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2023 Med QSR Marine Birds (EO1) assessment

UNEP/MAP
Athens, 2023

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Note by the Secretariat

The 2023 MED QSR Roadmap and Needs Assessment was endorsed by COP 21 (Naples, Italy, December 2019) with Decision IG.24/4. It defines the vision for the successful delivery of the 2023 MED QSR, and outlines key IMAP-related processes, milestones and outputs to be undertaken, with their timelines.

The main assessment chapters of the 2023 MED QSR are based on assessments of Common Indicators (CI) and some Candidate Common Indicators (CCI) within Ecological Objectives (EO) for biodiversity and fisheries, pollution and marine litter and cost and hydrography clusters. Where feasible, and where the data allow, CIs are integrated within and across EOs.

As a contribution to the 2023 MED QSR biodiversity (EO1) and non-indigenous species (EO2) chapters, SPA/RAC has prepared six thematic assessment reports for benthic habitats, cetaceans, Mediterranean monk seal, marine birds, marine turtles and non-indigenous species (NIS).

This document provides the assessment of the EO1 on marine birds and its related CIs 3,4 and 5. GES assessments were carried out using quantitative monitoring data collected by each Contracting Parties during the current assessment cycle. In case of insufficient data, quantitative monitoring data collected by other entities were added for the GES assessment.

The present proposal of the 2023 MED QSR related to marine birds has been presented and discussed at the CORMON Biodiversity and Fisheries meeting (Athens, 9-10 March 2023). The conclusions and suggestions of the meeting were integrated in the current version that is submitted for review and discussion by the Meeting of the Integrated Ecosystem Approach Correspondence Groups (CORMONs) with a view of its finalization and consideration by the 10th Meeting of the EcAp Coordination Group to be held in September 2023.

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Contents

List of Figures

List of Tables

1. Key Messages

1. Within the Ecological Objective EO1 seabirds *sensu lato* form a crucial component of the region's marine biodiversity and ecosystem with many of the relevant taxa being endemic or near endemic in the Mediterranean. Mostly situated on top of marine food webs, these highly mobile organisms come to land to breed, thus contributing to nutrient exchange between marine and coastal areas, by linking sea and land.

2. Facing multiple pressures at land and at sea, seabirds from different functional ecological groups in the region act as indicators and serve as sentinels for the health of the Mediterranean Ecosystem.

3. The integrated Good Environmental Status (GES) of EO1 of three Common Indicators related to seabirds (CI3-CI5) reveals that for many populations of various species GES is reached, when taking a modern baseline approach. However, the data quality currently prevents a truly quantitative integrated GES assessment across the entire region. Furthermore, specifically some of the endemic taxa which are of conservation concern, currently appear to fail to reach GES targets, at least in some of the CIs.

4. Closing data gaps, harmonising data collection and monitoring programs and further implementing conservation actions within the Marine Protected Areas (MPA) network that are providing promising results, are important steps for successfully assessing GES and reaching set targets across the region in the near future.Background Information and Methodology

Seabirds in the Mediterranean

5. The Mediterranean Sea has a relatively small basin with complex oceanography. Similar to other taxonomic groups in the Mediterranean, the endemism rate for seabirds in the region is high with various endemic or near-endemic taxa at a species or subspecies level. Seabirds occupy a variety of niches in the Mediterranean. Therefore, selected seabirds from different functional ecological groups can act as indicators and serve as sentinels for the health of different parts of this unique ecosystem. Several of these indicator seabird species in the Mediterranean are listed under national, regional and international conservation agreements and policies, highlighting their currently unfavourable conservation status.

Previous Quality Status Assessment in the Mediterranean

6. Following the adoption of Ecosystem Approach Roadmap by the Contracting Parties to the Barcelona Convention (Decision IG.17/6), the Mediterranean Quality Status Report (MED QSR) was published in 2017 as a first step towards providing a regional assessment based on the MAP Ecological Objectives and IMAP indicators. The 2017 MED QSR used available national data to assess the regional status, presented the gaps and provided recommendations on how to close these gaps. Since then, the challenge has been the collection of standardised and comparable monitoring data at different scales. The Integrated Monitoring and Assessment Programme (IMAP) (Decision IG.22/7), adopted in 2016, was an important milestone towards overcoming this challenge. The Contracting Parties (CPs) updated/developed their national monitoring programmes following the IMAP requirements. It is envisaged that the CPs will submit their monitoring and assessment data directly to the IMAP Info System data platform in the future, which will facilitate the GES assessment in the region.

7. The structure of the MED QSR is based on the clusters of Biodiversity and Fisheries; Pollution and Marine litter; and Coast & Hydrography. Within each cluster, there are Ecological Objectives that have one or more Common Indicators along with four Candidate Common Indicators. This report provides an update for the quality status assessment of the Mediterranean using data on seabird populations under the Biodiversity and Fisheries clusters. Seabirds form an integral part of the Mediterranean's biodiversity. Seabirds are indicators of the ecosystem's health, and their population dynamics are tied to the health of marine and coastal habitats. Populations of various seabird species closely interact with fisheries and fisheries of various sectors interact with seabirds.

Table 1: List of CIs relevant to seabirds, their GES definitions, targets, baselines, thresholds and scales of assessment.

Common Indicator 3: Species Distributional Range	
The objective of this indicator is to determine the species range of the seabirds that are present in Mediterranean waters; especially the species selected by the Parties	
GES Definition:	The distribution of seabird species continues to occur in all of their Mediterranean natural habitats. Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic, and climatic conditions (EO1, Biodiversity)
GES Target:	No significant reduction in the population distributional range in the Mediterranean in all indicator species which are listed as LC; significant increase in the population distributional range in the Mediterranean in all indicator species which are currently listed with conservation concern. New colonies are established, and the population is encouraged to spread among several alternative breeding sites, especially for species with conservation concern
Baseline	Reference-based baseline: modern (widest known range in the last 20 years) or pristine conditions
Threshold	Deviation from baseline: No more than 10% decrease in range
Scales of Assessment	Spatial: Regional, sub-regional. Temporal: Annual with reporting every six years.
Common Indicator 4: Species Population Abundance	

The objective of this indicator is to determine the population status of selected species by medium to long term monitoring to obtain population trends for these species	
GES Definition:	The species population has abundance levels allowing qualifying to Least Concern Category of the IUCN Red List or has abundance levels that are improving and moving away from the more critical IUCN category
GES Target:	No human induced decrease in population abundance. Population recovers towards natural levels where depleted. The total number of individuals is sparse enough in different spots
Baseline	Reference-based modern baseline: Abundance at the start of implementation of Birds Directive (1981) or highest abundance estimate in the last 20 years
Threshold	Deviation from baseline: Annual relative abundance is >0.7, 0.8, 0.9 or 1.0 (depending on species)
Scales of Assessment	Spatial: Regional, sub-regional. Temporal: Annual with reporting every six years
Common Indicator 3: Population Demographic Characteristics	
The objective of this indicator is to determine changes in parameters that govern population dynamics of the species	
GES Definition:	Species populations are in good conditions: Natural levels of breeding success and acceptable levels of survival of young and adult birds
GES Target:	Populations of all taxa, particularly those with IUCN threatened status are maintained in the long-term following the indication of population models. Incidental catch mortality and other anthropogenic pressures are at negligible levels, particularly for species of conservation concern
Baseline	Model-based baseline: Population growth rates in the last assessment cycle
Threshold	Deviation from baseline: population growth rate of 1.0 or higher
Scales of Assessment	Spatial: Regional, sub-regional. Temporal: Annual with reporting every six years

Methodology

~~7.~~8. The vision for the 2023 MED QSR is, an integrated DPSIR-based GES assessment, developed on consolidated and quality-assured monitoring data sets, reported and processed through an effective IMAP Info System that is interoperable with national and other regional monitoring and reporting networks (COP21 Decision 24/04, Tirana). To achieve this vision, assessment elements for seabird monitoring have been developed under the IMAP-MPA project to provide detailed guidance for monitoring programmes. Accordingly, 11 indicator seabird species *sensu lato*, covering six functional ecological groups have been selected (UNEP/MED WG.521/Inf.7) from a previously compiled list of seabird species (Decision IG.22/7). Detailed assessment elements, scales of monitoring and assessments, assessment criteria as well as ways forward to define and trial baseline and threshold values have been proposed for IMAP's three common indicators CI3 to CI5 focusing on the selected seabird species (UNEP/MED WG.521/Inf.7). These assessment elements were developed with the aim to link them to the monitoring and assessment programme that is relevant for the part of the region, Marine Strategy Framework Directive (EU MSFD), to achieve harmonisation and reduce redundancies.

~~8.~~9. However, for the current assessment, the reporting and processing is not yet carried out through the IMAP Info System. Thus, for CI3-CI5 of EO1 regarding seabirds, the assessment for the 2023 MED QSR is mainly based on national monitoring datasets, submitted to SPA/RAC by the CPs' focal points. Datasets for at least some of the Common Indicators and some of the 11 indicator species have been received from a list of CPs. Datasets provided by the CPs' focal points were complemented with data from additional sources where available. The following additional data sources were utilised:

- **Wetland International - International Winter Census (IWC) data:** Datasets of IWC midwinter counts collected during the current assessment cycle were requested from Wetland International for all CPs. Observations of all indicator species that were picked up regularly during coastal counts were included in the assessment when they were within a buffer area of 0.5 degree around the region.
- **Birdlife International - Seabird Tracking Database:** Datasets of tracked individuals of indicator species in the region were requested from BirdLife International repository. More than 20 datasets for the at-sea distribution of tracked individuals from five species of three functional groups (offshore surface feeders, offshore surface and pelagic feeders, inshore benthic feeders) were received and included in the assessment.
- **Experts on indicator species in the region:** Additional information was received from experts of specific indicator species such as from Dr Flavio Monti for *Pandion haliaetus* (functional group: coastal top predator)
- **Published reports** on the topic containing relevant information and data concerning the current assessment cycle for specific countries, subregions, or the entire region.

~~9.~~10. Where available, GES assessments are adopted from national assessments carried out by the CPs. Otherwise, where data quality permitted, evidence-based GES assessments are carried out using quantitative monitoring data collected by each CP during the current assessment cycle. Only if/where it is believed that data collected by the CPs are not sufficient (based on data quality, methodologies used and/or

representativeness), quantitative monitoring data collected by other entities were added for the GES assessment. Data is integrated for the GES assessment, creating the basis of the 2023 MED QSR.

~~10.~~11. For each CI, indicator species, and CP (and stage were relevant, e.g., breeding versus non-breeding), GES is assessed separately, using the methodologies outlined in the document "*Monitoring and Assessment Scales, Assessment Criteria, Thresholds and Baseline Values for the IMAP Common Indicators 3, 4 and 5 related to sea birds*" (UNEP/MED WG.521/Inf.7). GES is presented in a simplified traffic-light system approach (see Tables (1-5) in the following section). Data from complete assessments or from sub-samples that are deemed representative are evaluated against baselines (in most cases: modern baselines collected in previous assessment cycles) using threshold values.

~~11.~~12. Ideally, the results are then integrated spatially and within CIs (e.g., annual survival and reproductive performance both contribute to demographic GES) and then between CIs in order to reach overarching conclusions of the environmental status of seabirds in the Mediterranean under EO1 Biodiversity. If possible, the results are also integrated across indicator species within functional ecological groups in order to assess the ecological group dependency of GES (as this can inform on conservation activities).

~~12.~~13. However, due to the number of gaps in the availability of (quality-assured) quantitative data, the overall GES is assessed rather qualitatively; however, taking the available datasets into account and highlighting the requirements for a quantitative approach for future assessments of GES.

~~13.~~14. Monitoring data on 11 selected seabird species of six functional ecological groups, concerning the three Common Indicators together (namely: CI3 Species Geographic Range, CI4 Species Abundance, and CI5 Demographic parameters), if collected regularly, comparably, and representatively across the region, are believed to be able to draw a clear picture of the Environmental Status of the sector seabirds within EO1, Biodiversity. However, interconnectedness between Common Indicators within the same EO and between different EOs are indicated when assessing GES. Accordingly, monitoring data for the assessment of CIs are often collected simultaneously, e.g., data collected at the breeding sites (e.g., breeding distribution, abundance of breeding pairs, reproductive performance) as well as with other EO CIs concerning pressures. Where possible, synergistic approaches should be taken in future assessment.

~~14.~~15. The CI assessment relevant for seabirds shows interrelationships with other CIs within the same EO (see above) but also with other EOs. As an example, annual seabird survival rates are impacted by non-natural mortality such as from bycatch, entanglement or ingestion of plastic. The interrelationships of CIs across different EOs highlight the possibility of integrative approaches of GES assessments.

~~15.~~16. EO2 Non-indigenous species CI6: Invasive Alien Species are a major pressure on seabirds in the colonies, reducing reproductive success by predation of eggs and chicks, assessed under CI5. EO3 (CI7-CI11, CI 12): Harvest of commercially exploited fish and shellfish, if carried out unsustainably, can reduce food resources for seabirds, thus impacting their survival and reproductive success. Unintentional bycatch in fishing gear is also known to impact seabird demography (CI5) and population abundance (CI4). On the other hand, seabirds can benefit from fisheries (e.g., from discard) and hence population abundance and/ or reproductive success can be impacted by landing obligations and discard bans.

~~16.~~17. EO8 Coastal ecosystems and landscapes (CI16): It is important to assess how the status of and changes in coastal ecosystems and landscapes impact all three CIs related to seabirds through the changes in nesting and foraging habitats.

~~17.~~18. EO9 Pollution (CI17-CI20): Marine pollutants can accumulate along food chains. Seabirds are mainly long-lived organisms on top of the food web. Therefore, bioaccumulation of marine pollutants can have detrimental effects on their physiology with implications for their survival and reproductive success (CI5).

~~18.~~19. EO10 Marine litter (CI24): Increased exposure to micro- and macro-plastic pollution can have implications on seabirds' survival rates and reproductive success, demographic parameters assessed as part of CI5.

~~19.~~20. EO11 Energy: EO11 currently focuses mainly on anthropogenically altered noise energy regiments which are known to impact marine mammals negatively. It is suggested to include alterations in light regiments into this Ecological Objective. Light pollution can alter behaviour and physiology of seabirds, lead to breeding habitat modification or loss for species that are nocturnal in the colonies and to increased mortality of seabird fledglings, grounded by artificial lights (Rodriguez et al. 2017), thus potentially acting on all three relevant CIs.

3. Drivers, Pressures, State, Impact, Response (DPSIR)

~~20.~~21. The Analysis of Drivers, Pressures, State, Impacts and Responses (DPSIR) can help to further understand the current situation of the Common Indicators CI3-CI5 for seabirds and the needs to achieve GES in the region.

~~21.~~22. Regarding the drivers (D), drivers that are related to the natural history of the species are differentiated from those that are related to human activities.

~~22.~~23. **Drivers acting directly on the Common Indicators CI3 – Distributional Range** are the availability and quality of breeding and foraging habitat during the breeding period. Habitat loss creates population pressures like increasing competition for breeding or foraging sites, restricted dispersal, changing immigration and emigration rates etc. These population pressures may then act as drivers on the change in distributional range as well as population abundance and demography.

~~23.~~24. **Drivers acting directly on the Common Indicator CI4 – Population Abundance** with a focus on the breeding population are, in general, population growth rates which are influenced by fecundity and survival rates as well immigration and emigration events.

~~24.~~25. **The main drivers defining Common Indicator CI5 – Demographic Parameters** are fecundity as well as annual survival rates of the different cohorts, influencing population growth rates.

Drivers that lead to the pressures on seabird populations

~~25.~~26. In general, human-induced drivers that increase the pressures on seabirds in the region act on all three Common Indicators. Compared with previous assessment cycles, the human populations and their demands in the region have in general increased and so have their industrial and recreational activities, including marine traffic.

~~26.~~27. Changes in fishing fleet sizes, activities including discard treatment, gear type and scale can act as drivers increasing the pressures on seabird populations through depleting fish stocks and increasing direct mortality due to by-catch. However, for some species, discards increase food availability and have a positive impact on populations.

~~27.~~28. The overall increase in transport (humans, animals and goods, ballast water) and an increase in landfills and organic waste in the environment in the region increases the abundance, distributional range and diversity of problematic native and non-native species, known to be able of putting enormous pressures on seabirds, especially during the reproductive cycle. The increase in maritime activities can also increase disturbance to seabird populations as they are a source of noise and light pollution at sea. Moreover, maritime activities drive some pressures such as oil spills, offshore structures and habitat loss that have consequences for seabird populations.

~~28.~~29. The increase in single-use plastic and its accumulation over time fuels the plastic pollution while the man-made increase in the release of greenhouse gases into the atmosphere is leading to climate change, sea-level rise, and ocean acidification.

Pressures (P) acting on the seabird populations in the regions impacting CI3-CI5

~~29.~~30. The list of pressures acting on seabird populations in the region, driven directly or indirectly by various human activities (listed above) is long.

~~30.~~31. The increasing industrial and recreational development including urbanisation can directly lead to a loss of breeding habitat such as natural coastal lagoons and estuaries. Indirectly, urbanisation leads to an increase in light and noise pollution, known to put pressure on burrow nesting seabirds that are nocturnal in the colonies.

~~31.~~32. Fishing activities, especially with longlines and gillnets, lead to incidental bycatch and seabirds can also get entangled in lost ghost fishing gear. Unsustainable fishing activities lead to the depletion of food resources and alterations of food webs. Furthermore, changes in policy and practices such as the introduction of discard bans can reduce readily available food sources seabirds have adapted to over the years.

~~32.~~33. The introduction of invasive alien and other problematic species and their population increase is the major pressure on many seabird colonies in the Mediterranean region. This includes the predation of eggs and nestlings by stray dogs, feral cats, rats, and Yellow-legged Gulls and the disturbance and predation even of adult seabirds by stray dogs and feral cats among others.

~~33.~~34. The introduction of invasive alien species in the marine environment can further lead to the alteration of food webs at sea, potentially adding to the list of pressures seabirds face in the region.

~~34.~~35. Insensitively managed, recreational and commercial marine traffic, such as boat tourism, boat parties, bunkering etc. can easily create disturbance (including noise and light pollution) of sensitive nest sites, roost sites and rafting areas, leading to reduced reproductive success and survival rates. High pressures from human recreational activities on sandy beaches, can lead to the abandonment of nesting sites for species such as *C. alexandrinus*.

~~35.~~36. The Mediterranean region is one of the most heavily plastic polluted sea basins in the world. Ingestion of micro- and macro plastic is common in many seabird species with negative impacts on the physiology of the individuals. Other pollutants such as heavy metals, organo-pollutants (including micro- and macro-oil spills) can have detrimental impacts on the seabird populations in the region.

~~36.~~37. Direct persecution of birds including seabirds remains an issue in various CPs in the region with species such *P. haliaetus* being illegally targeted for the taxidermy trade, but seabirds, including their eggs and nestlings also collected for human consumption.

~~37.~~38. Climate change, including increased sea surface temperatures leading to reduced sea productivity, the increase in frequency and amplitude of extreme weather events can reduce food availability, increase energy expenditure and reduce reproductive performance and survival rates of seabirds. Climate change can also facilitate the evolution of new pathogens and therefore diseases for seabird populations.

~~38.~~39. The predicted sea level rise and increase in amplitude of extreme weather events can alter the probability of flooding events of nesting sites during the reproductive season, thus reducing reproductive success rates.

State (S) of seabirds in the region regarding CI3 to CI5

~~39.~~40. To the extent the data quality and availability allowed, the status was assessed for Common Indicators CI3 to CI5 for 11 indicator seabird species *sensu lato* of six functional ecological groups, differentiated by subregion and for the whole region. The species account (see Section 4. Good Environmental Status Assessment) provides an indication that GES is currently not reached for all species and not for all Common Indicators. The available limited and patchy data reveals a current state of decreasing population abundance and low survival and reproductive success rates for several Mediterranean seabird species.

Impacts (I) of the present state of the environment (S)

~~40.~~41. Seabirds are not only an integral part of intact ecosystems, but they are also able to act as sentinels for the state of the marine environment and its implications on the societies depending on it. However, the direct socio-economic impacts of the state of the Common Indicators CI3-CI5 are not readily quantified. Nonetheless, thriving seabird populations are part of functional food webs in the region and certainly important in providing ecosystem services, such as increased nutrient cycling between the sea and land and enriched coastal habitats through increased inflow of organic matter. Seabirds also modify the coastal habitats mechanically with potential consequences on other organisms and they are also a good indicator of coastal and marine ecosystems.

~~41.~~42. On the other hand, the socioeconomic impacts of reduced biodiversity and disturbed food webs are high, with depleted ecosystems being less capable to respond to and to mitigate the impacts of climate change and thus also impacting food security and human wellbeing. Negative changes in the state of Mediterranean seabirds would have negative influence on the functioning of coastal and marine ecosystems in the long run.

Actions or responses (R) to be taken

~~42.~~43. To better understand the drivers and pressures leading to population dynamics of seabirds in the region, it is suggested to improve the standardised region-wide monitoring and assessment regarding seabirds, so the current state of the populations is better quantified. Such improvement could mean synchronising monitoring effort, calibrating methodologies across the regions for comparability and implementing monitoring programs for the main drivers and pressures of population dynamics in the subregions and in the wider region.

~~43.~~44. Various projects across the regions have carried or are currently carrying out management and control of invasive alien or native problematic species in seabird colonies, including eradication on remote offshore islands. It is recommended that actions and responses continue in a concerted effort to improve the quality of existing seabird nesting sites and restore nesting habitats in suitable areas where seabird breeding populations have disappeared from. The implementation of biosecurity measures, awareness campaigns and knowledge transfer from lessons learned in previous projects should be included in such concerted approaches. Such island restoration and nesting site improvement will contribute to improve the status for all three CIs related to seabirds and for most of the indicator species across the region.

~~44.~~45. The bycatch risk in the region (and for migratory species that leave the Mediterranean during non-breeding also outside the region) has been assessed and is currently assessed in various projects across the region. Bycatch risks should be reduced further by implementing suitable mitigation measures including seabird scaring devices, the establishment of no-take zones and/or periods and changes to and/or adaptation of “seabird friendly” gear, setting methods etc. This is likely to have direct benefit on demographic parameters within CI 5 such as annual survival rates and can also improve CI4 and potentially CI3 more long term.

~~45.~~46. In general, seabird populations and thus all related CIs would benefit if fishing efforts in the MPA network are increasingly carried out in a more sustainable way, allowing fish stock to recover and seabirds to thrive.

~~46.~~47. Improved visitors’ management in the vicinity to important breeding colonies can aim at reducing human pressures e.g., by closing off sensitive areas during the relevant periods, reducing noise and light disturbance, awareness campaigns, enforcement etc. This can lead to a better protection of sensitive nesting sites (core areas and buffer zones).

~~47.~~48. The effect of increased urbanisation in the vicinity and in the direct line of sight of important seabird colonies can be mitigated by implementation of measures reducing permanent and temporary light pollution. Additionally, awareness raising and rescue campaigns for seabird fledglings grounded by light pollution can improve fledgling success and thus status of seabirds regarding CI5.

~~48.~~49. A further improvement of waste management, the reduction of single used plastic, the closure of open landfills and closed reuse and recycling systems can help to further reduce the exposure of seabirds to micro- and macro plastics.

~~49.~~50. Improvements of coastal zone management including the reduction of urban sprawl and tourist development, the restoration of coastal lagoon systems, natural beaches and estuaries, including permitting more natural dynamics in coastal ecosystems and “rewilding” in the region can benefit seabird populations.

~~50.~~51. A further reduction of the influx of problematic pollutants into the marine environment including petro-chemicals. Continuing moving away from fossil fuels will reduce the risk of oil-spills while at the same time reduce the impacts of man-made climate change.

52.

Table 2 :Summary of top-five drivers and their associated pressures on seabird populations in the region

	Drivers	**Pressures**
I.	Increase in human population, demands, and activities in the region, urbanisation and industrialisation, non-sustainable development	Direct habitat loss, increase in disturbance, noise and light pollution, direct persecution, climate change with increase in SST, extreme weather events, sea-level rise
II.	Changes in fishing fleet sizes and activities, including discard treatment, gear type and scale	Incidental bycatch, entanglement in (ghost) fishing gear, reduction of food availability up to depletion of food sources
III.	Increase in transport (humans, animals and goods, ballast water)	Introduction of invasive alien species, habitat loss, increase in disturbance, noise and light pollution
IV.	Increase in landfills and organic waste	Increase and population maintenance of problematic native and non-native species
V.	Increase in single use plastic and other persistent human-induced substances	Exposure to micro-p and macro-plastics, heavy metals, organo-pollutants, incl. petrochemicals, ingestion and bio-accumulation (additionally in case of macro-plastics: entanglement)

4. Good environmental status (GES) / alternative assessment

Table 3 :GES Assessment for CI3. OSPR: Osprey, KEPL: Kentish Plover, MESH: Mediterranean Shag, AUGU: Audouin's Gull, SBGU: Slender-billed Gull, LCTE: Lesser Crested Tern, SATE: Sandwich Tern, MESP: Mediterranean Storm-petrel, SCSH: Scopoli's Shearwater, YESH: Yelkouan Shearwater, BASH: Balearic Shearwater. B: Breeding, OB: Offshore Breeding. LC: Least Concern, VU: Vulnerable, EN: Endangered, CR: Critically Endangered, E: Endemic or near endemic

Common Indicator 3: Species Distributional Range – Breeding Sites and Offshore Breeding Distribution																	
		OSPR	KEPL	MESH	AUGU		SBGU	LCTE	SATE	MESP		SCSH		YESH		BASH	
		~~LC~~EN	LC	LC,E	VU,E		LC	LC,E	LC	LC,E		LC,E		VU,E		CR,E	
		B	**B**	**B**	**B**	**OB**	**B**	**B**	**B**	**B**	**OB**	**B**	**OB**	**B**	**OB**	**B**	**OB**
Adriatic	Albania																
	Croatia																
	Italy																
	Montenegro																
	Slovenia																
Aegean and Levantine Sea	Cyprus																
	Egypt																
	Greece																
	Israel																
	Lebanon																
	Syria																
	Türkiye																
Central and Ionian Sea	Albania																
	Greece																
	Italy																
	Libya																
	Malta																
	Tunisia																
Western Mediterranean	Algeria																
	France																
	Italy																
	Spain																
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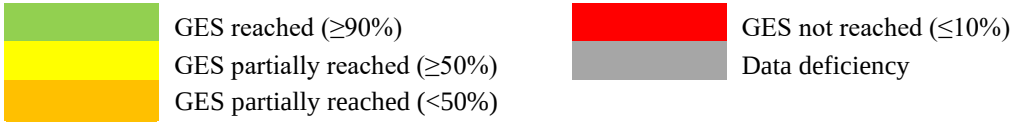
GES reached (≥90%)
GES partially reached (≥50%)
GES partially reached (<50%)
GES not reached (≤10%)
Data deficiency

Table 4 :GES Assessment for CI4. OSPR: Osprey, KEPL: Kentish Plover, MESH: Mediterranean Shag, AUGU: Audouin's Gull, SBGU: Slender-billed Gull, LCTE: Lesser Crested Tern, SATE: Sandwich Tern, MESP: Mediterranean Storm-petrel, SCSH: Scopoli's Shearwater, YESH: Yelkouan Shearwater, BASH: Balearic Shearwater. B: Breeding, OB: Offshore Breeding. LC: Least Concern, VU: Vulnerable, CR: Critically Endangered, E: Endemic or near endemic

Common Indicator 4: Species Abundance – Breeding Sites and Offshore Breeding Distribution																	
		OSPR	KEPL	MESH	AUGU		SBGU	LCTE	SATE	MESP		SCSH		YESH		BASH	
		~~LC~~EN	LC	LC,E	VU,E		LC	LC,E	LC	LC,E		LC,E		VU,E		CR,E	
		B	**B**	**B**	**B**	**OB**	**B**	**B**	**B**	**B**	**OB**	**B**	**OB**	**B**	**OB**	**B**	**OB**
Adriatic	Albania																
	Croatia																
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	Italy																
	Spain																
	Tunisia																
	Morocco																

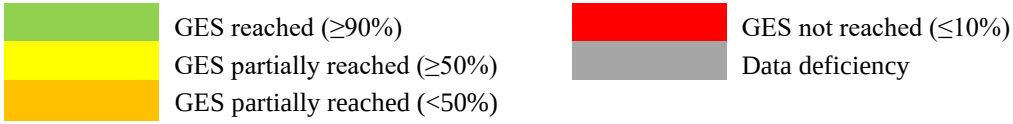

GES reached (≥90%)
GES partially reached (≥50%)
GES partially reached (<50%)
GES not reached (≤10%)
Data deficiency

Table 5 :GES Assessment for CI5. OSPR: Osprey, KEPL: Kentish Plover, MESH: Mediterranean Shag, AUGU: Audouin's Gull, SBGU: Slender-billed Gull, LCTE: Lesser Crested Tern, SATE: Sandwich Tern, MESP: Mediterranean Storm-petrel, SCSH: Scopoli's Shearwater, YESH: Yelkouan Shearwater, BASH: Balearic Shearwater. RS: Reproductive Success, SU: Survival Rate. LC: Least Concern, VU: Vulnerable, CR: Critically Endangered, E: Endemic or near endemic

Common Indicator 5: Demography– Breeding Stage																							
		OSPR		KEPL		MESH		AUGU		SBGU		LCTE		SATE		MESP		SCSH		YESH		BASH	
		~~LC~~EN		LC		LC,E		VU,E		LC		LC,E		LC		LC,E		LC,E		VU,E		CR,E	
		RS	SU	RS	SU	RS	SU	RS	SU	RS	SU	RS	SU	RS	SU	RS	SU	RS	SU	RS	SU	RS	SU
Adriatic	Albania																						
	Croatia																						
	Italy																						
	Montenegro																						
	Slovenia																						
Aegean and Levantine Sea	Cyprus																						
	Egypt																						
	Greece																						
	Israel																						
	Lebanon																						
	Syria																						
	Türkiye																						
Central and Ionian Sea	Albania																						
	Greece																						
	Italy																						
	Libya																						
	Malta																						
	Tunisia																						
Western Mediterranean	Algeria																						
	France																						
	Italy																						
	Spain																						
	Tunisia																						
	Morocco																						

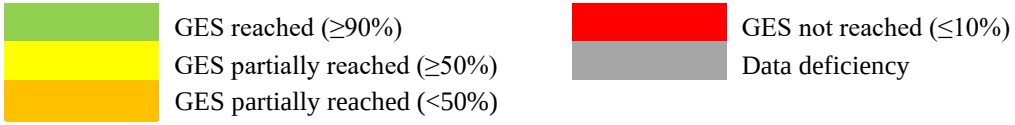

GES reached (≥90%)
GES partially reached (≥50%)
GES partially reached (<50%)
GES not reached (≤10%)
Data deficiency

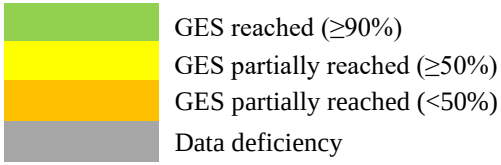
Table 6 :GES Assessment for CI3 non-breeding state. OSPR: Osprey, KEPL: Kentish Plover, MESH: Mediterranean Shag, AUGU: Audouin's Gull, SBGU: Slender-billed Gull, LCTE: Lesser Crested Tern, SATE: Sandwich Tern, MESP: Mediterranean Storm-petrel, SCSH: Scopoli's Shearwater, YESH: Yelkouan Shearwater, BASH: Balearic Shearwater. LC: Least Concern, VU: Vulnerable, CR: Critically Endangered, E: Endemic or near endemic

Common Indicator 3: Distributional Range – Non-breeding Stage												
		OSPR	KEPL	MESH	AUGU	SBGU	LCTE	SATE	MESP	SCSH	YESH	BASH
		LC/EN	LC	LC,E	VU,E	LC	LC,E	LC	LC,E	LC,E	VU,E	CR,E
Adriatic	Albania											
	Croatia											
	Italy											
	Montenegro											
	Slovenia											
Aegean and Levantine Sea	Cyprus											
	Egypt											
	Greece											
	Israel											
	Lebanon											
	Syria											
	Türkiye											
Central and Ionian Sea	Albania											
	Greece											
	Italy											
	Libya											
	Malta											
	Tunisia											
Western Mediterranean	Algeria											
	France											
	Italy											
	Spain											
	Tunisia											
	Morocco											

GES reached (≥90%)
Data deficiency

Table 7 : GES Assessment for CI4, non-breeding stage. OSPR: Osprey, KEPL: Kentish Plover, MESH: Mediterranean Shag, AUGU: Audouin's Gull, SBGU: Slender-billed Gull, LCTE: Lesser Crested Tern, SATE: Sandwich Tern, MESP: Mediterranean Storm-petrel, SCSH: Scopoli's Shearwater, YESH: Yelkouan Shearwater, BASH: Balearic Shearwater. LC: Least Concern, VU: Vulnerable, CR: Critically Endangered, E: Endemic or near endemic

Common Indicator 4: Abundance – Non-breeding Stage												
		OSPR	KEPL	MESH	AUGU	SBGU	LCTE	SATE	MESP	SCSH	YESH	BASH
		LC/EN	LC	LC,E	VU,E	LC	LC,E	LC	LC,E	LC,E	VU,E	CR,E
Adriatic	Albania											
	Croatia											
	Italy											
	Montenegro											
	Slovenia											
Aegean and Levantine Sea	Cyprus											
	Egypt											
	Greece											
	Israel											
	Lebanon											
	Syria											
	Türkiye											
Central and Ionian Sea	Albania											
	Greece											
	Italy											
	Libya											
	Malta											
	Tunisia											
Western Mediterranean	Algeria											
	France											
	Italy											
	Spain											
	Tunisia											
	Morocco											


GES reached (≥90%)
GES partially reached (≥50%)
GES partially reached (<50%)
Data deficiency

4.1 GES Assessment: Species Accounts

~~51.~~53. Based on the monitoring data received at the country level for focal species, GES assessment was carried out for a total of 11 species from six functional groups, for three CIs and four subregions. The detailed results of species, CI and subregion-based analysis are given in the following subsections and a summary of these results are provided in Tables (1-5) in the previous section.

Osprey *Pandion haliaetus*

~~52.~~54. With a close to global distribution range, the Osprey is currently listed as Least Concern by the IUCN with an overall increasing population trend (Birdlife International 2023). However, a regional assessment of breeding raptors across the Mediterranean lists the species as Endangered (Westrip et al. 2022). The status of the Mediterranean Breeding population is used as a reference for the current assessment. The Osprey~~It~~ is the only species listed in the functional ecological group Coastal top predator among the 11 indicator taxa. Ospreys are not obligate marine birds, but the coastal population in the region feeds mainly on marine fish. Osprey nests are found in cliffs, on trees and man-made structures. The species produces a single clutch per year consisting of 3-4 eggs. Ospreys are present in the region year-round, and the Mediterranean population is partially migratory.

~~53.~~55. The main pressures on the species are believed to be disturbance and loss of nesting habitats due to development and direct persecution (illegal killing). Pollutants and electrocution in powerlines are additional pressures.

Common Indicator 3: Species Distribution Range

~~54.~~56. The breeding distribution in the region is restricted to the Western Mediterranean subregion, where the species currently breeds in the CPs Algeria, France (Corsica), Italy, Morocco and Spain (Balearic Islands).

~~55.~~57. A reference-based, modern baseline approach (>6yrs) was taken for the GES assessment of distribution range. According to data provided by CPs overall 73 grid cells (10km x 10km) were occupied during breeding in previous assessment periods. With 74 grid cells occupied during the current assessment cycle, the distribution range of the breeding population is assessed as stable (well within the 10% threshold). However, for the species to recover from the current status in the region, an increase in range would be required. Therefore ~~and~~ GES ~~in the occupied subregion~~ is currently not reached. There is no indication for a range shift since the last assessment cycle.

~~56.~~58. During the non-breeding period, Ospreys from breeding populations outside the Mediterranean are passing through the region during their spring- and autumn migration between wintering areas in Africa and breeding grounds in Europe. Furthermore, the species was recorded wintering in all subregions and in most CPs at IWC counts during the current assessment cycle. However, the lack of defined baseline and threshold values as well as of effort data on winter distribution assessments in the region currently prevent a GES assessment for the wintering range.

Common Indicator 4: Population abundance of selected species

~~57.~~59. The assessment and monitoring of this indicator focuses on the breeding population, with the number of occupied nests or breeding pairs during the breeding period. The relative abundance of breeding pairs is assessed (relative abundance = annual abundance / baseline abundance) following a modern baseline approach (>6yrs). The threshold value of relative abundance was set as >0.7. In the current assessment cycle, the relative abundance was 1.17-1.18. This means that GES for the species in the Western

Mediterranean regarding breeding population abundance would beis reached, when taking this modern baseline approach.

58.60. However, the species status in the region is currently Endangered (Westrip 2022). Furthermore, it is acknowledged that according to Monti et al. (2018) the current population in the Mediterranean represents just about one third of the number of individuals as compared to the first half of the 20th century. Finallyurthermore, there appears to be is limited information regarding the historic population sizes of the species in the other subregions, where the species is currently not reported nesting. Overall, it is concluded that GES for the species in the region regarding the population size is not reached.

59.61. The IWC mid-winter counts reveal fluctuating numbers of wintering Ospreys in various CPs across all subregions in the region. However, for a successful GES assessment baseline values would need to be established by the CPs first in order to know whether the relative wintering abundance of >0.7 is reached. Average wintering abundance data available from IWC for the current assessment cycle could be utilised to assess GES in the region in the future.

Common Indicator 5: Population Demographic Characteristics

60.62. Adult survival and reproductive success rates of the breeding population in the Western Mediterranean Subregion are utilised to assess GES of CI 5. In France, the annual survival rate has been identified to be at 0.52. The annual reproductive success rate is given as 0.62 for Italy and as 0.72 for France with a baseline of 1.17 given for the latter one (1987-1988). Both adult survival and reproductive success rate appear relatively low. Demographic parameters for Ospreys were not available from other CPs, which will ideally be collected during future assessment cycles to identify if CI 5 reaches GES in the Western Mediterranean.

61.63. Additional data concerning adult survival can be collected on the wintering population by identifying and ageing individuals that have been colour-ringed as nestlings.

Kentish Plover *Charadrius alexandrinus*

62.64. Among the indicator species, the Kentish Plover is the only species in the functional ecological group Intertidal benthic feeders. As a coastal species, Kentish Plovers are usually found on sand, silt or dry mud surfaces in the region and prefer sparsely vegetated and sandy areas when breeding. The nest is placed on ground, solitarily or in loose semicolonial groups and usually contains three eggs.

63.65. The latest European population estimate is given at 21,500-34,800 pairs, equating to 43,100-69,600 mature individuals (Birdlife International, 2023). The current overall population size and distribution area in the region is unknown. CPs holding breeding populations in the Mediterranean are Albania, Algeria, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Morocco, Slovenia, Spain, Tunisia and Türkiye. Due to its large distribution range, the species is globally listed as Least Concern by the IUCN (Birdlife International 2023). However, the population trend is believed to be decreasing both globally and in the region.

64.66. Main pressures acting on the species in the region are the loss and degradation of coastal habitats, estuaries and wetlands due to intensive developments, disturbance from recreational and economic activities during breeding and problematic species such as feral dogs, crows, foxes and large gulls.

Common Indicator 3: Species Distributional Range

~~65.~~67. The species distributional range during the current assessment cycle is available for the CPs Albania and Croatia as occupied 50km x 50km grid cells (subregion Adriatic). It is assessed against a modern baseline as being stable (Albania) to increasing (Croatia).

~~66.~~68. Modern baseline levels were provided by Italy for all three relevant subregions as occupied 10km x 10km grid cells and can be used in future assessment cycles.

~~67.~~69. The species has been reported to winter in the entire region (all subregions) via IWC counts.

~~68.~~70. For the GES assessment of CI 3 across the region regarding the breeding and wintering distribution ranges of the species, CPs would need to provide data on the spatial distribution for both baselines and the current distribution.

Common Indicator 4: Population abundance

~~69.~~71. The assessment of this indicator is supposed to focus on both the breeding and the wintering populations of the species in the region. Data on breeding pairs have been provided by Albania, Croatia and Spain. The relative breeding bird abundance is assessed as 1.0 for Albania (361-645bps) and as 0.9-1.0 for Croatia (27-32bps), taking a modern baseline approach. These values indicate that GES is reached locally. The relative breeding population abundance for the Spanish part of the Western Mediterranean is assessed as 0.26, therefore not reaching GES locally. For a successful GES assessment of the species regarding CI 4 in the entire region, CPs would need to provide baseline and current values on the number of breeding pairs.

~~70.~~72. Kentish Plovers are reported to winter regularly in all subregions as revealed by IWC midwinter count data. IWC count data during the current assessment cycle amount to approximately 11.000 individuals wintering annually in the region. To confirm that GES regarding the wintering population is reached, CPs would need to provide baseline values for the Kentish plover wintering populations.

Common Indicator 5: Population Demographic Characteristics

~~71.~~73. No CP provided data on reproductive success and annual survival rates of Kentish Plovers in the region, thus GES regarding CI 5 could not be assessed.

Mediterranean Shag *Gulosus aristotelis desmarestii*

~~72.~~74. Among the indicator species for the Med QSR assessment, the Mediterranean Shag is the only taxon of the functional ecological group Inshore benthic feeders in the region. A subspecies of the European Shag, it is endemic to the Mediterranean and Black Sea. Previously, the population in the Mediterranean was estimated at a maximum of 10,000 breeding pairs (EU List of Annex I species BD: https://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm). CPs with breeding populations include Albania, Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Libya, Morocco, Spain, Tunisia, and Türkiye. The European Shag is listed as Least Concern by the IUCN (Birdlife International 2023), but with decreasing population numbers.

~~73.~~75. It shows high site fidelity, the majority of the Mediterranean population is resident and present year-round in most CPs. Birds feed on a range of benthic, demersal and schooling, pelagic fish. Mediterranean Shags lay three, sometimes up to four eggs.

~~74.~~76. The pressures acting on the Mediterranean Shag include introduced predators, disturbance and development at nesting sites, climate induced changes in populations of prey species, oil spills and by-catch in fishing gear.

Common Indicator 3: Species Distributional Range

~~75.~~77. The assessment of the distributional range is focused on the breeding (i.e., breeding colonies) and non-breeding (i.e., coastal roosting sites) range of the species. Numbers regarding the current distributional range as well as modern baseline values have been provided by the CPs Albania, (50km x 50km grid cells), Croatia, ~~and~~ Italy and Greece (10km x 10km grid cells). The current distributional range has been assessed as stable for Albania, ~~and~~ Croatia and Greece (Adriatic, Central and Ionian Sea and Aegean and Levantine Sea) and as increasing for Italy (both, for the Adriatic and Western Mediterranean subregions). Therefore, regarding distributional range of the species GES is reached for the Adriatic subregion.
~~76.~~78. For the GES assessment of CI 3 for the Mediterranean Shag across the other subregions, CPs would need to provide spatial distribution data on baselines as well as on the current distribution.

~~77.~~79. The at-sea distributional range of the species can be assessed by means of tracking devices if representative numbers of birds from relevant colonies across the region are tracked. However, in general the adult birds remain relatively close to land and in the vicinity of the colonies. Some tracking data are available from two colonies in the Western Mediterranean region (see map with 50%UD core foraging areas and 95%UD home ranges).

~~78.~~80. Mediterranean Shags have been present in most CPs across the region during IWC mid-winter counts. However, due to a very early onset of the breeding season in the region, range assessment during the non-breeding period should be carried out synchronised in July.

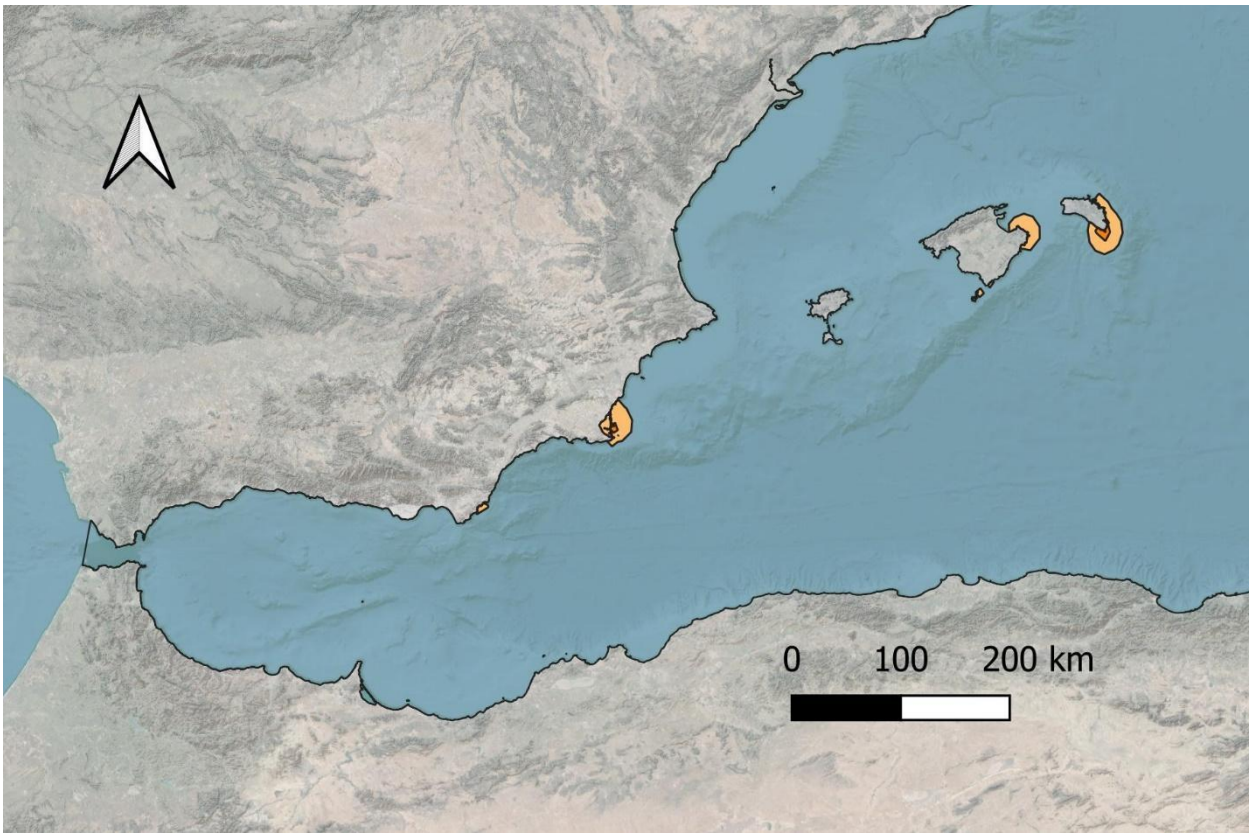


Figure 1: Example of at-sea distribution ranges of Gulosus aristotelis desmarestii in the Western Mediterranean subregion during the breeding season. Home ranges (95% UD, light orange) and core foraging areas (50% UD, dark orange) of gps tracked adult individuals

Common Indicator 4: Population abundance

~~79.~~81. The assessment and monitoring of this indicator is mainly aiming at the breeding population of the species in the region. Data on the number of breeding pairs against a modern baseline have been provided by Albania and Croatia (Adriatic subregion) and by Cyprus (Aegean-Levantine Sea), all with stable population abundance (relative population abundance ~ 1.0). Cyprus additionally provides at-sea population abundance of the species which is assessed as stable. Greece provided baseline data on the breeding population.

~~80.~~82. Data from the Western Mediterranean subregion have been provided by France and Spain, both showing a decline in population abundance as compared to the baseline. The relative population abundance of the French population was assessed at 0.8, still above the defined threshold value. However, the relative population abundance of the Spanish population was assessed at 0.31, well below the threshold value (>0.7). Therefore, it appears likely that the GES in the entire Western Mediterranean subregion is currently not reached.

~~81.~~83. Mediterranean Shags have been present in most CPs across the region during IWC mid-winter counts with average total population numbers in mid-winter slightly below 900 individuals. However, due to a very early onset of the breeding season in the region, it can be expected that by mid-January many breeding birds are already in the colonies. Therefore, mid-winter numbers are low and not reflecting well the non-breeding population abundance. The species has coastal roosting sites which are relatively easy to monitor during the non-breeding period. Non-breeding population assessments by means of systematically monitoring the coastal roosts are ideally carried out synchronised on a subregional scale in July. Such synchronised counts have been successfully carried out in parts of the Adriatic Sea (Bacetti, pers. Comm.). It is recommended to extend these counts to the entire distribution range in the region. During counts in July it is also possible to differentiate between first year and older birds which allows the collection of demographic data, namely reproductive success for CI 5.

Common Indicator 5: Population Demographic Characteristics

~~82.~~84. No CP provided data on reproductive success and annual survival rates of Mediterranean Shags in the region, however, Greece provided baseline levels for hatching and fledgling success. Overall~~thus~~ GES regarding CI 5 could not be assessed.

~~83.~~85. Examples from European Shag colonies in the OSPAR region have shown that nest monitoring and colour ringing (and re-sightings at roosts and nesting sites) of representative subsamples can help in the assessment of demographic characteristics.

Audouin's Gull *Ichthyaetus audouinii*

~~84.~~86. Part of the functional ecological group *Offshore surface-feeders,* the Audouin's Gull is near endemic in the region, with approximately 90% of the 33000-46000 mature individuals breeding in the Mediterranean. CPs with breeding populations include Spain, France, Morocco, Algeria, Tunisia, Italy, Croatia, Greece, Cyprus and Türkiye. Due to recent population decline the species is currently listed as Vulnerable by the IUCN (Birdlife International 2023).

~~85.~~87. It is a widely marine gull species, foraging mainly on fish including fisheries discards. Audouin's Gulls nest in colonies on rocky cliffs, offshore islands and islets, saltmarshes, and sandy peninsulas. Females lay three to four eggs per season.

~~86.~~88. The birds can be encountered in the Mediterranean year-round and tend to winter more along the southern Mediterranean coast. Part of the population, especially young birds, leaves into the Atlantic to winter along the NW- W-African coast.

~~87.~~89. Main pressures on the species in the region on land include disturbance and development at colony sites and predation of eggs and chicks by problematic mammalian predators. Major pressures at sea are believed to be by-catch in long-line fisheries, as well as food depletion by overfishing and the EU-wide ban on discard.

Common Indicator 3: Species Distributional Range

~~88.~~90. Assessments of breeding distributional range against a modern baseline were provided by the CPs Albania, Croatia and Italy where the relative area of occupancy was assessed as stable (1.0, Albania, Croatia) or increasing (1.2, Italy). Baseline data for the species distributional range have been provided by Greece.

~~89.~~91. To assess GES of CI 3 of the species for all subregions, other CPs with breeding populations would need to provide current and baseline data of distributional range across the region.

~~90.~~92. However, the species is known to swiftly respond to disturbance by relocating breeding sites and by forming several smaller colonies at new sites. Thus, short-term shifts in distributional range can be expected and assessments in the region would benefit from an internationally coordinated approach.

~~91.~~93. The at-sea distributional range of the species can be assessed by means of tracking devices if representative numbers of birds from important colonies across the region are tracked. This has been carried out exemplarily from 19 tracks of 10 birds from a Western Mediterranean colony at San Pedro (Spain), that have been received via Birdlife International's Seabird Tracking Database (see map with 50%UD core foraging areas and 95%UD home ranges).

~~92.~~94. Audouin's Gulls have been reported wintering in all subregions. To assess whether GES is reached regarding the winter distributional range of the species, GPs would need to provide data on current and baseline winter distribution.

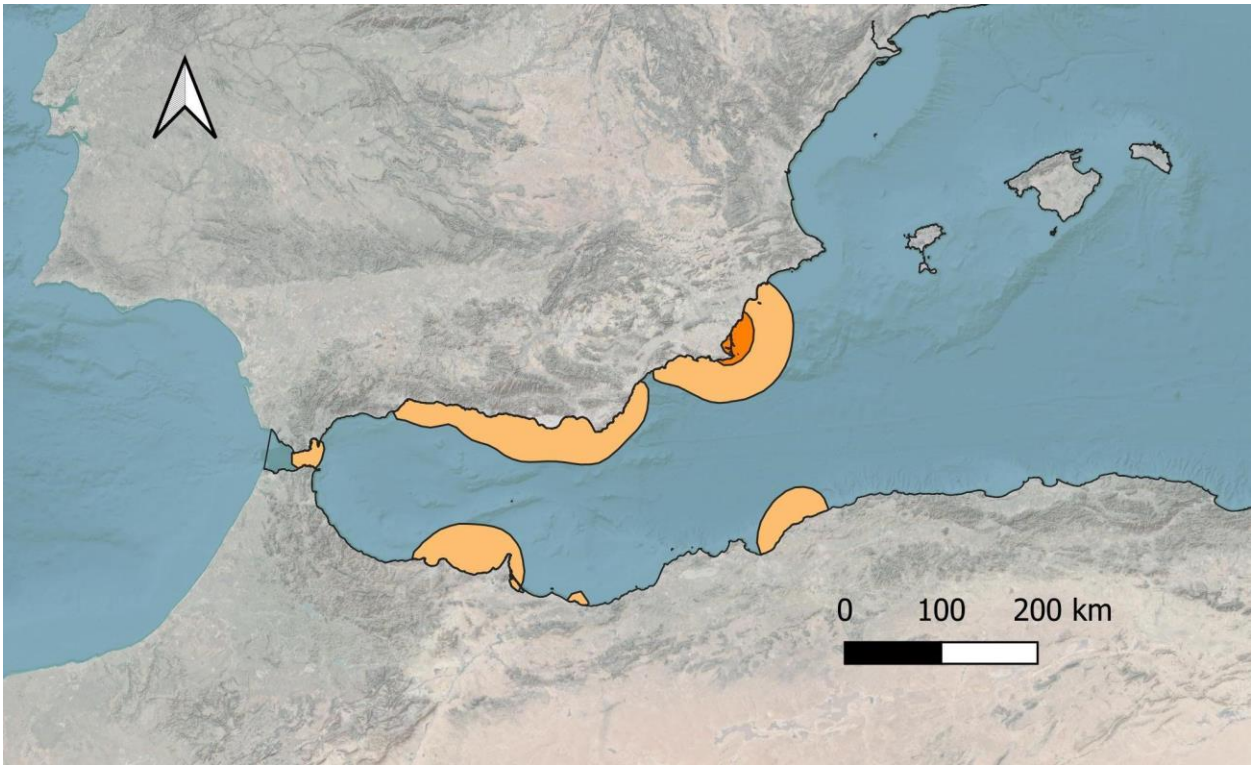


Figure 2 :Example of at-sea distribution ranges of Ichthyaetus audouinii in the Western Mediterranean subregion during the breeding season. Home ranges (95% UD, light orange) and core foraging areas (50% UD, dark orange) of gps tracked adults from a Spanish colony

Common Indicator 4: Population abundance of selected species

~~93.~~95. The assessment of CI 4 is based on the breeding and non-breeding population of the species. Current numbers of breeding pairs and baseline levels have been provided by the CPs Croatia, France, Italy and Spain. The breeding population abundance has been assessed as increasing in parts of the relatively small Adriatic population (relative breeding abundance 1.9 – 13). It has also been assessed as increasing for parts of the population of the Central and Ionian Sea (relative breeding abundance: 2.8). In the Western Mediterranean, the breeding population abundance in colonies of birds from Spain, which account for approximately 80% of the global population, has been decreasing (overall relative breeding abundance: 0.54). The smaller populations in the Western Mediterranean subregion in Italy and France have been assessed as stable for Italy (0.9) and increasing for France (1.5). While GES of this CI is assumed to be reached for Audouin's Gulls of the Adriatic and Central and Ionian Sea, no data was available for the Aegean and Levantine Sea. However, baseline data from the Aegean and Levantine Sea have been provided by Greece, where the species has declined during the previous assessment cycle. It is expected that GES is not reached in the Greek part of this subregion. On the basis of data from Spain it is expected that GES in the Western Mediterranean is currently not reached but data from breeding colonies along the North African coast were not available.

~~94.~~96. Audouin's Gulls have been reported wintering in all subregions of the Mediterranean in fluctuating numbers with a total average of 2560 individuals counted across the region during annual mid-winter counts (IWC). Baseline levels would need to be defined but it is expected that current numbers of wintering birds in the region can reach GES when assessed against modern baseline levels.

Common Indicator 5: Population Demographic Characteristics

~~95.~~97. Annual survival rates have been assessed in France, (~1.0, Western Mediterranean). Annual reproductive success rates are reported to be very low in Croatia (0.02, Adriatic Sea) and vary strongly between subregions in Italy (0.83 for the Adriatic, 0.31 for the Central and Ionian Sea, 0.27 for the Western Mediterranean). For France, reproductive success is reported to be 0.99. In the Spanish part of the Western Mediterranean, reproductive success is currently reported to be low (0.35), however it has improved as compared to the previous assessment cycle (0.27). Baseline data for hatching and fledgling success have been provided for the Greek part of the Aegean and Levantine Sea subregion. Overall, the data quality appears too patchy for a GES assessment of CI 5 for Audouin's Gulls in the region, but the data presented here indicates that GES for this vulnerable marine gull species is likely not reached.

Slender-billed Gull *Chroicocephalus genei*

~~96.~~98. The species forms part of the functional group *Inshore surface-feeders*. The global population which is estimated at 310,000-380,000 individuals (Wetlands International, 2021) is listed as Least Concern, but the population in the European part of the region is known to be decreasing (<25% in three generations (Birdlife International 2023). CPs in the region with breeding populations are France, Greece, Italy, Spain, Tunisia, and Türkiye.

~~97.~~99. The Slender-billed Gull is not strictly a marine species. It forages mainly on fish, crustaceans and insects. The nest in colonies, situated in estuaries, marshes, river valleys and on beaches contains three to four eggs. The species is a partial migrant and can be found in the Mediterranean year-round. Outside the breeding period it can be observed across the region in coastal areas.

~~98.~~100. Main pressures on the species include the loss of nesting habitats due to development, disturbance in the colonies, water pollution, loss of eggs and nests to mammalian predators as well as predation by and competition with other gull species.

Common Indicator 3: Species Distributional Range

~~99.~~101. Breeding distribution baseline data are provided for Italy and can be utilised for future assessment cycles. The species has been confirmed to be absent as a breeding species from Albania during the current assessment cycle.

~~100.~~102. Slender-billed Gulls have been reported wintering commonly in all subregions. To assess whether GES is reached regarding the winter distributional range of the species, CPs would need to provide data on current and baseline winter distribution.

~~101.~~103. Overall, the lack of data especially on breeding distributional range for the current assessment cycle but also for baseline values is preventing a GES assessment of CI 3 for the species.

Common Indicator 4: Population abundance of selected species

~~102.~~104. Data on breeding population abundance are available for Spain and France. For the Spanish population the relative breeding population in 2017 is assessed at 0.29-0.31 using a modern baseline approach. The relative population abundance in the French part of the Western Mediterranean is assessed slightly higher at 0.39. If these data are indicative for the subregion in general and for the entire region, GES regarding CI 4 is not reached. However, CPs would need to provide data on breeding population numbers of the current and previous assessment cycle to allow for a region wide GES assessment.

~~103.~~105. Data from IWC mid-winter counts reveal that an average number of close to 33.000 individuals ‘winter across the region, approximately two thirds of them in Tunisia.

Common Indicator 5: Population Demographic Characteristics

~~104.~~106. Data on population demographic characteristics of Slender-billed Gulls in the region are available for the Western Mediterranean region from France. There, the annual survival rate is assessed at 0.97 (2016-2021) while the average reproductive success rate is 0.98 (2015-2021). This would mean that GES is tentatively reached there for CI 5. However, demographic parameters would need to be collected across the region to allow modelling population growth rates for the Mediterranean breeding population of the Slender-billed Gull.

Lesser-crested Tern *Thalasseus bengalensis emigrates*

~~105.~~107. The species is part of the functional ecological group *Inshore surface-feeders*. The global population of the species, listed as Least Concern by the IUCN (Birdlife International 2023), is estimated at 225.000 birds. However, the subspecies *emigratus*, which is endemic to the region numbered some 4000 birds in 1993, or a maximum of less than 2300 pairs in 2009 (Hamza et al., 2011). With Libya (Central Mediterranean Region) being currently the only country with breeding colonies in the region, the Mediterranean population is extremely vulnerable due to small population size and restricted distribution range in very few colonies.

~~106.~~108. This marine tern species forages mainly on small fish in coastal waters. The birds’ nest in colonies on sandy islands and islets close to the coast or in coastal lagoons, they lay three eggs per season. Lesser-crested Terns are found in the Mediterranean year-round, but the species is partially migratory, with birds wintering along the S and SW Mediterranean coast, but also along the W-African coast in the Atlantic.

~~107.~~109. Main pressures on the species in the colonies on land consist of anthropogenic disturbance and habitat alterations as well as predation of eggs and chicks by gulls and mammals. At sea overfishing and potentially pollutants could cause additional problems.

~~108.~~110. A detailed monitoring plan for the Libyan Lesser-crested Tern population has been drawn up in the past (UNEP/MAP, 2012).

Common Indicator 3: Species Distributional Range

~~109.~~111. No data are available regarding the breeding distribution of Lesser-crested Terns during the current assessment cycle. Therefore, GES of the species regarding CI3 cannot be assessed. However, there is no indication of an increase in the breeding distribution range of species. Due to the very restricted range, it is likely that GES in the region is currently not reached.

~~110.~~112. During the current assessment cycle, the species is encountered wintering in small numbers along the Libyan (Central Mediterranean), as well as the Algerian and Moroccan coast (Western Mediterranean Region) during IWC mid-winter counts.

Common Indicator 4: Population abundance

~~111.~~113. There is no data available on breeding population abundance of Lesser-crested Terns during the current assessment cycle. For future assessment cycles, data from previous monitoring visits to the colonies could act as a baseline.

~~112.~~114. Single-digit figures of the species have been reported during the current assessment cycle along the southern Mediterranean coast, namely from Libya (Central Mediterranean), Algeria and Morocco (Western Mediterranean Region) encountered during IWC midwinter counts. A robust GES assessment based on these few winter records seems currently not possible.

Common Indicator 5: Population Demographic Characteristics

~~113.~~115. For the current assessment cycle, no data on population demographic characteristics such as annual survival rates and reproductive success were available to identify the population growth rate. This means that GES of CI 5 for the Lesser-crested Tern population in the region currently cannot be assessed.

Sandwich Tern *Thalasseus sandvicensis*

~~114.~~116. This tern species forms part of the functional ecological group *Inshore surface feeders*. The birds breed in relatively dense colonies, exclusively in coastal areas with available feeding grounds close by. The prey consists predominantly of surface-dwelling marine fish 9-15 cm long. The females usually lay two eggs per season, but the clutch size can vary between years and locations. Though the birds are central-place foragers during the breeding season, Sandwich Terns can make relatively long foraging trips away from their colonies, habitually flying 30 km or more (Cabot and Nisbet, 2013).

~~115.~~117. The population inhabiting the Mediterranean and Black Sea Region is estimated at 20270 – 65670 breeding pairs. The global conservation status is Least Concern and assessed as stable, the population trend in the region is fluctuating.

~~116.~~118. The species is highly vulnerable to anthropogenic disturbance of the colonies, as well as predation of eggs and chicks by mammalian predators. Colony abandonment following disturbance is the main threat.

Common Indicator 3: Species Distributional Range

~~117.~~119. The assessment of this indicator focuses on the breeding and the wintering distribution of the species in the region.

~~118.~~120. CPs with breeding populations in the region are France, Greece, Italy, Spain and Türkiye, and the species is reported breeding in all subregions.

~~119.~~121. Data on changes in the breeding distribution range for the current assessment cycle as compared to a modern baseline (2010-2016) is available for the Adriatic subregion (Italy, occupied 10km x 10km grid cells). The data reveal a relative breeding distributional range of 0.64. This reduction in distributional range indicates that GES of CI 3 for the Adriatic breeding population of the Sandwich Tern is not reached.

~~120.~~122. CPs holding breeding colonies in the other subregions would need to provide data on current breeding distributional range and baseline values to allow for a GES assessment of CI3 for the species across the region.

~~121.~~123. Birds have been reported wintering in all subregions with data from IWC mid-winter counts provided by the majority of CPs. Relative wintering distributional range is assessed as stable (1.0) for parts of the Adriatic Sea (Albania and Croatia, modern baseline). It can be assumed that GES regarding the wintering range of the species is reached for the entire Adriatic and potentially for the whole region, however CPs would need to provide data on current and baseline range assessments (e.g., occupied versus assessed grid cells) to confirm this.

Common Indicator 4: Population abundance of selected species

~~122.~~124. The relative breeding bird abundance has been provided for the Western Mediterranean (France: 0.32; Spain: 0.91). GES of CI 4 for the Sandwich Terns breeding in this subregion is close to the lower threshold level of 0.7 but not reached (0.68).

~~123.~~125. Breeding pair numbers for the current assessment cycle have been provided for the Adriatic population (Italy), but baseline values would need to be provided to assess GES.

~~124.~~126. An overall average of approximately 4850 Sandwich Terns have been reported wintering in the region at IWC midwinter counts during the current assessment cycle.

Common Indicator 5: Population Demographic Characteristics

~~125.~~127. Data on demographic parameters is only available from France for the Western Mediterranean subregion for both, annual survival rate (0.97) and reproductive success (0.99), which means that GES regarding CI 5 in part of the subregion is reached.

~~126.~~128. Data on average annual reproductive success during the current assessment cycle has been provided for the Adriatic Sea subregion (0.46; Italy). The value appears low for GES on CI 5 to be reached in the subregion.

~~127.~~129. Overall, annual survival rate and reproductive performance data would need to be provided by other CPs with Sandwich Tern colony breeding colonies to assess GES regarding CI 5 across the region.

Mediterranean Storm-petrel *Hydrobates pelagicus melitensis*

~~128.~~130. The Mediterranean Storm-petrel is part of the functional ecological group *Offshore surface or pelagic feeders*. The birds breed in colonies among boulders and in sea caves on rocky islands and islets. The females lay a single egg. The birds are highly mobile, but also highly philopatric. At least part of the population leaves the Mediterranean into the Atlantic during the non-breeding season.

~~129.~~131. The population of the Mediterranean subspecies of the European Storm-petrel which is endemic to the region is estimated at around 13000-17000 breeding pairs (Birdlife International 2021). Most known breeding colonies are distributed in the central and western Mediterranean with a large proportion of the population restricted to a few archipelagos and with Malta holding 50% and Italy holding 30% of the population. However, surveys might be underrepresented along the North African coast, in the Eastern Mediterranean and in the Adriatic. CPs with confirmed breeding populations are Albania, France, Greece, Italy, Malta, Spain. The conservation status of the taxon is Least Concern (Birdlife International 2023) with a decreasing trend.

~~130.~~132. Main threats to the colonies on land include predation of eggs, chicks and adults by introduced non-native mammalian predators and by Yellow-legged gulls as well as development including light pollution and human disturbance. A potential threat at sea is pollution.

Common Indicator 3: Species Distributional Range

~~131.~~133. The assessment of this indicator focuses on the breeding population of the species i.e., breeding colonies at this stage. Breeding distributional ranges assessed against modern baselines are available from parts of the Central Mediterranean and Ionian Sea for Albania: 0.33, Italy: 1.0, and Malta: 2.33. However, it has to be noted that the apparent increase in distribution range in Malta is mainly attributed to an increase in knowledge. Data on relative distributional range are also available from part of the Western Mediterranean subregion, namely Italy: 1.0. As Italy and Malta combined hold approximately 80% of the entire population in the region, GES regarding the species' breeding distribution is reached at least for the Central Mediterranean and Ionian Sea subregion and when taking a modern baseline approach. Additionally, relative breeding distributional range data are available from Greece for the Aegean and Levantine Sea subregions: 1.0. Furthermore, a small colony has been discovered recently in the Southern Adriatic Sea subdivision, leading to a range increase for the CP. However, other CPs with breeding populations, such as France, ~~Greece~~ and Spain would need to provide distributional range data from the current assessment cycle as well as baseline values to assess whether GES for CI 3 range is reached across the region.

~~132.~~134. At-sea distribution is exemplarily presented as 50%UD core foraging areas and 95%UD home ranges from GPS- and GLS-tracked individuals from some colonies in Italy, Malta and Spain. It is recommended for CPs to focus on harmonising and streamlining data collection processes for at sea distribution of the species to be able to define baselines and thresholds of at-sea range at a later stage but as soon as possible.

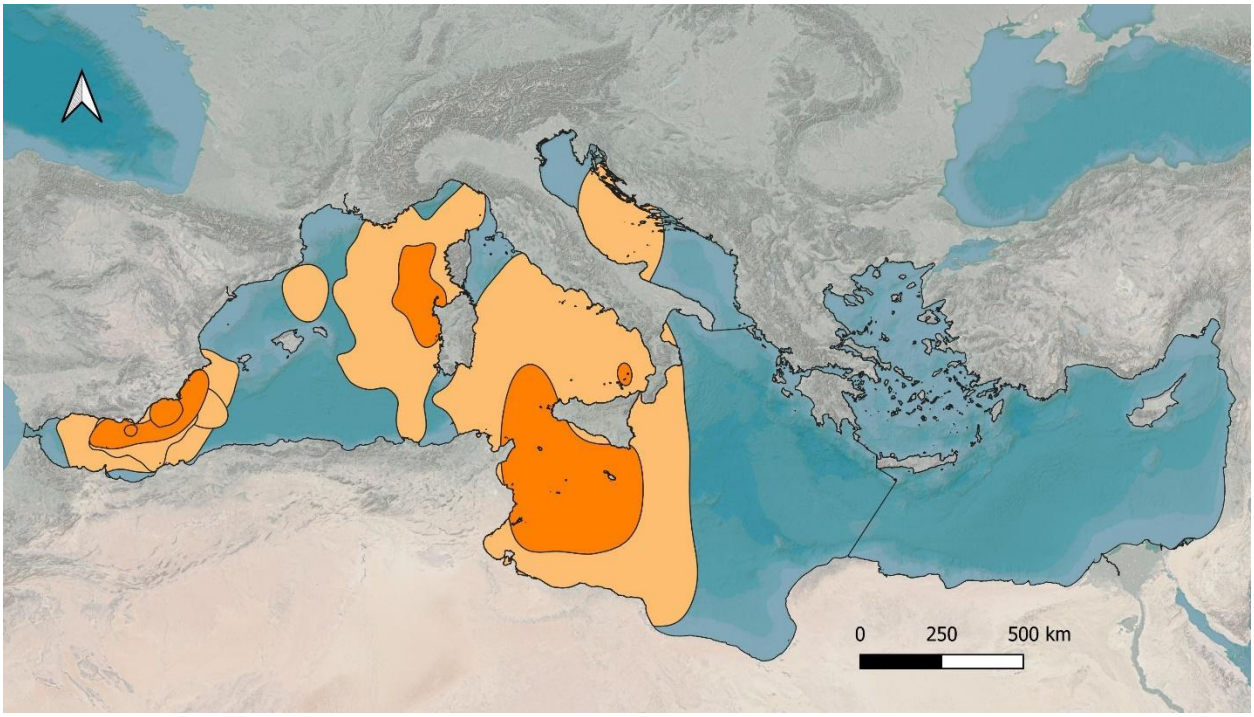


Figure 3 :Example of at-sea distribution ranges of Hydrobates pelagicus melitensis in the region. Home ranges (95% UD, light orange) and core foraging areas (50% UD, dark orange) of gps and gls tracked adults from colonies in Italy, Malta and Spain.

Common Indicator 4: Population abundance

~~133.~~135. The GES assessment is based on the breeding populations of the species i.e., breeding colonies and breeding pairs (or mature adult individuals). Data collected during the current assessment cycle, population abundance data are available for parts of the subregions Western Mediterranean (France, Italy, Spain)~~, and~~ of the Central Mediterranean and Ionian Sea (Albania, Italy, Malta), the Aegean and Levantine Sea as well as the Adriatic Sea subregions (Greece).

~~134.~~136. For the Western Mediterranean subregion, France reports a current population of 130 bp, leading to a relative population abundance of 9.29 as compared to a modern baseline. Italy reports a current population abundance of 1459-1776 breeding pairs for the Western Mediterranean without providing a baseline, while Spain provides a current population abundance of 528 breeding pairs against a modern baseline of 3347 breeding pairs. However, for many Spanish nesting sites of the species no data are provided for the current assessment period. Therefore, no relative breeding population abundance is calculated for Spain.

~~135.~~137. For the Central Mediterranean and Ionian Sea, Albania provides a relative breeding population abundance of 1.0 (0-50 breeding pairs in both current and modern baseline assessment). Italy provides a current breeding population of seven pairs (without a baseline). Malta provides an average relative breeding population abundance 1.27 (breeding population estimate from 2019 CMR and modelling: 8197-8397 pairs). Due to the apparent slight population increase of the largest Mediterranean Storm-petrel colony in Malta, GES is assessed as being reached for CI 4 at least in the Central Mediterranean and Ionian Sea subregion.

~~136.~~138. Data from Greece indicate a population increase for the Aegean and Levantine Sea subregion as well as for the Southern Adriatic subdivision. However, this apparent population increase is mainly attributed to an improve in knowledge. In order to confirm whether GES regarding CI 4 for this small and elusive seabird species is also reached for the entire region, CPs would need to provide current breeding pair numbers against baseline values across the range.

Common Indicator 5: Population Demographic Characteristics

~~137.~~139. For the current assessment cycle, no data of reproductive success were provided. The adult annual survival rate is available for Malta's largest Storm-petrel colony, modelled from CMR data. It is assessed at 0.87 for the period 2013 – 2021. As the colony has experienced a slight population growth over the last two assessment cycles (see CI 4) it can be assumed that GES for CI 5 is reached locally. However, CPs in which the species breed would need to provide current reproductive success and annual survival rates for representative subsamples to allow the assessment of GES of CI 5 for the species across the region.

Scopoli's Shearwater *Calonectris Diomedea*

~~138.~~140. The Scopoli's Shearwater forms part of the functional group *Offshore surface or pelagic feeders*. Like the Mediterranean Storm-petrel, Scopoli's Shearwaters are obligate marine feeders. Their main prey consists of squid and fish, partially from fisheries discard. Females lay one egg per season in a nest that is situated in burrows, caves, or crevices. The birds are nocturnal in the colonies, highly mobile, but also highly philopatric. During foraging trips, they can cover large areas. Almost the entire population spends the non-breeding period (November-March) outside the region, mainly in the Atlantic, which means that some pressures may act on the species outside the region.

~~139.~~141. The species is near-endemic in the region, distributed over a wide range across the Mediterranean, with strong-holds in the Western and Central Mediterranean subregions. CPs with confirmed breeding populations are Algeria, Croatia, France, Greece, Italy, Malta, Spain, and Tunisia. Furthermore, breeding is suspected in Türkiye.

~~140.~~142. The breeding population of this regional near-endemic species is estimated at 285,000-446,000 mature individuals (Birdlife International 2023). The species' single largest colony on Zembra Island, Tunisia, has been relatively recently reassessed at 141,000 to 223,000 breeding pairs (Defos du Rau et al 2015). Its conservation status is currently Least Concern with a long-term negative population trend and a reduction in range at least in the European part of the distribution area.

~~141.~~143. The main pressures that are active on the species in the colonies on land are invasive mammalian predators such as *Rattus rattus*, development including light pollution and human disturbance. Major threats at sea are by-catch, mainly in long-line fisheries, discard ban, alteration of food webs due to overfishing and climate change as well as pollution.

Common Indicator 3: Species Distributional Range

~~142.~~144. The assessment of CI 3 mainly focuses on the breeding population distributional range, i.e., the breeding colonies. While the colony locations for the majority of the colonies is available from previous assessments, data provided by some CPs allow a very limited assessment of current breeding distribution ranges against modern baseline levels. In the Adriatic Sea subregion, Albania reports a reduction from 5 grid cells (50km x 50km) down to 0, while Croatia and Italy in the same subregion report a relative breeding distribution range of 1.0. (13 occupied grid cells overall, 10km x 10 km). For the Aegean and Levantine subregion, Greece provided baseline levels from the previous assessment cycle which can be utilized in future assessments.

~~143.~~145. For the Central Mediterranean and Ionian Sea subregion data provided by Greece (one colony) and Italy reveal a relative breeding distribution range assessment of 1.0. In Malta, relative breeding distribution is assessed at 1.19, with improved knowledge of colony sites causing the apparent increase.

~~144.~~146. In the Western Mediterranean subregion, Italian data reveal a relative breeding distribution range of 0.97, within threshold level (10%). The GES for CI 3 is not assessed for any of these subregions due to insufficient data.

~~145.~~147. The at-sea distribution is exemplarily presented as 50%UD core foraging areas and 95%UD home ranges from GPS-tracked individuals from three colonies in Italy (Central and Ionian Sea, Western Mediterranean), one colony in France and three colonies from Spain (Western Mediterranean). It is recommended for CPs to focus on harmonising and streamlining data collection processes for at sea distribution of the species to be able to define baselines and thresholds of at-sea range at a later stage but as soon as possible.

~~146.~~148. Overall, the lack of comparable current assessment and baseline data on breeding and at-sea distribution range, prevent from assessing GES of the species regarding CI 3 across the region.

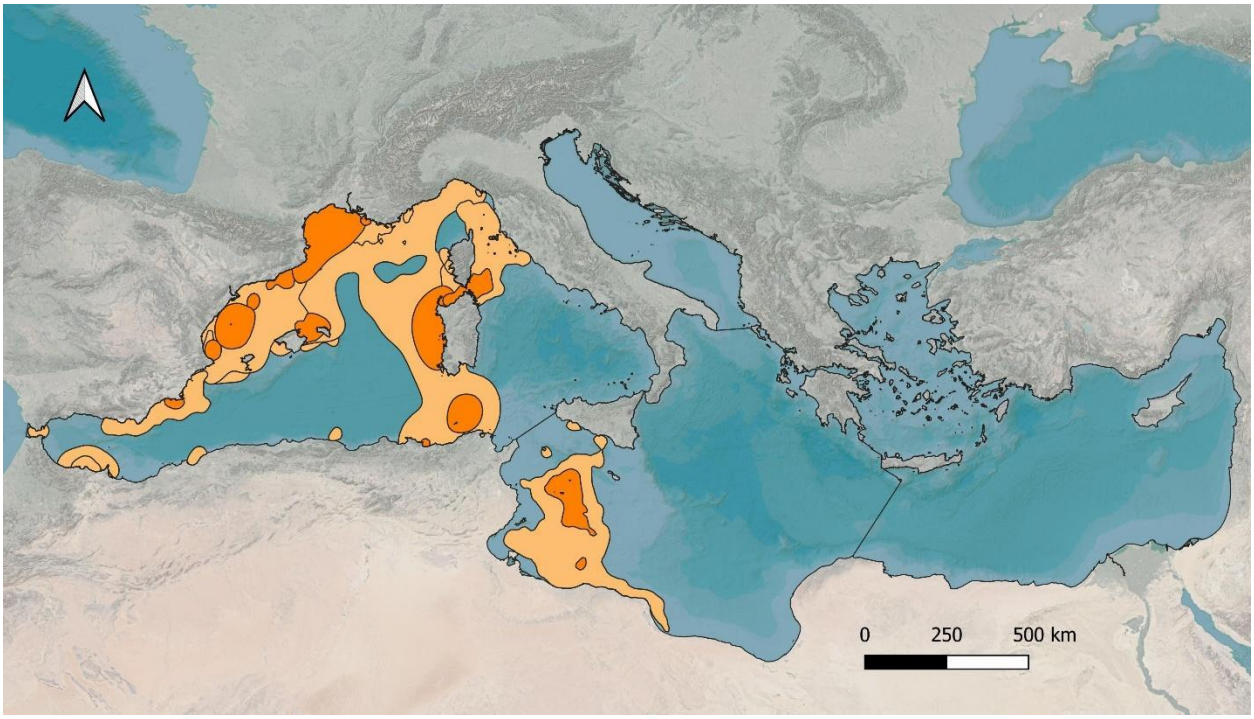


Figure 4 :Example of at-sea distribution ranges of Calonectris diomedea during the breeding season. Home ranges (95% UD, light orange) and core foraging areas (50% UD, dark orange) of gps tracked adults from one colony in France, three colonies in Italy, and three colonies in Italy, and three colonies in Spain.

Common Indicator 4: Population abundance

~~147.~~149. The assessment is aimed at the breeding population abundance of the species i.e., breeding colonies and breeding pairs (or mature adult individuals). The majority of the population leaves the Mediterranean region to spend the winter period (November to February) in the Atlantic, off the Western African coast. Therefore, population assessments during the non-breeding period appear not representative and thus not meaningful for a GES assessment.

~~148.~~150. Relatively robust baseline breeding population estimates are available for the majority of Scopoli's Shearwater colonies in the region, with a modern baseline estimate of 140,184 – 215,626 breeding pairs, more than 80% of them on Zembra (Tunisia, Western Mediterranean). Only for some colonies (approximately 17%-22%) of the breeding population there are current population abundance assessments available. For the single largest colony holding the majority of the species' population, no breeding population estimates have been provided for the current assessment cycle. Available data on relative breeding population abundance draw a heterogenous and non-conclusive picture for CI 4 of the species within subregions and across the region; Adriatic Sea: 0.79-98 (Croatia) to 1.35-1.47 (Italy), Central Mediterranean and Ionian Sea: 1.0 (Greece), 1.13-1.23 (Italy) and 0.56-0.78 (Malta), and Western Mediterranean: 0.92 (France), 0.98-2.53 (Italy) and 1.01 (Spain). Baseline~~No~~ information has been provided regarding CI 4 for Scopoli's Shearwaters breeding in the Aegean and Levantine Sea subregion (Greece) from the previous assessment cycle and can be utilized in future assessments.

~~149.~~151. Overall, the current data quality and availability does not allow for a conclusive GES assessment of CI 4 in the region.

Common Indicator 5: Population Demographic Characteristics

~~150.~~152. The assessment of CI 5 focuses on adult annual survival and annual reproductive success rates as the major drivers of population dynamics. Annual survival rates from the current assessment cycle are available for two colonies in the Western Mediterranean (Italy: 0.88 and Spain: 0.83). Reproductive success rates are available for colonies in the following subregions: Adriatic Sea: Croatia: 0.73-0.79; Central and Ionian Sea: Greece: 0.65, Italy: 0.59 and Malta: 0.70-0.72; Western Mediterranean: Italy; 0.69 and Spain: 0.74.

~~151.~~153. No information has been provided regarding demographic parameters of Scopoli's Shearwater colonies in the Aegean and Levantine Sea subregion, nor for the single largest colony in the region (Zembra, Western Mediterranean). Overall, the data quality and availability currently do not allow for an assessment of CI 5 in the region.

Yelkouan Shearwater *Puffinus yelkouan*

~~152.~~154. Yelkouan Shearwaters form part of the functional group *Offshore surface or pelagic feeders*. This region-endemic species is an obligate marine species. Its prey consists of fish, squid and crustaceans which are caught in up to 50m deep pursuit dives. The colonial birds are highly mobile and able to cover large areas during foraging trips. Breeding birds show a high degree of site fidelity and philopatry, returning to the same nest situated in a burrow, cave, or crevice in consecutive years. They are strictly nocturnal in the colonies. Females lay one egg per season. Birds can be found in the Mediterranean year-round, but part of the population moves eastwards and spends the non-breeding period (July-November) in the Black Sea, indicating that some pressures on the species may be active outside the region.

~~153.~~155. The population is estimated at 15,337-30,519 pairs, roughly equating to 46,000-92,000 individuals (Derhé, 2012). Strongholds of the population are found in the central and eastern Mediterranean. In the Western Mediterranean subregion (Balearic Islands) it is replaced by the sibling taxon *P. mauretanicus*, with which it may form a stable hybrid population on Menorca. Countries with confirmed current breeding populations are Albania, Algeria, Croatia, France, Greece Italy, Malta, Algeria, and Tunisia. In the past breeding was also confirmed for the Bulgarian Black Sea area and Yelkouan Shearwaters are suspected to breed in Türkiye.

~~154.~~156. The conservation status of the species has been assessed as Vulnerable with a decreasing population trend, the latter being to some extent mitigated by improved knowledge of this elusive breeder, including the discovery of new colonies in recent years leading to an apparent population increase.

~~155.~~157. Main pressures at the colonies on land are introduced mammalian predators such as *R. rattus* and *Felis catus*, human disturbance and development including increased light pollution. Pressures at sea are believed to be by-catch mainly in long-line fisheries, alteration of the food web and depletion of food sources by overfishing and by the impacts of climate change as well as pollution.

Common Indicator 3: Species Distributional Range

~~156.~~158. The assessment is mainly based on the distribution of the breeding colonies of the species. Relative breeding distributional range data are available for parts of the Adriatic subregion, namely Albania, Croatia and Italy. Overall, the relative breeding distributional range was assessed at 0.64, indicating a range contraction in the subregion.

~~157.~~159. For parts of the Central Mediterranean and Ionian Sea subregion (Albania, Italy, Malta) the relative breeding distributional range was assessed at 1.39. However, the apparent increase in breeding distributional range can be mainly attributed to the discovery of formerly unknown colonies in Malta due

to increased monitoring effort, rather than to a true range expansion. A similar picture is given for the Aegean and Levantine Sea subregion (Greece), where the discovery of colonies in the recent past leads to a relative breeding distributional range of 1.1.

~~158.~~160. For parts of the Western Mediterranean region (Italy) the relative breeding distributional range was assessed at 0.89, indicating a slight range contraction in this subregion, just outside the 10% threshold bracket.

~~159.~~161. Overall, it can be assumed that due to range contractions specifically in the Adriatic and less pronounced in the Western Mediterranean, GES for the vulnerable Yelkouan Shearwater concerning CI3 is currently not reached.

~~160.~~162. The at-sea distribution of Yelkouan Shearwaters in the region is exemplarily presented as 50%UD core foraging areas and 95%UD home ranges from GPS- and GLS-tracked individuals from a colony each in the Western Mediterranean (Italy), Central and Ionian Sea (Malta) and Aegean and Levantine Sea (Greece). The quantitative GES assessment of at-sea distribution would require representative tracking data from relevant colonies across the breeding distribution range, both for setting baseline levels and for the current assessment cycle.

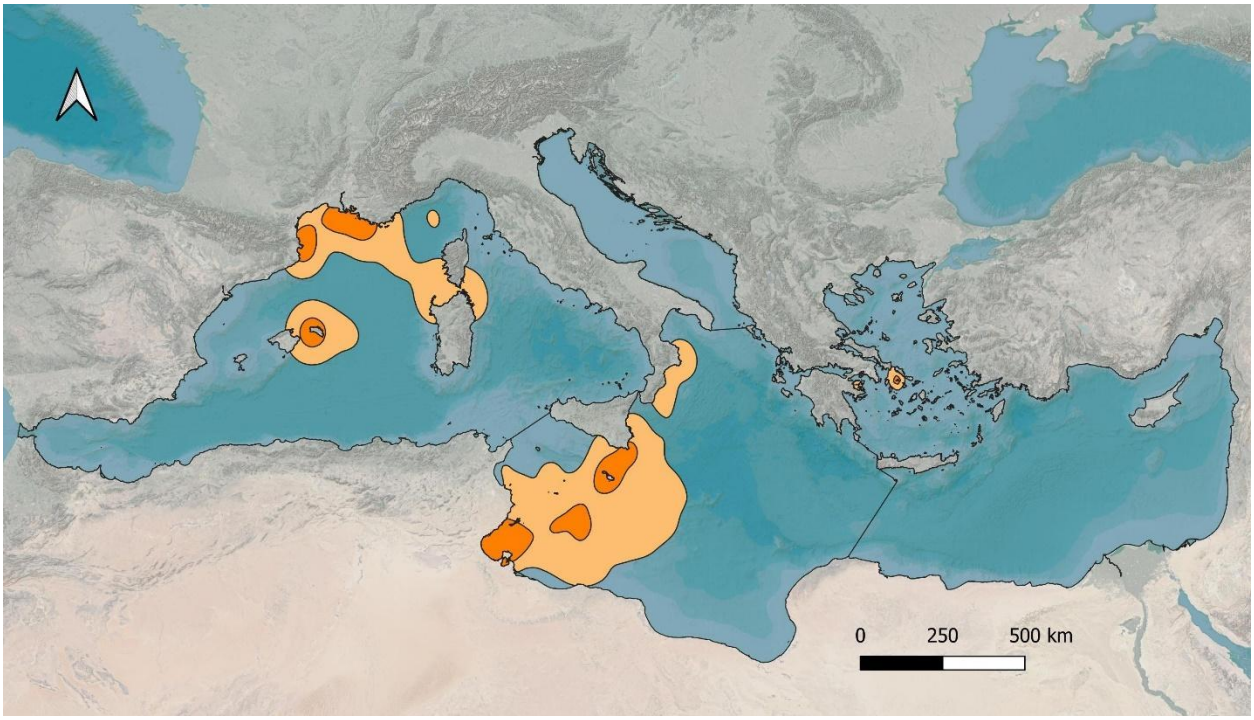


Figure 5 :Example of at-sea distribution ranges of Puffinus yelkouan during the breeding season. Home ranges (95% UD, light orange) and core foraging areas (50% UD, dark orange) of gps tracked adults from colonies in Greece, Italy, and Malta.

Common Indicator 4: Population abundance

~~161.~~163. The assessment focuses on the breeding population of the species i.e., breeding colonies and breeding pairs (or mature adult individuals), as it is very challenging to reliably quantify and monitor the abundance of the non-breeding population. However, systematic bi-montly passage counts at a bottleneck (Bosporus), where a major part of the population is known to migrate through, show the cyclic

and consistent nature of passages (Fig. 06). This method can be used as a supporting monitoring tool for the species and can reveal relative abundance data here and at other bottlenecks.

~~162.~~164. Relative breeding abundance data are available from parts of the population spread over most subregions. In the Adriatic Sea, the relative breeding population abundance is assessed at 1.83 to 2.0 for Croatia, while it is assessed at 2.87 to 3.9 for Italy. In the Central and Ionian Sea subregion, relative breeding abundance is assessed at 1.0 for Albania, 0.59 to 1.2 for Italy and 1.08 to 1.33 for Malta. In the Western Mediterranean subregion, the relative breeding abundance is assessed at 0.11 for France and Italy 1.06 to 1.35. For the Aegean and Levantine subregion, the relative breeding population abundance is assessed at 1.96 to 2.01 (Greece).

~~163.~~165. The wide ranges between lower and upper values for Yelkouan Shearwater populations in some of the CPs reflect the difficulty to assess CI 4 in this elusive species. The very high relative values of 1,83-3.9 for some CPs, indicating a strong increase of the population, can be mainly explained by an apparent population increase due to improved knowledge, while values between 1 and 1.5 could indicate true population recovery compared to baseline levels due to implemented conservation actions.

~~164.~~166. Overall, the gaps and heterogeneity in available data for this vulnerable species currently don't give a clear picture of the situation and prevent a truly quantitative assessment of GES regarding CI 4.

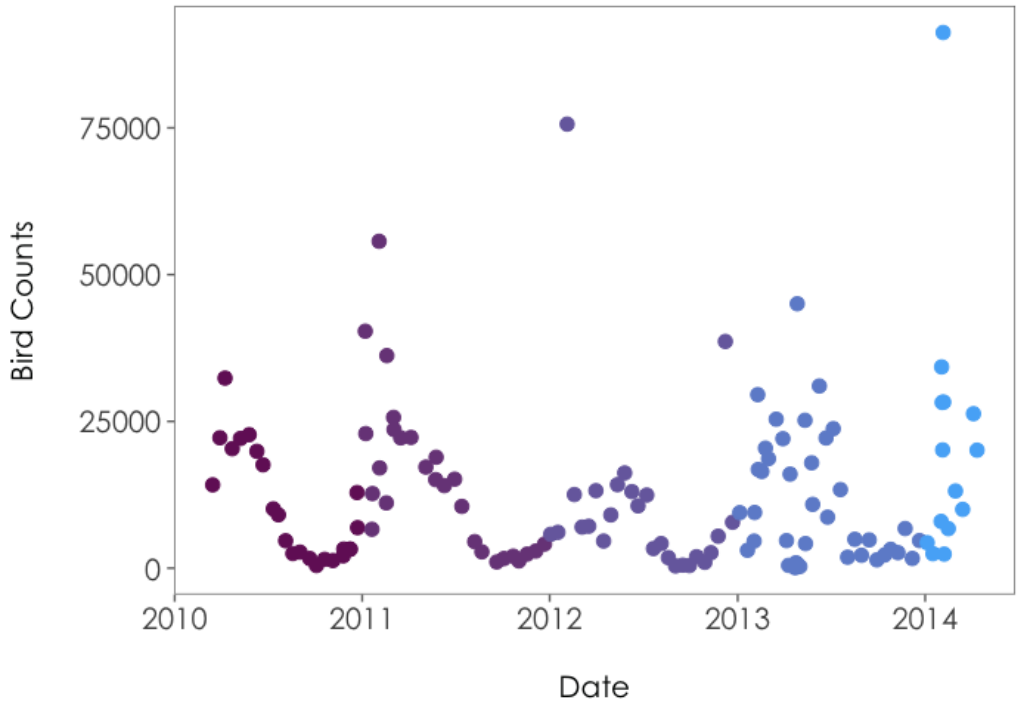


Figure 6 :Results of the bi-montly systematic Yelkouan Shearwater counts at the Bosporus (Türkiye) show cyclic nature of their activity at this bottleneck. These counts can be used as a secondary method in monitoring the trends in the portion of the Mediterranean population in the long-term.

Common Indicator 5: Population Demographic Characteristics

~~165.~~167. The assessment of this indicator is focused on the breeding population of the species with i.e., adult survival rates and reproductive success believed to be the main drivers of population dynamics

(Oppel et al., 2011). Additionally, there is currently less data available regarding the demographic characteristics of the non-breeding population.

~~166.~~168. For the current assessment cycle, modelled annual survival rates from CMR data in the colonies are available for one CP in the Central Mediterranean (Malta). With just above 0.7 they appear relatively low (baseline assessed at 0.74).

~~167.~~169. Annual reproductive success rates are available for part of the Adriatic Sea subregion (Croatia, 0.63-0.65), the Central Mediterranean and Ionian Sea subregion (Malta, 0.43-0.70) and the Western Mediterranean subregion (Italy, 0.44). Baseline levels of reproductive success rate are available for one large colony in the Aegean and Levantine subregion (Greece), evaluated during the previous assessment cycle. With values between 0.18 – 0.38 they appear very low.

~~168.~~170. Although data quality does not allow for a quantitative GES assessment of CI 5 for the species across the region, it is not likely that a population growth rate of >1 is reached, which would be necessary for a species recovery and thus for reaching GES.

Balearic Shearwater *Puffinus mauretanicus*

~~169.~~171. The Balearic Shearwater is the sibling taxon to the Yelkouan Shearwater, closely related and very similar and thus sharing the same functional ecological group *Offshore surface or pelagic feeder*.

~~170.~~172. In fact, latest research on the genomics of the genus *Puffinus* suggests that the two taxa show low genetic differentiation, not above the level of subspecies (Obiol et al. 2023), with potential consequences for management and conservation decisions.

~~171.~~173. The species is obligate marine and preys mainly on small pelagic fish, partially relying on fisheries discards. The nest is found in burrows, caves or crevices and females lay one egg per season. They are highly mobile, covering large areas during foraging trips. The birds are nocturnal in the colonies and show philopatry and high site fidelity. After the breeding period, most birds move westwards to spend the non-breeding period (August to December) in the East Atlantic. This means that some pressures on the species are active outside the region.

~~172.~~174. Population estimates for the Balearic Shearwaters are 19,000 - 25,000 mature individuals (Birdlife International 2023), 2,000-2,400 breeding pairs (Oro et al., 2004) or 7,200 breeding pairs (Genovart et al., 2016). The entire known breeding population is restricted to the Balearic Islands, Spain. The species is listed as Critically Endangered with a rapidly declining population trend.

~~173.~~175. Predation by invasive mammalian predators together with development including an increase in light pollution and human disturbance are the main pressures active on the birds in the colonies on land.

~~174.~~176. At sea, bycatch in various fishing gear, especially longlines are a major pressure in the region, but also in the Atlantic.

Common Indicator 3: Species Distributional Range

~~175.~~177. The assessment and monitoring of this indicator species is focused on the breeding population of the species i.e., the known breeding colonies.

~~176.~~178. No data have been provided by the CP regarding the species' breeding distributional range in the current assessment cycle.

~~177.~~179. No recent data on the at-sea distribution and the non-breeding distribution has been provided by the CP.

Common Indicator 4: Population abundance of selected species

~~178.~~180. The assessment and monitoring of this indicator is based on Balearic Shearwater breeding pair numbers provided by the CP.

~~179.~~181. As a baseline, the average number for the period 1990 to 2016 is provided as 2369 breeding pairs. For the year 2018 in the current assessment cycle, the breeding population is assessed at 351 breeding pairs. However, it appears that only a few colonies were monitored in both assessment cycles, and they do not overlap to an extent where comparison is meaningful. Due to the unfavourable conservation status of the species ~~If the breeding season 2018 is representative for the current assessment cycle and the effort is comparable with previous assessments, the relative breeding population abundance would be assessed at 0.15. In this case the~~ GES is currently not reached regarding CI 4 ~~for this critically endangered species~~.

Common Indicator 5: Population Demographic Characteristics

~~180.~~182. The assessment of this indicator focuses on adult annual survival rates and reproductive success as population dynamics of the species are believed to be driven mainly by these two factors (Oro et al., 2004).

~~181.~~183. No data on the adult annual survival rates are available of the species for the current assessment cycle. The reproductive success rate for the current assessment cycle was at 0.7 in 2017 and had been assessed at an average of 0.63 in the period 1986-2016.

~~182.~~184. For the closely related Yelkouan Shearwater, Oppel et al. (2011) stated that annual survival rates of adults would need to be >0.9 to consider the population to be sustainable. The reproductive success would need to be >0.75 to allow for a recovery or positive growth of the population (Louzao et al., 2006). Therefore, it is highly likely that GES for CI 5 for this critically endangered species is currently not reached.

~~4.2 GES Assessment for CI~~

~~**Mid-Term Strategy (MTS) Core Theme**: Biodiversity and Ecosystems~~
~~**Ecological Objective**: Biodiversity (EO1)~~

~~**IMAP Common Indicator:** Common Indicator 3: Species distributional range – Seabirds~~

~~**GES Definition**: The distribution of seabird species continues to occur in all of their Mediterranean natural habitats. Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions (EO1, Biodiversity)~~

~~**GES Targets:** No significant reduction in the population distributional range in the Mediterranean in all indicator species which are listed as LC; significant increase in the population distributional range in the Mediterranean in all indicator species which are currently listed with conservation concern.~~

New colonies are established, and the population is encouraged to spread among several alternative breeding sites, especially for species with conservation concern.

191. The assessment results based on the limited distributional range data available from seabird monitoring for the current assessment cycle indicate that overall GES for CI 3, the species' distributional range might be reached. However, this might be at least partially due to the fact that information on historic or pristine state conditions of distribution range is not readily available. Therefore, CI3 is widely assessed against modern baselines which likely have been shaped and reduced by human activities in the region.

193. As revealed by the DPSIR analysis, the major drivers putting pressure on the CI3 are coastal and offshore development, unsustainable and intensified fishing activities as well as accelerated climate change. When compared to modern baseline levels, available data for the majority of species and subregions did not reveal significant contractions at breeding distributional range. However, it should be noted that the available data are currently not providing a complete picture. Moreover, data on range shifts was widely lacking for the current assessment cycle. Similarly, information on at-sea and non-breeding distributional ranges is hardly representative across the region, with larger gaps visible even in the standardised and synchronised IWC mid-winter count data.

195. Most Mediterranean seabird species form metapopulations that breed in discrete colonies. These local colonies may differ in habitat quality and therefore may have varying immigration and emigration rates. Understanding dispersal and demographic processes between these local colonies for each species is needed to decide the meaningful spatial scales at which GES assessment should be integrated. Until such information is obtained, spatial integration of the GES assessment should be kept at the finest scale, i.e., country level for all CIs. However, for some species such as pelagic seabirds, the available tracking data of foraging trips during the breeding season also indicates subregions as meaningful spatial scales for GES assessment. For restricted species such as Balearic Shearwater or Lesser Crested Tern the GES assessment would need to be restricted to the country level for the breeding distributional range. Currently insufficient and patchy data prevent GES assessment integration spatially and temporally.

IMAP Common Indicator: Common Indicator 4: Population abundance of selected species – Seabirds

GES Definition: The species population has abundance levels allowing qualifying to Least Concern Category of the IUCN Red List or has abundance levels that are improving and moving away from the more critical IUCN category.

GES Targets: No human induced decrease in population abundance. Population recovers towards natural levels where depleted. The total number of individuals is sparse enough in different spots.

200. The available monitoring data utilised for the GES assessment of CI4 indicate that it is mainly population abundance of species listed as of Least Concern tentatively reaching GES in the region. Even monitoring data on small elusive species, restricted to predator free offshore islets, such as the Mediterranean Storm-petrel can show stable or improving population levels locally. For other species such as the vulnerable Yelkouan Shearwater, the overall positive population abundance assessment is known to be inflated by increased monitoring efforts leading to recent discoveries of previously unknown populations and should be interpreted accordingly.

202. According to the DPSIR analysis the major drivers that are putting pressure on CI4 are increased coastal and offshore development, unsustainable and intensified fishing activities, increased globalisation of goods and increased marine pollution.

204. Presently, large data gaps and particularly the lack of standardised, representative and regular monitoring data of the same of indicator seabird populations in most of the subregions prevented a robust

~~quantification of GES for CI4 across the region. However, the mixed results obtained from the available data point towards the influence of the above-mentioned drivers but also towards positive outcomes where conservation actions are implemented.~~

~~206. Understanding immigration and other demographic processes between different local populations will help identify meaningful spatial scales on which GES assessment for CI4 should be integrated in future assessments. Currently, lack of such information and patchy data prevents such an integration of GES assessment at different spatial levels.~~

~~**IMAP Common Indicator:** Common indicator 5: Population demographic characteristics - Seabirds~~

~~**GES Definition:** Species populations are in good conditions: Natural levels of breeding success and acceptable levels of survival of young and adult birds.~~

~~**GES Targets:** Populations of all taxa, particularly those with IUCN threatened status are maintained in the long-term following the indication of population models. Incidental catch mortality and other anthropogenic pressures are at negligible levels, particularly for species of conservation concern.~~

~~210. The available data on CI5 highlights that (i) data on demographic characteristics of seabird populations in the region is most limited and (ii) it is the Common Indicator in which most species, including those of conservation concern perform the poorest. Overall, the major drivers putting pressure on CI5 are not different from those acting on CI4 (and CI3), and monitoring data indicates positive outcomes when major pressures from these drivers are reduced. The removal or control of problematic invasive species for instance can improve reproductive performance significantly. However, the lack of representative data on relevant demographic parameters for the majority of species across the range, currently prevents an overall GES assessment for CI5 spatially integrated across the region.~~

~~4.3 GES Assessment for the EO~~

~~GES Assessment for EO Biodiversity and between other EOs will be provided in the next draft to be presented to the integrated CORMON.~~

5. Key findings per CI

~~211.~~185. For CI3, the species' distributional range, the results of the assessment indicate overall compliance with GES targets for seabirds in the Mediterranean. This can be partially explained by taking a modern baseline approach and by apparent range expansion due to increased monitoring and assessment effort for some species. However, it must be noted that the range assessment mainly focused on the breeding distributional range as larger data gaps remain for a more complete assessment of the at-sea- and non-breeding distribution of many indicator species across the region.

~~212.~~186. For CI4, the current patchiness and heterogeneity of data and the larger gaps in datasets prevent a comprehensive, truly quantitative GES assessment of population abundance of seabirds across the region. However, the available datasets point towards a heterogenous picture, with some species in some countries (or subregions) reaching GES target compliance while others do not. Lack of information on pristine, historical and in some cases even modern conditions impede the abundance assessment for the current cycle. Overall, it appears that assessment results particularly for populations of the species of conservation concern in the region might currently not be compliant with GES targets.

~~213.~~187. For CI5, the data availability across the indicator species and across the region appears currently insufficient for assessing compliance of this CI with GES targets quantitatively. Demographic parameters such as annual survival rates remain relatively poorly monitored overall. Examples of

populations, for which CI5 seems sufficiently monitored suggest that it might be the CI for which GES overall is not reached, especially when assessing species of conservation concern.

~~214.~~188. The assessment of Mediterranean seabird populations has come a long way since the initial MED QSR (2017). While the 2017 report qualitatively described the status of seabirds in the region without providing GES assessments, there has been significant improvements towards at least a semiquantitative assessment for all CIs, at least for some indicator species and for some populations in the region.

~~215.~~189. Increased international collaborations, including integrated and representative approaches, knowledge transfer and concerted, comparable efforts are now necessary in order to reduce existing knowledge gaps and allow for a truly quantitative assessment of GES of seabird related indicators in the entire region.

6. Measures and actions required to achieve GES

~~216.~~190. For the current assessment cycle, the results of the GES assessment regarding seabirds present an improvement in data availability and in applied methodologies when compared to the previous assessment cycle. It is possible to draw some preliminary conclusions using available quantitative monitoring data and assessment methodologies. For some indicator species and CIs sufficient data was available at a national scale, allowing for an assessment that reflects the impact of reduced pressures on local populations. Therefore, it highlights the importance of regular monitoring efforts to inform on the success of implemented conservation actions. However, for the current assessment cycle, the data that was made available remains patchy, heterogenous, and limited for a robust GES assessment of all indicator species for the three CIs across subregions. It is believed that the IMAP Infosystem will facilitate data reporting and improve efficiency and comparability for monitoring and GES assessments of future cycles.

~~217.~~191. Currently, the lack of representative, comparable subsamples distributed equally across the subregions remains one of the major challenges for an integrated assessment of the status of marine avifauna in the region. To achieve a robust GES assessment, monitoring data between two cycles should be made fully comparable. This requires monitoring a certain number of same or representative populations as prolonged time series at the finest spatial scale practical.

~~218.~~192. In order to improve the representativeness of monitoring samples, coordinated monitoring within subdivisions or subregions would further improve overall GES assessments. Mid-winter count data made available by IWC for this assessment cycle as well as transboundary counts of Mediterranean Shag roosts in the Adriatic are good examples highlighting useful outcomes of coordinated and synchronised monitoring efforts.

~~219.~~193. Enabling coordinated efforts and achieving standardised monitoring at the local level also requires regular transfer of know-how and calibration of monitoring methods within subdivisions, subregions or across the region. Finally, harmonisation between different assessment programmes such as MSFD can be further improved for a more efficient assessment of GES in the Mediterranean.

~~220.~~194. Quantifying GES for seabird populations in the Mediterranean remains challenging. Seabirds are highly mobile organisms and therefore a robust analysis of their state requires transboundary monitoring. Ensuring communication and information exchange between different assessment programmes and sea conventions within the region and for migratory species which leave the Mediterranean also other seas can help overcome this challenge.

~~221.~~195. The majority of seabird species in the Mediterranean form metapopulations with discrete local breeding colonies. Without better understanding the demographic connectivity between these colonies, deciding on a meaningful spatial scale at which GES should be assessed remains to some extent arbitrary. Therefore, closing such knowledge gaps will be pivotal for the finetuning of monitoring programmes and for successful GES assessments in the future.

~~222.~~196. Currently, a strong bias remains in the amount of monitoring data available for the different aspects in the life cycle of the majority of Mediterranean seabirds. This bias means that there is insufficient knowledge regarding the non-breeding season and the periods the birds spend out at sea, often far away from the breeding grounds. To reduce this bias, it is recommended that future assessment cycles increase the effort of monitoring the birds away from the colonies, by means of increased colour ringing and ring-reading, tracking programmes and counts at bottlenecks.

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