

**Sea Turtle Conservation
Strategy, Action Plan, and
Action Projects**

Sea Turtle Conservation Strategy

The first draft of the Conservation Strategy was written by David Ebreinfeld. The draft was revised during the Conference to the version presented here.

Situation and Objectives

Few groups of animals are more valuable and magnificent and at the same time more misused than sea turtles. Able to serve as a source of protein for coastal peoples in the tropics, they have been overexploited most frequently to feed, clothe and adorn the wealthy in Europe, North America, and eastern Asia. Populations are being lost through land development that destroys nesting beaches, through reef destruction, through the accidental drowning of turtles in trawl nets, and through the failure of states to join together to protect species that migrate from areas under one coastal jurisdiction to others. Even states intent on managing the resource wisely have destroyed sea turtle populations by developing management plans that ignored the biological needs of the species. Very few populations of sea turtles remain undiminished. The majority are depleted. Many are extinct. Six of the seven species are endangered.

The objective of this strategy is to develop conservation action based on the biology of the species that will return sea turtles to former abundance while allowing controlled exploitation for the benefit of generations of humans yet to come.

The Problem

The fate of sea turtles in the modern world is being determined by the interaction of many factors. These include: 1) the use of sea turtles as food by peoples who live where sea turtles are found; 2) the use of sea turtle products in local commerce (for example, sea turtle eggs sent to local markets); 3) the international trade in sea turtle products; 4) the differing attitudes toward conservation in different countries; 5) the incidental destruction of sea turtles that occurs during

the fishing of other species; 6) the effects of nesting beach alteration or destruction; 7) the effects of marine and land-based pollution; and 8) the natural recovery rates of the various sea turtle populations under different conditions of exploitation and incidental stress. The biological constraint (8) is in turn determined by such variables as growth rate, food resources, migratory habits, the fixity of nesting behaviors (including preference for certain nesting sites) and others.

Of these eight factors (there may be more) that determine the fate of sea turtles, only one, the biological factor, is non-negotiable in a conservation strategy. Sea turtles, even the most resilient of the species, are neither shrimp nor herring. They mature very slowly compared with most commercially important species, and when mature their reproduction is vulnerable to disruption by many kinds of human activity in addition to ordinary turtle fishing. Among other widely exploited marine species, only the great whales, and possibly the sturgeons, show similar biological constraints on exploitation. In determining a conservation strategy, this ultimate limitation must be kept constantly in mind.

Sea Turtle Conservation Policy

This document sets forth, in outline format, policy considerations for the conservation of sea turtles.

I. *Habitat Protection*

Habitat conservation can be achieved through a variety of management techniques. These may include the creation of protected areas such as national parks or reserves, management efforts, or simple limitation of access or activities in specific areas at specific times. Management techniques need to be carefully evaluated for particular areas so the measures selected are most appropriate. Habitats that should be protected are:

A. Terrestrial Habitats

1. concentrated nesting beaches
2. diffuse nesting beaches
3. basking sites

B. Aquatic Habitats

1. internesting areas
2. migration routes
3. feeding grounds
4. hibernacula

II. *Management* [Considerations under Eggs, Hatchlings, Adults and Subadults listed in order of priority or preference.]

A. Eggs¹

1. No intervention other than protection.
2. Criteria for intervention—intervention is justifiable when hatching rate is reduced by
 - a. heavy predation
 - b. heavy human exploitation
 - c. physical damage to nesting beach

3. Types of intervention—the least manipulative techniques should be used.
 - a. protect eggs *in situ*, control of predation
 - b. transplant to adjacent hatch sites
 - c. remove to hatcheries

B. Hatchlings¹

1. Protection of *in situ* nests—limit beach traffic and disturbance at vulnerable preemergence and emergence stage
2. Immediate release of hatchery hatchlings
3. Retention of hatchlings for headstarting
4. Removal to safe habitat (e.g., airlifting beyond oil spills)

C. Adults and Subadults

1. Complete protection and prevention of interference with reproductive activities on nesting beaches, and in internesting habitats (see also sections VI. Conservation Education and VII. Legislation, below)
2. Prevention, reduction and control of exploitation² in
 - a. migratory routes
 - b. feeding grounds
 - c. hibernacula

III. *Control of Exploitation*

One goal of conservation is the rational sustained use of wildlife for the greatest benefit of humans now and in the future. Since over-exploitation is responsible for the endangerment and extinction of many populations of marine turtles, maximum control of exploitation is mandated.

A. Commercial

1. As long as sea turtles remain endangered, the ending of commercial exploitation of all sea turtle products is a long-range goal or ideal of the conservation strategy. We do not anticipate,

1. Although they may be of great value, the more manipulative techniques (removal of eggs or hatchlings, colony transplantation, headstarting) are unproven techniques and should not be applied to a substantial portion of the eggs and hatchlings of a given colony. Tests of the success of manipulative efforts should be a part of every operation. In all manipulations, efforts should be made to keep conditions as natural as possible (e.g., natural temperature regimes for eggs, exposure of newly emerged hatchlings to natural sensory imprints from the beach).

2. Endangered and declining populations deserve complete protection through prevention of exploitation in all habitats.

however, that this goal will be achieved quickly. An end to international trade in all sea turtles and their products was mandated by placement of the species (with the exception of some Australian-Papua New Guinea populations) on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1973 and 1976. But because many of the principal international trading nations are not Party to the Treaty or even though they are Party to it, have taken reservations for sea turtles, or do not adequately implement it, the Convention has had only limited effect. At the moment, the highest priority should be given to ending:

- a. The leather trade. This is a new industry whose demise would not have any major undesirable cultural or economic side effects. The present leather trade constitutes an intolerable drain on the sea turtle populations, especially those of *Lepidochelys olivacea* and *Chelonia mydas*. Current world trade should be terminated and all measures taken to achieve this end.
- b. The trade in tortoiseshell. The trade in tortoiseshell should cease in those countries where it has no special traditional cultural significance. Those countries where tortoiseshell has a cultural value (e.g., in marriage ceremonies) should be encouraged to preserve and recycle antique supplies, to promote the use of synthetic substances, and with all dispatch to phase out the importation of new material.
- c. Eggs collected for sale in distant markets. Eggs should be collected only for noncommercial consumption—and then only in those cases where a program is in effect to ensure that the great majority of eggs from that beach will be left to hatch, and that hatching will be under conditions as natural as possible. Conservation Education (see VI, below) should be used to counter the myths about special properties of eggs, in those countries where these superstitions are a cause of high commercial demand.
- d. Trade in stuffed juvenile sea turtles. This totally unnecessary luxury trade is having a serious impact on popu-

lations of *Eretmochelys imbricata*. It should cease and all measures should be taken to achieve this end.

After the demonstrated recovery of abundance of sea turtles, some level of exploitation may be possible. However, any exploitation program must be based on the best available biological information and must be in accordance with national and international law.

B. Noncommercial Hunting

1. Noncommercial hunting is defined as a traditional way of obtaining food practiced by aboriginal peoples who are not yet part of a cash economy or technological society. In this context, noncommercial hunting can be a valid activity, especially when it is carried out so as to have a minimum impact on turtle populations. Nevertheless, there are some turtle populations that are endangered even by legitimate noncommercial hunting, and in those cases techniques of self-regulation and biologically sound conservation practices should be encouraged (see I. Habitat Protection, II. Management, and V. Research and Population Assessment sections). Where the noncommercial hunting of sea turtles is valid, subsistence users have first right to the resource.

C. Farming

In addition to the prime objective of marketing sea turtles raised under artificial and/or semiartificial conditions, farming has been claimed by some to provide incidental conservation benefit by relieving the commercial pressure on wild animals. Others feel that such operations create the risk of increasing pressures on wild populations.

1. Before the benefits and risks of commercial turtle culture can be fully evaluated, more data are needed, as follows:
 - a. The feasibility of complete, closed-cycle farming, with no dependence on wild populations (either eggs or adult breeders) should be studied. "Feasibility" refers to both biological and economic factors.
 - b. The considerations that determine the minimum (and possibly maximum) sized operation that is commercially feasible ought to be ascertained.
 - c. The impact of commercial turtle culture (farming and ranching) on prices of turtle products, on the creation of

new markets, on the capture of turtles from wild populations, and on the trade in products derived from wild-caught sea turtles should be evaluated.

2. In the absence of definitive answers from the above inquiries, the following cautions are necessary:
 - a. Commercial mariculture must be in conformity with all applicable conservation regulations and laws, whether local, national, regional or international.
 - b. Care should be taken that special legal provisions and exemptions for farmed products are not misused by importers and exporters of wild turtle products.
 - c. Any effort by commercial mariculture interests to develop markets for new turtle products or to create demand for turtle products where it did not previously exist is insupportable.
 - d. The establishment of new commercial turtle "farms" must be discouraged until it is certain that such operations will not cause, directly or indirectly, a further decline in turtle populations.

IV. *Incidental Catch*

Incidental catch is a major threat to many sea turtle populations and must be eliminated or reduced to very low levels.

- A. All countries should be prepared to establish restricted fishing zones in areas of high turtle concentration (as has been done by Mexico, near Rancho Nuevo, and by the United States, near Cape Canaveral).
- B. The development of fishing techniques and equipment that preclude the incidental take of sea turtles should be given high priority. This technology should be made freely available to all states.
- C. Information concerning the magnitude of the incidental catch of sea turtles is sorely needed. The industries involved in this incidental catch should be encouraged to assist in the gathering of information.
- D. International fisheries commissions should address the problem of incidental catch in the framing of their regulations. If necessary, amendments should be promoted for international fishery conventions to give specific jurisdiction to fishery commissions over nontarget species.

- E. Turtles which remain alive after being incidentally captured in fishing nets should be resuscitated and released.
- F. The deliberate mutilation and killing of sea turtles during commercial fishing for other species must be ended.

V. *Research and Population Assessment*

- A. Data on the location, and estimated or census-determined sizes of all populations of sea turtles is needed. Except in the case of *Lepidochelys kempi*, which exists as a single population, it is not obvious that there is any value in devoting time to estimating the population sizes of entire species.
- B. Information on all aspects of the basic biology of sea turtles is needed. Of special relevance to conservation is information about growth rates, complete life histories, population dynamics (reproductive rate, mortality rate, and age at sexual maturity), phylogenetic and taxonomic relationships of different populations, and effective tagging methods.
- C. Important issues of management techniques include testing the biological effectiveness of restocking, transplanting, and headstarting programs, and studying the effects of incubation temperatures and other environmental conditions on sex determination.

VI. *Conservation Education*

Conservation education in different countries will be enhanced through cooperation of local conservation organizations and agencies. Provisions should be made to supply them with information about sea turtles so that they can:

- A. Organize their own political action and educational campaigns
- B. Perform market surveys and gather information about trade in sea turtle products as well as local consumption of these products
- C. Organize tagging programs and make surveys of activity at nesting beaches
- D. Educate coastal people to identify the different kinds of sea turtles and to aid in the gathering of information about them
- E. Develop recommendations for children's books (including parts of school texts), comic strips, and posters in various languages, on the subject of the plight of local sea turtles, and the value of a wildlife heritage
- F. Develop survey teams that would census and salvage turtles that had washed up on

the beach and, when possible, determine the cause of death

- G. Maintain records about sea turtle populations and trade in sea turtle products, which would facilitate year-to-year comparisons

VII. *Legislation*

A. National

1. A worldwide systematic inventory of turtle conservation laws is needed to determine where gaps in coverage exist and what the priorities for action should be.
2. Where gaps exist, comprehensive conservation legislation (dealing with exploitation and habitat protection) should be enacted and implemented.
3. Effective mechanisms for enforcement of legislation should be developed. These should emphasize the development of strong enforcement techniques, and the training of effective conservation officers, drawn from the people among whom they would work. To facilitate control of international commerce, points of entry for such commerce into a country should be limited to those which can be staffed with trained officers.
4. Attention should be given to the strengthening of penalties for the breach of national legislation to reflect the severity of violations.

B. International

1. All states that have not already done so should become Party to the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) without reservation. States Party to CITES which have taken reservations for sea turtles should withdraw those reservations. All Parties to CITES should fully implement their obligations with vigor.
2. All states under whose jurisdiction sea turtles pass any part of their life cycle and any states that exploit sea turtles on the high seas should enter into cooperative conservation programs for turtles, and in particular those states should become party to regional or umbrella conventions as the framework for development of necessary international cooperation. The Convention for the Conservation of Migratory Species of Wild Animals represents a useful effort to develop an umbrella convention applicable to sea turtles.

3. Existing regional conservation conventions should be strengthened and implemented (e.g., Western Hemisphere, African, South Pacific Conventions).

VIII. *Cooperative Efforts*

The exchange of information and the development of joint conservation programs among the many disparate and often isolated organizations and states (e.g., governmental agencies and nongovernmental organizations and adjacent range states) should occur.

Implementation of the Strategy

A Standing Committee should be established to monitor and facilitate the further development and the implementation of the Sea Turtle Conservation Strategy.

This Committee should be associated with the Marine Turtle Specialist Group of the Survival Service Commission of the International Union for Conservation of Nature and Natural Resources (IUCN), and should include representatives from the various regions of the world. The IUCN and the World Wildlife Fund are requested to accept responsibility for the overall coordination of this Standing Committee and the active cooperation of the various elements of the IUCN, including the Traffic Specialist Group, the Commission on National Parks and Protected Areas, and the Commission on Environmental Policy, Law, and Administration is essential.

International and national nongovernmental organizations should assist with implementing the Strategy, as appropriate, and especially with public information and education and with the promotion of necessary governmental action.

Participation in the Action Plan by governmental agencies, and particularly those involved with marine turtle research and conservation, is requested, because such participation is essential to the successful implementation of the Action Plan. The United Nations Environment Program and the United Nations Food and Agriculture Organization are encouraged to provide financial and programmatic support to this global conservation program.

For the purpose of preparing a report assessing the progress made in implementing the Strategy, the Standing Committee should meet with the IUCN Survival Service Commission at its meeting immediately prior to the 3rd Conference of the Parties to CITES, in the first quarter of 1981.

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Biology and Conservation of

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