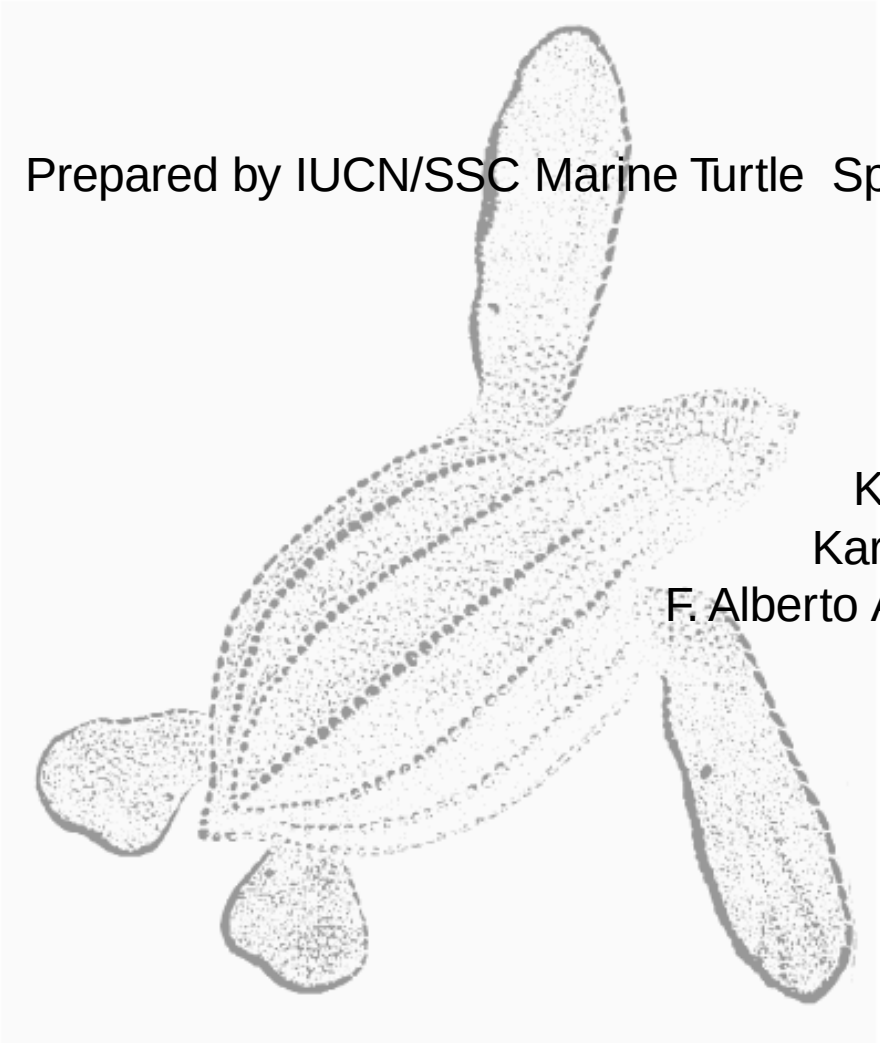
Research and Management Techniques for the Conservation of Sea Turtles

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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Community-Based Conservation

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Why Conserve Sea Turtles?

Sea turtles have been used since time immemorial for food (oil and protein) and other commodities (bone, leather, oil and shell). Their importance in trade dates back millennia, whether it was calipee, leather, live turtles, meat, oil or tortoise shell that was trafficked. Recently, sea turtles have become important for non-consumptive uses: tourism, educational and scientific research, activities that provide opportunities for employment and information services, as well as other economic gains.

A less apparent, but irreplaceable value is as ecological resources. These reptiles are unique components of complex ecological systems, the vitality of which is linked to exploitable products (including fishes, mollusks and mangroves) as well as to "ecosystem services" *(e.g.*, stabilizing coastal areas). Because they migrate thousands of kilometers and take decades to mature, turtles serve as important indicators of the health of coastal and marine environments on both local and global scales. In addition to their value as material resources, these animals have immeasurable worth as cultural assets. Diverse societies have traditionally held sea turtles as central elements in their respective customs and beliefs. Traditionally, to be an Arawak in Guyana, a Bajun in Kenya, a Concaac ("Seri") in Mexico, a Miskitu in Nicaragua, a Tahitian in Tahiti, or a Vezo in Madagascar, is to hunt and exploit sea turtles. In industrialized societies these reptiles also serve special functions; with their charismatic nature and intriguing life cycle, they are ideal for educational and research activities.

This means that marine turtles are model flagship species for both local and international conservation; by conserving these animals and their habitats, vast areas of the planet have to be taken into consideration, and managed adequately. In a word: conserving sea turtles means protecting the seas and coastal areas, which in turn means protecting a complex, interconnected world on which human societies depend.

Biological Conservation: What Needs to be Managed?

Wildlife management and biological conservation are as much managing people as managing wildlife: in the end, they are politics—not biology. Marine turtles have persisted for eons, prospering without protected areas, conservation laws, action plans, research manuals, and other accouterments of conservation programs. It is when people are involved, with over-exploitation and habitat perturbation, that biological conservation becomes essential. Anyone who benefits from sea turtles (either in consumptive or non-consumptive practices), or from their marine and coastal habitats, is a "stake holder," for they have vested interests in the condition of the resources. A basic necessity is that beneficiaries of resources be the stewards of those resources; it is to their advantage that these resources endure, and along with the rights of use, they have the responsibility of collaborating in conservation activities (see Marcovaldi and Thomé, this volume).

As a rule, "top-down" management is ineffective: no amount of laws, decrees, protected areas, action plans, lists of endangered species, or research projects will assure the conservation of an animal or its habitat—especially if it migrates over half the planet and takes decades to mature. Clearly, there must be norms regulating the use of common resources, but it is imperative that resource users be aware and supportive of these measures. Realistic conservation practices

must be integrated with, and supported by, the communities that interact with the turtles and their habitats. It is fundamental to appreciate that the condition of the environment is intimately related to the status of human communities, and in many cases community-based conservation (CBC) is considered part of community development. CBC has become fashionable, but with good reason: it is essential for realistic, long-term conservation of shared resources.

CBC: A Philosophy and a Challenge

CBC is more a philosophy than a technique: there are few standard procedures, but instead a gamut of approaches to similar problems. Conceptual as well as material challenges are common: financial and other resources are rarely adequate, but these deficits are not specific to CBC. Perhaps most limiting are human resources: people who are trained, competent, interested, and available to make long-term commitments to CBC are themselves rarer than most endangered species. Conceptual issues are diverse, complex, and often foreboding. Because CBC is fashionable, many people will be attracted to it, some for less than honorable reasons. True CBC is not simple to accomplish. Developing "bottom-up" management is not only time-consuming, but often this process is resisted, undermined, or co-opted by people in power (PIP). A chronic problem is the difference between local interests for development and conservation, and those of PIP. Rarely do PIP comprehend the complex issues at the level of individual communities; indeed, their priorities are traditionally the concentration of power and control—not promoting democracy and empowerment. To begin with, traditional rights and responsibilities involved in resource use are rarely reflected in the legal structures of modern states, but instead exist as unwritten, even implicit, understandings at the community level, with culturally relevant forms of transmission and control.

Integration

CBC requires contributions from many disciplines, much wider than biology. This is not simply a matter of assembling a group of assorted specialists; a common language and conceptual foundation must be worked out, often beginning with disparate, fragmented, and isolated—even antagonistic—viewpoints. There must be a long-term commitment on the part of these "facilitators," who need to form a team among themselves, but also establish a partnership of mutual respect and understanding with the citizenry, for they must understand the capacity, limitations, needs, and desires of local inhabitants. This requires social integration and cultural sensitivity. Yet, facilitators must not beguile themselves into thinking that they are natives, and hence understand all the intricacies *(e.g.*, cultural, economic, familial, historic, political, social) of a community. It is normal for communities to be divided along diverse sociological axes, and internal conflicts are usual. At times it is unclear who are the members of a community. Thus, consent is not easy to achieve, and CBC requires full-time, long-term commitments, with unlimited patience on the part of the facilitators, essential for building confidence and consensus.

Considerations of Time

As a result, it is critical that sufficient time be allotted to CBC: to cut short a program, or the follow-up activities, presents a grave risk not only of misunderstandings and failure, but of long-term rejection of future conservation and development activities. At the same time, it is essential that facilitators be realistic and honest in regard to the duration and nature of their involvement with the community, and not lead people to believe that they will be there forever, solving problems. Paternalism must not be confused with true development: ***the goal of true CBC facilitators is to work themselves out of a job***. The romanticism about bucolic communities being "in balance with nature" must also be avoided, just as much as sanctioning poverty and under-development in the name of preserving "traditional lives" and "noble savages." Merely being rustic, or marginalized by modern society, is not the same as abiding by customs of environmental protection, nor being in favor of the long-term conservation of one's own resources. Hence, because CBC results are long in coming, some critical conservation issues need other approaches: CBC is rarely appropriate for quick resolutions of urgent issues.

Community and Participation

Participation by diverse sectors of the community is imperative to CBC, bearing in mind that the term "community" is a simplification, for any population will be divided into sectors and interest groups. While the involvement of all sectors is fundamental, the act of participating is a political process, and great care must be taken to insure that the participation process does not lead to distortions in power and access to resources. All members of the community must feel that there is an "open-door" policy to participate in

CBC activities, and that all negotiations and transactions be guileless and transparent. Guaranteeing full grassroots participation does not necessarily imply interacting with every single person in the community all the time; facilitators must respect the social structure, working through local leaders, organizers, and other principal actors. However, it is critical to distinguish true leaders and local "experts" from political appointees and "good scouts" who are seeking favors and advantages. Not all natives are native experts, and not all local "leaders" are accepted by their communities; some locals—just as many company executives and politicians—are skilled at self-projection by conforming to preconceived stereotypes and convincing outsiders of their importance.

Contemporary Challenges

Rural communities usually cause less destructive impacts on the environment than do urban populations; yet rural peoples are commonly caught between traditional-valued cultures and consumer-oriented social pressures. Societies, their cultures and traditions, are dynamic and evolve in time and in response to changes. However, contemporary communities are exposed to unprecedented alterations, both rapid and profound: human populations are expanding as never before, yielding burgeoning competition for resources; tentacles of the global market are everywhere, resulting in rampant resource depletion, global contamination, and environmental perturbation, with the consequent lack of access to basic resources, along with cultural homogenization. As a result, traditional practices, although relevant to former conditions, may be inappropriate to contemporary situations; alternatively, there may be acculturation and the loss—or even rejection—of traditional knowledge and values, which are appropriate for guiding the relationship between humans and the environment.

A primary objective in CBC of marine turtles is developing culturally acceptable practices that protect turtles and their habitats, and at the same time benefit coastal communities. Where exploitation and other activities that affect the turtles and their habitats are traditionally involved, this will ordinarily call for profound modifications to established practices. Clearly, if sea turtle populations have declined and their nesting and feeding areas are heavily perturbed, while at the same time human numbers are burgeoning, along with increases in per capita consumption, there is no way that turtle exploitation can be carried out as it was "in the old days." This is especially problematic in this age of "neoliberalized" and globalized economies: converting locally produced and consumed resources into commodities for world markets, while facilitating unrestricted access to resources and markets, rarely provides adequate compensation to the producers.

Developing Alternatives

The search for, and implementation of, "alternatives" is standard for CBC, and here there are more challenges. Alternatives must be acceptable to the people who are to use them; users must know what is involved, have the technical capacity to accomplish what is necessary, and the results must be beneficial to them, as well as meeting their expectations. Moreover, community leaders and authorities must be in accordance with the alternatives. There must be true collaboration in the development of conservation activities, empowering people as full participants with responsibility, not just as witnesses (or worse, ignoring, or even deceiving and/or dominating them). Just as important: the alternatives must be ecologically sound. For example, "ecotourism" is frequently offered as a "quick-fix" for solving conservation and economic problems of disadvantaged communities, but there are many considerations—both social and ecological—that must be resolved before this can be implemented as a viable alternative.

Even when both social and ecological requirements are met, community development projects do not exist in a steady state; changes in both socio-cultural and environmental aspects are common, often as a direct result of the conservation/development program. Since both societies and environments are dynamic in space and time, it could not be any other way! Each community has its own idiosyncrasies: historic, cultural, economic, political, and environmental, so there is no one formula or model for CBC or the development of alternatives.

The Challenge of Autonomy

While community self-sufficiency and self-rule are noble goals, facilitators must be realistic, and objectively appraise levels of social cohesion, as well as experience at administration and political organization. There are basic social and political requirements to be able to exist independently of the politically and economically ruthless systems which beset today's coastal communities. It is no trivial challenge for a group of relatively inexperienced, powerless people to resist the social and economic pressures of

much larger and better-financed industrial and political entities, in which success is measured in terms of unlimited growth and conquest. It is usually necessary to facilitate the link between members of communities and PIP who operate in political and economic spheres with different—or foreign—cultural values. On the other hand, it is irresponsible to implement *everything* that is proposed by a community, just in the name of self-rule, particularly when there is sound evidence for long-term, negative consequences. Hence, community members must have access to fundamental information, as well as time and assistance in interpreting it and reflecting upon its relevance to their lives and families.

Training and Learning

Customarily, some form of capacity building is required so that community members can use newly acquired, or modified, alternatives and meet their needs and expectations—without causing environmental and social damage. Whenever possible and appropriate, local traditions and practices should be included, or rehabilitated, in conservation plans and actions; this is particularly true for environmental education. It is crucial to understand both local lore and basic sea turtle biology to be able to integrate indigenous knowledge and beliefs with scientific explanations: it is also essential to have the objectivity and humility to listen to and learn from unlettered people. However, it is just as important to facilitate social and political organization in the community, which in the end means the development of leaders and political structures. The distinction between true CBC and king-making is very gray, and great caution and integrity are required in this arena; the institution of clear processes for accountability is critical. As facilitators are both sources and conduits to limited resources *(e.g.,* money, information, and PIP), the distribution of their services must take into account the heterogeneity of the community.

Priorities

As there is no end of social and environmental problems, the focus of CBC must be toward solving root problems and not treating symptoms. Hence, the community chosen, the geographic area, the social dilemmas to be grappled with, and the conservation issues to be resolved *(e.g.,* species and ecosystems) should be objectively evaluated, so that the limited resources invested in the project will have the greatest conservation and social impact in both time and space. Making full use of the "multiplier effect" is fundamental, in which competent teachers and leaders train more of their respective types.

Conclusions

The goal of CBC is to integrate community development with the conservation of culture and traditions, while simultaneously protecting the environment and resource base; this entails promoting the use of resources without reducing their long-term value, in economic, social, and ecological terms. Success can be evaluated by the availability of exploited resources as well as ecosystem services, the persistence of species *(e.g.*, exploited, keystone, or endangered) and the maintenance of culturally important landscapes. It also means a greater degree of self-sufficiency and self-determination for the community on all fronts: economic, social, cultural, political, etc. In the end, the common long-term motivation for communities to conserve their common resources is the fate of their future generations. Despite the enormity of the challenge of CBC, it provides unique rewards and satisfaction to those who nurture the process.

Summary

Despite the need to develop case-by-case actions for CBC, several generalities can serve as specific steps: define the problem (bearing in mind the social and political ramifications); construct realistic goals, together with means of objective evaluation for both short and long term; identify local stake holders as well as other key players; evaluate attitudes, and appraise agendas (stated and hidden) of all players; appraise gains and losses of different parties (both measurable and unmeasurable but perceived); develop realistic strategies and alternatives working through consensus, keeping in mind the challenges of integration, time constraints, etc.; develop forms of communication and symbols that are relevant and effective, including capacity building; keep the process open and participatory; avoid romanticism and paternalism.

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