

Research and Management Techniques for the Conservation of Sea Turtles

Prepared by IUCN/SSC Marine Turtle Specialist Group

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Preface

In 1995 the IUCN/SSC Marine Turtle Specialist Group (MTSG) published *A Global Strategy for the Conservation of Marine Turtles* to provide a blueprint for efforts to conserve and recover declining and depleted sea turtle populations around the world. As unique components of complex ecosystems, sea turtles serve important roles in coastal and marine habitats by contributing to the health and maintenance of coral reefs, seagrass meadows, estuaries, and sandy beaches. The *Strategy* supports integrated and focused programs to prevent the extinction of these species and promotes the restoration and survival of healthy sea turtle populations that fulfill their ecological roles.

Sea turtles and humans have been linked for as long as people have settled the coasts and plied the oceans. Coastal communities have depended upon sea turtles and their eggs for protein and other products for countless generations and, in many areas, continue to do so today. However, increased commercialization of sea turtle products over the course of the 20th century has decimated many populations. Because sea turtles have complex life cycles during which individuals move among many habitats and travel across ocean basins, conservation requires a cooperative, international approach to management planning that recognizes inter-connections among habitats, sea turtle populations, and human populations, while applying the best available scientific knowledge.

To date our success in achieving both of these tasks has been minimal. Sea turtle species are recognized as “Critically Endangered,” “Endangered” or “Vulnerable” by the World Conservation Union (IUCN). Most populations are depleted as a result of unsustainable harvest for meat, shell, oil, skins, and eggs. Tens of thousands of turtles die every year after

being accidentally captured in active or abandoned fishing gear. Oil spills, chemical waste, persistent plastic and other debris, high density coastal development, and an increase in ocean-based tourism have damaged or eliminated important nesting beaches and feeding areas.

To ensure the survival of sea turtles, it is important that standard and appropriate guidelines and criteria be employed by field workers in all range states. Standardized conservation and management techniques encourage the collection of comparable data and enable the sharing of results among nations and regions. This manual seeks to address the need for standard guidelines and criteria, while at the same time acknowledging a growing constituency of field workers and policy-makers seeking guidance with regard to when and why to invoke one management option over another, how to effectively implement the chosen option, and how to evaluate success.

The IUCN Marine Turtle Specialist Group believes that proper management cannot occur in the absence of supporting and high quality research, and that scientific research should focus, whenever possible, on critical conservation issues. We intend for this manual to serve a global audience involved in the protection and management of sea turtle resources. Recognizing that the most successful sea turtle protection and management programs combine traditional census techniques with computerized databases, genetic analyses and satellite-based telemetry techniques that practitioners a generation ago could only dream about, we dedicate this manual to the resource managers of the 21st century who will be facing increasingly complex resource management challenges, and for whom we hope this manual will provide both training and counsel.

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Regional Collaboration

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The sea is a special environment where linkages established by currents, species, migrations, and passive larval dispersal can extend thousands of kilometers. Consequently, general marine conservation issues, and especially those relating to far-ranging species such as turtles and cetaceans, need to be addressed at a regional (multinational) level. There is consensus that conservation measures implemented independently or in isolation at a national level are inadequate to effectively arrest persistent declines in marine turtle populations. Moreover, conservation effort in one country may be negated by unsustainable activities directed toward the same turtle population in another range country. Truly successful conservation programs transcend geographical and political boundaries. When states share a common marine resource, they also share the common challenge of effective conservation.

Marine turtles routinely journey hundreds and sometimes thousands of kilometers between specific habitats which, in some cases, are separated by entire ocean basins. Consequently, a coordinated management strategy is requisite among range states. Some existing international conventions and global conservation strategies include provisions relevant to endangered and highly migratory species, including marine turtles. These conventions (see Hykle, this volume) and strategies (*e.g.*, the "Global Biodiversity Strategy" developed under the aegis of the World Resources Institute, World Conservation Union (IUCN) and U.N. Environment Programme (UNEP), and the "Global Strategy for the Conservation of Marine Turtles" by the IUCN/SSC Marine Turtle Specialist

Group (MTSG)) provide a framework for regional collaboration. In developing strategies for such collaboration, participants must first diagnose key conservation issues and focus on those areas where national issues and needs require or would benefit from being addressed at a transnational level.

Regional collaboration in the collecting and sharing of research data has the potential to guide meaningful management actions and to assist in the determination of conservation priorities. In addition, many of the issues relating to marine turtle conservation are usually common throughout a region, and individual countries have much to gain from sharing their experience. There is no rigid formula when encouraging regional collaboration for marine turtle conservation. Various approaches have been employed in different geographical arenas. In the South Pacific, the regional marine turtle program is a component of a broader regional agreement pertaining to the environment in general. In the Caribbean Sea, cooperative action is effectively being achieved through an active network of international marine turtle experts, local country coordinators, and hundreds of interested citizens throughout the Wider Caribbean region. In Southeast Asia, the regional marine turtle conservation program underwent a long and formal process under the aegis of ASEAN, a regional organization, that, as a group, operates by consensus.

Whatever process is employed in establishing multilateral collaboration, it is advantageous to use a functionalist approach; that is, the program should focus on its function, which is the conservation of marine turtles throughout a geographic region. Avoid-

ing potential obstacles, such as geopolitics, tariffs, sovereignty, and national security, will hasten acceptance and generate support from participating states. In cases where states oppose cooperation, unofficial planning by conservation groups or the pursuing of partnerships at lower government levels (such as between state-supported projects dealing with marine turtles) can provide a vehicle for cooperation. Particularly where the states involved are developing nations, expecting large financial commitments from governments may create further resistance. One way to partially overcome the funding issue is to integrate a regional conservation initiative into an existing intergovernmental agenda.

The South Pacific Regional Environment Program (SPREP) is an intergovernmental program for the oceanic Pacific Island nations. The successful Regional Marine Turtle Management Program (RMTMP) in this area is a component of SPREP's larger biodiversity program. Representatives from participating countries meet annually to provide information on species distribution and abundance, nesting and foraging areas, cultural importance and traditional use, the status of legislation and law enforcement, tagging data (including long distance recoveries which help define range states), the impacts of natural coastal processes and calamities (*e.g.*, cyclones), and threats associated with international trade, incidental catch, and ill-conceived coastal development. Based on agreed priorities established at these annual meetings, project proposals are developed and submitted to the SPREP Secretariat for funding. A collective database is maintained. Using this approach, the RMTMP is able to effectively address a variety of conservation issues relating to marine turtles, which constitute a prominent shared resource.

In the Wider Caribbean, the Caribbean Environment Programme (CEP) was established 20 years ago by governments of the region under the aegis of UNEP to work under a framework of regional cooperation for the protection and management of the coastal and marine resources of the region. The Wider Caribbean Sea Turtle Conservation Network (WIDECAST), a partner organization to CEP, is comprised of national coordinators in more than 30 nations and a well developed grassroots network. Its primary objectives are to promote a regional capability to implement scientifically sound marine turtle conservation programs ("by developing a technical understanding of marine turtle biology and management in local individuals and institutions"), and to assist Wider Caribbean gov-

ernments in fulfilling their obligations under the SPAW Protocol (see Hykle, this volume). With the assistance of local network participants and regional experts, national coordinators oversee the development of national Sea Turtle Recovery Action Plans which summarize available information and make conservation recommendations. WIDECAST also sponsors training opportunities, assists with the design and implementation of conservation and management programs, and produces and distributes educational materials. Based on the experiences of developing and implementing national recovery plans and at the request of governments under the framework of CEP, WIDECAST is currently finalizing regional guidelines for sea turtle management in the Wider Caribbean. As is the case with the RMTMP, representatives from participating countries meet annually to share information and discuss national and regional conservation strategy.

In 1975, the Mediterranean Action Plan (MAP) was established by governments in the region under UNEP's Regional Seas Programme. MAP, which has as its focus the protection of the Mediterranean Sea, consists of three components: scientific, socio-economic, and institutional and legal (Barcelona Convention and Protocols). The Protocol on Specially Protected Areas was adopted in 1982 and came into force in 1986 (see Hykle, this volume). Parties to the Barcelona Convention included the protection of marine turtles among their priority targets for the period 1985-1995 (Genoa Declaration, September 1985). For this purpose they adopted in 1989 the "Action Plan for the Conservation of Mediterranean Marine Turtles." Issues of regional significance relating to Specially Protected Areas and endangered species (including sea turtles) are coordinated by the Regional Activity Centre for Specially Protected Areas (RAC/SPA), based in Tunisia. Parties to the Convention have nominated National Focal Points in their respective countries for liaising with this Centre on technical and scientific issues. The National Focal Points meet every two years. The Centre provides the Parties with assistance in a variety of fields, including the organization of seminars and training courses. It also provides financial assistance, for example to trainees for participation in courses in marine turtle conservation techniques (such as the one held every year at the Lara Marine Turtle Station in Cyprus) and for carrying out beach surveys. The European Union also provides possibilities of financing Mediterranean States in projects related to turtle conservation through its EC

instruments, such as LIFE/Third Countries or MEDA. RAC/SPA maintains relations with several intergovernmental organizations and NGOs, and it *inter alia* maintains inventories and databases.

The ASEAN Regional Conservation Program (conceived in late 1993) provides a framework for regional collaboration on marine turtle research and conservation in Southeast Asia. The ASEAN region (Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam) supports six species of marine turtles and globally significant aggregations of green and leatherback turtles. The regional program calls for the development and implementation of six major components, namely: (1) Establishment of Information Systems, (2) Institution Building, (3) Management Oriented Research and Monitoring, (4) Information and Education Campaigns, (5) International Efforts and Linkages, and (6) Resource Management. Recognizing that the full implementation of broad regional programs such as this entails huge amounts of funding, efforts are being made to implement model conservation initiatives. One such initiative is the bilateral approach between the governments of the Philippines and Malaysia to jointly manage the Philippine Sabah Turtle Islands. The Philippine Sabah Turtle Islands support the only remaining major nesting colony in the ASEAN region.

Transborder protected areas have gained popularity during the past decade as a novel and pragmatic approach to conserving endangered species and habitats shared by neighboring countries. The Turtle Islands Heritage Protected Area (TIHPA) takes its name from the Turtle Islands, a group of nine islands situated along the International Treaty Limits between the Philippines and Malaysia. These nine islands have a total land area of only 336 hectares, but they harbor one of the largest aggregations of green (*Chelonia*) and hawksbill (*Eretmochelys*) turtles in the world. Documented movements by tagged adults demonstrate that the cluster of islands constitutes a single rookery. More than 17 million eggs were laid between 1984-1995, 72 percent on the six Philippine islands and 28 percent on the three Sabah (Malaysia) islands. The impact of mass harvesting of eggs, a traditional source of income to the islanders, is now evident. Between 1951-1980, egg production in the Turtle Islands plunged by more than 88 percent. While most of the eggs were taken from Philippine nesting beaches, the majority were sold in Malaysia.

In response to the crisis in the Turtle Islands, the World Wildlife Fund Philippine Program (WWF-PP)

developed a project proposal to establish the Turtle Islands as a transborder management area for marine turtles. A Working Group composed of representatives from the Pawikan Conservation Project, (a project of the Philippines Department of Environment and Natural Resources), WWF-PP, and the Marine Turtle Foundation was organized to lay the groundwork for the TIHPA. The group, chaired by WWF-PP, undertook to draft a Memorandum of Agreement (MOA) as its first task. At the Second Meeting of the Philippines-Malaysia Joint Commission for Bilateral Cooperation (JCBC) in February 1995, a Joint Technical Working Group (JTWG) was created to build on the efforts of the Philippine consortium.

After much deliberation, the JTWG eventually agreed on a final draft MOA establishing the TIHPA. The MOA stipulated that contracting Parties endeavor to develop an integrated management program including, at a minimum, the following: (1) Implementation of an integrated and uniform approach to conservation and research that is oriented towards wise management of the TIHPA, (2) establishment of a centralized database and information network on marine turtles, (3) development of appropriate information awareness programs primarily targeting inhabitants of the Turtle Islands on the conservation of marine turtles and the protection of their habitats, (4) implementation of a joint marine turtle resource management program, (5) development and implementation of a training and development program for the staff of the TIHPA, and (6) development and undertaking of eco-tourism programs.

In May 1996, during the Third Meeting of the Philippine-Malaysia JCBC, a landmark agreement was forged between the two governments establishing the Turtle Islands Heritage Protected Areas (TIHPA). The TIHPA is considered the world's first transfrontier protected area for sea turtles. It should be noted that the Philippines has an unresolved territorial claim over Sabah. While the present government is not aggressively pursuing this claim, it remains an irritant in an otherwise healthy relationship between the two countries. It is heartening to see that even in the face of diplomatic sensitivities, significant progress can be made on behalf of urgent conservation issues.

Building on the success of programs in other regions, a Western Indian Ocean Training Workshop and Strategic Planning Session (jointly organized by the IUCN East African Regional Office and the MTSG) was hosted by the Natal Park Board

in Sodwana Bay, South Africa, in November 1995. As a result of a series of national presentations and group discussions designed to determine key issues in sea turtle conservation at national and regional levels, the meeting participants drafted a Marine Turtle Strategy and Action Plan for the Western Indian Ocean. Modelled after the MTSG's Global Strategy for the Conservation of Marine Turtles, the strategy addresses the following needs: research and monitoring; integrated management for sustainable marine turtle populations; building capacity for conservation, research, and management; public awareness, information, and education; community participation in conservation; regional and international cooperation; and fund raising. Twelve priority actions were identified which need to be taken at the regional level in order to facilitate national programs. In January 1997, the MTSG organized a similar Workshop and Strategic Planning Session in Bhubaneswar, India and participants drafted a Marine Turtle Conservation Strategy and Action Plan for the Northern Indian Ocean. Building on its global and regional predecessors, the Northern Indian Ocean Strategy also

identifies priority actions and programs that are needed to facilitate and promote marine turtle conservation at the national and regional level. Requisite to the achievement of both strategies is the development of specific agreements for collaborative management at the regional level to encourage full integration of all states into the program and facilitate formal interagency or bilateral partnerships.

While it is not possible to describe or give credit to all successful examples of international collaboration, we hope that the reader is heartened by the overview herein presented, and inspired to both participate in and pursue international opportunities. At the very least, we encourage all those laboring on behalf of marine turtle conservation to integrate their localized efforts with the efforts of colleagues working with the same populations of turtles in countries hundreds or even thousands of kilometers distant. By this we intend not only that our field methodologies be consistent and sound (as advocated by this manual), but that resources wisely expended at the local and national levels will contribute to the survival of sea turtles throughout their ranges.