

## Status and Distribution of the Kemp's Ridley Turtle, *Lepidochelys kempii*, in the Wider Caribbean Region

René Márquez M.

Programa Nacional de Investigación de Tortugas Marinas

SEMARNAP / INP

México

### Description

Family Cheloniidae, *Lepidochelys kempii*  
Garman (1880)

Common names: tortuga lora, bastarda,  
Kemp's ridley, tartaruga bastarda, tortue de  
Kemp

The Kemp's ridley sea turtle is the smallest of the sea turtles. An adult weighs between 30-50 kg, with a straight carapace length (SCL) of 50-78 cm. The color of the carapace in an adult is olive green; the underside (plastron) is yellowish white. The form of the carapace is semicircular. The head is triangular, with a thick and somewhat hooked beak, not serrated. There is a pore in each inframarginal scute of the bridge.

The spherical, white-shelled eggs measure 34-45 mm in diameter and weigh 24-40 g. Hatchlings are uniformly black in color, averaging 44 mm SCL and approximately 17.2 g in weight. The hatchlings show three dorsal longitudinal ridges and four in the plastron, with a small sharp protrusion or spine on each scute (with age these protrusions disappear). In immature stages, the turtles have an almost black dorsal surface and a white underside.

For additional information beyond that provided in this brief overview, the reader is referred to Wibbels (1984), Ross et al. (1989), Márquez (1989, 1990, 1994), Caillouet and Landry (1989), Chávez et al. (1990), Byles (1993), Eckert et al. (1994), and Pritchard and Mortimer (1999).

### Biology

The species occurs mainly in the Gulf of México and adults can be found throughout the continental shelf (Figure 1).

It is not known where the hatchlings go immediately upon entering the water, but they can be

observed moving along the coast. Based on documented sightings in oceanic waters, we assume that the first migration of these immatures is directed toward pelagic areas, and I believe that the young turtles stay within the Gulf Stream for two or three years. A large number of immatures are carried out of the Gulf of México by the Gulf Stream and distributed along the eastern seaboard of the USA (Figure 1). Quite a few continue their trip to European coasts; it is uncertain whether these turtles can or will ever return to their place of origin.

It is believed that when turtles reach approximately 25 cm SCL, they begin their return to the Gulf of México. Seasonal migrations along the eastern seaboard of the USA are known to occur. If individuals remain too long in their northern feeding zones as temperatures decrease during the fall and winter months, they may experience "cold-stunning" and wash ashore dead or dying on beaches along Cape Cod, Long Island Sound, Chesapeake Bay, Carolina Sound, etc. (Richard Byles, in litt. 1999).

### Reproduction

Most marine turtles nest during the night but, for some reasons of adaptation, this species nests during daylight hours (Hildebrand, 1963). Nesting occurs mainly along the long sandy coastal strip around Rancho Nuevo in Tamaulipas, México (Figure 2), and especially when strong winds blow. Nesting occurs from April to July and the hatchlings appear from May to August or September.

Females reach sexual maturity at 10 to 12 years of age and at a minimum size of 55 cm SCL. The maximum observed size among breeders is 78 cm SCL. It is interesting to mention that while the average annual size (SCL) has remained constant at



**Figure 1.** Kemp's ridley distribution to and from the main nesting beach at Rancho Nuevo, México, with nesting areas and possible migration routes. Source: Adapted from R. Márquez and *USA Today*, 1996.

63-66 cm, the average number of eggs per clutch has decreased- in the 1960s the average clutch size was 110-112 eggs, while in the 1990s this has fallen to an average of 90-95 eggs (Márquez, 1994). This observation may reflect the presence now of a greater proportion of young turtles within the breeding population than in the past.

## Secondary Nesting Grounds

As a result of conservation initiatives begun in 1966, the breeding population of Kemp's ridley is beginning to show signs of recovery after years of decline in the second half of the 20th century. As a result, small breeding colonies have reappeared in

locations where they had disappeared, such as Veracruz (e.g., Lechuguillas, El Raudal, Tecolutla) where an average total of more than 100 nests are now laid per year. Smaller numbers of nests are also reported from other beaches in Veracruz and Campeche. Furthermore, there are few but frequent nestings in the USA (e.g., Florida, South Carolina). As a result of consistent field conservation efforts in México, several years of an imprinting and headstart experiment in the USA (Johnson et al., 1999), and the mandatory use of Turtle Excluder Devices (TEDs) in the Gulf of México, a very small population has apparently re-established itself on Padre Island, Texas, as well (Shaver and Caillouet, 1998).

## **Population Status**

In the first years that turtles were protected (1966), Rancho Nuevo (between bars of El Tordo and El Carrizo) witnessed the arrival of over 2,000 females (Márquez, 1994, 1996). In spite of conservation activities, nesting reached its lowest levels between 1985 and 1987, with an annual average of 750 nests laid. However, as of 1988 there has been a steady increase in the number of nests which translates to an overall 8% annual increase (Figure 3) in Rancho Nuevo alone. If we take into consideration all other monitored nesting grounds in the state of Tamaulipas, the increase is even greater (12%; Márquez et al., 1999) (Figure 4). At the present time, Kemp's ridley is classified as "Endangered" by law in México and the USA, and is classified as "Critically Endangered" by IUCN (Baillie and Groombridge, 1996). The species is included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Appendices I and II of the Convention on the Conservation of Migratory Animals.

## **Conservation Program**

The beach at Rancho Nuevo became known to the scientific community in 1963 through a documentary filmed made in 1947 by Ing. Herrera (Hildebrand, 1963). Based on that film, an estimated 40,000 gravid females were on the beach nesting on that day in May 1947. In 1966, three years after the film was made public, the government of Méx-

ico established the first sea turtle camp at Rancho Nuevo. The camp was responsible for research and monitoring activities along 20 km of beach. With the advent of a bi-national (México-USA) program, activities were extended to 45 km of beach between 1978-1988; between 1989-1990, as nesting increased outside of the protected area, the size of the protected area was doubled again. From 1991-1996, several temporary campsites were added in Tamaulipas, thus enlarging the site to more than 120 km of beach. Since 1997 the effort has officially expanded to the state of Veracruz, and with it over 200 km of nesting sites came under protection.

## **Other Conservation Measures**

Rancho Nuevo was declared a "Natural Reserve" in 1977, ensuring continuity to research and conservation activities. In 1978, Kemp's ridley was included in the MEXUS-Gulf Program, which is a scientific collaboration program between México and the USA, and this brought an improvement in research, conservation, and facilities.

The joint program also included experimental activities with Kemp's ridley hatchlings. In 1978 an experimental "imprinting and headstart" program began with an annual shipment of 2000 eggs, which were transferred from Rancho Nuevo to Padre Island (Texas) for incubation. A smaller number of hatchlings was also sent. Both the hatchlings obtained in Padre Island and those from eggs hatched in México were sent directly to the National Marine Fisheries Service (NMFS) laboratory in Galveston, Texas. Survival rates were high and immatures were released into the Gulf of México at 9-10 months of age. The last year of the experiment (i.e., the transfer of eggs to the USA) was in 1992, when the program was characterized as "very expensive with dubious results." Despite this, it was deemed important to continue the cooperative program, although the annual donation from México to the USA was reduced to 200 hatchlings.

Due to the high turtle mortality rate as a result of shrimping fleets from both countries, at the end of the 1980s the use of Turtle Excluder Devices (TEDs) was recommended. The devices became mandatory in 1992 for the USA shrimp fleet, and in April 1994 for the Mexican fleet. The use of TEDs also became mandatory (under U.S. law) for all

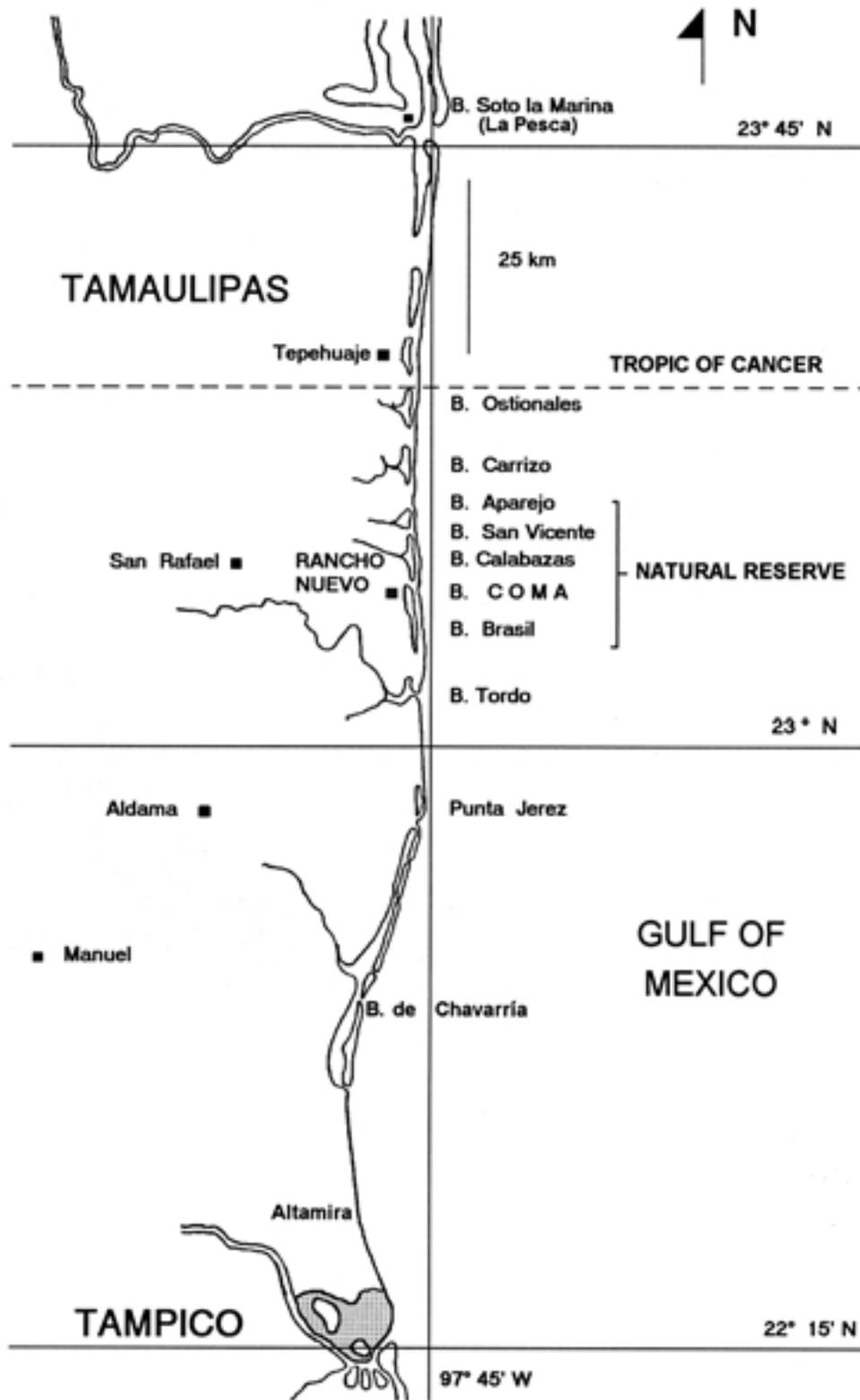


Figure 2. Main nesting area for the Kemp's ridley sea turtle in Tamaulipas, México (Márquez, 1994).

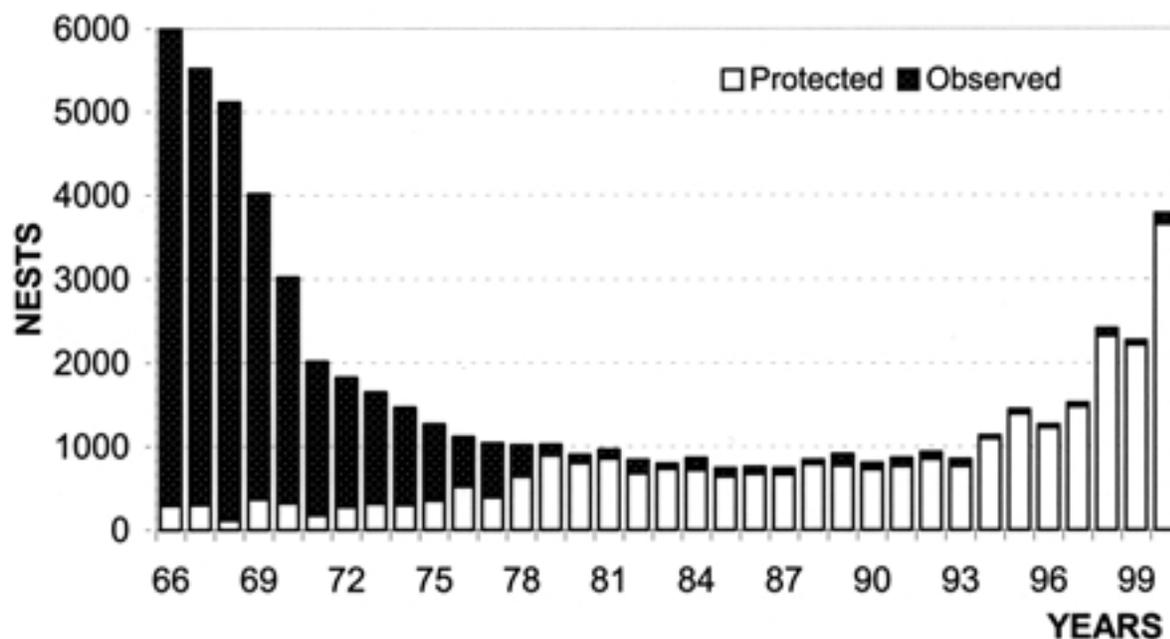


Figure 3. Progress of Kemp's ridley nestings in the beach at Rancho Nuevo, Tamaulipas, México.

countries wishing to export their shrimp harvest into the USA.

## Acknowledgements

I am especially grateful to my collaborators: Juan Díaz F., Miguel A. Carrasco, M. Carmen Jiménez, Rafael Bravo, Manuel Garduño D., Manuel Sánchez P. and Alma Leo P. from INP/CRIP-Manzanillo, as well as Patrick Burchfield and Jaime Peña from the Gladys Porter Zoo in Texas.

Since 1966, many researchers, students and volunteers have contributed their invaluable support to this unique program. In México, the National Institute of Ecology, universities, NGOs, state agencies, the Department of the Navy, Federal Office of Environmental Protection, PEMEX, Federation of Fishing Cooperatives of Tamaulipas and Texas, and others have contributed to these activities. The community of Rancho Nuevo was paramount in the achievements of this endeavor. Recognition must also be given to institutions in the USA, including the Fish and Wildlife Service, National Marine Fisheries Service, National Park Service,

and the Gladys Porter Zoo (Brownsville, Texas) for their continuous support. A special mention goes out to our fellow workers in the campsites. Finally, we thank the Organizing Committee of this meeting for their support, as well as WIDECAST, IUCN, and the Government of the Dominican Republic for their help in the presentation of these updates.

## Literature Cited

- Baillie, J. and B. Groombridge. 1996. 1996 IUCN Red List of Threatened Animals. World Conservation Union (IUCN), Gland, Switzerland. 368 pp. + annexes.
- Byles, R. 1993. Head-Start experiment no longer rearing Kemp's ridleys. *Marine Turtle Newsletter* 63:1-3.
- Caillouet, C. W. and A. M. Landry (Editors). 1989. Proceedings of the First International Symposium on Kemp's Ridley Sea Turtle Biology, Conservation and Management. TAMU-SG-89-105. Texas A&M University Sea Grant College Program, Galveston, Texas. 260 pp.
- Chávez, H., M. Contreras G. and T. P. E. Hernández D. 1990. Aspectos biológicos y protección de la Tortuga Lora, *Lepidochelys kempi* (Garman), en la costa de

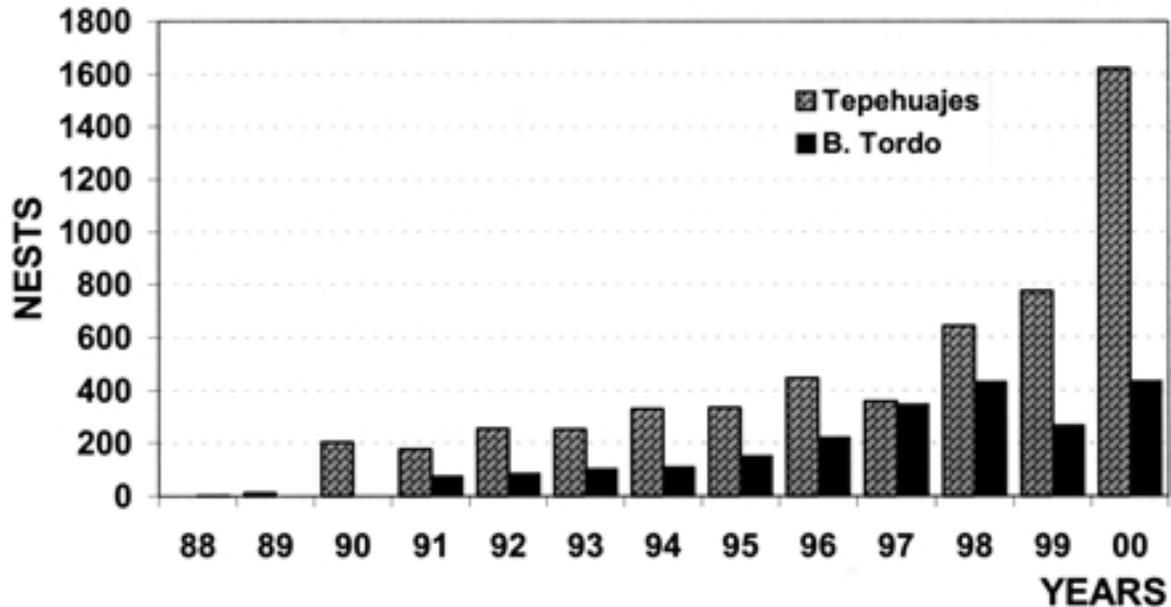


Figure 4. Increases in Kemp’s ridley nestings in the beaches of Tepehuajes and Barra del Tordo, Tamaulipas, México.

Tamaulipas, México. 1990. Inst. Nacional de la Pesca Serie: Documentos de Trabajo Año 11, No. 19. 40 pp.

Eckert, S. A., D. Crouse, L. A. Crowder, M. Maccina and A. Shah. 1994. Review of the Kemp’s Ridley Sea Turtle Headstart Program. NOAA Tech. Memo. NMFS-OPR-3. U.S. Dept. Commerce. 11 pp.

Hildebrand, H. H. 1963. Hallazgo del área de anidación de la tortuga “lora” *Lepidochelys kempi* (Garman), en la costa occidental del Golfo de México (Rept., Chel.). Ciencia, México 22(4):105-112.

Johnson, S. A., A. L. Bass, B. Libert, M. Marshall and D. Fulk. 1999. Kemp’s Ridley (*Lepidochelys kempi*) nesting in Florida. Florida Scientist 62(3-4):194-204.

Márquez M., R. 1989. Status Report of the Kemp’s Ridley Turtle, *Lepidochelys kempi*, p.159-168. In: L. Ogren (Editor-in-Chief), Proceedings of the Second Western Atlantic Turtle Symposium. NOAA Tech. Memo. NMFS-SEFC-226. U.S. Dept. Commerce.

Márquez M., R. 1990. FAO SPECIES CATALOGUE. Vol. 11. Sea Turtles of the World. An Annotated and Illustrated Catalogue of Sea Turtles Species Known to Date. FAO Fisheries Synopsis No. 125, Vol. 11: 81pp.

Márquez M., R. 1994. Sinopsis de datos biológicos sobre la tortuga lora, *Lepidochelys kempi* (Garman, 1880). Insti-

tuto Nacional de la Pesca. México FAO. SAST-Tortuga Lora. 5.31(07)016.02, INP/S152:141pp.

Márquez M., R., J. Díaz, M. Sánchez, P. Burchfield, A. Leo, M. Carrasco, J. Peña, C. Jimenez and R. Bravo. 1999. Results of the Kemp’s ridley Nesting Beach Conservation Efforts in México. Marine Turtle Newsletter 85:2-4.

Pritchard, P. C. H. and J. A. Mortimer. 1999. Taxonomy, External Morphology, and Species Identification, p.21-38. In: Karen L. Eckert, Karen A. Bjorndal, F. Alberto Abreu-Grobois and Marydele Donnelly (eds.), Research and Management Techniques for the Conservation of Sea Turtles. IUCN/SSC Marine Turtle Specialist Group Publ. No. 4. Washington, D.C.

Ross, J. P., S. Beavers, D. Mundell and M. Airth-Kindree. 1989. The Status of Kemp’s Ridley. Center for Marine Conservation, Washington. D.C. 51 pp.

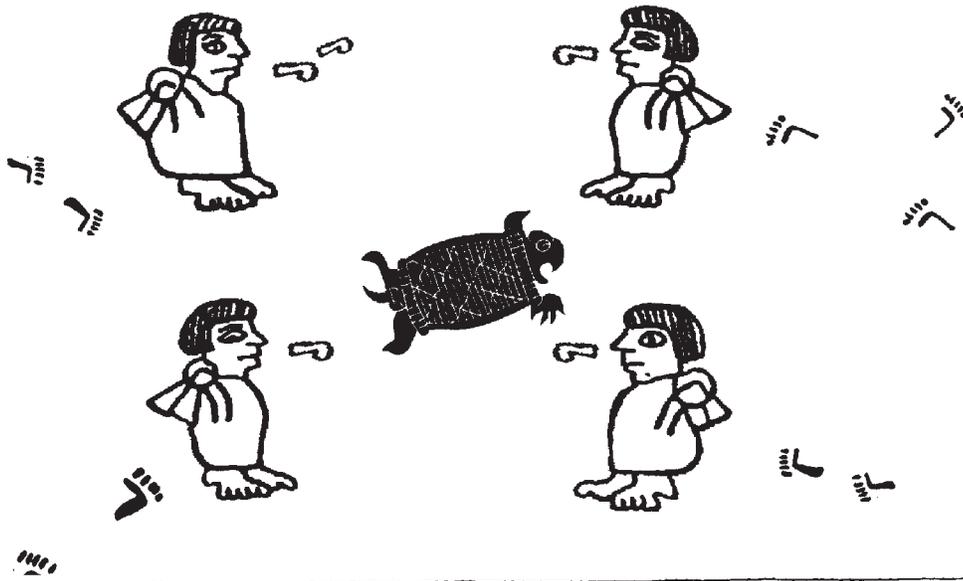
Shaver, D. J. and C. W. Caillouet. 1998. More Kemp’s ridley turtles return to south Texas to nest. Marine Turtle Newsletter 82:1-5.

Wibbels, T. A. 1984. Orientation characteristics of immature Kemp’s ridley sea turtles, *Lepidochelys kempi*. NOAA Tech. Memo. NMFS-SEFC-131. U.S. Dept. Commerce. 67 pp.

# **Marine Turtle Conservation in the Wider Caribbean Region: A Dialogue for Effective Regional Management**

*Santo Domingo, Dominican Republic  
16-18 November 1999*

## **PROCEEDINGS**



***Karen L. Eckert  
F. Alberto Abreu Grobois  
Editors***

**March 2001**

For bibliographic purposes this document may be cited as:

Eckert, K.L. and F. A. Abreu Grobois (eds.) 2001. Proceedings of the Regional Meeting: "Marine Turtle Conservation in the Wider Caribbean Region: A Dialogue for Effective Regional Management," Santo Domingo, 16-18 November 1999. WIDECAST, IUCN-MTSG, WWF, and UNEP-CEP. xx + 154 pp

Copies of this document may be obtained free of charge, in English or in Spanish from:

Information Officer  
WIDECAST Conservation Materials Distribution Center  
P.O. Box 486, Kingshill  
St. Croix, U.S. Virgin Islands 00851  
e-mail: [widecast@ix.netcom.com](mailto:widecast@ix.netcom.com)

*About the cover*

The designs for the cover were extracted from various Mexican pre-Columbian codices. The human figures, footprints, and the speech symbols were taken from the *Códice Boturini*, also known as *Tira de la Peregrinación*, which depicts the migration of the Mexicas (ancient Aztecs) towards the Valley of Mexico. The turtle figure in the center comes from an ancient Mayan codex. We felt that this symbolism, taken from pre-Colombian art, well reflected the nature and purposes of the people attending the workshop — bringing together many people, traveling from far and wide, to dialogue about marine turtles.