STATUS OF THE WORLD'S MARINE SPECIES

Beth A. Polidoro, Suzanne R. Livingstone, Kent E. Carpenter, Brian Hutchinson, Roderic B. Mast, Nicolas Pilcher, Yvonne Sadovy de Mitcheson, Sarah Valenti

The IUCN Red List of Threatened Species™

SSC
Species Survival Commission

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Cover photo: *The loss of coral reef ecosystems will have devasting effects on a wide spectrum of marine species, as well as for people and nations that depend on reef resources for their livelihoods and economic security.*
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Status of the World's Marine Species

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Introduction

The oceans are home to a large percentage of Earth's biodiversity, occupying 70 percent of its surface and, when volume is considered, an even larger percentage of habitable space. The oceans drive weather, shape planetary chemistry, generate 70 percent of atmospheric oxygen, absorb most of the planet's carbon dioxide, and are the ultimate reservoir for replenishment of fresh water to land through cloud formation. Trouble for the oceans means trouble for humankind.

In recent years, there has been growing concern in the scientific community that a broad range of marine species could be under threat of extinction and that marine biodiversity is experiencing potentially irreversible loss due to over-fishing, climate change, invasive species and coastal development (Dulvy *et al.* 2003; Roberts and Hawkins 1999). Governmental and public interest in marine conservation is increasing, but the information needed to guide marine conservation planning and policy is seriously deficient. The IUCN Red List of Threatened Species™ is the most commonly used global dataset for identifying the types of threat, and the levels of extinction risk to marine species (Hoffmann *et al.* 2008; Rodrigues *et al.* 2006). It forms the foundation for determining and validating marine conservation priorities, for example through the planning and management of protected area systems designed to reduce extinction risk in the sea (Edgar *et al.* 2008). However, as of 2007, the number of marine species assessed for their probability of extinction lagged far behind that of the terrestrial realm; out of more than 41,500 plants and animals currently assessed under the IUCN Red List Criteria, only approximately 1,500 were marine species. In many regions around the world, biodiversity conservation in the seas is currently taking place without the essential species-specific data needed to inform robust and comprehensive conservation actions.

Protection of our rapidly declining ocean ecosystems and species is one of the greatest challenges we face as stewards of our planet. In 2006, IUCN, Conservation International and Old Dominion University joined forces to address this gap and initiated an ambitious project (the Global Marine Species Assessment) to complete IUCN Red List assessments for a greatly expanded number of marine species. It is planned to complete Red List assessments for over 20,000 marine species by 2012. A great deal of progress has already been made, and approximately 1,500 marine species have been added to the 2008 Red List, including all of the world's known species of sharks and rays, groupers, and reef-building corals. These groups were completed in collaboration with a number of Red List Partners including the IUCN SSC Shark Specialist Group, the IUCN SSC Grouper and Wrasse Specialist Group, the IUCN SSC Marine Turtle Specialist Group.

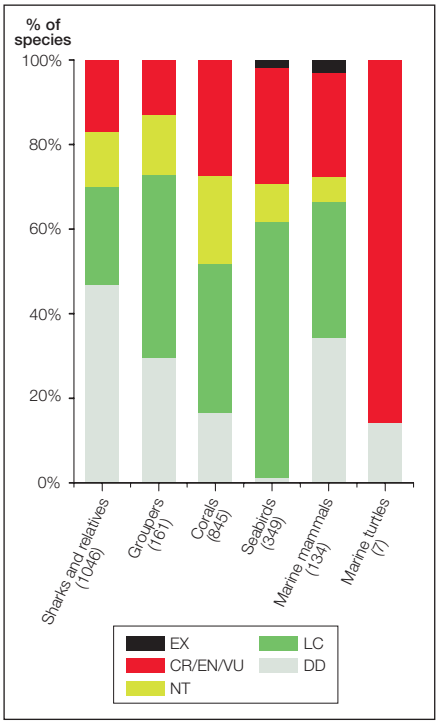
Results

For the first time, every species in selected taxonomic groups is being assessed against the IUCN Red List Categories and Criteria. As of 2008, six major groups of marine species have been completed, and include all the world's known species of sharks and rays, groupers, reef-building corals, seabirds, marine mammals, and marine turtles (Figure 1).

Sharks and their relatives

Of the 1,046 species of sharks and their relatives (class Chondrichthyes), a high proportion (47%) are listed as Data

Figure 1. *Summary of 2008 Red List Categories for completed clades of marine species. Number of species assessed in each group in parentheses.*



Millions of sharks are caught each year for their fins, which are used to make the Asian delicacy shark fin soup. © John Nightingale

Deficient compared to the five other marine groups shown. As many sharks and rays are deep-water pelagic species, they are harder to study in the wild, and less is known about their ecology and population status, including the impact of known and potentially unknown major threats. Approximately 17% of shark and ray species are in threatened categories (Critically Endangered, Endangered, and Vulnerable), and 13% are considered Near Threatened and may reach the thresholds for a threatened category in the near future if current threats are not reduced.

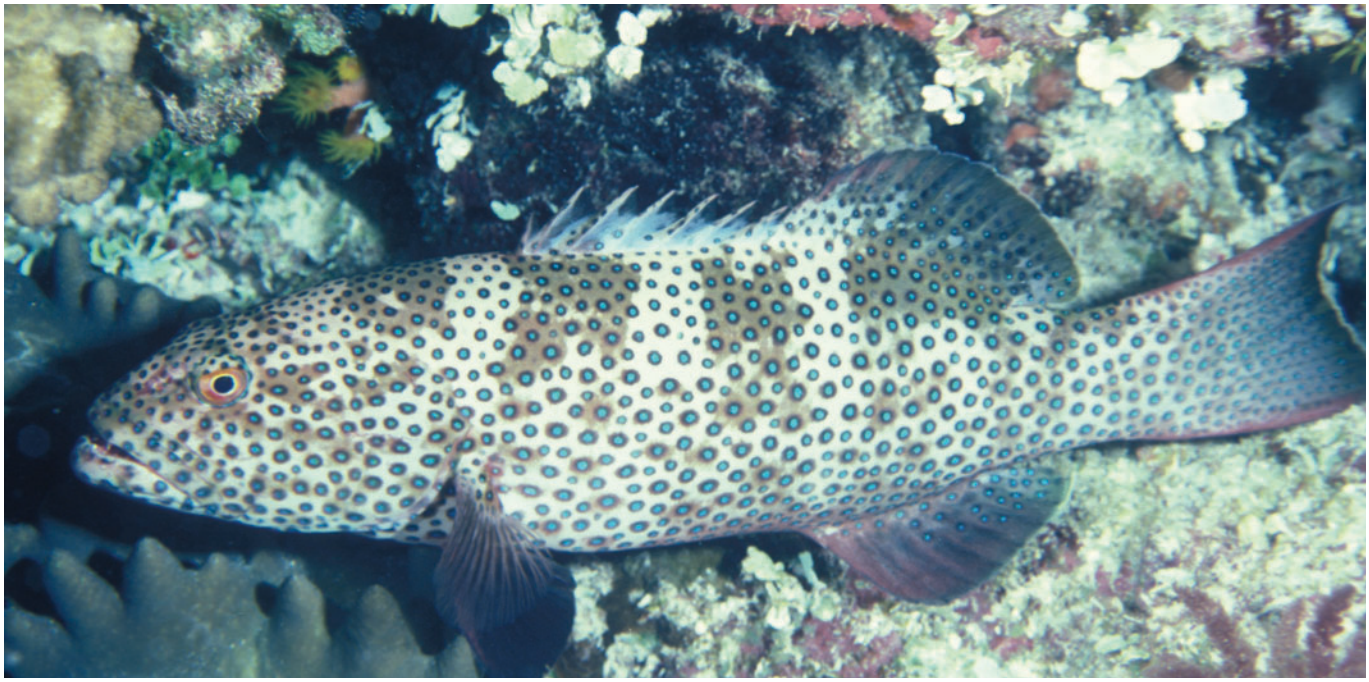
Much of what is currently known about sharks and rays comes from their capture in nets from both targeted and accidental catch, which is the primary threat to this species group. Sharks grow slowly, mature late, produce few young and have low rates of population increase, making them highly vulnerable to depletion with a low capacity for recovery from over-exploitation. Shark fisheries have proliferated around the world during recent decades, in response to increasing demand for shark products and as traditional fisheries come under stronger management. Millions of sharks are caught each year for their fins which are used to make the Asian delicacy shark fin soup. Sharks are being increasingly targeted for this purpose. Mortality from accidental catch (or 'bycatch') in fisheries targeting other species is just as much of a threat, if not more so, for many species. Populations of intrinsically threatened sharks can be driven to collapse un-noticed, whilst fisheries continue to be supported economically by more productive and plentiful target species, such as bony fishes, crustaceans and squid. The life history characteristics of these species demand a precautionary approach to their exploitation; however, the lack of adequate shark fisheries management remains an over-whelming problem, exacerbated by largely unreported catches. Historically fisheries managers have given sharks low priority, but they are now receiving increasing international attention with growing concerns over the sustainability of shark fisheries.

Some species are affected by a combination of all these factors. For example, all seven species of sawfish are listed as Critically Endangered. These large unusual rays (sometimes in excess of 7 m long) are slow-growing, and populations are often isolated, with little migration between areas. They have long flattened snouts (or saws) edged with tooth-like serrations. This saw makes them extremely susceptible to bycatch in almost any fishing gear and they are also targeted for their very high value saws and fins. The 21 species of angel sharks face similar threats and are among the most threatened families of sharks. Of the species of angel sharks with sufficient data for assessment, 78% are threatened and 21% are Critically Endangered.

Endemic sharks and rays with restricted habitats and geographic distributions also feature prominently among those most threatened. The endemic Brazilian Guitarfish *Rhinobatos horkelii*, Maltese Skate *Leucoraja melitensis* and Harrison's Dogfish *Centrophorus harrissoni* are all listed as Critically Endangered. All have undergone significant population declines as a result of bycatch and target fisheries. Although unsustainable exploitation appears to be the greatest threat to most sharks globally, endemic species with specific habitat preferences are also threatened by localized habitat degradation and destruction. For example, several inshore stingrays endemic to areas of Southeast Asia are being impacted by large-scale degradation and removal of mangroves, acting in combination with threats from fisheries activities.

Many wide-ranging oceanic species are also threatened. Both the Short-fin Mako *Isurus oxyrinchus* and the Long-fin Mako

The wide-ranging Short-fin Mako Isurus oxyrinchus *is listed as Vulnerable.* © Jeremy Stafford-Deitsch



The Square-tailed Coral Grouper Plectropomus areolatus *is listed as Vulnerable. It is heavily targeted for the live reef fish food trade.* © J.E. Randall

Isurus paucus, as well as the 3 species of thresher sharks (family Alopiidae) and the Porbeagle Shark *Lamna nasus* are all classified as Vulnerable, with some subpopulations of these species at even greater risk. Oceanic sharks are taken in large numbers in international waters. It is clear that wide-ranging, highly migratory sharks need international precautionary collaborative management, but very few countries have set catch limits for sharks and there are none in place on the High Seas. The Food and Agricultural Organization of the United Nations has urged countries and regional fishing bodies to develop and adopt Shark Management Plans, but only few have done so to date. The adoption of finning bans by fishing states, regional bodies and fisheries organizations is accelerating, which should increasingly prevent the fishing of sharks for their fins alone, but further coordinated measures are needed. A major obstacle to the formulation and implementation of management measures is the lack of data on a large proportion of species. Catches are largely unreported in many areas and improved monitoring systems are needed.

The IUCN/SSC Shark Specialist Group will continue to raise awareness about the plight of sharks and promote their effective management at national, regional and international levels. This will be done firstly, through the wide dissemination of the results from this first complete assessment for the IUCN Red List, which can be used to inform decision makers; and secondly by continuing to advise on the development and implementation of Shark Plans and the application of conservation instruments such as the Convention on Migratory Species (CMS) and the Convention on Trade in Endangered Species (CITES).

Groupers

Groupers (family Serranidae) are found in rocky and coral reefs of the tropics and sub-tropics around the world, and are also subject to threats from over-exploitation from fishing, especially for the live fish trade, given their high commercial value. According to the Food and Agriculture Organization, about 250 thousand tonnes of groupers are harvested annually, with 80% from Asia. In 1996, when the first Red List assessments were conducted on commercially important marine fishes, the groupers emerged as a particularly vulnerable group of fishes. Completion and updating of all 161 grouper Red List assessments has been ongoing since then, and was finalized in February 2007 at a workshop organized and held in Hong Kong by the IUCN SSC Grouper and Wrasse Specialist Group.

At least 12.4% of the world's 161 grouper species are now listed in threatened categories (Critically Endangered, Endangered, or Vulnerable), another 14% are Near Threatened, and 30% are considered to be Data Deficient. Given their long life span, with some species living up to 40 years, and late sexual maturation combined with specializations such as adult sex change ('protogyny') and aggregation-spawning, groupers are very vulnerable to fishing pressure and over-exploitation. In particular, major threats from over-fishing include targeting of spawning aggregations and uncontrolled fishing throughout the entire range of the species on multiple life history phases, from small juveniles to adults. For example, in Southeast Asia juveniles are sometimes the major fishery target, as they are taken at sub-market size and grown-out in captivity (a practice often referred to as mariculture) until they reach a larger market size. As for other marine fishes, the most susceptible groupers to these threats are generally the longest-lived and largest species. In some cases, little is known about the species biology or impact of fishing on its population, including several species of considerable economic importance that are traded for the live seafood restaurant trade in Southeast Asia and are widely sourced in the Indian and Pacific Oceans. As a consequence, many populations are likely

Southern Elephant Seal pup Mirounga leonina*. The species is listed as Least Concern, as many populations are considered to be stable. However, the effects of climate change and the development of new fisheries could have a significant impact on their populations in the future.* © Jean-Christophe Vié

to be biologically over-fished, some of them very seriously, and several of these species are also considered to be threatened with extinction unless action is taken.

The Square-tailed Coral Grouper *Plectropomus areolatus*, along with such relatives as the Camouflage Grouper *Epinephelus polyphekadion*, are examples of Indo-Pacific groupers that form part of the live reef food fish trade (LRFFT) and are taken in massive numbers from their spawning aggregations and maintained alive during shipment to Hong Kong, the global trade centre for live marine fish. The demand for live fish for the luxury restaurant trade in China is massive and expected to grow in tandem with increasing wealth in the region. As much as 20% of groupers landed globally are destined for the LRFFT. However, the populations of many preferred groupers are limited and already beginning to show the strain in some areas, with several species in the trade now listed in threatened categories or as Near Threatened.

In the tropical western Atlantic, the Nassau Grouper *Epinephelus striatus*, once the most important of all groupers in the landings of Caribbean islands, is now considered Endangered. Living for several decades and taking about five years to become sexually mature and spawning in aggregations, this species has proven biologically unable to withstand decades of heavy and uncontrolled fishing and is severely reduced throughout most of its range. Regional discussions are now being conducted to seek proper protection of the species and to introduce much-needed monitoring and management measures. More than anything, a greater awareness is needed on the plight of this species.

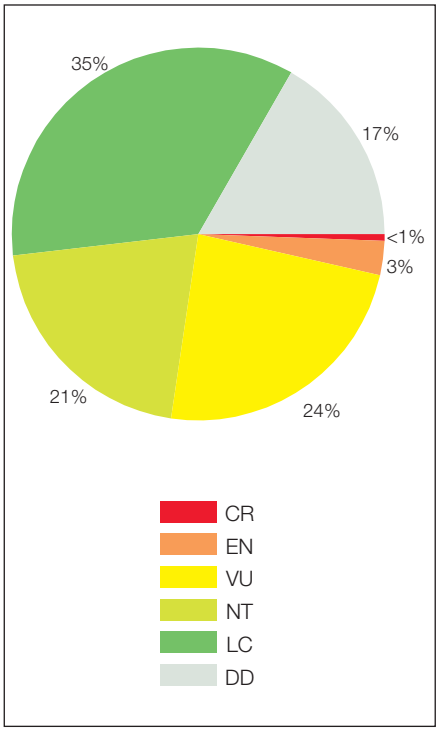


Figure 2. *Summary of 2008 Red List Categories for all 845 species of reef-building corals. Including Data Deficient species, approximately 27% of species are in threatened Categories, primarily due to climate change and anthropogenic impacts.*

The objectives of the IUCN SSC Grouper and Wrasse Specialist Group's work, after determining the conservation status of each grouper species, is to focus on those species that are most threatened, address major threatening factors, fill gaps in information and raise awareness of the problems these species face. In addition to Red List assessments, ongoing projects provide support and information to enable spawning aggregations to be managed and considered in protected marine area planning, and seek sustainable practices in the LRFFT and grouper mariculture in Southeast Asia. The need for regional as opposed to national-level management and conservation initiatives for groupers should be highlighted, as many grouper species are highly mobile as adults and all have a widely dispersive pelagic larval phase.

Corals

The world's known 845 species of reef-building zooxanthellate corals (order Scleractinia plus the families Helioporidae, Tubiporidae, and Milleporidae) have also been assessed for the first time (Carpenter *et al.* 2008).These reef-building corals are essential habitat for many species of fish and invertebrates making them the most biologically diverse ecosystems in the ocean. More than one-quarter of these corals (27%) have been listed in threatened categories, representing an elevated risk of extinction (Figure 2). Over 20% of species are listed as Near Threatened, and are expected to join a threatened category in the near future. Although approximately 17% of reef-building corals are listed as Data Deficient, more than half of these are in the family Acroporidae, which is characterized by species with high susceptibility to bleaching and disease. Primary threats to these reef-building corals are increased frequency and duration of bleaching and disease events that have been linked to the increase in sea temperatures, a symptom of global climate change. The impacts of these oceanographic environmental changes are also compounded by anthropogenic threats including coastal development, coral extraction, sedimentation and pollution. A further sinister threat to corals is ocean acidification as a result of increasing levels of atmospheric carbon dioxide. This is reducing ocean carbonate ion concentrations and the ability of corals to build skeletons.

Globally, the Indo-Malay-Philippine Archipelago or the "Coral Triangle" has the highest number of species in threatened categories (Figure 3). This region is also known as the epicenter of marine biodiversity, and has the highest coral species richness. Coral reefs in the Caribbean region have been impacted by recent, rapid population declines of two key species: Staghorn Coral *Acropora cervicornis* and Elkhorn Coral *Acropora palmata*, both of which have been listed as Critically Endangered. Although they have been impacted by localized warming events, coastal development, and other human activities, coral reefs in the South and Eastern Pacific have lower numbers of threatened species, but have relatively higher levels of endemism in some areas such as the Hawaiian Islands. In any region, the potential loss of these coral ecosystems will have huge cascading effects for reef-dependent species, and on the large number of people and nations that depend on coral reef resources for economic and food security.

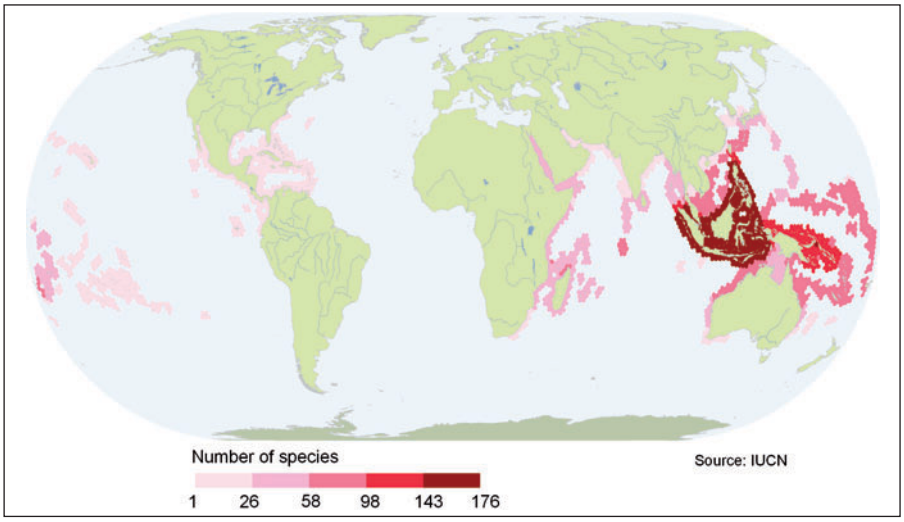


Figure 3. *Global distribution of threatened reef-building coral species.*

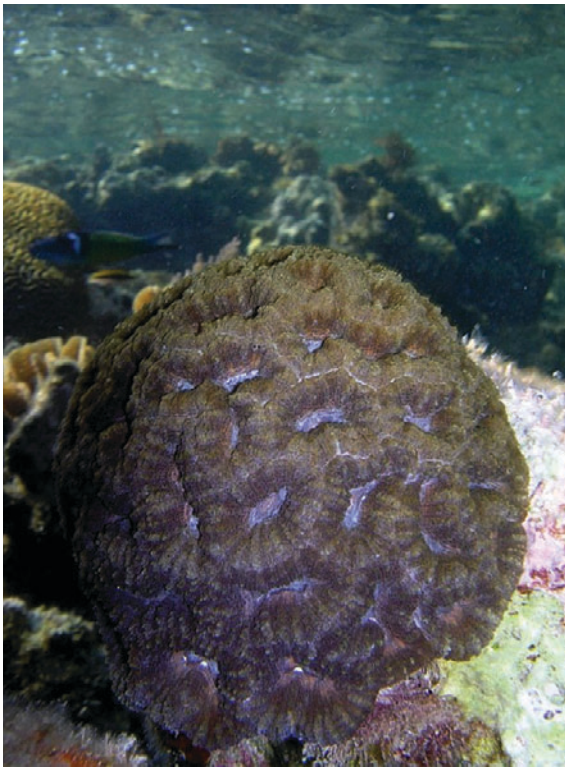
Marine mammals

Marine mammals represent a diverse group of species and include whales, dolphins, porpoises (order Cetartiodactyla), seals (family Phocidae), Sea Otter (family Mustelidae), Polar Bear (family Ursidae), Walrus (family Odobenidae), manatees and the Dugong (order Sirenia). Almost 35% of marine mammal species are listed as Data Deficient, most of which are Cetaceans that are mainly known from individuals that have been stranded on beaches, or have been captured in fishing nets. One-quarter of marine mammal species are in threatened categories. Major threats to these species include entanglement in fishing gear, directed harvesting, the effects of noise pollution from military and seismic sonar, and boat strikes. In many regions, marine mammals are also threatened by water pollution, habitat loss from coastal development, loss of prey or other food sources due to poor fisheries management, and intensive hunting both historically and in place today. The Polar Bear *Ursus maritimus* currently listed as Vulnerable, is primarily threatened by the accelerated loss of habitat and food resources that have been associated with climate change as large tracts of ice within the Arctic zone are rapidly disappearing. Two marine mammals have gone extinct in the past 50 years, the Japanese Sea Lion *Zalophus japonicus*, and the Caribbean Monk Seal *Monachus tropicalis*, both primarily due to intensive persecution.

Seabirds

With less than 1% of species listed as Data Deficient, seabirds (class Aves) are one of the best known groups of marine species. However, almost one-third of these species (27.5%) are threatened, and four

The loss of coral ecosystems will have devastating impacts on the survival of reef-dependent marine species. © Jan Schipper



Magellanic Penguins Spheniscus magellanicus *at Punta Tumbo (Argentina). This colony has decreased by nearly 30% since 1987. The species is globally listed as Near Threatened.* © Jean-Christophe Vié

species have gone Extinct in the past 500 years. Major threats to seabirds include mortality in long-line fisheries and gill-nets, oil spills, and the impact of invasive alien species (in particular predation by rodents and cats) at the breeding colonies. Additional threats to breeding sites of seabirds are habitat loss and degradation from coastal development, logging and pollution. In many cases, seabirds are subjected to a number of these different threats at the same time. The Critically Endangered Balearic Shearwater *Puffinus mauretanicus* for example, only breeds in the Balearic Islands, Spain, where it is threatened by predation by introduced cats and rats, incidental capture in long-line fisheries, loss of habitat from urbanization and coastal development, and water pollution from high hydrocarbon and mercury levels in nearby areas. Albatrosses belong to one of the most threatened families of birds with 86% (19 species) facing extinction. Among these, the Tristan Albatross *Diomedea dabbenena* was uplisted to Critically Endangered in 2008 owing to its extremely small breeding range and a projected population decline. Modeled population declines of at least 80% over three generations (70 years) are a consequence of very low adult survival owing to incidental mortality in longline fisheries, compounded by low fledging success caused by predation of chicks by introduced mice.

Marine turtles

As of 2008, six of the seven species of marine turtle (Order Testudines) are listed in threatened categories. Only the Flatback *Natator depressus* is currently listed as Data Deficient, as there has been insufficient data in the past to apply the criteria. Threats to marine turtles occur at all stages of their life cycle. Marine turtles lay their eggs on beaches, which are subject to threats such as coastal development and sand mining. The eggs and hatchlings are threatened by pollution and predation by introduced predators such as pigs and dogs, and eggs are collected by humans for food in many parts of the world. Once at sea, marine turtles are faced with threats from targeted capture in small-scale subsistence fisheries, bycatch largely by long-line and trawling activities, entanglement in marine debris, and boat strikes. Their life history characteristics of being long-lived, late to mature and with a long juvenile stage, combined with the many threats from human activities in the sea and on land that affect at all stages of their life cycle are among the reasons for their high risk of extinction. In addition, global climate change is now considered to be a serious, if not entirely understood threat.

Given their long generation times, global distributions, and the paucity of long-term data, assessing the risk of extinction for marine turtle species is challenging. In light of these complexities, the IUCN SSC Marine Turtle Specialist Group has pledged to complete global assessments for every species as one of its principle outcomes, and to renew them every five years to reflect improved data and new thinking on how to apply the IUCN Red List Criteria most effectively. An Assessment Steering Committee (ASC) was established in 2006 to take on an ambitious plan for completing this mandate. Since the birth of the ASC, two species have been re-assessed. A status of Vulnerable for the Olive Ridley *Lepidochelys olivacea* has been approved at the end of a long process that included responding to a 2006 petition against the former Endangered listing. The assessment for the Hawksbill *Eretmochelys imbricata* was approved in May, 2008 with a status of Critically Endangered. A draft assessment for the currently Data Deficient Flatback *Natator depressus* is currently under review by the ASC, and will be included on the 2009 Red List. Updated assessments for

the Loggerhead *Caretta caretta*, currently listed as Endangered, the Leatherback *Dermochelys coriacea*, currently listed as Critically Endangered, and the Kemp's Ridley *Lepidochelys kempii*, currently listed as Critically Endangered, are forthcoming. The Green Turtle *Chelonia mydas* assessment of Endangered was accepted by the IUCN in 2004, and will be up for review again in 2009.

Members of the IUCN SSC Marine Turtle Specialist Group are also discussing the potential for regional-scale assessments, as has been done with other taxonomic groups like sharks, and have recently completed regional assessments for Mediterranean and Hawaiian Islands turtles. The IUCN SSC Marine Turtle Specialist Group also continues to pioneer new methods for finer scale conservation priority setting for marine turtles through regular meetings that since 2003 have generated a number of useful priority setting tools including the Hazards List of the anthropogenic pressures that prevent marine turtle recovery; a Top Ten List of most threatened marine turtle populations worldwide; and a list of the Unsolved Mysteries of Marine Turtles or great unknowns that answers to which will vastly improve the ability to conserve marine turtles. The IUCN SSC Marine Turtle Specialist Group is also a founding member of the State of the World's Marine Turtles Initiative (SWOT), a network of global-scale date providers that is perfecting a mechanism for collecting, managing and disseminating information on marine turtle abundance and conservation status.

Key Messages

- The preservation and protection of our ocean resources, not only for the marine species they contain, but also for the food, products, and ecosystem services that they provide for billions of people around the globe needs to become an urgent priority. Many of the threats listed for marine species are overlapping. The development of sustainable fisheries, including the elimination of harmful fishing or harvesting practices, the enforcement of current fishery regulations, and implementation of improved fishery technology, are essential for reducing the extinction risks for marine species. Similarly, more attention needs to be aimed at reducing pollution and destructive development of coastal areas. The need to slow or reverse global climate change is becoming more important to protect our planet's resources and quality of life, not only for the survival of the plants and animals living in the ocean, but for those that live on land or in freshwater as well. The continued assessment of the status of marine species is essential for monitoring the impact of threats to the ocean's health and survival. It is only in the last 20 years that scientists have begun to worry seriously about the effects that human activities have on the marine realm, and they are discovering that the loss of biodiversity in the oceans is taking place at a similar rate to that of terrestrial areas. Climate change, in fact, may prove to have a more serious affect on marine species than those on land.

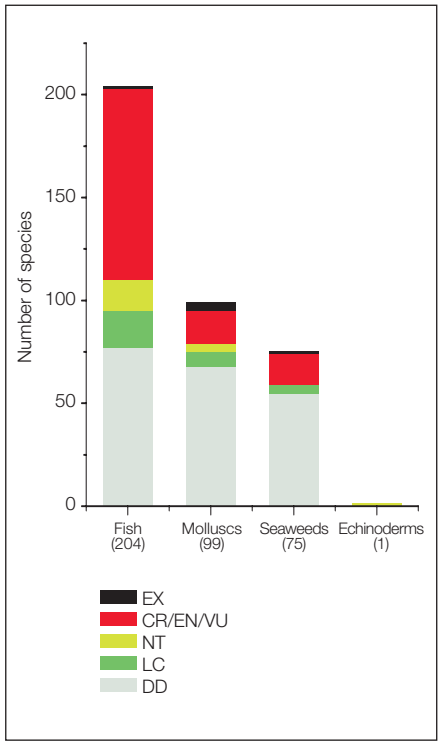


Figure 4. *Summary of 2008 Red List Categories for uncompleted clades of marine species. Number of species assessed in each group in parentheses.*

- However, the conservation status of the vast majority of marine species has not yet been investigated on a global scale. Other than the completed groups described here, there are fewer than 400 other marine species that have been assessed for The IUCN Red List (Figure 4). Of these, approximately 200 are marine fishes, 100 are marine molluscs, and 75 are seaweeds. Only one species of echinoderm, the edible European Sea Urchin *Echinus esculentus* has been assessed, although in many parts of the world there have been huge declines in population for commercially important echinoderms such as sea cucumbers and sea urchins. The marine species that have been assessed so far are

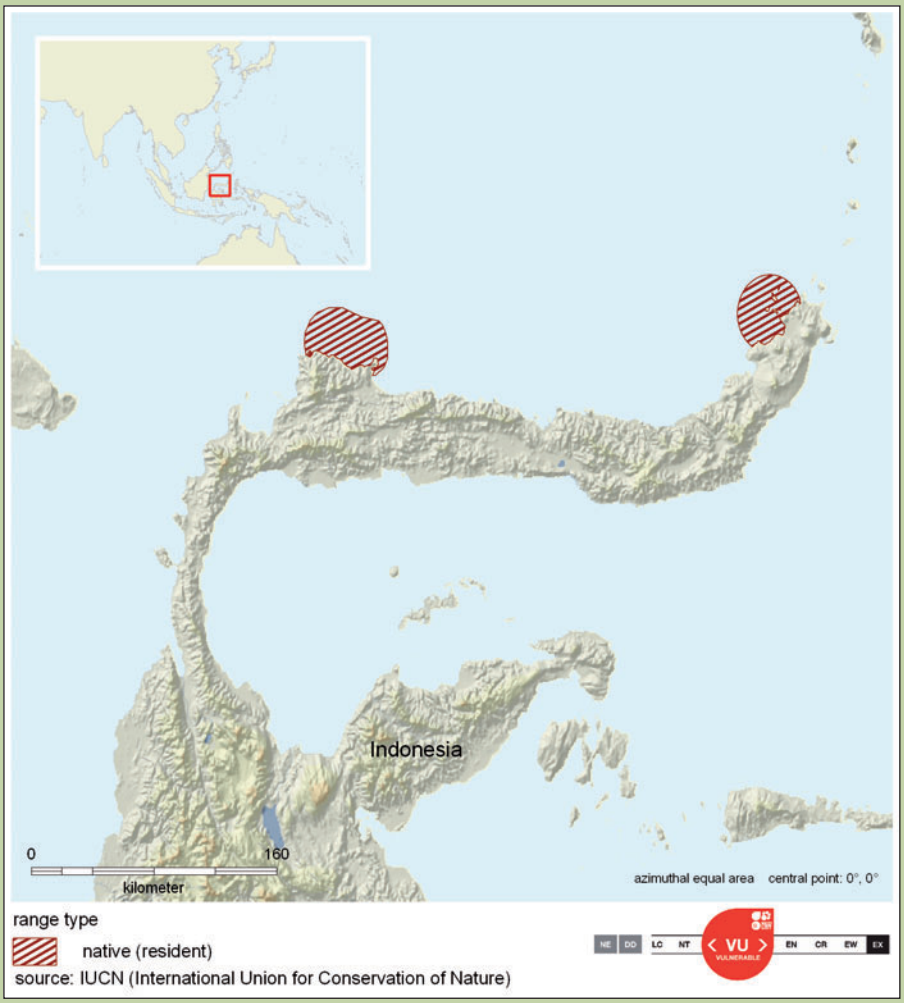
The Critically Endangered Balearic Shearwater Puffinus mauretanicus *only breeds in the Balearic Islands, Spain where it is threatened by predation by introduced cats and rats, incidental capture in long-line fisheries, loss of habitat from urbanization and coastal development, and water pollution.*
© Ben Lascelles / BirdLife

The Sulawesi Coelacanth *Latimeria menadoensis*: A Living Fossil

A new addition to the 2008 Red List is the Sulawesi Coelacanth *Latimeria menadoensis*. Coelacanths are considered to be "living fossils," as they were thought to be extinct since the end of the Cretaceous period, until a specimen was found off the coast of South Africa in 1938. The Sulawesi Coelacanth was first recorded in 1997 when it was captured off the coast of Manado, Indonesia in the Sulawesi Sea. It is a relative of the Critically Endangered African Coelacanth *Latimeria chalumnae* which occurs in the Indian Ocean, and is known from Grand Comoro and Anjouan islands, the coast of South Africa, Madagascar, and Mozambique. Although the two Coelacanths from the two regions are outwardly identical, genetics show that they are actually separate species. The Sulawesi Coelacanth is only currently known from three locations and a small number of specimens, the most recent being caught in May 2007. Although the population status and trends of this species is unknown, it is believed to be a naturally small population. The Coelacanth in both regions live in caves and rocky slopes between 150 and 200 meters deep, is rarely captured, and very difficult to observe in its natural habitat.

Not much is specifically known about the biology and ecology of the Sulawesi Coelacanth, but what is known suggests that its life history traits are similar to the African coelacanth. Coelacanths are at high risk for extinction when subjected to threats because they are slow-growing and late to mature, and long-lived. They also typically produce a small number of eggs at one time. The Sulawesi Coelacanth that was caught in May 2007 in Bunaken National Marine Park was a pregnant female and had a number of large, orange-sized eggs. These large eggs are thought to hatch within the oviduct before the female gives birth to live young. Scientists in Indonesia, France and Japan are currently conducting research to better understand their reproductive biology.

Although the Sulawesi Coelacanth is poorly known, it is listed as Vulnerable given its life history, predicted small population size, and susceptibility to several threats, including capture as bycatch in deep shark nets, and by hook and line fisheries that target deepwater snapper. The Coelacanth is also sought after for large aquarium display, although no specimen has ever been successfully kept alive for this purpose. The African Coelacanth assessment is in need of updating due to new information since the last assessment made in 2000.



The Sulawesi Coelacanth lives in deep-water caves and rocky slopes, and is only known from a few locations along the northern Sulawesi coast, Indonesia.

As awareness of the Sulawesi Coelacanth is increasing, more information is being collected about these mysterious fish. Now that the fishermen know that these fish are unique, there is a better chance of a catch being reported, and specimens being kept for further investigation. Better reporting may also give more insight into the size of the population, and the effects that bycatch may be having on the population of the Sulawesi Coelacanth. This Coelacanth is currently protected locally by Indonesian fishing regulations, and also internationally by the Convention on International Trade in Endangered Species (CITES Appendix I).

The Sulawesi Coelacanth Latimeria menadoensis *is considered a "living fossil," and has recently been added to the IUCN Red List of Threatened Species as Vulnerable.* © Mark Erdmann

very unlikely to be representative of the overall risk of extinction in the marine environment, as they have not been done in any systematic way. Completing entire groups of species gives a much clearer view of the status of marine species.

- To address the marine gap on the Red List, plans to compile data on geographic distributions, ecology, population numbers and trends, and threats for the world's marine species are well underway. Priority groups include all marine vertebrates (approximately 15,000 marine fishes and reptiles), as well as important habitat-forming primary producers such as the remaining corals, mangroves, seagrasses and certain seaweeds. The conservation status of species in several important invertebrate groups such as gastropod molluscs, bivalve molluscs and echinoderms (such as starfishes, sea urchins and sea cucumbers) will also be assessed. It is the largest effort to compile marine species threat data ever attempted, and will provide essential information for the protection and conservation of the world's vital marine resources.

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Newly hatched Leatherback Turtles Dermochelys coriacea *that survive predation and pollution on their way to the sea will then face a myriad of other threats, including capture in fisheries, entanglement in marine debris, and boat strikes. The Leatherback Turtle is listed as Critically Endangered.* © Suzanne Livingstone

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