Assessment of World's Vertebrate Species Shows Increasing Number are Threatened with Extinction

Conservation Efforts Are Slowing Rate of Loss

An international group of scientists assessing the status of the world's vertebrates report that one-fifth of the more than 25,000 species categorized on the International Union for Conservation of Nature (IUCN) Red List are classified as threatened, and that number is growing each year. The IUCN list includes marine mammals, sea turtles, oceanic birds and several thousand species of marine fishes.

In a report published online today in *Science Express*, scientist Bruce Collette of the Northeast Fisheries Science Center (NEFSC) of NOAA 's Fisheries Service and his co-authors indicate that each year, on average, 52 species of mammals, birds and amphibians move one category closer to extinction. Without conservation efforts, which have slowed the rate of deterioration, the trend would have been much worse. Those efforts, however, are not enough to offset the main threats to survival of many species: logging, agricultural expansion, overexploitation and invasive species.

Data for 25,780 species on the IUCN Red List were used in the latest assessment, which was released during the 10th meeting of the Conference of the Parties to the Convention in Biological Diversity (CBD), being held October 18-29 in Nagoya, Japan. By 2010, the 193 Parties to the Convention had hoped to achieve a significant reduction in the current rate of biodiversity loss at the global, regional and national levels "as a contribution to poverty alleviation and to the benefit of all life on Earth." Although the goal was not met, the report notes that progress has been made.

The IUCN's Red List Categories, adopted in 1994, have been widely used to provide a framework or baseline for the classification of a broad range of species relative to their risk of global extinction. This system has been used in the conservation of terrestrial and freshwater organisms but, until recently, has not been widely used for marine organisms. There are nine clearly defined categories in the IUCN Red List system: extinct; extinct in the wild; critically endangered; endangered; vulnerable; near threatened; least concern; data deficient; and not evaluated.

Collette, a zoologist and senior scientist at the NEFSC's National Systematics Laboratory located at the Smithsonian Institution in Washington, DC, has studied tunas and other surface-dwelling fishes for more than 50 years. He participated in three of the 20 IUCN Red List workshops dealing with bony fishes: two workshops on eastern tropical Pacific fishes

held in Panama in May 2007 and Costa Rica in April 2008, and another workshop held in the United Kingdom in January 2009 to identify marine fish species to sample.

"Until recently, IUCN Red Listings have been mostly of terrestrial and freshwater taxa, or groups of species, although Red List criteria were first applied to some marine fishes in 1996," said Collette. "It would be useful for fishery experts to review the status of all scombrids (51 tuna and mackerel species), 10 billfish species, and both species of dolphinfishes using the IUCN Red List criteria so that governments and various regional fishery commissions will have a global view of the threats facing these species."

Collette says reef-building corals, sea cucumbers, mangroves, and several groups of fishes are among the marine species that have already been assessed, and efforts are underway to expand the Red Listing procedures to include more marine taxa. "Ideally these assessments would be conducted every ten years so we can look at the trends and predict those species that might be driven to extinction."

Red Listing is a long and involved process. Scientists assess a variety of factors related to each species examined in week-long workshops and via e-mail exchanges of information. Taxonomists, ecologists, fishery biologists and population dynamics specialists, plus local biologists with unique and often unpublished knowledge, all contribute to these evaluations. Local and regional data must be integrated with global information, vetted, and then checked for accuracy, before a species can be included on the IUCN Red List.

Collette, an internationally recognized expert on the systematics of fishes, particularly tunas and mackerels, is continuing his work for the IUCN Red List as chair of the Species Survival Commission Tuna and Billfish Specialist Group. The IUCN Global Marine Species Assessment, headed by Professor Kent Carpenter of Old Dominion University, has a goal of assessing 20,000 marine species.

More than 15,000 participants are attending the United Nation-sponsored conference in Japan to develop and agree on a global strategy to protect biodiversity during the period 2011-2020. The Convention on Biological Diversity (CBD) is an international treaty dedicated to the conservation of biological diversity, to sustainable use of biodiversity, and to fair and equitable sharing of the benefits arising from the use of genetic resources. CBD was adopted in 1992 after the Rio Earth Summit and entered into force in December 1993, and has near universal participation among countries.

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Science Express abstract: http://www.sciencemag.org/cgi/content/abstract/science.1194442
IUCN Red List: http://www.iucnredlist.org/
10th meeting of the Conference of the Parties to the Convention on Biological Diversity, Nagoya, Japan, October 18-29, 2010: http://www.cbd.int/convention/cops.shtml
Convention on Biological Diversity: http://www.cbd.int/
National Systematics Laboratory: http://www.nefsc.noaa.gov/nefsc/systematics/