

Status of the Sea Turtle Trade in Alexandria's Fish Market

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It is thought that sea turtle populations have seriously declined throughout the Mediterranean for three main reasons: past direct exploitation, the destruction of nesting sites due to the rapidly expanding tourist industry, and incidental capture in fisheries. Nesting female populations are estimated as low as 2,000 loggerhead turtles (*Caretta caretta*) and 300-400 green turtles (*Chelonia mydas*) nesting each year (Groombridge 1990). In Egypt there is a serious threat to remaining sea turtle populations: exploitation by man for turtle meat, eggs, shell and blood, especially in the Alexandria Fish Market. The first to record this practice was Flower (1933), reporting that he saw a fairly large loggerhead turtle at the Alexandria Fish Market.

A survey between Alexandria and El-Salum (Kasperek 1993) states that the only place in the study area where turtles are offered for sale is the fish market of Alexandria. A more recent study (Laurent *et al.* 1996) revealed that in 1996, during 13 days of observation, 35 sea turtles were slaughtered in the Alexandria Fish Market, suggesting that thousands are probably killed each year. The continuing existence of the trade is confirmed by Ozhan (1997) and Venizelos and Nada (1999).

From a legal point of view, Egypt is a signatory to four International Conventions that include the protection of marine turtles.

- "African Convention on the Conservation of Nature and Natural Resources" (Algeria, 1968).
- "Convention on the Conservation of Migratory Species" (Bonn, 1979).
- "Convention on International Trade in Endangered Species of Wild Fauna and Flora" (CITES) (Washington, 1973)
- "Convention for the Protection of the Mediterranean Sea Against Pollution and its Protocols" (Barcelona, 1976)

Egypt has also issued national legislation concerning the prohibition of fishing, catching, harassing or disturbing marine turtles. The decrees include the following:

- Law 102/1983 for Natural protectorates, establishing the legal framework for the creation and management of protected areas.
- Law 124/1983 on catching fish and other marine creatures.
- Minister of Agriculture Decree 1403/1990 (Marine turtles)
- Environmental Law # 4/ 1994, Act 28 - the "killing, capture, transportation, sale, nest destruction or display of an endangered species either dead or alive is prohibited when Egypt is signatory to a relevant International Convention".

This study was conducted to examine the current status of the sea turtle trade in Alexandria, the most important fish market in Egypt, analysing the attitude and behaviour of the local people in the area surrounding the fish market, and recommended practical solutions to end the trade. Our research was undertaken along three major avenues:

1. Observational Study

For a six-month period, from the beginning of December 1998 until the end of May 1999, the author made weekly visits to the Fish Market on Thursday and Saturday nights, (when sea turtles would be held for slaughter the following morning). The numbers of live and dead turtles, species, and sex (where possible by external morphology) were recorded in order to estimate the volume of trade.

Sea turtles are slaughtered on Friday and Sunday mornings when a sufficient number of customers are present. If a sea turtle is not sold, it remains in the market for the next week. The turtles are laid on their backs directly on the stall counter or on the ground, where they are kept without food or water until they are slaughtered. An average of six turtles per week were seen on display, with a total of 135 turtles over the 6 month period. Both loggerhead (85%) and green (15%) turtles were seen. It is acknowledged that sexing turtles by external morphology is difficult, however, of the adult turtles observed the proportion female (78%) exceeded that of males.

2. Questionnaires

To standardise data collection regarding opinions and behaviour of local people (n=199) a questionnaire was used. The individuals questioned formed three distinct groups, which were dissimilar with respect to their occupations and educational backgrounds:

- The first subgroup included 64 fishermen and fish sellers from a target group total of 969 individuals.
- The second subgroup included 68 uneducated citizens from a target group total of 77,992 individuals. Questionnaires for this subgroup were completed during an environmental clean-up campaign organised by the Youth Club of the Friends of The Environment Association.
- The third subgroup included 67 educated citizens from a target group total of 68,883 individuals. University students, teachers, school students and members of El Anphoshy Youth Centre were included in this subgroup.

For the first and second subgroups, the questionnaire was completed with the help of our team to ensure that all participants understood the questions. Regarding the third subgroup, whose subjects were gathered for a meeting unrelated to sea turtles, the questionnaires were given out and then collected before an oral presentation was made by the author about the sea turtle life cycle and the threats sea turtles face in the Mediterranean Sea.

The questionnaire was designed specifically to measure perceptions regarding the topic rather than any actual behavioural activities. They provide excellent preliminary data as to the differences in attitudes and awareness among the three groups.

Tabulation of the results showed the following:

a) “Do you like to eat sea turtle meat?”

- Subgroup 1: Yes, 81.3%.
- Subgroup 2: Yes, 39.7%.
- Subgroup 3: Yes, 6.0%.

b) “Do you think that sea turtles are endangered species?”

- Subgroup 1: Yes, 25.0%.
- Subgroup 2: Yes, 8.8%.
- Subgroup 3: Yes, 46.3%.

c) “Do you think that the sea turtle trade is illegal?”

- Subgroup 1: Yes, 26.6%.
- Subgroup 2: Yes, 8.8%.
- Subgroup 3: Yes, 14.9%.

d) “Some people say that consumption of sea turtle blood is forbidden by the Islamic religion. What is your opinion?”

- Subgroup 1: Agreed, 20.3%.
- Subgroup 2: Agreed, 13.2%.
- Subgroup 3: Agreed, 65.7%.

e) “Some people say that sea turtles eat jellyfish, while others say this is not the case, what is your opinion?”

- Subgroup 1: Yes sea turtles eat them, 51.6%.
- Subgroup 2: Yes sea turtles eat them, 5.9%.
- Subgroup 3: Yes sea turtles eat them, 31.4%.

f) “If sea turtles are endangered species, do you think that it is important to protect them?”

- Subgroup 1: Yes, 73.4%.
- Subgroup 2: Yes, 26.5%.
- Subgroup 3: Yes, 85.0%.

3. Group Discussion and in-depth Interviews

With the educated citizens subgroup, completion of the questionnaire was followed by an oral presentation by the author, then discussion groups of between 4-6 members were selected with a common background, interest in the subject and good knowledge of the local environment and of the behaviour of people in the market area. The discussion focused on identifying the problems and finding solutions. With the less well educated, in-depth interviews were carried out to encourage the respondent to answer the questions as fully as possible; data was recorded in the questionnaires after the end of the interview. Following the traditions of the first and the second subgroup men from our team interviewed the male respondents, and women members from our team interviewed the female respondents. The respondent did not fill out the questionnaires, we were satisfied with the in-depth interview

Various perspectives arose and are synthesised below:

The Perspective of Turtle Sellers

The sea turtles are caught accidentally in fishermen's nets. They are sent to Alexandria fish market where only one shop sells the sea turtles. The turtles are slaughtered by cutting of the throat, the carapace is separated from the plastron by a knife, most of the meat is found in the area around the flippers, the digestive tract is removed and the head is separated. More loggerhead than green turtles were found in the fish market (and leatherbacks very rarely). Green turtle meat is more expensive than loggerhead because the consumers prefer its taste. Average price of one kilogram of turtle meat is about 3.5US\$, and varies according to the turtle species and its availability in the market.

The Perspective of the Meat Consumer

Sea turtle meat is favoured by the fishermen and the people living around the fish market (El Anphoshy area). They say that human hands must not touch the raw meat of the turtle because that makes its taste offensive. It is believed that the green turtle tastes better because it feeds on sea-grass, while the loggerhead eats crabs, shrimps and jellyfish. Most of the turtle meat consumers are Moslems. One of the consumers said that he had tasted leatherback meat and found its taste very unpleasant.

The Perspective of the Turtle Blood Consumer

Turtle blood consumers wait in the market for a cup of fresh blood. These are mostly young women who believe it will make them gain weight (It is traditional in this area that thin women are not considered attractive), and also some of them believe that turtle blood will make them more fertile. Fewer men drink turtle blood; those that do believe it to be an aphrodisiac and a general tonic. The price of a cup of blood is about 0.25US\$. According to the Islamic religion, drinking animal's blood is forbidden, although some people claim that this does not apply to the sea turtle because they are sea creatures. The discussion groups indicated that with increasing educational standards, sea turtle blood consumption is slowly decreasing.

Seasonality

The number of sea turtles in the fish market of Alexandria appeared to increase towards the summer, possibly as a result of their increased numbers in Egyptian waters. It was confirmed by the fishermen

that the by-catch of sea turtles in summer increases greatly. Although it is not within the remit of this paper, the author feels it important to note that as it is known that Egypt is not an important nesting area, the high numbers of female turtles captured could suggest seasonal differences in the likelihood of capture as a result of behavioural changes in resident turtles, that Egyptian waters are an important summer foraging area for females not nesting elsewhere that year, or that Egyptian waters constitute a migratory corridor for turtles travelling to and from other nesting sites.

The role of education

The main groups admitting consumption of turtle meat are fishermen and uneducated people. The data emphasises that this group is largely unaware of the endangered status of the sea turtles, the relationship between sea turtles and their preferred diets (including jellyfish, which are an increasing problem in Egypt), and the religious position concerning drinking turtle blood. Comparatively more educated people show little interest in turtle meat and have better knowledge of the law, and the protected status of sea turtles. The fishermen believe that it is important to save the sea turtles from extinction because they are a source of income to some of them. Educated people believe it is important to protect sea turtles and all other species as each one of them has its own important place in the food chain.

Despite the fact that it is illegal, popular accounts suggest that the sea turtle trade continues behind the scenes in the fish market of Alexandria due to lack of legal enforcement of the current national environmental Law # 4 /1994, Act 28, and lack of awareness on the part of the local people about the endangered status of sea turtles. The trade, which cannot be wholly documented in accurate terms of the numbers of turtles involved, certainly poses a significant threat to remaining populations of sea turtles in the Mediterranean area. Green turtles, preferred by consumers, are critically endangered in the Mediterranean Sea, with an estimated breeding population of only a few hundred.

The recommendations that we draw from our work are:

- 1) Establish targeted awareness campaigns aimed at the fishermen, meat and blood consumers, and local NGOs.
- 2) Establish a network between the Institute of Oceanography and Fisheries (Alexandria), the Faculty

of Science in Alexandria University (Marine Science Department), the Alexandria Governorate, the Co-operative societies for fishing, and related NGOs under the umbrella of the Egyptian Environmental Affairs Agency (EEAA).

3) An Action Plan for the Conservation of Sea Turtles in Egypt should be adopted by the participants in the above network.

4) Enforcement of the current National Environmental Law # 4 /1994, Act 28.

5) NGOs, specialists and conservationists should monitor the situation in the fish market of Alexandria and other fish markets, and lobby the Alexandria Governorate and the Egyptian Environmental Affairs Agency (EEAA) to put an end to this illegal trade that threatens the established conservation practices of so many neighbouring Mediterranean countries.

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