Seabird conservation in the Mediterranean: current status, challenges and opportunities

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Marine Science Coordinator, BirdLife International
Key points

What is the status of seabirds in the Mediterranean and how it compares to the global situation?

Connectivity between Mediterranean seabirds and the Atlantic ocean

What we don’t know yet

Challenges and opportunities – Med and global
Species’ assessments

Yelkouan Shearwater Puffinus yelkouan

Family: Procellariidae (Penguins, shearwaters)
Authority: (Auct., 1827)
Red List Category: Vulnerable

Justification of Red List category
This species is currently assessed as Vulnerable. Existing demographic studies of populations in France and Italy indicate a population decline, caused by low breeding success due to predation by introduced mammals and low adult survival owing to fisheries bycatch and predation. However, some recent studies have shown population increases and there may be large unrecorded colonies in the Eastern Mediterranean or the Black Sea. If further study and monitoring provide evidence of large stable or increasing populations, the species may warrant downlisting in the future.

Population size:

Data Zone

Threats & impact

<table>
<thead>
<tr>
<th>Threat (level 1)</th>
<th>Threat (level 2)</th>
<th>Impact and Stress</th>
<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological resource use</td>
<td>Fishing &amp; harvesting aquatic resources - unregulated harvesting</td>
<td></td>
<td>Ongoing</td>
<td>Impact (high)</td>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>Biological resource use</td>
<td>Fishing &amp; harvesting aquatic resources - Unintentional effects (subsistence small scale harvesting)</td>
<td></td>
<td>Ongoing</td>
<td>Impact (medium)</td>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>Biological resource use</td>
<td>Hunting &amp; trapping terrestrial animals - Intentional use (species is the target)</td>
<td></td>
<td>Ongoing</td>
<td>Impact (low)</td>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>Energy production &amp; mining</td>
<td>Renewable energy</td>
<td></td>
<td>Ongoing</td>
<td>Impact (very low)</td>
<td></td>
<td>Very low</td>
</tr>
<tr>
<td>Invasive and other problematic species, genus &amp; subspecies</td>
<td>Invasive non-native alien species/diseases - Polka calus</td>
<td></td>
<td>Ongoing</td>
<td>Impact (medium)</td>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>Invasive and other problematic species, genus &amp; subspecies</td>
<td>Introduced species effect, invasive</td>
<td></td>
<td>Ongoing</td>
<td>Impact (low)</td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

Legend:
- Vulnerable
- Extinct
- Endangered
- Near Threatened
- Least Concern
- Datadeficient

EX = Extinct
EW = Extinct in the wild
CR = Critically endangered
EN = Endangered
VU = Vulnerable
NT = Near Threatened
LC = Least Concern
DD = Datadeficient

Media and resources

Click here for more information about the Red List categories and criteria.

Downloadable data: Data format, Contact name, Contact email, Last update, Last change, Last update, Last change.
Global review threats to seabirds

359 species

> 900 publications

Systematic and standardized method

Classified impact of each threat on each species (IUCN standards):
  - scope (% of the population/range affected)
  - severity (decline rate)
  - timing (ongoing, past or future)

Threats with a clear impact on the status of the species
Global status of seabirds
Global review threats to seabirds
Global review threats to seabirds

- Bycatch
- Invasive alien species
- Climate change & severe weather
- Overfishing
- Pollution
- Hunting & trapping
- Problematic native species
- Disturbance
- Energy production & mining
- Light pollution
- Diseases
- Aquaculture
- Agriculture
- Resid. & comm. development
- Natural system modifications
- Transportation & service corridors
- Logging & wood harvesting
- Geological events

- Increasing/stable LC
- NT and decreasing LC
- GTS

Million of birds
Global review threats to seabirds

Ca. 70% species: multiple threats
> 50% species: marine and terrestrial threats
Global review threats to seabirds

Top threats to seabirds identified

Scientists reviewed more than 900 studies and found that seabirds face big threats both on land and at sea. This helps explain why they are one of the most threatened group of vertebrates.

Threats to some of the most threatened groups of seabirds. Values represent the percentage of species in each group affected. Dias et al. (2019) Biol. Cons.
And in the Mediterranean?

44 species

Breeding and visiting species

Threats

Global Red List status

EU Red Lists 2015-2020 (27 and 27+1 Red List)
And in the Mediterranean?

Global Red List Med species
- 82%
- 11%
- 5%
- 2%

Global Red List All seabirds
- LC
- NT
- VU
- EN
- CR

Trends Med species
- Trends all seabirds

Partnership for nature and people
Status of Mediterranean seabirds

European Red List of Birds

EU27/EU27+1 Red List Category

2020

CR
EN
VU
NT
LC

BirdLife INTERNATIONAL
Partnership for nature and people
Main threats to species occurring in the Med

All species

- Pollution: 39%
- Bycatch: 34%
- Climate change & severe weather: 25%
- Hunting/trapping: 20%
- Overfishing: 20%
- Human intrusions & disturbance: 18%
- Invasive alien species: 16%
- Energy production & mining: 16%
- Residential & commercial development: 9%
- Light pollution: 7%
- Transportation & service corridors: 7%
- Problematic native species: 5%
- Agriculture: 5%
- Aquaculture: 5%
- Natural system modifications: 2%

marine

terrestrial
Main threats to species occurring in the Med

Breeding (n=21)

Wintering/Migrating (n=23)

- Pollution
- Bycatch
- Overfishing
- Energy production & mining
- Transportation & service corridors
- Aquaculture
- Climate change & severe weather
- Overfishing
- Energy production & mining
- Transportation & service corridors
- Aquaculture
- Climate change & severe weather
- Overfishing
- Energy production & mining
- Transportation & service corridors
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- Energy production & mining
- Transportation & service corridors
- Aquaculture
- Climate change & severe weather
- Overfishing
- Energy production & mining
- Transportation & service corridors
- Aquaculture
What happens in the Med, does not stay in the Med...

Most seabird populations that occur in the Mediterranean migrate to/from outside the Mediterranean sea.
Table 3. Seabird species reported by on-board observers to be bycaught during the study period, 2010–2012, including number of birds caught, sets that bycaught birds, range of birds caught per set, and average number of birds caught per set with bycatch.

<table>
<thead>
<tr>
<th>Species</th>
<th>IUCN status</th>
<th>Capture of seabirds</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Birds</td>
<td>Sets that</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>caught</td>
<td>caught birds</td>
<td>birds/set</td>
</tr>
<tr>
<td>Common scoter</td>
<td>Least concern</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1–3</td>
</tr>
<tr>
<td>Cory’s shearwater</td>
<td>Least concern/Endangered</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Balearic shearwater</td>
<td>Critically endangered</td>
<td>31</td>
<td>4</td>
<td>7.75</td>
<td>1–26</td>
</tr>
<tr>
<td>Northern gannet</td>
<td>Least concern</td>
<td>22</td>
<td>11</td>
<td>2</td>
<td>1–4</td>
</tr>
<tr>
<td>Great cormorant</td>
<td>Least concern</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Unidentified gull</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Guilford et al. 2012. PLoS ONE 7

Oliveira et al., 2015. Global Ecology and Conservation 3
Migratory connectivity

Yelkouan Shearwater

Is the Yelkouan shearwater *Puffinus yelkouan* threatened by low adult survival probabilities?

Steffen Oppel**, André F. Raine*, John J. Borg*, Helen Raine*, Elsa Bonnaud®, Karen Bourgeois*, André R. Breton¹

Fig. 1. Seasonal changes in distribution of Yelkouan Shearwaters (*Puffinus yelkouan*) (n = 15) from Malta tracked during the non-breeding season (July–February) in 2008 and 2009. Star: Location of Malta. Kernel presented are 20, 40, 60, 80 and 95 %, respectively, with land masses (shaded) placed above kernel layers to allow better visualization of the migration patterns (color figure online)

Raine et al. 2013. J Ornithol 154
Migratory connectivity

Mediterranean Storm Petrel

Fig. 4. Movements of one Mediterranean Storm Petrel (Z665) from the Filfla colony during the non-breeding period (October 2016 to March 2017), split into periods of migration into the Atlantic Ocean (A), a stay in the Bay of Biscay (B), and a stay in the North Atlantic (C). Return migration is not shown. The star represents the Filfla colony.

Lago et al, 2019. Marine Ornithology 47

Atlantic Puffin

Guilford et al. 2011. PLOS ONE 6
Knowledge gaps

At-sea threats (and cumulative impacts) - pelagic species

Colony numbers (North African coast)

Emerging threats: plastics, offshore energy developments and mesopelagic fisheries

https://www.lightpollutionmap.info/
Plastics – is that an issue?

Plastic connectivity: disentangling the problem of plastic pollution for pelagic seabirds

√(n plastics/ km^2)

Sebille et al. 2015. Environ. Res. Lett. 10
Challenges

International cooperation / political complexity

Increasing number of Globally Threatened Species

Climate change

Communication (a gull is not an albatross...)

MPA effectiveness/compliance with mitigation measures

Gap science – policy - conservation
  - Monitoring/long term studies
Opportunities

International agenda

Seabirds as good indicators

Funding

Public opinion / global push for marine conservation

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