally threatened (CR, EN or VU), a further 11% are listed as NT and 59% as LC (Fig. 3a).[l]

Half of all seabird species are known to be in decline (Fig. 3b).[20] A recent study[21] showed that, globally, seabirds have declined overall by 70% in the last 50 years and are currently one of the most threatened groups of birds in the world.[7,22]



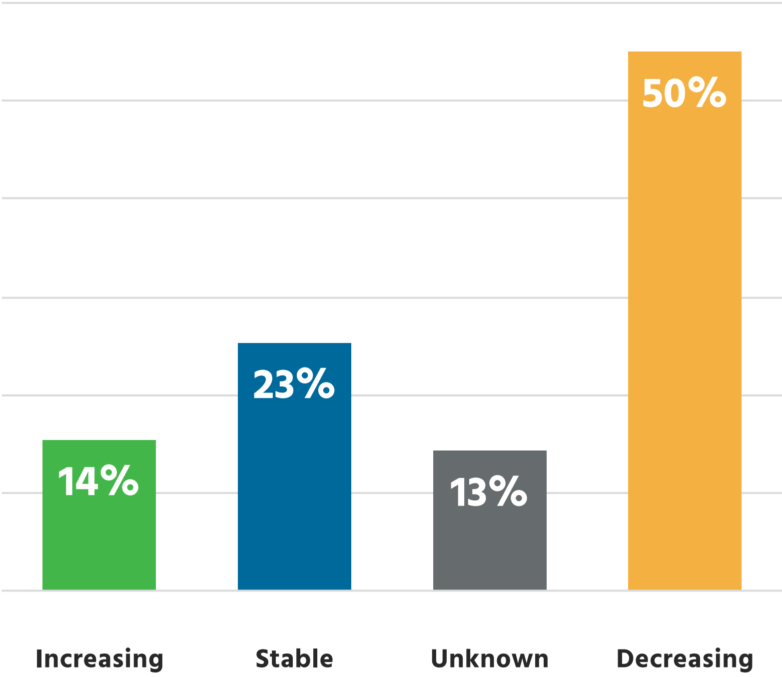


Figure 3a (top): IUCN Red List status of seabirds at global level (2023)[20]

Figure 3b (bottom): Overview of seabird Red List population trends at global level (2023)[20]

k: As per the BirdLife International list of seabirds[20] (which excludes species such as Armenian Gull, Whiskered Tern and White-winged Tern).

l: 1% of the species are Extinct (EX) and 1% are Data Deficient (DD).

TABLE 07

Percentage at global, pan-European and EU levels, of threatened & NT, and LC seabird species, as well as species which were not counted in the statistics

	Threatened + NT %	LC %	NE + DD + NA+ EX
Global	41%	59%	7 species
Pan -European	32%	68%	5 species
EU	35%	65%	2 species

SECTION THREE

THREATS

Global level

The most recent assessment of threats to seabirds at the global level[23] confirmed the findings of a previous assessment from 2012[22] that invasive alien species (IAS)[m], bycatch[n] and climate change are the main drivers of decline of many of these species. Most seabirds affected by threats (c.70%), particularly those which are globally threatened, face more than one threat. IAS affect the highest number of species overall (almost 50%), but bycatch has a greater impact in terms of severity (rate of decline) and scope (percentage of the population affected) (Fig. 4)[23]

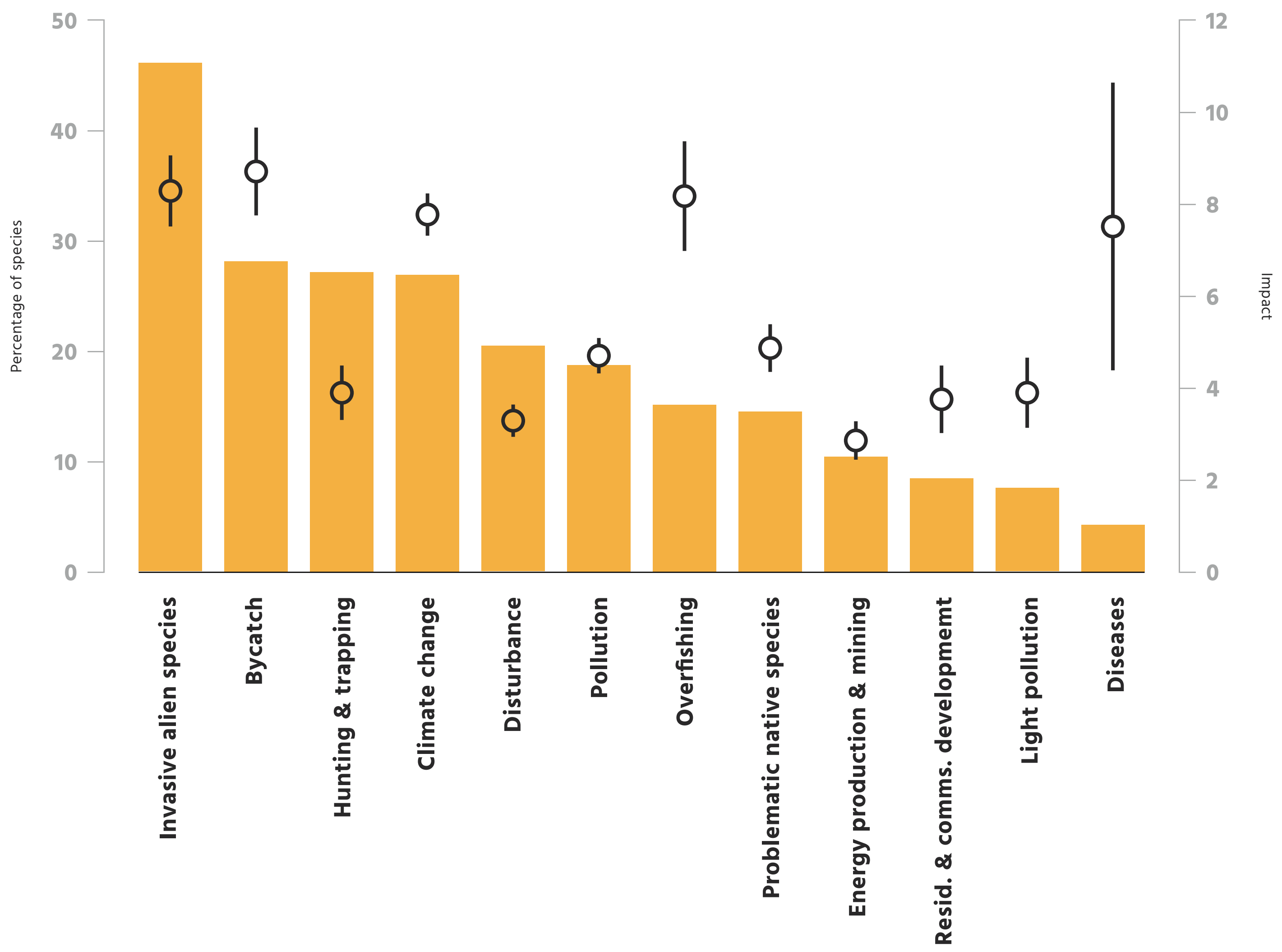


Image © Adobe Stock

Figure 4: Global threats to seabirds (percentage of species affected in histogram bars and their impact indicated in error bars) based on data from Dias *et al.* 2019.[23]

The methodology used for the threat analysis included the classification of the threats using the Global Red List Threats Classification Scheme version 3.224 down to Level 3 (the most detailed classification level) where possible, and for each threat, the determination of its timing, scope and severity. Further relevant detail beyond that required for the IUCN assessment was also noted when available, and, where needed, the threats classification was refined by splitting threats allocated to the same threat code under the IUCN scheme (e.g., bycatch and overfishing).[23]

Image © Tim Mossholder

m: IAS are also called INNS (Invasive Non-Native Species); they are species that are introduced, intentionally or unintentionally, outside of their natural geographic range, causing environmental, social and/or economic impacts.

n: Bycatch is also known as incidental capture of non-target species (such as unwanted fish and other marine fauna) during fishing operations.

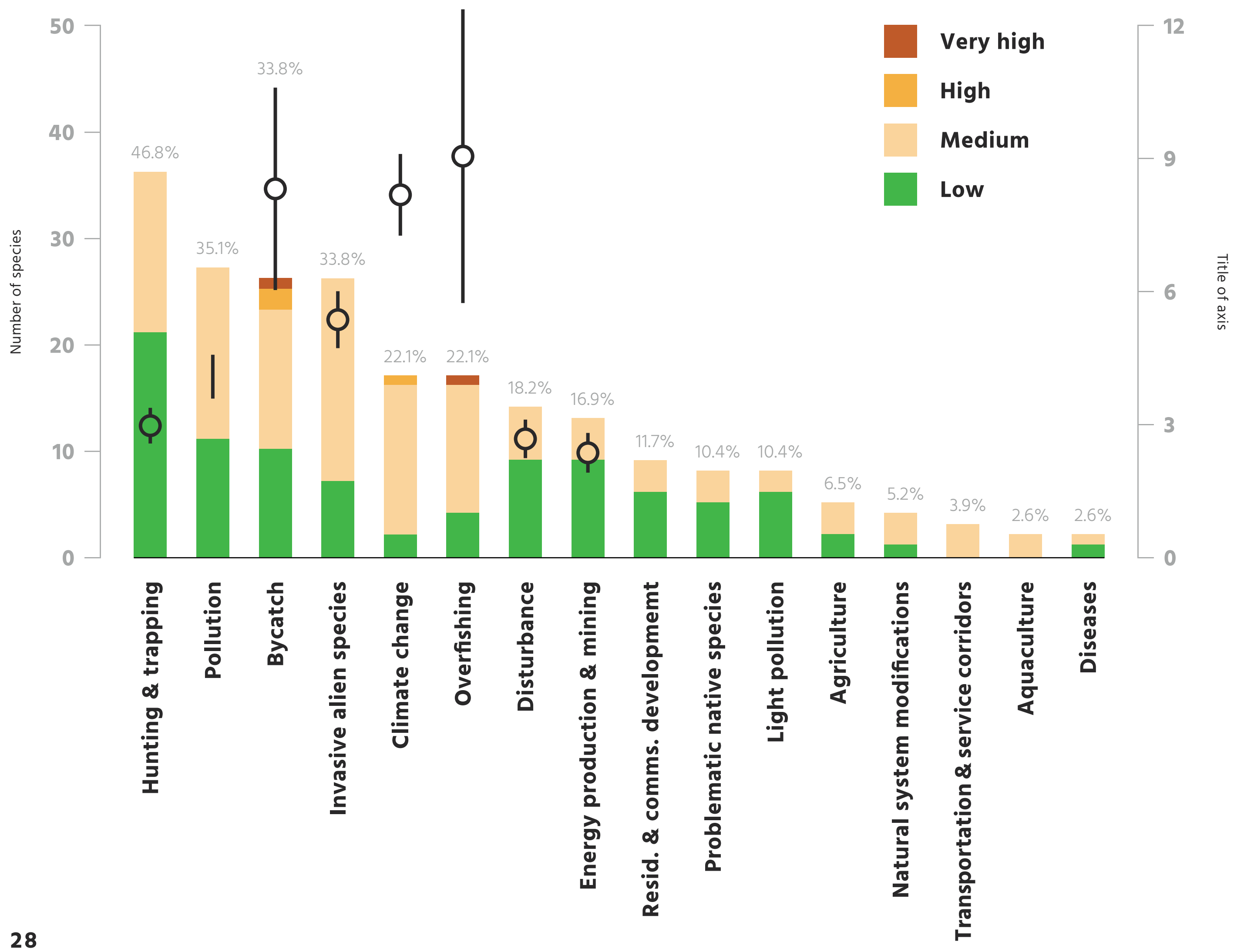
Pan-European level

For seabirds occurring in Europe, the same methodology used for the global threat analysis was applied at this regional level.[o] Using the results of the global analysis mentioned in the previous section, it was possible to identify the threats affecting those seabird species occurring in Europe.

The main perils on land are hunting/trapping (affecting 46.8% of seabird species), pollution[p] (35.1%), and IAS (33.8%). At sea, the main threats are bycatch (33.8%), climate change/severe weather and overfishing[q] (both 22.1%) (Fig. 5). The seabird groups overall affected by the highest number of threats, according to the IUCN Red List assessments[25] are from the Laridae family (terns and medium-sized gulls), the Alcidae family (some auks) and shags and pelicans.

This considers the threats that affect all seabird species occurring in Europe during the breeding and non-breeding seasons (see Appendix II).

Figure 5: Threats to seabirds in Europe[26] (Dias *in litt.*, 2019). Number of species affected in histogram bars (percentage of species above each bar). Second vertical axis indicates average impact, shown as error bars, including degree of impact per number of species.



EU level

Across the EU, the top current threats for seabirds listed on Annex I[r] of the EU Birds Directive, as reported by Member States (MS) under Article 12[27], are:

During the breeding season:

IAS

Bycatch

Recreational activities
sport, tourism and leisure

During the wintering season:

Bycatch

Prey depletion

Wind, wave & tidal power

No quantitative analysis was performed using the EU data. The information reported by MS on Annex I species[27] – as this represents the most comprehensive data reported – was collated and aggregated, and the percentages of the EU population of each species that each reporting country holds were calculated. However, as threats are reported at national level, regardless of the proportion of the population affected within the country, it was not possible to calculate an accurate quantitative estimate of the EU population affected by each threat.

The data on threats reported to affect seabird species occurring in the EU during the breeding and non-breeding seasons, including threats affecting species when on passage, shows that the threats that affect the most species are bycatch, IAS, marine and coastal pollution, overfishing and recreational activities. The seabird groups affected by the most threats overall are terns, medium-sized gulls, grebes, cormorants and loons (see Appendix III).

Discussion

Overall, the greatest threats to seabirds in Europe and the EU are similar to those faced by seabirds globally. In Europe, threats occurring in the marine environment have a higher impact on seabirds than threats occurring on land (Figure 5). This pattern is also reflected at global level.[23]

Using different sources for the threat analysis (e.g., threats reported that don't follow the IUCN classification), can reveal the importance of threats which are less studied or overlooked in conservation, such as recreational activities, as reported at EU-level. The reporting of threats by MS under the Birds Directive in the EU follows a classification format similar to that used by IUCN, though with different threat categories, category structure and descriptions. It also splits threat reporting by season, which can allow for an easier understanding of the effect of the seasonality of certain threats on species **(see Box, pg 30)**.

o: For the species occurring in Europe, the threats are not necessarily faced within the region, as many European species also occur, and are therefore exposed to threats, outside of Europe.
p: Here pollution includes different types of pollution (e.g., chemical, nutrients, noise, etc.), but excludes light pollution.
q: Overfishing is the depletion of fish stocks (in a body of water) by excessive fishing, also defined as the removal of fish species at a rate greater than that at which the species can replenish its population.
r: Article 12 reports threats for all species, where possible, but it is only mandatory for Annex I species. Therefore, we only consider Annex I species in the analysis because data are complete, whereas for other species they can be quite patchy.

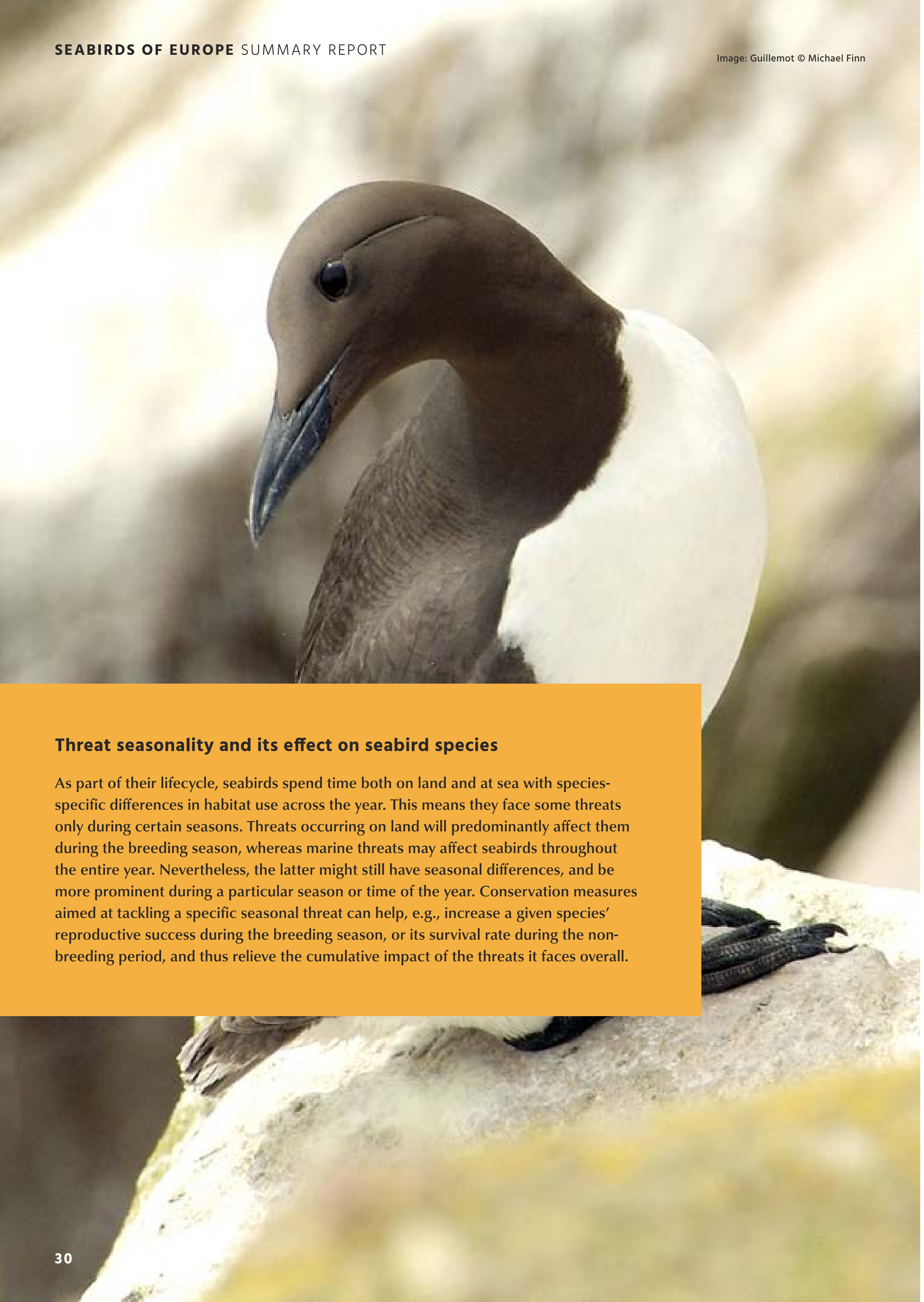


Image: Guillemot © Michael Finn

Threat seasonality and its effect on seabird species

As part of their lifecycle, seabirds spend time both on land and at sea with species-specific differences in habitat use across the year. This means they face some threats only during certain seasons. Threats occurring on land will predominantly affect them during the breeding season, whereas marine threats may affect seabirds throughout the entire year. Nevertheless, the latter might still have seasonal differences, and be more prominent during a particular season or time of the year. Conservation measures aimed at tackling a specific seasonal threat can help, e.g., increase a given species' reproductive success during the breeding season, or its survival rate during the non-breeding period, and thus relieve the cumulative impact of the threats it faces overall.

Certain threats, such as **IAS**, clearly highlight the effect of seasonality on species. Pressures from IAS occur only on land and mostly during the breeding season, and hence they can have a strong impact on the breeding success of seabird populations, especially on chick survival and egg hatching (e.g., predation by rats), but also sometimes on the adult mortality rate (e.g., predation by cats).

Recreational activities might be a constant pressure during the entire year for coastal species, such as gulls and terns (e.g., nest destruction during the breeding time by visitors and dogs, and during the non-breeding season, disturbance to birds created by tourism on beaches leading to higher energy expenditures needed to find and use resting places). Recreational activities can also affect strictly pelagic species, such as shearwaters, mainly during the breeding season (e.g., lighting for activities in cities, ports, and boat parties creating light pollution close to colonies).

Other threats, such as **bycatch**, occur all year round, but with possible seasonal differences. Although its impact is better studied and known on adults (and during certain times of the year), bycatch could also negatively impact juveniles and immature birds at sea.[28]

Image: Offshore wind farm © Nicholas Doherty

It may be that some threats affecting species only during a given season are potentially easier to tackle compared to threats that are present during the entire duration of the year; however, further studies are needed. Overall, the impact of a certain threat is highly linked to the demography of a species; many seabirds are long-lived species, and so high adult survival is a key parameter influencing the long-term persistence of such species. Hence, even if threats occurring in both seasons might be seen as overall more impactful (as they exert a continuous pressure through the year), a threat affecting the mortality of immatures across the year can have a lower impact on a population compared to the same threat affecting adults just during one season. As a future research topic, it would be important to assess the seasonality of threats and the age-classes involved.

Considering the increase in coastal tourism and in the demand for **offshore energy**, it is likely that such emerging threats[s] will increasingly impact seabirds in the near future. Recreational activities are not a new threat per se, as it has been recognised as a threat to birds in the past, but it has only recently come to the surface as an important and ubiquitous threat to seabirds, especially as reflected in its prominence in the Art. 12 reporting. Offshore wind farms are a more recent development and have already been shown to be a peril for some seabird species.[29,30] Both of these threats have the potential to cause increasingly significant detrimental effects.

Cumulative effect

On a concluding note, it is worth mentioning that most seabirds are not just affected by one threat throughout their life cycle, but by multiple threats. The cumulative impact of all these threats therefore needs to be considered when assessing the pressures these animals face and the solutions to holistically conserve them.

s: In this case, we use 'emerging threats' to refer to threats which have already been present for some time, but for which the impacts have not yet been fully understood or studied.

SECTION FOUR

SPECIES ACTION PLANS, TECHNICAL SOLUTIONS AND TRANSBOUNDARY COOPERATION

Species Actions Plans

Species Actions Plans (SAPs) are policy instruments, mainly used as strategic tools to inform on-the-ground conservation; they aim to provide guidance on the protection of target species and to ensure transboundary cooperation among different countries (in the case of international SAPs) and stakeholders for the conservation of a target species. These species are usually classified as threatened or NT or are suffering a significant decline in their population size. SAPs provide information about the species status, ecology and threats, and describe the key actions that are required to improve their conservation status.

BirdLife International and its national partners have been instrumental in developing SAPs both at national and international level. Currently existing SAPs for seabird species are listed in Table 8.

Image © Viktor Hesse

TABLE 08

Seabird species occurring in Europe and/or the EU, for which Species Action Plans have been produced.[31]

Species common & scientific names	Action plan title	Year of adoption & period covered	Geographic scope	Lead entity
Monteiro's Storm Petrel *Hydrobates monteiroi*	**International Single Species Action Plan for the Conservation of Monteiro's Storm Petrel** (*Hydrobates monteiroi*)	**EU** (endemic, EU equals global)	**2018** (2018-2028)	**Sociedade Portuguesa para o Estudo das Aves** (SPEA)
Velvet Scoter *Melanitta fusca*	**International Single Species Action Plan for the Conservation of Velvet Scoter** (*Melanitta fusca*, Western Siberia and Northern Europe / Northwest Europe population)	**Pan-European**	**2018** (2019-2028)	**Lithuanian Ornithological Society** (LOD), **Wildfowl & Wetlands Trust**
Yelkouan Shearwater *Puffinus yelkouan*	**International Single Species Action Plan for the Conservation of Yelkouan Shearwater** (*Puffinus Yelkouan*)	**International** (pan-European & North Africa)	**2018** (2018-2028)	**Ligue de la Protection des Oiseaux** (LPO)
European Shag (Mediterranean subsp.) *Gulosus aristotelis*	**Species Action Plan for the Mediterranean Shag** (*Phalacrocorax aristotelis desmarestii*) **in Europe**	**EU**	**1999** (should be updated every 4 years)	**Birdlife International**
Long-tailed Duck *Clangula hyemalis*	**International Single Species Action Plan for the Conservation of the Long-tailed Duck**	**Global**	**2015** (2016-2025)	**Wildfowl & Wetlands Trust**
Steller's Eider *Polysticta stelleri*	**European Species Action Plan for Steller's Eider** (*Polysticta stelleri*)	**Pan-European**	**1997** (review every five years)	**Wetlands International Seaduck Specialist Group**
Desertas Petrel *Pterodroma deserta*	**Action Plan for Fea's Petrel** (*Pterodroma feae*)	**EU** (endemic, EU equals global)	**1996** (should be updated every 4 years)	**Freira Conservation Project, BirdLife International, Museu Municipal do Funchal**
Zino's Petrel *Pterodroma madeira*	**Action Plan for Zino's Petrel** (*Pterodroma madeira*)	**EU** (endemic, EU equals global)	**1995** (should be updated every 2 years)	**Freira Conservation Project, BirdLife International, Museu Municipal do Funchal**
Balearic Shearwater *Puffinus mauretanicus*	**International Species Action Plan for the Balearic shearwater,** *Puffinus mauretanicus*	**International** (pan European & North Africa)	**2011 (should be updated every 10 years)**	**Sociedad Española de Ornitología (SEO) & BirdLife International**
Roseate Tern *Sterna dougallii*	**International** (East Atlantic) **Species Action Plan for the Conservation of the Roseate Tern** *Sterna dougallii* (2021-2030)	**International** (EU & West Africa)	**2021** (2021-2030)	**Royal Society for the Protection of Birds** (RSPB)
Audouin's Gull *Larus audouinii*	**International Action Plan for Audouin's Gull** (*Larus audouinii*)	**International** (pan-European & North Africa)	**1996** (should be updated every 3 years)*	**Lega Italiana Protezione Uccelli** (LIPU)

* The Audouin's Gull SAP is currently being reviewed and will be updated in 2024, with the process now been led by SPEA (BirdLife partner in Portugal) and BirdLife International.

Thanks to effective conservation actions being implemented under the Action Plans, some species have experienced a degree of recovery in recent years. However, often due to lack of resources, many SAPs have not been appropriately implemented, and infrequently and irregularly updated. As the gravity of some threats may change over time, this may not be properly reflected in outdated plans.[t] Overall, the most effective and highest levels of implementation of action plans might be achieved for species which occur in limited areas (e.g., a single country or region), compared to species that are dispersed over large areas. When multiple countries are involved, conservation is more challenging as it needs to go beyond local conservation actions (such as invasive species management) and often requires effective transboundary collaboration.

The Yelkouan Shearwater SAP is a good example of implementation, as the collaboration initiated for the development of the plan has continued and led to the implementation of multiple priority conservation actions under several consecutive LIFE projects in the Mediterranean Sea.[32–39] The update of the SAP has been supported by the information gathered through these projects, and two international LIFE Projects[40,41] have and are still collecting data on the species and working to tackle the main threats on land and at sea.

The Roseate Tern *Sterna dougallii* SAP was recently updated (2021), thanks to the LIFE Recovery Project managed by the RSPB.[42] The project improved the conservation prospects of Roseate Terns in the UK and Ireland, by understanding the key issues affecting the population in North-West Europe and in wintering areas in West Africa. A series of workshops to review the status, and most importantly, set targets and a framework for action for the species in the geographical range of the Action Plan were organised. The interventions needed for securing the long-term prospects of the species in its breeding range in North-West European population were carried out.

On the other hand, examples of SAPs in need of an update include those of the Zino's and Desertas Petrels, which are endemic to the EU (from Madeira archipelago, Portugal), and still classified as EN. A new LIFE project is underway which will run until 2026 and will contribute to updating the information on both species.[43]

The timeframe for actions defined in SAPs is usually a maximum of ten years, and, therefore, they should ideally be updated at the end of this period, with regular monitoring data-based revisions throughout, to keep track of the evolution of the species' population over time, especially for those which are still threatened. A deterioration in the Red List status or a declining population trend of a species, for which an existing SAP is in place, should spur a discussion to update the plan and create a platform for international experts to convene and share the most recent information and knowledge gaps on the species and its threats. For example, the Audouin's Gull SAP has not been updated for over than 25 years. The species has experienced a population decrease in the last decade, and consequently an update of the Action Plan is now in progress. SAPs should be developed for all threatened species (with special attention paid to species with small population sizes or ranges) with actions implemented within a defined timeline. To be successful though, their implementation should be backed up by appropriate financial resources and good coordination.

t: Zino's Petrel, Desertas Petrel, the Mediterranean sub-species of European Shag, Audouin's Gull and Steller's Eider have particularly outdated plans.

Image: Roseate Terns © EarnestTse

Solutions to reduce known threats

On the ground conservation measures have been benefitting seabird populations on the brink of extinction throughout the continent over the past few decades and have helped to tackle and reduce the cumulative pressures and threats faced by seabirds. Targeted conservation actions, such as the eradication of invasive plants and mammals and the construction of artificial nests, have, for example, contributed to the improvement of the short-term population trends of the two threatened petrel species on the island of Madeira (Portugal).[44–46] The eradication of rats from some Italian islets in Sardinia, Latium and Tuscany has contributed to the partial recovery of local populations of Yelkouan Shearwater.[32–35,47]

In general, IAS and bycatch are the main threats to be addressed and tackled for seabirds, along with overfishing and hunting, disturbance, and water pollution, although other threats may be more important at a local level. Some measures to mitigate these threats are already known to be effective, but there is a need for more development and testing, and for the implementation of proven measures at a wider geographical scale, outside as well as within the EU and Europe.

For example, **technical solutions to reduce bycatch** for some types of fishing gear have already been applied with some degree of success internationally, including in Europe. The most effective ways to reduce seabird bycatch in longline fisheries are to use the following best practice measures: branch line weighting, night-setting and bird scaring lines (also known as Tori's or streamer lines). Alternatively, the use of hook-shielding devices is also recommended.[48,49] Recently, in Portugal, above-water deterrents such as bird scaring kites have shown some promise to tackle seabird bycatch in purse-seines.[50] Spatio-temporal measures, such as fishery closures at certain times of the year, may also be effective in reducing seabird bycatch,[51] and align with a bycatch management strategy that should become increasingly dynamic, recognising that bycatch interactions are not uniform over space and time and that the distributions of highly migratory species which are prone to bycatch may vary across oceans throughout the year.

For gillnets, despite limited success in finding a solution to the accidental catch of seabirds, measures such as buoys with looming eyes have recently been tested, but have only shown promise in a non-fishing setting in Estonia.[52] Unfortunately, in Iceland, during tests in the lumpfish fishery, the looming-eyes buoy did not achieve the level of bycatch mitigation initially expected following pilot trials conducted in the Baltic Sea.[53] However, depth-based fishing restrictions might have the potential to save thousands of birds each year in this fishery. This last example highlights that mitigation measures for bycatch cannot be solved with a "one size fits all" approach. Therefore, it is important to continue testing and funding different projects to reduce this threat to seabirds.

The **eradication and control of invasive alien species**, such as rats, mice, and feral cats, has also been successful in preserving threatened seabird populations and colonies across Europe in the last decades.[54] Eradication operations (such as the deployment of baits to kill invasive species) are usually costly, and involve a high level of organisation, coordination and on the ground effort, but with adequate financial and human capacity, they can be successful in rebounding declining seabird populations.[55] The control of invasive species involves carrying out risk assessments, and elaborating and implementing strict and thorough mitigation strategies and management practices. Strict biosecurity measures to avoid new or re-invasions are essential to ensure that this threat is minimised for seabird populations depending on historically predator-free islands.[56]

Overfishing represents one of the main drivers of bird population declines observed in Europe. To tackle such overexploitation, it is fundamental to push for and enforce better implementation of the ecosystem and **precautionary management of forage fish**, which takes into account their ecological role as a food source for marine predators (including seabirds) and the effect of emerging environmental pressures such as stock and ecosystem-level responses to climate change. In 2023, for a third consecutive year, the UK government has decided to not allow UK sandeel fishing for the benefit of the wider marine ecosystem – such as seabirds and marine mammals – that feed on these eel-like fish; and at the beginning of 2024, the campaign to close the English North Sea and Scottish waters to industrial sandeel fishing succeeded, one necessary step in the effort to safeguard seabirds as they come under a barrage of existential pressures. A coordinated sea basin-level approach is therefore important to prevent a concentration of fishing effort in areas that remain open to sandeel fishing. This would maximise the benefits for wider sandeel populations and other forage fish species and their management across the region and ensure that the overall fishing pressure on such species is lowered across their entire range.[57]

The introduction of fishing quotas and/or spatio-temporal closures in the allocation of fishing, set according to scientific advice and environmental criteria, would be highly beneficial and could contribute to the recovery of depleted stocks. Such approaches could decrease the overall environmental impact of fisheries and encourage more sustainable fishing which might positively affect seabirds, increasing the availability of food and reducing the potential bycatch risk.

Image: Brown Rat, *Rattus norvegicus* © Stephane Etienne

Marine Protected Areas

Marine Protected Areas (MPAs) are an important conservation and management tool to protect vulnerable marine species and habitats.[58] They can play an important role in reversing biodiversity loss and many other detrimental impacts caused by humans, building climate resilience and supporting communities and can act as a crucial protective measure to enhance and recover seabird populations. MPAs can improve fish populations (which top predators such as seabirds feed on), provide ecological benefits to neighbouring ecosystems and maintain ecosystem stability.[59]

Seabirds can play an important role in the identification, design, implementation, and monitoring of MPAs. They can also be used to evaluate the effectiveness of MPAs by monitoring changes in seabird foraging ranges, patterns of distribution and abundance, and population dynamics. In addition to MPAs, **Important Bird and Biodiversity Areas (IBAs)** are sites which are globally important for the conservation of bird populations, based on a set of internationally agreed criteria, with the aim of identifying key places where birds live and travel through. They may be considered the minimum essential to ensure the survival of many bird species across their ranges and throughout their life cycles. IBAs are not MPAs, and neither have legal recognition or protection per se, but in EU countries, the criteria for the identification of IBAs and resulting lists of sites have been used in the past by the Commission and by the Court of Justice of the EU to assess the sufficiency of designations of **Special Protection Areas (SPAs)** under the Birds Directive. SPAs are legally binding protected areas that, along with **Special Areas of Conservation (SACs)** designated under the Habitats Directive, form an integral part of the Natura 2000 network.

The EU Natura 2000 network and the **pan-European Emerald Network**[60] are key instruments for the conservation of biodiversity across the European region, helping to preserve habitats, and animal and plant species. These networks enable the protection of nature, whilst taking into account economic, social and cultural requirements and regional and local characteristics. This ensures their ecologically and economically sustainable management.

Image: Desertas Islands, IBA in Portugal © Pedro Geraldes

The protection of important areas at sea encompasses both coastal and pelagic areas, including the High Seas. A recent example is the declaration of a new High Seas MPA, the North Atlantic Current and Evlanov Sea-basin (NACES) MPA, which is larger than the land area of the United Kingdom and Germany combined. The area represents the first ever marine protected area in the High Seas designated on the basis of seabird tracking data, through a collaborative analysis led by BirdLife International. The NACES MPA is a major seabird foraging hotspot and is estimated to be used by up to 5 million birds throughout the year, travelling from at least 56 colonies spread across 16 countries in both the North and South Atlantic. Twenty-one different species, mainly seabirds occurring in Europe, have been tracked to the site[61]. In 2023, OSPAR has strengthened the protection of the MPA, broadening the conservation scope and objectives of the site to additionally safeguard the seabed and a number of species and habitats, such as coral gardens and deep-sea sharks, blue and fin whales, leatherback and loggerhead turtles, that utilise the site for migration, foraging, and as a vital habitat during different seasons.

Image: Black-legged Kittiwake © John Fox

Other Effective area-based Conservation Measures (OECMs)[u],[62] could potentially complement protected areas and indirectly benefit seabirds. These types of measures could provide an incentive to sustain existing biodiversity values and improve biodiversity conservation outcomes within an area over the long-term. Additionally, spatio-temporal measures, such as area-based fisheries management measures (ABFMs)/ fisheries reserves, which are established to enhance fish populations, while regulating/prohibiting fisheries, can also be an asset for seabirds.

Having an ecologically coherent and well-connected network of protected areas will therefore ensure seabirds are protected through the various stages of their life cycle and will have a positive impact on their populations. Long-term data series should be used to design adequate protected areas, and areas should be extended, or their spatial boundaries changed, to reflect changes in the distribution of seabird species over the years. The latter can be attributed to dynamic oceanographic variables; hence exploring dynamic ecosystem-based ocean management could allow decision makers to respond rapidly to changes happening at sea, by, for example, prioritising and updating MPAs.[63,64]

u: OECMS are geographically defined areas other than Protected Areas, which are governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values.

Emerging and under-studied threats

Impacts on seabirds from emerging and under-studied threats to seabirds need to be first identified, and then prevented, where possible, or at least mitigated. Examples of emerging threats to seabirds globally include plastic pollution, offshore wind farms, hybridisation, discards and fisheries for mesopelagic species (the latter until now has not been performed extensively in Europe). In a recently published paper,[65] the Mediterranean and the Black Sea were identified as critical areas with the highest likelihood of seabirds encountering plastics, highlighting the urgency for policies to be created or updated in order to keep abreast of new information and emerging threats, and in this specific case, reduce the accumulation of plastics in the ocean.

Threats for which the impact on seabirds may have potentially been overlooked in the past, such as disturbance from **recreational activities**, need to be better studied and understood to properly address them. Management strategies to minimise disturbance to breeding and foraging seabirds should consider the spatial overlap between coastal/sea-based recreational activities and nesting/foraging seabirds, and the spatial variation in marine habitat quality for seabirds.[66]

The development and operation of **offshore wind farms** has the potential to negatively impact protected marine birds at individual[30] and population levels.[67] These negative effects are a result of direct mortality by collision, or by loss of habitat and changes in distribution through displacement and barrier effects.[30,68–70] To identify seabird species at high-risk in the North Sea and Baltic Sea, BirdLife Europe & Central Asia reviewed current literature on seabird sensitivity and interactions with offshore wind farms, and summarised the criteria used to assess species risk and create seabird sensitivity indices. A comprehensive list of species at potential high risk from offshore wind development in the North Sea and Baltic Sea was compiled,[71] which includes species which are listed as threatened at pan-European or EU level, such as European Herring Gull, Black-legged Kittiwake, and Greater Scaup. Considering the predicted scale of development of offshore renewable energies in the current decade, the potential impact of this threat needs to be properly assessed and subsequently avoided, and, where needed, mitigated for on a large scale; to achieve healthy seas, the renewable energy transition at sea must go hand in hand with the protection and restoration of marine biodiversity.[72] Thus, measures to avoid, reduce, and then make good any residual harm from renewable energy developments are absolutely vital. This includes scientifically sound **spatial planning** of offshore wind to avoid sensitive areas for birds (as well as other vulnerable species), informed by science-based sensitivity mapping, and the application of potential mitigation measures, such as the curtailment of wind power production at specific times, or the use of visual deterrents (e.g., painting wind turbine blades). Legal requirements to achieve no net loss of marine biodiversity (nature protection) must be accompanied by larger-scale measures to improve and recover nature that follow a whole ecosystem approach that addresses all pressures in a comprehensive way. A Nature Positive approach[v] cannot be delivered at the level of individual wind farms or through action focused solely inside wind farms, hence the need for larger scale strategic measures.

Only once all measures have been taken to avoid and mitigate impacts, can it be acceptable to implement compensation measures for residual impacts. Strategic compensation requires taking a larger-scale approach, that addresses cumulative losses not at individual site level but at a regional one, encompassing multiple human activities. This approach could allow for action for nature at a more ecologically relevant scale.

Avian Influenza (also known as bird flu or avian flu) existed since at least the 19th century, but the recent scale and severity of its impact on wild bird populations is unprecedented, and it is therefore difficult to predict the future consequences this threat will have on seabird populations. The highly pathogenic strain HPAI H5N1, once mostly found in poultry, has recently hit European seabird populations hard, with several outbreaks and thousands of dead wild birds recorded.[75] Indeed, some preliminary data indicate severe declines in the North of Europe: the UK's Great Skua *Catharacta skua* population was reduced by between 50% and 90% in the 2022 breeding season,[76,77] while Texel Island in

v: Nature Positive is a call to action for governments to not only halt the current trend of biodiversity loss, but to reverse this trend by increasing the health, abundance, diversity and resilience of species, populations and ecosystems. The goal is to ensure that by 2030 nature is on the path of recovery, and is fully recovered by 2050 so that thriving ecosystems and nature-based solutions continue to support future generations, the diversity of life and play a critical role in halting runaway climate change.

Image: Recreational activities disturb seabirds © Alejandro Olalde Miranda

The Netherlands has lost up to 80% of its breeding population of Sandwich Terns *Thalasseus sandvicensis* in just two weeks that same year.[78] In addition, by September 2022, over half of the only UK colony of Roseate Tern on Coquet Island had died of bird flu.[79] In 2022, unusually high mortality was detected in 75% of Northern Gannet *Morus bassanus* colonies globally, with HPAI confirmed in 58% of cases.[80]

In 2023, Avian Influenza also had a devastating effect in areas across the world from Northern Eurasia to South America as far as Antarctica and for several species – among the most affected are Common Guillemots, Black-legged Kittiwakes, Razorbills, Northern Gannets, Common Terns *Sterna hirundo*, Arctic Terns *Sterna paradisaea*, Sandwich Terns, Common Gull-billed Terns *Gelochelidon nilotica*, Mediterranean Gulls *Larus melanocephalus* and Black-headed Gulls.[81–90] Estimating the number of wild birds that have been killed by this virus is difficult as many carcasses are never found or counted, but it is thought that, the scale of mortality among wild birds from this disease is in the millions, rather than tens or hundreds of thousands, worldwide.[91]

Monitoring the impact of this emerging threat is pivotal to managing its spread and impact on populations. To be as effective as possible, **mitigation** should be government-led, and include, as a minimum: the reduction of the intensity of poultry farms, which can result in significantly reducing the development and spread of disease; the establishment of monitoring systems to track avian flu across a wide range of species; the increase in resources available to ensure the removal and disposal of dead bird corpses as quickly as possible; and the elaboration and implementation of targeted recovery actions to minimise the risk of avian influenza (e.g., restoring degraded habitats as this could increase the space available for birds, thus reducing bird density).

In 2023, the Convention on Migratory Species (CMS) Scientific Task Force provided a global situation update highlighting the current spread of HPAI from Asia and Europe into the Americas and Antarctica and urging governments to take the actions set forth in the new expert guidance to address this threat to both domestic poultry and wildlife.[92]

Case Study

Offshore Coalition for Energy and Nature OCEaN: a win-win alliance

Over the past few years, BirdLife International has developed an energy programme, which aims to address the environmental challenges of wind project development. The organisation has developed AVISTEP - the Avian Sensitivity Tool for Energy Planning - to identify where renewable energy could impact birds and should therefore be avoided[73] and has joined international energy fora and partnerships that aim to protect nature during the energy transition, such as The Coalition Linking Energy And Nature for action (CLEANaction) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Energy Task Force (ETF).

Most recently, BirdLife Europe & Central Asia has joined OCEaN,[74] an alliance of non-governmental organisations (NGOs), wind industry actors and transmission system operators (TSOs), to accelerate the deployment of offshore wind energy and grid infrastructure while ensuring alignment with nature protection and healthy marine ecosystems. The coalition has put together several publications which have managed to connect various points of view and interests of different stakeholders to strengthen a key tie and present a common voice to make sure that the twin climate and biodiversity crises are tackled together, and common solutions are brought forward to address one of the most important challenges of our century.

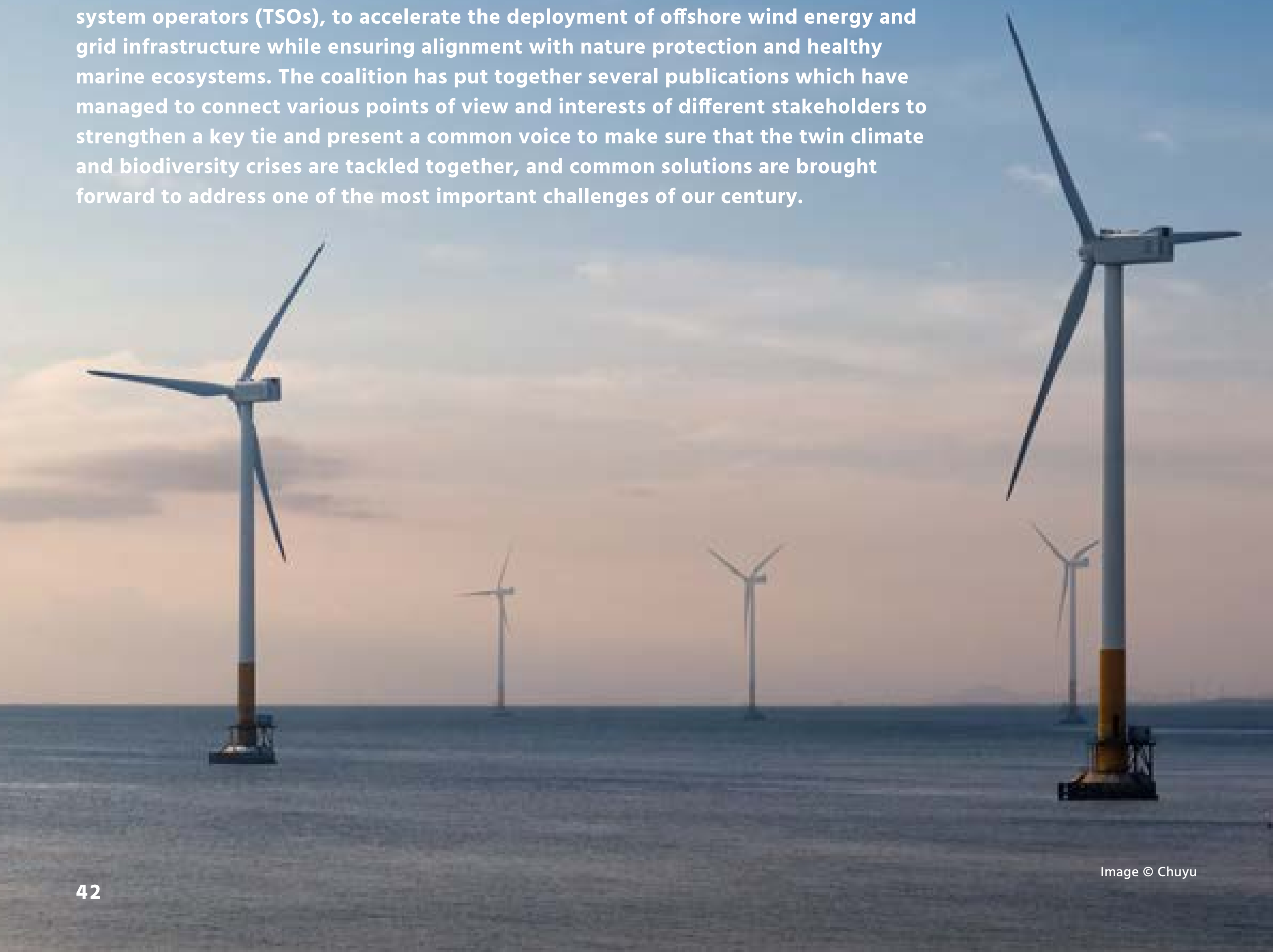


Image © Chuyu

Image: Northern Fulmar © Colum Clarke

Climate change

Climate change is a long-known and well-known threat, but despite this, efforts to tackle it have to date been neither sufficient nor ambitious enough.[93] Given the complexity of this threat, which can have both direct and indirect impacts on species, and the unpredictable effects on species populations that this threat adds to all the hazards that seabirds face, it is very difficult to understand the best way to reduce its pressure on seabirds.

Several studies have pinpointed climate change as a direct threat to seabirds. Species in the Northern Hemisphere, for example, have suffered high impacts from human-caused climate change, especially in combination with other human activities like overfishing, and both of these have negatively affected the reproductive success of fish-eating seabirds north of the equator.[94] Within the UK, fourteen seabird species are regarded as being at risk of negative climate change impacts, usually in the form of temperature rise and severe storms or other weather events. These include the Atlantic Puffin, for which a population decline of 89% across Britain and Ireland is projected by 2050.[95] Wildlife management informed by science has been linked to the increase in our understanding of how changes in climatic conditions will impact species. It also improves knowledge on whether and how, wildlife managers can facilitate species' ability to adapt to change.

Existing knowledge on species vulnerability to climate change and evidence of conservation action effectiveness should be more regularly compiled into **specific policy and conservation frameworks.**[96,97]

Transboundary cooperation

Seabird ranges span large areas and undertake journeys that can cover the marine areas of several different countries and into international waters, such as the High Seas. In order to address the threats that they face and contribute to the effective conservation of seabirds, actions need to be not just implemented at national level but extended beyond national borders. **Shared responsibilities between countries are key,**[98] especially for highly mobile species. This requires **coordinated action at a regional and international level**, for example to ensure that protected areas are effectively managed and that protected area networks are adequate to cover species' lifecycles, both in national and international waters.

Around 64% of the ocean's surface falls within the High Seas (areas beyond the jurisdiction of any single country), representing the largest habitat on Earth and home to millions of species, a sprawling vastness of water within which European seabird species spend a considerable amount of time. A concrete example is the Cory's Shearwater (*Calonectris borealis*) population that breeds in Portugal, but spends over 40% of its time in the High Seas (Figure 6).[98] After long years of negotiations and preparatory meetings, the international community has eventually managed to reach a consensus and agree a new treaty to protect biodiversity and improve governance in the High Seas, which was among the missing links for the effective conservation of marine biodiversity globally.[99]

The final outcomes include establishing modern requirements to assess and manage planned human activities that would affect marine life in the High Seas as well as ensuring greater transparency and providing a framework for countries to agree on the establishment of MPAs in the High Seas.[100,101]

This will hopefully benefit many seabird species that spend time wandering, feeding and resting on the High Seas, but nevertheless it needs to go hand-in-hand with enhanced and effective management of already existing protected areas in national waters.

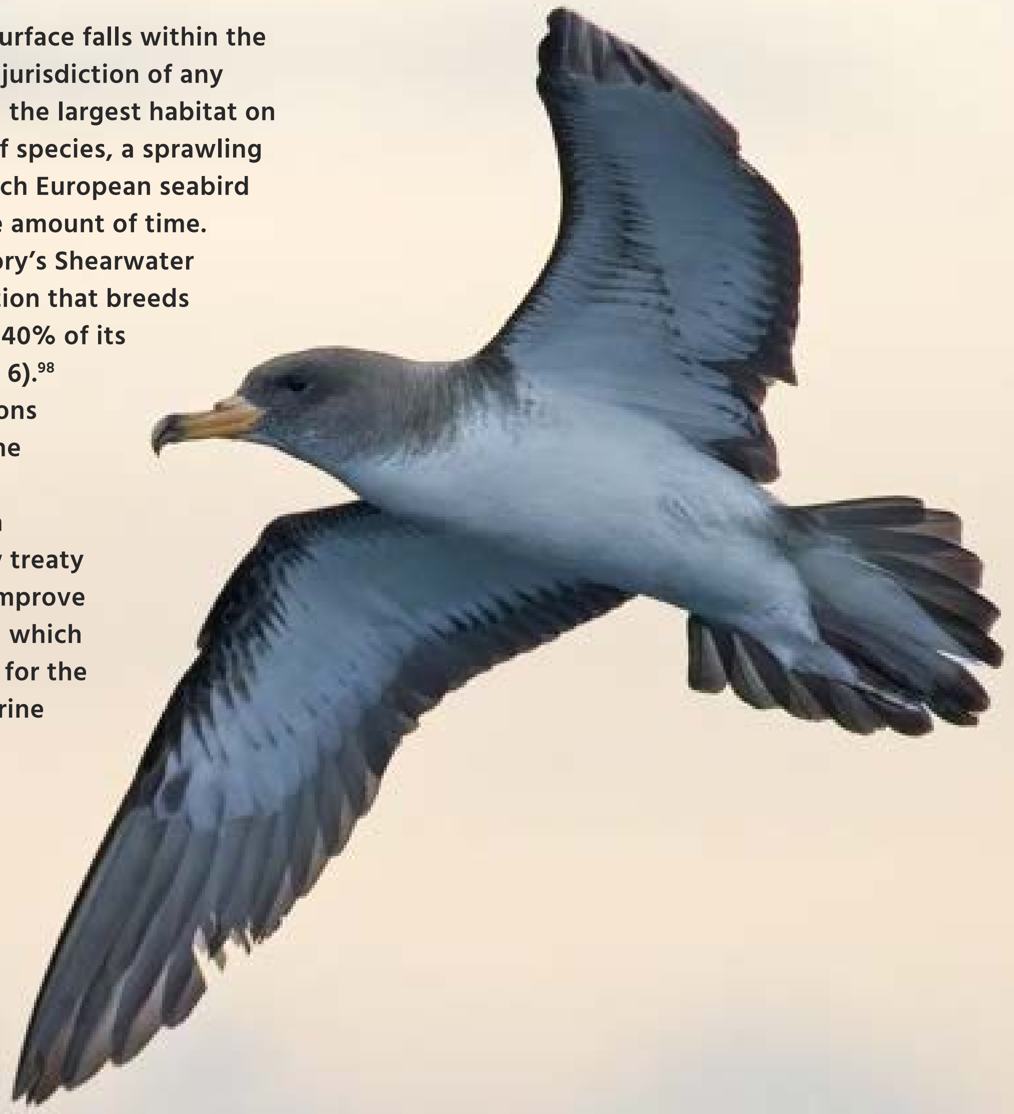
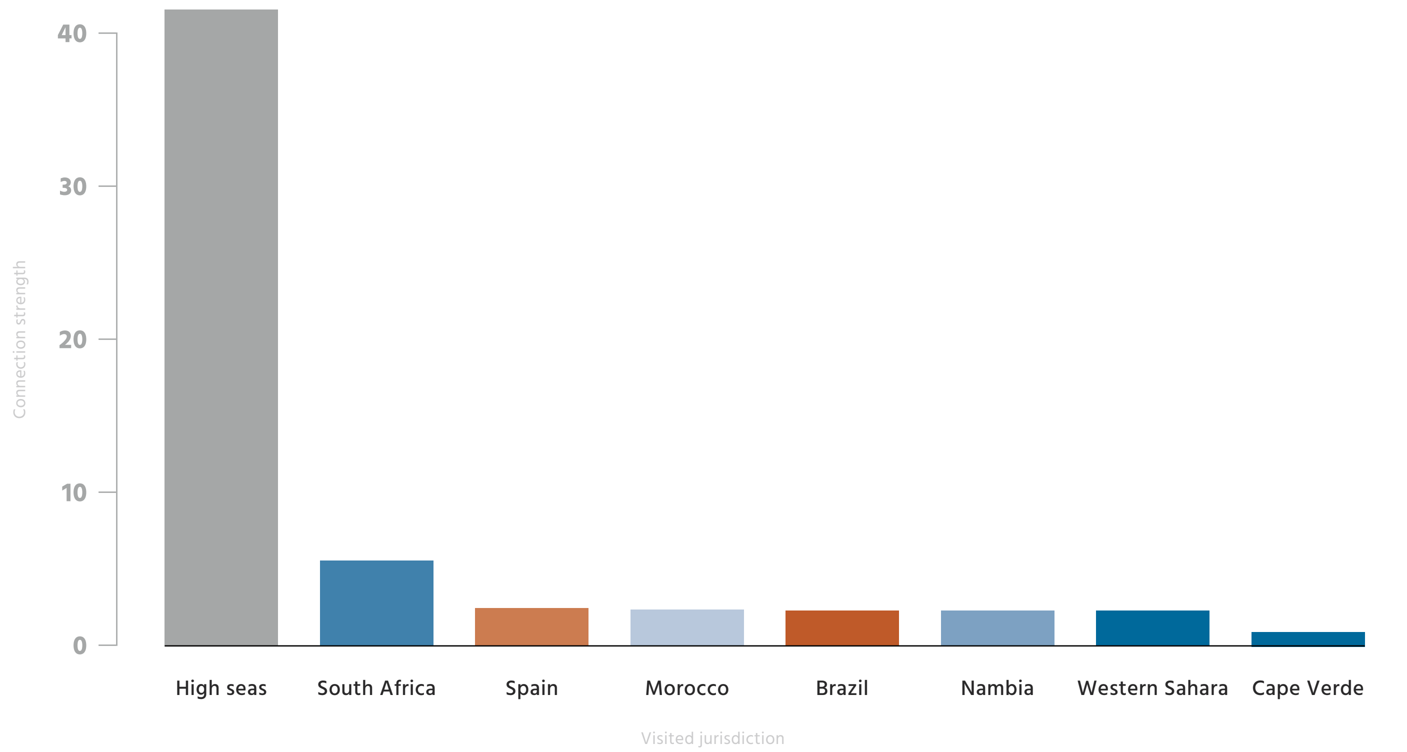
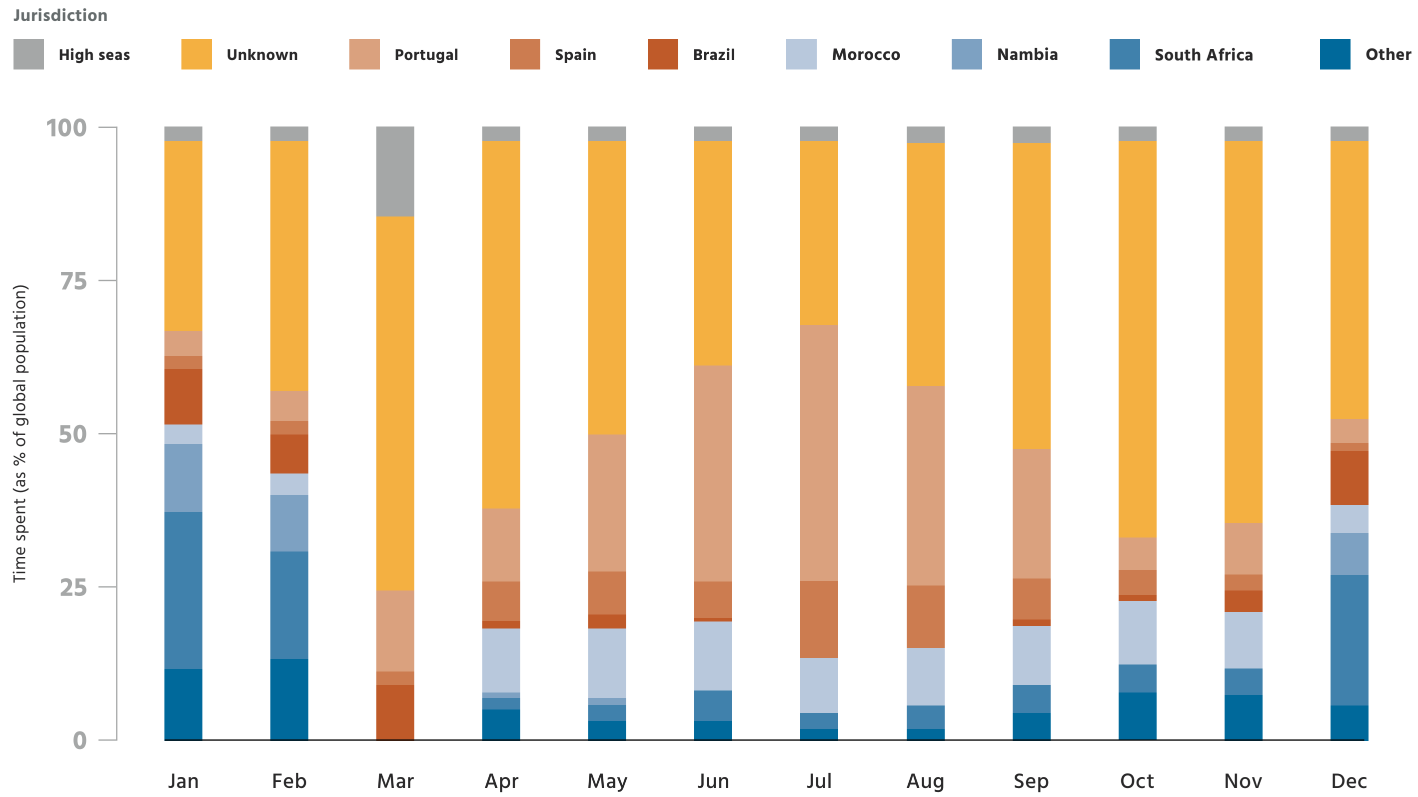


Image: Cory's Shearwater

Figure 6. Top jurisdictions visited by Cory's shearwaters breeding in Portugal, split by month in the graph on the bottom, showing that this population spends over 40% of its time in the High Seas, and suggesting the need of concerted conservation actions to protect highly migratory species (adapted from Beal *et al.*, 2021).[98]





SECTION FIVE

POLICY TOOLS AND LEGISLATION IN PLACE FOR THE CONSERVATION OF SEABIRDS

Oceans provide climate regulation, food, jobs, livelihoods and economic progress, and, besides altering ecosystems and resources for coastal communities, their lack of protection will not only accelerate climate change, but also severely affect human resilience to its impacts. Therefore, having science-based policy and legislation in place that address and regulate human activities at sea is key for the protection of nature, the preservation of resources and the proper functioning of society.

During the last decades, several important pieces of legislation have been put in place to this effect, and to enhance the conservation of marine habitats and ecosystems. Despite the EU being an example of good legislation in place, via the adoption of different legislative tools with good environmental standards, there is still a clear lack of implementation and enforcement. One of the consequences of this is the fact that the situation for many European seabird species has not improved so far, or, indeed, continued to deteriorate.

EU legislation

The **EU Birds Directive**[102] is a crucial piece of legislation for the protection of all wild bird species against killing and nest destruction. Within this Directive, 34 seabird species and subspecies have additional strict protection (against, amongst other things, disturbance) under Annex I since the 1980s. Birds listed in Annex I also benefit from special conservation measures concerning their habitat (such as the designation of SPAs) in order to ensure their survival and reproduction in their area of distribution. Conversely, species listed in Annex II can be hunted, provided this is done in a sustainable manner. Overall, the Birds Directive places an overarching obligation on MS to take measures to protect, maintain or restore their naturally occurring bird populations at a level which corresponds in particular to their ecological, scientific and cultural requirements.

Table 9 below illustrates the benefits of species being listed in Annex I compared with non-Annex I species, with less species having a worsening status or declining trends and more species having stable or increasing trends. This is likely to be due to the higher protection afforded by Annex I and, consequently, those species being prioritised for conservation actions and funding. Annex I species, overall, have shown less changes in status compared to non-Annex I species.

It is surprising that there are more species with unknown trends among Annex I species (mainly shearwaters and petrels, including most of the storm petrels and gulls) compared to non-Annex I species, given the attention that they should have received due to their conservation interest.

For species which have a Red List trend shorter than 40 years[x] (54 species), if we zoom in to the EU long-term population trends scenario, which is calculated over the time period between 1980-2018 (38 years), we can see that Annex I species have a higher proportion of species with increasing trends (46% of Annex I species, vs. 14% of non-Annex I species) and stable/fluctuating trends (19% of Annex I species vs 14% of non-Annex I species). Additionally, there is a higher proportion of non-Annex I species with decreasing trends (54% vs. 19% for Annex I species), thus again highlighting the benefits incurred by species listed on Annex I.

Table 9: Comparison of status and trends of Annex I and non-Annex I seabird species between 2015 and 2020 EU Red List assessments

Species	Improved EU Red List status[w]	Worsened EU Red List status	Declining trends	Improved EU Red List status	Improved EU Red List status
Annex I species (34 sp.)	**3 species** (9%)	**2 species** (6%)	**9 species** (26%)	**8 species** (24%)	**17 species** (50%)
Non-Annex I species (33 sp.)	**5 species** (15%)	**5 species** (15%)	**17 species** (52%)	**5 species** (15%)	**11 species** (33%)

w: As the Red List status assessment is not only based on trends but also other factors, such as population and range sizes, there is no direct correlation between stable or increasing trends in a species and whether its status improves.

x: The 40-year trend is used as a baseline which indicates when the Directive started.

Article 12 of this Directive requires MS to periodically report on the population size and trend of all regularly occurring birds, as well as the threats that they face. Therefore, this Directive contributes to the regular collection of data, as well as the direct protection of species.

The Birds Directive obliges MS to take special conservation actions for a range of species, including preserving, maintaining and re-establishing habitats to ensure a sufficient diversity and area of habitats, and to take measures to establish a general system of protection for all species of birds, linked to existing threats such as bycatch. Despite this, governments are failing to effectively implement measures to reduce direct impacts of human activities (e.g., bycatch) even on specially protected species (such as species under Annex I) and the declines of some of their populations are a symptom of such failures.

EU MS also need to designate SPAs, which are part of the Natura 2000 network of protected sites. SPAs are based on the IBAs that have been identified as globally important for the conservation of bird populations on the basis of an internationally agreed set of criteria.[58] Areas fulfilling the IBA criteria are recognised by the Court of Justice of the EU and the European Commission as sites that should be designated as SPAs.

The BirdLife Europe & Central Asia assessment of the protection of Important Bird and Biodiversity Areas for seabirds by Special Protection Areas of the Natura 2000 network[103] underlines that, compared to 2014, only eight MS have significantly increased the size of their marine SPA network by designating additional sites at sea. In nine countries, less than 60% of the marine area of IBAs is within the SPA network, meaning that these countries are failing to designate marine sites that are important for birds. IBAs for some threatened seabird species are currently not adequately protected within the SPA network, and the designation of SPAs in offshore areas to protect pelagic seabird species is insufficient in more than half of the 22 coastal EU MS and should be prioritised. Despite their designation, most protected areas are still not properly protected, with lack of management measures and poor enforcement to monitor them, which has led to talk of "paper parks", namely MPAs that are legally designated but ineffective.

When the European Commission (EC) proposal for an **EU Nature Restoration Law (NRL)** is adopted, MS will have to restore at least 20% of their marine areas and habitats, which could contribute to their recovery and conservation of iconic marine species such as seabirds across the region. Restoring nature will be crucial to recovering marine biodiversity and halting the degradation of marine ecosystems; almost all degraded ecosystems should be restored by 2050. The marine ecosystem targets of the regulation include restoring marine habitats such as seagrass beds or sediment bottoms that deliver significant benefits, including for climate change mitigation and restoring the habitats of iconic marine species such as dolphins and porpoises, sharks and seabirds. To match the level of urgency of current times, the NRL should ensure better implementation of the Common Fisheries Policy (CFP) to restrict destructive fishing (e.g., via banning destructive fishing practices, such as bottom trawling, from all EU MPAs) where necessary, and enable timely and effective marine restoration (by, for example, passive restoration through the creation of no-take zones, or strict protection areas for ecosystems and fish populations to regenerate).

The plans of the 2030 **EU Biodiversity Strategy**[104] to protect nature through an extended and coherent network of well-managed and actively enforced protected areas, the restoration of biodiversity, and the reduction of the environmental footprint of production, are crucial steps in ensuring higher protection of seabirds over the broader European continent and the world. In accordance with this Strategy, EU MS have to put forward pledges to protect 30% of their territory at sea (of which 10% needs to be strictly protected). This could be a great opportunity to identify candidate areas for strict protection that, if designated, would provide the greatest benefit to seabird populations, as well as other marine and coastal habitats and species. In addition, MS must ensure that at least 30% of species and habitats, not currently in a favourable status[y] reach that category or show a strong positive trend by 2030. Unfortunately, MS are so far failing in this process, with only six pledges submitted 1 year after the deadline and, overall, poor quality of submitted pledges. MS pledges for species recovery could also benefit currently declining seabird populations.

Contributing to delivering on the EU Biodiversity Strategy for 2030, the Action Plan to conserve fisheries resources and protect marine ecosystems (Marine Action Plan) published in February 2023 includes actions to promote the availability and potential of innovative, more selective fishing gears and techniques. This might be beneficial for seabird species that get caught in fishing vessels across the region (it is estimated that approximately 200,000 seabirds are bycaught every year in European waters[105] and that at least 29 species listed in Annex I of Birds Directive are affected).

Unfortunately, in its current state, notably due to the absence of binding obligations and strict deadlines for the implementation of its provisions by MS, it is unlikely that the Action Plan is sufficient to protect nature and reverse the degradation of ecosystems, despite some actions to improve gear selectivity and tackle bycatch of sensitive species. More action should be taken by MS to implement their obligations and more emphasis put on proper enforcement by the Commission (which until now has not extensively taken legal action to address pressing issues such as bycatch of seabirds), if actions are not taken nationally.[106] Ensuring accountability, financial commitments, regular reports on implementations and progress, and establishing a regular assessment process are key elements in order to minimise, and where possible eliminate, seabird bycatch in EU fisheries in domestic and external waters.[106]

The **European Marine Strategy Framework Directive (MSFD)**[107] is the EU's main tool to protect and conserve the health of European coasts, seas and oceans, and aims to sustainably protect the resources upon which marine-related economic and social activities depend. The marine strategies comprise regular assessments of the marine environment, setting objectives and targets, establishing monitoring programmes and putting in place measures (in close coordination with neighbouring countries at regional sea level) to improve the state of marine waters. Among such measures there is spatial protection, including a coherent and representative network of MPAs. It requires MS to develop marine national strategies and set a target to achieve Good Environmental Status (GES)[z] under 11 Descriptors and requires MS to put in place measures to achieve this (the majority of EU MS have so far failed to meet GES under the MSFD); this can help managing human activities at sea, including those which interact with seabirds, and can help minimising the impacts of such activities on different species, including the bycatch of sensitive species in the EU. For example, under Descriptor 1 of MSFD for determining threshold values for ensuring GES in relation to seabird bycatch and population abundances, the target should be set at a level that ensures that MS minimise and where possible eliminate bycatch. Given that the MSFD doesn't provide the values for acceptable mortality rates and relies on MS to define them, BirdLife Europe & Central Asia recommends that the threshold mortality rate from incidental bycatch should be 1% of the natural annual adult mortality of the species.[108] The method for defining thresholds for population abundance should follow OSPAR guidance on setting baselines and species-specific assessment values.[109]


Image: Great Skuas on Caher Island in County Mayo, Ireland

y: Favourable status means that the species has a Secure EU population status and non-declining trend.

z: GES refers to the different uses made of the marine resources, which should be conducted at a sustainable level, ensuring their continuity for future generations.


Image: Manx Shearwater © John Fox

The **EU's Common Fishery Policy (CFP)**[110] sets out rules for sustainably managing European fishing fleets and conserving fish stocks, and is thus highly important for the conservation of seabirds. CFP objectives require the implementation of an ecosystem-based approach to fisheries management to minimise the negative impacts on the marine ecosystem, avoid the degradation of the marine environment, and ensure coherence with EU environmental legislation, particularly the achievement of GES under the MSFD. CFP-related regulations - such as Technical Measures Regulations (TMR), Data Collection Framework Directive and the Fisheries Control Regulation - are very relevant for seabird protection,[106] especially when linked to tackling bycatch. Under the CFP, MS can adapt or restrict certain fishing gear and set spatio-temporal restrictions as conservation measures; MS can also adopt emergency measures in case of serious threat to the conservation of marine ecosystems. Furthermore, under the Data Collection Framework Directive, MS must collect data (under a multiannual EU programme for data collection (EU-MAP)) to assess the impact of EU fisheries on the marine ecosystem in and outside EU waters, which includes data on bycatch of protected species (Article 5). Under the recently adopted Fisheries Control Regulation, all catches will need to be reported electronically via e-logbooks (by 2026 for vessels bigger than 12 metres' length overall and by 2028 for smaller vessels) and this should also include catches of sensitive species, including quantities of injured, dead and released individuals (Articles 14 and 15).[111] MS will be allowed to use Remote Electronic Monitoring (REM) systems to control vessels' compliance with rules of the CFP; although primarily foreseen for the landing obligation, this opens up the possibility of using REM/closed-circuit television (CCTV) to ensure accurate data collection on other activities, such as bycatch. All fishing vessels will have to be equipped with vessel monitoring systems (VMS), a tracking device which enables vessel position data to be monitored on a continuous basis. This obligation will come into force gradually depending on vessels' sizes. It will provide assurance that licensed vessels are fishing where they should, and that closed area restrictions are being obeyed. Additionally, under the TMR, where the data indicate a level of incidental catches of seabirds in specific fisheries that constitutes a serious threat to the conservation status of those seabirds, MS shall use mitigation measures, if it is scientifically proven that such use has a conservation benefit in that area.

Another important Directive for seabirds is the **EU Maritime Spatial Planning Directive**,[112] which aims to ensure the coherent management of the use of seas and oceans in a sustainable, safe and efficient way; plans must implement an ecosystem-based approach which is intended to support MS to achieve GES. The majority of EU MS have now compiled their Maritime Spatial Plans (MSPs), with many unlikely to be compatible with the achievement of GES, and also likely to significantly increase the cumulative pressures on the marine environment. Marine Spatial Planning should deliver for nature, and should prioritise avoidance of impacts, making use of the best available technology to reduce negative impacts and adhering to the mitigation hierarchy.

Given the importance of halting biodiversity loss in already crowded spaces such as the various EU sea basins, putting in practice effective measures to ensure the protection of nature at sea is critical. A systematic, quantitative and spatially explicit analysis of ecosystem functionality, connectivity, and sensitivity should inform all decisions pertaining to the planning and regulation of human activities at sea. Plans should be underpinned by a coherent network of effectively managed MPAs and include measures for both passive and active restoration and explicitly recognise the contribution of marine and coastal ecosystems to climate change mitigation.

For seabirds, that would mean having a plan in place to balance the spatial and temporal use of the sea by different human activities, which, for example, could help selecting locations where energy developments will cause least harm, avoiding important areas through which birds may move and travel to their main feeding grounds (which themselves could be designated as protected areas). The selection of such locations should be informed by appropriate and proportionate tools and datasets, including sensitivity maps, as per the latest revision of the **Renewable Energy Directive (RED)**.[113] In fact, sensitivity mapping presents users with the opportunity of informing the development of renewables in way that is compatible with nature. In other areas where development is foreseen (the so-called "acceleration areas"), mitigation measures to avoid collision and displacement should be put in place to minimise as much as possible the impacts created by human infrastructures. Mitigation measures that have been proven to be effective should be used for all offshore wind farms development, including existing ones. MSPs will be crucial in holistically managing the expansion of offshore wind, as well as all other human activities at sea, by requiring measures to minimise negative impacts in the marine environment, encouraging investment, increasing cross-border cooperation and the protection of the environment.

A BirdLife Europe & Central Asia Technical Report,[114] based on the detailed assessment of four national plans (Belgium, Germany, Latvia and Sweden), recognised that those plans have a considerable variation in the degree to which an effective ecosystem-based approach to MSPs is currently implemented, and identified a number of weaknesses in terms of their alignment with the objectives of environmental legislation. It recommends that MSPs must balance the exploitation and protection of marine resources, not least by safeguarding the Natura 2000 network; quantitative and spatially explicit analyses of cumulative impacts must be a core component of the environmental assessment of any MSP process. Cumulative impacts of the different human threats and uses of the sea should be taken into account and acknowledged between countries and sea basins.

In the past years, BirdLife Europe & Central Asia also in collaboration with other NGOs, has put forward several recommendations to make sure that better implementation of the EU Directives is happening and that voluntary instruments, such as the EU Action Plan for reducing the incidental catch of seabirds in fishing gears (EU-POA), contain effective proposals to reduce pressures and threats on seabird population at national and international levels.[72,109,115–125] Carrying out an analysis of the Plan of Action, BirdLife Europe & Central Asia concluded that, despite its stated objective, the EU-POA has fallen a long way short in addressing seabird bycatch, both in the EU and by EU vessels fishing outside EU waters.[120]

Strategies, such as the **EU Farm to Fork Strategy**, which aim to accelerate our transition to a sustainable food system, are instruments that could help reduce the overconsumption of seafood (including the mass production of outputs such as fish oil) - this could contribute to protecting seabirds at sea, by ensuring that consumers eat responsibly and choose certified products. For some seafood products, certification schemes, such as the Marine Stewardship Council (MSC)[aa], could help consumers elect products that come from fisheries which are required to achieve certain standards, including bycatch reduction. However, in a recent external review, some criticisms were raised on the MSC's standards and operation.[126] These should therefore be addressed and the operating quality enhanced, and space for further debate and extended research should be ensured.

It is clear that all these legislations and policy instruments in place are neither sufficiently implemented nor properly enforced. Furthermore, in some cases, there is an incoherence between industry interests (such as those of the fisheries sector) and environmental legislation, which impedes the proper implementation of conservation measures. Moreover, the lack of political will is reflected in a lack of implementation: for instance, the Marine Action Plan received important pushback from MS who clearly stated their unwillingness to implement it.

aa: Currently, MSC certifies 530 fisheries representing 15 percent of global wild marine catch.

Spotlight on

The Renewable Energy Directive and the Renewable Acceleration Areas

The Renewable Energy Directive (RED)[113] is the legal framework for the development of renewable energy across all sectors of the EU economy. Among its general objectives, are higher EU renewable energy targets (42.5% by 2030), the identification of Renewables Acceleration Areas (RAAs), the speeding up of permit-granting procedures for projects, and facilitating power purchase agreements. MS need to update their **National Energy & Climate Plans (NECPs)** by June 2024, indicating what their fair share of installed renewable energy should be towards the overall EU target. The Directive qualifies **RES (Renewable Energy Systems) as Imperative Reasons for Overriding Public Interest (IROPI)** under the EU Nature Directives (which comprise the Habitats and Birds Directives), which means that by 3 months after the entry into force of the amended version of the RED (24 October 2023), until climate neutrality is achieved, MS shall ensure that, in the permit granting procedure, the planning, construction and operation of renewable energy plants, the connection of such plants to the grid, the related grid itself, and the storage assets are presumed as being in the overriding public interest and serving public health and safety.

RAAs should be based on sensitivity maps or any other appropriate tool that carries out a Strategic Environmental Assessment (SEA). MS are given 18 months for the mapping for the deployment of renewable energy in their territory (renewable energy and related grid infrastructure) needed to meet nationally determined contributions towards renewable energy targets. MS have 27 months to adopt plans that designate a subset of areas as renewable acceleration areas: they should give priority to artificial and built surfaces (such as rooftops and transport infrastructure), and exclude Natura 2000 sites, other PAs and major bird and mammal migratory routes, as well as other areas determined on the basis of sensitivity maps and other tools (except for built surfaces), using appropriate tools for determining areas where plans would not have significant environmental impacts, and establish appropriate rules for effective mitigation measures to be adopted in order to avoid adverse environmental impacts.

Before their adoption, plans shall be subject to a SEA or an Appropriate Assessment (AA). This needs to be done even if a project is not within a Natura 2000 site but may have an adverse impact on the biodiversity within such sites. Within 6 months, MS may declare areas as RAAs which have already been determined to be suitable for accelerated development, if the plans have been subject to a SEA (or AA), if projects have appropriate mitigation measures. The acceleration of the permitting process (Article 16 of the RED) states that the permitting of offshore projects within RAAs is limited to a period of 2 years. The acceleration of the permitting process also hinders environmental standards, as it is exempt (except for any impacts on Natura 2000 sites) from Environmental Impact Assessments (EIA) unless it is proven to have a significant effect on the environment. Competent authorities need to give explicit reasons for requiring an EIA, and if so, within 6 months. If there is a negative impact on species protection, the operator would have to pay monetary compensation to the species protection programme for the duration of the operation of the development. Until February 2026, MS can designate RAAs for one or more renewable energy sources.

Although it is welcoming to see that the RED facilitates the acceleration of the permitting process to speed up renewable energy developments, which is very much needed to ensure a rapid energy transition at sea, it is essential to prioritise the protection and restoration of marine ecosystems alongside the expansion of offshore renewables. This requires concerted efforts from both industry and governments to minimise impacts on nature from renewable energy developments, rectify any residual harm, and implement ambitious and large-scale measures to restore and enhance nature at sea by reducing and removing existing pressures. With sensitivity maps, MS can achieve the strategic spatial planning of offshore wind development. Maps can help to speed up existing planning processes and inform and corroborate (but not substitute) EIAs once sites are selected for development.

Image: Wind farms © Richie Chan

A robust evidence-base of potential ecological impacts of offshore wind farms and offshore transmission grids during the different phases of their lifecycle (e.g., construction, operation, decommissioning) is of paramount importance to ensure that developments minimise harm to nature. Baseline data of at least 2 years are necessary for a sufficient description of species occurrence[127] and long-term monitoring programmes are vital to fill knowledge gaps and address uncertainties about the magnitude and extent of the long-term impacts of offshore wind.[128,129]

The mitigation hierarchy should inform measures to firstly avoid and then to mitigate negative impacts on nature, starting from the planning phase. When it comes to seabirds, numerous species have exhibited consistent and pronounced avoidance behaviour when encountering offshore wind farms. Various studies highlight the lower abundance of many different species and families of seabirds, such as gulls, terns, auks, and gannets within wind farms compared to areas outside, hence proper spatial planning is key to avoid displacement.

Image: Gannets diving for Mackrel © David Keep

Regional Conventions and International Treaties

Regional sea conventions, such as OSPAR, HELCOM, Barcelona and Bucharest conventions[130–133] cover all the distinct marine regions of Europe. Their aim is to protect and conserve the marine environment, and limit the impact of human activities, with a vision of clean, healthy and biologically diverse seas, used sustainably.

International treaties, such as CMS (Convention on the Conservation of Migratory Species of Wild Animals)[134] and AEWA (Agreement on the Conservation of African-Eurasian Migratory Waterbirds)[135] provide a global platform for the conservation and sustainable use of migratory animals, including seabirds (33 European species including 28 species occurring in the EU under CMS & 59 European species including 51 species occurring in the EU under AEWA) and their habitats, bringing together countries and the wider international conservation community in an effort to establish coordinated, transboundary nature conservation and management. Such coordinated efforts and international agreements are essential to guarantee the sustainable use of marine resources and ensure transboundary cooperation.

All these regulations could help to tackle the cumulative impacts of the different threats that affect seabirds and the wider marine environment in Europe and beyond. Nevertheless, for them to be successful, a higher level of implementation and enforcement is needed, as well as much stronger international cooperation.

If contracting parties take measures to fulfil their obligations under these treaties, they will be key to tackling threats which affect most seabirds in the region, such as bycatch and overfishing.

Indeed, for seabirds and other marine species, the effective implementation of current legislation and international commitments will be vital to halt the current declines in seabird populations and to support their recovery. They can therefore contribute to reaching and maintaining healthy populations as a minimum threshold, with enhancement measures to support full recovery, as implied by the Nature Positive concept. Nature Positive advocates for a world where nature – species and ecosystems – are restored and regenerated rather than declining. It emphasises the need to go beyond simply minimising impacts and compensating for losses (i.e., no net loss), by requiring measures to enhance and recover nature following a whole ecosystem approach, not only halting the current trend of biodiversity loss, but reversing this trend.

SECTION SIX

WHAT CAN WE DO TO IMPROVE THE SITUATION?

Despite threatened status, declining trends and the increasing cumulative impact of pressures, there are some actions that, if properly implemented, can contribute to improving the conservation of seabirds in Europe. First of all, implementing and effectively enforcing existing policies and legal obligations will be a key point to enhance protection and contribute to the recovery of seabird species in Europe. In addition, many threats can be tackled by applying mitigation measures that have already been tested and proven effective in some areas, hence scaling up such measures would already be beneficial for some populations.

Actors and stakeholders that work on marine management and conservation need to be in the frontline to execute such actions; this includes **policymakers** and **governmental bodies at local, national and international levels, managers from key industries** (such as fisheries, renewable energies, waste disposal, infrastructure development, tourism, and hunting), all with **support from the scientific community and NGOs**.

The list of actions below are examples of measures that can further enhance seabird conservation and contribute to the recovery of populations:

1. **International bodies[bb] and national and local governments should demand open-access and transparent data from stakeholders, and use these data to inform policies and regulate activities (e.g., require industries to give open access to data collected during Environmental Impact Assessments for offshore renewable energy developments or data from monitoring programmes, e.g., observer or self-sampling bycatch monitoring programmes in fisheries). Such data should be hosted and stored in open-access databases and in a format that is accessible to end users, which should be managed by governments or regional conventions/management organisations.**

2. **International bodies and local and national governments, in collaboration with industry managers and scientific institutions[cc] should reinforce the dialogue between key stakeholders active in marine sectors through open and productive engagement, and try to establish strategic collaborations to strengthen nature conservation at sea (e.g., collaboration between NGOs and the energy sector to identify the least damaging areas for development, or cooperation between scientists, and the fishing industry to test technical and spatio-temporal measures to mitigate bycatch of sensitive species or establishment of co-management of MPAs).**

3. **International bodies should work together with industries, national governments, scientific institutions to achieve sound spatial planning at sea to effectively tackle both the climate and biodiversity crises, and ensure that governments put forward informed sound spatial plans regulating human activities.**

4. **National governments and industries should implement at the relevant scale technical mitigation measures that have been proven to be effective in tackling specific threats including through the establishment of mandatory requirements (e.g., techniques for avoiding bycatch in longlines).**

5. **International bodies and national governments should develop and implement policies to increase the transparency of human activities at sea (e.g., the use of Remote Electronic Monitoring (REM) including cameras on fishing vessels[dd]) to provide data to determine the conservation risk to protected species, to inform the application of mitigation measures and to monitor implementation.**

6. **International bodies should ensure regular reporting by governments on the progress of the implementation of the main policies protecting seabirds (and other marine taxa) in collaboration with industry managers including, where relevant, consultations with public/civic organisations and scientific institutions, to improve accountability.**

7. **International bodies, national governments, scientific institutions and public/civic organisations should push for proper enforcement of existing legislation and policies by the European Commission e.g., compliance with obligations to tackle the main threats that seabirds and other marine life face.**

8. **International bodies and national governments, in collaboration with scientific institutions and public/civic organisations should ensure that methods to measure progress with policy implementation and its subsequent impacts are developed (and standardised as much as possible) and properly applied (evaluation frameworks and evaluation plans) by national and local governments and industries.**

9. **International bodies, national governments and industries, informed also by scientific institutions, should ensure the strict application of the mitigation hierarchy for all activities and developments at sea. Where compensation measures are needed, adaptive management should be applied, so that, if they are not delivering the intended positive impacts for nature, alternative measures can be taken. Such measures should come only after avoidance and mitigation.**

10. **Scientific institutions should define effective conservation and management measures needed for seabirds for existing MPAs, and national governments (or international bodies in the case of the High Seas) should ensure that those measures are put in place (and their effectiveness is assessed regularly), with the required human and financial effort and resources to do so provided to allow for the maintenance and continuation of these measures in the long-term.**

11. **International bodies and national governments should secure financial commitments to undertake scientific studies on different seabird species and their distribution and ecology at different spatio-temporal scales, and use these to inform the designation of their most important sites and/or to better mitigate impacts from threats. These studies should focus on species which are regionally threatened or NT, as well as LC species with declining or depleted populations.**

12. **International bodies and national governments should provide dedicated funding to further study and understand the scale of the impact of emerging threats which already affect seabirds (e.g., recreational activities, avian flu), or might pose a considerable risk to seabirds in the near future (e.g., mesopelagic fisheries).**

13. **National governments should develop policies that increase the transparency of fisheries and inform consumers, in collaboration with the fishing industry and scientific institutions.**

14. **International and national governmental bodies (in collaboration with fisheries' representatives) should ensure the setting of fishing limits, such as Total Allowable Catches (TACs), based on scientific data and monitoring of fishing catches/quotas, to eliminate overfishing, and collaborate with scientific institutions to better understand the status, distribution, dynamics of forage fish populations and their ecosystem role, and continuously improve the dynamic management of stocks.**

15. **All stakeholders, but especially national governments in collaboration with industry managers and scientific institutions should promote spatio-temporal closure of fisheries to protect important marine species and habitats, including sites with high blue-carbon storage, providing wider benefits for wildlife, water quality, climate regulation, and local economies.**

16. **All stakeholders should aim to have a holistic approach for the conservation actions needed to protect, restore, and enhance our seas, trying, whenever possible, to promote actions at large scale, e.g., sea basin or national level, following a whole ecosystem approach that addresses all pressures in a comprehensive way.**

bb: International bodies can include international governmental bodies and agreements, as well as international intergovernmental and non-governmental organisations and stakeholders.
cc: Scientific institutions include public, private and non-governmental scientific institutes, universities, research centres and organizations.

dd: Recently, an agreement over the revision of the fisheries control system under the Control Regulation set out new rules regarding the use of electronic logbooks, REM and vessel monitoring systems, which oblige the reporting of data electronically for different vessel categories in a gradual timeline under the Landing Obligation, which could open up the possibility of using REM/CCTV to ensure accurate data collection on bycatch.

SECTION SEVEN

APPENDICES

Link to appendix	Appendix name
	Appendix I. List of pan-European seabirds (following BirdLife International's list) and their conservation status at EU and European level. https://www.birdlife.org/wp-content/uploads/2024/05/Appendix-I.-List-of-pan-European-seabirds-and-their-conservation-status-at-EU-and-European-level_final-1.xlsx
	Appendix II. Seabird threats in Europe (IUCN). https://www.birdlife.org/wp-content/uploads/2024/05/Appendix-II.-Seabird-threats-in-Europe-IUCN.xlsx
	Appendix III. EU Seabird pressures (Article 12). https://www.birdlife.org/wp-content/uploads/2024/05/Appendix-III.-EU-Seabird-pressures-Article-12.xlsx

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