

SEA TURTLES IN THE REPUBLIC OF SEYCHELLES: AN EMERGING CONSERVATION SUCCESS STORY

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The Seychelles Islands, located in the Indian Ocean north east of Madagascar, were uninhabited when they were discovered by Europeans in 1609. From the time the islands were settled in 1770, marine turtles featured prominently in the economy of the Seychelles. Historically, raw shell from hawksbills (*Eretmochelys imbricata*) and dried calipee from green turtles (*Chelonia mydas*) (used by Europeans for turtle soup) were exported, and green turtle meat formed a staple in the local diet. This led to a serious decline in the turtle populations. Over time, the attitudes of both the Government and the general public towards turtles have changed significantly. Following is a description of some of the events that led to these changes as seen from the perspective of the author who has done sea turtle conservation work in Seychelles for more than six years—including three years during 1981-1984, several shorter visits in the late 1980's and early 1990's, and 2.5 years from 1995-1998.

In the early 1980's (and before) Seychelles had primarily a rural economy. Most Seychellois were oriented toward the direct utilization of natural resources. Because of the historic economic and cultural importance of turtles, Seychellois took particular pride in their tradition of turtle exploitation.

On the inhabited islands, most female hawksbills emerging onto the nesting beach were killed for their shell which was either exported to Japan or used in the local tourist curio trade. Both fresh and salted green turtle meat was readily available, and although the law protected nesting female green turtles, in fact, its enforcement was difficult. But even in that society, and even among poor illiterate people, there were special individuals who could appreciate turtles for their intrinsic value as beautiful, living animals.

Unfortunately, in virtually all societies, people have viewed marine turtles as valuable primarily because they could be cut into pieces and their parts utilized directly or sold to generate income. This attitude in itself is not problematic except where such utilization becomes unsustainable in the long term (as is often the case). As conservationists, we need to find ways for people to generate income from sea turtles in a manner that will not destroy the populations. In recent years, in some parts of the world, sea turtles have taken on new value as a tourist attraction.

RECENT EVENTS

In Seychelles, the patterns of overharvest documented

between 1981 and 1984 (Mortimer, 1984) continued relatively unchanged until about 1989 when Seychelles developed a National Environmental Management Plan (EMPS) and put in a bid for a multimillion dollar grant from the Global Environment Facility (GEF) to fund implementation of the plan. Critics both inside and outside the country questioned the commitment of Seychelles to environmental protection, given the unsustainably high levels of sea turtle exploitation taking place. After discussion and debate the Seychelles Government determined to make policy changes.

In 1993, the Government implemented the *Hawksbill Artisan Compensation and Retraining Programme* through which the artisans reached a consensus between themselves and the Government to: 1) give up their businesses as turtle shell artisans in exchange for financial compensation; and 2) sell their stocks of raw shell to the Government. These stocks of raw shell have been maintained by the Government in a sealed container. The program, which cost US\$ 250,000 (50% paid by the Global Environment Facility and 50% by the Government of Seychelles), has been highly successful. All the artisans are now employed in alternative occupations, and domestic trade in hawksbill shell products is no longer apparent. In 1994, having protected the curio artisans from economic hardship, the Government passed a law offering complete legal protection for sea turtles.

Sea turtle conservation in Seychelles also got a boost from the fact that during much of the past decade the Seychelles economy has been strong, and become largely a service economy based on tourism—tourism being the primary source of foreign exchange for the country. The Seychelles Government has come to appreciate that foreign tourists are attracted to Seychelles because of her beautiful environment, and that steps must be taken to preserve this beauty. Seychellois have also come to the (perhaps surprising) realization that Europeans love to see live sea turtles. In Seychelles, tourists can encounter sea turtles on the nesting beaches and also while snorkeling on the coral reefs in the vicinity of the tourist centers.

In mid-1997, both the Division of Conservation and the Ministry of Tourism and Transport expressed concern that dormant gill nets (a recently introduced fishing technique) were killing too many sea turtles and other forms of marine life. The Government responded by banning the use of such nets in near shore waters.

To be truly effective, such favorable national policies and Government commitment needed to be accompanied by a change in public attitudes at the grass roots level. This need was addressed by the *EMPS Project J1: Seychelles Turtle and Tortoise Conservation*, coordinated by the author between 1995 and 1998. The J1 Project implemented a wide range of activities relating to sea turtles, including: 1) institutional strengthening; 2) training of conservation personnel; 3) monitoring of the status and biology of nesting and foraging turtle populations; 4) identification of critical nesting and foraging habitats; 5) assessment of human impacts; 6) review of national legislation and policies pertaining to turtles; 7) collaboration with the Ministry of Education to

sensitize school children; and 8) awareness campaigns directed at the general public. This paper will describe some of the strategies we used to enhance public awareness about the endangered status of sea turtles in the Seychelles.

STRATEGIES TO ENHANCE PUBLIC AWARENESS

The population of Seychelles comprises some 70,000 people, primarily of African origin, whose first language is Seychellois Kreol. All the Seychelles media (including local TV, radio, and the press) respond positively to requests by the Ministry of Environment to cover almost any newsworthy event relating to turtles. But, our most powerful public awareness tool has probably been television. Almost every Seychellois family has a color TV, despite the fact that television has been a feature of Seychelles only since the mid-1980's, and until very recently had but a single station (SBC). The management of the Seychelles Broadcasting Company (SBC) strongly promotes environmental awareness. SBC regularly imports nature programs in both French and English from overseas sources. Perhaps more important, however, SBC produces their own shows in the local language (Seychellois Kreol) to highlight local environmental problems.

During the past two years SBC has featured sea turtle issues in the following programs in the Kreol language: 1) an hour-long documentary about sea turtles in Seychelles; 2) several "Magazine Shows" that incorporated 10-15 minute features about local turtle issues; 3) an hour long round table discussion about turtle issues; and 4) on the very popular nightly news program in Kreol, on more than a dozen occasions over the past two years. The news has reported on: the discovery of carcasses of illegally slaughtered turtles; stranded turtles that drowned in gill nets; workshops or seminars highlighting turtle biology or conservation; the intention of law enforcement officers to aggressively prosecute offences involving turtles; and actual arrests or prosecution of such cases.

In the presentation of information through the media we try to appeal to the sensibilities of the local culture through the following strategies:

- 1) Language. Although most Seychellois speak English, we usually present information in the local language, Seychellois Kreol.
- 2) Economic justification. We explain that live turtles in their natural state make a good tourist attraction that can be used to generate income for the Seychelles. We feature the turtle tourism pilot project at Bird Island as an example of a successful program in which tourists assist the island management to monitor the nesting population. Interviews with tourists demonstrate how much they enjoy the experience.
- 3) Appeal to national pride. We try to create an awareness of how the turtle resources of Seychelles are unique:
 - a) Seychelles hosts some of the largest popula-

tions of hawksbills remaining in the world. Although these populations are vastly depleted from previous levels, many hawksbill populations in other countries are on the verge of complete extinction.

- b) Only in Seychelles do hawksbills nest primarily in the daytime in significant numbers (another reason why they make a good tourist attraction).
- 4) Explain clearly why turtles need protection. Without an understanding of how the long age to maturity (which may be 30-40 years in some turtle populations) complicates successful management of a population, the casual observer may find it hard to believe that sea turtles are really in need of protection. Two approaches have proved successful:
- a) The use of diagrams (Figure 1) to illustrate how damage caused by overharvest is masked by the long age to maturity. And to show that the damage may only become apparent after it is already too late to save the population. Mortimer (1995) explains the use of these diagrams.
 - b) Ensure that people understand the difference between the life cycles of sea turtles and those of the domestic animals with which they are more familiar. A good approach is to ask people to compare turtles to domestic pigs. After ascertaining that pigs usually take 6-8 months to reach maturity, the next step is to ask people to imagine how they would manage a pig farm if the pigs took 30 to 40 years to reach sexual maturity and if in the process most of the piglets did not survive to reach adulthood.
- 5) Maintain a dialogue with the turtle hunters. Since 1981, the author has cultivated the friendship and cooperation of men who made their living hunting turtles. These men often possess a great knowledge of turtle natural history and can also offer insights about the importance of the resource to the society as well as about the methodologies of exploitation. One such individual, who had been a close friend of the author since 1981, was employed on a full time basis as Project Assistant for the *EMPS Project JI*. He is one of the best turtle hunters in the country having literally killed thousands of turtles during his lifetime, and is highly respected by his peers. He now genuinely believes that the turtle populations have declined and are in need of protection, and he is willing to appear on TV and say so.

As a result of all the publicity, we have noticed heightened public awareness and participation. Coastal inhabitants regularly report sightings of nesting turtles to the Division of Conservation. They also call the police to report incidents of poaching. In the past year, some half dozen cases have been prosecuted as a result. Young people are enthusiastic about live sea turtles as can be seen in art exhibitions,

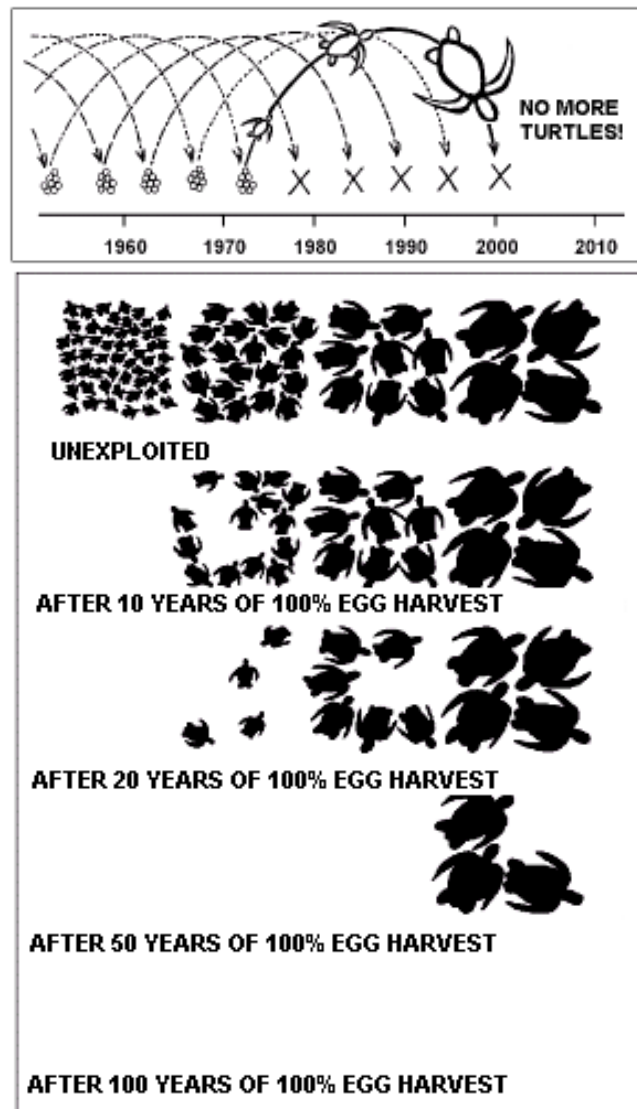


Figure 1. Diagrams illustrating how: a) Slaughtering nesting females on the nesting beach can destroy a turtle population, even before a decline in the numbers of nesting females becomes apparent on the breeding beach; and b) Overharvest of eggs will destroy a turtle population from the bottom up, even before the numbers of nesting females decline significantly at the breeding beach. For further explanation of diagrams see Mortimer (1995).

poetry competitions and general classroom discussion. We have seen in Seychelles that a strong public awareness campaign is critical to the implementation of any good sea turtle management plan. Some of the strategies we have used in Seychelles can be and should be part of sea turtle management programs elsewhere in the world.

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