
MEASURING USE AND ITS IMPACTS IN THE REPUBLIC OF PALAU: SOCIAL AND BIOLOGICAL INTERACTIONS *

Michael Guilbeaux

Community Conservation Network, PO Box 4674, Honolulu, HI US 96812

Consultations with various stakeholder groups in Palau were conducted to explore important sea turtle use and management issues. Basic findings were that Palauan sea turtles are a highly valued, increasingly commercialized, and rapidly declining natural resource. Women reported that hawksbill turtle shell money (*Toluk*) is noticeably smaller in size than those produced in previous years, a possible indication of population decline. While subsistence and cultural uses remain important aspects of harvest of sea turtles in Palau, there is a perception that turtles are being hunted increasingly for economic benefit. Fishermen indicated the growing market for green turtle meat and turtle shell makes it very difficult for them to ignore the opportunity for quickly-earned cash. Concern was expressed about the increasing frequency and number of green turtles being transported from remote nesting areas to commercial centers for informal commercial sale. Tourist gift and jewelry stores now carry a wider array of hawksbill turtle shell products than ever before. While sea turtle resources are highly valued in Palau, long-standing management approaches have proven inadequate in terms of providing effective, sustainable management, and use of local sea turtle populations. Contributing factors to this condition include weak national interest to pursue stricter measures for sea turtle management, inherent difficulties with enforcement, and other problems linked to inhibiting social contexts. Despite these obstacles, there exist positive elements in contemporary Palauan society that may influence responsive and precautionary measures required to contribute to the recovery and the sustainable management of local turtle populations.

PROGRESS OF COMMUNITY-BASED TURTLE CONSERVATION INITIATIVES IN SRI LANKA

Thushan Kapurusinghe and Lalith Ekanayake

Turtle Conservation Project, 73, Hambantota Road, Tangalle, Sri Lanka

Five of the world's seven species of marine turtle come ashore to nest in Sri Lanka. They are the green turtle (*Chelonia mydas*), the olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*) and leatherback turtle (*Dermochelys coriacea*). Despite the protection of sea turtles through government legislation since 1972, sea turtles are still being exploited by Sri Lankan fishermen for their meat and eggs. Coral mining, destruction of coastal vegetation (such as mangroves and sea grass beds), coastal erosion, non-scientific hatchery practices, uncontrolled tourism, some coastal development activities and accidental by-catch are the other key threats for sea turtles in Sri Lanka.

The Turtle Conservation Project (TCP) was established in 1993 to address the issue of marine turtle conservation through research, awareness, and community participation. TCP has initiated and conducted many community based conservation activities along the coastal belt of Sri Lanka in order to address marine turtles and their habitat issues. Major programmes such as community environmental education programmes, mangrove rehabilitation programmes, model medicinal garden and free herbal drink programmes, community library programmes, free English teaching programmes, nature trail programme, turtle watch programme, rural medical clinic programme, primary school programmes, school lecture programmes, environmental film show programmes have been successfully initiated between Kalpitiya (North west) and Kirinda (South east) of Sri Lanka with community participation. TCP continues its education and awareness programmes and is expanding the coastal sites, which were earlier not accessible due to LTTE separatist's movements.

DERMOCHELYS CORIACEA STRANDINGS ON THE NORTH AFRICAN COAST IN THE STRAIT OF GIBRALTAR *

A. García de los Ríos¹ and Oscar Ocaña²

¹ *Septem Nostra (Clínica Kaimán), Jaudenes, 4, Apdo. 51001 Ceuta (North-Africa) Spain.*

² *Instituto de Estudios Ceutíes, Paseo del Revellín, 28, Ceuta, Spain 51001*

Leatherback turtles are, among all the marine turtles, undoubtedly the most mysterious; so every data point related with this species always draws remarkable scientific interest. That is why any stranding or sighting of this species becomes such an important event for the scientific community. The main opportunity to study *Dermochelys coriacea* properly is with females on the nesting beaches, but this is still insufficient since males are excluded.

In the last two decades, the North African shores of the Strait of Gibraltar (both Morocco and Ceuta) have experienced an unusual number of strandings (even a massive one) and an unusual seasonal distribution pattern. In this presentation we provide information to contribute to the overall knowledge of the migration behavior of these turtles in our geographical context and also some insight into causes of mortality.

During the seasons when jellyfishes occur in the form of “blooms”, the number of turtles increases, often traveling together, as can be deduced from two mass strandings, one of them with 11 turtles (García y Chamorro, 1984), and several observations of traveling groups across the Strait of Gibraltar (Salvador, 1985). This suggests a trophic migration and indicates how important the benthopelagic ecosystem is for the feeding ecology of turtles in general and the leatherback in particular.

With regard to mortality, trawling nets and fixed arrowhead fish traps are easily the main causes for turtle loss (Ocaña y De los Ríos, 2002) which can be minimized by a conservation plan where by the nets are monitored and cleared on a daily basis.

Bibliography

- García, P. and S. Chamorro, 1984. Embarrancamiento masivo de ejemplares de tortuga lúdica (*Dermochelys coriacea* L.) en las costas de Ceuta (España, norte de África). Doñana, Acta Vertebrata, 11 (2): 312-320.
- García de los Ríos, A. and O. Ocaña, 2002. A survey of loggerhead turtle (*Caretta caretta*) from Ceuta region (North Africa): biometry and some littoral ecology aspects. Miami Sea Turtle Symposium.
- Salvador, A., 1985. Guía de campo de los anfibios y reptiles de la península ibérica, Islas Baleares y Canarias. Santiago García Editor, Madrid, 212 pp.
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OLIVE RIDLEY TURTLE RESCUE AND TAGGING PROGRAM IN GULF OF MANNAR, NORTH WEST OF SRI LANKA

Thushan Kapurusinghe

Turtle Conservation Project - Sri Lanka, 73, Hambantota Road, Tangalle, Sri Lanka., Tangalle, Sri Lanka-

Olive ridley turtles including mature and immature animals belonging to both sexes use the Gulf of Mannar off Sri Lanka. Sri Lankan fishermen in Gulf of Mannar accidentally catch many of these turtles during the flying fish season, which occurs between September and March. This project was carried out between September 1999 and March 2001. Objectives of this program were to tag 1000 olive ridley marine turtles, establish the geographical range of olive ridley turtles caught in the Gulf of Mannar by Sri Lankan fishermen, and to publish reports on findings of the tagging programme.

During the flying fish season in the Gulf of Mannar, the TCP hired fishing boats and the fishermen were expected to fish as normal. TCP checked the fishing nets for accidental by-catch and entanglements. If any live olive ridley sea turtle entangled in fishing nets, they were brought aboard measured, tagged and then released.

A total of 278 olive ridley turtles were released including 57 adult males, 29 sub adult males, 105 adult females, 52 sub adult females and 35 sex unknown juveniles. Therefore, it can be assumed that this region provides an important breeding and foraging

habitat for the all sizes of olive ridley turtles in the Northern Indian Ocean. It can concluded that the Sri Lankan fishermen catch all available sizes and sexes of olive ridley turtles as incidental by-catch. If target flying fish catch does not arrive for a given season in the Gulf of Mannar, olive ridley by-catch will be dramatically reduced.

INCIDENTAL CAPTURE OF SEA TURTLES BY THE TRAWL FISHERY FLEET IN THE SOUTHWESTERN ATLANTIC, URUGUAY *

Martín Laporta and Philip Miller

Proyecto Karumbe, J. Paullier 1198/101, Montevideo, Uruguay Email:martinl@adinet.com.uy, kanariotortuga@adinet.com.uy

Introduction

This is the first study on the incidental capture of sea turtles by groundfish trawlers operating in the Southwestern Atlantic. Most of the studies regarding the interaction between sea turtles and trawling activities have been directed towards shrimp and flounder fisheries (Anonymous 1992), and the implementation of TED's in the Gulf of Mexico and the Southeastern U.S. coast (Graham 1995; Harrington 1995; Kennelly 1995; Perret 1995). In Australia, efforts have been conducted to implement TED's and BRD's in the Northern prawn trawl fisheries (Robins 2002).

In Uruguay, shrimp are not caught with trawl nets, and all trawling efforts are directed at fish and mollusks. There are few studies about interactions between fish-targetting trawlers and sea turtles, notably Laurent et al. (2001), who published the results of their research on the interaction between trawl fisheries directed at fish and interactions with sea turtles in the Mediterranean Sea.

All Uruguayan fishing vessels operate in oceanic and estuarine zones yearround (Fig. 1). As the target species are distributed throughout the water column, there are different types of trawling fisheries. Coastal fisheries targets three species, the Croaker (*Micropogonias furnieri*) and Seatrout (*Cynoscion guatucupa*) (Arena & Rey 1994), and the fine snail (*Zidona dufresnei*) (Riestra & Fabiano 2000). This fishery operates at depths from four to 20 meters in the case of fish, and from 30 to 60 meters in the case of snails. Trawling operations within five nautical miles of shore are prohibited. High sea fisheries are directed at the Argentine hake (*Merluccius hubbsi*) (Norbis 1999) and squid (*Illex argentinus*). Depth ranges at the fishing ground vary from 50 to 400 meters. There are 45 coastal fishing vessels operating in the country, of which 33 are target fish. These last ones have an average 25 meters LOA and 126 GWT, and a crew of 10 (DINARA 2003). Most of the vessels use Montevideo as base a home port. The net dimensions are 2.5 meters vertical aperture, 77 meters horizontal aperture, and the length from the opening to the cod end is 97 meters. The minimum legal mesh size at the cod end is 100 mm. The vast majority of these fishing vessels operate as pair trawlers, and just a few operate as otter bottom trawlers. The haul duration is estimated at an average of four hours, but when the capture is scarce the haul may extend to up to 10 hours. The speed during haul is between 3 and 4 knots.

Among the non-target species that interact with these fisheries are juvenile green turtles (*Chelonia mydas*), juveniles and adult loggerhead turtles (*Caretta caretta*), and adult leatherback turtles (*Dermochelys coriacea*). The objective of this work was to describe and have a preliminary understanding of the interaction between sea turtles and the Uruguayan trawl fishery fleet.

Materials and Methods

In order to obtain good quality information, it was decided to work with information provided directly by the fishermen and onboard scientific observers. They are the ones who are in direct contact with the day to day interaction with sea turtles. First, the main task was to get acquainted with the fishermen, therefore different ports were visited and personal contacts were established in order to gather preliminary information about the situation regarding sea turtle interactions with the fishery. This approach was also very useful in obtaining information on fishing methods and data regarding the fishing fleet. This was achieved by interviewing fishermen on the dockside, asking them about the fishing maneuvers and the characteristics of the fleet, and the occurrence of sea turtle incidental captures.

At the same time, we visited the Technical Maritime School, where fishermen with many years of experience attend special courses as legal requisites. A couple of workshops with videos and slides were given to the fishermen, in order to explain our project and finally they were asked for their support and collaboration. Most of these seamen showed interest in the project, and were therefore instructed on the necessary skills to obtain scientific data on board their vessels. To recruit more volunteers, we used the same criteria as Robins et al. (2002), asking the volunteers to recruit other fishers who found the project interesting and wished to take part in it.