**Status**

Poor to fair

Trend

Deteriorating

Data confidence

Medium



Blue shark. © Jim Anernethy

PRESENT STATUS

To date, there is no defined list of priority migratory species of concern (indicator species) at the regional level for the Pacific islands to direct efforts. The Regional Marine Species Action Plans (under revision; see below) and the regional CMS Memorandum of Understanding (2006) for cetaceans can be considered as part of regional level prioritisation. For birds, BirdLife's Datazone includes a list of migratory species for each country in the region. At the national level, priority species may be defined in the National Biodiversity Strategy and Action Plan (NBSAP) created as part of country efforts under the Convention on Biological Diversity.

Here, data for this indicator are based on the migratory species listed under the Convention on Migratory Species (CMS), to which four Pacific island countries are Party (see Annex C). As of September 2020, about 200 species managed under CMS were present in the Pacific islands region according to Species+, a portal for accessing key information on species of global concern that are listed in the Appendices of CITES and CMS, developed by UNEP-WCMC and the Convention on International Trade in Endangered Species (CITES) Secretariat.¹ Using CMS lists is a proxy but underrepresents the importance of migratory species to the region.

Tuna are not listed on CMS appendices and are excluded from consideration in this summary. Including the four species of tuna in the assessment conducted here does not alter the identified trends or share of migratory species at risk. For more information about tuna, please see Regional Indicator: [Commercial pelagic fish](#).

For future assessments of this indicator, a defined list of priority migratory species could direct efforts. Given the Pacific Leader's stated priority of the ocean and marine life, as formalised in the Blue Pacific identity, Framework for a Pacific Oceanscape (2010), and other regional frameworks, we consider marine migratory species to be 'of concern'.

Population sizes are decreasing for half (51%) of the CMS-listed migratory species present in the Pacific; 31% have stable or increasing populations (Table 18.1). Of the 200 species listed, the status was reassessed in 2013 or a more recent year for 194 species. Population trends are unknown for

¹ Species+: <https://speciesplus.net/>

19% of all listed species (17% of terrestrial, 21% of marine).

Among marine migratory species, 79% are at risk² and 73% of these at-risk species show population declines. Of all marine migratory species, 58% have declining populations, 58% are at risk² with declining populations, and 6% are at risk with unknown population trends. The population status of three marine migratory species are worse in the Pacific than elsewhere in the species' range: humpback whales, loggerhead turtles and leatherback turtles, all iconic Pacific species.

Among terrestrial migratory species, 20% are at risk and 80% of these show population declines. Of all terrestrial migratory species, 48% are declining, and 15% are at risk with declining populations.

The species 'of concern' are, in this analysis, those considered at risk in Red List assessments; 80% of these at-risk species have declining populations. Based on these data, the status for migratory species of concern in Oceania is considered *poor* with a *deteriorating* regional trend.

The confidence in this information was rated *medium*: the IUCN Red List is the most comprehensive, reliable, objective and up-to-date resource for measuring a species' extinction risk, and the CMS Appendices are the recognised global mechanism for migratory species management. However, a small fraction of species that migrate are listed on CMS Appendices, and listed species have been nominated by governments with over-representation by popular megafauna. Gaps in data availability and quality remain.

Importantly, the trend in species status over time is not publicly collated for priority migratory species of the Pacific islands region. The exception is for bird species: BirdLife's Datazone assesses trends for each Red List release. IUCN Red List entries are intermittently updated and do not themselves report changes over time. For more information about Pacific species listed on the IUCN Red List, please see Regional Indicator: [IUCN Red List summary](#).

² Species 'at risk' are ranked on the IUCN Red List as: Critically Endangered, Endangered, Vulnerable, and Near Threatened.

CRITICAL CONNECTIONS

Pacific migratory species have economic value, directly and/or via tourism. Data are not presently collected for the complex measurement of this value, but we do know of the significant cultural value of Pacific migratory species. In today's context of changing ecosystems and societies, both scientific and traditional, local knowledge of migratory species will be essential for sustainable management. For migratory species, research cooperation among countries is essential, and future conservation research must address research capacity limitations, national and regional prioritisation, and the integration of traditional knowledge and data-driven methods.

Native species such as seabirds shape forest health and nearshore marine ecosystem health. Ecosystem destabilisation and change due to the complex interactions among species is a growing threat on islands, with invasive species and habitat change disrupting the diets and populations of native species, dispersal of native seeds, and nutrient/carbon flows.

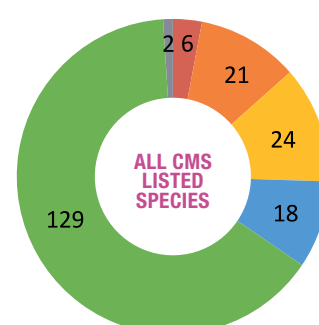
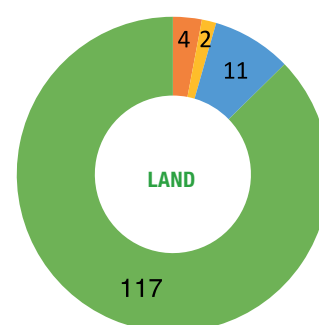
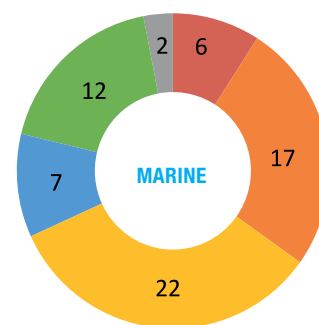
The majority of studied Pacific species have ingested plastic, with growing evidence that plastics affect the health and life of animals on land and at sea. Future management of migratory biodiversity must consider transboundary pollutants, such as plastics and mercury.

Migratory species cross vast areas and suffer transboundary impacts. However, networks of protected areas and their spillover benefits could provide refugia for some migratory species.

TABLE 21.1: Global population trends of the species listed on the Appendices of the Convention on Migratory Species that are present in the Pacific islands region. Data are the number of species. For 3 species, all marine, the Pacific subpopulations have a poorer status than the global population: Humpback whales are EN in the Pacific region (LC globally), with an increasing trend; Loggerhead turtles are CR in the Pacific region (VU globally), with a decreasing trend; Leatherback turtles are CR in the Pacific region (VU globally), with a decreasing trend. Source: Species+ and the IUCN Red List, July 2020

| | STATUS | POPULATION TREND | | | | TOTAL |
|-------------|-----------------------|------------------|-----------|------------|------------|------------|
| | | STABLE | UNKNOWN | INCREASING | DECREASING | |
| Marine | Total | 4 | 14 | 10 | 38 | 66 |
| | Critically endangered | 0 | 0 | 0 | 6 | 6 |
| | Endangered | 0 | 0 | 2 | 15 | 17 |
| | Vulnerable | 3 | 1 | 3 | 15 | 22 |
| | Near threatened | 1 | 3 | 1 | 2 | 7 |
| | Least concern | 0 | 8 | 4 | 0 | 12 |
| | Data deficient | 0 | 2 | 0 | 0 | 2 |
| Terrestrial | Total | 36 | 23 | 11 | 64 | 134 |
| | Critically endangered | 0 | 0 | 0 | 0 | 0 |
| | Endangered | 0 | 0 | 0 | 4 | 4 |
| | Vulnerable | 0 | 0 | 0 | 2 | 2 |
| | Near threatened | 0 | 0 | 0 | 11 | 11 |
| | Least concern | 36 | 23 | 11 | 47 | 117 |
| All | Total | 40 | 37 | 21 | 102 | 200 |
| | Critically endangered | 0 | 0 | 0 | 6 | 6 |
| | Endangered | 0 | 0 | 2 | 19 | 21 |
| | Vulnerable | 3 | 1 | 3 | 17 | 24 |
| | Near threatened | 1 | 3 | 1 | 13 | 18 |
| | Least concern | 36 | 31 | 15 | 47 | 129 |
| | Data deficient | 0 | 2 | 0 | 0 | 2 |

TOTAL NUMBER OF SPECIES BY CATEGORY



- Critically endangered
- Near threatened
- Endangered
- Least concern
- Vulnerable
- Data deficient

Note: Shorebirds are categorised as 'terrestrial', whereas seabirds (albatross and petrel) are categorised as 'marine' species. Species included were those present in the 21 Pacific island countries and territories that are Members of the Pacific Regional Environment Programme, with the addition of Pitcairn. Each species that was present in Pitcairn was also present in at least one other Member country or territory.

WHICH SPECIES ARE MIGRATORY?

Migration habits exist across a spectrum, and the functional definition of 'migratory' may be expanded for the Pacific islands region due to the large habitat ranges of endemic species.

For example, albatross disperse over vast parts of the ocean after breeding but most species do not migrate according to the classic definition. The wandering albatross (*Diomedea exulans*) completes a true migration, the longest of any animal studied to date, with some individuals completing three circumnavigations of the globe in a year and travelling more than 120,000 kilometres (Weimerskirch et al. 2015). Even within a population, some individuals show partial migration.

Movement at a range of scales is essential for species survival. Conservation of these species requires cooperative management among the areas with the required habitats and the governance sectors responsible. For example, fruit bats move across islands seasonally to find suitable habitat with food, but these bats are not listed on CMS Appendices.

Migratory species can, in some cases, alter their migration patterns or decisions in response to environmental conditions and their health, and our understanding of Pacific migrations in the context of environmental change is limited (Weimerskirch et al. 2015 and references therein, Derville et al. 2019).

With their movements and the accompanying movements of carbon in their biomass, the birds, whales, and other migratory species of the Pacific islands region connect the North and South Pacific, Indian Ocean, Southern Ocean and beyond. For example, a study of 14 marine species tracked them to 86% of Pacific Ocean countries, and some spent three-quarters of their annual cycles in the high seas (Harrison et al. 2018).

For the purpose of this indicator, we focus on migratory species that cross national boundaries during their migration. The data refer to species listed under CMS.

RECOVERING WHALES FACE AN UNCERTAIN FUTURE

Humpback whales are a success story of a migratory species. In 1996, humpback whales were listed as Vulnerable on the IUCN Red List. From 2008 to today, humpback whales have recovered to the status of Least Concern globally, although their Pacific subpopulation is still considered Endangered but increasing in size with high reproductive rates (Chero et al. 2020).

These gentle icons are a core component of tourism for some Pacific countries, such as Niue and Tonga. Several Pacific islands have declared whale sanctuaries, including American Samoa, Cook Islands, Fiji, French Polynesia, New Caledonia, Niue, Palau, Samoa, Tokelau, and Vanuatu. Repeated assessments of the proportion of each species that uses those sanctuaries (based on population size and proportion of a year spent in the sanctuary) and of management effectiveness (appropriate, enforced, and monitored) would strengthen our understanding of whales and their sustainable management.

With their large bodies and vast travel, whales store and move carbon across the planet (e.g. Lavery et al. 2010, SPREP 2017). In terms of carbon storage, the recovery of whale populations is akin to rebuilding forests. Although whales can be considered allies in the fight against climate change, whales are also affected by climate change, particularly through ocean warming and changes in their food supply. Many breeding sites currently used by humpback whales will be unsuitably warm by the end of the 21st Century (Derville et al. 2019).

Ocean acidification can alter sound transmission in the ocean (Reeder & Chiu 2010), although the impacts on cetaceans are not yet certain (Peng et al. 2015). Floating plastic debris is a direct threat to whales and other marine life, through entanglement or swallowing.

The humpback recovery has occurred primarily because of the decline in commercial whaling harvests, which used to be the single dominant threat. However, whales now face new threats. Many of today's threats to whales cross sanctuary boundaries. International cooperation is essential to ensure the continued health of Pacific whales.

MAKING THE PACIFIC SAFE FOR SHARKS

In 2009, the Republic of Palau established the world's first shark sanctuary to protect their biodiversity including great hammerheads, leopard sharks, oceanic whitetip sharks, and more than 130 other marine species. As of 2020, eight Pacific island countries and territories have designated their national waters as protected sanctuaries for all sharks and rays. The total area covers an estimated 17 million square kilometres consisting of the Exclusive Economic Zones (EEZs) of the Federated States of Micronesia, French Polynesia, Kiribati, New Caledonia, Palau, Republic of Marshall Islands and Samoa.

In some cases, such as in Kiribati, the regulations prohibit commercial shark fishing and trade but allow for local consumption (Manghubai et al. 2019b). In 2016, Guam and the Northern Mariana Islands established shark sanctuaries in their local waters (within three nautical miles from shore) prohibiting commercial fishing for sharks, the retention of sharks caught as bycatch, and the trade, possession, and sale of shark products. Both national nomination and regional cooperation are important to influence international management measures. Fiji successfully led a Pacific lobby to list the six species of mobulid rays on CMS Appendices in 2015.

Sharks and rays are totem species in some Pacific island cultures. In addition to their ecological importance, these unique animals have cultural and spiritual significance for the people of Oceania and the many tourists who come to appreciate their beauty.

PRESSURES AND OPPORTUNITIES

Migratory species in the Pacific islands face direct threats and indirect, chronic threats. The top threats to Pacific species include invasive species, climate change, and habitat loss. Direct harvesting, both over-harvesting and illegal harvesting of a variety of species, is a common threat to priority species in the Pacific.

For migratory species, habitat loss or consumptive use at sites of intermittent use, such as feeding or breeding locations, is a priority hazard placing Pacific biodiversity at risk. The Antipodean albatross (*Diomedea antipodensis*) is a good example of a migratory species at risk outside of its breeding jurisdiction, in New Zealand. Action where it is at risk is needed to prevent extinction. In this case, mitigation of fisheries bycatch throughout the southern Pacific Ocean would support Antipodean albatross populations (for example, Ochi et al. 2018).

Direct threats include bycatch hazards, fisheries harvests, or entanglement in active and discarded fishing gear or plastic debris. Invasive species can also directly kill Pacific migratory species, with the most notable losses from invasive rats eating seabird eggs and chicks. Among seabirds that only breed in the Pacific islands region, 30% are at risk (CR: 3; EN: 3; VU: 4; NT: 1; LC: 28) (IUCN 2020).

Indirect threats include habitat change or displacement due to human development (factors such as physical displacement, light, or sound pollution), invasive species, and climate change; disease, in some cases linked with climate change and tourism; and transboundary pollution, including persistent organic pollutants and heavy metals. Plastics are a growing threat to migratory species; see the Regional Indicator: Marine plastic pollution.

Migratory marine species, such as whales and dolphins, marine turtles, dugongs, seabirds, sharks, and rays, are key species within Pacific ecosystems, cultures, and economies but face many threats, the greatest due to fishing activities and climate change. Regional Marine Species Action Plans endorsed by SPREP Members were produced roughly every 5 years starting in 2003 for dugongs, marine turtles, whales and dolphins; the most recent editions covered 2012–2017. Existing action plans are being updated and new ones prepared for seabirds and for sharks and rays.

Due to their intermittent presence in multiple habitats under a range of governance, migratory species require more cooperation for management over a complex and dispersed area. For example, the Pacific islands are part of the West Pacific and East Asian/Australasian flyways, vast paths travelled between breeding and wintering grounds. Migratory seabirds face habitat change, invasive species pressures, and direct mortality both at sea and on land, complicating our understanding and management of their population status, pressures, and trends as compared to other birds.

In 2018, a Conservation Management Measure (CMM) was reviewed for seabirds by the Western and Central Pacific Fisheries Commission (WCPFC), building on the 2012 agreement to expand the area in the South Pacific where mitigation measures would be required with the intention of providing greater protection for seabirds, including the CR Antipodean albatross. Although most of the threatened seabirds in the Pacific that are listed on CMS are also found and studied in other countries such as Australia and New Zealand, seabird colonies in the tropical Pacific islands are not well understood. Most of the threatened Pacific seabirds are endemic or regionally endemic but not yet listed under CMS. Research is currently being conducted most notably in Fiji, French Polynesia, and New Caledonia; however, additional surveys are needed to better understand their status and threats.

Reptiles and especially marine turtles are critical species in the Pacific both culturally and in terms of decline. A region-wide assessment for marine turtles is underway (see Box 3.2 in Regional Indicator: Terrestrial wildlife use). In addition to biological indicators for the species, a comprehensive assessment could consider the economic value of marine turtles including their contributions to Pacific tourism; the social and cultural value of marine turtles including their traditional or aesthetic meaning; and the emerging threats to marine turtles from inside and outside of the Pacific region. Although the global population of leatherback turtles is listed as Vulnerable, this species is now Critically Endangered in the Pacific region (IUCN RedList). Trends in the East and West Pacific subpopulations are the primary drivers of the global decline in leatherback turtles (Wallace et al. 2013).

The vast size of the Pacific islands region is part of what makes Pacific migratory species so special, but this size also creates significant challenges for sustained, replicable monitoring of Pacific biodiversity.

REGIONAL RESPONSE RECOMMENDATIONS

Analysing gaps in policy areas that allow unfettered development to the detriment of priority migratory species and prioritising protection of priority migratory species throughout government systems are essential. Given the long lifespans of many priority migratory species, such as turtles which do not begin to breed until 25 years old or older, long-term sustainability of management efforts is essential for progress towards the Pacific goals for migratory species management. To ensure habitats remain available for priority species over such long timescales, multi-sectoral management will be critically important.

Countries are encouraged to:

- Confirm the suite of priority migratory species for Pacific region, considering cultural, economic, and traditional use. Countries can consider ratifying CMS and nominating migratory species to the CMS Appendices;
- Identify priority knowledge gaps and key sites (or Key Biodiversity Areas) for migratory species that are of particular importance for Pacific people, economies, and cultures;
- Protect essential habitats for biodiversity, beginning with an identification of the essential habitats for stages in migratory species' lifecycles;
- Measure *efforts* towards priority migratory species management, *contributions* of migratory species to national and regional economies, and *costs and contributions* from enforcement of management measures such as CITES fines, distinguishing between long-term national investments and short-term project funds;
- Ratify international and regional conventions or agreements, including the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species (CITES), that promote the protection of listed migratory species;
- Partner for management of priority migratory species, including essential partnerships between environmental managers and customs and biosecurity officials; and
- Develop legislation, policy, and regulations to protect biodiversity, mainstreaming biodiversity protection across all sectors of government.

INDICATOR IN ACTION

SDGs 6.6, 15.1, 15.6, 15.7, 15.c • Convention on Biological Diversity • Convention on Migratory Species • SAMOA Pathway (90, 94d) • Pacific Regional Environment Objective 2.3 • Pacific Islands Framework for Nature Conservation Objectives 4, 5

FOR MORE INFORMATION

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Indicator 21 of 31 in *State of Environment and Conservation in the Pacific Islands: 2020 Regional Report*



The Secretariat of the Pacific Regional Environment Programme (SPREP) supports 14 countries and 7 territories in the Pacific to better manage the environment. SPREP member countries and members of the Pacific Roundtable on Nature Conservation (PIRT) have contributed valuable input to the production of this indicator. www.sprep.org

National and regional environment datasets supporting the analysis above can be accessed through the Pacific Environment Portal. pacific-data.sprep.org

For protected areas information, please see the Pacific Islands Protected Area Portal. pipap.sprep.org