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**AEWA Species Conservation Guidance for the
Atlantic Puffin**

Fratercula arctica

Agreement on the Conservation of
African-Eurasian Migratory Waterbirds (AEWA)

**AEWA Species Conservation Guidance for the
Atlantic Puffin**

Fratercula arctica

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**Produced by the AEWA Technical Committee
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SUMMARY AND FUTURE PRIORITIES

The Atlantic Puffin is a globally threatened (listed as Vulnerable on the IUCN Red List) seabird whose decline is increasingly driven by the impacts of climate change, interfacing with an already stressed population. It is subject to historical, and in some cases, current over-exploitation of prey stocks by fisheries as well as more local impacts such as invasive non-native predators and a recent expansion of offshore wind energy and other marine infrastructure projects.

Much national and local conservation effort is underway to improve the conservation status of this popular species. This needs to be backed by international collaboration in a number of key areas, most of which will benefit a host of seabirds and other marine biodiversity. In particular:

- Develop climate change adaptation measures to mitigate against the effects of ongoing impacts of climatic change, principally through reducing other parallel threats to key populations.
- Designation and management of additional Marine Protected Areas, including those in international waters, most urgently the proposed North Atlantic Current and Evlanov Seamount MPA (NACES) where an estimated 1 million Puffins feed.
- Collaboration in fisheries management to reduce the most damaging exploitation, and better manage and recover remaining fish populations, including through closures and catch limits.
- Mitigating the impacts of offshore wind energy development through mapping of feeding area and careful siting of new infrastructure and using new technologies to enable energy generation further away from the most sensitive breeding and feeding areas.
- International collaboration to research and ensure better understanding of their movements within and outside the breeding season, and the survival and productivity of breeding populations. Puffin is a key target in the Action Plan for Seabirds in Western-Nordic Areas (TemaNord 2010).

1. BASIC DATA

Species name: Atlantic Puffin (*Fratercula arctica*)

Range States for the East Atlantic population (Principal range states in **Bold**)

Denmark (Faroes, East Greenland), Finland, France, **Iceland, Ireland, Norway** (including Svalbard), Russia (including Novaya Zemlya), Spain, Sweden, **United Kingdom**, International Waters (and some wintering and as vagrants in other states).

The West Atlantic population outside of the AEWA area, encompasses NE North America, through to West Greenland and together holds less than 10% of the global population (Harris and Wanless 2011).

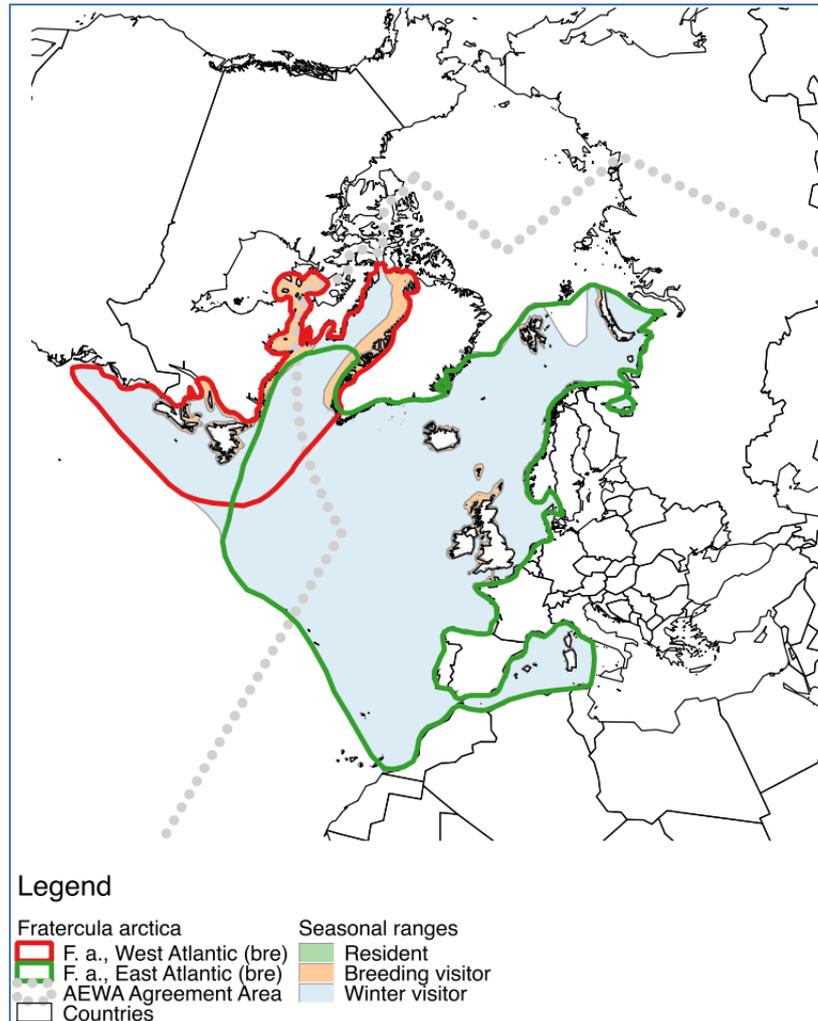
Range map copied from AEWA Technical Committee document [AEWA/TC 15.9](#).

International legal status

Global IUCN Status: Vulnerable (Criteria A4abcde) (last reviewed 2018).

AEWA Table 1: Column A 1b

Bern Convention: Annex III



Range map of the Atlantic Puffin (*Fratercula arctica*).

2. THREATS/PROBLEMS AND RECOMMENDATIONS FOR CONSERVATION ACTION

Table 1. Threats/problems and Recommendations for Action

* Information in Table 1 adapted from BirdLife International threat assessment: [Atlantic Puffin \(*Fratercula arctica*\) - BirdLife species factsheet](#). Amended Threat codes are highlighted in Red, based on discussions with species experts. These scores/ratings are for the species as a whole, while for individual local and national populations a higher level may apply.

<i>Threat/problem & description</i>	<i>Threat/problem level¹</i>	<i>Recommendation for Action</i>
Biological resource use - Fishing & harvesting aquatic resources - Unintentional effects: large scale	Medium 7	Manage fisheries to ensure long-term sustainability of key stocks (e.g., sand eels, sprats, herring, capelin, krill). This to include

¹ IUCN (Red List) Threats Classification Scheme

<p>(species is not the target) (5.4.4): Fish populations fluctuate for many reasons inc. natural and man-induced temperature change and fishing pressure. Loss of fish stocks is key in North Sea. (Sandvik <i>et al</i> 2005, Hansen <i>et al</i> 2021).</p> <p>There may be an impact of by-catch although the scale is unknown.</p> <p>Biological resource use Hunting & collecting terrestrial animals - Intentional use (species is the target) (5.1.1)</p>	<p>Unknown</p> <p>Low 5</p>	<p>area closures and commensurate reductions in total harvest, and allowance for seabird feeding needs in setting commercial catch limits. Further identify important sites for this species, particularly in offshore regions and designation as marine protected areas, including in international waters (priority is NACES).</p> <p>Establish observer schemes for seabird bycatch and prepare National/Regional plans of action on seabird bycatch. (All countries but esp. North Sea area)</p> <p>Iceland and Norway initiated voluntary hunting bans when populations declined although continues in North Iceland, and at reduced level in Faroes. Monitor use and impact and seek legal assurances of sustainable hunting (Iceland, Denmark - Faroes)</p>
<p>Climate change & severe weather – temperature extremes (11.3)</p> <p>Climate change is the primary pressure on the population through changing patterns of food availability forcing adults to fly further for fewer prey, leading to lower productivity, and in some cases higher adult mortality (Sandvik <i>et al</i> 2005, Hansen <i>et al</i> 2021).</p> <p>Climate change & severe weather – storms and flooding (11.4) Winter storms increasing the severity of seabird die-off events (Harris and Elkins 2013, Anker-Nilssen <i>et al</i> 2017).</p>	<p>High 8</p> <p>High 8</p> <p>Medium 6</p>	<p>Protect prey by other means e.g., Fisheries regulation and control in MPAs around breeding colonies. Continued protection of prey habitat such as sandbanks.</p> <p>Ensure that spatial and temporal protection (national laws and international agreements) takes account of changes in seabird migration routes and timing.</p> <p>Maintain beached-bird monitoring and colony census to understand adult survival/mortality rates. Continue to use GPS and geolocators to increase knowledge of feeding near breeding colonies and use of wintering areas respectively (All countries). Use new techniques to improve knowledge of productivity e.g. time lapse cameras and utilise citizen science where possible.</p>

<p>Energy production & mining – renewable energy (3.3) Windfarms projected to potentially have a major impact through collision and displacement from feeding areas. Impact could be high in some areas e.g., North Sea, less so elsewhere (Searle <i>et al</i> 2014).</p>	<p>Medium 6</p>	<p>Further identify important sites for this species, particularly in offshore regions and designation and management as marine protected areas. (All countries). Longer term, improve technology to enable wind energy to decrease impact e.g., floating turbines (All countries but esp. UK)</p>
<p>Human intrusions & disturbance – recreational activities (6.1) Breeding colonies are vulnerable to human disturbance which can cause desertion (Nettleship <i>et al</i> 2014).</p>	<p>Low 4</p>	<p>Develop codes-of-conduct for more organised recreational activities. Control close access by boats during breeding season (e.g. tourism, research). (All countries)</p>
<p>Invasive and other problematic species, genes & diseases - Invasive non-native/alien species/diseases (8.1.2) Historically this is a major determinant of Puffin distribution as whole colonies have gone extinct due to rats and (in Iceland) mink (Harris and Wanless 2011).</p>	<p>Medium 6</p>	<p>Continue eradication of invasive predators from breeding colonies where feasible and in a prioritised order. (All countries)</p>
<p>Pollution – Garbage and solid waste (9.4) Evidence of accumulations of e.g. cadmium and mercury but unclear of toxicity and impact.</p> <p>Pollution Industrial and Military Effluents – Oil spills (9.2.1) Locally can be very significant and high profile. Potential increase in future threat with development of arctic shipping routes.</p>	<p>Unknown</p> <p>Low 5</p>	<p>Continue Arctic Monitoring and Assessment Programme (AMAP) monitoring of seabird contaminants; include new contaminants and secure communication between seabird and contaminants research. (All countries)</p> <p>Develop a system to monitor and predict impacts of offshore oil developments on important areas for the species, in particular, key wintering sites. Contingency plans for oil spills. Re-route tankers away from key areas as in Iceland (All countries).</p>

3. BIOLOGICAL ASSESSMENT

Habitat

The species is exclusively marine, found on rocky coasts and offshore islands (Nettleship *et al.* 2014). It nests on grassy maritime slopes, sea cliffs and rocky slopes. During the winter it is wide-ranging, found in offshore and pelagic habitats. Recent research including through GPS and GLS (geolocation) tagging has improved knowledge of movements of this and other seabirds and identified new areas where important concentrations occur (Narris *et al.* 2012, Fayet *et al.* (2017, 2021).

Population

The East Atlantic population is estimated to be 11,000,000 to 12,000,000 individuals, based on 2018 estimates (UNEP-AEWA 2021). The European population has been estimated at between 7,400,000 and 8,240,000 individuals (BirdLife International 2021). The global population size is estimated at 12–14 million mature individuals (Harris and Wanless 2011; Berglund and Hentati-Sundberg 2014).

This species has experienced rapid declines across most of its European range. The East Atlantic holds >90% of the global population, so the projected declines in Europe are globally significant. In some areas, declines have been severe, for example in Norway where the population in Røst fell from 1.41m to 274,000 between 1979 and 2019. There are an estimated 10,000 pairs maximum in Svalbard and probably a similar number but decreasing in the Russian arctic (Anker-Nilssen *et al.* 2020). There has been a 40% loss in Iceland since 2003 (Keller *et al.* 2020, Hansen *et al.* *in press*). The population size in Europe is estimated and projected to decrease by 50-79% over three generations (BirdLife International 2015). The much smaller West Atlantic population is believed to be stable or increasing. It is very tentatively suspected that overall declines may fall in the range 30-49% over three generations or c. 42 years (BirdLife International 2021, Bird *et al.* 2020).

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Reducing the density of breeding gulls influences the pattern of recruitment of immature Atlantic puffins *Fratercula arctica* to a breeding colony

Supplementary feeding of young puffins, *Fratercula arctica*

Re-establishment of Atlantic puffins (*Fratercula arctica*) at a former breeding site in the Gulf of Maine

How to prioritize rat management for the benefit of petrels: a case study of the UK, Channel Islands and Isle of Man

Eradication of brown rats *Rattus norvegicus* and black rats *Rattus rattus* to restore seabird populations on Lundy Island, Devon, England

Supplementary feeding increases fledging weight, late growth and peak weights in Atlantic puffin (*Fratercula arctica*) chicks

Educational programs in Canada significantly increase nesting seabird populations