

The *IUCN Red List* – Expanding Efforts to Document the Status of Marine Species

Introduction

As concerns about the health of the world's oceans and their inhabitants increase, questions are being raised by scientists on the "inside" and policy-makers, industry groups and others on the "outside" about how many and which marine species are at risk of extinction. Currently, there is no single authoritative global resource to answer those questions. The absence of such a resource is a major shortcoming in our efforts to galvanize and inform conservation efforts for marine species and their habitats.

The IUCN Species Survival Commission, custodian of the *IUCN Red List of Threatened Species*, plans a major effort over the next 5-10 years to assess the conservation status of marine species. In addition to identifying those threatened with extinction and elucidating the causative factors, this effort will document the distribution (through GIS), life-histories and other key parameters of the species assessed, thus increasing our knowledge and creating an enormous dataset on marine species that will serve a range of conservation initiatives. While many efforts are under way to document marine biodiversity, there is currently no coordinated effort to document the status of these organisms and generate the types of information that are fundamental to enhancing the conservation and management of marine species and their habitats.

Background

Until the adoption of a revised Red List assessment system in 1994, IUCN-The World Conservation Union and its network of species experts, the Species Survival Commission (IUCN/SSC), had not focused significant attention on extinction risk in marine animals. As a result, except for marine mammals and birds and a few other groups and well-known, "charismatic" species, marine species had been little reviewed for inclusion in the *IUCN Red List of Threatened Species*. Likewise, national threatened species processes had generally not extended marine species assessment beyond mammals and birds. This lack of coverage of marine species suggests that extinction and endangerment are less of a problem for marine than for terrestrial or freshwater organisms. However, assessment efforts in recent years by IUCN and other agencies are documenting that endangerment of marine species is a real phenomenon and may be much more widespread than current lists would appear to indicate. That hundreds of marine species have been identified over the past five years as at risk of local or global extinction points to an urgent need to expand assessment efforts – to clarify those species that are threatened, the factors involved, and what these tell us about what is happening to marine environments.

Marine Species and the IUCN Red List Assessment Process

In addition to prevailing perceptions about marine species' greater resilience to extinction because of high fecundity and other factors, extinction risk assessment in the past has focused largely on parameters of small range and small population size, which either were not thought of importance, or were difficult to apply to marine species. The introduction of a new extinction risk criterion of population decline in the IUCN Red List system adopted in 1994 reflected the significant advances of the past twenty years in scientific understanding of the extinction process. It also provided a basis for assessing the threatened status of species that were otherwise numerous or widespread but, as has now been made clear through many real-life examples, on an extinction trajectory. Increasing knowledge of the population biology, geographic distribution and other attributes of marine species also provides a new – and solid – basis for assessing these species' vulnerability to extinction.

Expanding the IUCN Red List assessment process for marine species

The inclusion of over 100 marine fishes, many of them commercially important, in the *1996 IUCN Red List of Threatened Animals* marked the first major expansion of the Red List assessment process for marine organisms. It also sparked an international debate about extinction risk in marine organisms that continues today. Additional assessment work, in particular for syngnathid fishes, sharks, and groupers and wrasses, has added more marine fishes to the IUCN Red List. However, most marine fishes have not yet been reviewed for their conservation status, and only a handful of invertebrates has been assessed.

The IUCN Red List aims to serve two major purposes: 1) to identify those species most in need of conservation action; and 2) to serve as an indicator of the status and trends of biodiversity more generally. IUCN/SSC aims to expand the marine assessment process to address both of these goals. SSC has developed a susceptibility matrix to weigh intrinsic and extrinsic factors so as to identify species groups likely to be most vulnerable and, thus, priorities for Red List assessment. SSC is currently engaged in consultation regarding what groups of organisms should be selected for comprehensive assessment and long-term monitoring in order to address the second question; along with marine fishes, cephalopods have been recommended, and other groups are under consideration.

In addition to identifying the species groups to be evaluated, expansion of the marine component of the Red List will require the development of tools to assist in the assessment process and use of the Red List system and to ensure uniform application of the system. Of particular importance is the development of a GIS platform and specific protocols for the mapping of distributions, in particular the Area of Occupancy or minimum critical habitat that is a key parameter in the assessment system. Finally, the development of the IUCN Species Information Service (SIS) to capture the data and manage it for other applications will be essential. A minimum budget estimate for taking this work forward is \$2.5 million over the next five years.

Benefits of the Red List process

The obvious benefit of knowing what marine species are threatened with extinction, and why, is one of a number of important conservation applications of expanding the IUCN Red List process for marine species. First and foremost, the synthesis into a reference database of currently widely dispersed information and knowledge of marine organisms would make an enormous contribution to biodiversity assessments and related efforts. Second, the processing of relevant data through GIS and consequent generation of digitized maps can contribute to analyses and initiatives at different scales, including the design and management of marine protected areas. Finally, the assessment process should foster collaboration between institutions, individuals and conservation efforts.

The expansion of the IUCN Red List process as proposed here has enormous strategic significance for the conservation and management of marine species and their habitats. IUCN/SSC welcomes the collaboration of interested institutions and individuals to make this project a reality.

For further information, contact:

Roger McManus
Marine Focal Point
IUCN Species Survival Commission
Tel: 1/202.262.9669
Email: rogermcmanus@hotmail.com
www.redlist.org

Amie Bräutigam
Marine Programme Consultant
IUCN Species Survival Commission
Tel: 1/202.363.5675
Email: thomsen.brautigam@prodigy.net
www.redlist.org

Craig Hilton-Taylor
Red List Programme Officer
IUCN
Tel: 44/1223.277.966
Email: craig.hilton-taylor@ssc-uk.org
www.redlist.org