



## Ancient mariners threatened with extinction

Loggerhead turtle swimming in open sea. Greece. © WWF-Canon / Michel Gunther

Marine turtles have swum in the world's oceans for over 100 million years. The only widely distributed marine reptiles, many species migrate for thousands of kilometres — and even across entire oceans — between feeding and nesting grounds. An integral part of coastal and marine ecosystems, they have also been fundamental to the culture of coastal societies for millennia. But human activities over the past 200 years have massively tipped the scales against the survival of these ancient mariners. Slaughtered in the millions for their eggs, meat, skin, and shells, their already reduced populations still suffer from poaching and over-exploitation, as well as incidental capture in fishing gear and habitat loss and alteration. Today, six of the seven living species are classified as Endangered or Critically Endangered. Concerted conservation efforts have seen turtle populations recover in some areas, but without urgent global action the future of these magnificent animals looks increasingly grim.

### There are seven marine turtle species:

**1. Leatherback turtles** are named after their shell, which is leathery rather than hard like other turtles. They are the largest marine turtle species, typically reaching up to 180cm in length and weighing 500kg, and also one of the most migratory, making both trans-Atlantic and trans-Pacific crossings. Widely distributed in tropical and temperate waters, their numbers have declined precipitously in most parts of the world in the last century. The number of nesting females is currently estimated at 34,000 and the species is classified as Critically Endangered.

**2. Loggerhead turtles** have a characteristically large head which supports powerful jaw muscles: necessary for feeding on hard shelled prey like molluscs and crustaceans. They carry more encrusting organisms like barnacles than other marine turtle species. Like leatherbacks, they are highly migratory and widely distributed. Their average size is 92cm long and 115kg in weight. The number of nesting females is estimated at 60,000 and the species is classified as Endangered.

**3. Green turtles** are named after the greenish colour of their cartilage and fat. They grow up to 1.5m long and can reach 200kg. Widely distributed in tropical and subtropical waters, the number of nesting females is estimated at 203,000. The species is classified as Endangered, with the Mediterranean population classified as Critically Endangered.

**4. Hawksbill turtles** are named after their narrow pointed beak. Their highly coloured and patterned shell is the sole source of commercial 'tortoiseshell'. They are usually less than 1m in length, weigh 40–60kg, and are less widely distributed than some other species. Their numbers have declined by over 80 per cent during the last century, with the number of nesting females estimated at 8,000. The species is classified as Critically Endangered.

**5. Kemp's ridley turtles** are the smallest marine turtle species, with an average size of 70cm and 40kg. They have a restricted range and nest only along a small stretch of coastline in the Gulf of Mexico. The species does not

### At a glance:

<i>Species:</i>	<i>Leatherback (Dermochelys coriacea), hawksbill (Eretmochelys imbricata), Kemp's ridley (Lepidochelys kempii), olive ridley (L. olivacea), green (Chelonia mydas), loggerhead (Caretta caretta), and flatback turtle (Natator depressus)</i>
<i>Habitat:</i>	<i>Open ocean and coastal habitats, mainly in tropical and sub-tropical areas</i>
<i>Location:</i>	<i>Indian Ocean, Atlantic Ocean, Pacific Ocean, Caribbean Sea, Mediterranean Sea</i>
<i>Status:</i>	<i>Data Deficient to Critically Endangered (IUCN–The World Conservation Union)</i>



Hawksbill turtle, Seychelles. © WWF-Canon / Martin Harvey

appear to migrate across open ocean but does move along the east coast of the US. Classified as Critically Endangered, their numbers dropped from hundreds of thousands in the 1940s to just a few hundred nesting females by the 1980s. Thanks to conservation efforts, the female breeding population today is approximately 1,000 individuals.

**6. Olive ridley turtles** look very similar to Kemp's ridley turtles, but have a deeper body and slightly up-turned shell edges. They are also slightly heavier, reaching 45kg. Although the species is widely distributed, the number of important breeding sites is very low. The species has yet to recover from centuries of over-exploitation, with the number of nesting females estimated at 800,000. The species is classified as Endangered.

**7. Flatback turtles** have a flat body and smooth shell with upturned edges, and reach up to 1m and 90kg. Their range is limited to the northern half of Australia, where they nest, and the seas between northern Australia and the southern parts of Indonesia and Papua New Guinea. The number of nesting females is estimated at 10,000. Not much is known about this species, which is classified as Data Deficient.

## What are the problems facing marine turtles?

All marine turtle species are slow growing and take decades to reach maturity. The extremely high natural mortality of hatchlings and juveniles means that adults must reproduce over many years if the population is to survive. But escalating mortality due to human activities is seeing fewer and fewer marine turtles living long enough to reproduce.

### Hunting and poaching

Hunting for their meat, eggs, skin, shell, and body fat is a major cause of the drastic decline in marine turtle populations. For example, in Bali, Indonesia, approximately 20,000 individuals were captured every year from 1969 to 1994 for human consumption, while in the 1960s, over one million olive ridley turtles were butchered

each year for their meat and skin on Mexico's Pacific coast. In some parts of the world almost 100 per cent of turtle eggs have been poached from beaches in the last few decades. The huge international trade in hawksbill tortoiseshell has contributed to the global decline of this species.

Hunting and poaching for both domestic and international markets continue to be persistent threats. Some 13,000 green turtles continue to be sold every year on the Miskito Coast of Nicaragua, while around 30,000 are consumed illegally each year on Mexico's Pacific coast. In many countries, juvenile marine turtles are illegally caught, stuffed, and sold as curios to tourists. And while the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) now prohibits international trade in all marine turtle species and their parts, illegal trafficking persists, mainly in Asia.

### Incidental capture

Hundreds of thousands of marine turtles die each year, accidentally caught in shrimp trawl nets and gillnets, and on longline hooks. Some 200,000 loggerhead turtles and 50,000 leatherback turtles are caught each year in longline fisheries alone. Known as bycatch, this incidental capture is perhaps the greatest threat to some marine turtle populations. For example, bycatch is largely responsible for the dramatic decline in leatherback turtles in the Eastern Pacific Ocean over the past 20 years.

### Habitat loss and alteration

Uncontrolled coastal development, vehicle traffic on beaches, and other human activities have directly destroyed or disturbed marine turtle nesting beaches and near-shore feeding grounds around the world. Feeding grounds such as coral reefs and seagrass meadows are also being damaged and destroyed by sedimentation due to land clearing, nutrient run-off from agriculture, insensitive tourist development, and destructive fishing techniques. In addition, turtles can mistake floating plastic garbage for jellyfish and choke to death when they try to eat them.



Newly hatched hawksbill turtle trapped in plastic rubbish, Manatee Lagoon Beach, Belize. © WWF-Canon / Anthony B. Rath



Leatherback turtle caught as bycatch, Atlantic Ocean. © WWF-Canon / Hélène Petit

◀ Hatchling mortality has also increased due to human activities. For example, hatchlings emerging at night are often attracted away from the ocean by lights from roads and buildings. These disoriented hatchlings fall prey to land-based predators or die the following day from the heat of the sun. Rubbish on beaches can also prevent hatchlings from reaching the ocean.

The effects of global warming and climate change could dramatically affect both turtle habitats and biology. For example, rising sea levels and increased incidents of tropical storms could wash out or erode entire nesting beaches. As marine turtles have temperature-dependent sex determination, an increase in global temperatures could change the proportion of female and male turtle hatchlings and result in marine turtle populations becoming unstable. Key marine turtle habitats such as coral reefs are also particularly vulnerable to increases in sea temperature. Sea currents could also be altered, affecting migration routes.

### What is WWF doing to reduce threats to marine turtles in the wild?

Marine turtles are ‘flagship’ species for their habitats — that is, charismatic representatives of the biodiversity within the complex ecosystems they inhabit. They fill an important ecological role by controlling prey species and themselves providing food to larger predators. Efforts to safeguard marine turtles will not only help save many other species, but will directly contribute to human development: the animals are becoming increasingly important as tourist attractions and hence sources of employment and income.

With over 40 years of experience in marine turtle conservation, WWF’s Global Marine Turtle Programme and TRAFFIC — the international wildlife trade monitoring network organized and operated as a joint programme by and between WWF and IUCN–The World Conservation Union — aim to protect and restore marine turtle populations to functional

levels within the ecosystems in which they live, while conserving their intrinsic values and their benefits to people. We are working with international legal instruments, government agencies, industry, universities, and local communities to:

- reduce the loss and degradation of critical marine turtle habitats
- reduce the negative impact of bycatch on marine turtles
- reduce the unsustainable use and illegal trade in marine turtles and turtle products.

Given the enormous range of marine turtles, whose migration routes pass through the national waters of many countries as well as international waters, cross-country cooperation and coordination is vital for conservation efforts. WWF seeks to encourage and foster this cooperation throughout the world.

### Examples of current work to conserve marine turtles include:

#### 1. Harvesting and trade

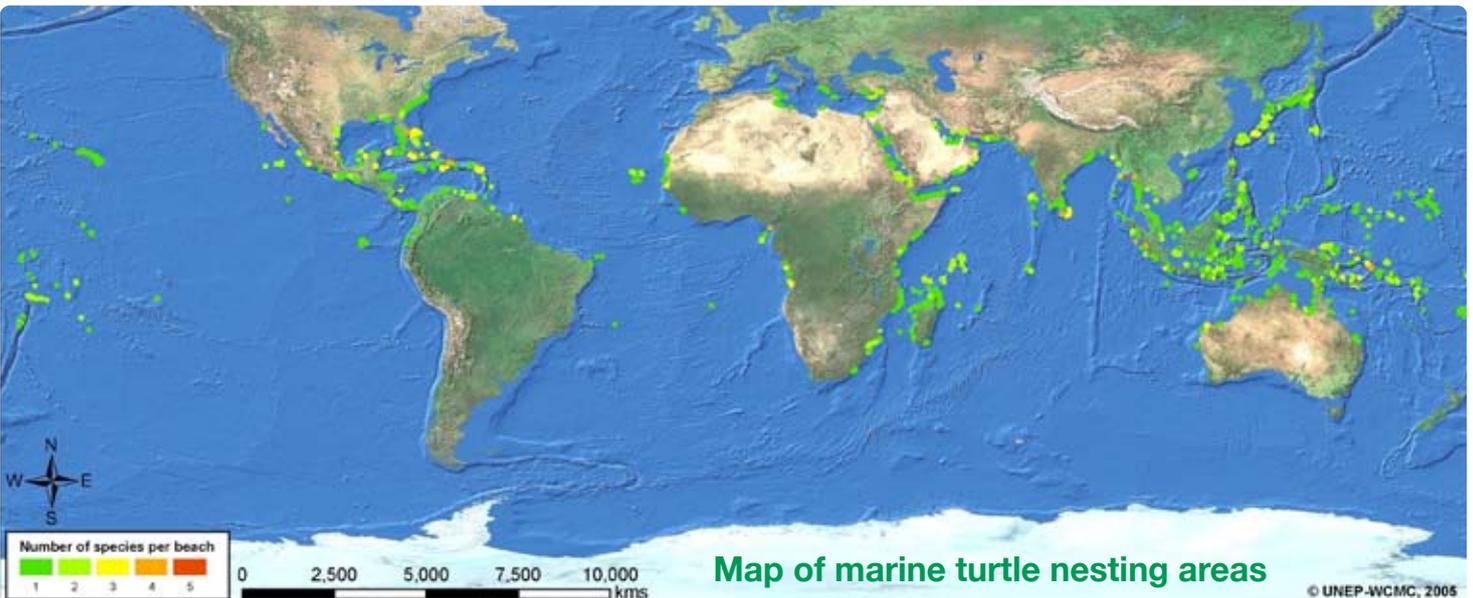
- TRAFFIC investigates and evaluates local and international trade in marine turtle products (predominantly hawksbill and green) in Southeast Asia, Southern Africa, and the Wider Caribbean, and makes recommendations to governments to improve the regulation of this trade. TRAFFIC and WWF also work with governmental partners to strengthen legislation on trade issues.
- WWF is working with many communities to phase-out turtle harvesting and egg collection. For example in Bali — the centre of Indonesia’s illegal turtle trade, partly due to the use of turtle meat in religious ceremonies — a WWF-organized meeting led to the island’s religious leaders asking people not to use turtle meat in ceremonies until turtle populations are deemed stable. WWF is also working to develop alternative livelihoods so that local people are no longer dependent on turtle products for income. ▶



Researchers measuring turtle tracks at Lagana Bay, Zakynthos, Greece, the most important nesting area in the Mediterranean for loggerhead turtles and the site of a WWF project.  
© WWF-Canon / Michel Gunther



Green turtle hatchling, Tanzania.  
© WWF-Canon / Roger Hooper



## ◀ 2. Bycatch

- WWF is helping to test, refine, and introduce a new type of hook in Pacific longline fisheries that can reduce marine turtle deaths by up to 90 per cent without adversely affecting catches of swordfish and tuna. The new large “circle” hooks are much less likely to be swallowed by turtles than traditional J-shaped hooks, which can cause suffocation or internal bleeding when swallowed. Mustad, the world's largest fishing hook manufacturer, has donated 200,000 circle hooks to WWF for trials in the Eastern and Western Pacific Ocean. In Spain, WWF and various partners are investigating other ways to reduce turtle bycatch and mortality on longlines, such as alternative hook shapes and biodegradable hooks and lines.
- WWF is also encouraging the use of turtle excluder devices (TEDs) in shrimp trawlers, which allow shrimp to pass into the main part of the net while allowing up to 97% of marine turtles to escape. In Mozambique, WWF helped create a new law that makes TEDs compulsory in the country's shrimp trawl fleet. Once implemented, this will save the lives of up to 5,000 marine turtles per year and allow Mozambican fishers to sell their shrimp to the US market.
- With the goal of finding new solutions to make fishing gear safer, in 2004 WWF, together with an unprecedented partnership of fishers, industry leaders, and scientists, launched the International Smart Gear Competition. First prize was awarded to an invention designed to minimize bycatch of marine turtles in Pacific Island tuna longline fisheries by setting baited hooks at depths below 100m. It is based on the observation that turtles and other non-target species are often caught on hooks above 100m while tuna are caught on hooks deeper than 100m.

## 3. Habitat protection and restoration

- WWF works around the world to establish marine protected areas to help safeguard marine turtle nesting beaches, feeding grounds, and migration routes. For example, WWF was instrumental in facilitating a bilateral agreement between the Philippines and Malaysia establishing the Turtle Islands Heritage Protected Area (TIHPA), the world's first transboundary protected area for marine turtles and one of Southeast Asia's two most important breeding and nesting sites for green turtles.
- WWF encourages governments to strengthen legislation on, and provide funding for, marine turtle protection. Testimony from WWF contributed towards the 2004 US Marine Turtle Conservation Act, which will help fund projects to safeguard marine turtles and their nesting habitats around the world.
- WWF also works to ensure that protected areas are effectively managed. On Zakynthos Island, Greece — home to the Mediterranean's largest nesting population of

loggerhead turtles — a campaign by WWF and others against uncontrolled tourism in Zakynthos National Marine Park led to the European Commission charging Greece for failing to protect the turtles. WWF is urging Greek government to demolish illegal buildings, restore the coastal area, and provide the park with the financial support it needs to operate efficiently.

- WWF supports the monitoring and patrolling of turtle nests in many parts of the world, including through community-based conservation. For example in Chiriquí Beach, Panama — the second-most important leatherback nesting site in the Caribbean — WWF is involving local communities in efforts to monitor nesting turtles. The work also includes improving the livelihoods of the communities by helping them to develop ecotourism.

## 4. Research

- WWF supports studies of turtle bycatch in several fisheries, including in the Solomon Islands, Papua New Guinea, the Philippines, Italy, South Africa, Madagascar, and the Eastern Pacific from Mexico to Peru.
- WWF is involved in satellite tracking of marine turtles to determine their migration routes. Such projects include tracking of hawksbill turtles in Malaysia; leatherback turtles in Panama, Suriname, French Guiana, Uruguay, and Gabon; loggerhead turtles in Cape Verde; green turtles in Cambodia; and olive ridley turtles in Australia.
- WWF is involved in the identification, assessment, and monitoring of turtle nesting beaches in several countries. In Turkey, for example, WWF supported the first systematic surveys of nesting beaches for loggerhead and green turtles, while in Kwa-Zulu Natal, South Africa, WWF has supported the world's longest-running leatherback and loggerhead monitoring project over the past 40 years.
- WWF conducted the first-ever study to assess the economic value of marine turtles on a global scale. Comparing the revenue generated from killing turtles or collecting their eggs with that generated from tourism in 18 sites in Africa, Asia, Latin America, and the Caribbean, the study concluded that marine turtle tourism generates almost three times as much money as the sale of turtle products.



Illegal marine turtle skins and bekkos (tortoiseshell) boxes seized at customs.  
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### Find out more...

This fact sheet has been designed to give a broad overview of some of the threats faced by marine turtles, and to give examples of WWF and TRAFFIC's work and solutions on the ground. For more detailed information on species, WWF, TRAFFIC, and the work we do, please visit [www.panda.org/species](http://www.panda.org/species) and [www.traffic.org](http://www.traffic.org)

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