

Brazilian guitarfish (*Rhinobatos horkelii*)

An elongated shovelnose ray that can measure up to three feet in length, and that ranges in color from olive gray to brown on its upper surface, with white blotches.

Status: Listed as Critically Endangered on the IUCN Red List. Its abundance in Brazil has decreased by 96% in just one decade (1984-1994).

Distribution: Shallow coastal waters to over 130 feet, from the Lesser Antilles south to northern Argentina.

Threats: Over-fishing and by-catch.

Actions needed: Protection in marine reserves and alternative livelihood options for coastal fishers.

Speckled hind (*Epinephelus drummondhayi*)

A reddish-brown fish (grouper) with white spots that can reach a length of over three and one-half feet and a weight of 65 pounds.

Status: Listed as Critically Endangered on the IUCN Red List.

Distribution: Found mostly between 150 and 300 feet on hard bottom reefs in the western Atlantic from Bermuda and North Carolina south to the Bahamas and northern and eastern Gulf of Mexico.

Threats: Overfishing of this popular game and food fish.

Actions needed: Deep water marine reserves and restrictions on fishing of this species, possibly supported by an education campaign.

WHAT IS DEFYING OCEAN'S END?

Defying Ocean's End (DOE) is an international gathering of experts working to help reverse the decline in health of the world's oceans. Scientists, economists, conservationists, communicators and senior representatives from governments and industry will attend, representing more than 20 countries. The conference, supported primarily by The Gordon and Betty Moore Foundation, will be held in Los Cabos, Mexico from May 30 - June 3, 2003.

The goal of *DOE* is to create a specific agenda for conserving marine biodiversity, and to determine the necessary price tag. Conference participants will identify high-priority, workable solutions through seven thematic working groups and four specific, regionalized case studies.

HOW TO LEARN MORE

For more about *Defying Ocean's End*, visit www.conservation.org

For more on the IUCN Species Survival Commission, visit www.iucn.org/themes/ssc

For more on BirdLife International and its Save the Albatross campaign, visit www.birdlife.net

For more on Marine Listings under the US Endangered Species Act, visit www.nmfs.noaa.gov/prot_res/laws/ESA/ESA_Home.html



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MARINE SPECIES ALREADY EXTINCT

Although extinctions naturally occur, the rate of extinctions has increased dramatically in recent times, primarily as a result of human activity. Countless species, including many never described by science, have doubtlessly become extinct; examples of some that we know we have lost in recent times appear below, preceded by the year of the last sighting of each species.

1768—Stellar's sea cow (*Hydrodamalis gigas*)

1840—Periwinkle (*Littoraria flammea*)

1844—Greak auk (*Alca imperialis*)

1880—Sea mink (*Mustela macrondon*)

1929—Atlantic eelgrass limpet (*Lottia alvenus*)

1935—Horn snail (*Cerithidea fuscata*)

1952—West Indian monk seal (*Monachus tropicalis*)

10 Marine Species on the Brink

Human practices both on land and at sea are pushing marine species to the edge of extinction as never before. This is evident in all ocean habitats and for all kinds of different species – including birds, reptiles, fish, mammals, invertebrates and plants. This gallery of "10 Marine Species On the Brink" is designed to illustrate this alarming global phenomenon, but represents only the tip of the iceberg of imperiled marine biodiversity. The crisis is taking place at high latitudes as well as in the warmer waters of the tropics. It is occurring on beaches, in shallow seas and in deep seas. It is happening globally, due to over-fishing, fishing by-catch, habitat loss and degradation, introduced species, pollution and climate change, among other threats.

The plight of 10 species is outlined below. They range from the huge North Atlantic right whale to Johnson's seagrass, one of the smallest of its kind.

White abalone (*Haliotis sorenseni*)

A gastropod mollusk with an oval—usually reddish—shell, that generally measures between 5 and 8 inches in length. This herbivorous animal was described only in 1940.

Status: Listed on the U.S. Endangered Species Act as a *Domestic Endangered Species*. Fewer than 2000 remain (or 0.1 percent of the original population), with the greatest reduction occurring in the last 30 years.

Distribution: Occurs on rocky bottoms between 80 and 200 feet deep from southern California to Mexico's Baja peninsula.

Threats: Past over-collection by commercial and recreational fishers left the remaining individuals so widely dispersed from one another that reproduction is difficult.

Actions needed: Maintain fishing closures, and continue programs to identify successful techniques for culture and reintroduction.

Johnson's seagrass (*Halophila johnsonii*)

One of the smallest of all seagrasses, this species has smooth, elongated, spatula-shaped leaves that occur in pairs less than one-inch long.

Status: The seagrass with the smallest geographical distribution, this species is listed on the U.S. Endangered Species Act as a *Domestic Threatened Species*.

Distribution: Occurs in sporadic patches down to 10-foot deep, between Sebastian Inlet and north Biscayne Bay of southeastern Florida.

Threats: Intensive coastal development and high-traffic waters cause direct mortality and destructive habitat alteration.

Actions needed: Strictly enforced regulation of environmentally sound development and travel on or near to all critical habitats. Habitat restoration and transplantation techniques need to be developed as a last resort.



WHO COMPILED THIS LIST?

This list was compiled with the help of marine scientists from:

The Species Survival Commission of the IUCN—World Conservation Union

BirdLife International

Conservation International

National Oceanographic and Atmospheric Administration

California Department of Fish and Game



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Vaquita (*Phocoena sinus*)

The world's smallest porpoise, the vaquita has a gray back fading to a white belly, with black eye rings and dark patches surrounding its lips.

Status: Listed as Critically Endangered on the IUCN Red List, with no more than 250 mature animals remaining.

Distribution: The smallest distribution for any marine cetacean, the vaquita is restricted to the upper Gulf of California, to a maximum depth probably no greater than 100 feet.

Threats: Killed in nets and other fishing gear as by-catch; some also suspect that it is suffering the effects of habitat alteration from reduced flow of the Colorado River, dammed upstream.

Actions needed: Fishing within the northern Gulf needs to eliminate the threat of by-catch through options that include fishing bans within the most critical habitats, the use of fishing gear that does not ensnare or capture non-target species, and incentives to fishers for finding alternative sources of livelihood.



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Mediterranean monk seal (*Monachus monachus*)

A seal with an average length of just under 8 feet and weight of 660 pounds. The color of its fur ranges from light gray to dark brown or black.

Status: Listed as Critically Endangered on the IUCN Red List, with a present population of only some 300.

Distribution: Once found on rocky shores and surrounding waters throughout the Mediterranean, eastern Atlantic, and Black Sea, it now occurs only in two separate populations in the eastern Mediterranean and northwest Africa.

Threats: Hunted historically, and still occasionally killed by fishermen who perceive it as a competitor for fish. Additional threats from entanglement in fishing gear, habitat loss and degradation, and introduced species.

Actions needed: Stronger enforcement of existing protection measures, and fishing gear restrictions within critical habitats such as its feeding areas.



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Christmas Island frigate bird (*Fregata andrewsi*)

A large, mostly black sea bird (up to 40 inches long) with a white belly, forked tail, and a pink bill.

Status: Listed as Critically Endangered by the IUCN Red List. The estimated population of 3200 that remains is in decline.

Distribution: Nests and breeds on Australia's 3.5-square-mile Christmas Island, but forages throughout the east Indian Ocean and western Indo-Malayan archipelago.

Threats: Habitat destruction from phosphate mining removed as much as 25 percent of its breeding area. Two-thirds of the remaining population is restricted to one breeding colony, which increases its vulnerability to storms and fire. Perhaps the most serious threat is from the introduced Yellow crazy ant (*Anoplolepis gracilipes*), which may prey on nestlings and alter the island's ecology.

Actions needed: The Christmas Tree Island National Park protects two-thirds of the breeding colonies, but additional measures should be implemented to control the introduced ant, to possibly extend protection to other critical habitats for this species, and to manage buffer zones.

Totoaba (*Totoaba macdonaldi*)

The largest of all sciaenid fishes (croakers and corvinas), this species is known to have attained a maximum weight of 220 pounds and a length of 6.5 feet.

Status: Listed as Critically Endangered on the IUCN Red List. Some recent observations suggest hope that this species may be showing signs of recovery.

Distribution: Only found in coastal and insular waters of the northern Gulf of California to perhaps no deeper than 35 feet. Spawning occurs in the uppermost area of the Gulf where juveniles remain for two years.

Threats: Over-fishing – exploitation began in the early 20th century to supply the Chinese demand for its gas bladder to make soup. Major exploitation for its flesh ran from the 1920s until the 1970s when a ban was imposed. Poaching is known even until the present time, though the greater threat now is probably from capture of juveniles in shrimp trawlers and loss of spawning habitat in the Colorado delta.

Actions needed: Strict enforcement of the fishing ban, and elimination of destructive trawling from nursery areas in the upper Gulf.

North Atlantic right whale (*Eubalaena glacialis*)

A mostly black baleen whale with raised, thickened skin patches (callosities) on its head, lips, and chin. Animals reach a maximum weight of 100 tons and a length of 60 feet.

Status: Listed as Endangered on the IUCN Red List, with the number of mature individuals estimated at less than 250.

Distribution: Found in the north Atlantic to a depth of 820 feet. The principal feeding grounds are in the Bay of Fundy, Roseway Basin, Great South Channel, and Cape Cod.

Threats: This species was decimated by past hunting, and today is threatened by entanglement in fishing nets, pollution, and ship collisions.

Actions needed: Radical changes in the type of fishing gear used is required, especially the most destructive ones (such as gillnets and vertical lines marking shellfish traps) from areas and times of greatest risk to the whales. Measures need to be implemented to reduce the threat of ship collisions, such as diverting vessels from critical habitats.

Leatherback sea turtle (*Dermochelys coriacea*)

The largest of all sea turtles, this species gets its name from the black, leathery carapace—mottled white—which it has in place of the hard shell found on all other sea turtles. The largest individuals can weigh up to a ton and achieve lengths of six feet.

Status: Listed as Critically Endangered on the IUCN Red List. Some 20-30,000 are thought to occur worldwide, though it is declining rapidly in many areas, including the Pacific, where the number from the major nesting colony in Mexico plummeted from 70,000 in 1982 to less than 100 in 2002.

Distribution: Found in all tropical and subtropical waters of the world to a depth of 5000 feet.

Threats: Overharvest of eggs and adults, death from ensnarement in fishing gear, coastal development, boat collisions, and pollution, including the ingestion of plastic debris which it confuses with its jellyfish prey.

Actions needed: Protection of critical habitats (such as nesting beaches, foraging areas, and migratory routes), reduction of pollutants (plastics, in particular), and control of fisheries that capture the animals incidentally on a large scale, including the use of long-lines and gillnets in the Pacific.

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