

# Marine Turtle Newsletter

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## Notes from Preliminary Market Surveys in Morocco

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Market surveys to assess availability of sea turtles or their products constitute a valuable tool not only to uncover biological information (e.g. species present, size distributions, seasonality, etc.), but also types of utilization and relative importance in the diet and/or income of people in a specific region (Tambiah 1999). Assessments of sea turtles in Moroccan markets have been few. Laurent (1990) reported finding seven carapaces in one crafts market in Tetouan after a search through fourteen markets in three cities along the Mediterranean coast of Morocco. A few fishermen along the Mediterranean coast admitted to the sale of carapaces to local markets and tourists, and to the sale of turtle meat to people in the Spanish city of Ceuta; overall local consumption of turtles was judged to be infrequent, at least in Mediterranean Morocco (Laurent 1990). Tiwari *et al.* (2001), during a survey of the Atlantic coast, encountered one vendor selling a carapace and three plastra at Agadir port; other fishermen encountered reported that local consumption of turtle meat was uncommon. A recent review on sea turtles in Morocco did not include any additional references on sea turtles or their products as commodities (Fretey 2001). Nor did a recent survey for wildlife in a central market of Marrakech mention sea turtles or their products, although that investigation focused on land tortoises (Shipp 2002). Given that the most recent systematic surveys were conducted in the 1980s (Laurent 1990) and were restricted to the Mediterranean coast of Morocco, that many of the towns have since expanded, and that national legislation recently changed in 2002 to protect sea turtles in Morocco, we decided to investigate the presence of turtles and/or turtle products in various shops/markets throughout Morocco. Herein, we report preliminary results from surveys of 37 different shops in artisan/craft markets at 6 different locations in Morocco in 2003.

We located and visited 8 artisanal shops in Tetouan along the Mediterranean coast of Morocco between June and July 2003, and found only two had carapaces

for sale. In the first shop, two loggerhead, *Caretta caretta*, carapaces (CCL=60 cm and CCL=50 cm) had been used to make guitars and were being sold for 700 dirhams (=US\$72 at current exchange rate) each (see front cover photograph). At the second shop, the shopkeeper had a photograph of a loggerhead carapace (CCL = approx. 50 cm) set in copper, recently sold to tourists as a decoration piece. These carapaces had been collected from beaches close to M'diq, a fishing village 15 km north of Tetouan on the Mediterranean coast. One of the shopkeepers informed us that he was expecting more carapaces from the fishermen at M'diq. When we visited three shops in M'diq in September 2003, one shop had 8 loggerhead carapaces for sale (CCL range = 32-82 cm), with prices ranging from 400 to 1200 dirhams (=US\$46-140). We also visited one shop in Martil, 10 km north of Tetouan, in August 2003, where we found one loggerhead carapace (CCL = 79 cm) for sale for 350 dirhams (=US\$38); this animal had stranded on the Martil coastline. At a small restaurant on Fnideq beach, 40 km north of Tetouan, a loggerhead carapace (CCL = 47 cm) was on sale as a decoration piece for 300 dirhams (=US\$31). The restaurant owner reported that this turtle had been caught live 3 years ago in fishing nets in Fnideq and the meat had been delicious!

An initial search through the fish market of Tangier, along the Atlantic coast, revealed no sea turtle products for sale. Following this, we visited approximately 15 artisanal shops in a separate market, and two of the bigger stores had two carapaces each. All four carapaces were fitted with a metal frame and designed to be used as decorative wall lamps (see front cover). The metal frame prevented a standard curved carapace length measurement, so curved carapace length was measured from the underside of the carapace. Three of the carapaces measured approximately 29.5 cm, 43.4 cm, and 50.5 cm. The last carapace could not be measured because of the shopkeeper's annoyance with our lack of interest in purchasing it, but its length was

estimated to be between 50 and 60 cm. These measurements may be slightly shorter than the standard curved carapace measurement; nonetheless, they suggest that the animals were juveniles and subadults. The prices of the carapaces ranged from 600 to 7000 dirhams (=US\$62 to \$722). Both shopkeepers claimed that the carapaces came from turtles stranded dead on the beach near Tangier.

At Casablanca port we were informed that some fishermen may have contacts in markets to whom they supply turtles. We visited 9 shops at two artisanal markets, but no sea turtle products were found. Fewer shops were surveyed in Casablanca because it was soon evident that all shopkeepers were interconnected, much more so than was apparent in Tangier and Tetouan. We were strongly perceived as tourists searching for sea turtle carapaces and since our interest appeared to inspire shopkeepers, we abandoned our search out of fear of creating an artificial demand for sea turtle products. This highlighted one of the difficulties in conducting market surveys: we tried not to come across as tourists while at the same time we did not wish to be perceived as investigative officials lest the shopkeepers hide their items for fear of prosecution.

In all, from the 37 shops visited to date (including the restaurant in Fnideq), only 7 had sea turtle products for sale. In the case of Tetouan, a smaller city in Morocco, we are confident that we investigated nearly all artisanal outlets for turtle products, both in and around the city. Only 5 out of 13 shops visited had carapaces for sale. In the larger cities of Casablanca and Tangier, we were unable to exhaustively investigate all markets or artisanal shops, but we plan on more extensive surveys in these cities in the future. We found no evidence of turtle meat being sold in fish markets, although availability may be restricted to certain months or seasons outside of our visits. Informal interviews with fishermen on the Mediterranean coast revealed that fishermen do occasionally eat turtle meat, but only when fish catches are low, their revenue is restricted, and they are not likely to be caught by enforcement officials.

Our preliminary results indicate that animals tend to be juveniles or subadults and loggerheads are the most common species seen. Nevertheless, artisanal products made with sea turtle are generally difficult to find suggesting that demand for them is low. This is in strong contrast to Mediterranean spur-thighed tortoise, *Testudo graeca*, whose carapaces were found in virtually every shop surveyed. However, one shopkeeper informed us that we were guaranteed to find sea turtle carapaces

in the market of Marrakech further south. Fretey (pers. comm.) reported finding a loggerhead carapace, approximately 27 cm in curved carapace length, for sale to tourists on a brief visit to the Marrakech market place in 2002. More in-depth surveys of various urban markets in southern Morocco and Western Sahara are planned in the near future.

Current carapace prices are relatively high; the GDP per capita was US\$3,900 in 2002 (CIA World Factbook, 2003). This suggests that the carapaces are primarily for sale to tourists. There appears to be no major nesting in the country that could supply a demand for eggs (Tiwari *et al.* 2001). Limited use by artisans and the seemingly occasional consumption of meat locally suggest that sea turtles may have minimal commercial importance in Morocco, but a more extensive evaluation is to be undertaken.

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