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Status Assessment 2022 - Balearic shearwater

The Balearic shearwater *Puffinus mauretanicus* is undergoing a severe decline of -14% per year according to modelled demographic data, largely driven by low adult survival rates. Overall, observational data also suggest a decline, though changes in distribution at small and mid-scale related to prey availability and an overall northward shift in range make it difficult to properly assess trends in the non-breeding range. The identified main threats are introduced predators in the colonies and by-catch at sea from fisheries including within the OSPAR Maritime Area (increasing evidence collected in the last decade indicates this is a major threat in the OSPAR Maritime area, although information is still incomplete). The main population occurs in Region IV, where information on threats is also more exhaustive. However, threats facing the birds in Region II and III also require attention and this is currently limited by data availability.

OSPAR QSR2023

(/en/ospar-assessments/quality-status-reports/qsr-2023/)

Assessment of Status		Non-Breeding[1] (/en/evaluations-ospar/evaluations-des-comites/biodiversite-et-ecosystemes/evaluations-detat/balearic-shearwater/#1) Distribution	Non-Breeding Population size	Previous OSPAR status assessment	Status
Region	I				NA
	II	?[3]	←→?[4]	•	Poor
	III	?[3]	←→?[4]	•	Poor
	IV	←→[1,3,4,5]	↓[2,4]	•	Poor
	V			•	NA

Assessment of key pressures		Removal of target and non-target species (fisheries by-catch)[2] (/en/evaluations-ospar/evaluations-des-comites/biodiversite-et-ecosystemes/evaluations-detat/balearic-shearwater/#2)	Oil pollution (spills)	Loss of prey species (including discards)	Hazardous substances	Barriers/death by strikes (windfarms)	Litter	Climate change	Threat or impact
Region	I								NA
	II	?	↓[2,3]	↑[4]	←→[4,5]	↑[3,5]	↑[4,5]	↑[3]	Significant threat
	III	?	↓[2,3]	↑[4]	←→[4,5]	↑[3,5]	↑[4,5]	↑[3]	Significant threat
	IV	←→[1,4,5]	↓[2,3]	↑[4]	←→[4,5]	↑[3,5]	↑[4,5]	↑[3]	Significant threat
	V								NA

⊞ Table Legend

⊞ Method of Assessment

Confidence

High

Background Information

Year added to OSPAR list: 2008. The Balearic shearwater was nominated for inclusion on the OSPAR List with particular reference to the global importance, rarity, decline, and sensitivity criteria, with information also provided on threat (OSPAR, 2008).

- **Global/regional importance**: Although the species breeds in the Mediterranean, practically the whole population disperses into the OSPAR Maritime Area during the post-breeding period, mainly Western Iberia, Western and North-Western France and South-Western UK. The Balearic shearwater was first evaluated as Critically Endangered at global level by IUCN in 2004.
- **Decline**: Demographic modelling showed a severe population decline, attributed to threats at sea. At-sea census data also showed a reduction in numbers in some key non-breeding congregation areas, such as in Western France.
- **Sensitivity:** The species was considered sensitive at the time of listing due to its low resistance to adverse effects from human activity, due to its behaviour and ecology (e.g. coastal and highly congregatory), and its low resilience due to its life history traits (long-lived and slow to reproduce).
- **Anthropogenic pressures and biological factors**: The threats identified were both in the breeding and non-breeding grounds, both impacting the OSPAR (non-breeding) population. Predation by introduced mammals was considered the most severe threat in the colonies, while at sea reductions in prey populations was considered the most relevant threat, while pollution (mainly oil spills) and bycatch could also be relevant.

Last status assessment: 2009. OSPAR (2009) assessment was conducted shortly after the species case report, and did not propose any relevant changes to it.

Geographical Range and Distribution

Since the last status assessment, several publications have provided new information on distribution patterns based on tracking (GLS, PTT) and coastal, boat and aerial counts, as well as based on modelling of demographic data. This largely supports the previously known pattern but provides some more refinement. The bulk of the population in the OSPAR Maritime Area (i.e. during the non-breeding season) is concentrated in Western Iberia, as well as the Western coast of France north to Brittany, and also North-Western Morocco and South-Western UK and South-Eastern Ireland. The distribution range was reported to increase northwards in the 1990s and early 2000s, presumably related to prey shifts driven by an increase in sea surface temperatures. According to tracking data (limited to adults), birds do not move further north than North-Western France, suggesting that birds occurring in South-Western UK and South-Eastern Ireland would be juveniles and immature birds. However, numbers in these latter areas are small relative to other areas, and the lack of tracking data might simply be due to relatively small sample sizes. Given the rather coastal distribution of the species, its occurrence in OSPAR Region V should be considered as marginal. Observations north from the Irish Sea should also be considered as occasional.

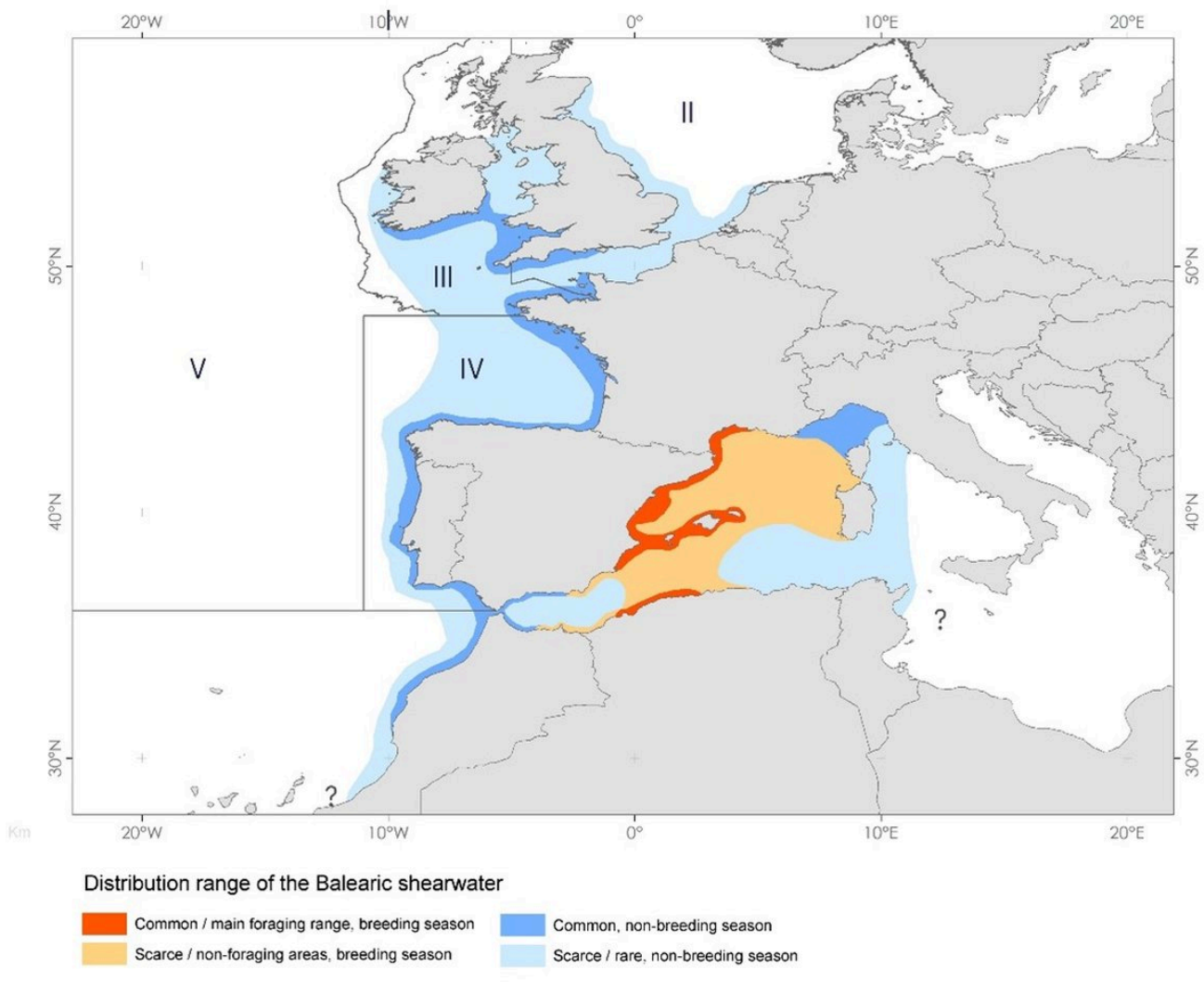

Figure 1: Balearic shearwater distribution range, including OSPAR area, combining several information sources

Population/Abundance

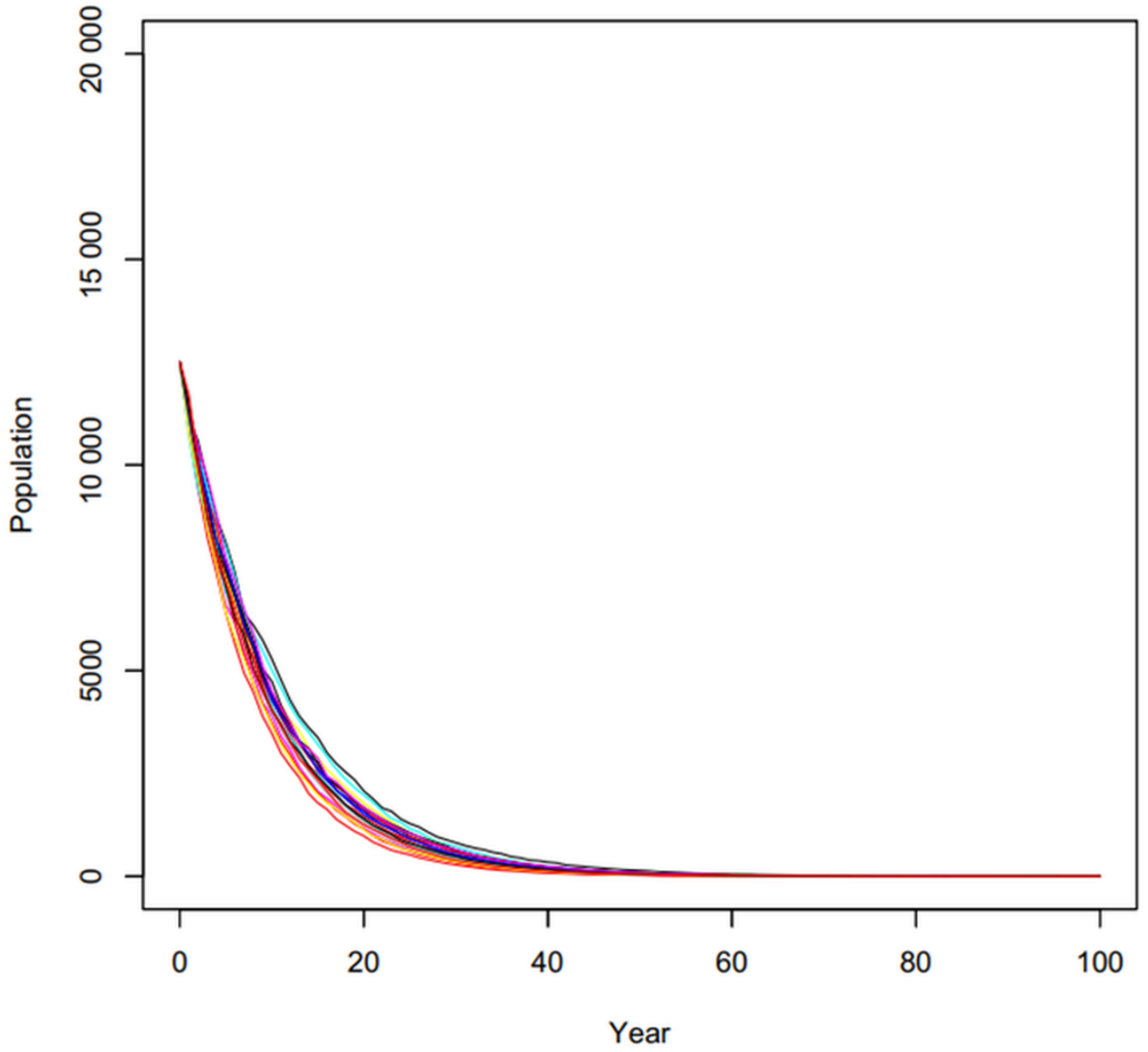

Figure 2: Balearic shearwater modelled stochastic projections over 100 years under current scenario (Source: Genovart et al. 2016)

The breeding population is estimated at around 3 000 breeding pairs, restricted to the Balearic Islands (Ruiz & Martí 2004; Arcos *et al*., 2017). The difficulty of counting nests for this species (nocturnal attendance to colonies, largely inaccessible breeding habitat) coupled with lack of systematic counts, makes these estimates subject to potentially important biases, and hence low confidence in establishing trends. Complementary information from counts at sea (subject to even stronger biases) suggests a global population of around 25 000 individuals, which would be consistent with a larger breeding population estimate (about 7 200+ breeding pairs) (Genovart *et al*., 2016) although current information from colonies makes it difficult to accept such a large figure, and the alternative of a large floating population should not be discarded.

Whatever is the actual population size, there is direct evidence of declines in the breeding colonies, including the disappearance of a few small colonies in recent decades. The main trend-based evidence comes from modelling of demographic information from two different colonies (Western Mallorca and Western Ibiza). These models, conducted independently, showed very consistent results, in both cases inferring a severe annual decline in abundance of -14%, largely driven by unusually low adult survival (0,81). These data come from colonies free of predators, suggesting that the main drivers of the decline are at sea. From these data, and departing from an hypothetical breeding population of 7 200 breeding pairs (a highly conservative approach), demographic models inferred a mean extinction time of 61 years. In the OSPAR Area it's even more difficult to establish trends due to the wide range occupied by the species and the shift of major congregation areas between years, presumably linked to changes in prey distribution and availability. The available information suggests a deceasing trend according to coastal counts from Portugal, while counts from North-Western France have substantially fluctuated and do not show a clear trend in recent years. Counts of birds leaving the Mediterranean, through the Gibraltar Strait, showed a decline between 2007 and 2012, although this trend might have been halted in recent years. On the other hand, information from the Western Mediterranean in winter (December to February) also suggests a substantial reduction in numbers since the 1990s.

Condition

Overall, breeding success varies within acceptable values, and even colonies with presence of rats do not seem to be severely affected, generally with values over 0,4 and up to 0,9 (out of a limited sample of nests). Nevertheless, a reduction in the number of breeders would lead to a lower overall productivity.

Method of assessment: 2b – Source: current literature, ongoing colony monitoring initiatives.

Threats and Impacts

Since the last status assessment, fisheries by-catch has gained attention and is now considered the main threat for the species. Focusing in the OSPAR Maritime Area, information on by-catch has improved, mainly for Portugal, where the Balearic shearwater was reported as the species most affected by by-catch, mostly by bottom/demersal longlines, purse-seiners and gillnets. By-catch in other OSPAR Regions might be easily overlooked, particularly if it is caused by small-scale fisheries, which are difficult to monitor.

Pollution might also pose a threat for the Balearic shearwater, particularly in the case of oil spills, which could cause severe impact due to the highly congregatory, coastal behaviour of the species; improved protocols and security rules might slightly reduce risks for the specie. Plastic pollution also merits attention, given increase of this pollutant and high prevalence of microplastics in the species, although adverse effects have so far only been described in a handful of occasions in relation to ingestion of macroplastics (suffocation).

Reduction of prey, both natural (small pelagic fish) and discards (which have been affected by the common fisheries policy on landing obligation) is also of concern. Disturbance caused by sport and leisure nautical activities may also have negative effects, due to the highly congregatory, coastal behaviour of the species. Climate change has been proposed to have prompted an expansion of the species' range northwards, which might have implications on population dynamics, although further evidence is needed.

A potential emerging threat is posed by offshore windfarm development, which could affect negatively the already low survival rate of the species by causing habitat loss, and, most severely, collisions.

Measures that address key pressures from human activities or conserve the species/habitat

The Balearic shearwater is listed in Annex 1 of the EU Birds Directive (2009/147/EC), and has merited an International species action plan (Arcos, 2011). The species is listed in several regional agreements and conventions, such as OSPAR, Barcelona Convention, ACAP. It is catalogued as Critically Endangered at global level by IUCN (BirdLife International, 2021).
Spain (2005) and France (2020) have approved species action plans.
Spain (5), Portugal (3) and France (8) have designated marine Special Protection Areas which are particularly relevant for the Balearic shearwater. However, these areas are still lacking management plans, or these are just in their initial stage.
Following JNCC assessment (Parsons et al 2019), there is no basis to designate SPA/MPAs for the species in UK waters though.
There is a European Action Plan for reducing incidental catches of seabirds in fishing gears (EC, 2012). However, Member States have failed to properly implement it so far. UK and Spain are drafting national action plans.

Conclusion (including management considerations)

Since the first status assessment, there has been considerable novel information on the Balearic shearwater, although many knowledge gaps remain. Overall, the available information confirms the severe decline and threat of the species, although direct information is less sound than demographic models. New information on distribution, particularly that of

tracking studies, confirm the distribution pattern of the species in the OSPAR Area, with the bulk of the species (non-breeding) concentrated in W Iberia and W and NW France. Despite the apparent expansion of the species' range northwards, densities in UK and Irish waters are comparatively low.

The new assessment also revises the relative weight of different threats, putting fisheries by-catch at the forefront. Within the OSPAR Maritime Area, oil spills remain as a potential threat, while other pollutants might also be of concern, including plastics. There is relatively little information of how food availability in the OSPAR Maritime Area might affect the species. The reduction of discards associated to the EU Common Fisheries Policy (CFP) landing obligation should be properly evaluated. Climate change is another potential threat, while offshore windfarms deserve most attention given the expected upsurge of these infrastructures within the distribution range of the species.

There have been advances in legislation regarding the species and its potential threats, e.g. through national species action plans and MPA designation. However, action on the ground is still weak, if not missing.

Knowledge Gaps

While information on distribution patterns has improved, data on abundance patterns and, most importantly, trends in the whole OSPAR Maritime Area, are patchy and require more coordinated action. Information on juvenile distribution patterns is still missing.

Regarding threats, there is an urgent need to better understand and address the issue of by-catch, and exhaustive and effective data-collection protocols are needed to provide a clear picture of the situation.

Information on food availability and its potential impacts on the species is incomplete. Regarding new/increasing potential threats, windfarm development should receive particular attention, while the occurrence and impact of plastics on the species, as well as the influence of climate change, should also be addressed. In the breeding grounds, outside the OSPAR Maritime Area, it is crucial to ensure proper monitoring programmes (census, breeding performance, demography), as well as control and biosecurity around invasive mammalian predators.

Method used

Main source of information:

2. Assessment derived from third party assessment

Assessment is based upon:

b) based mainly on extrapolation from a limited amount of data (e.g. other predictive models or extrapolation using less complete sample of occurrence and environmental data);

⊞ References

[1]Non-breeding distribution and non-breeding population size refers to seabirds in the OSPAR maritime area, where the bulk of the global population occcurs outside its breeding season (mainly from July to October)

[2]It is important to note that bycatch should be considered the most severe threat for the species in terms of threats happening within the OSPAR region, with high levels of bycatch shown for Portugal (and the Spanish Mediterranean). However, there is no evidence of increase in this threat, simply the information collected in recent years allows a better understanding of this threat (hence the "no change" arrow). There is still a long way ahead, and the issue of bycatch might be largely overlooked in (Atlantic) Spain, France and UK.

Sheet reference:

BDC2022/Balearic shearwater *Puffinus mauretanicus*

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