

Guest Editorial:

Sea Turtles, Red Listing, and the Need for Regional Assessments

Jeffrey A. Seminoff

Marine Turtle Research Program, NOAA – National Marine Fisheries Service, Southwest Fisheries Science Center,
8604 La Jolla Shores Dr., La Jolla, CA 92037 USA (E-mail: Jeffrey.Seminoff@noaa.gov)

Understanding the status of sea turtles is fundamental to their conservation. Clearly, management decisions regarding common themes like bycatch reduction and nesting beach protection, as well as more sensitive issues such as sustainable harvest and indigenous use, all require information on the status of sea turtle populations being impacted. Although few would argue this point, consensus regarding the most appropriate status assessment technique has been elusive. At a global level, the World Conservation Union's (IUCN) Red List Programme generates status assessments; identifying a species' 'extinction risk' based on past versus present abundance across its entire geographic range. However, the spatial resolution inherent in global assessments of widely distributed species is often inadequate for addressing local and regional trends. For example, whereas olive ridleys in the Atlantic are under a real threat of extirpation, the species is listed at a lower Red List category (Endangered, Hilton-Taylor 2000) than are hawksbills and leatherbacks, both of which are under comparatively lesser threat of extirpation in the Atlantic (both listed as Critically Endangered, Hilton-Taylor 2000). Some Atlantic leatherback populations are actually increasing (e.g., Dutton *et al.* 2002). Examples such as this have resulted in considerable debate regarding the utility of global Red List Assessments for sea turtles (e.g. Lamoreux *et al.* 2003, Mrosovsky 2003, Pritchard 2004; Seminoff & Abreu-Grobois in press; Webb & Carillo 2000). In this paper, I discuss the most recent green turtle (*Chelonia mydas*) Red List Assessment, the pros and cons of global and regional approaches to status assessments, and the need for the IUCN Marine Turtle Specialist Group (MTSG) to take an active role in developing appropriate strategies for assessing sea turtles.

The MTSG Green Turtle Assessment

Since the initial inclusion of hawksbill and leatherback turtles in the Red Listing process over four decades ago (IUCN 1963), a number of new criteria for assessing a species' global status have been implemented and applied to sea turtles. In recent years these criteria have undergone substantial changes, shifting from a largely qualitative process, based on expert opinion, to one that is more quantitative and transparent, based on abundance data for distinct subpopulations (IUCN 2001). With sea turtles, the newest criteria were initially applied to the MTSG global assessment of green turtles starting in February 2001. In July 2002, the assessment was submitted to the Standards and Petitions Subcommittee of the IUCN Species Survival Commission (SSC) subsequent to review by the general MTSG membership. This document represented a substantial effort on the part of many people: it was based on input from a 17-member task-force, included data from over 200 publications, and incorporated additional information from 80 biologists in over 30 countries. In an attempt to increase transparency in the process, all personal communications and published reports were archived at the Archie Carr Center for Sea Turtle Research, University of Florida, USA. Understandably, as this was the first effort of its kind for sea turtles, a number of format and content

changes were recommended by the SSC. Stemming from these suggestions, the newest draft was changed substantially. A table listing the threats to each nesting subpopulation was removed, as were graphs for each region showing the subpopulation abundance trends. Text describing the trend analyses, qualitative information on threats, and the problem of shifting baselines (Pauly 1995) was also cut. Despite these changes, the overall conclusions in the revised assessment were consistent with the initial submission: green turtles qualified as Endangered (EN), based on declines of 48% to 67% in the number of females nesting annually among 32 Index Sites over the last three generations. In April 2004, the updated assessment was submitted to the SSC, and in May 2004 it was accepted for inclusion in the 2004 Red Data Book (IUCN in prep).

I am pleased to have been involved in the green turtle assessment, but I am left with a sweet and sour feeling regarding IUCN Red Listing. On one hand, it is an objective system for classifying a wide variety of species according to their risk of extinction that can be applied consistently by different people. In theory, this should facilitate comparisons across widely different taxa, which could be useful for developing conservation priorities. On the other hand, I believe that the system often fails when it comes to globally distributed species such as sea turtles. To be more specific, it is increasingly evident that the risk of extinction as indicated by Red List global assessments (e.g. Endangered, Critically Endangered) does not always reflect the actual risk of extinction in the wild. Recall that the IUCN (2001) defines an Endangered species as one that is "considered to be facing a high risk of extinction in the wild." In the case of green turtles, despite their 'Endangered' status, few (including me) would agree that the species is going extinct anytime soon. This is particularly evident considering that some annual nesting subpopulations, particularly those in the central Pacific, Central Atlantic, and Western Atlantic, are actually increasing.

The apparent incongruity between the Red List category assigned to green turtles and the actual probability of extinction in the wild is problematic, but it does not render the effort useless. I suggest that whether or not one agrees that the Endangered designation is appropriate, the Red Listing process is important for a variety of reasons. First, by carrying out the sea turtle Red List assessments, the MTSG fulfills its role within the IUCN. While the present value of this role may be subtle, I believe that such efforts maintain an open dialogue between the MTSG and IUCN and will ultimately lead to a stronger partnership between the two groups. Second, Red Listing serves as a mandate to amass abundance data from a wide variety of sources. It forces the compilation of a global database that can be accessed by people around the world that may otherwise not have the information resources to gather such data. Third, the process highlights gaps in our understanding of nesting abundance and threats around the world. Recognizing where additional data are needed will help us to develop more appropriate research and conservation strategies as well as develop research funding priorities. Based on these aspects, it would seem

that the process, not the product, is what justifies Red Listing efforts. However, by continuing the process and providing input to the IUCN relating to the problems associated with the final listing, my hope is that we can improve upon the trend assessment techniques for widely distributed species and ultimately create assessments that more accurately reflect the global status of sea turtles.

Why Regional Assessments?

Assessing the global status of a globally distributed species seems like a reasonable exercise, but an important step in parallel with this process is the assessment of that species' status at a regional scale. For species such as sea turtles that experience varied anthropogenic pressures in different parts of the world, this is requisite for effective management. By identifying subpopulations that are declining as well as highlighting those that are doing relatively well, finer-scale assessments will be more useful for conservationists and resource managers on-the-ground. It is important to note, however, that much like the IUCN global assessments, regional assessments should be 'policy relevant, not policy prescriptive'. That is, they should not prescribe the specific conservation measures necessary to repair damaged populations, but rather highlight where conservation is most needed. We must keep in mind that assessing a population's status is quite separate from developing a conservation plan.

A regional approach would clearly benefit sea turtle status assessments and conservation efforts, but there are a number of important realities to keep in mind. The first is a logistical hurdle: regional assessments will demand additional time from an already overworked corps of volunteer assessors. To avoid unwanted delays in the production of these assessments, the process may even require that financial compensation be provided to assessors in some cases. The second reality is that regional assessments will likely result in the down-listing or de-listing of some sea turtle populations. An example of this can be found with the Caribbean green turtle. Relative to estimates for the pre-Columbian Caribbean green turtle population (16-586 million turtles; Bjorndal *et al.* 2000; Jackson 1997), it is apparent that today's population is substantially depleted. Yet if we were to do a regional assessment of the present Caribbean green turtle population, the region would not qualify in a high threat category due to the apparent increase in population size over the last several decades. A similar situation is present for the Hawaiian green turtle stock that, relative to baseline numbers in the early 1970s, is on its way to recovery (Balazs & Chaloupka 2004). As with Caribbean green turtles, the Hawaiian population would likely be assigned a low threat listing. While lower threat listings may seem counterintuitive to the precautionary nature of sea turtle conservation, they are an important step forward if status listings are to be useful in the development of conservation priorities. Finally, relating to this, regional assessments could result in a rearrangement of our conservation priorities. By revealing those subpopulations that are doing poorly, regional assessments may shift emphasis from those that are doing relatively well, even if they too are depleted. Although this may be necessary in today's climate of limited conservation funding, I think that any resulting changes in conservation planning should be done with caution. Anthropogenic impacts are increasing throughout the world and it is therefore advisable that all sea turtle populations, even the healthy ones, continue to be monitored and effectively managed. After all, a nesting population should not need to be on the verge of extinction to be deserving of conservation action.

Sea Turtle Regional Assessment Criteria and the Role of the MTSG

Although the Red List criteria can be used to develop regional assessments (Gärdenfors *et al.* 2001, IUCN 2003), I believe a new set of regional assessment criteria should be developed specifically for sea turtles. These criteria may include some of components from the Red List Programme, but must also incorporate aspects that are tailored to the biology of sea turtles. For example, the extended longevity of sea turtles demands that regional population assessments be based on abundance changes over a broad temporal interval (see Crouse 1999). However, rather than undertake extrapolations as prescribed by the 2001 Red List criteria, regional sea turtle assessments should put greater emphasis on available data and should employ statistical approaches that allow us to better gauge the uncertainty in trend analyses. The process should have the capacity to more fully integrate local threat levels into assessments and appropriately weigh genetically diverse subpopulations, even if they contribute relatively few animals to the overall regional subpopulation size. Again, consensus on how to do this will require careful consideration. Lastly, and perhaps most importantly, we need to reexamine what it is that we are trying to quantify. Whereas the Red List process is designed to identify a species 'extinction risk', the sea turtle regional assessments should perhaps focus on quantitative abundance trend analyses and stay clear of tying these to risk of extinction. A new set of terms that correspond to the varying degrees of decline would thus be necessary. Endangered may very well be one of the terms, but this should be applied in only that absolute worst occasion where extinction or extirpation is a real possibility. I fear the more we apply the terms 'endangered' or 'critically endangered', the less value they have for establishing conservation priorities.

As for who should sponsor regional assessments of sea turtles, I believe the Marine Turtle Specialist Group is the obvious choice. It has the credentials, its leadership has expressed an interest in this endeavor (R. Mast and N. Pilcher, pers. comm.), it has a global network of biologists that can help refine our understanding of regional population trends, and it has an infrastructure for disseminating up-to-date status information (i.e., a website, list serve, and mailing list). Not to mention, this is the type of thing that MTSG is supposed to do! And finally, there is precedent – other IUCN specialist groups, scientific societies, and conservation organizations have similarly undertaken their own regional assessments (e.g., pelagic fishes, Ocean Wildlife Campaign 1997; sharks, Musick 1999).

In closing, the IUCN Red List is effective for red-flagging imperiled species on the global scale, but for globally distributed species such as sea turtles, the Red List status descriptions often over-state the actual risk of extinction in the wild. To facilitate more appropriate status listings and to provide wildlife managers with an additional tool for developing conservation priorities, a series of regional assessments for all appropriate sea turtle species should be undertaken. These regional assessments should be performed by the MTSG and should be based on a new set of criteria that is specifically designed for sea turtles. Moreover, they should be produced in a timely manner. In the case of the green turtle, for which the global assessment has already been completed, the MTSG should begin immediately to produce regional assessments. For the remaining species that have not yet had global assessments completed, every

effort should be made to have the MTSG regional assessments come out concurrently with the IUCN global assessment. Such efforts would meet the needs of the IUCN as well as regional and local conservation partners. They would not only help identify imperiled species and populations, but would also allow us to better understand when and where sea turtle populations are recovering, as well as the solutions that lead to recovery.

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