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I recently read an article entitled “How can a whitefella know it all? Indigenous Science – Western Science and Marine turtles”, by John Bradley (1998). The author argues that indigenous knowledge has an important contribution to make to the understanding and the management of resources, including marine turtles. I agree. The author related a story about the Yanyuwa Aboriginal people who live in the southwestern part of the Gulf of Carpentaria, Northern Territory, Australia. According to Bradley, the older Yanyuwa believed that loggerhead turtles laid their eggs under water. The story was essentially the same as one that I had been told while working in Torres Strait several years before (see also Johannes & MacFarlane 1991).

In the story that I was told, the older traditional hunters of Torres Strait believe that loggerhead turtles laid their eggs under water on the reef. As a result of their long hunting tradition, they recognize and have specific names for green turtles, hawksbill turtles, flatback turtles and loggerhead turtles. Each species is known to be part of the marine community of Torres Strait; however, only three species (green turtles, hawksbill turtles, flatback turtles) are known to nest on the islands. Because the hunters also collect turtle eggs, they know that each of the three species does not nest on every island. Green turtle nesting is the most widespread and occurs on most of the islands in the area. Hawksbill turtles nest on many of the islands and flatback turtles nest on only a few. In contrast, loggerhead turtles are not known to nest on any islands in Torres Strait.

When asked the question “Where do loggerhead turtles lay their eggs?”, traditional hunters have told me that loggerhead turtles lay their eggs “...out on the reef flat under coral”. At first, this answer sounds absurd because anyone who has read the scientific literature on marine turtle ecology or who has spent time working at a marine turtle nesting site knows that marine turtle eggs will not develop in water; in fact, developing embryos drown, if the nest is inundated for very long. However, the answer is not absurd at all; it is founded on good observations.

The apparent contradiction between the traditional knowledge and scientific information suggests that one of the two is in error. Part of the contradiction emanates from the incongruity between the requirement that to be good, traditional hunters and scientists must be good observers. Torres Strait Islanders (TSI) have amassed a considerable knowledge about the marine turtles that they hunt. This information is shared among hunters and taught to the young hunters; it is incorporated into cultural life of the people. Among other things, they know that four recognizable species live in the area. They know that marine turtles lay eggs on the beaches and the size of the eggs produced by each species. They know where and when to look for nesting turtles and they know how to find the buried eggs. If a hunter says that loggerhead turtles do not nest on the islands, he is stating fact based on his observations and those made by other hunters.

TSI hunters know that three species lay their eggs on land and that loggerhead turtles are not seen nesting on the beaches. They recognize the eggs of marine turtles because they dig up clutches laid on the beaches; they know they find marine turtle eggs and egg shells among the coral out on the reef-flats during the turtle nesting season while they are hunting other food species. Because they find turtle eggs among the coral and because loggerhead turtles are not found nesting on the beaches, they have interpreted their observations to mean that loggerhead turtles are the ones that lay the eggs among the coral. The observations are correct but the interpretation drawn from the information is not.

Resolving the contradiction requires a knowledge of the reproductive biology of the turtles and careful listening. First of all, loggerhead turtles do not nest on the islands of Torres Strait. In Queensland, they nest on islands and along the mainland coast at the southern end of the Great Barrier Reef, mostly south of the Tropic of Capricorn.

Second, when a marine turtle finishes nesting, one or more eggs may remain in the cloaca or in the distal portion of the oviduct. As the turtle returns to the water, the cloacal muscles relax and any remaining eggs are released. Sometimes this happens while the turtle is still on the beach, but it also happens after the female has begun to swim away from the island. In this case, the eggs settle to the bottom where they come to rest among the coral and rock of the reef. Scavengers may consume the contents of some or all of the eggs, but
the empty shells remain. In places where several turtles may be nesting during a nesting season, the number of released eggs can build up to be obvious in a short period of time. Under water, the depredated egg shells look like the empty shells found in nests on shore after the hatchlings have emerged. When the TSI hunters said they saw marine turtle eggs underwater out on the coral reef, they were correct.

Third, that loggerhead turtles lay eggs underwater was stated in the same manner as other observations, i.e. as if it were fact. However, when asked if any of the hunters had ever seen loggerhead turtles actually laying eggs underwater the answer was ‘No’. The information was deduced from observations.

The human desire to have an explanation that makes sense out of observations transcends cultural differences. The conclusion drawn by the TSI hunters is consistent with their observations and provides an explanation of the anomaly in the number of types of turtles living in the area and the number of those types nesting. The contradiction occurs when the listener hears the observations but discounts the bulk of the information because some of the information (in this case the interpretation) contradicts the expected and/or their personal experience. If the listener had experience in the water over the reefs of Torres Strait during the turtle nesting season, he too would know that eggs can be found regularly out on the reef flat.

The observation is not in contradiction of the biology of marine turtles – marine turtles do not nest under water; but they can and do deposit eggs under water. This is more than a subtlety of language; it has to do with listening carefully. Scientists have too often not listened carefully when information has been shared; as a result traditional phenological information and direct observations have been discounted because they were bundled with erroneous conclusions during the telling.

The phenological knowledge of biological phenomena that supports individual and cultural activities is based on good observations and correlates with definable, regular events over a long temporal scale. Phenology is part of good science because it relies on good observation and synthesis of information. For people without convenient communication or for whom transportation over distances is limited, phenological conclusions are likely to be based on incomplete observations. For example, at one time the earth was thought to be the center of the universe; it was also thought to be flat. Both of these are erroneous interpretations based on data stemming from incomplete observations.

The accuracy of observations made by hunters and traditional people have been overlooked because the interpretations do not fit with information collected over different spatial and/or temporal scales and in a different cultural context. It must be remembered that all knowledge occurs within a cultural context. Because they were separated by linguistic and cultural boundaries, the TSI people were not able to compare their observations on loggerhead turtle nesting with those made by Aboriginal people living more than 1000 km to the south where loggerhead turtles nest. If the information had been available, the people of Torres Strait would have known that loggerhead turtles nested on land just like green, hawksbill and flatback turtles. They simply did not have all the necessary information on which to explain their observations. Their mistake was in stating observations and interpretations as fact. The mistake of the scientist was in not listening to what was said.

Bradley asked the question, “How can a whitefella know it all?” The short answer is that he cannot but neither can anyone else. Both traditional knowledge and scientific information are required to facilitate the long term survival of marine turtles and human cultures in today’s complex world. We must improve communication. We can start by carefully listening to the Elders.


Newly Documented Epibiont Species from Nesting Loggerhead Sea Turtles 
(Caretta caretta) in Georgia, USA

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Loggerhead sea turtles (Caretta caretta) act as substratum for a wide variety of marine organisms (Dodd 1988). Frazier et al. (1985, 1991, 1992) and Frick et al. (1998) provide the most detailed reviews of the epibionts associated with loggerhead turtles in Georgia, USA. Collectively, these four studies reported ninety three epibiont species sampled from loggerhead turtles nesting on six barrier islands: Blackbeard (31°28.4’N, 81°13.1’W); Cumberland (30°50.0’N, 81°26.0’W); Jekyll (31°03.9’N, 81°24.9’W); Little Cumberland (30°57.2’N, 81°25.5’W); Little St. Simons (31°15.4’N, 81°25.5’W); and Wassaw (31°53.4’N, 81°58.4’W). This note reports seven previously undocumented epibiont species from nesting loggerheads in Georgia.

During the 1998 nesting season (May - August), 40 turtles were sampled for the occurrence of previously undocumented epibiont species. Sampling was conducted on Jekyll Island (n=12), Little Cumberland Island (n=5) and Wassaw Island (n=23). The methods employed for sampling nesting loggerheads are as described in Frick et al. (1998). Specific and common names (where present), location and prevalence data of all newly documented species are given in Table 1.

A number of points are worthy of note regarding attachment of these species:

Epibiont Species I and II: Astrangia danae and Balanus trigonus
Four individual turtles harboured colonies of star coral (Astrangia danae). One turtle exhibited approximately 10 individual colonies (5-9.6 cm diameter) located on the posterior carapace (5th vertebral and pygal scutes). Three other turtles carried only small (3 cm diameter) single colonies also located on the posterior-most section of carapace. A. danae specimens were situated amongst large encrustations of the following barnacle species: Chelonibia testudinaria, Balanus trigonus, and Chthamalus fragilis. On one occasion A. danae was found overgrowing dead C. testudinaria.

Epibiont Species III and IV: Mitrella (=Astyris) lunata and Bryopsis plumosa
One turtle hosted numerous (n=24) specimens of the lunar dove snail, Mitrella lunata. All M. lunata were found in mats of the green algae Bryopsis plumosa. B. plumosa was growing on the posterior marginal areas of the carapace amongst colonies of the sea squirt, Molgula manhattensis.

Epibiont Species V and VI: Costoanachis avara and Stylactis hooperi
Two turtles carried large numbers (n=14, n=23) of the greedy dove snail, Costoanachis avara. C. avara were found within accumulated sediment under and between large clusters of the wildflower hydroid, Tubularia crocea. Soft-shelled clams (Sphenia antilliensis) were also located in sediments with C. avara. One specimen of C. avara, which was relatively large for the species (2.1 cm long), was covered by the commensal hydrozoan, Stylactis hooperi.

Epibiont Species VII: Diadumene leucolena
One turtle had three propeller scars across the middle of her carapace. These were approximately 2cm deep and contained approximately 200 individual sea anemones (Diadumene leucolena). The majority of individuals within the colony were green, however, occasional orange-brown specimens were present. Individual anemones were approximately 1.5 cm tall (withdrawn).

Although epibiotic organisms occur on all seven species of marine turtles, loggerhead turtles have been shown to host the largest and most diverse communities (Frick et al. 1998). The epibiont species reported within this note are common fouling organisms in the southeastern USA (Fox & Ruppert 1985). However, their appearance as epibionts on sea turtles has not been well documented.
Frazier et al. (1992) suggest that epibiotic occurrence and load may be attributed to irregularities and microeddies found on the carapace from natural processes such as shedding or from carapace damage. Such attachment sites may provide relatively sheltered habitat for fragile or turbulence intolerant epibionts like *Diadumene leucolena*. Propeller scars undoubtedly offer some degree of refuge from natural turbidity as well as from any stress that might occur as a result of epibiotic drag (Wahl 1996).

Similar microhabitats may also be created following the colonization of barnacles, tunicates, and other aggregated epibiont species. The collection sites we report for certain epibionts mentioned within this note (*Astrangia danae*, *Costoanachis avara*, and *Sphenia antilliensis*) suggest that there are benefits associated with the gaps and sinuses produced by large encrustations of sessile epibionts. For example, epibionts like *S. antilliensis* and *C. avara* abounded within the sediments accumulated under and between mats of *Tubularia crocea*. Additionally, all specimens of *Astrangia danae* observed on loggerhead turtles resided on the shells of either *Chthamalus fragilis*, *Chelonibia testudinaria*, or *Balanus trigonus*. No specimens were seen affixed directly to the carapace. Whether or not *A. danae* is unable to attach directly to the carapace is unknown. Caine (1986) noted the occurrence of *Porites porites*, the only other ‘hard’ coral reported as an epibiont on loggerhead turtles, but did not specify how specimens were attached.

Small *A. danae* colonies (3 cm diameter) did not appear to affect their respective host barnacles. However, one large colony of *A. danae* (9.6 cm diameter) was found completely overgrowing the opercular plates and sides of three *C. testudinaria*. All three barnacles were collected and dissected. Dissection revealed that the barnacles were dead prior to preservation. It is unknown whether or not *A. danae* colonization contributed to *C. testudinaria* expiration or if colonization occurred post-mortem.

The occurrence of lunar dove snails (*Mitrella lunata*), as an epibiont on loggerhead turtles, may be explained by the affinity of this species for green algae as food (Ruppert & Fox 1988). However, our methodology did not allow us to determine whether or not *M. lunata* had actually ingested *B. plumosa*.

Many factors undoubtedly contribute to the presence or absence of epibionts species on loggerhead turtles. Predation, physical stress, disturbance, recruitment dynamics, and competition all might alter the distribution and composition of species within the epibiotic community. While it is apparent that we must initially report the community composition of epibiota on sea turtles, to better understand the relationship between a

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Locality</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cnidaria</strong></td>
<td></td>
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<tr>
<td>Anthozoa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Astrangia danae</em></td>
<td>star coral</td>
<td>W, L</td>
<td>4(10%)</td>
</tr>
<tr>
<td><em>Diadumene leucolena</em></td>
<td>no common name</td>
<td>W</td>
<td>1(2.5%)</td>
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<tr>
<td><strong>Hydrozoa</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><em>Stylactis hooper</em></td>
<td>Hooper’s hydroid</td>
<td>W</td>
<td>1(2.5%)</td>
</tr>
<tr>
<td><strong>Mollusca</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Costoanachis avara</em></td>
<td>greedy dove snail</td>
<td>W, J</td>
<td>2(5.0%)</td>
</tr>
<tr>
<td><em>Mitrella (=Astyris) lunata</em></td>
<td>lunar dove snail</td>
<td>W</td>
<td>1(2.5%)</td>
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<tr>
<td><strong>Crustacea</strong></td>
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<td><em>Cirripedia</em></td>
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<tr>
<td><em>Balanus trigonus</em></td>
<td>acorn barnacle</td>
<td>W</td>
<td>2(5.0%)</td>
</tr>
<tr>
<td><strong>Algae</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><em>Bryopsis plumosa</em></td>
<td>green plume algae</td>
<td>W</td>
<td>1(2.5%)</td>
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</table>

Table 1. Epibionts Collected from Caretta caretta in Georgia, USA, 1998. Data are the number of turtles upon which the epibiont was found with the percent occurrence in parentheses: sample size (N) = 40 turtles. J= Jekyll Island, L= Little Cumberland Island, and W= Wassaw Island.
turtle and its epibiota we must also determine the patterns of distribution and abundance of species present as epibionts (community structure). By monitoring individually tagged sea turtles, biologists have the means to observe any changes or patterns in epibiont communities. If such research is conducted in conjunction with ‘standard data’ collected on captured or observed turtles (i.e. morphometrics, scars, tag numbers, etc.), epibiont data can be utilized as an important supplement to existing databases. For example, Eckert and Eckert (1988) used epibiont data to infer pre-reproductive migration routes in leatherback turtles (*Dermochelys coriacea*) from Sandy Point, St. Croix, U.S. Virgin Islands. Similarly, Killingley and Lutcavage (1983) suggested movement patterns for loggerhead turtles using $^{18}$O and $^{13}$C profiles from epizoic barnacles. Moreover, Caine (1986) used epibiont data to document the presence of two discrete assemblages of loggerhead turtles along the east coast of the US which was later supported by mitochondrial DNA evidence reported by Bowen *et al.* (1993).

With the availability of published information regarding the natural history and environmental requirements of marine invertebrates, particularly fouling communities, it may be possible that concise, standardized, and continuous epibiont research could be a significant tool for monitoring sea turtle migrations. Advanced technologies like radio or sonic tagging could easily be used to verify the reliability of information gathered from epibiont sampling.

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**References**


Except for fibropapillomatosis, neoplastic disease is very infrequently seen in sea turtles. Although fibropapillomatosis has been described affecting several species of sea turtles in Florida, Hawaii, Puerto Rico, Cayman Islands, Virgin Islands, Barbados, Venezuela, Colombia, Panama, Belize, Nicaragua and Australia (Herbst 1994), there are no confirmed reports of fibropapillomatosis in Spain. Since 1994 the College of Veterinary Medicine, University of Las Palmas de Gran Canaria, has been carrying out a survey of the pathology and causes of mortality among sea turtles stranded on the coasts of the Canary Islands. This survey has included the pathological and histopathological study of 30-40 animals per year. We report here the preliminary results of two cases of squamous cell carcinoma and one case of multicentric lymphoblastic lymphoma in a loggerhead sea turtles (*Caretta caretta*). These preliminary findings will be reported in detail elsewhere.

The first case was a juvenile (Straight Carapace Length (SCL) of 29 cm) female loggerhead sea turtle stranded in Gran Canaria (27°40’ N, 15°20’ W) showing three ulcerated lesions in the dorsal aspect of the neck. Masses were also observed in the lungs and kidneys. Light microscopy demonstrated a neoplastic proliferation of abnormal keratinocytes, and mitotic figures were numerous. The second case was a juvenile (SCL 31 cm) female loggerhead sea turtle stranded in Fuerteventura (28°10’ N, 14°20’ W) showing numerous, variably sized lesions in the skin of the head and flippers, lungs, liver and kidneys. Examination using light microscopy showed the lesions in the skin of the head and flippers, lungs, liver and kidneys. Exmination using light microscopy showed the lesions to be composed of anaplastic epithelial cells, with numerous mitotic figures. The diagnosis was squamous cell carcinoma with metastasis to muscular tissue, liver, lung and kidneys. We attempted to characterize the tumoral cells by immunohistochemistry using several monoclonal and polyclonal sera against high and low molecular weight keratines from mammals, vimentine and desmine. However we were not able to demonstrate positive staining with these reagents. Under electron microscopic examination the neoplastic cells showed morphological characteristics consistent with the cells being epithelial in origin.

Squamous cell carcinomas are rarely described in reptiles and very infrequently in chelonians. There are descriptions of this type of tumor in a Ceylon terrapin (*Geoemyda trijuga*) (Cowan 1968) and an European pond turtle (*Emys orbicularis*) (Billups & Harshbarger 1976). To our knowledge, these two cases are the first description of this kind of tumour in sea turtles. Further studies are in progress to attempt to immunohistologically characterize these tumors.

In 1998 we received a juvenile (SCL 34 cm) female loggerhead sea turtle stranded in Gran Canaria for necropsy. The turtle had exhibited anorexia and lethargy for several weeks prior to its death. At necropsy the thymus weighed 25 g and appeared to be larger than that of previous turtles we had necropsied. The thymus was formed by two white and firm nodules. White nodules similar to those described in thymus were observed in the thyroid gland. The ventral aspect of the plastron was also infiltrated with similar masses. Variable sized nodules were also observed in the serosa and mucosa of the stomach and small intestine. Histopathology revealed a neoplastic proliferation of round cells, with large nuclei and scarce cytoplasm. These were identified as lymphoid cells. In all nodules the number of mitotic figures was moderate. Due to infiltrates of lymphoid cells, there was a loss of the normal architecture of many affected organs and under electron microscopy the neoplastic cells were consistent with lymphoblastic cells. The diagnosis was multicentric lymphoblastic lymphoma.

Lymphomas are more frequently found in snakes, but they have been described in terrestrial chelonians. Systemic lymphoblastic lymphoma was described in a male Greek land tortoise (*Testudo hermanni*) involving the liver, heart, kidneys, spleen, pancreas and intestinal serosa (Ippen 1972). Lymphoreticular neoplasia was listed in a Florida soft-shelled turtle (*Trionyx ferox*) (Harshbarger 1974). To our knowledge, this case is the first report of a multicentric lymphoblastic lymphoma in a sea turtle.

Sea Turtles in Kuwait after the Gulf War

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The conservation work carried out in the Arabian Gulf in the United Arab Emirates and Saudi Arabia has played a major role in protecting the Gulf turtle populations. A recent review of this work has been produced by Al-Merghani et al. (1996). However at this time there is no information available as to where the turtles of the Northern Arabian Gulf breed and spend most of their life prior to nesting. Historical records detailing marine turtles in the region date back over 5000 years. The first records of turtles occur as images in the seals produced by the Dilmuns who lived between Kuwait and Bahrain. In recent times the shoreline on the mainland has become built up with housing and other developments, altering many potential nesting sites for turtles. In fact Gasperetti et al. (1993) stated that the Kuwaiti islands were so damaged that there is no likelihood that sea turtles will ever return.

The situation in Kuwait was worsened by the great extent and variety of environmental damage caused by the Iraqi Invasion and the ensuing Gulf War. Oil deposits from damaged oil wells entered marine ecosystems of the Northern Arabian Gulf, killing many plants and animals. All of the Kuwait shoreline was damaged during the war due to extensive use of land mines, and the construction of concrete military structures and trenches. It took four years after liberation for the shoreline to be cleared of dangerous ordinance. In most cases the sands were bulldozed flat to allow the reconstruction of coast guard and other necessary facilities. Although the impact of this factors such as oil spillage, landmines and habitat destruction on marine turtles have not been quantified, until recently it was felt locally that turtles had been lost to the area forever.

The shoreline of Kuwait extends for some 280 km from Iraq to Saudi Arabia and consists of markedly different substrata. The northern shores consist of mudflats and rocks that are seasonally influenced by the silt deposited from the Shatt al Arab waterway. The sandy shores are found only along 20% of the southern coast and on some of the offshore islands. Kuwaiti waters encompass ten islands, ranging in size from 0.5-56 km². Islands are predominantly rocky, with sandy shores, although there are extensive mudflats and sabka plains on some of the larger islands.

Since 1996, turtles have been sighted and recorded throughout Kuwaiti territorial waters during every month of the year. Attempted nesting has been observed on the mainland and on nearby islands, however it was not confirmed if nesting was successful. Morphometric data have also been collected from turtles incidentally caught in hadra (intertidal fish traps) used by local fishermen.

The hadra is a traditional, semi-permanent, fish trap erected in the intertidal and shallow subtidal zones. During high tide fish and other marine animals move inshore, as the tide recedes the marine animals are directed along a wall placed perpendicular to the shore into an approximately circular enclosure with a funnelled mouth. The entrapped animals remain alive within the enclosure until the fishermen collect them at low tide.

To date, we have found three species occurring in Kuwaiti waters: the green turtle (Chelonia mydas), the loggerhead turtle (Caretta caretta) and the hawksbill turtle (Eretmochelys imbricata). Between 1996 and 1998, 18 green turtles caught in hadra fish traps were examined. They ranged in size from 35cm straight carapace length (SCL) to over 110cm. Three of the larger turtles had a dark green to nearly black carapace encrusted with barnacles. The blackening of the carapace maybe indicative of previous exposure to oil residues or due to spending time on the silt covered bottom of the northern Gulf. The smaller turtles had colourful yellow and brown rays on the scutes. Two loggerhead turtles were also caught in the hadra with SCL of 39.
and 52 cm. One loggerhead and one hawksbill turtle were seen while being released from the water intake of a desalination plant by the Kuwait diving Team. Both measured approximately 90 cm in total length.

We feel that the presence of turtles in Kuwait is an indication that the environment of the northern Gulf is recovering from its previous degraded status. At present, studies are in hand to determine the breeding status, protect the breeding sites and to study morphological variation. It is most likely that Kuwait has low density nesting and, at least, a small resident population of at least three species of marine turtles.

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Records of Caretta caretta in Mauritania

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Knowledge of the current status and biology of the loggerhead turtle (Caretta caretta) in the waters off the west coast of Africa, including Mauritania is lacking. The first mention of loggerhead turtles in Mauritania was at Cap-Blanc, Tânit Bay, Banc d’Arguin and the Levrier Bay (Rochebrune 1884). More recently Arvy et al. (1996) recorded loggerhead nesting only in the west of the Levrier Bay, finding no evidence of its presence southwards. Arvy and Tijane (1997) later reported nesting in Tânit Bay. This report summarises additional data collected whilst undertaking a survey of the biodiversity of the Mauritanian coast between July and September, 1994.

Four loggerhead turtle nests were discovered on July 15th, 1994 in the Tânit Bay. This site consists of a wide (100m) beach backed by extensive dunes, which, in their upper part, are covered with bushes of Stipagrostis pungens. All nests had been excavated in the vegetation in the upper part of the beach. Of the 4 nests, only one was intact. Two other nests had been predated by the golden jackals (Canis aureus). The turtle, which had been in the process of creating the fourth nest, had been killed, with the eggs and the meat having been eaten.

Loggerhead turtles stranded dead were found along the coast between latitudes 19°07’N and 16°58’N. For each carcass, the straight carapace length (SCL) was measured. It is not known what the cause of mortality was in any case. Although green turtles (Chelonia mydas) were stranded, fifteen loggerhead turtles constituted 64.5% of all strandings. Mean SCL of loggerhead turtles was 63.8 cm (sd=7.62 cm, range=60-84 cm).

As there is no certainty regarding regular nesting of the species in Morocco and the Canary Islands, the nests observed in Mauritania have biogeographical importance and as they provide the most northern nesting data for nesting loggerhead turtles in West Africa.


The Liberia Sea Turtle Project (LSTP) is a project of the Save My Future (SAMFU) Foundation, a non-profit, non-governmental organisation, founded in June 1987 and incorporated under the association laws of the Republic of Liberia (West Africa). The goal of the foundation is to promote and facilitate participatory and sustainable natural resources management and development, especially of forests of high biological diversity and endangered species. To achieve this, the foundation will identify all forests and biologically diverse areas and endangered species, design and facilitate community-led participatory and sustainable development plans that will be implemented by the communities with inputs from other stakeholders, including the government.

As a result of preliminary reconnaissance along the Liberian coastline, SAMFU has established, that several species of sea turtles nest in Liberia which has a coastline of some 350 miles, dominated (ca. 80% of coastline) by sandy beaches interspersed by mangrove swamps and rocky sections. The LSTP is a response based on SAMFU’s findings and aspiration. It aims to work with and empower indigenous coastal communities to manage the stocks that nest on their shores in a sustainable manner. The main objectives of the project are:

1) To carry out a baseline survey of the entire coastline of Liberia.

2) To identify and collect baseline data on the coastal communities, beaches and the species of sea turtles that nest on the different beaches.

3) To identify threats and potentials for conservation.

4) To conduct workshops and discuss findings with local community leaders with a view to soliciting their support and participation in the development of integrated national coastal zone management with emphasis on sustainable management/protection of sea turtles.

5) To identify and liaise with international institutions involved with sea turtle conservation.

To achieve the above, the project has visited a number of communities along the coast and has collected basic data on the communities as consumers/beneficiaries and threats to sea turtles that nest on the coast of Liberia, as well as potential for conservation. The preliminary findings suggest that several species of marine turtle either nest on the shores or are found and captured in the coastal waters of Liberia. As yet it is not possible to confirm with absolute certainty which species are involved, but anecdotal accounts are suggestive that leatherback turtles (Dermochelys coriacea), green turtles (Chelonia mydas) and at least one other hardshell turtle species are exploited for meat and eggs.

Although the work is at an early stage, a minimum estimate of the number of turtles utilised for meat is likely to be in the many hundreds, if not thousands, annually. In addition, preliminary data have been gathered regarding the seasonality of nesting, sizes of turtles harvested, clutch size, meat qualities and prices. This work is described in a recent technical report (SAMFU Foundation 1999).

The main constraints to the work, to date, have been the lack of resource materials and complete specimens to assist in identification. This difficulty is compounded by the fact that common names appear to vary regionally. The rate at which sea turtles are being killed mandates an urgent need for a detailed baseline survey of the entire Liberian coast to establish key areas of abundance and diversity, with the goal of initiating a sustainable participatory community-based management plan for the sea turtles. We invite proposals from any group interested in marine turtle biology and conservation to participate in the programme to conserve or protect the populations that nest on Liberia’s shores.

Acknowledgements: Preliminary funding was obtained from Both ENDS/Small Grant Initiative (Holland). We are grateful for the support of Dr. Brendan J. Godley and Dr. Jack Frazier.

Sea Turtles in Myanmar: Past and Present

John B. Thorbjarnarson¹, Steven G. Platt¹, and Saw Tun Khaing²

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Five species of marine turtles are known to nest in Myanmar (formerly known as Burma) at well known island and mainland beaches known locally as “turtle-banks”. These are the olive ridley (Lepidochelys olivacea), loggerhead (Caretta caretta), green (Chelonia mydas), hawksbill (Eretmochelys imbricata), and leatherback (Dermochelys coriacea) marine turtles. However, the latter two species are considered extremely rare.

Maxwell (1911) conducted an extensive investigation of the “turtle-banks” of coastal Myanmar, as part of a review for the Burma Fisheries Act of 1902. At that time turtles nested on Thamihla Kyun (Diamond Island 15° 51’ N 94° 17’ E), an island at the mouth of the Pathein River, and Kaingthaung Kyun (15° 44’ N 95° 04’ E) and Thaungkadun (15° 43’ N 95° 18’ E) at the mouths of the Ayeyarwady (formerly spelled Irrawaddy) and Bogale Rivers, respectively. These beaches were leased by the Colonial Administration to local businessmen, who harvested and sold eggs. About 1.5 million olive ridley turtle eggs and 1.6 million green turtle eggs were harvested annually. Based on this egg harvest and several assumptions regarding female fecundity, Maxwell estimated a nesting population of 5,000 green turtles and 3,750 olive ridley turtles.

The lower Ayeyarwady Delta has remained largely closed to foreigners for the last 20 years. We obtained permission to enter the region and conduct a general ecological reconnaissance in January and February 1999, with particular emphasis on determining the status of saltwater crocodiles (Crocodylus porosus) and estuarine turtles (Batagur baska and Kachuga trivittata). We were also able to conduct a brief survey of the marine turtle nesting beaches in the lower delta. Additional information was obtained from Fisheries Department personnel.

Most of the small, recently formed islands off the mouth of the Bogale River are used by sea turtles for nesting. According to the Myanmar Fisheries Department, the total number of nests in the region is currently about 300 annually, indicating a drastic reduction in regional turtle populations during this century. Most nesting is by olive ridley turtles (70%), followed by loggerhead turtles (20%) and green turtles (10%).

At the time of Maxwell’s report, the only islands in existence were Kadonkalay Kyun (15° 49’ N 95° 13’ E), a recently formed sandbar, and Kaingthaung Kyun. Human settlement began around 1980, and today both islands are densely populated. A series of other islands have formed at the mouth of the Bogale River, but Kadonkalay Kyun remains the largest (ca. 2.6 km²) and is increasing in length at an annual rate of 150 m. Approximately 180 turtle nests are found each year along the eastern shore. About 80 turtle nests are found annually on Gayetgyi Kyun (15° 41’ N 95° 16’ E), a smaller island (ca. 1 km²) located east of Kadonkalay, formed 30 years ago and currently inhabited by 200-300 families. An additional 10 nests per year occur on Nga Mann Thaung, a small island some 300 m in diameter, which began forming east of Gayetgyi in the late 1980s. Less than 5 nests a year are deposited on Ma Sein Yon and Nget U Thin, which are sand islands formed during the last five years to the west of Kadonkalay Kyun.

Today only 1-2 turtles a year nest on Kaingthaung Kyun, and no nesting occurs at Thaungkadon Kyun. The largest concentration of nesting currently occurs on Thamihla Kyun (Diamond Island), a protected beach where according to the Fisheries Department about 20,000-30,000 green turtle eggs and 7,000-15,000 loggerhead turtle eggs are laid annually. However, there appears to be some confusion regarding the discrimination between loggerhead and olive ridley turtles and some of the reported loggerhead turtle eggs may, in fact be those of the olive ridley turtle.

Prior to 1986, beaches were leased by the Fisheries Department to the highest bidder, and virtually all eggs were collected. From 1986 to 1996 the egg collection program was run through local fishing communities, who were required to leave one-third of the eggs to hatch. However, we were told by local fishermen that compliance with these regulations was almost nonexistent. After 1997, the Fisheries Department fully protected all offshore turtle nesting beaches, and established a conservation program under the direction of U Cho Hla Aung. The program involves nest-
The abundance of olive ridley turtles (*Lepidochelys olivacea*) has always been known to the local inhabitants who had a flourishing trade in turtle and turtle eggs from Bhitarkanika area, more specifically Gahirmatha beach in Orissa, India. However, it is generally believed that the first report about the nesting site was by Bustard (1976) who drew international attention to this nesting site.

It is interesting to report that this turtle nesting area finds a special mention in a book entitled “*A New Account of the East Indies*” based on the observations and remarks by Captain Alexander Hamilton who took to trading and travelling, by sea and land, between Cape of Good Hope and Japan (Hamilton 1727). In volume I of his series there is a chapter on Orissa state entitled “*Treats of the sea-coast and some inland Countries in the ancient Kingdom of Orixa.....Jagarynat*”. Here he documents his observations based on his travel from Ganjam to Ballasore by land in 1708. This covers the coastal districts of Orixa (at present Orissa) from south (Ganjam) to north (Ballasore at present Balasore). He has described the waterways and important ports of trade (most of the trade in those days was by waterways) in Balasore under the jurisdiction of the Rajah of Cunnaca (now known as Kanika) in which he has made a passing reference to the turtle nesting site.

Since this is the earliest record and of historic importance, I quote the relevant parts: on page 393 it says:

> “Between Cunnaca and Balasore Rivers there is one continuous Sandy Bay, where prodigious Number of Sea Tortoises resort to lay their Eggs; and a very delicious Fish called the Pamplee, comes in sholes, and are sold for two Pence per Hundred. Two of them are sufficient to dine a moderate Man”.

This is not only the earliest record but suggests that in 1708 a much larger area between the Balasore river (at present called Budha Balanga in the north) to the Cunnaca river (at present called Maipura river in the south); was used for mass nesting. By 1976, the mass nesting was restricted to only few kilometers in the southern part near Maipura river when Bustard made his report.

Since Anderson does not say anything about the trade or consumption of eggs or turtles (although he has indicated the size of Pamplee, obviously the Pompret, which is a local delicacy), it is possible that trade in turtles and turtle eggs had not started in the early part of 1700’s.
Acknowledgements: I am indebted to Dr. K. S. Behera, Professor of History, Utkal University, Bhubaneswar for drawing my attention to Anderson’s observations about sea turtles and to Mr. Lalit Mansingh, High Commission of India in UK (at present the Foreign Secretary of Government of India) for kindly locating Hamilton’s book for me.


HAMILTON, A. 1727. A New Account of the East Indies. Volume 1, Edinburgh, Printed by John Mosman One of His Majesty’s Printers, and sold at the King’s Printing-house in Craig’s Clof. MDCCXXVII.

Letter to the Editors:

Clarification on the History of the Kemp’s Ridley Nesting Numbers!

Dear Editors,

Sometimes trying to provide historical information raises more questions than answers. Caillouet (2000) has questioned the basis for the often cited 40,000 female strong “arribazón”, derived by Hildebrand (1963) from Herrera’s 1947 film. This was also discussed during deliberations of the Turtle Expert Working Group (TEWG 1998). It was thought desirable to re-evaluate this figure, using digitized photographs from the original film. This has not been done yet, partially because the TEWG thought that current population trends could be analyzed from 1987-1988 onwards, that is from the point at which the slope of nesting numbers for Kemp’s ridley changes from negative to positive (Márquez et al. 1999; Figure 3).

At the start of the TEWG meetings, the data used for the evaluation of nesting trends came from preliminary information collated just before the end of the nesting seasons. These were essentially draft annual reports on Kemp’s ridley and were made available to the US Fish and Wildlife Service. The number of nests were often different to those in reports presented to the Mexican National Fisheries Institute (INP). These differences were noted during TEWG meetings and corrected in the last report (TEWG 1998; Table 1, Appendices 1 to 4). These latter figures are very similar to those presented by Márquez et al. (1999).

The new data in Márquez et al. (1999) are the result of restudying both the old internal reports of the INP, and also the personal field logbooks (1966-1977) of various researchers including: Humberto Chavez, Martin Contreras, Antonio Montoya, Gustavo Casas, Aristoteles Villanueva and myself. The data from these logbooks were combined with the information quoted in Márquez et al. (1996). As a result of this reevaluation, it was recognized that in the 1960s, there had been several “arribazones” at Rancho Nuevo beach of over 2,000 turtles. The author has worked at Rancho Nuevo since 1967 and has witnessed the changes in abundance of this population. Some of these “arribazones” were mentioned by Pritchard and Márquez (1973). Also Casas-A. (1971) reported that, “Protection was given to a total of 10,000 females of Lepidochelys kempi in 1969.” And in an FAO synopsis (Márquez 1994; Fig. 7) there is a photograph taken by A. Montoya, of an “arribazón”, it was estimated that 2,000 turtles had nested on 23 May 1968.

With respect to applying the methodology of Valverde (1999), this could perhaps be done in the future, but it cannot be done retrospectively. Moreover, it might not be appropriate currently at Rancho Nuevo where the bi-national team has been moving eggs to protected corrals since 1978 and where maximum number of turtles in an “arribazón” do not exceed 300. If the nesting population continues to grow, as we all hope, then perhaps these methodologies - which are in fact similar to those developed by Márquez and van Dissel (1982) - will be useful.


Cruelty to Sea Turtles on Corn Island/Nicaragua

Dear Editors,

We write concerning the maltreatment of sea turtles we witnessed in September 1999, during a visit to Corn Island, Nicaragua. There was a hut situated right next to the beach, located about 5 to 15 minutes on foot from the hotel “Le Paradiso”. Most of the time the hut was secured with a padlock, but occasionally it was possible to see inside or even enter the hut. Inside there were about twenty large sea turtle, all alive, but immobilised by having been turned on their backs. Their front and hind flippers were bound together with thick rope. Some of the turtles were bleeding and no steps were taken towards making their storage in any way comfortable. After we complained about the ill-treatment of the turtles the man responsible declared that he poured water over them once a day. We took photographs of the whole situation. Sadly, in Nicaragua, sea turtles enjoy only limited protection. Nicaragua permits the exploitation of sea turtles for subsistence use. However, even if the catching of sea turtles is legal at certain times of the year this cruel treatment is unacceptable. If the catching of sea turtles is fundamental to the economy of the native population, there should nevertheless be minimal conditions established and adhered to regarding their captivity and treatment. We hope that by highlighting this situation, there might perhaps be found a way to put an end to this cruelty. If there is an individual or organisation interested, we can send the photos.

Andrea Bauer & Peter Schmidt
c/o Cordula Schierbaum
c/o Korfanr, Isestr. 45, 20144 Hamburg, Germany. (E-mail: nica-tortugas@nikocity.de).

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ε 70,000.00 (about US $19) Saves Life of a Leatherback Turtle in Ghana

Dear Editors,

Sea turtles are protected by law in Ghana. However, they are still hunted. On February 6, 2000 while returning from a sea turtle survey, a leatherback turtle (Dermochelys coriacea) (Curved Carapace Length=155 cm; Curved Carapace Width =109cm) was seen being dragged along the Accra-Takoradi highway to a fisherman’s house for slaughter in Abandze (about 130 km west of Accra). After persistent persuasion for its release failed, prolonged negotiations ended with the agreement in a selling price of € 70,000.00 (about US $19). The turtle was then transported back to the canoe landing beach and released into the sea to the amusement of most of the fishing community. Three other leatherbacks of approximately the same size were landed at the same beach on that day. Unfortunately, those three could not be saved since they had already been slaughtered. The opportunity was used to educate some section of the local community on the need to save and conserve sea turtles in Ghana in particular and the world at large.

Apart from the four leatherbacks in Abandze, the remains of eight leatherbacks, four olive ridleys and one green turtle were recorded in four other coastal communities. These include Anloga, Ada, Elmina and Princess Town. These had been slaughtered or drowned in nets of local fishing vessels.

Bendorf T. Amiteye, Department of Oceanography & Fisheries, University of Ghana, (E-mail: benamit52@hotmail.com) & Jesper Møller, Department of Terrestrial Ecology, University of Copenhagen, Denmark, (E-mail: dano@ghana.com)

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MEETING REPORTS

20th Annual Symposium on Sea Turtle Biology and Conservation

Blair Witherington
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The 20th Annual Symposium on Sea Turtle Biology and Conservation was held between 29 February and 4 March 2000 in Orlando, Florida, USA, and was hosted by the Sea Turtle Protection Program of the Florida Fish and Wildlife Conservation Commission. The Symposium was, in a word... humbling. It was the largest of the annual sea turtle symposia and was also the largest and most diverse gathering of “sea turtle folks” ever; 960 people attended and 67 countries were represented by active participants (The 67 countries accounts for deference to countries within a total of 60 sovereign nations. There were 74 countries originally registered). Here are some highlights of the Symposium and of associated events:

The Seventh Annual Meeting of Latin American Sea Turtle Specialists was held at Camp Challenge, Florida, 25-28 February, and was organized by Hedelvy Guada, Lesbia Montero, and Hector Horta.

There was a one-day special session on the Biology of the Loggerhead Sea Turtle. The session brought together invited experts on loggerhead biology and status and will result in a book entitled “Ecology and Conservation of the Loggerhead Sea Turtle,” to be edited by session organizers, Alan Bolten and Blair Witherington.

In addition to the loggerhead session, there were more than 300 oral and poster presentations in sessions that included conservation and management, public education, developmental habitat, conservation genetics, movements and activity, human use of sea turtles, diseases and parasites, habitat assessment, feeding and growth, mortality, reproductive physiology and behavior, anatomy and physiology, national and international legislation, and nesting surveys. The extensive program was assembled by Anne Meylan and Allen Foley. Kristin Fick and Tony Redlow organized the poster presentations.

There were workshops held on the physical monitoring of beach nourishment sites, sea turtle anatomy, nest predation mitigation, light management on nesting beaches, Florida sea turtle permit-holder issues, and population modeling (both basic and advanced), in addition to a colloquium on the taxonomic status of the black turtle. Reports from many of these events will be presented in the MTN/NTM.

A keynote presentation was given by Archie Carr III on “The Century of the Sea Turtle” and a special presentation was made by the Chairman of the Florida Fish and Wildlife Conservation Commission, Julie Morris, on “Challenges of Conserving Florida’s Wildlife.”

The Friday-night banquet featured a retrospective on sea turtle biology and conservation and on the ontogeny of the Symposium. Peter Pritchard reminisced insightfully on the early years when pivotal events were occurring and when only a handful of people worked to understand and conserve sea turtles, and Lew Ehrhart presented a delightful and detailed 20-year walk down Workshop/Symposium memory lane. Also at the banquet, Anders Rhodin presented the Archie Carr Best Student Presentation Awards, co-sponsored jointly by the Sea Turtle Symposium and Chelonian Research Foundation. Winners chosen by the Student Awards Committee from a field of 90 student presentations were: Best Biology Paper, Jeffrey Seminoff (Wildlife and Fisheries Science, University of Arizona); Runner Up Biology Paper, Melissa Snover (Duke University Marine Laboratory); Runner Up Biology Paper, Barbara Bell (Dept. of Biology, Drexel University); Best Biology Poster, Patricia Sposata (Dept. of Biology, Florida Atlantic University); Runner Up Biology Poster, Dana L. Drake (Dept. of Biology, Drexel University); Best Conservation Paper, Lori Lucas (Florida Institute of Technology); Best Conservation Poster, William Irwin (Dept. of Biology, University of North Carolina); and Runner Up Conservation Poster, John Wang (Dept. of Biology, University of North Carolina).

As in other years there were productive meetings of WIDECAST (organized by Karen Eckert) and of the IUCN Marine Turtle Specialists Group (organized by Alberto Abreu Grobois and Marydele Donnelly).

A field trip to the Archie Carr National Wildlife Refuge allowed more than 100 people to visit the nesting beach, tour the maritime hammock, and observe the
tangle-netting techniques of Lew Ehrhart (who caught five turtles the morning after delivering a late-night banquet address three hours away). The trip was organized by Paul Tritaik and Blair Witherington.

The Symposium plenary session was well attended. At the session, 10 resolutions that dealt with issues of sea turtle conservation and that had benefited from the facilitating prowess of Jack Frazier each passed by a majority vote of the Symposium body. The resolutions are being translated for submission to the appropriate international offices and organizations and appear in this issue (Epperly & Frazier 2000 MTN 88:20-26). Symposium members also voted on slates of nominees for Symposium offices. Members choose Robert van Dam, Stephanie Presti, and Alexis Suarez as the Nominations Committee, Peter Dutton and Hiroyuki Suganuma as incoming Board members, Ed Drane as Treasurer, Sheryan Epperly as Secretary, and Earl Possardt as President (for the 2002 Symposium).

A Saturday-night social event was held at the Chelonian Research Institute and was hosted by Peter Pritchard. Socializers experienced an outstanding display of chelonian diversity and bibliography presented in an eclectic old-world style.

As is past years, the Symposium ran amazingly well on generous grants, borrowed equipment, volunteers, and an overall spirit of altruism that is surely uncommon to endeavors of this kind. I feel that it is important to summarize this support here, both to acknowledge the sources and to describe how the Symposium comes to be. As many may know, the cost to Symposium attendees is kept as low as possible in order to attract a broad and diverse attendance. Here is how we do it:

Travel to the Symposium for many participants was funded by generous grants from the David and Lucille Packard Foundation and from the National Marine Fisheries Service, Office of Protected Resources. Special thanks go to Jack Frazier and Barbara Schroeder for fund-raising efforts and to J. Nichols and the travel committee for strategically disbursing the funding. Details can be found in this issue (Nicholls 2000 MTN 88:16). In addition to receiving airline tickets, many needy travelers were also able to stay in complementary (albeit crowded) rooms thanks to Symposium funding, individual room sponsors, a find-a-roommate system, and a spacious Presidential Suite (which we found to sleep approximately 16 people).

Simultaneous translation (English-Spanish, and for three presentations, French to English & Spanish) was an important, and expensive, facet of the Symposium. Translation expense was offset in part by grants from the Disney Wildlife Conservation Fund and from Boeing Corporation.

Symposium sustenance was subsidized as well by a generous poster-lunch donation from the Brevard County Sea Turtle Preservation Society and by coffee-break donations from Service Argos, Ripley Entertainment, Florida Power and Light Company, Ecological Associates, D.B. Ecological Services, Caribbean Conservation Corporation, Turtle Time, and Disney’s Living Seas Aquarium. The audio/visual and computer requirements for the Symposium were heavily subsidized by equipment procured by begging, totaling approximately $16,380 in rental value.

But the greatest support for the Symposium was surely the people who focused their expertise and hard work on the task. I am able only to acknowledge the work needed to prepare for the Symposium. With their contributions estimated in person-hours, some of the more critical pre-Symposium tasks and contributors were: web-site, Michael Coyne (520 hrs), registration, Chris Koeppel (760 hrs), volunteer coordination, Richard Byles (200 hrs), program assembly, Anne Meylan and Allen Foley (500 hrs), poster preparation, Kristin Fick and Tony Redlow (230 hrs), artwork, Dawn Witherington (150 hrs), transportation, Beth Morford (100 hrs), travel assistance, J. Nichols and the travel committee (675 hrs), Secretary, Sherry Epperly (150 hrs), and President, Blair Witherington (600-800 hrs). [Please note missing data for the important tasks of Treasurer, Ed Drane; beseechment, Sue Ellen Smith; entertainment organization, Dean Bagley; and “thing” arrangement, Barbara Schroeder.] And during the Symposium the altruistic work continued, with the auction (Jen Homcy and Rod Mast, who tickled well over $11,000 for international travel out of the audience), with vendor arrangements (Tom McFarland), and with a host of other important tasks that were deftly handled by over 100 volunteers.

It was a greatly rewarding experience to preside over this Symposium. My hope is that the rest of the Executive Committee, the Board of Directors, elected officers, and all Symposium participants are as delighted as I am with the quality of presentations and the productivity of communication, and that they share my pride in the heroic efforts that brought the Symposium to this fruition.
Travel Grants to Attend the 20th Annual Symposium on Sea Turtle Biology and Conservation in Orlando, Florida

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A milestone of sorts for sea turtle people around the world, the 20th Annual Symposium on Sea Turtle Biology and Conservation attracted record numbers of international biologists, conservationists and students thanks in part to the generous support of the David and Lucille Packard Foundation.

In past years, most of the funds to support international and student travelers came from the Symposium auction as well as generous grants and donations by many institutions, foundations and individuals. This year the majority of travel support was secured by Jack Frazier through a Packard Foundation grant to the Symposium. Additional support came from US National Marine Fisheries Service as well as Southwest and Continental Airlines. Ana Barragan, Alan Bolten, Annette Broderick, Michael Coyne, Karen Eckert, Brendan Godley and Nick Pilcher rounded out this year’s travel committee and devoted more than 675 volunteer-hours (that’s nearly seventeen 40-hour work weeks) to sorting through applications, awarding travel grants and generally helping to make the long-distance migration of researchers and conservationists to Orlando smoother.

This year the committee was able to offer grants in the form of support for travel costs or accommodations to 148 individuals from 51 countries—an increase of 40 over last year’s effort. This included authors and co-authors of over 150 papers or posters. Much of the data and many of the ideas presented may have gone unreported in an international forum were it not for symposium grants and travel support. Nearly 15% of symposium attendees received some sort of assistance from the travel committee!

Organization of these grants has been a team effort and represents many months of volunteer work by many people beyond the “official” travel committee. Symposium treasurer Ed Drane provided fiscal guidance, Chris Koeppel put out many fires and held the ship together through more than a few storms, Michael Coyne kept the technology on the cutting edge and saved us valuable time, Sheryan Epperly kept the letters coming and going and Captain Blair Witherington at the helm was somehow everywhere at once.

Most importantly, we once again extend our gratitude to the many “turtle-people” around the world that came to the Symposium to share their knowledge and experience, to teach and to learn.

ANNOUNCEMENTS

21st Annual Symposium on Sea Turtle Biology and Conservation

Jim Spotila
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The 21st Annual Symposium on Sea Turtle Biology and Conservation will take place between 24th-28th February, 2001 at the Adams Mark Hotel in Philadelphia, USA. In addition to the usual series of excellent scientific presentations and posters there will be a one day symposium on the biology of the leatherback turtle and other special scientific presentations. The social mixer will feature a great Latin band and a night of Philly food and fun. The banquet night will feature a meal, student awards and hours of music and dancing to the sounds of a Philadelphia dance band. Further detailed information will be appear in the Marine Turtle Newsletter, on CTURTLE, the worldwide web <http://www.seaturtle.org/> and will be distributed to those on the Symposium mailing list as it becomes available.
Travel Assistance for the 21st Annual Symposium on Sea Turtle Biology and Conservation in Philadelphia, USA

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Limited travel funds are available to assist US/Canadian students and international participants in their efforts to attend the 2001 Symposium in Philadelphia, USA. Awards should not be expected to cover the full cost of symposium travel. Priority will be given to those who will be presenting papers or posters, those who apply before the deadline (October 15, 2000) and to individuals from relatively under-represented regions. The committee looks favorably on those who demonstrate efforts to secure additional sources of travel funds or matching grants. If you are in need of assistance for travel to the 2001 Symposium in Pennsylvania, apply via the symposium webpage, which will be based at <http://www.seaturtle.org/> before the deadline.

Applicants should follow this procedure:
1. register for the symposium
2. submit your abstract to the symposium for consideration
3. using your symposium registration number, complete the online travel grant application in full, prior to the 15 October 2000 deadline.

Grant recipients are expected to attend the entire symposium. Candidates should have no hesitation in contacting their regional chair for advice. Any candidates who find it impossible to access an online computer should contact their regional Travel Chair by fax, however, it is highly preferential that all correspondence is carried out by e-mail/internet.

Travel Chair:
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Workshop on Marine Turtle Biology and Conservation in the Mediterranean

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The Darwin Initiative for the Survival of Species Marine Turtle Project – Egypt will be hosting the above event at The British Council, Cairo, Egypt from 13 – 16 November 2000. This meeting will be co-hosted by Queen Mary & Westfield College - University of London UK, Egyptian Environmental Affairs Agency, Suez Canal University and the British Council.

The workshop will focus on relevant issues relating to the biology and conservation of marine turtles in the Mediterranean, contributions dealing with the eastern Mediterranean are particularly welcome. The meeting will include oral sessions, poster presentations and discussion groups on any relevant topic. All are invited to attend.

Advanced registration is recommended as the number of delegates is limited by available space. A $25 (U.S. only) registration fee is payable on arrival. On site registration will begin on the morning of Monday 13 November and sessions will continue throughout the week ending on the afternoon of Thursday 16 November. Entertainment will be provided each evening of the workshop.

A limited number of travel grants may be available to students wishing to attend, contact Michael Clarke
International Roundtable to Develop a Protocol on Chelonian Relocation and Heritage Collections
September 26th-28th, 2000, Orlando, USA.
(Special Workshops and Field Trips 25th and 29th September)

This working meeting will bring together freshwater turtle and tortoise experts, veterinary and chelonian researchers, managers, educators, breeders, students, regulatory and conservation agencies, and enthusiasts from around the world and will result in a published protocol addressing 7 important areas: ethics, disease issues, genetic and systematic issues, environmental issues, socioeconomic considerations, intra-specific impacts, and heritage collection. The goal is to produce a practical document that puts forth a Protocol for Chelonian Relocation and Heritage Collections based on the most up-to-date information and research.

Time will be allotted to presentation of pertinent papers and a poster session to provide the roundtable participants with additional information for discussion and final creation of the protocol. Send abstracts of 100 words or less for paper or poster session to Pat Ashton at <PSASHTON@aol.com>.

For registration, information contact Ray Ashton or Ghislaine Guyot, Overall Meeting Co-Chairs, the Ashton Biodiversity Research & Preservation Institute at: 5745 SW 75th Street #331, Gainesville, FL 32608, USA (E-Mail: Tortfarm2@aol.com, Phone: + 352 495-7449, Fax +352 495-7433)

Travel and Accommodation
The workshop will be held in the conference rooms of the British Council, 192 Sharia El Nil, Agouza, Cairo. A preferential rate has been negotiated for the workshop at the Hotel Flamenco approximately five minutes from the Council offices.

Hotel Flamenco, 2 El Gezira El Wosta Street, Zamalek, Cairo, Egypt.
Tel: +20 2 340 0815 Fax: +20 2 340 0819
E-mail: Flamenco@rite.com
<http://www.tourism.egnet.net/cgi-win/hser3f.exe/199>

Hotel Rates:
Standard Single $46 (+ tax U.S.)
Standard Double $56 (+ tax U.S.)
Superior Single $56 (+ tax U.S.)
Superior Double $66 (+ tax U.S.)

Quote reference number 3937 when making booking. The Flamenco Hotel is approximately a 45-minute taxi ride from Cairo International airport; the fare should be no more than $10.

Registration
The preferred method of registration is by electronic mail. Simply e-mail the requested registration information together with a 1000 word abstract (in English only; MSWord format; as an attachment file) to Michael Clarke at: <m.clarke@qmw.ac.uk>. Alternatively the following information can be sent by land mail together with an electronic copy of the abstract on floppy disk (MSWord format only) to Michael Clarke at the address above.

Registration Information
Full Name:
Organisation:
Full Postal Address:
Telephone, Fax and E-mail details:
Title of Presentation:
Authors of Presentation:
Poster or Oral Presentation:
Abstract: As attached MSWord file or on floppy disk
Please send SEPARATE details for each person registering. Details and updates about the workshop can be found at <http://www.qmw.ac.uk/~ugbt771>
Xth Course on Sea Turtle Biology and Conservation

WIDECAST, the BP Conservation Programme, SARPA, Thomas Merle Foundation, Corpomedina, Conservation International and Al Frente de Paria announce the Xth Course on Sea Turtle Biology and Conservation, which will be held at the Corpomedina facilities, Puy Puy Beach, Peninsula de Paria, Sucre State, Venezuela, 3-9 May 2000.

The course is targeted at students and professionals in biology, marine biology, veterinary and related subjects. Priority is given to those who work within sea turtle research and conservation projects, so strengthening the actions of the Venezuelan Work Group on Sea Turtles (GTTM) or similar organisations in their own countries. The course provides basic information on sea turtle biology and conservation techniques. Since 1992, more than 160 people, including students and professionals from Venezuela and Argentina, Uruguay, Colombia, Mexico have taken part in this course. This year requests have already been received from Colombia, Panama, Guatemala, Honduras, Argentina, Haiti and Suriname.

Course details: The course is intensive and is 7 days in length, including theory, practical sessions (including field work at night) and the use of video resources. The performance of participants is subject to evaluation which is an integration of a number of different components, totalling 100 points. Participants with 80 or more points receive an approval certificate. The course will have instructors from Venezuela, Mexico and Cuba.

General requirements for acceptance: 1) a personal letter explaining the motivation for participation; 2) Curriculum vitae with details of referees; 3) two photos. 4) Letter of recommendation. For students this should be an academic letter of recommendation; for professionals this should be an institutional recommendation letter. NB 1) Applications without all the above will be not evaluated. NB 2) Applications by fax or e-mail will not be considered. NB 3) Deadline to receive applications: April 14, 2000.


Registration costs:
Students from developing nations: US$ 200*;
Students from developed nations: US$ 300*;
Students from developing nations: US$ 600**
*These costs include coffee breaks, meals and transportation between Rio Caribe and Puy Puy Beach
**This cost includes lodging, meals, coffee breaks and transportation between Rio Caribe and Puy Puy Beach.
NB: All the participants must pay their own transportation costs to Rio Caribe and meals as detailed in (*) and (**). No fellowships for travel to Venezuela are available.

Transportation costs: The aerial trip between Caracas and Carupano (1 hour) costs US$ 110. The same trip by bus has a cost of US$ 40. The aerial trip from Isla de Margarita to Carupano has a cost of US$ 40. From Carupano, the participants can take a taxi or van (5 people per vehicle; US $3 each). It is necessary to sleep one night in Rio Caribe (May 2, 2000).

Lodging and meals: Participants from Venezuela and developing nations must make a complementary contribution of US$ 120 per person which corresponds to the value of accommodation and meals.

Further details or applications to: Hedelvy Guada, WIDECAST, Apdo. 50789. Caracas 1050-A. Venezuela Courier address: Edif. Inca 5, No. 54, Av. Casanova, Sabana Grande. Caracas 1050, Venezuela (Phone: +582-761-0680; (014) 932-7713 (Cellular); Fax: + 582-762-8485 E-mail: 95-79050@usb.ve Web page: <http://www.geocities.com/cardonrace>

Chelonian Education Issues, Techniques and Successes

A Pre-Conference Workshop of the International Roundtable to Develop Protocol for Chelonian Relocation and Heritage Collections,

This pre-conference workshop is designed to provide up to 50 participants with practical information and international examples of successful curriculum materials, interpretive and program activities at museums, nature centers, zoos, and formal and informal education settings. It will provide an insight into ways of using today’s technologies (websites, interactive-chip, video-cam, CD-ROM, exhibits) to reach audiences from government decision makers to hobbyists. Topics will address the critical issues in public, informal and formal education dealing with Chelonian conservation, relocation and ecology.

Call for Papers: Following several featured speakers on issues and interpretive methods, there will be 20-minute time periods allotted to papers sharing information on successes and examples of how to produce interpretive programs, exhibits, websites, videos, curriculum, and tours, and on how to reach specific audiences such as government decision makers, voting adults, school children, university researchers, natural area managers, etc. Send your 100 word abstract, list of any equipment you will need such as slide projector or overhead projector, and 50 word speaker biography and contact information to Patricia S. Ashton, 5745 SW 75th Street # 331, Gainesville, FL 32608, Florida, USA (E-mail: PSASHTON@aol.com, Fax: +352 495-7433).
Resolutions of the Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation

Sheryan Epperly1 & Jack Frazier2
1Symposium Secretary, SEFSC Sea Turtle Team Leader, NOAA, National Marine Fisheries Service, 75 Virginia Beach Drive, Miami, FL 33149 USA (E-mail: sheryan.epperly@noaa.gov)
2Symposium Resolutions Chair, Conservation and Research Center, Smithsonian Institution, 1500 Remount Road, Front Royal, Virginia, 22630, USA (E-mail: kurma@shentel.net)

Ten proposals for resolutions were submitted by individuals and organizations for consideration by members of the 20th Annual Sea Turtle Symposium on Sea Turtle Biology and Conservation. Those proposals that were received before the start of the Symposium were posted on the Symposium web-site <http://www.seaturtle/tortuga2000/eng/resolutions/>. All ten proposals were reviewed by the Board of Directors on the 1st March, and one which was incomplete was rejected. The nine complete proposals were posted for public viewing at the Symposium Registration desk, in the Panther Room, Delta Resort Hotel, and copies were also made available.

During the Plenary Session on the 3rd March, each of the nine resolutions was presented by its sponsor, and after discussion, voted upon. All resolutions were approved, numbers 2000-2 through 2000-7 and 2000-9 passed unanimously. Resolutions 2000-6 and 2000-7 had been previously endorsed by the VII Latin American Reunion of Sea Turtle Specialists, and the former was also endorsed by WIDECAST. There was discussion on Resolutions 2000-1, and 2000-8, and friendly amendments to Resolutions 2000-4, 2000-5, and 2000-9.

In addition, a resolution was proposed from the floor, and given the extenuating circumstances and importance of the issue, it was permitted and passed. With this final resolution, 2000-11, a total of eleven proposals were presented, of which ten were approved.

The following is a compilation of the resolutions that were approved by the Symposium Membership. They are submitted for publication in the Marine Turtle Newsletter at the invitation of the editors.

Symposium Resolution 2000-1 Resolution on Hawksbill Sea Turtles and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Whereas in 1999 two proposals were presented to the CITES Secretariat to downlist hawksbill sea turtles (Eretmochelys imbricata) encountered in Cuban waters from Appendix I (where international trade is banned) to Appendix II (where international trade is permitted), for the purpose of re-opening international commercial trade in hawksbill products, namely tortoise shell;

Whereas these proposals will be voted upon at the next CITES Conference of Parties in April, 2000 in Nairobi, Kenya;

Whereas in 1975 and 1977, respectively, the Atlantic and later the Pacific populations of hawksbill sea turtles were listed in Appendix I of CITES;

Whereas in 1996 the IUCN reclassified the hawksbill sea turtle from Endangered to Critically Endangered on the international Red List of Threatened Animals;

Whereas during the 1997 CITES Conference of the Parties in Harare, Zimbabwe, the IUCN reclassification was challenged;

Whereas in 1999 the IUCN/SSC Marine Turtle Specialist Group reviewed the reclassification and concluded that the hawksbill sea turtle does meet the IUCN Red List criteria for a Critically Endangered species on the basis of global population declines of 80% or more during the last three generations (105 years) and projected declines over the next three generations;

Whereas the Justification for the reclassification (Published in the peer-reviewed Journal, Chelonian Conservation and Biology) concurs with the conclusion of a global review sponsored by CITES of the status of hawksbills (Groombridge and Luxmoore 1989) that hawksbill populations are depleted or declining in 56 of 65 geopolitical units for which some information on nesting density was available;

Whereas the Justification for the reclassification reports hawksbill populations to be depleted or declining in 22 of 26 geopolitical units in the Caribbean Region, for which some status and trend information is available;

Whereas only five regional populations remain with more than 1000 females nesting annually (Seychelles, Mexico, Indonesia and two in Australia);

Whereas overexploitation, habitat destruction and illegal trade are the major causes of reported population declines;

Whereas international trade has been identified as the principal cause for the endangered status of the hawksbill;
Whereas there is no indication that serious and pervasive threats to coral reefs and other critical habitat in the Caribbean Region have been reduced;  
Whereas hawksbills on foraging grounds in Cuba have been shown by genetic studies to be derived in many cases from nesting beaches elsewhere in the Caribbean, and harvest in Cuba is therefore likely to undermine the conservation efforts of those countries; and

Whereas the hawksbill sea turtle still meets the CITES biological criteria for inclusion in CITES Appendix I (see Annex 1);

It is resolved by this Symposium that:
The hawksbill sea turtle is a Critically Endangered species which has lost more than 80% of its population worldwide;  
The hawksbill population is depleted or declining in the great majority of the geopolitical units in the Caribbean region;  
The hawksbill sea turtle meets the criteria for inclusion in CITES Appendix I;  
Re-opening international commercial trade in hawksbill products may threaten the recovery of depleted or declining populations of hawksbills worldwide, by encouraging stockpiling of products in the hope of selling them legally or illegally in the future; and

The CITES Secretariat be asked to distribute this resolution to all CITES Parties.

Annex 1: CITES Biological Criteria for Appendix I
A species is considered to be threatened with extinction if it meets, or is likely to meet, at least one of the following criteria:
A. The wild population is small, and is characterized by at least one of the following:
i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or
ii) each sub-population being very small; or
iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or
iv) large short-term fluctuations in the number of individuals; or
v) a high vulnerability due to the species’ biology or behaviour (including migration).
B. The wild population has a restricted area of distribution and is characterized by at least one of the following:
i) fragmentation or occurrence at very few locations; or
ii) large fluctuations in the area of distribution or the number of sub-populations; or
iii) a high vulnerability due to the species’ biology or behaviour (including migration); or
iv) an observed, inferred or projected decrease in any one of the following:
- the area of distribution; or
- the number of sub-populations; or
- the number of individuals; or
- the area or quality of habitat; or
- reproductive potential.
C. A decline in the number of individuals in the wild, which has been either:
i) observed as ongoing or as having occurred in the past (but with a potential to resume); or
ii) inferred or projected on the basis of any one of the following:
- a decrease in area or quality of habitat; or
- levels or patterns of exploitation; or
- threats from extrinsic factors such as the effects of pathogens, competitors, parasites, predators, hybridization, introduced species and the effects of toxins and pollutants; or
- decreasing reproductive potential.
D. The status of the species is such that if the species is not included in Appendix I, it is likely to satisfy one or more of the above criteria within a period of five years.

Symposium Resolution 2000-2 Resolution on the Archie Carr National Wildlife Refuge
Whereas the beaches of the Archie Carr National Wildlife Refuge host the second most significant nesting area for loggerhead sea turtles in the world, one of the most significant nesting areas for green sea turtles in North America, and an increasingly important nesting area for the leatherback sea turtle;

Whereas the Carr Refuge, 10 years after its designation by Congress, is still only about 60% complete, and beachfront lands within the refuge are rapidly being sold for development;

Whereas the Carr Refuge was established to provide protection for the highest concentration of sea turtle nests in the United States;

Whereas local and state governments and private foundations have provided more than $80 million for the acquisition of land in and around the Carr Refuge and the Federal Government has only contributed $10.8 million thus far and;

Whereas the Congress has failed for 2 years in a row to provide any additional funding for land acquisition within the Carr Refuge;
Therefore be it resolved that the 20th Annual Symposium on Sea Turtle Biology and Conservation; urges the US Congress to appropriate at least $6 million, as requested in the President’s FY 2001 budget, toward acquisition of land for the Archie Carr National Wildlife Refuge.

Symposium Resolution 2000-3 Resolution on the Need to Assess the Magnitude of and Reduce the Incidental Capture of Marine Turtles by Pelagic Longline Fisheries Worldwide

Whereas commercial pelagic longline fisheries occur in oceans worldwide;

Whereas a significant increase of pelagic longline fisheries has occurred since the 1993 United Nations moratorium on pelagic drift nets;

Whereas the pelagic longline fishing technique consists of a continuous mainline supported by float lines, with regularly spaced leaders each of which end with baited hooks;

Whereas each mainline is hundreds of meters long, with thousands of baited hooks which may be set at shallow, mid-water and deep depths, across large marine areas where fish and other marine wildlife aggregate, notably between currents along frontal zones;

Whereas billions of hooks are currently being used to fish the world’s oceans;

Whereas pelagic longline fishing has been scientifically shown to be a fishing technique capable of causing the destruction of commercially valuable fish as well as non-target fishes, birds, sharks, marine turtles and marine mammals;

Whereas marine turtles occur in oceans worldwide, are often aggregated between currents along frontal zones where commercial fisheries operate, marine turtles disperse and migrate over vast distances, and thus are shared resources among many nations;

Whereas all marine turtles are at severe risk of extinction;

Whereas each year an estimated tens of thousands of marine turtles are captured worldwide in the lines of and or by the hooks of pelagic longlines and this number has not been adequately quantified;

Whereas the incidental capture of marine turtles by pelagic longlines routinely results in injury and or death to each turtle hooked or entangled;

Whereas the incidental capture of marine turtles by pelagic longline fisheries is impeding the recovery of marine turtle populations worldwide, has contributed significantly to the decline and near extinction of several populations, and thus undermines the decades-long conservation efforts undertaken by many nations;

Whereas no gear/technological solution currently exists to mitigate the incidental capture of marine turtles by pelagic longline fisheries;

Whereas in 1999 the United Nations Food and Agriculture Organization’s (FAO) Committee on Fisheries (COFI) recognized the adverse impact of pelagic longline fishing on seabirds worldwide and in an effort to significantly reduce the incidental capture of seabirds in longline fisheries worldwide, developed the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds);

Whereas each member nation of COFI has agreed to develop a National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (NPOA-Seabirds) that will require mitigation measures to decrease the incidental catch seabirds;

Whereas some mitigation measures proposed to reduce seabird catch in longline fisheries might possibly increase marine turtle-longline fishery interactions;

Now, therefore, be it Resolved by this Symposium that,

1. Within the next year, the United States Department of State, National Marine Fisheries Service, and Fish and Wildlife Service should take the lead, in collaboration with other interested nations and organizations, to assess the magnitude of the incidental capture of marine turtles in pelagic longline fisheries worldwide.

2. Within the next year, the United States Department of State, National Marine Fisheries Service, and Fish and Wildlife Service should take the lead, in collaboration with other interested nations and organizations, to develop, organize and host a meeting to discuss multilateral agreements to mitigate the incidental catch of marine turtles in pelagic longline fisheries worldwide.

3. The FAO-COFI and all nations, particularly those that are developing a NPOA-Seabirds, should be advised that the incidental capture of marine turtles by longline fisheries is a serious threat to their long-term survival in our world’s oceans and thus technological solutions proposed to reduce the incidental capture of seabirds in longline fisheries must not increase marine turtle-longline fishery interactions.

4. The FAO-COFI should immediately consider developing an International Plan of Action for Reducing Incidental Catch of Marine Turtles in Longline Fisheries, fully integrated with similar initiatives focused on other species, such as the IPOA-Seabirds.
Symposium Resolution 2000-4 Resolution on the Urgent Need to Reduce Trawling Related Mortality of Olive Ridley Sea Turtles on the Orissa Coast, India – March 2000

Considering that unregulated mechanised trawl and gill net fishing has resulted in large-scale annual mortality of olive ridley sea turtles with more than 50,000 dead turtles counted along the Orissa coast in the past five years; and

Considering that nearly 10,000 dead turtles have been counted during the 1999-2000 season despite repeated assurances by the state government that there would be adequate patrolling of coastal waters and enforcement of existing laws for the prevention of turtle mortality; and

Considering that the number counted dead on the beach are only those turtles washed ashore and the total mortality is most likely to be much higher; and

Considering that mechanised fishing has also adversely affected the traditional and small scale fishing communities on the coast of Orissa, leading to statewide protests by these fisherfolk against mechanised fishing; and

Considering that there exists legislation, the Orissa Marine Fisheries Regulation Act (1982) and Rules (1983), which bans all mechanised fishing within 5 km of the coastline; and

Considering that no mechanised fishing is allowed within 20 km of the Gahirmatha coastline, which was declared a marine sanctuary by the Orissa Government in 1997; and

Considering that both the above laws are flagrantly violated by mechanised trawlers, due to the total lack off, or t best, poor enforcement and patrolling by the concerned government agencies; and

Considering that none of the mechanised trawlers operating in Orissa’s coastal waters are using Turtle Excluder Devices (TEDs) and thus continue to flagrantly violate the provisions of the Orissa Marine Fisheries Regulation Act, 1982 and the directions issued on 14.5.98 by the Hon’ble Court of Orissa in OJC No. 3128/ 94 (WWF India Vs. State of Orissa and Ors); and

Considering the fact that the olive ridley sea turtle enjoys the highest level of protection under the Indian wildlife laws since it is protected under Schedule I to the Wildlife Protection Act, 1972 as well as is listed under Appendix I to the CITES; and

Considering that, since 1983, there have been recommendations by leading Indian scientists, environmentalists, and government officials, as well as non-Indian experts for mechanized trawlers in Orissa to use TEDs;

It is hereby resolved that the Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation;

Entreat the Forest Department, Fisheries Department and Coast Guard to work together in Orissa to strictly enforce the ban on mechanised fishing within the Gahirmatha Marine Sanctuary and the 5 km nearshore fishing ban, both of which would drastically reduce sea turtle mortalities with immediate effect; and;

Request the Fisheries Department of Orissa to evolve a plan to ensure the use of TEDs by mechanised trawlers in Orissa coastal waters by no later than 2002; and;

Request the Fisheries Department of Orissa to safeguard the livelihood of the traditional country fishermen by enforcing the provisions of the Orissa Marine Fisheries Regulation Act, 1982 and rules framed thereunder which bans off shore mechanized fishing for a distance of 5 kms from the coast;

Strongly recommend that effective long term conservation strategies should involve all stakeholders including the Forest and Fisheries Department of the Government of Orissa, Non Governmental Organizations, Research Institutions and most importantly, the traditional coastal fishing communities, whose support and involvement would be crucial to the survival of the olive ridley and its marine habitat in Orissa.

Symposium Resolution 2000-5 Resolution on the Urgent Need to Review Coastal Development Plans in Order to Conserve Olive Ridley Sea Turtles as well as Critical Nesting Habitat for the Turtles and Other Endangered Species on the Orissa Coast, India– March 2000

Considering that mechanised fishing has also adversely affected the traditional and small scale fishing communities on the coast of Orissa, leading to statewide protests by these fisherfolk against mechanised fishing; and

Considering the fact that the olive ridley sea turtle enjoys the highest level of protection under the Indian wildlife laws since it is protected under Schedule I to the Wildlife Protection Act, 1972 as well as is listed under Appendix I to the CITES; and

Considering that, since 1983, there have been recommendations by leading Indian scientists, environmentalists, and government officials, as well as non-Indian experts for mechanized trawlers in Orissa to use TEDs;

It is hereby resolved that the Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation;

Entreat the Forest Department, Fisheries Department and Coast Guard to work together in Orissa to strictly enforce the ban on mechanised fishing within the Gahirmatha Marine Sanctuary and the 5 km nearshore fishing ban, both of which would drastically reduce sea turtle mortalities with immediate effect; and;

Request the Fisheries Department of Orissa to evolve a plan to ensure the use of TEDs by mechanised trawlers in Orissa coastal waters by no later than 2002; and;

Request the Fisheries Department of Orissa to safeguard the livelihood of the traditional country fishermen by enforcing the provisions of the Orissa Marine Fisheries Regulation Act, 1982 and rules framed thereunder which bans off shore mechanized fishing for a distance of 5 kms from the coast;

Strongly recommend that effective long term conservation strategies should involve all stakeholders including the Forest and Fisheries Department of the Government of Orissa, Non Governmental Organizations, Research Institutions and most importantly, the traditional coastal fishing communities, whose support and involvement would be crucial to the survival of the olive ridley and its marine habitat in Orissa.

It is hereby resolved that the Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation;
loophole in the Coastal Regulation Zone rules; and

*Considering* that the proposed off-shore crude oil terminal at Kantiagoda threatens the mass nesting ground at Rushikulya, which is the second largest in Orissa with 60,000 turtles nesting in 1996; and

*Considering* that the terminal has a capacity of 18 million metric ton per annum for giant oil tankers from the Gulf and other oil producing countries; and

*Considering* that the pipelines will be connected to Kantiagada village, which is virtually on top of the Rushikulya turtle mass nesting site; and

*Considering* that the Environmental Impact Assessment Report [interim], which was prepared by the National Institute of Oceanography of Goa, has not adequately addressed the presence of turtles in the area and has also ignored the fact that the seacoast off Rushikulya is a proposed marine sanctuary which is awaiting government notification; and

*Considering* that the report actually states that “sensitive and fragile ecosystems...are absent in the project area”, and briefly mentions the potential for crude oil spills: “in very rare events of tanker accidents or subsea pipeline rupture, large spill may occur”; and

*Considering* that the oil spill from a similar Single Buoy Mooring in Gujarat in 1999 has resulted in substantial damage to marine life and to marine ecosystems in the area: and

*Considering* that the mass nesting beaches at Rushikulya, where more than 60,000 turtles nested in 1996, enjoys no legal protection so far;

It is hereby resolved that the Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation:

*Request* the Government of India to review the Dhamra port project, subject the proposal to objective Environmental Impact Assessment and have the proposal passed through the proper channels of the Ministry of Environment and Forests; and

*Request* that since other sites for the construction of the port have been identified, these sites are objectively considered and evaluated as alternatives; and

*Request* the Government of India to reassess the Crude Oil Terminal at Rushikulya which threatens one of the most important nesting beaches of olive ridleys in Orissa.

**Symposium Resolution 2000-6 Resolution Regarding the Incidental Capture of Sea Turtles in Fisheries Operations**

The assembled members of the 20th Annual Symposium on Sea Turtle Biology and Conservation are concerned about the incidental capture of sea turtles and other marine species during fisheries operations.

*Recognizing* that sea turtle populations have declined globally in recent decades due to factors such as destruction and alteration of their habitats, over exploitation of their eggs and the killing of adult turtles.

*Considering* that in spite of the efforts of national and international agencies, government, and NGO’s in protecting nesting beaches, these populations continue to decline. It has been determined that fisheries activities with long-lining, gill nets, drift nets and trawlers are one of the principal factors of mortality for sea turtles.

*Recognizing* that it is of vital importance to investigate the extent of these fisheries operations in contributing to sea turtle mortality and the decline of these populations.

*Recognizing* that adequate technologies have been adopted for certain fisheries activities and have demonstrated that they reduce the mortality of sea turtles and other threatened marine species; however, these are not adequately implemented.

*Recognizing* that it is necessary to know the composition of the fauna which are incidentally captured in these fisheries in order to formulate an effective recovery and strategic management of sea turtles, according to the United Nations Convention on the Law of the Sea, the FAO Code of Conduct for Responsible Fisheries, the Inter-American Convention for the Protection and Conservation of Sea Turtles, and the Kyoto Declaration and Plan of Action and others.

This international community of sea turtle specialists and conservationists urge the governments and fisheries organizations to adopt the following actions to prevent this continual decline of sea turtles present in each of our countries:

(i) Implement the use of adequate technologies which have been proven to reduce the capture and mortality of sea turtles in fisheries operations;

(ii) Follow the existing laws and regulations regarding these various technologies;

(iii) Increase the collection and distribution of information to evaluate the impact that incidental capture has on sea turtles and other threatened species captured in fisheries operations;

(iv) Implement and strengthen research programs focused on evaluating incidental capture;

(v) To prevent the expansion of fisheries activities until more research has been conducted regarding the specific effects of these fisheries on sea turtles and other marine species;

(vi) We congratulate those nations who have adopted
the FAO Code of Conduct for Responsible Fisheries and urge those nations who have not adopted it to do so.

**Symposium Resolution 2000-7** Resolution on The Inter-American Convention for the Protection and Conservation of Sea Turtles

*Recognizing* that all sea turtle species of the Americas are considered to be in danger of extinction;

*Recognizing* that all sea turtle species have complex life cycles and that some of them require decades to reach maturity;

*Recognizing* that all sea turtle species migrate and disperse through the territorial jurisdictions of many sovereign states, as well on the high seas;

*Considering* that the Inter-American Convention for the Protection and Conservation of Sea Turtles is a unique international instrument that provides the necessary legal tools to protect marine turtles and the habitats upon which they depend;

*Considering* that the Reunion of Latin American Sea Turtle Specialists has resolved consecutively each year since 1996 to support the Inter-American Convention for the Protection and Conservation of Sea Turtles;

*Considering* that since 1996, through the initiative of the Reunion of Latin American Sea Turtle Specialists, the Annual Symposium on Sea Turtle Biology and Conservation has resolved each year to support the Inter-American Convention for the Protection and Conservation of Sea Turtles;

The Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation resolve:

*To congratulate* the governments of all the countries as well as, all the organizations and people who have supported international collaboration in the management and conservation of marine turtles in the Western Hemisphere, and in particular;

*To congratulate* the governments of Peru and Brazil for having deposited their respective instruments of ratification for the Convention with the Government of the Depositary country, Venezuela; and

*To congratulate* the Legislative Assembly, as well as the Presidency of the government of Costa Rica for having approved the ratification of said Convention, and respectfully request that the Office of Foreign Affairs of the Costa Rican government complete the administrative steps necessary to deposit its instrument of ratification with the Depositary country, as soon as possible;

*To congratulate* the National Congress of the Republic of Honduras for having approved Decree No. 101-99 in which “each and every part of the Inter-American Convention for the Protection and Conservation of Sea Turtles” is approved, and respectfully request the Government of the Republic of Honduras to facilitate the political as well as administrative steps to deposit their instrument of ratification as soon as possible;

*To congratulate* the Mexican Senate for having approved the ratification of the Convention, and respectfully request that the Presidency of the Republic and the Secretary of Foreign Affairs facilitate the political as well as the administrative steps to deposit their instrument of ratification as soon as possible;

*Request* the congresses and governments of the other signatory countries (Belize, Ecuador, Netherlands, Nicaragua, United States of America, and Uruguay) that still have not ratified the Convention, to ratify it as soon as possible, given the need to have a minimum of eight ratifications so that the Convention enters into force;

*Respectfully request* the governments of Brazil and Peru to continue working through diplomatic channels to encourage the remaining countries of the region to ratify the Convention rapidly;

*Respectfully request* the Venezuelan government to continue providing regional leadership, encouraging each one of the signatory governments to advance the corresponding administrative and political steps and depositing their respective instruments of ratification as soon as possible.

*Respectfully invite* other governments of the Americas to initiate the necessary steps to accede to this convention as soon as it enters into force.

**Symposium Resolution 2000-8** Resolution for Vieques Island, Puerto Rico

*Whereas*, Vieques Island is located east of Puerto Rico, and has been known to support habitats used by several species of sea turtle.

*Whereas*, the beaches of Vieques Island have been known as nesting habitats for *Dermochelys coriacea*, *Eretmochelys imbricata*, and *Chelonia mydas*.

*Whereas* the coastal shallow waters surrounding Vieques Island are composed of sea grass beds and coral reefs, which are feeding grounds and developmental habitats for *Eretmochelys imbricata*, and *Chelonia mydas*.

*Whereas*, since six (6) decades ago the US Navy has been using these habitats for military practices.

*Whereas*, the beaching of military vehicles on nesting habitats and live bombs are used on and off shore with targets on the beach and underwater.

*Whereas*, the military practices have polluted these habitats with uranium, and other contaminants.
Whereas, these activities are degrading critical habitat for these endangered species and will continue for at least three (3) years, if the Executive order of the President of the United States is implemented.

We, the participants of the 20th Annual Symposium on Sea Turtle Biology and Conservation resolve:
that military practices should cease immediately and the proper authorities be urged to declare the occupied territories of Vieques a wildlife refuge, natural heritage area or protected area, following the Culebra Island solution after bombing ceased in 1975.

Symposium Resolution 2000-9 Resolution to Support the Development of an Indian Ocean – Asean Region Agreement for the Conservation of Marine Turtles

Whereas marine turtles represent unique and valuable resources to the peoples of many nations, for material, economic, cultural, spiritual and other reasons;

Considering that marine turtles migrate and disperse over vast distances, living within the territorial waters of many different sovereign states;

Recognizing that because of this characteristic, normal to their life history, these animals are shared resources between many nations;

Considering that many populations of marine turtles have been depleted, and that these species are recognized in international and national laws as endangered species, requiring special attention for conservation actions;

Aware of the urgent need for international collaboration in the conservation of marine turtles;

Considering that the Indian Ocean basin hosts all but one of the seven living species of marine turtles, with major populations of certain species, of world importance;

Recognizing that this same area has experienced massive declines of marine turtles during the past century;

Concerned that the threats to marine turtles and their habitats throughout this region are many and diverse;

The Members of the 20th Annual Symposium on Sea Turtle Biology and Conservation hereby resolve to:
Congratulate the governments and organizations that supported and participated in the Consultation on Needs and Mechanisms for Regional Conservation and Management of Marine Turtles, held in Perth, Western Australia, from 19 to 22 October 1999;

Give special recognition to the Government of Australia for having hosted and organized this meeting;
Congratulate and thank the Government of Malaysia for its interest in hosting and organizing the next round of discussions towards an Indian Ocean and ASEAN Agreement for the Conservation of Marine Turtles;
Encourage all governments in the region, and other interested governments and organisations, to participate in and support this important initiative;
Request that inter-governmental agencies involved in the conservation and development of marine resources support the development of an Indian Ocean and ASEAN Agreement for the Conservation of Marine Turtles;
Request all the negotiating and consulting parties to develop an agreement that includes strong conservation measures to address the basic problems in marine turtle conservation, including coastal development, marine pollution, over-exploitation, and interactions with diverse fisheries;
Encourage the negotiating and consulting parties to develop multilateral mechanisms that encourage full compliance with the measures required for the conservation of marine turtles and their habitats.

Symposium Resolution 2000-11 Resolution for Conservation of Marine Turtles along the Atlantic Coast of West Africa

Aware that the populations of marine turtles frequenting the territorial waters and beaches of the Atlantic coast of Africa, from the Strait of Gibraltar to the Cape of Good Hope, including Macronesia, are seriously threatened;

Acknowledging the responsibility of the States for the conservation and wise management of marine turtle populations along the Atlantic coast of Africa;

Concerned by the harm caused to marine turtle populations along the coast of West Africa by the destruction of marine habitats, industrial fishing activities, trade, and other man-induced threats;

The members of the 20th Annual Symposium on the Biology and Conservation of Marine Turtles hereby resolve to:
Encourage the concerned States to continue their efforts to conserve marine turtles along the Atlantic coast of West Africa and to quickly sign the Memorandum of Abidjan proposed by the Bonn Convention on Migratory Species in May, 1999 in Abidjan, Ivory Coast.
BOOK REVIEWS

Year: 2000
Editors: Jon Hutton & Barnabas Dickson
Publisher: Earthscan Publications Ltd., London
Pages: 202pp
Price: £14.95

By the time this review appears, the CITES meeting of 2000 will have passed. Regardless of the decisions taken there on the Cuban turtle proposal, this book is highly recommended to readers of the MTN/NTM. CITES is an important but complicated convention and the consequences and value of listing species on its appendices are not always as straightforward as they appear. After reading this book, probably some will think that CITES needs a radical overhaul. One possibility discussed in Rowan’s chapter is that CITES should be subsumed under the Convention for Biological Diversity.

One of the problems is that CITES concerns only one threat to wildlife, that produced or potentially produced by trade. Loss of habitat is often a greater threat. What if CITES listing ameliorates one threat but exacerbates another? A lucid chapter by Sas-Rofles with case histories for rhinos, elephants, tigers and bears, brings out some of the dilemmas that can arise when there are multiple concerns.

Webb’s chapter compares the conservation of crocodilians and turtles and the operation of the IUCN crocodile specialist group (CSG) to that of the Marine Turtle Specialist group (MTSG). Although the CSG started out with a largely preservationist approach, it is now much concerned with conservation through trade. Webb suggests that the different approaches of these groups stem not so much from biological considerations, as from the aggressive nature of crocodilians compared to the more charismatic sea turtles. If crocodiles could be hugged and dressed up in clothes, then — it is implied — things might be different.

Crocodiles are also the subject of Kievit’s chapter. Here and elsewhere, it is suggested that progress in crocodile conservation was achieved despite rather than because of CITES. An error in this chapter is the statement that, at the Botswana meeting of the conference of the parties to CITES in 1983, Suriname withdrew its proposal to downlist green turtles. It was French Guiana that withdrew its proposal. The treatment of the Suriname’s proposal was more interesting (see MTN 1983, 25: 6-9). The Suriname proposal was very favourably received at this meeting. In the Plenary session it was approved by a vote of 43 in favour, 3 against, — contingent on the approval of the marking scheme by the standing committee. Given the positive sentiment at the Botswana meeting, the adjusted proposal was then expected go through easily by a postal vote. The problem was that, presumably for economic or political reasons, no delegates from Suriname were present at Botswana. Had the Surinamese been present to give assurances about their marking procedures, their proposal would probably have gone through alongside the Zimbabwe ranching proposal for Nile crocodiles, and the course of turtle conservation with respect to trade would have changed in 1983. One may speculate whether this would have been for the better or worse. As it turned out, resurgent preservationist sentiment reversed the favourable CITES voting in 1983, and Suriname’s proposal and its ranch subsequently foundered.

The chapters in this book are short and self contained; this leads to some redundancy in the explanation of the appendices to CITES. The number of references given in support of statements will be too few for some tastes. On the other hand this book is highly readable, and it is instructive, insightful and provocative; the contributing authors have extensive experience with CITES and wildlife. Although the value of conservation through sustainable use, and how that can be achieved, are prominent in this book, those with other views will also wish to examine a work that turns a strong and sometimes harsh light on the operation of one of our most important international wildlife conventions. Regardless of one’s approach, most will come away instructed and agree with Dickson that “if the 25 years of CITES has taught us anything, it should be that conservation policy is much more complex and involves many more different types of consideration than was originally assumed by CITES”.

Reviewer: N. Mrosovsky, Department of Zoology, University of Toronto, Toronto, ON M5S 3G5, CANADA
This small book from Nicholas Mrosovsky will probably please few people in the sea turtle conservation community, and probably annoy many. However, as in his earlier book, Conserving Sea Turtles (1983), Nicholas has successfully challenged some of the fundamental assumptions on which much sea turtle conservation is based. If, as he contends, the Emperor has no clothes, then we must re-think some approaches and strategies. At the very least, readers must re-examine their own assumptions and question some statements that have been uncritically accepted in the past. If science is a process of challenging results and interpretations, then this book is undeniably a useful contribution to the science of sea turtle conservation.

The book is clearly produced to be a discussion point in the current debate concerning Cuba’s proposal to export hawksbill shell to Japan. The first two chapters summarize the recent developments concerning hawksbills in CITES and draw attention to research activities conducted in the past by many workers that have subsequently been shown to be harmful or ineffective, such as turning turtles on their backs and headstarting. He contrasts researchers flexibility in these cases with their inflexible opposition to hawksbill use. In chapter three he begins to develop the meat of his argument, summarizing the Cuban proposal and pointing out that the current disagreements over appropriate management and conservation strategies for sea turtles stem from some basic differences in approach to conservation. In particular, there is wide disagreement about the quantity and kinds of information required to initiate conservation or management action.

In chapter four, Mrosovsky presents the most controversial part of his thesis, that in fact hawksbill turtles are not in any immediate danger of extinction. I can hear the gasp of horror and disbelief as you read this. How can anyone propose such an appalling deviation from accepted knowledge? Is he mad? Read the full chapter before you decide. I found myself in substantial agreement. It is difficult to propose or imagine a scenario in which this species will disappear from the world in any current time frame. The species has undoubtedly declined, and probably requires our diligent conservation attention, but it is not going extinct. Mrosovsky marshals an impressive array of data, much taken from the recent Chelonian Biology and Conservation special issue volume 3 No 2., to show that many populations of hawksbill turtle currently under study are clearly increasing, despite being subject to illegal harvest. Some may claim that he (and I also) do hawksbill conservation a disservice by stating this fact so broadly. But we cannot conduct science or conservation by suppressing information or distorting reality.

I found his discussion of the IUCN criteria for Red listing and figure 18., particularly useful, demonstrating clearly to me that the criterion of decline over long periods creates artifacts of critically endangered listing that are unrelated to either the actual status or the changes in a species numbers. The difficulty of balancing the reality of a decline from previous global abundance, with present low probability of extinction is a problem that the IUCN criteria have not yet solved.

In the closing chapters 5-8, Mrosovsky uses examples from conservation of other organisms, including white rhinos and crocodilians to argue that an experimental approach to limited harvest of hawksbill turtles is a reasonable experiment to conduct. While success is not certain, failure can be recognized at an early stage and mitigated. The concept that management can be ‘adaptive’, that is responsive to feedback from population monitoring, and that a conciliatory and inclusive approach to conservation will be more productive than a confrontational and exclusive approach, are basic mantras of the new paradigm of conservation through use.

The book has some flaws. Its organization is choppy and fragmented and the presentation is a one sided argument in a ‘stream of consciousness’ form. In some places the argument is disingenuous, ignoring past contention and debate and changes in perceived truth. For example, the past reliance of the Cuban program on fisheries models is oversimplified. Many of the points and interpretations made are idiosyncratic and contestable (such as growth and aging of hawksbills and interpreting DNA data), and I have no doubt that they will be contested. But, as we have come to expect from this thoughtful and deeply committed conservationist, buried in here are kernels of insight and analysis that will cause readers an uncomfortable moment of doubt
about their own ideas. Nicholas Mrosovsky has never been a comfortable commentator. Readers seeking comfort should avoid this book. But readers seeking a controversial, contrarian, and thoughtful look at an old problem from a new perspective may welcome its provocative approach and ruthlessly honest appraisal. It might not change your mind, but it will certainly make you think.

Reviewer: James Perran Ross, Florida Museum of Natural History, University of Florida Gainesville FL 32611, USA.

Title: Research and Management Techniques for the Conservation of Sea Turtles
Year: 1999
Editors: Karen. L Eckert, Karen A. Bjorndal, F. Alberto Abreu-Grobois, Marydele Donnelly
Publisher: IUCN/SSC Marine Turtle Specialist Group, Washington DC, USA
ISBN: 2-8317-0364-6
Pages: 235pp
Price: $25.00
Source: M. Donnelly, MTSG c/o CMC1725 DeSales St. NW Suite 600,Washington, DC 20036 USA (E-mail: mdonnelly@dccmc.org)

This is a must for every turtle worker’s bookshelf and more detailed instructions of how to obtain a copy were announced recently in this publication (Donnelly 2000: MTN 87:21). It is produced in softback with the acknowledged support of the World Wide Fund for Nature, Convention on Migratory Species, US National Marine Fisheries Service, Florida Co-operative Fish and Wildlife Research Unit and the Center for Marine Conservation.

It is an impressive volume which contains 42 peer-reviewed chapters authored by more than 100 individuals with a wealth of experience in the relevant fields. Information is provided on a host of issues in seven sections: Overview; Taxonomy and Species Identification; Population and Habitat Assessment; Data Collection and Methods; Reducing Threats; Husbandry, Veterinary Care, and Necropsy; and Legislation and Enforcement.

The manual achieves its goal in providing guidance for field researchers and conservationists and if widely distributed and used it will go a long way towards helping standardise methodologies, so allowing better comparison of data across temporal and spatial scales. If any criticism could be levelled at its content, it would be that because of the breadth of subject matter, it has been difficult for the authors to deal with their topics in as much depth as they no doubt would have liked. This was inevitable. The book has been designed so that, for almost any subject related to marine turtle biology and conservation, there is at least a starting point in a self contained chapter with its own reference section. In addition, great care has been made to make all authors easily contactable with address, e-mail, fax and phone number being present as part of the title for each chapter.

Translations of the manual to Spanish and French are in progress. These will be announced in this publication.

Reviewer: Brendan J. Godley (Co-Editor, Marine Turtle Newsletter)

Title: Pavilion Key: Isle of Buried Treasure
Year: 2000
Author: Greg Lewbart
Publisher: Kreiger Publishing Company, Malabar, Florida, USA
Pages: 200pp
Price: $18.50
Source: Kreiger Publishing, PO Box 9542, Melbourne, FL 32902, USA (Fax: +407 951 3671)

This was the first fictional sea turtle book I ever had the opportunity to read and this fact probably accounts for 90% of the pleasure I derived from the experience. It sees Florida Game and Fresh Water Fish Commission Officer Hal Noble on the trail of corrupt officials and marauders of endangered wildlife. In this case (it’s not his first!) he is fighting to protect a previously unknown nesting population of Kemp’s ridley turtles in the Ten Thousand Islands of Florida.

The book has been relatively well researched but tends to quote verbatim from any sources of turtle information used. The style of writing reminded me of animal-adventure novels I devoured as a child. However, before you rush out and buy this one for your favourite niece or nephew because they share your interest in turtles- THIS IS NOT A CHILD’S BOOK. To spice up the story line included is substance of fairly adult theme (sex and murder). In retrospect, I can’t help but feel that the book would have been better as a children’s book without these aspects.

Read it…..but don’t blame me!

Reviewer: Brendan. J. Godley (Co-Editor, Marine Turtle Newsletter)
Year: 1999
Editor: John A. Musick
Publisher: American Fisheries Society, Bethesda, Maryland, USA
ISSN: 0892-2284
Pages: 265pp
Price: $47.00
Source: AFS Publications Fulfillment, PO Box 1020, Sewickly, PA 15123, USA (Fax: +412 741 0609)

This is a nicely produced compact softback Proceedings of the Symposium, “Conservation of Long Lived Marine Animals” which took place at Monterey, California, USA on the 24th August 1997. Funding and support for the publication of the volume was provided by the David and Lucille Packard Foundation, Pew Charitable Trusts, US National Marine Fisheries Service, Office of Protected Resources, National Wildlife Foundation and Virginia Institute of Marine Science.

It is a collection of short yet detailed scientific reviews which were all subject to peer review. The conference was designed to bring together a wide range of biologists to compare and contrast the diversity of marine vertebrates which share life history traits such as longevity, slow growth and late maturity. This leads to discussion of large teleost and chondrichthyan fishes, marine turtles, seabirds and marine mammals. Each chapter is autonomous with its own reference section and although this may be an excellent first stop to any manager or biologist involved with marine turtles to sit down and start thinking about population modelling approaches, it is probably more for those specialising in the more mathematical-based aspects of ecology.

The three chapters which deal specifically with marine turtles are:

Chapter 1. Musick, J.A. Ecology and Conservation of Long Lived Marine Animals.pp1-7. This is largely an introduction/overview of the thinking behind the r-K continuum and sets the scene for the rest of the papers.


Reviewer: Brendan J. Godley (Co-Editor, Marine Turtle Newsletter)

NEWS AND LEGAL BRIEFS

This section is compiled by Michael Coyne. Please submit news and legal briefs regarding marine turtles to the MTN-online website <http://www.seaturtle.org/mtn/> or forward via e-mail to mtn@seaturtle.org with the subject header: MTN News and Legal Briefs. It is requested that a copy of original news sources be faxed to M.Coyne at +1 301 713 4384 or mailed to: 1305 East-West Hwy, Rm 9216, Silver Spring MD, 20902, USA.

Sea Turtle Sales on eBay Cause Fury

A conservation group is objecting to the sale of items made from endangered species, a practice that is already illegal, but still taking place on eBay. But poachers and collectors have been using the Internet to sell souvenirs made from the turtles. A Florida conservation group, Caribbean Conservation Corporation says it was outraged to find more than 50 sea turtle products for sale on eBay. The US Fish and Wildlife Service says it is satisfied with the progress eBay is making in educating its customers on the issue.
Source: CNN, January 18, 2000

Hundreds of Endangered Turtles Die on Indian Coast

Hundreds of endangered turtles have died on east India beaches …wildlife authorities said they were concerned extensive trawler fishing near the Digha coast could kill more turtles in the Bay of Bengal. Environmental groups in Calcutta said olive ridley turtles, protected under India’s Wildlife Protection Act, faced extinction in the next few decades because of trawler fishing. However, government officials said they were optimistic about their survival. Source: ENN - World Wire, February 18, 2000.
Sea Turtle Activists March on Texas Capitol

Sea turtle activists donning sea turtle costumes and rallying with a giant inflatable sea turtle took to the steps of the Texas State Capitol in Austin today. They are calling on Governor George W. Bush, a Republican presidential candidate, to create a Kemp’s ridley Marine Reserve to protect endangered sea turtles in Texas. The activists will also mourn the deaths of 450 sea turtles along the Texas coast in 1999, 96 of which were Kemp’s ridleys. Bush authorized state game wardens to enforce sea turtle protections, but the activists say that action was “too little, too late.” More sea turtles died last year in Texas than the 396 found dead in 1998, including record numbers of loggerheads and higher than average numbers of leatherbacks. Source: *Environmental News Service*, January 7, 2000.

Sea Turtle Web Site Wins Best in Europe Educational Award

Visitors to the EU sponsored SchoolNet website will find EuroTurtle listed as one of six environmental educational websites chosen as best in Europe: <http://www.exeter.ac.uk/telematics/EuroTurtle>. EuroTurtle - a Mediterranean sea turtle Biology & Conservation web site for Science and Education is based at the University of Exeter, UK, is a result of collaboration between the University, the Biology Department of Kingis College, Taunton and MEDASSET (The Mediterranean Association to Save the Sea Turtles). Set up in January 1997, the site is believed to be the first in Europe to be exclusively devoted to the conservation and biology of Mediterranean sea turtles. Source: *Press Release, MEDASSET*.

Record Number of Leatherback Sea Turtles Nested on Treasure Coast in 1999

A record number of leatherback sea turtles nested on the Treasure Coast last year, but turtle experts warn not to make too much of the rising numbers. One hundred and forty-three leatherback nests were spotted in Martin County last spring and early summer, up from the previous record of 107 nests in 1998. In St. Lucie County, 60 leatherback nests were counted by turtle monitors in 1999, up from 41 in 1998. Source: *Naples Daily News*, February 6, 2000.

Mexico Salt Factory Dead in the Water

Conservation groups celebrated a major victory when the Mexican government cancelled plans to build the world’s largest salt factory. The saltworks would have been built at Laguna San Ignacio, part of Mexico’s largest wildlife sanctuary. Source: *Environmental News Network*, March 3, 2000

Sea Turtles Wash up on Texas Shores

More than 30 endangered and threatened sea turtles have washed up dead or dying along the Texas coast in the past two weeks. The international conservation group Sea Turtle Restoration Project (STRP) says the deaths demonstrate the continued failure of Texas Governor George W. Bush, Republican candidate for President, to protect endangered species in his home state. One sea turtle was found with a hole drilled in its shell and green shrimp fishing net passed through the hole and tied in a knot. Another was found with its hind flippers missing and a rope tied around its front flipper. Many others were found missing flippers and heads, which STRP says indicates intentional violation of the Endangered Species Act. Five of the 30 stranded sea turtles were adult Kemp’s ridleys - the most endangered sea turtle in the world. Source: *Environmental News Service*, March 7, 2000

More Marine Life Dies; Blame Continues to Focus on Red Tide

US Animal rescuers rushed to keep up with a rising toll of dead manatees and sea turtles washing ashore in Collier County. A toxic algae bloom commonly called red tide is a possible culprit in at least some of the deaths of eight manatees found since January 4. It’s also suspected as the cause of death of 15 sea turtles found since Feb. 29, most of them around Marco Island, Goodland and the Ten Thousand Islands. Source: *Naples Daily News*, March 7, 2000

Shrimp-Turtle Trade Dispute Said Close To Accord

The United States is close to agreement with five Asian countries on helping them to avoid killing endangered sea turtles while shrimp fishing… say…diplomats, speaking before… the World Trade Organization’s Dispute Settlement Body (DSB). Source: *ENN - World Wire News*, January 18, 2000.
R&R for Beaky

“Beaky”, a highly endangered Kemp’s ridley sea turtle, recently arrived at SeaWorld in Orlando, Florida, for some rest and rehabilitation. The turtle was found stranded on the shores of Wales, UK. Source: *ENN - News Bytes*, December 14, 1999.

State Offers Reward to Protect Sea Turtles

In an effort to protect sea turtles during their peak mating and nesting season, Texas Parks and Wildlife law enforcement personnel are offering a reward of up to US$2,500 for information leading to the arrest and conviction of anyone who illegally takes, possesses or mutilates a sea turtle of any species. The US Geological Survey at Padre Island National Seashore recently reported 17 sea turtle strandings on the Texas coast. One loggerhead sea turtle was found stranded with a hole in the rear of the carapace and what appeared to be a piece of fishing net attached to it. One green turtle was found stranded missing both rear flippers and with a rope tied around the front flippers. Both have been sent to the National Marine Fisheries Service for forensic investigation.

As part of a broader review of commercial shrimping regulations this year, the department is considering possible changes that could improve shrimp management as well as protect sea turtles, including possible time and area closures. The department has been soliciting public input on these issues for more than a year and will present its shrimp management proposals to the commission for consideration at its May 31-June 1 meetings. Toll-free hotline, (800) 792-GAME, is open 24 hours a day for callers to anonymously report sea turtle violations or any other fish and game violations. Source: *The Daily News*, Galveston. 6 March 2000.

Aribada - 2000 in Gahirmatha Marine Sanctuary


**RECENT PUBLICATIONS**

This section is compiled by the Archie Carr Center for Sea Turtle Research (ACCSTR), University of Florida. The ACCSTR maintains the Sea Turtle On-line Bibliography: (http://accstr.ufl.edu/biblio.html).

It is requested that a copy of all publications (including technical reports and non-refereed journal articles) be sent to both:

1) The ACCSTR for inclusion in both the on-line bibliography and the MTN. Address: Archie Carr Center for Sea Turtle Research, University of Florida, PO Box 118525, Gainesville, FL 32611, USA.
2) The editors of the Marine Turtle Newsletter to facilitate the transmission of information to colleagues submitting articles who may not have access to on-line literature reviewing services.

Readers should note that the Umigame Newsletter of Japan can be contacted by e-mail: <bx102325@nifty.ne.jp> or <makotoi@tkc.att.ne.jp>.

**RECENT PAPERS**


MROSOVSKY, N., C. BAPTISTOTTE & M. H. GODFREY. 1999. Validation of incubation duration as an index of the sex ratio of hatchling sea turtles. Canadian Journal of Zoology 77(5): 831-35. (Univ. Toronto, Dept. Zoology, Toronto, ON M5S 3G5, Canada. E-mail: mro@zoo.utoronto.ca)


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ROSE, C. D., W. C. SHARP, W. J. KENWORTHY, J. H. HUNT, W. G. LYONS, E. J. PRAGER, J. F. VALENTINE, M. O. HALL, P. E. WHITFIELD & J. W. FOURQUREAN. 1999. Overgrazing of a large seagrass bed by the sea urchin *Lytechinus variegatus* in Outer Florida Bay. Marine Ecology Progress Series 190: 211-222. (Florida International Univ., Dept Biol, Univ. Park, Miami, FL 33199 USA. E-mail: crose01@fiu.edu)


STEYERMARK, A. C. 1999. Estimating the time between hatching and emergence from the nest of sea turtles: effects of ignoring water potential. Chelonian Conservation and Biology 3 (3): 521-22. (Dept. of Physiology, UCLA School of Medicine, Univ. of California, Los Angeles, CA 90095, USA. E-mail: asteyermark@mednet.ucla.edu)


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WEISLER, M. I. 1999. Atolls as settlement landscapes: Ujae, Marshall Islands. Atoll Research Bulletin 460: 51. (Dept. of Anthropology, University of Otago, P.O. Box 56, Dunedin, New Zealand. E-mail: marshall.weisler@stonebow.otago.ac.nz)

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WHITE, A., E. CAREY & P. DEAN. 1999. Report of a visit to Cay Santo Domingo, Cay Verde, and Cay Lobos. Bahamas Journal of Science 7(1): 40-44. (E-mail: CdrAWhite@aol.com)


WORK, T. & G. H. BALAZS. 1999. Relating tumor score to hematology in green turtles with fibropapillomatosis in Hawaii. Journal of Wildlife Diseases 35 (4): 804-7 (USGS, Biological Resource Division, National Wildlife Health Center, Honolulu Field Station, P.O. Box 50167, Honolulu, HI 96850, USA E-mail: thierry_work@usgs.gov)

WYNEKEN, J., G. H. BALAZS, S. K. K. MURAKAWA & Y. ANDERSON. 1999. Size differences in hind limbs and carapaces of hatching green turtles (*Chelonia mydas*) from Hawaii and Florida, USA. Chelonian Conservation and Biology 3(3): 491-95 (Dept. of Biological Sciences, Florida Atlantic University, 777 Glades Road, Boca Raton, FL 33431, USA. E-mail: jwyneken@fau.edu)
TECHNICAL REPORTS


TURTLE EXPERT WORKING GROUP. 1998. An assessment of the Kemp’s ridley (Lepidochelys kempii) and loggerhead (Caretta caretta) sea turtle populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409: 96 pp. (Copies may be obtained by writing: National Marine Fisheries Service, Miami Laboratory, Sea Turtle Program, 75 Virginia Beach Drive, Miami, FL 33149, USA)

THESES AND DISSERTATIONS

HERREN, R. M. 1999. The effect of beach nourishment on loggerhead (Caretta caretta) nesting and reproductive success at Sebastian Inlet, Florida. M.S. Thesis, University of Central Florida, Orlando, USA. 138 pp. (1330 Ponte Vedra Blvd., Ponte Vedra Beach, FL 32802, USA. E-mail: rherren@fdn.com)


KALB, H. J. 1999. Behavior and physiology of solitary and arribada nesting olive ridley sea turtles (Lepidochelys olivacea) during the internesting period. Ph.D. Dissertation, Texas A&M University, College Station, USA. 123 pp. (E-mail: heather@mail.bio.tamu.edu)

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The MTN-Online is produced and managed by Michael Coyne. Angela M. Mast translates and produces the Spanish edition, Noticiero de Tortugas Marinas with assistance from Roderic B. Mast, Christine Mittermeier and Ricardo Zambrano.

The opinions expressed herein are those of the individual authors and are not necessarily shared by the Editors, the Editorial Board, the University of Wales, or any individuals or organizations providing financial support.
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The remit of the Marine Turtle Newsletter (MTN) is to provide current information on marine turtle research, biology, conservation and status. A wide range of material will be considered for publication including editorials, articles, notes, letters and announcements. The aim of the MTN is to provide a forum for the exchange of ideas with a fast turn around to ensure that urgent matters are promptly brought to the attention of turtle biologists and conservationists world-wide. The MTN will be published quarterly in January, April, July, and October of each year. Articles, notes and editorials will be peer-reviewed. Announcements may be edited but will be included in the forthcoming issue if submitted prior to the 15th of February, May, August and November respectively. All submissions should be sent to the editors and not the members of the editorial board. A contact address should be given for all authors together with an e-mail or fax number for correspondence regarding the article.

Text
To ensure a swift turnaround of articles, we ask that, where possible, all submissions be in electronic format either as an attached file in e-mail or on floppy disc in Word for Windows 6.0 (or an earlier version of Word) or saved as a text file in another word-processing package. Should these formats not be suitable, authors should contact the editors to seek alternative arrangements. If internet access or compatible computer facilities are not available, hard copies of the article can be sent to the editors by mail or fax.

Scientific names should be italicised and given in full in their first appearance. Citations in the text should take the form of: (Lagueux 1997), (Hailman & Elowson 1992) or (Carr et al. 1974).

Tables/Figures/Illustrations
All figures should be stored as separate documents as Word 6.0, Excel 5.0, .bmp, .tif or .jpeg file. The editors will scan figures, slides or photos for authors who do not have access to such facilities. Tables and figures should be given in Arabic numerals. Photographs will be considered for inclusion.

References
The literature cited should include only references cited in the text and follow the following formats:

For an article in a journal:

For a book:

For an article in an edited volume:

Where there are multiple authors the initials should precede the last name except in the case of the first author:

All journal titles should be given in full.

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