

# Wetlands restoration: unlocking the untapped potential of the Earth's most valuable ecosystem

Inextricably linked to the ecological health of our planet and to the socio-economic well-being of all peoples across the globe, wetlands serve and sustain us in immeasurable ways. In fact, they are vital for our survival. Yet, the world has lost 87% of its wetlands since 1700 — and they continue to disappear at an alarming rate, even today. The Convention on Wetlands recognizes that the restoration of the Earth's wetlands must be a key priority for ensuring a sustainable future. The United Nations Decade on Ecosystem Restoration 2021-2030 represents a distinct and timely opportunity for joining efforts and making meaningful headway worldwide in preventing, halting, and reversing the degradation of our planet's wetlands.

## Why are wetlands so important?

Wetlands are crucial for our existence. Among the world's most productive environments, they provide essential benefits and serve us in many ways:

### Wetlands provide food and water, often in areas of extreme poverty

- Wetlands provide desperately needed drinking water. In fact, almost all the world's consumption of freshwater is drawn either directly or indirectly from wetlands.
  - Only 0.75% of the world's freshwater is accessible for direct human use. The UN estimates that in just a few years, by 2025, 2 billion people will not have access to safe drinking water.
- More than one billion people worldwide rely on fish harvested from

wetlands as their primary source of protein. For another two billion people, the fish harvested from wetlands account for at least 15% of the animal protein in their diets.

- Rice production is the primary source of employment and the livelihood of more than a billion households in Asia, Africa, and the Americas.

### Wetlands are critical to biodiversity

- With 40% of all the world's species living and breeding in these environments, wetlands help sustain the Earth's biodiversity.
- Wetlands are home to more than 100,000 freshwater species. They are essential for many amphibians, reptiles, and migratory birds.

## WHAT ARE WETLANDS?

Wetlands are precious environments that teem with life, service, and value for all of society. They serve us in many important and surprising ways.

Covering more than 12.1 million kilometers worldwide, wetlands encompass rivers, streams, natural lakes, ponds, and aquifers; peatlands, including bogs, mires, and fens; marshes and swamps, including flood plains; lagoons and coastal estuaries, including unvegetated tidal flats and salt marshes; seagrass beds, mangroves, and coastal deltas; man-made wetlands, such as rice paddies; and our quickly dying coral reefs—among other specifically defined areas of land that are saturated or flooded with water, either seasonally or permanently.

## Wetlands serve as an important source of employment and income

- Wetlands provide more than a billion jobs and services – valued at \$47 trillion a year worldwide.
- More than 660 million people around the world live off fishing and aquaculture-related activities.
- Wetlands tourism accounts for 8.9% of the world's employment.

## Wetlands enrich quality of life, offering opportunities for relaxation and ties to local culture

- Wetlands offer natural beauty and open areas for recreation and exercise.
- Often, they hold cultural and spiritual importance to local communities and are part of regional identity.
- About 50% of international tourists go to wetland areas to relax.

## Wetlands are vital in the fight against climate change and help with sustainable development

- Wetlands provide natural infrastructure that can help meet a range of policy objectives.
- Peatlands, mangroves, and seagrasses are the most effective carbon sinks on earth. Combined, wetlands store more carbon than any other ecosystem on the planet.
- Not only are they critically important to water quality and availability, but wetlands also have proven invaluable in mitigating and adapting to the effects of climate change.
  - For example, salt marshes, mudflats, mangroves, and other wetland habitats serve as buffers against the catastrophic effects of extreme weather by storing water in times of flooding and preserving surface water in times of drought.

- The many benefits that wetlands provide support human health and livelihoods, sustainable local development, and efforts to eradicate poverty.

The wise use of wetlands depends on our fully recognizing their value and the many diverse benefits they provide. Moreover, understanding the critical role they play in sustainable development and in securing a viable future for societies across the globe is essential for ensuring that their vital importance is reflected in global policy processes – including the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on Climate Change, and the UN Decade on Ecosystem Restoration.

## Why should we restore wetlands?

The Ramsar Convention on Wetlands defines restoration in its broadest sense, including activities that promote a return to previous conditions – as well as activities that improve the functioning of a wetland without necessarily seeking to return it to its pre-disturbance condition (Ramsar HB19).

Thirty-five percent of the world's wetlands have been lost since the 1970s. And the continued rate of degradation and loss of these life-supporting ecosystems – because of human activity – is staggering. When wetlands are degraded, the broad range of benefits they produce begins to deteriorate. Eventually, they vanish altogether.

Contracting Parties to the Convention have prioritized restoration of degraded wetlands in Target 12 of the Convention's

Strategic Plan, with priority given to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods, and climate change mitigation and adaptation. Specific data on this Target is provided by Contracting Parties in the National Reports, as well as in the Ramsar Sites Information Service.

## The restoration of wetlands yields many far-reaching benefits

- Restoring lost or degraded wetlands presents a valuable and cost-effective opportunity for society to recover and enhance benefits for human health and well-being.
- The total value of benefits that flow from a restored wetland are often several times higher than the cost of restoration.

- Restoration interventions can bring back lost ecosystem services, increase the spatial extent of wetlands, and increase the heterogeneity of wetland functions and biodiversity.
- Wetland restoration can be a cost-effective, long-term strategy for simultaneously achieving conservation and development objectives.
- Maintaining and restoring wetlands also lead to cost savings when compared to manmade infrastructure solutions, in many cases.

## Key takeaways

**Stop the loss of wetlands.** Despite their value and potential policy synergies, wetlands have been – and continue to be – lost or degraded. This inevitably leads to the deprivation of important ecosystem services. And it results in biodiversity loss – as wetlands are some of the most biodiverse areas in the world and provide essential habitats for many species.

**Recognize the full suite of wetland restoration benefits directly delivers on the Sustainable Development Goals (SDGs).**

Decision-makers should take immediate and appropriate measures to recognize the full suite of environmental, cultural, and socio-economic benefits gained from wetlands restoration. The restoration of freshwater wetlands directly delivers on SDGs. More specifically, increasing the extent of water-related ecosystems

contributes to SDG Goal 6 Indicator 6.6.1: “Change on the extent of water related ecosystem,” for which the Convention and UNEP are co-custodians.

**Prioritize the protection and restoration of wetlands.** Removing the stressors and pressures on wetlands is the best practice for preventing further loss and degradation. When this is not feasible – or when degradation has already occurred – wetland restoration must be considered as a potential response option.

**Understand the appropriate role of wetland restoration.** Restoration is not a substitute for protecting and ensuring the wise use of wetlands. That is, the potential to restore a wetland is not a justification or a suitable trade-off for the continued degradation of wetlands.

## RELEVANT CONVENTION GUIDELINES ON WETLAND RESTORATION

The Conference of the Parties of the Ramsar Convention have agreed principles and guidelines for wetland restoration (adopted as the annex to Resolution VIII.16 (2002), Recommendation 4.1: *Wetland restoration*, Recommendation 6.15: *Restoration of wetlands*, Resolution VII.17: *Restoration as an element of national planning for wetland conservation and wise use*, Resolution VIII.16: *Principles and guidelines for wetland restoration*, Resolution XII.11: *Peatlands, climate change and wise use: Implications for the Ramsar Convention*, Resolution XIII.13: *Restoration of degraded peatlands to mitigate and adapt to climate change and enhance biodiversity and disaster risk reduction*; Briefing Note No.4: *The benefits of wetland restoration*, Briefing Note 10: *Wetland restoration for climate change resilience*.



Wetland of International Importance Peel-yaigorup System, Australia (Photo: David Rennie)

# Notable examples of wetlands restoration

## Djébadji Lagoon Ramsar Site, Benin

Heavy dependence on mangrove wood harvesting – the exploitation and use of wood for salt production – is threatening the mangroves of the Djébadji Lagoon in Benin, in West Africa. By putting significant pressure on the ecological character of the site's mangroves, the wood harvesting has caused significant deforestation and loss of essential ecosystem services.

In collaboration with the Benin government and local communities in the face of climate change project “Hydrological restoration of mangroves in the Djébadji Lagoon, Benin”, the Coordination for Research and Development in the Environment a Benin Based NGO implemented a pilot restoration at Ouidah, in the District of Djébadji.

### Scope of the project

- Earth channels flowing natural water tracks were identified and established – drawing from indigenous-community knowledge – in order to re-establish the tidal flow of water-degraded sites.
- A community nursery was established, and clear gender roles led to the cost-effective production of more than 50,000 seedlings of *Avicennia germinans*.
- Thirty hectares of degraded mangrove area was reforested, with an 80% success rate, by planting more than 250,000 mangrove seedlings of *Avicennia germinans* and *Rhizophora racemosa*, which were native to the degraded sites.
- A community monitoring system that went on for more than 400 days was implemented.
- The reforestation led to the recovery of essential fish assemblages – such as *Hippoglossus* (Flétan) and *Clarias gariepinus* (Poisson chat) – which were commercially crucial to the local communities and endemic, resident and migratory birds.



The central canal that was built to let in water to the restoration site at Djébadji, Ouidah, Benin.



Reforestation results achieved with *Rhizophora racemosa*, at Djébadji, Ouidah, Benin.

## Boracay Island, Philippines

Once a top tourist destination with more than 2 million visitors each year, unregulated and unsustainable activities by tourism resort operators degraded the clean beaches and shallow waters of Boracay Island in the Philippine archipelago into a waste dump and breeding ground for coliform bacteria – with devastating consequences to biodiversity, the health of corals, and local livelihoods.

In 2018, with the country's support, the Department of Environment and Natural Resources (DENR) launched a massive rehabilitation project for the entire island – including its wetlands.

## Scope of the project

- Illegal structures along the beachfront were closed and dismantled, while solid waste was managed to prevent direct discharge of untreated wastewater from establishments near the beachfront.
- Beaches and coastal waters of the island were cleaned up.
- A mechanism to ensure regular monitoring of the protection and conservation of the wetlands in and around the island was established.
- A public-private partnership program was established, culminating in the country's most significant efforts to undertake environmental projects in six of the nine wetlands on the island.



A beach on Boracay Island following rehabilitation efforts ([Photo](#) from DENR-FMB — Department of Environment and Natural Resources - Forest Management Bureau).

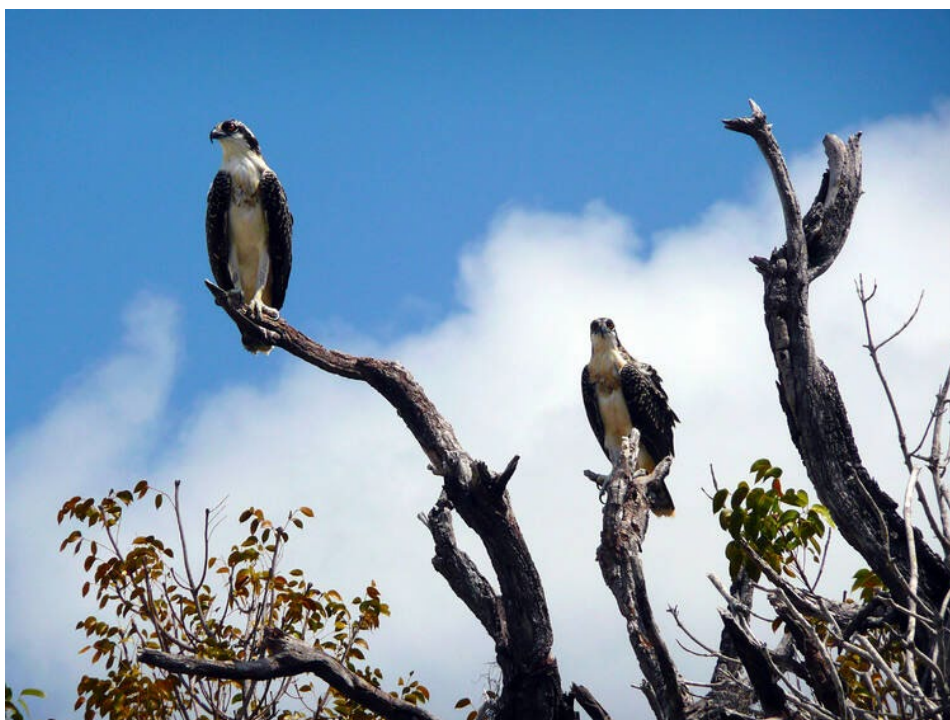
## Everglades National Park, Florida, United States

Located in South Florida, established in 1947, and designated as a Ramsar Site in 1987, Everglades National Park is the largest subtropical wilderness reserve in North America.

The site was designated as a National Park to protect the abundant and diverse biological resources of its ecosystems. The biodiversity of these wetlands has long suffered the destructive impact of extensive human modification to South Florida. And they have felt the devastating effects of the poor quality and flow of water entering the park from upstream – a result of five Water Conservation Areas (WCAs) created in 1948. In 1993, Everglades National Park was added to the list of World Heritage sites in Danger, and to the Montreux Record of the Convention on Wetlands.



Everglades National Park, United States of America (UNESCO, 2009).



Everglades National Park, United States of America (OUR PLACE, The World Heritage Collection, 2015).

### Scope of the project

- In 2006, a series of site-specific conservation measures were developed to deal with four of the major threats to the site: alterations of the Natural Hydrologic Regime, adjacent urban and agricultural growth, increased nutrient pollution, and impacts to the protection and management of Florida Bay.
- Examples of these conservation measures include:
  - the construction of a 2,201 hectare flood mitigation system,
  - the building of 18,211 hectares of storm water treatment areas in 2006, with an additional 4,856 hectares built in 2012 – to mitigate increased pollution levels at the site, and
  - the purchase of 44,000 hectares of the East Everglades privately owned parcels, bringing them into federal ownership for their protection.
- By 2019, all initial measures were completed, with early results showing that water quality had improved substantially throughout much of the Everglades' marsh. However, with continuing deterioration of the Everglades – and given the loss of ecosystem benefits from trying to balance restoration, water supply, and flood control during the implementation phase – it was determined that the initial projects were insufficient for achieving the desired state of conservation of the site.
- Additional, larger-scale projects were approved in response to these shortfalls, and they are moving forward – with benefits expected by 2030.
- In addition, the state of Florida pledged in 2019 to advance the Everglades' restoration, making a \$625 million commitment for water resource projects, including water storage reservoirs and targeted water quality projects.

This Fact Sheet is made available by the Ramsar Convention on Wetlands 2021. Information is drawn from a variety of publications of the Ramsar Convention on Wetlands including its Scientific and Technical Review Panel or other relevant sources of information.

#### The Ramsar Convention on Wetlands

The Convention on Wetlands is a global intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.