

PACIFIC BIODIVERSITY, INCLUDING MARINE AND COASTAL LIFE



KEY POINTS

- Global changes are progressively reducing the biological and structural complexity of Pacific ecosystems. This could limit or even eliminate access to food sources and endanger [biodiversity](#).
- Emerging threats include [climate change](#), [ocean acidification](#), [marine debris](#), over-harvest and illegal take. These threats are hard to monitor in such a vast marine area.
- Management can lead to species recovery. The Pacific leads the world in the establishment of large [marine sanctuaries](#), covering millions of square kilometres.
- A unified Pacific approach has great global effect, as seen in the CITES listings of silky sharks, all three species of thresher sharks, and 9 species of mobula rays in 2016.
- Maintaining healthy coastal systems is important for adapting to and mitigating climate change impacts and for sustainable development. Coastal wetland ecosystems:
 1. [sequester substantial amounts of carbon](#) and
 2. provide critical ecosystem services, livelihoods, and [economic wellbeing](#) for coastal peoples.
- Pacific species provide [ecosystem services](#) (supporting, regulating, and provisioning in addition to cultural services), many of which remain unquantified.
- Marine ecosystems are affected by both marine and terrestrial [invasive species](#). Invasive species are the lead cause of extinction of endemic Pacific species.¹
- The long-term sustainability of Pacific [tourism](#) depends on coordinated commitments to species conservation and integrated ocean management.
- Integrated, ridge-to-reef management across sectors and within communities is needed to support marine ecosystem health, service provision, and resilience to [climate change](#).

HOW ISSUE LINKS TO/IMPACTS SDGs BEYOND **SDG14 LIFE BELOW WATER**

- SDG1, 2: Sustainable management of our marine resources is vital to achieve food security and reduce poverty in the Pacific and to maintain sustainable food production systems that help maintain ecosystems and genetic diversity of wild species.
- SDG1, 8: sustainable tourism driven by the presence of healthy populations of marine species is a valuable economic activity in the Pacific.
- SDG12, 13, 15: [Responsible consumption and production](#) with integrated terrestrial to marine management can help maintain ecosystem function and climate resilience.

BACKGROUND

1. **The Pacific islands region is home to many species, with a great number of these species only found in this region.** Other [species migrate](#) through the region, contributing to global cycles of elements such as carbon² and to multiple cultures, economies, and ecosystems. Long-term collaborative sustainable management is vital for the health of many Pacific species and the ecosystems on which they depend. Marine species support Pacific livelihoods and economies and shape the islands themselves.
2. **The value of biodiversity is extensive and crosses many sectors.** Healthy biodiversity is an important source of resources today and in the future. Pacific species provide essential ecosystem services and wealth.
3. **Mobile species link and support ecosystem services.** For example, seabirds link native forests and coastal marine ecosystems, including manta rays and thereby support tourism.³ Integrated effects demand integrated management.
4. **Healthy, live animals bring value to the region.** Tourism accounts for 7.2% of regional GDP and 5.8% of employment in the Pacific islands region, exceeding 20% of GDP in many countries.⁴ The Pacific Ocean is home to over half of the world's whale and dolphin species. Sharks, rays, [corals](#), and turtles draw tourists on their own.⁶



5. **New threats are emerging, from local and global sources.** Pacific species face threats from [deep-sea mining exploration](#), [coastal development](#), nutrient loading, sedimentation, disease, invasive species, predator outbreaks, overfishing, destructive fishing, marine noise and light pollution, ocean acidification, and climate change with the impacts of higher temperatures, [sea level rise](#), and increased [risk of storm damage](#).
6. **Marine litter and pollution threaten species, ecosystems, and us.** The Pacific region is affected by local practice and by actions in other regions. Many fishing vessels illegally dump non-biodegradable waste in the Pacific.⁵ Plastics carry toxins and invasive species.
7. **Preservation of coastal habitats is globally valuable as a climate change mitigation measure.** Coastal habitat loss is between 0.5% and 3% of their global area each year, resulting in the release of 0.15–1.02 billion metric tons of CO₂ (equivalent to burning 112 billion gallons of gasoline).⁶ The main drivers of change in Oceania are unsustainable development, invasive species, and climate change.
8. **The tropical Pacific contains 25% of the world’s coral reefs and 3% of the mangroves.**⁷ The goods and services provided by almost a fifth of the world’s reefs have been lost due to reef degradation. A further 15% of reefs are under imminent threat of being lost within the next decade unless effective management actions are implemented.⁸
9. **Native biodiversity protects our islands.** Reefs reduce the wave energy on shores by >95%. Maintaining healthy wetlands is the most cost-effective method of preventing shoreline erosion.⁹ At least 50% of Pacific islanders live within 1.5 km of the coast, and sustainable, integrated shoreline development that maintains reef ecosystems is vital.
10. **Invasive species are the lead cause of endemic Pacific species extinction.**¹⁰ Invasive species weaken ecosystem structure and function. Prevention is the most cost-effective form of invasive species management. Little is known about South Pacific marine invasives, although terrestrial invasives are a known food security issue.¹¹ Invasive species on land and sea can negatively impact sustainable development.
11. **Coastal biodiversity feeds us.** About 70% of the protein in the diet of Pacific islanders is from near-shore pelagic, reef, and lagoon fisheries. Wetlands are structurally complex habitats that support many species. Threats to wetlands also threaten nutrition, livelihoods, and incomes from reef fisheries and tourism. Pacific communities will need increased adaptation capacity, including access to alternate livelihoods, with particular attention to the food security gap created by the need to reduce fishing on reef systems.
12. **We can boost resilience by reducing local pressures.** Doing so requires commitments to management that ensures the sustainability of the values and resources provided by biodiversity, and that incorporates rigorous [environmental impact assessments](#).
13. **Biodiversity can provide solutions.** For example, healthy wetlands stabilise shorelines, reduce the sediment load that reaches lagoons, and buffer against sea level rise and storm damage. As global changes proceed, the community structure will change, but diverse ecosystems support each other. Creating spaces for species to recover, by reducing external pressures, can support marine ecosystems and therefore support Pacific communities that depend on them.
14. **Recovery is possible.** The iconic humpback whale—the focus of a multi-million-dollar whale-watching industry in many Pacific island countries—was hunted last century almost to the point of extinction, with perhaps as few as 200 remaining across the entire region when the hunting stopped in 1978. Its recovery in the Pacific region to ~3,000 whales is one of the world’s most encouraging conservation success stories.
15. **Our knowledge of Pacific species is still limited**, particularly marine species, both pelagic and deep sea. Initiatives boosting the profile of [research and the scientific capacity](#) within the islands will serve the global community, support local and regional management, and take advantage of the opportunity for Pacific leadership in science and management.
16. **Progress toward the SDGs requires measurements.** Baselines and monitoring combined with local knowledge are vital for sustainable development and resilient management. Leader engagement with evidence-based knowledge will increase the effectiveness of planning. Capacity for monitoring data and analysis is a critical need for Pacific states.
17. **The complexity of balancing development with the needs of ecosystems requires informed, integrated planning.** The Pacific region requires assistance in creating knowledge and Pacific capacity for Pacific-led management, incorporating local and traditional knowledge and practice.

1 SPREP. 2014. [State of Conservation in Oceania: Key Findings and Full Report](#). SPREP, Apia
 2 Martin A. 2016. [Fish poo and the climate challenge](#). *The Marine Biologist* April 2016: 20–23
 3 McCauley et al. 2012. [From wing to wing: persistence of long ecological interaction chains in less-disturbed ecosystems](#). *Nature Sci Rep* 2:409
 4 Seidel & Lal. 2010. [Economic value of the Pacific Ocean to the Pacific Island Countries and Territories](#). IUCN. Gland. 75 p
 5 Richardson et al. 2016. [Marine pollution originating from purse seine and longline fishing vessel operations in the Western and Central Pacific Ocean, 2003–2015](#). *Ambio* 45
 6 Spalding et al. 2016. [Atlas of Ocean Wealth](#). The Nature Conservancy

7 Gilman et al. 2006. [Pacific island mangroves in a changing climate and rising sea](#). UNEP Regional Seas Reports and Studies No. 179
 8 Global coral reef partnership. http://coral.unep.ch/Coral_Reefs.html
 9 Ferrario et al. 2014. [The effectiveness of coral reefs for coastal hazard risk reduction and adaptation](#). *Nature Comm* 5:3794
 10 SPREP 2016. [Battling invasive species in the Pacific: outcomes of the Regional GEF-PAS IAS Project Prevention, control and management of invasive species in the Pacific islands](#). Secretariat of the Pacific Regional Environment Programme, Apia. 36 p
 11 Pacific Invasives Initiative. [Invasive species and food security in the Pacific](#). 2 p