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A Kemp's ridley sea turtle nesting at Padre Island National Seashore, Texas, USA (see Shaver *et al.* pp. 1-3). Photo by L. J. Shafer, National Park Service.

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Editors:

Brendan J. Godley & Annette C. Broderick
*Marine Turtle Research Group
Centre for Ecology and Conservation
University of Exeter in Cornwall
Tremough Campus, Penryn TR10 9EZ UK*

E-mail: MTN@seaturtle.org, Fax: +44 1392 263700

Online Editor:

Michael S. Coyne
*A321 LSRC, Box 90328
Nicholas School of the Environment and Earth Sciences
Duke University
Durham, NC 27708-0328 USA*

E-mail: mcoyne@seaturtle.org Fax: +1 919 684-8741

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Record 42 Kemp's Ridley Nests Found in Texas in 2004

Donna J. Shaver¹, Anthony F. Amos², Ben Higgins³ & Jody Mays⁴

¹National Park Service, Padre Island National Seashore, P.O. Box 181300, Corpus Christi, Texas, USA (E-mail: donna_shaver@nps.gov)

²University of Texas Marine Science Institute, P.O. Box 1267, Port Aransas, Texas, USA (E-mail: afamos@utmsi.utexas.edu)

³NOAA Fisheries, Southeast Fisheries Science Center, Galveston Laboratory, Galveston, Texas, USA (E-mail: ben.higgins@noaa.gov)

⁴US Fish and Wildlife Service, Laguna Atascosa National Wildlife Refuge, Los Fresnos, Texas, USA (E-mail: jody_mays@fws.gov)

A record 42 Kemp's ridley sea turtle (*Lepidochelys kempii*) nests were found on the Texas coast during 2004, between 5 April and 22 June. Of the 42 nests, 25 were located on North Padre Island (including 22 at Padre Island National Seashore [PAIS]), two on Bolivar Peninsula, two on Galveston Island, one near Surfside, three on Mustang Island, five on South Padre Island, and four on Boca Chica Beach (Figure 1).

From 1978 through 1988, a Mexico-USA experimental project was conducted to establish a secondary nesting colony of Kemp's ridley turtles at PAIS to help preserve this native species (Shaver 1990; Shaver & Miller 1999; US Fish and Wildlife Service and National Marine Fisheries Service 1992). Turtles in the project were hatched from eggs collected (approximately 2,000 each year) at the primary nesting beach at Rancho Nuevo, Tamaulipas, Mexico and incubated at PAIS. Hatchlings were "experimentally imprinted" to the beach at PAIS then head-started at the National Marine Fisheries Service (NMFS) Laboratory in Galveston, Texas. The turtles were tagged and released (within their first year) into the Gulf of Mexico or adjacent bays (Caillouet *et al.* 1995; 1997). Additionally, from 1989-2000, between 178 and 2,000 hatchlings per year were taken directly from Mexico as hatchlings, reared (head-started) at the NMFS Laboratory for 9-33 months, and released into the Gulf of Mexico off the Texas coast, with the expectation that these individuals, if imprinted on Mexican beaches, would return to nest in Mexico at maturity.

In 1986, the National Park Service began a nest detection patrol program on North Padre Island; this was the first systematic patrol effort conducted on the Texas coast. Beginning in 1999, patrols were initiated on some additional beaches on the Texas coast and these patrols have expanded. Today, systematic patrols of varying intensity are conducted during much of the nesting season (April through mid-July) on Matagorda Island, Mustang Island, North Padre Island, South Padre Island, and Boca Chica Beach (Figure 1). Nests were found during these patrols as a result of information provided by the public. Of the 42 nests found during 2004, turtle patrollers located 25 and beach visitors 17.

Overall, 46 Kemp's ridley nests were found in the USA during 2004. The four nests located outside Texas were discovered in northwest Florida, between 30 May and 24 June (Sandra Caches, Mark Nicholas, and Lorna Patrick, personal communication).

Records of Kemp's ridleys nesting on the Texas coast date back to the late-1940s (Carr 1967; Francis 1978; Hildebrand 1963; Shaver 1990; Werler 1951), but from then through the mid-1990's only in the region of one Kemp's ridley nest was documented every three years (Shaver & Caillouet 1998). During the last decade, the number of Kemp's ridley nests found on the Texas coast has increased (Shaver 1994, 1995, 1996a, 1996b, 1997, in press; Figure 2). Additionally, during the last 50 years, more confirmed Kemp's ridley nests have

been found at PAIS than at any other location in the USA (Shaver in press).

Documentation to date shows that 13 different individuals from the experimental project to establish a secondary nesting colony laid 23 nests in Texas. These nesters were identified from living tags, coded wire tags, PIT tags, and/or flipper tags. Three of these individuals were found nesting at PAIS and nearby on Mustang Island during 2004 and were recorded laying a total of four clutches of eggs (Figure 2). These three turtles had been hatched from eggs incubated at PAIS in 1986, 1987, and 1988. During 2004, the individual from the 1987 year class was documented nesting twice at PAIS, while the individuals from the 1986 and 1988 year classes were recorded nesting once on south Texas beaches.

Additionally, eight different individuals that had been taken directly from Mexico as hatchlings between 1989 and 1993 and head-started for 9-11 months at the NMFS Laboratory have also been recorded producing a total of nine nests in Texas. During 2004, three of these individuals (from the 1989, 1991, and 1992 year classes) were each documented laying one clutch of eggs on the upper Texas coast.

Nesting turtles were observed and examined for tags at 16 other nest sites (all in south Texas), but the 13 individuals that laid these clutches lacked tags linking them to the experimental imprinting and head-starting projects. Three of these individuals were documented nesting twice on south Texas beaches. Another was recorded nesting on South Padre Island on 26 April and at Rancho Nuevo on 23 May 2004. Nesting turtles were not seen at the remaining 19 nests, but hatchlings confirmed the species.

Kemp's ridley turtles often nest in aggregations called *arribadas*. It is possible that, as nesting numbers increase in Texas, we are starting to see indications of social nesting. The year 2004 was the first year when five or more nests were recorded on the Texas coast on two days. The first was on 22 May 2004, when six nests were found (including four at PAIS) and the second on 5 June 2004, when five nests were found (all at PAIS). Winds were out of the southeast at 30-40 km when nests were found on those two days.

Forty-one of the nests were found during nest deposition, but one was discovered at hatching on Mustang Island and thus incubated unprotected, *in-situ*. Eggs from the 32 Kemp's ridley nests found during deposition on North Padre Island and northward on the Texas coast were transferred to the incubation facility at PAIS. Eggs from the nine Kemp's ridley nests found on South Padre Island and Boca Chica Beach were transferred to a protective corral on South Padre Island. Emergence success (Table 1) for the 42 nests was 84.0%; median emergence success for nests from head-started (96.2%) and wild (94.4%) turtles did not vary significantly (Mann-Whitney Rank Sum Test in SigmaStat, $T=92.5$, $P>0.05$). From the 42 nests, 3,298 hatchlings were released on Texas beaches in 2004.

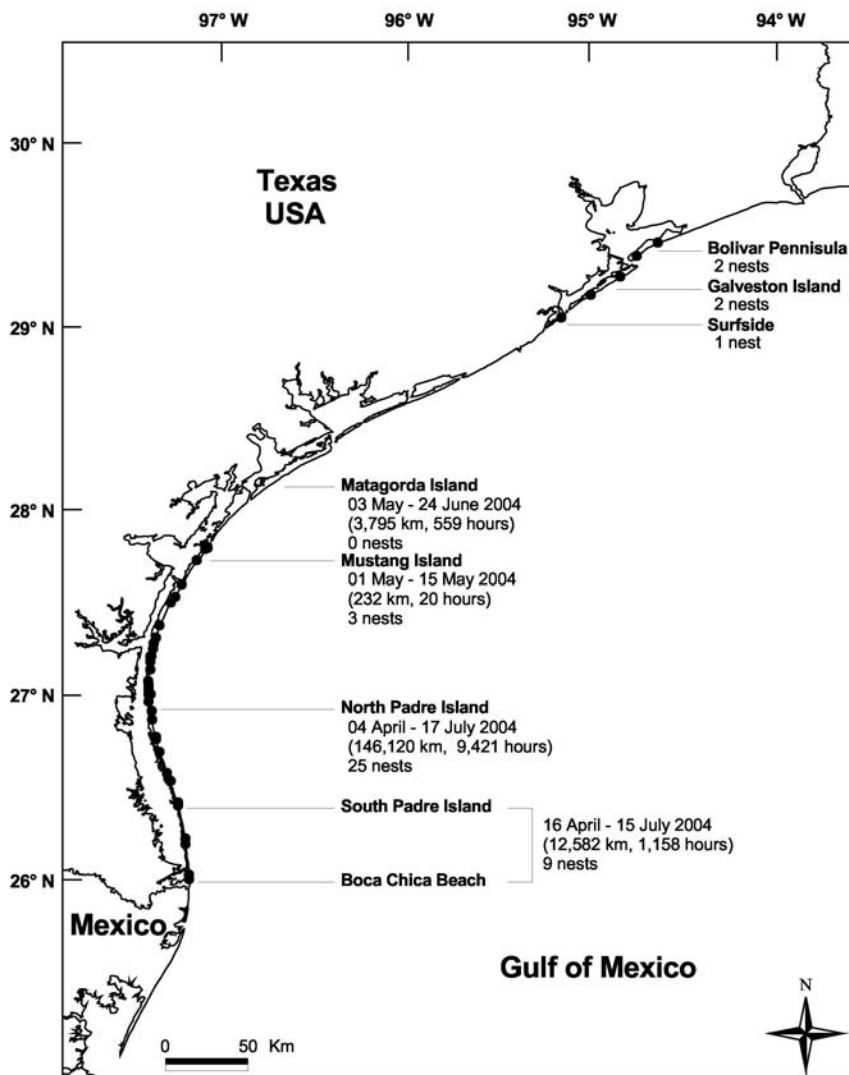


Figure 1. Map of the Texas coast showing areas and dates patrolled (patrol effort in parentheses) and confirmed Kemp's ridley nests located by the public or patrollers in 2004.

Kemp's ridleys that nest in Texas are a mixture of turtles from the experimental imprinting and head-starting projects and others from the wild stock. They could also include survivors (or their offspring) from hatchlings released in a project started at South Padre Island in 1967 (Francis 1978). As the Kemp's ridley population continues to increase (TEWG 1998) and more turtles from the egg translocation and captive rearing projects as well as their offspring reach maturity, it is likely that increasing numbers of Kemp's ridleys will come to Texas to nest.

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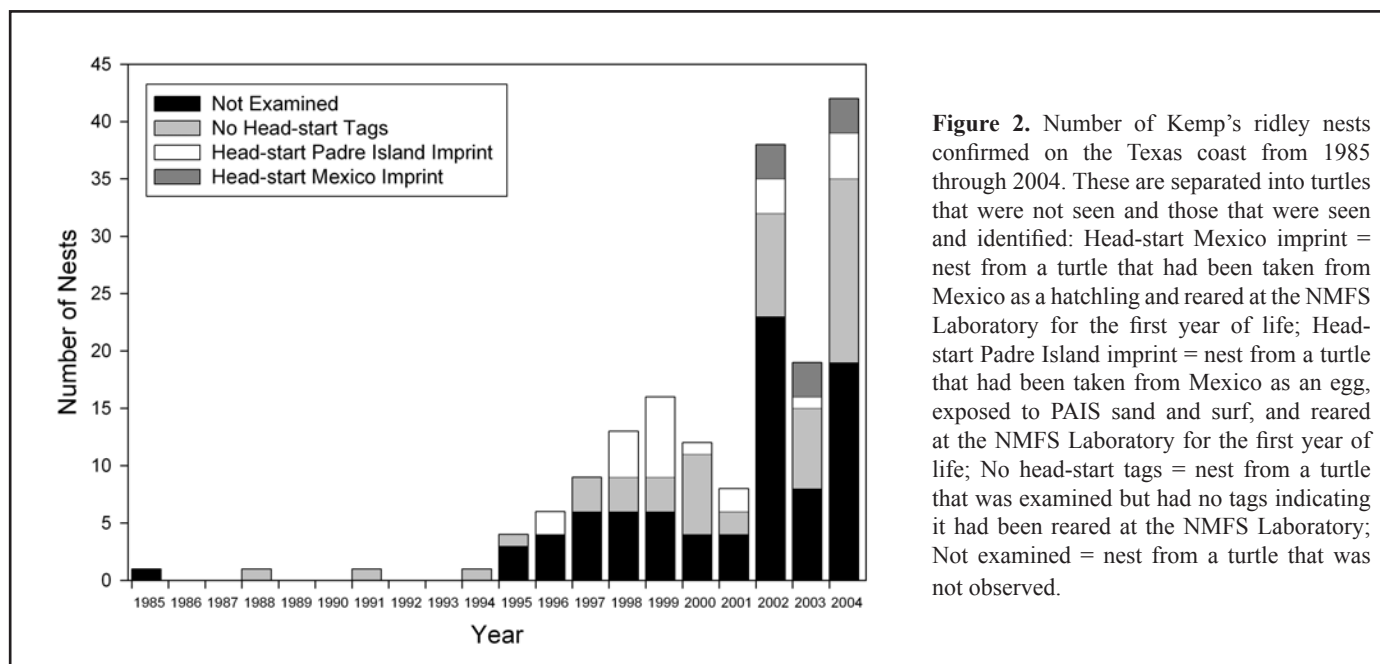


Figure 2. Number of Kemp's ridley nests confirmed on the Texas coast from 1985 through 2004. These are separated into turtles that were not seen and those that were seen and identified: Head-start Mexico imprint = nest from a turtle that had been taken from Mexico as a hatchling and reared at the NMFS Laboratory for the first year of life; Head-start Padre Island imprint = nest from a turtle that had been taken from Mexico as an egg, exposed to PAIS sand and surf, and reared at the NMFS Laboratory for the first year of life; No head-start tags = nest from a turtle that was examined but had no tags indicating it had been reared at the NMFS Laboratory; Not examined = nest from a turtle that was not observed.

<i>Clutch Number</i>	<i>Origin of Nesting Female</i>	<i>Number of eggs</i>	<i>Emergence Success (%)</i>	<i>Incubation Period (days)</i>
1	Head-start Mexico imprint	77	70.1	48
2	Head-start Mexico imprint	83	96.4	45
4	Wild	83	90.4	53
6	Head-start Padre Island imprint	105	96.2	48
7	Wild	117	100.0	48
8	Wild	112	96.4	47
10	Wild	91	96.7	44
11	Head-start Mexico imprint	99	96.9	45
16	Wild	87	95.4	45
18	Head-start Padre Island imprint	105	95.2	46
20	Wild	69	84.1	47
21	Head-start Padre Island imprint	102	97.1	45
22	Wild	96	42.7	48
26	Wild	83	88.0	49
27	Head-start Padre Island imprint	97	88.7	42
28	Wild	102	94.1	41
31	Wild	77	94.7	46
32	Wild	115	100.0	44
33	Wild	89	98.9	46
35	Wild	89	95.5	45
36	Wild	77	90.9	43
41	Wild	64	82.8	44
42	Wild	93	32.3	43

Table 1. Number of eggs, emergence success, and incubation period for 23 Kemp's ridley nests found on the Texas coast during 2004 at which the nesting turtles were seen and identified.

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Sea Turtle Strandings and Mortality in Ecuador: 1994-1999

Juan José Alava,^{1,2,3} Pedro Jiménez,^{2,4} Magali Peñafiel,¹ Windsor Aguirre,^{2,5} & Paola Amador²

¹Fundación Natura Capítulo Guayaquil, PO Box 09-01-11327, Guayaquil, Ecuador

²Fundación Ecuatoriana para el Estudio de Mamíferos Marinos (FEMM), PO Box 09-01-11905, Guayaquil Ecuador

³School of the Environment, University of South Carolina, 901 Sumter Street, 702G Byrnes Building, Columbia, SC 29208 USA
(E-mail: jalva@environ.sc.edu) ⁴ Inter American Tropical Tuna Commission (IATTC), Manta, Ecuador.

⁵Department of Ecology and Evolution, State University of New York Stony Brook. 650 Life Sciences Building. Stony Brook, NY. 11794. USA.

In the waters off Ecuador, including the Galapagos Islands, four species of marine turtles have been recorded: the leatherback turtle (*Dermochelys coriacea*), Pacific green turtle (*Chelonia mydas agassizii*), hawksbill turtle (*Eretmochelys imbricata*), and the olive ridley turtle (*Lepidochelys olivacea*). Nesting activity for leatherback, green and hawksbill turtles occurs along the continental Ecuadorian coast (Green & Ortiz-Crespo 1982), mainly in the Machalilla National Park, a protected coastal zone (Barragan 2003). In the Galapagos Islands, the Pacific green (also known as black) turtle is the only species that breeds and feeds there (Jackson 2001). Olive ridley turtles have not been observed nesting in mainland Ecuador or the Galapagos Islands (Green & Ortiz-Crespo 1982) although they are thought to forage in large numbers in the waters off Ecuador (NMFS & USFWS 1998). Detailed studies on the ecology and reproductive biology of leatherback and hawksbill sea turtles in Ecuador are lacking.

Mortality of marine turtles is linked to both natural causes and those associated to human activities (National Research Council 1990). The mortality associated with anthropogenic activities are diverse and it has been highlighted that more research is needed (National Research Council 1990).

Information on sea turtle mortality along the Pacific coast of South America is relatively scarce. Rueda-Almonacid (1992) documented a case of mass mortality in Pacific Colombia in 1990, where 100 green turtles, 10 olive ridleys and 14 non-identified specimens were found during a single coastal survey. In Peru, several species of sea turtles have been observed captured in different fisheries in the 1980s and 1990s (Alfaro-Shigueto *et al.* 2002). In the case of Ecuador, during the 1970s, an estimated 100,000-148,000 olive ridley turtles were slaughtered each year for consumption of meat and for the leather market in Ecuador (Carr 1984; Green & Ortiz-Crespo 1982). In 1999, more than 700 sea turtles were thought to have washed ashore dead in coastal Ecuador (Alava *et al.* 2002). Here we provide more detailed data on sea turtle strandings observed from 1994 to 1999, and give an extended analysis concerning the 1999 olive ridley mass mortality event in Ecuador.

From 1994 until 1999, different research groups collected data on stranded sea turtles found on continental beaches in Ecuador (Figure 1). During this period volunteer members of Fundación Ecuatoriana para el Estudio de Mamíferos Marinos (FEMM) patrolled several beaches in the northern and southern part of the Santa Elena Peninsula in Guayas Province (Figure 1), although between 1996 and 1998 the monitoring effort was reduced due to limited availability of human resources and was focused primarily in the southern part of Santa Elena Peninsula. In 1999, technicians of Fundación Natura (FN) and Programa de Manejo de Recursos Pesqueros (PMRC) also monitored several beaches located in Manabí (Bahía de Caraquez, San Vicente, Punta Napo

and Canoa) and Guayas provinces (Villamil Playas-Data) (Figure 1). Fisheries biologists from the National Fisheries Institute (INP) also carried out an extensive monitoring in August and September 1999 along the southern and northern part of the Ecuadorian coast from Esmeralda to Guayas provinces.

Sea turtles encountered on the beach were identified using FAO and IATTC identification keys, and their curved carapace lengths (CCL) and curved carapace widths (CCW) were measured. Excluding a few cases, the sex of individual turtles was not reported. In August 1999, an inter-institutional effort was carried out to collect samples for histopathology studies from dying or freshly dead turtles. Dissection and pathology analysis of one individual olive ridley recovered in a comatose condition was conducted by the Animal Pathology Department of the National Institute of Hygiene and Tropical Medicine (INHMT). Similarly, the Shrimp Pathology Department of INP analyzed samples from eight comatose olive ridleys caught and euthanized by INP biologists in Puerto Lopez (Manabí Province).

A total of 66 turtles were found by FEMM in August and November 1994 between Chanduy and Montañita, whereas from the monitoring carried out by the same institution in February, April, September and December 1995 between Data de Villamil and San Jose a total of 131 turtles were registered (Figure 2). During 1994 - 1995, mean curved carapace length (CCL) of olive ridley turtles was 65.9 cm (range: 53-78) and mean CCL of green turtles was 63.8 cm (27-75.5). In 1994 the FEMM recorded one live female green turtle trapped by artisanal fishermen for consumption at the Libertador Bolívar locality. From 1996 - 1998, 34 turtles were recorded, of which 26 were olive ridley turtles, seven were green turtles and one unidentified. Eleven stranded hawksbill turtles were found from 1994 to 1999. A leatherback turtle was reported on only one occasion by INP biologists in 1999. In the first two years of monitoring, a considerable number of animals were not correctly identified or remained unidentified (Figure 2) because of the poor condition of the carcasses and shells and the lack of experience of some of the volunteers. In subsequent years, the criteria for species identification were improved.

In 1999, there were several mass stranding events. In August 1999 between Playas and Montañita, FN and PMRC found 373 turtles. In September 1999, INP registered 740 turtles, at 65 points along the coast (Herrera *et al.* 1999). The majority of these strandings were olive ridleys (99%) with a few green turtles (1%) and the relative density was of 52.5 turtles/km. The mean CCL for olive ridleys during the mass stranding event was 60.0 cm (mean range: 57 and 63 cm). The majority of dead turtles in the mass stranding events did not exhibit discernable injuries or other external damage that might have suggested prior interactions with fisheries. Some individuals displayed a purple-reddish coloration as an erythematic

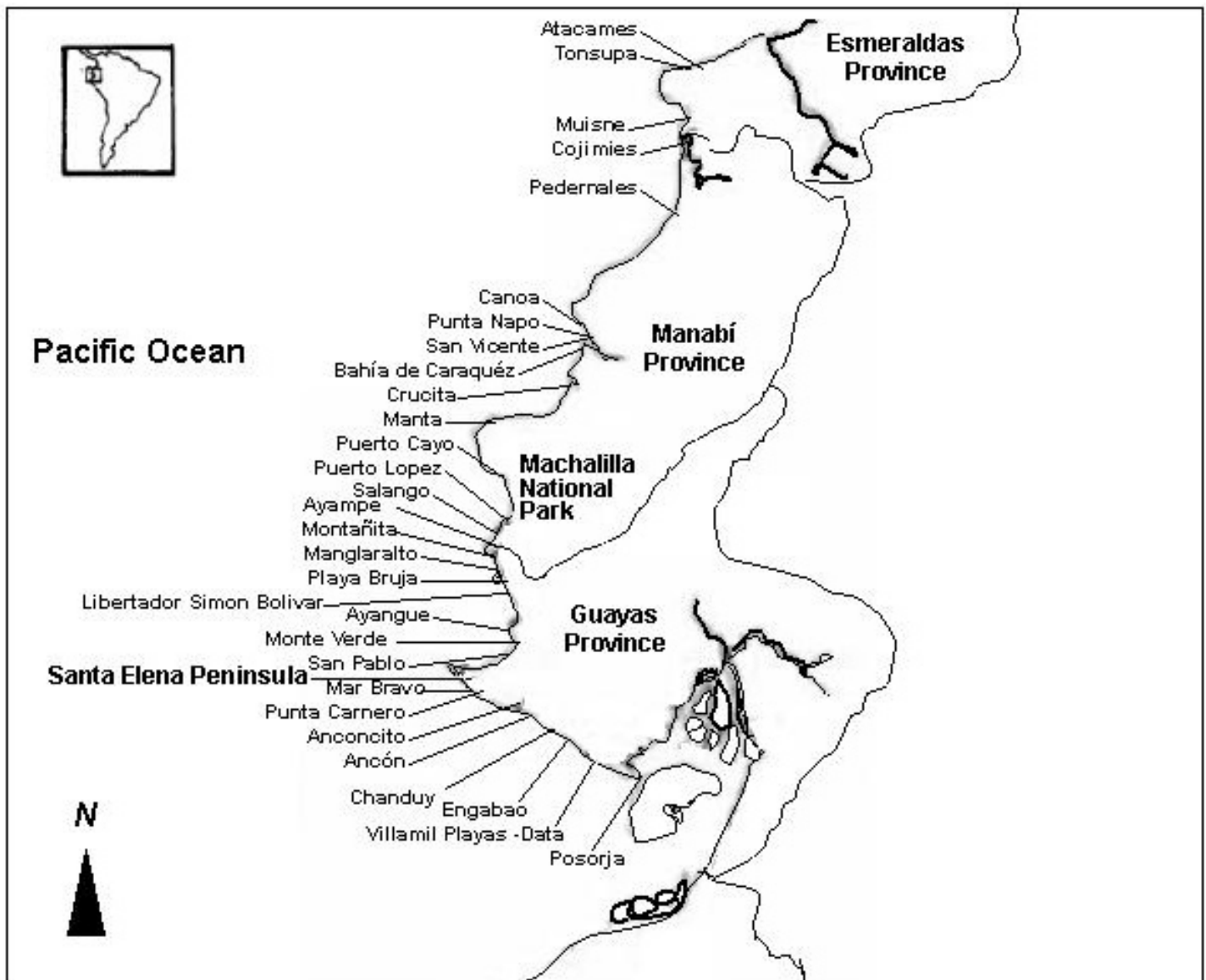


Figure 1. Ecuadorian continental coastal line showing the sites monitored.

condition over the plastron; this was observed in both carcasses and fresh organisms. Presence of barnacles (*Cirripedia*, *Chelonibia* spp.) as well as the loss of corneal or dermal plates similar to dysecdysis was also observed in a few individuals.

According to the dissection carried out by INHMT in a unique young olive ridley turtle caught alive, inflammatory reactions were observed as well as abscesses in the descending part of the oesophagus, causing stenosis. Faeces and intestinal mucus showed the presence of trematode eggs with characteristics of the family *Opisthorchiidae* (Francisco Ratti, pers. comm.). Nevertheless, it is probable that these were fluke eggs belonging to individuals of the family *Spirorchidae*, which are parasites that have been found in marine turtles and are associated with physiological stress and death (Wolke *et al.* 1982). Enteroparasitic protozoa (coccidium) was also observed in the faeces (Francisco Ratti, pers. comm.). Microbiological analysis at the INP pathology lab revealed vibrionaceae bacteria (genera: *Vibrio*, *Aeromonas* and *Pseudomonas*) in the blood (indicating septicemia) and

organs of the five olive ridley turtles trapped in Puerto Lopez. Fibropapillomatosis was not observed in any of the examined individuals.

Natural predation and environmental events influence the survival of sea turtles. They are also vulnerable to diseases and parasites and also to abiotic factors such as hurricanes and thermal stress (National Research Council 1990). However, quantitative events of mortality of marine turtles in nature are very few (National Research Council 1990). During the entire period of study, the most abundant species that has washed ashore along the Ecuadorian continental coast was the Pacific olive ridley, although green turtles, hawksbills and leatherbacks also occurred (Figure 2). This is different from the mass mortality event on the Pacific coast of Colombia, where the proportion of stranded green turtles was far higher (80.6%) than olive ridleys (19.4%) (Rueda-Almonacid 1992). Interestingly, Rueda-Almonacid (1992) also reported the presence of giant squid strandings around the same time as the sea turtle mortalities. On the other hand, Cornelius (1975) reported a

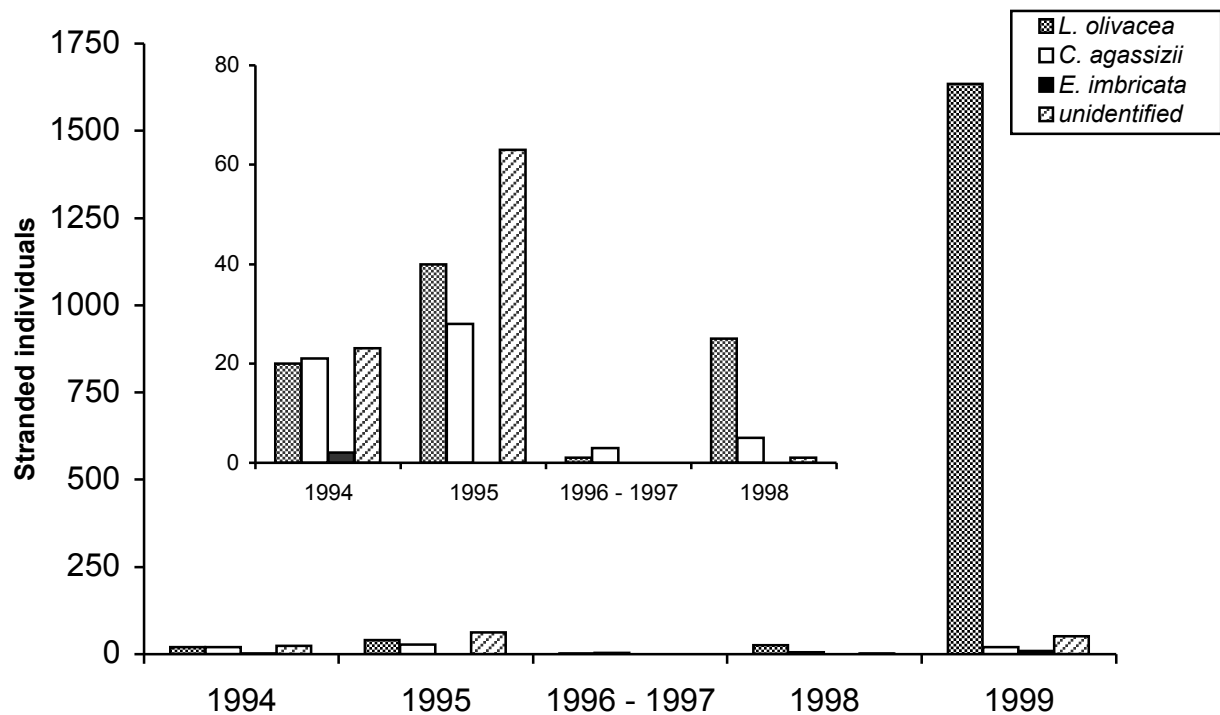


Figure 2. Strandings of sea turtles by species during the period 1994 - 1999. Records in the years 1996 and 1997 were negligible and opportunistic. In 1998, the monitoring effort was reduced. *D. coriacea* is not shown in the chart since only the remains of one specimen were found in 1999. A *L. olivacea* mass mortality event occurred in 1999 along the Ecuadorian coast.

similar sea turtle mass mortality event of lesser magnitude along the Pacific coast of Costa Rica in Central America in 1972.

The nesting beach origin of the olive ridleys found stranded in Ecuador is likely to be the Pacific coast of Mexico (Playa la Escobilla, Oaxaca), Costa Rica (e.g., Ostional, Nancite and Guanacaste beaches) and perhaps Colombia. Olive ridley turtles nest in tremendous numbers (“arribada”) in both Ostional and Nancite beaches, with the latter beach showing a current decrease in nesting (Pritchard 2003). According to Pritchard (2003), olive ridley turtles migrate to the southeastern Pacific after leaving those nesting grounds and reside in abundant numbers in waters off Ecuador. Thus, Ecuadorian waters may be considered a key foraging ground for not only adult but also immature olive ridley turtles (Carr 1984). The sizes of the stranded olive ridley turtles found on the Ecuadorian coast overlap with sizes reported for nesting females (60–70 cm) from the Pacific coasts of Mexico and Costa Rica (NMFS & USFS 1998), although smaller turtles (57.8–58.5 cm CCL) were also observed along the Ecuadorian coast.

The possible cause of sea turtle strandings and, particularly the olive ridley mass mortality is still a matter for speculation. The strandings may be linked to both natural causes and human activities. Among possible natural causes, thermal stress or hypothermia could be involved, due to the presence of cold currents, such as the Humboldt Current that was present at the end of 1999 with temperatures between 18°C and 22 °C (De la Cuadra *et al.* 1999). However, it is possible that surface and subsurface temperatures or thermal anomalies are not critical for olive ridley turtles (Jack Frazier pers. comm.). Another possibility is the presence of an epizootic event or outbreak (e.g. bacteria or virus) that affected

migratory olive ridleys in waters off Ecuador. Although bacteria of the family vibronaceae were found in blood and organs of five individuals, it is possible that this could have been a secondary infection or post-mortem occurrence. Vibrionaceae bacteria are a normal part of the marine bacterioplankton found in Ecuadorians waters (Roberto Jimenez, pers. comm.). On the other hand, sublethal low temperatures may lead to immunosuppression, which may facilitate bacterial infections in these animals. The case of stenosis and presence of abscesses observed in the oesophagus of one juvenile olive ridley is considered an isolated case since this was the only individual dissected by the INHMT, and this pathological finding was not observed in the sea turtles dissected by the INP pathology lab. However, this observation contributes to the record of pathologies that marine turtles suffer in the wild. Other natural events that play an important role in determining stranding patterns and subsequent detection on the beach are oceanographic currents, tides, winds, climatological conditions at the beach (temperature, wind, tide, precipitation), levels of predators on the beach, among others. These processes may contribute to variance in the proportion of turtle strandings recorded. Moreover, there is not a straightforward relationship between the number of stranded turtles observed on the beach and the number that actually died at sea (Epperly *et al.* 1996).

In terms of anthropogenic factors that may have contributed to the strandings, the presence of turtles with injuries and damage to the shell and head could indicate fishing interaction or by-catch with artisanal fisheries. Shrimp trawlers operate with a high intensity from Data Villamil and Playas to the west of Chanduy, and the zone of Puerto Lopez (Villón & Correa 1999). These zones

are close to or adjacent to the areas where the mass mortality of marine turtles occurred. More than 10 years ago, the US National Marine Fishery Service (NMFS) recommended to the Ecuadorian government that Turtle Excluder Devices (TEDs) be installed on trawlers in the Ecuadorian shrimp fleet. During an inspection carried out by NMFS in 2000, there was evidence that the majority of trawlers had TEDs installed. Unfortunately, there are no permanent or strategic TEDs inspections conducted on a regular basis.

In 2001, a national workshop in Ecuador defined, as one of its priority actions for sea turtle conservation, the identification of interactions of sea turtles with both artisanal and industrial fishing gear in Ecuadorian waters. Although the Ecuadorian government signed (December 1998) and ratified (October 2000) the Inter-American Convention for the Protection and Conservation of Sea Turtles, management strategies to ensure the use of TEDs, as well as fisheries regulations to control bycatch must be enforced in order to ensure the survival of sea turtles inhabiting the waters of Ecuador.

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Observations of Marine Turtles During Seismic Surveys off Bahia, Northeastern Brazil

Lívio Moreira de Gurjão¹, João Eduardo Pereira de Freitas¹ & Douglas Silva Araújo²

¹Instituto de Ciências do Mar da Universidade Federal do Ceará (LABOMAR/UFC), Grupo de Ictiologia Marinha Tropical (IMAT).
Av. da Abolição, 3207. Meireles. CEP 60165-081, Fortaleza-CE, Brasil (E-mail: livgurjao@yahoo.com, eduardojpf@hotmail.com).

²Grant Geophysical do Brasil Ltda. Rua da Glória, 306 – 6º Andar. Glória. CEP 20241-180. Rio de Janeiro-RJ, Brasil
(E-mail: douglas.araujo@grantgeo.com)

From January to May 2002, Grant Geophysical Inc. performed 2-D seismic surveys in transition zones off the coast of Bahia State, Brazil. The work was concentrated between Boipeba Island and Barra Grande Beach (Figure 1), where depths ranged from 12 to 55m. As part of the permitting requirements for this work, the company was required by the Brazilian Institute for the Environment and Natural Renewable Resources (IBAMA) to carry out an environmental monitoring programme while seismic activities were being conducted. This programme was subdivided into two parts, maritime and terrestrial monitoring.

Maritime monitoring consisted of recording surface observations of marine organisms from two boats, the gun boat (GB) and the environmental monitoring boat (EMB) - in each boat there was an observer equipped with a pair of reticule binoculars (red-lens compact Bushmaster 10x25 mm). The GB was responsible for shooting four 2200-PSI air guns, and the EMB for monitoring the operation boundaries. Both boats were required to halt the seismic

surveys whenever a turtle or a cetacean was observed <500m from the seismic source. While the operation was set, the EMB moved away from the surveying site to record the occurrence of marine organisms in the vicinity and/or place a third observer on land, who was responsible for monitoring the coastline. Once airguns started working, no boat, except the GB, could have its engine on near the surveying site, to avoid interference with the seismic data registering process (performed by a third boat). Hence, the EMB had to keep a distance of at least 1.0nm (ca 1.8km) from the shooting line during seismic surveys. Maritime monitoring lasted a total of 1225h, during 112 days, in the vicinity of three different sites: Boipeba Island, Pratigi Beach and Barra Grande Beach (Figure 1).

For terrestrial monitoring, about 6km of coastline were monitored daily. The location of the beach survey area was determined by the daily location of the seismic shooting line, and by the end of the study we had covered 85km of coastline. The objective of the beach surveys was to monitor for the presence of stranded marine mammals

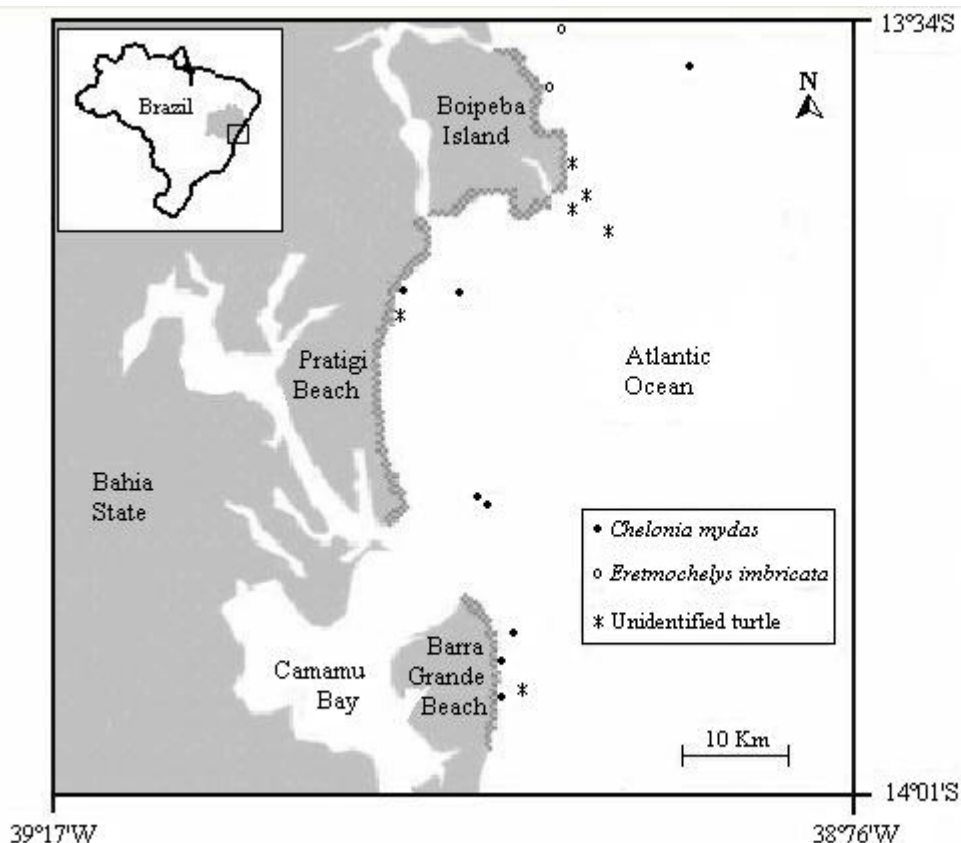


Figure 1. Observations of marine turtles in Bahia State. Dotted region represents the total area roamed in the terrestrial monitoring.

<i>Date</i>	<i>Species</i>	<i>Site</i>	<i>Biometry (cm): CCL, CCW</i>	<i>Observations</i>
14/3/02	<i>C. mydas</i>	13°42.8' S 38°59.2' W	36.0, 34.0	1,3,5
24/3/02	Unidentified	13°43.8' S 38°59.6' W	41.0, 38.0	1,5
13/4/02	<i>C. mydas</i>	13°56.0' S 38°55.8' W	61.0, 58.0	1,5
13/4/02	<i>C. mydas</i>	13°43.3' S 38°56.6' W	73.0, 70.0	2,4,6
24/4/02	<i>C. mydas</i>	13°55.1' S 38°55.8' W	43.5, 42.0	2,4,6
11/5/02	<i>C. mydas</i>	13°49.9' S 38°56.3' W	41.0, 39.0	2,4,6
14/5/02	<i>E. imbricata</i>	13°34.3' S 38°55.8' W	39.0, 35.0	2,4,6
14/5/02	<i>E. imbricata</i>	13°38.1' S 38°54.1' W	57.0, 51.0	1,5

Table 1. – Data from dead turtles found in Bahia State. CCL - Curved Carapace Length, CCW - Curved Carapace Width, 1 - advanced decay, 2 - recent death, 3 - mutilation marks (no head or front limbs), 4 - bruises, 5 - stranded on the beach, 6 - floating in the sea.

and turtles, hence, no sightings at sea were made during terrestrial surveys. Location and relevant information for each turtle found ashore were recorded.

We recorded the occurrence of 16 turtles during both maritime and terrestrial surveys, on 11 different days, not including turtle bones frequently found on the beaches. Of the 16 turtles observed (eight alive, sighted in the sea, and eight dead, four floating in the sea and four stranded ashore) those that we could identify were either green, *Chelonia mydas*, or hawksbill, *Eretmochelys imbricata*, turtles (Figure 1). Although five marine turtle species are known to occur in Bahia State (BDT 2004), our limited sampling window may have restricted our opportunities to observe all five species. Of the eight live turtles observed, three were *C. mydas* (sighted at distances varying from 6-8m from the EMB or GB, when airguns were turned off – distances were arbitrarily estimated by the observers) and five could not be identified to species due to long distances and/or very brief sightings. Of the eight dead turtles encountered, five had mutilation marks or bruises on their bodies, suggesting interaction with fishing activities and/or possible human consumption of turtle meat (Table 1). Near Pratigi Beach and Camamu Bay, shrimp trawlers were seen fishing daily in areas with large mud bottoms during the entire study period. This kind of fishery, together with long-lines and drift-nets for tuna and co-occurring species, are reported hazards for sea turtles in Brazil (Marcovaldi *et al.* 2002). Despite the extensive work of Projeto TAMAR-IBAMA for the conservation of Brazilian marine turtles (Marcovaldi & Marcovaldi, 1999), these chelonians continue to suffer negative impacts from a variety of threats (Bugoni *et al.* 2001; Marcovaldi *et al.* 2002).

Seismic surveys were never interrupted, since neither a turtle nor a cetacean was sighted $\leq 500\text{m}$ from the seismic source while airguns were turned on. This situation could suggest that turtles avoided the

noise produced by the airguns; unfortunately, we cannot confirm this statement because no such avoidance behavior was observed. For a wider discussion of this issue see Moein *et al.* (1994) and McCauly *et al.* (2000).

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Zakynthos Sea Turtle Odyssey – A Political Ball Game

Lily Venizelos¹ & Keith Corbett²

¹President, MEDASSET, 1 (c) Licavitou St., 106 72, Athens, Greece (E-mail: medasset@medasset.gr)

²Scientific Advisor, MEDASSET, 24 Park Towers, 2 Brick St., London W1J 7DD, UK

Nowhere are the political aspects of sea turtle conservation better illustrated than in the 25 year struggle to establish protection at the premier loggerhead rookery of the Mediterranean, Laganas Bay, on the Island of Zakynthos, Greece (see timeline below). The Island is located in the Ionian Sea off the north-west coast of the Peloponnese. In 1894, Werner provided the first written evidence that *Caretta caretta* used the sandy beaches for nesting. In 1977 modern nesting was recorded (Margaritoulis 1982). This paper provides a brief outline of the steps that shaped much of marine turtle conservation in Laganas Bay.

The Early Years – The First Steps

Turtle conservation in Laganas Bay got off to a bad start. Tourism had a head start, and while conservationists were becoming aware of the extent of turtle nesting, holiday accommodation and facilities were already being built on the land behind the beaches. From 1975 to 1980, tourist overnights on the island doubled (Arapis 1992) from 96,000 to 184,000. Ill-equipped and poorly organised conservationists had to face highly organised tourism from the beginning. Funding for nesting beach monitoring was not available until 1980 and the first environmental NGOs active in conservation only appeared in 1983. State-owned land along the beaches, as designated by the Inspectors of Public Property in 1966, was grabbed and illegally developed (Mission Report by Inspector of Public Property in the area ref. 252/23-9-66). A 1992 list by WWF cites 34 cases of illegal coastal construction on Laganas beaches (MEDASSET 1998; WWF 1992). By the time the full importance of Laganas Bay was revealed (Groombridge 1990) several nesting beaches of West Laganas had evolved into tourist hot spots. Intense lobbying by conservationists resulted in suspension of visits to the nesting beach on the islet of Marathonisi in 1987 and German tour operator TUI threatened a total boycott of Laganas Bay unless protection measures were implemented.

Thunder Grows into a Storm

A long saga of conflicting interests and policies, greed and political ineptitude ensued. Developers purchased land for the construction of a 3,000 bed luxury tourist village above the very important Sekania nesting beach (1993). This was called off after pressure by conservationists. Tensions became common between landowners and NGOs who lobbied for the creation of a National Marine Park (NMP). In 1994, WWF purchased land in Sekania for US\$ 2.6 million with private donations from around the world (75%), and European Commission (EC) funding (25%) via the Greek government. The Ministry of Environment (MoE) ordered a Special Environmental Study (SES) in 1991, prerequisite to the establishment of an NMP. It took six years for the study to be published (MEDASSET *et al.* 1999).

In 1995, landowners opened an illegal road to Sekania beach bypassing the WWF property, and several NGOs took legal action.

Violence flared with a bomb attack on the headquarters of the Zakynthos Ecological Movement (ZOK), ending their fervent and successful support for sea turtle conservation.

Under “Themis” (Ancient Greek Goddess Of Justice)

With much struggle and many bureaucratic delays, the legal structure for the conservation of Laganas Bay was put in place with a series of Presidential Decrees, Laws and Marine regulations. In 1995, the MoE promised the Bern Convention that the illegal buildings in Laganas Bay would be demolished (CoE Secretariat 1995b). With the resentment of the local population and their influence on the local authorities, together with the government’s awareness of political cost, implementation remained sadly lacking. In December 1998, the EC commenced infringement procedures against the Greek government, and European Structural Funds destined for the construction of a sewage system in the protected area were blocked (Dimopoulos 2001). Amidst the turmoil, the Greek State signed a Presidential Decree (Gov. Gazette –G.G.-No 906D/22-12-99) declaring the creation of the Zakynthos National Marine Park (ZNMP). After years of conflict, the conservation status of marine turtles in Laganas Bay seemed finally assured!

In 2002 the European Court of Justice (ECJ) found that Greece had failed to fulfil its obligations, and the EC declared that unless progress was made, they might revert to the ECJ requesting the imposition of punitive financial penalties on Greece (MEDASSET 2003).

Anticipation versus Apprehension

Three years of the ZNMP Management Agency have brought some small successes in habitat protection and public awareness (Dimopoulos 2001; Margaritoulis & Dimopoulos 2004), but decades of conflicting attitudes have been passed to the ZNMP Agency to solve. In 2004, local landowners were not compensated, illegal commercial buildings in Daphne and Kalamaki were operating on or near the nesting beaches and effluent from the biological treatment station still ended up in the Bay.

In March 2004, funds allocated by the MoE for 2003 had not been paid. As a result, the staff withdrew their labour. “The state of the nesting beaches became the worst since the Park began operating” (Margaritoulis & Dimopoulos 2004). The MoE, responsible for 40% of the Olympic venue constructions declared that they were too busy with the Olympics to discuss the problems of the ZNMP! (MEDASSET 2004). An EC source ascertained “all the money goes to the Olympics now” (Madden 2004a).

Daphne appears to be out-of-control. Neither Park employees nor conservationists are allowed in the area! The President of the ZNMP reported in 2001, “we cannot prohibit activities in Daphne although they are illegal” (Pantis 2001).

Despite 20 years of EC and Government funded research on the beaches, lack of detailed scientific data in the public domain

obscures conservation needs and prevents valued judgments for a detailed structured long-term management plan for the conservation and protection of the area. The situation at present does not promise that sea turtles will continue to grace the azure waters of the “Flower of the Levant” as Zakynthos was known in the 18th century.

Laganas Bay: Turtle Conservation Timeline

- 1894** First publication on sea turtle nesting in Zakynthos. (Werner 1894)
- 1977** First recent record of loggerhead nesting in Sekania. (Margaritoulis 1980)
- 1980** First Presidential Decree for the protection of marine turtles (Government, Gazette -G.G.- No 163A/18.7.1980). Research initiated by the Council of Physical Planning and the Environment.
- 1981** Second Presidential Decree (G.G No. 23A/30-1-1981) with enhanced protection measures.
- 1983** First comprehensive survey of the southern beaches of the Bay (Sutherland 1985). Sea Turtle Protection Society of Greece founded.
- 1984** Building and land use restrictions introduced (G.G No. 260D/13-4-1984).
- 1986** Zakynthos turtles first discussed at the Bern Convention Meeting (CoE Secretariat 1986).
- 1987** First Council of Europe (CoE) “on the spot” appraisal (CoE Secretariat 1987). Bern Convention Recommendation No. 9 to the Greek Government. Introduction of strict building codes. US\$423,000 allocated. Tour operator TUI threatens boycott of Laganas area. First coastguard patrol boat supplied for Laganas Bay.
- 1988** Paper to CIESM Meeting highlights lack of nesting data for comparative studies (Venizelos 1988). Establishment of Protected Marine Zones with 6 mph speed limit. Groombridge (1988) confirms Mediterranean importance of Laganas Bay nesting. MEDASSET, Mediterranean Association to Save Sea Turtles founded. First study of human impact on nesting turtles in Laganas Bay (Arianoutsou 1988).
- 1989** Second CoE “on the spot” appraisal (Corbett 1989). Arson in Sekania and Daphne.
- 1990** Establishment of an urban control zone for “Nature Protection” by MoE (CoE Secretariat 1995a; G. G. No.347/Δ/5-7-90).
- 1991** Special Environmental Study (SES) announced as prerequisite for the ZNMP. Building permit for Marathonisi islet revoked after conservationists’ lobbying.
- 1992** MoE petitioned with over 200,000 cards and letters from all over Europe.
- 1993** First ZNMP SES rejected and a second study announced. Survey of Tourist Awareness by UK group (Poland *et al.* 1995). Restrictions on night flights at Zakynthos Airport.
- 1994** MEDASSET official complaint of non-implementation of EC Directives, etc. (Complaint No. 94/4667 SG(94) A/15702). Sekania land purchased by WWF for 2.6 million US\$. Two arson attacks. Effective end to powered water sports in Laganas Bay.
- 1995** Secretary of State assures Bern Convention of the demolition of illegal buildings (CoE Secretariat 1995b). Illegal road opened to Sekania beach. ZNMP draft SES

presented to Zakynthians. Six fires proved to be arson at Vassilikos, Sekania and Kalamaki. European Parliament (EP) Question. Zakynthos Ecological Movement office bombed. Compensation for closing and demolishing illegal buildings paid in 1995/96. No demolitions.

- 1996** Zakynthos Prefect states “Ministry of Economy owns the Daphne land!” Government makes offer to Landowners of Daphni.
- 1997** Government assure the EC “satisfactory progress towards compliance”. MEDASSET appeals to the EU Ombudsman (ref. 1060/97/V). MoE approves ZNMP SES.
- 1998** EC tells MEDASSET “situation in Zakynthos is under control” with “positive measures” for the creation of the ZNMP. MEDASSET renews EU Ombudsman appeal. “On the spot” appraisal by the EC DG Environment (MEDASSET 1998). WWF highlights the lack of nesting data.
- 1999** Constitutional Court rejects attempts to reduce environmental protection. ZNMP Presidential Decree signed (G.G. No. 906D/22-12-99). EC infringement procedure for European Court of Justice (ECJ) case.
- 2000** Interim Management Board of the ZNMP established. Arson at Gerakas.
- 2001** Local authorities seize beach furniture. Laganas Mayor gives it back. ECJ indicts Greece for not adhering to the EC Habitats Directives. Arson at 4 ZNMP locations. Minister promises full compliance within 6 months.
- 2002** The ECJ finds that Greece failed to fulfil its EC obligations (Judgment of 30-1- 2002, Commission/Greece, Case C-103, European Court Reports 2002: 1147). Gunshots destroy erosion-monitoring station in Sekania ending research. UNEP visits to check Mediterranean Action Plan requirements. Government withholds ZNMP funds until end of peak nesting season. €2,551,819 given by EC for ZNMP spent on Laganas town sewage system. “On the spot” appraisal by Deputy Director-General of EC DG Environment. EC sets deadline before requesting ECJ punitive financial penalties (EC Press Release IP/02/1923 19.12.2002).
- 2003** ZNMP proposes compensation measures for Daphne. Deputy Environment Minister embargoes issue of building permits for six months. “On the spot” appraisal by Greek Head of EC Legal Affairs Unit. ZNMP Presidential Decree modified. 25 legal actions against ZNMP dismissed by the Constitutional Court. EP’s Petition Committee visits after two landowners complain of human rights abuse.
- 2004** ZNMP staff withdraw labour after having not been paid for 10 months (“*Zakynthos Daily News*”, 5-5-04). MoE announces in Parliament that sufficient funds are available (Parliamentary Minutes 20/5/2004). Conservation organizations launch petition campaign. Tens of thousands of signatures collected. MEDASSET appeals to the EU Ombudsman over denial of access to EC 2003 assessment report (Complaint No 2821/2004/OV). International Press and Television record condition of NMPZ (eg BBC TV World Service, BBC 2 TV). EC sends ‘Reasoned Opinion’ to Greece, final step before reverting to the European Court of Justice for punitive financial penalties (EC Press Release IP/04/1233 15-10-04). MoE announces payment of €90,000 to re-open the ZNMP: a minimum of €200,000 is required

just to pay the backlog in wages (“Athens News” 5-11-04). Greek response to the EC ‘Reasoned Opinion’ states: “sea turtle nesting areas are within government property.” (MoE reply ref 158961/5081 of 1-12-04). Government official in charge of land registration in Zakynthos is beaten up and hospitalised. Obsolete waste treatment plant pollutes nesting beaches and sea. Seminar “Protection of Sea Turtles” at the European Parliament. Zakynthos discussed at a European Parliamentary Intergroup meeting (Report of the 206th Session/15-12-05). Three written and one oral question on the protection status of the Laganas Bay sea turtles submitted at the EP between June and December. Two questions asked in the Greek Parliament.

2005 (February) Park remains out of action. Promised €90,000 still not received. Zakynthos MP asks question in the Greek Parliament. Articles still appear in the International Press.

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Hurricane Effects on Nesting *Caretta caretta*

James Perran Ross

Department of Wildlife Ecology and Conservation, University of Florida, Box 110430,
Gainesville FL 32611 USA (E-mail: rossp@wec.ufl.edu)

Passage of hurricanes over sea turtle nesting beaches in the SE USA during 2004 raised concerns about the effect of hurricanes on sea turtles. Data are lacking on this topic but in 1977, I collected data on effects of a hurricane on the large nesting aggregation of *Caretta caretta* at Masirah Island, Sultanate of Oman (21°N, 59°E). A key 10 km nesting beach for *C. caretta* lies on the eastern side of Masirah island, oriented north-south and exposed to the Indian Ocean. Research on the nesting beach at Masirah was initiated by World Wildlife Fund and the Oman Ministry of Fisheries in March 1977. A 3km section in the center of the beach was marked with stone and concrete cairns 1m high placed every 200 m. Nesting by *C. caretta* commenced in mid April and by 12th June data had been collected on numbers of turtles nesting, tagged turtles, renesting turtles and clutch size. Twenty-two nests were marked to estimate hatchling emergence success.

On the 13th of June 1977, an unnamed cyclone (= hurricane, typhoon) passed directly over Masirah Island. Sustained winds of 166 km.hr⁻¹ (90 knots, 103 mph) and gusts to 222 km.hr⁻¹ (120 knots, 138 mph) and heavy rain were recorded by the airport meteorological station. Strong winds blew from the north 02:00 - 08:30 hrs when the eye passed over, and from the south 09:15 - 11:00 hrs and then subsided to 15-20 knots. High seas and high tides preceded the storm on the 12th of June and waves were washing over the nesting area by evening. Heavy rain and storm surge completely inundated the whole nesting area for at least 12 hours during the storm. Examination of the beach on the 14th of June indicated incursion of waves from 80 - 100m inland of the normal high tide mark. I excavated across the beach to 1 m depth and observed that the whole beach surface to >1 m had been resorted with extensive sediment movement. Marker cairns at the north end of the beach were displaced and those at the south were completely buried. The beach profile changed from a steep intertidal area and elevated berm to a much flatter profile with extension seawards of about 50 m and extensive flooding and pooling of water at the back of the beach. Large quantities of previously-exposed sand were incorporated into nearshore sandbars.

The immediate effect of the storm was to inhibit (but not completely prevent) nesting. In the week before the storm an average of 55 turtles.km⁻¹ (range 20-94) came ashore per night and 78.8% of those nested. On the night of the 12th a single turtle came ashore and did not nest. On the 13th (after the storm) 27 turtles.km⁻¹ came ashore and 36% laid eggs. Mean density of turtles emerging estimated from track counts and confirmed by tagging was not significantly different in the 10 days before the storm (mean±SE 55±17 turtles.km⁻¹) and the 10 days after (98±64 turtles.km⁻¹; Wilcoxon's U test P>0.05), however there was a transient drop in nesting density on 12-14th June and then a transient rise to 150-240 turtles.km⁻¹ on 15-17th June. It appeared that turtles inhibited from nesting during the rough weather delayed nesting for a few days past their expected renesting interval. A single dead turtle was found on the 14th of June with a split carapace. Immediately before the storm, we 'rescued'

1-2 turtles per week that were disoriented and failed to return to the sea after nesting. In the week after the storm we rescued 3-5 turtles per day and suspect that the flatter beach profile caused increased disorientation. These turtles would likely have perished without our intervention but constituted a negligible mortality of the 30,000 turtles estimated to be present (Ross 1998).

All our marked nests and, as best we could establish by extensive excavation, 100 % of all nests in the beach on the 13th of June were destroyed by inundation or exposure. The timing of the storm occurred about 45 days after first nesting and immediately prior to expected first hatching and many destroyed eggs contained well developed embryos. The number of eggs per nest (mean ± 2SE) was not significantly different before (106.5 ± 6.9) and after (108.5 ± 12.7) the storm or different from the overall multi-year clutch size estimate for this population (107 ± 3). Site tenacity (distance between 2 consecutive nests) was calculated from nesting location of 87 tagged turtles that nested within 10 days either side of 13 June; 13 with two nests prior to the storm, 52 with a nest before and a nest after and 22 with two nests following the storm. Mean inter-nest distances were respectively (mean ± 2SE) 660m ± 250m, 890m ± 190 and 860m ± 190 and not significantly different. Turtles were apparently able to locate their preferred nesting area along the beach equally well before and after the storm.

Based on estimated numbers of turtles nesting in 1977, estimated nests per female and the proportion of the nesting season occurring before and after the storm, I calculated that around 43% of the eggs laid in 1977 were lost due to the hurricane. This roughly extrapolates to 6.9 million eggs or about 276 metric tonnes of eggs destroyed in the 1977 season. Studies of hatchling emergence success completed in 1977 after the storm and in 1978 showed no obvious difference in the total survival (live hatchlings emerging) or distribution of failed eggs and nests due to different causes. Overall, 'normal' hatchling emergence success of *C. caretta* at Masirah in 1977-1978 was 24% (Ross & Barwani 1981; Fig. 5 therein). Continued study and monitoring of nesting at Masirah 1978-1986 showed population fluctuations (Ross 1998) but no obvious signal that can be attributed to reduced hatchling production in 1977.

Within two months, wave action associated with the SW monsoon restored most of the beach to its previous steep profile. An exception was an area 2 km south of the beach where the displaced sediments that formed sandbanks immediately offshore impeded wave action. This section retained the flat post-storm profile which resulted in reduced nesting densities (estimated by weekly track counts of 40-60 turtles.km⁻¹.night⁻¹) compared with the rest of the beach (often exceeding 100 turtles.km⁻¹.night⁻¹, Ross 1998). Turtles apparently avoided this low profile. Beach profile may be an important component of preferred nesting beaches (Stanczyk & Ross 1978) that can be affected by hurricanes.

The effect of this severe hurricane on *C. caretta* nesting at Masirah Island in 1977 was transient disturbance of nesting and loss of eggs laid before the storm. However, adult fecundity, nesting

periodicity, and nest site location were not changed and adult mortality was negligible. The majority of the nesting beach quickly returned to its normal structure and profile. The wide distribution of sea turtle nesting beaches throughout the tropical zone subject to severe storms suggests that these are a normal and passing disturbance to nesting sea turtles to which they are well adapted.

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Loggerhead Turtles in the Dalyan River, Muğla Province, Turkey, 2004

Markus Keller

Aktionsgemeinschaft Artenschutz e.V. (AgA), Tulpenstrasse 1, 70825 Korntal-Münchingen, Germany
(E-mail: buero@aga-international.de)

The most common species of marine turtle in the Mediterranean Sea is the loggerhead turtle (*Caretta caretta*). It is well known that loggerhead turtles enter rivers and estuaries on a regular basis throughout the world. These marine turtles, especially juveniles and sub adults, use lagoons, estuaries and bays as feeding grounds (Dodd 1995) such as the Indian River Lagoon in Florida (Ehrhart 1983). In the Mediterranean, records of loggerhead turtles in the brackish water of the Neretva Delta, Croatia, in the freshwater of the Skadar Lake in Montenegro (Bolkay 1924) and Prokljan Lake near Šibenik, Dalmatia (De Luca *et al.* 1990) have been described.

As part of the *Caretta* Action Network (CAN) project 2004 of the Aktionsgemeinschaft Artenschutz e.V. (AgA) and Bund Deutscher Tierfreunde e.V. (BdT), Germany, an extended observation of surface activities of the Nile Soft-Shell Turtle (*Trionyx triunguis*) in the Dalyan River was carried out. The river represents a typical brackish estuary with a strong vertical salinity gradient from an average of $S = 3$ ‰ on the surface to a maximum of $S = 27$ ‰ at a depth of 5 m. The wetlands (see fig 1), holding one of the biggest populations of *T. triunguis* in the Middle East (Bride 2004), are part of the Specially Protected Area (SPA) of Köyceğiz/Dalyan in the Muğla province, Turkey and include Dalyan Beach, one of the important nesting sites of the loggerhead turtle in Turkey (Venizelos 1999).

During the observation period from May to July 2004, at least 2 different sub adult or adult loggerhead turtles were regularly seen near Dalyan town. Their average surface time for breathing was 3.5 seconds ($n = 30$). One turtle was regularly observed near the Dalyan River outlet. Loggerhead turtles have been previously documented feeding in the Ala Lake and the wetland system behind İztuzu beach (Venizelos 1999).

Because the fish gate (see fig 1) from the local fishing cooperation downstream from the observed section is closed most of the year, these loggerhead turtles are entrapped in the upper area of the Dalyan River and cannot freely move. In order to allow these turtles to follow their natural life cycle, migrating and reproducing, it would be necessary to relocate them behind the fish gate and this should be considered by the SPA authorities.

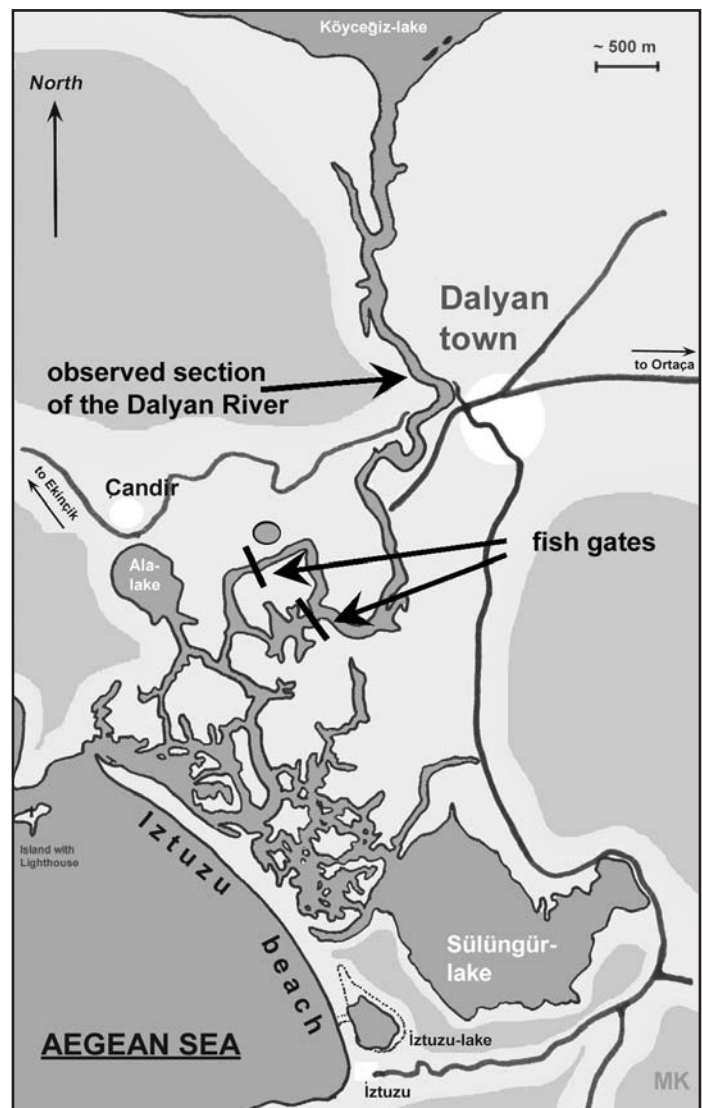


Figure 1. Map of the Dalyan estuaries between the Köyceğiz Lake and the Aegean Sea. The observed section of the river is marked as such. From there, the fish gates completely block access to the Aegean Sea for the observed loggerhead turtles.

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Marine Turtle Specialist Group News: Overview of Activities for a New Year

Brian J. Hutchinson¹, Roderic B. Mast¹, Nicolas J. Pilcher² & Jeffrey A. Seminoff³

¹Conservation International, Center for Applied Biodiversity Science, 1919 M Street NW, Washington, DC 20036 USA

(Email: bhutchinson@conservation.org; r.mast@conservation.org)

²Marine Research Foundation, 136 Lorong Pokok Seraya 2, Taman Khidmat, 88450 Kota Kinabalu, Sabah, Malaysia (Email: pilcher@tm.net.my)

³NOAA - National Marine Fisheries Service, 8604 La Jolla Shores Dr., La Jolla, CA 90237 USA (Email: Jeffrey.seminoff@noaa.gov)

At the start of a new year, the 25th Sea Turtle Symposium and the Annual General Meeting (AGM) are already behind us and the Marine Turtle Specialist Group (MTSG) is gearing up for another very active year, with a suite of exciting initiatives already in the works. The following update provides a summary of MTSG activity since our last report, as well as an overview of planned activities for 2005.

Recent Activities

Padre Island National Seashore – Last December, MTSG member Carole Allen alerted the Co-Chairs to a US Government proposal to allow 5 natural gas wells to be constructed within the Padre Island National Seashore in Corpus Christi, Texas. Padre Island is home to the most important nesting beach for the Kemp's ridley sea turtle (*Lepidochelys olivacea*) along the entire US coast, with 55% of all nests laid in the US in 2004. The proxy effects associated with natural gas extraction such as well construction, beach vehicle traffic, and light pollution can pose significant added threats to this already *Critically Endangered* species. In response, Co-Chair Rod Mast sent a letter to Padre Island's Superintendent, Colin Campbell, on December 22nd 2004, criticizing the proposal and offering the MTSG's assistance in ensuring effective conservation of the Kemp's ridley in the future. On January 28th 2005, we received a response from Mr. Campbell indicating that the construction of five new natural gas wells would continue as planned, with efforts made to mitigate the impact on the Kemp's ridley. Unfortunately, the legislation that established the Park in 1962 (Public Law 87-712) left the mineral rights beneath the Park in the hands of private entities, thus allowing the current resource extraction to legally continue without regard for public opinion. While we are not entirely pleased with the conclusion of this issue, we remain hopeful that all efforts will be made to ensure the future of the Kemp's ridley.

Tsunami Relief – The Indian Ocean tsunami of December 26th, 2004 had a devastating impact on coastal communities across the Indian Ocean, leaving in its wake an incomprehensible death toll and a tremendous challenge to restore the lives and livelihoods of thousands of affected people. We extend our deepest condolences to all those who were affected by this terrible tragedy. In response to this disaster and owing to the need to reestablish affected conservation projects, the MTSG, in partnership with SEATURTLE.ORG and the International Sea Turtle Society created the Indian Ocean Tsunami Fund, which will provide immediate relief to affected sea turtle conservation projects in the region. We are happy and grateful to report that the fund has already received very generous support from numerous individuals and organizations. In order to leverage these funds and maximize our efforts, the MTSG has teamed up with Conservation International, AIDE Inc., and a corporate sponsor, Working Assets, in an online funding drive that will engage internet users from around the world to generate funds through their donated 'clicks'. The goal of the drive is to ultimately provide \$20,000 in aid to help the Turtle Conservation Project in Sri Lanka rebuild and reestablish their important conservation efforts in the coastal communities of Kosgoda and Rekawa.

Southern Sri Lanka has long been notorious for its innumerable faux-conservation sea turtle hatcheries that are nothing more than tourist attractions. The vast majority of these hatcheries are poorly managed and make little effort to re-create natural nesting conditions that would subsequently yield 'natural' hatchling sex ratios. As a result, these hatcheries, though billed as conservation projects, are often endangering local turtle populations further. As the post-tsunami reconstruction efforts are taking shape, the MTSG is committed to ensuring that the sea turtle hatcheries in southern Sri Lanka are reestablished according to best-practice standards for conservation. In line with this effort, MTSG member Eng-Heng

Chan recently visited Sri Lanka to offer her technical assistance. While there, Chan distributed copies of the MTSG publication, *Research and Management Techniques for the Conservation of Sea Turtles* (1999), which includes detailed information on appropriate hatchery methodology. We plan to continue to provide support to reconstruction efforts in the region, and to ensure, where possible, that appropriate conservation measures are taken into account during these efforts.

Annual General Meeting

The MTSG AGM was recently held in conjunction with the 25th Annual Sea Turtle Symposium in Savannah, Georgia, USA. The three-hour meeting took place on the Saturday following the Symposium (22nd January 2005) and was attended by 48 participants. The meeting covered a broad range of topics including an overview of activities in 2004, a review of completed and pending action items resulting from the Vision Meeting, an overview of the membership reappointment process and timeline, as well as a review of the new regions, an update on the Red List, and plans for the coming year, including several workshops, Red List revisions, the State of the World's Turtles Initiative (SWoT) project launch, accounting and fundraising efforts. The meeting also generated some very productive discussions regarding the SWoT initiative, the Red List process, the new regions, and refining the "Burning Issues". Full minutes for this meeting can be found on the MTSG website: <http://www.iucn-mtsg.org/>.

Membership

As we mentioned in our last report, last November marks the end of one IUCN triennium and the start of another. During this transition period, all Specialist Groups and the SSC as a whole are

disbanded and subsequently reappointed under the new SSC Chair, Holly Dublin. As we await our own official reappointment as Co-Chairs, we have already begun to undertake the MTSG membership reappointment process. Through the process of reappointment one of our primary goals is to streamline the MTSG into a more manageable body. In pursuing this goal, we reorganized the Group's management structure to be more regionally-oriented by disbanding the Executive Committee and revitalizing the Regional Vice-Chairs as the MTSG's management focal points. Through this transition, we became aware of the need to reexamine the MTSG regions in order to improve membership coordination, and ensure the free flow of information between the members, the Regional Vice Chairs, and the Co-Chairs. Ultimately, our goal is to make certain that the MTSG is regionally and locally active where needed, and more effective overall in pursuing our vision.

Plans for 2005: Red Listing

The year 2005 is sure to be an exciting year for MTSG activities as they relate to the IUCN Red Listing Process. Whereas 2004 was the year of the green turtle (based on the submission and final acceptance of the global green turtle assessment), 2005 will be the year of the hawksbill. Jeanne Mortimer is currently finishing the global hawksbill assessment and our plan is to send this out for MTSG-wide internal review in late spring 2005. After addressing the comments generated from this review process we hope to submit the final draft for the hawksbill assessment to the IUCN in fall 2005.

There has been considerable discussion regarding our need to move toward regional assessments of sea turtles and we are pleased to announce that the process has begun for the Mediterranean region. At the Mediterranean Reptile Specialists Meeting in late 2004, the initial plan for these assessments was developed as part of a regional

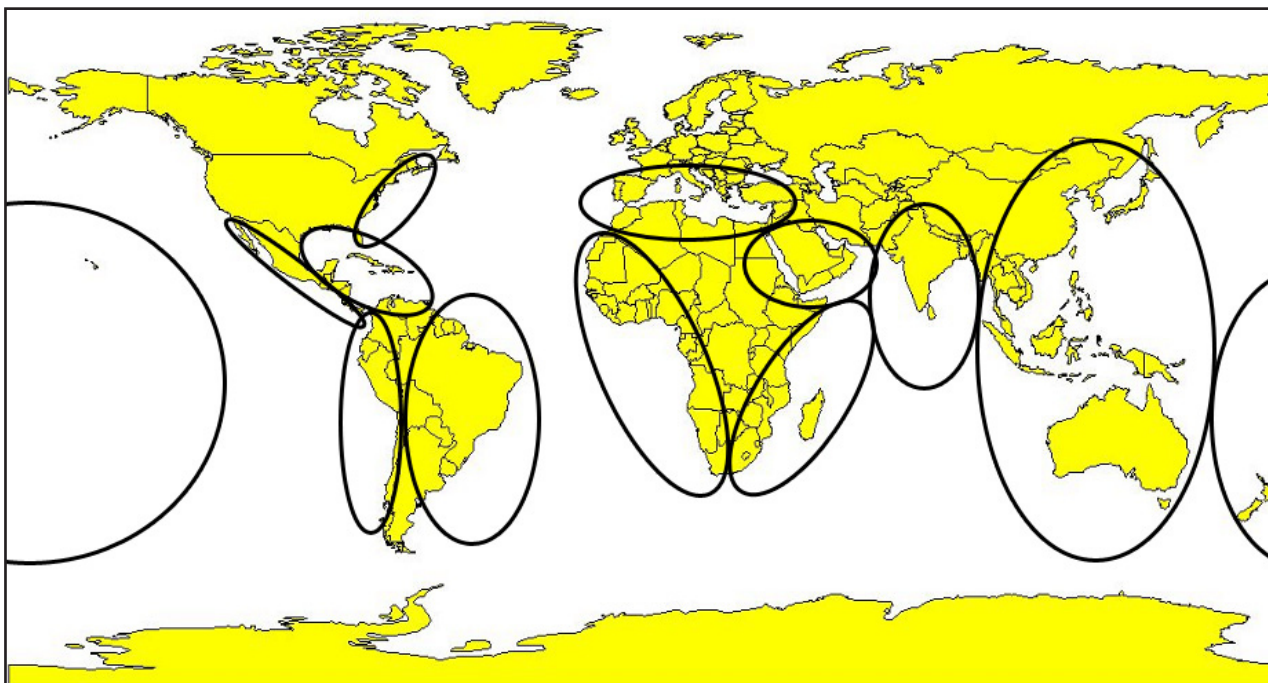


Figure 1. Map demonstrating approximate delineation of the new MTSG regional groups.

initiative set in motion by the Barcelona Convention for the Protection of the Mediterranean Sea, the European Commission, and a number of governments from Mediterranean countries outside the EU. Since then, we have assembled a Red List Working Group (Juan Antonio Camiñas, Paolo Casale, Andreas Demetropoulos, Yakup Kaska, Bojan Lazar, and Dimitris Margaritoulis) under the leadership of the Mediterranean Regional Vice Chair (Margaritoulis). The Group is undertaking regional assessments for loggerheads, green turtles, and leatherbacks with the Focal Points being Lazar, Demetropoulos, and Casale, respectively. We hope to have initial drafts completed by the Mediterranean Conference on Marine Turtles in Turkey (4-7 May 2005), at which time both Mast and Seminoff will meet with the Working Group to prepare the documents for MTSG internal review. Our goal is to have each of these assessments completed by November 2005.

In addition to the Mediterranean regional assessments, 2005 will mark the beginning of green turtle regional assessment efforts for areas outside of the Mediterranean. This process will involve the participation of a diverse group including MTSG Green Turtle Task Force members as well as key experts from around the world. We are still delineating the regional boundaries and are soliciting the participation and support from MTSG members that may have important genetic, flipper tag recovery, and satellite telemetry data to contribute to the process.

Plans for 2005: State of the World's Sea Turtles (SWoT)

The State of the World's Sea Turtles (SWoT) initiative has continued to gain momentum towards our goal of creating an up-to-date database on all aspects of sea turtle biology, and annually synthesizing these data into a State of the World's Sea Turtles Report that will generate interest and foment conservation action. This could not be possible without the willing collaboration of countless field biologists and institutions that have generously begun to share their data under a collective vision for improved conservation of sea turtles and their habitats. We are hard at work in preparing the first SWoT report, to be launched mid-2005, with the help of the ever-growing SWoT data provider community and support from various institutions, including Duke University's OBIS-SEAMAP project, Conservation International, and the International Sea Turtle Society. Please stay tuned for the first SWoT report, which will feature global data on leatherback nesting sites, global priorities for all sea turtle species and offer a glimpse into the future of sea turtle conservation.

Plans for 2005: Bycatch Workshop – Malaysia

At the recent IUCN World Conservation Congress held in Bangkok (November 2004) the MTSG offered to take the lead in convening a workshop to bring together technical specialists on bycatch mitigation for sea turtles, sharks, seabirds and marine mammals to discuss geographical overlaps, current and prospective approaches to remediation, and to explore options for collaboration, and improved communication, particularly to minimize the potential negative impacts of unilateral bycatch reduction efforts. Following this, we met with representatives of WWF and BirdLife International, who agreed in principle to co-host such an event and to consider involving selected Fishery Management Organizations (FMOs) and policy specialists. It was agreed that this could offer an excellent

opportunity to promote collaboration amongst IUCN Specialist Groups and other agencies and institutions, and produce results that would benefit a number of globally threatened marine taxa.

The workshop will focus on three key objectives: data presentation, discussion of potential conflicts and overlaps among bycatch mitigation efforts for different taxonomic groups, and deliberation on potential solutions and joint investigation approaches. It is envisaged that three to four technical people from each of the four animal groups, representatives from several FMOs and some policy specialists would participate in the event on an invite-only basis.

The workshop will be organized by the Marine Research Foundation, the MTSG, WWF and Conservation International, and will take place in Kota Kinabalu, Malaysia (Borneo) from September 26 to 30. As we solidify the plans for this event we will continue to provide updates, and will be calling upon our members to provide critical background information and expertise in order to ensure a successful and productive meeting.

Plans for 2005: Sustainable Use Workshop – India

In recognition of widespread human use of marine turtles and their products, and following upon discussions with representatives of the IUCN's Sustainable Use Specialist Group, we have decided that it is necessary for the MTSG to formally address the issue of the sustainable use of marine turtles. As such, we will be convening a workshop in India later this year (exact time and place to be determined) that will generate an official MTSG position on the issue of sustainable use. Kartik Shanker, MTSG Regional Vice Chair for South Asia, has agreed to take the lead in organizing this important workshop with the assistance of several locally based MTSG colleagues. As additional details regarding the workshop become available we will continue to pass this information along to the membership and invite your feedback.

Plans for 2005: Burning Issues

Based on recommendations made at the AGM and an overall desire to improve and advance the MTSG's "Burning Issues" list as a tool for conservation priority setting, we will be convening a mid-year workshop in order to improve and concretely define the methodology for identifying and prioritizing the Burning Issues. The subsequently defined methodology, which will be regularly reevaluated, will be applied by the MTSG at the regional and global levels to identify concrete priorities for marine turtle research and conservation. Our goal is to ultimately ensure that these high priority areas are being both recognized and addressed by governments, policy makers, researchers, the NGO community, and the global public as a whole. As part of our commitment to this effort, the MTSG plans to provide direct support for actions that address the Burning Issues in the future, through a strategic small grants fund. As we refine the Burning Issues over the coming year(s), we will be actively pursuing funds to support this effort and hope to have such a grant program up and running in the coming year(s).

Meeting Reports

The 25th Annual Symposium on Sea Turtle Biology and Conservation, Our Silver Anniversary Symposium. Savannah, Georgia, USA, January 18th-22nd, 2005

Thane Wibbles

*ISTS President, University of Alabama at Birmingham, 1300 University Blvd., Birmingham,
Alabama, AL 35294-1170, USA (E-mail: twibbels@uab.edu)*

With registrants from over 70 nations, a crowd of almost one thousand sea turtle biologists, conservationists, and enthusiasts attended the “Silver Anniversary Sea Turtle Symposium” in Savannah, Georgia. The schedule included an initial two days of regional meetings followed by three days of the main symposium, and a final day that included the Marine Turtle Specialist Group (MTSG) meeting. The venue for the symposium proved to be very functional. The meeting facilities included a Harborside Center that served as the location for the opening social, the poster sessions, and the coffee breaks. Thanks to the efforts of Janet Hochella (the Vendor Chair) and other volunteers, an excellent “Turtle Square” area was set up in the Harborside Center that included kiosks for vendors and many sea turtle organizations. The location of the hotel on River Street in the historic district of Savannah also proved to be very functional since there were numerous restaurants, pubs, shops, and historic landmarks within walking distance.

The main portion of the symposium started on Tuesday evening with the opening socials that drew a capacity crowd. The congregating of this many sea turtle biologists/conservationists generated a synergistic atmosphere for scientific discussions and development of collaborations that exemplify the significance of the annual symposium. The symposium had a full schedule of events and state-of-the-art presentations regarding the biology and conservation of sea turtles including over 125 oral presentations, 260 poster presentations, and a series of workshops regarding education and conservation. Fortunately, with that many presentations, as well as numerous other events, attendees were kept aware of all schedules by an excellent printed program produced by the efforts of Kristy Long and Barbara Schroeder. The Program Chair, David Owens, the Program Committee Coordinator, Kartik Shanker, and the entire Program Committee should be commended for the exhaustive efforts in putting together a great program for the 25th Symposium.

The meeting’s theme “A Quarter Century of Advancements that Propel Us into the Future” was highlighted by the first day of invited talks in front of the entire assemblage. The symposium was initiated by a keynote address by John Avise, a world-renowned geneticist whose laboratory has been at the forefront of genetic studies in sea turtles. Dr. Avise provided a world-class presentation that focused on the role of genetics and evolutionary biology in the 21st Century. The first oral presentation session of the symposium (organized by Karen Bjorndal) highlighted this year’s theme by focusing on “Insights from Long-Term Research Programs”. The session included an international slate of speakers that described the lessons learned from a variety of long-term sea turtle programs conducted throughout the world. The session covered a variety

of subjects regarding the biology and conservation of sea turtles, including topics that are currently receiving much interest, such as the effect of longline fisheries on the pelagic stages of some sea turtle populations. The initial afternoon session highlighted the fact that the long-term implementation of effective management strategies can halt downward trends and enhance the recovery of sea turtle populations. The initial talk of the session by Graeme Hays discussed the theoretical dynamics of extinction and recovery in sea turtle populations. The next series of talks provided long-term examples that show “conservation is working”, including the history and current status of populations such as the Kemp’s ridley, the olive ridley on the Pacific coast of Mexico, and the Atlantic leatherback in St. Croix. The historical trends and current status of nesting of greens and leatherbacks on the Atlantic coast of central Florida were also described. The afternoon session also discussed “populations of concern”. In particular, data regarding the Pacific leatherback was presented. Additionally, the nesting trends and current status of loggerhead nesting in central Florida was discussed, as well as the nesting of olive ridleys in India, and leatherbacks in Atlantic Africa. The afternoon session also included an overview of the Marine Turtle Conservation Act, which has the potential of significantly enhancing sea turtle conservation through the funding of international collaborations. Collectively, the first day’s sessions included an impressive group of speakers that provided an overview of lessons learned over the past quarter century and highlighted areas of concern and emphasis for the future.

Days two and three of the symposium included a wide variety of oral presentation sessions that addressed a full range of topics including population biology, ecology, behavior, genetics, nesting beaches, pathology and disease, fisheries, management, public education, and social and cultural issues. Special sessions were also held that focused on the sensory biology of sea turtles, and on the design, methods, and analysis of tagging studies. Keynote speakers started off several of the sessions. For example, Nicholas Mrosovsky presented a stimulating keynote presentation regarding the potential evolutionary implications of moving nests and, in classic Mrosovsky fashion, he suggested a provocative alternative to the practice. Ken Lohmann provided a keynote presentation regarding the orientation behavior of sea turtles, and William Kendall described state-of-the-art methodology and analysis for tagging studies. The diverse array of topics allowed biologists and conservationists from around the world to present their recent data and stay up-to-date on the latest techniques and scientific findings. Further, as in previous years, the symposium provided an avenue for communication between researchers, including the development of new collaborations. The

communication and education benefits of the symposium exemplify the significance of the Annual Sea Turtle Symposium.

Poster Session

A major goal of this year's symposium was to significantly increase the emphasis on the poster presentations. Poster presentations represent a major avenue for conveying information at scientific meetings, and posters are more appropriate and effective than oral presentations in many situations. To enhance this year's poster sessions, two specific time periods per day, with no conflicting events, were scheduled for the poster sessions. Additionally, the poster sessions were held in the Harborside Center, which proved to be an ideal setting for viewing and discussing posters. Over 260 posters were presented at this year's symposium, which represented a phenomenal amount of information. The overall scientific quality of the posters was impressive. The energetic conversations taking place throughout the poster sessions area clearly exemplified the significance of the poster sessions to this year's symposium. The success of the poster sessions would not have been possible without the diligent efforts of Bill Irwin, the Poster Session Chair.

Freshwater Turtle Workshop

On Tuesday afternoon prior to the opening social, a Freshwater Turtle Workshop was held. The workshop was organized by Chuck Shaffer and the agenda included a full series of well-known turtle researchers such as Whit Gibbons, Roger Wood, Colin Limpus, Anders Rhodin, and Peter Pritchard. Many of these presentations discussed general concepts in turtle biology and conservation that were directly applicable to sea turtles. As such, it was an ideal workshop to be associated with the Annual Sea Turtle Symposium. Chuck Schaeffer should be commended for his efforts.

Workshops and Video Presentations

Throughout the symposium, a series of workshops were held over the noon hour. Several educational workshops were conducted. One highlighted the interactive DVD "Journey of the Loggerhead" by Katy Garland. Another outlined an activities manual for "Sea Turtles: An Ecological Guide (sponsored by WIDECAST). The WWF sponsored a workshop on longline fisheries, and an "Operation Migration" workshop was presented that discussed the potential use of ultralight aircraft in sea turtle research. On Wednesday evening, a full schedule of sea turtle videos were presented that covered topics ranging from loggerhead lost years to specific conservation techniques for sea turtles.

Archie Carr Student Presentation Awards.

An integral part of the Annual Sea Turtle Symposium is the encouragement of student research and acknowledgement of student presentations. Student presentations act as a vital "training experience" for future leaders in sea turtle conservation and biology. The ISTS is fortunate that the Chelonian Research Foundation has been a strong supporter of student presentations and the sponsor of the student awards. The continued emphasis on student presentations and awards during the annual symposium will, no doubt, have a significant impact on the future of sea turtle biology and conservation. The ISTS gratefully acknowledges the Chelonian Research Foundation for their support and foresight. This year's

Awards Committee was again chaired by Jeannette Wyneken and Lisa Campbell. Additionally, there were many volunteer judges that were instrumental in evaluating over 100 student poster and oral presentations. The awards were presented at the banquet by Anders Rhodin, Jeanette Wyneken, and Thane Wibbels. A total of 8 awards were presented (four First Place and four Runner-up Awards). The Awards were split between "Conservation" and "Biology" categories. First Place Award for biology oral presentations went to Louise Brooks of the Moss Landing Marine Laboratories and the Runner-up Award went to Lucy Hawkes of the Marine Turtle Research Group, UK. First Place Award for Biology poster presentations went to Kimberly Reich of the University of Florida, and the Runner-Up Award went to Michael P. Jensen of the University of Aarhus, Denmark. First Place Award for conservation oral presentations went to Catherine McClellan of the Duke Marine Laboratory. First Place Award for conservation poster presentations went to Kristine Halager of Florida Atlantic University, and two Runner-up Awards in conservation poster presentations went to Katherine Mansfield of the Virginia Institute of Marine Science and Rodrigo C. Almeida Santos of the Universidade Federal de Santa Catarina, Brazil.

Results of the Auction

The silent auction and live auction were a great success this year, and they were the most profitable over the history the symposium. The success of the live auction can be attributed to the auctioneer talents of Rod Mast, the organizational efforts of Debbie Sobel, and the efforts of the many volunteers. Rod Mast, with the help of Jennifer Homcy, was once again instrumental in helping to generate an altruistic and amusing atmosphere for bidding on auction items. The most recent figures indicate that approximately \$17,500 was raised by the auction. Everyone should be commended in helping raise this record-setting amount. These funds have always been paramount in helping support student travel and other basic symposium expenses.

Banquet

The Banquet drew a capacity crowd of approximately 450 attendees and the consensus was that the meal was quite good this year. The banquet festivities included a keynote address by Peter Pritchard, the presentation of the Archie Carr Student Awards, the acknowledgement of key organizers, and a preview of the location for next year's symposium. Peter Pritchard presented an entertaining and informative keynote address that provided a historical perspective of sea turtle conservation and the Marine Turtle Specialist Group. He included many historical pictures that showed many sea turtle biologists in their younger years. He also provided many colorful historical anecdotes. His talk was ideally suited for the Silvery Anniversary Symposium. The Archie Carr Awards for Student Presentations were then announced. Heather Kalb (the Volunteer Chair) and Thane Wibbels gave a presentation acknowledging the numerous volunteers that contributed to the success of the symposium. The final event at the banquet was a presentation by Dimitris Margaritoulis. He gave the crowd a glimpse of the great venue for next year's symposium. He showed a variety of wonderful photos of Greece. So, start thinking about your travel to the 26th Annual Symposium on Sea Turtle Biology

and Conservation, which will be held in Greece. It should be a great symposium! The banquet then ended and the dance began to the sounds of the band "Tequila". Many danced for hours, whereas a large crowd also migrated to the lobby to continue conversations regarding sea turtle biology and conservation.

Regional Meeting

A major benefit of the annual sea turtle symposium is that it provides a forum for regional meeting for sea turtle organizations. During the 25th Annual Symposium on Sea Turtle Biology and Conservation, regional meetings were held on Monday and Tuesday prior to start of the main symposium. These regional meetings included RETOMALA Latin American Reunion, WIDECAST, African, Mediterranean, and the IOSEA (Indian and South East Asia). A wide variety of regional and international topics were discussed at these meetings, which will help coordinate current and future sea turtle conservation efforts in these regions.

Plenary Meeting

The Plenary session was held on Friday afternoon of the symposium. The first item of business was a travel committee report given by Hoyt Peckham. He summarized the amount of funding available this year for travel grants (\$60,000) and described the amounts distributed to each region. He also noted that next year there would be an emphasis on supporting the travel of students and specialists from Africa, since most were not able to attend this year due to difficulties associated with obtaining visas.

The next item of business was the Treasurer's report by Ed Drane. He indicated that last year's symposium had a large cash flow and large attendance, however, the meeting generated a deficit. This exemplifies the difficulty in planning a large symposium when you are often not certain of all donations until a time near the start of the meeting. However, he indicated that this year's symposium was currently doing well financially.

The next item of business was the resolutions. Three resolutions were brought to the floor and each passed. At that point there was an extensive discussion regarding the fact that several resolutions had been tabled and were not brought to the floor for voting. Several individuals, including Todd Steiner of the Sea Turtle Restoration Project, Marydelle Donnelly of the Ocean Conservancy, and Carole Allen of the Sea Turtle Restoration Project and HEART, all voiced strong opinions indicating that resolutions that were submitted on time and through normal procedures should be voted upon. Jack Frazier, the Chair of the Resolutions Committee, indicated that the resolutions had been tabled for technical reasons that needed to be rectified. The processing of resolutions currently presents a logistical problem for the ISTS, because historically the Board of Directors has only met once a year (i.e. at the symposium), and that is the only time when resolutions are reviewed. Therefore, the board is now beginning to meet more than once a year. Further, one of the priority items for discussion at the Board Meeting will be the development of optimal infrastructure for processing of resolutions.

The next item of business was the nominations. Brendan Godley (substituting for the Chair of the Nominations Committee) presented a slate of nominees recommended by the Nominations Committee. This slate included Michael Coyne for President-Elect, Manjula Tiwari for Secretary, Edwin Drane for Treasurer,

Kartik Shanker, Brendan Godley, and Lisa Campbell for Board of Directors, Jeanette Wyneken, Angela Formia, and Larisa Avens for Nominations Committee. There was a motion and a second to accept the nominations. This was followed by discussion suggesting that accepting the nominations would prevent any nominations from the floor. The motion was then retracted and a motion was made and seconded to open the floor for nominations. Karen Eckert nominated Richard Van der Wal for Board of Directors and there was then a motion and second to close the nominations. A paper ballot was conducted for the nominees for the Board of Directors, and Kartik Shanker, Brendan Godley, and Lisa Campbell were elected. The remainder of the slate of nominees was then elected and the meeting was adjourned.

MTSG Meeting

The 25th Annual Symposium on Sea Turtle Biology and Conservation also facilitated the congregation of many members of the Marine Turtle Specialist Group of the IUCN. An MTSG meeting was held on the final morning of this year's symposium. A variety of topics were discussed including the infrastructure, activities, and goals of the MTSG. The new web site for the MTSG was highlighted at the meeting and it includes information on the MTSG and a number of topics that were discussed at the meeting (see web site at <<http://www.iucn-mtsg.org/>>).

Travel Grants

Due to the generous donations from sponsors and fund raising from last year's auction, the ISTS was able to provide travel grants in the amount of approximately \$60,000 to students and specialists from countries throughout the world. Travel grants were awarded to 131 recipients, and these awards were distributed through the various travel chairs to recipients in Latin America, Africa, Asia/Pacific, Europe, the Caribbean, and the USA. These funds allow dedicated students and sea turtle specialists (who would otherwise not be able to attend) to travel to the symposium, give presentations, and interact with leading authorities on various aspects of sea turtle biology and conservation. The travel grant program has been a major avenue by which the ISTS and the Annual Sea Turtle Symposium has encouraged the development of sea turtle conservation programs world-wide. The presentations by these recipients represented a significant contribution to the agenda at this year's symposium. The ISTS would particularly like to thank Disney's Animal Kingdom for their continued support of the Disney Fellowships in Sea Turtle Conservation. The Disney Fellowships are an excellent method of acknowledging the contributions of individuals by helping cover their travel expenses to attend the symposium and present their research. The Travel Committee Chairs, Hoyt Peckham and Jeffery Seminoff, together with the regional travel chairs (Angela Formia, Nicholas Pilcher, Karen Eckert, Brendan Godley, Annette Broderick, Ana Barragan, and Alan Bolten) should be commended for their exhaustive efforts in reviewing applications and awarding the travel grants.

Symposium Sponsors

As the Annual Sea Turtle Symposium has grown over the past 25 years, so have the costs associated with the meeting. The assembly of approximately one thousand attendees brings with it a wide variety

of logistical expenses. For example, just the simultaneous translation and the audiovisual equipment can cost thousands of dollars. Further, the symposium has been successful in fostering the spread of sea turtle conservation due in part to the awarding of travel grants to bring in dedicated students and specialists from around the world, who would otherwise not be able to attend the symposium. In fact, over the past few years, the ISTS has been able to provide \$60,000 or more each year in travel grants. The availability of external funding to support these expenses has greatly enhanced the impact of the symposium on the spread of sea turtle conservation over the past two decades. Therefore, the ISTS would like to acknowledge the generous support of all the donors. Their support ensures the success of the symposium, thus enhancing the communication and education of sea turtle biologists and conservationists world-wide. This year we were again fortunate to have many generous donors. We would particularly like to thank the Western Pacific Fisheries Management Council, NOAA Fisheries Office of Protected Resources, NOAA Fisheries Southeast Fisheries Science Center, Disney's Animal Kingdom, the National Fish and Wildlife Foundation, Florida Power and Light, and an anonymous donor for being major sponsors of the 25th Annual Symposium on Sea Turtle Biology and Conservation. We would also like to acknowledge the generous donations from Turtle Time, Inc. (in Honor of Flo Vetter), Chelonian Research Foundation, Wildlife Computers, Ecological Associates, Grays Reef National Marine Sanctuary, Service Argos, Paul Norman of the Amelia Island

Sea Turtle Watch, Inc., Erode Kuppaswami, and SEATURTLE.ORG. Furthermore, we would also like to acknowledge the large number of people who provided individual donations to help sponsor travel grants or rooms for travel grant recipients. Collectively, these donations ensure that the symposium will have an optimal impact on sea turtle conservation.

Volunteers and Key Organizers

The 25th Annual Symposium would not have been possible without the tireless support of hundreds of individuals. Heather Kalb, the Volunteer Chair, acknowledged many of these individuals at the banquet and they should all be commended for their dedicated efforts. The tireless efforts of the volunteers are exemplified by people such as Sandy McPherson (the symposium's Registrar), as well as Jaime Peña and Carlos de León (who coordinated all of the audiovisuals and assisted in registration). The ability to efficiently organize such a large international symposium was due to the organizational skills of our Meeting Coordinator, Donna Broadbent, and the ISTS Information Technology Specialist, Michael Coyne. Finally, it has been a great pleasure to help organize the 25th Annual Symposium on Sea Turtle Biology and Conservation. After working with the many volunteers who were instrumental to the success of the symposium, I can truly say that the ISTS represents a large family of enthusiastic and altruistic individuals who are dedicated toward a noble goal, the recovery of sea turtle populations world-wide.

Meeting Report: The Third Annual Terrestrial and Freshwater Turtle Session

Chuck Schaffer

13811 Tortuga Point Drive, Jacksonville, FL 32225, USA (E-mail:chelonian1@aol.com)

The Third Annual Terrestrial and Freshwater Turtle Session, "Looking where the water's not so salty: Lessons from freshwater and terrestrial chelonians" was held on 18th January 2005, at the 25th Annual Symposium on Sea Turtle Biology and Conservation.

It appears to have been a success as over 200 folks were in attendance. The first and second sessions were held at lunch in 2003 (Kuala Lumpur, Malaysia) and 2004 (San Jose, Costa Rica) with 50 and 100 attendees respectively. They focused on the Asian Turtle Crisis and Central/South American chelonian issues respectively relevant to marine turtles. This was the first year we held a half day event, offering an extended opportunity for the marine turtle community to interact with terrestrial and freshwater researchers who generally do not attend marine turtle conferences. Presentations in this session offered research, observations, and opinions of non-marine turtle researches relevant to the marine turtle community. As with previous sessions, we saw an enlightened exchange of ideas between in and ex-situ, marine and non-marine chelonian researchers and conservationists.

Speakers included :Whit Gibbons, John Jensen, Paul Moler, Terry Norton, Brian Mealey, Roger Wood, Phil Allman, Joe Butler, Colin Limpus, Heather Kalb, Joan Berish, Anders Rhodin, Peter Pritchard, and Chuck Schaffer. Topics ranged from general conservation programs to history of chelonian images. Species covered included Diamondback terrapins, Alligator snapping turtles,

Bimini sliders, Roti Island snakesnecks, and the largest of the Asian softshells.

But why at the Sea Turtle Symposium? Think about it. Turtles are turtles. Sure, marine turtles live in saline water. They rarely come to shore. etc., etc... But, they share the same basic biology. Even their behavior is often similar. And problems faced by marine turtles aren't so different from their distant cousins either. Marine turtles don't have the exclusive rights to over harvesting, bycatch, and level of protection. And like those from salt water, the terrestrial and freshwater varieties are charismatic creatures, often in the public eye. Although a careful examination of the science would support it, the impetus for the protection of all turtles is often based more on a gut reaction by the public.

Diamondback terrapins, Batagurs, Callagurs, and Alabama red bellied turtles live in brackish or downright salty water. In Tortuguero, Black river turtles, sliders, and even snapping turtles share the same nesting beach as leatherbacks and greens. Batagurs nest communally and Callagurs share sea turtle nesting beaches. Some freshwater turtles such as Alligator snappers and many soft shelled turtles visit land no more frequently than their marine brethren. Tortoises may be a different matter, but there's plenty to learn there too. The session has been scheduled to continue for the next two years. Don't miss it.

Fourth Reunion of Mediterranean Sea Turtle Specialists at the 25th Annual Symposium on Sea Turtle Conservation and Biology

Paolo Casale¹, Alan F. Rees², Dimitris Margaritoulis³

¹via Antonio Calderara 29 00125 Roma, Italy (E-mail: paolo.casale@tiscali.it), ²ARCHELON, Solomou 57, GR-104 32 Athens, Greece, ³IUCN/MTSG, Regional Chair for Mediterranean and NE Atlantic, P.O.Box 51154, GR-14510 KIFISSIA, Greece

For the fourth time, participants of the Annual Sea Turtle Symposia working in the Mediterranean region met. This was held on the 18th Jan 2005 in the Hyatt Regency Hotel, Savannah, Georgia, USA, the venue of the 25th Annual Symposium on Sea Turtle Conservation and Biology. Seventeen people from seven countries (including two observers) attended. The meeting was prepared by Dimitris Margaritoulis (DM) and Paolo Casale (PC), was chaired by PC with ALan F. Rees (AFR) recording the minutes. On the basis of a provisional agenda previously distributed through the regional listserv MedTurtle, the following items were discussed.

Results of previous meetings and lessons from others

There was general agreement that to meet in person is very important for regional cooperation but unfortunately occasions are rare, and so Mediterranean people working on sea turtles usually meet opportunistically. The Reunion at the Symposium has the great value of being an annual event, which has been invaluable for introducing colleagues from around the Mediterranean, to exchange ideas, and develop regional projects. Naturally, it is restricted to people attending the Symposia, with limited regional representation. There is great potential for such meetings in the future, as demonstrated by the Latin American meetings, having convened on 12 occasions.

Cooperation/Networking in the Mediterranean & Results from the Workshop on the Rehabilitation of Injured Sea Turtles in the Mediterranean

The issue of networking in the Mediterranean is considered very important but until now attempts were unsuccessful. It would be good to have an official network, but available solutions from other regions are not perceived as possible at the moment. Whatever develops, the need for national representatives is considered important. It was agreed that, at the present time, the only way for networking is through specific projects or activities. An example is the recent Workshop on the Rehabilitation of Injured Sea Turtles in the Mediterranean (Glyfada, Athens, Greece; November 2004), where a network among Rescue Centres was established. AFR gave a brief overview of this workshop (see this issue page 26).

Country by country updates

The Reunion can be a good opportunity for sharing information about the present situation of turtle conservation in the different Mediterranean countries. It was proposed to improve this aspect in the next meetings. Participants with work experience from Italy, Spain, Portugal, Croatia, Syria, and Greece gave a brief overview of the situation in these countries.

Resolution on Zakynthos

DM introduced the proposal of resolution on Zakynthos to be presented to the General Assembly of the International Sea Turtle Society, targeting the reactivation of the National Marine Park. It received comments from the participants, was modified accordingly, and endorsed by the Reunion of Mediterranean Sea Turtle Specialists.

Mediterranean related materials and links to be incorporated on the Mediterranean section of the MTSG page

Bojan Lazar (BL) (the current webmaster for the MTSG Med & NE Atlantic site) volunteered his assistance in posting on the site anything that is of regional importance and informed the group of the design and format limitations of the site. It was agreed that as a good basic information source the site should include the following four sections: Announcements; Documents; List of Turtle Groups / Organisations; Useful Links.

List of who is working on sea turtles in the Mediterranean

After a brief discussion about the best way to obtain a realistic picture of who is working on sea turtles in the Mediterranean, it was agreed that a call for "registration" be put through MedTurtle together with a standard form to be initiated by AFR. Some MTSG members working in each country will then be asked to check the list of respondents for omissions and make appropriate contacts. The final list will be posted in the Mediterranean web site (see above).

Med Turtle Conference, Turkey. PC proposed a roundtable/workshop to discuss the implementation of mitigation measures to reduce the impact of fisheries on marine turtle populations in the Mediterranean. DM announced that a tagging standardisation workshop was being proposed by RAC/SPA for the conference, and that there should also be a regional MTSG meeting.

Other issues

BL announced a course on conservation management in Croatia in May-June for graduate students (see this issue page 29). DM informed the meeting of the ongoing effort of the IUCN/MTSG to provide Regional Red List Assessments for the three species of marine turtles in the Mediterranean. DM noted that the 26th Sea Turtle Symposium will be hosted in Greece in April 2006.

Next meeting

It was proposed to have invited presentations from different Mediterranean countries at the next meeting. PC was proposed, and accepted, to organize the next meeting. Antonis Mazaris, Susanna Piovano, BL and AFR offered to assist.

Atlantic Leatherback Strategy Retreat at St Catherines Island

Gale Bishop¹, Milani Chaloupka², Llewellyn M. Ehrhart³, Jean-Yves Georges⁴, David Godfrey⁵, Edo Goverse⁶, Emma Harrison⁷, Graeme C. Hays⁸, Maria Angela Marcovaldi⁹, Philip Miller¹⁰, Terry Norton¹¹, Peter Pritchard¹², Christopher Sasso¹³, David Smith¹⁴, Guy-Philippe Sounguet¹⁵, James Spotila¹⁶, Manjula Tiwari¹³ & Sebastian Tröng^{7*}

¹South Dakota Museum of Geology and Paleontology, St. Catherines Sea Turtle Conservation Program, Museum of Geology, USA,

²Ecological Modelling Services, AUSTRALIA, ³University of Central Florida, USA, ⁴Centre National de la Recherche Scientifique, France,

⁵Caribbean Conservation Corporation, USA, ⁶IUCN – Netherlands, NETHERLANDS, ⁷Caribbean Conservation Corporation, COSTA RICA,

⁸University of Wales Swansea, UK, ⁹Fundação Pró-Tamar, BRAZIL, ¹⁰CID/Karumbé Project, URUGUAY, ¹¹Wildlife Conservation Society, USA,

¹²Chelonian Research Institute, USA, ¹³National Marine Fisheries Service, USA, ¹⁴St Catherines Island Foundation, USA,

¹⁵Aventures Sans Frontière, GABON, ¹⁶Drexel University, USA *corresponding author; E-mail: sebastian@cccturtle.org

Introduction

A group of 18 Atlantic leatherback researchers and conservationists met at St Catherines Island, Georgia, USA, January 15-18, 2005.

The objectives of the meeting were to:

- 1) Assess the level of knowledge about Atlantic leatherback turtles
- 2) Identify nesting beaches and in-water conservation and research priorities for Atlantic leatherback turtles. Presentations given at the event and additional background information are available at <<http://www.cccturtle.org/leatherbacks>>.

The meeting recommendations are reported below.

Nesting beaches - Conservation and Research Priorities

- **Atlantic Africa**
 - Conduct detailed surveys of nesting distribution from Mauritania to Angola, with special priority given to Cote d'Ivoire, Equatorial Guinea (Bioko Island), Sierra Leone, Liberia, and Angola.
 - Determine the importance of the Gabon and Congo nesting aggregations.
 - Support and/or initiate local conservation efforts at significant nesting locations.
 - Strengthen and implement legislation that regulates conservation and use of sea turtles.
 - Assess human impact on nesting aggregations.
- **Trinidad/Guianas**
 - Conduct a collaborative effort to assess overall distribution, size and trend of the regional population.
 - Standardize PIT tag use and instrumentation, phase in same brand of tags at all beaches.
- **Reduce killing of female turtles on nesting beaches**
 - Priority should be given to Tiger and Gwennie beaches in Guyana, Sixaola and San San beaches in Panama, Tobago beaches, beaches in Atlantic Africa, for example; in Congo and Angola.
- **Reduce or eliminate egg collection**
 - Eliminate commercial egg collection.
 - Initiate long-term relationships with local communities to identify joint conservation actions.

- **Determine relationships among life-history, oceanic and climatic conditions, and human interventions for Atlantic and Pacific nesting aggregations**
 - Convene multi-disciplinary conference including oceanographers, physiologists, sea turtle biologists, statisticians/modelers.
 - Determine mechanisms for testing the efficacy of sea turtle conservation actions.
- **Complete the determination of the genetic structure of Atlantic populations**
 - Collect additional genetic samples from Caribbean Islands and Atlantic Africa nesting aggregations.

In-water - Research and Conservation Priorities

- 1) Establish a regional research program to define habitat utilization, especially in the East and South Atlantic where there is significant exposure to fisheries. Once these key regions are identified, there should be two immediate goals: the first is to reduce mortality resulting from fisheries interactions by increasing fishermen awareness on handling/release protocols and conservation awareness; the second goal is to reduce fisheries interactions through the development of new gear technologies and fishing practices.
- 2) Implement new and/or enhance existing observer programs onboard fishing vessels operating in the Atlantic to support a comprehensive assessment of fishery effort and sea turtle interactions.
- 3) Given that we are trying to learn about the interactions of specific nesting colonies with particular fisheries, it is recommended that the research on the suitability of color coded external tags (Floy tags) be undertaken to aid in recognition of recaptured turtles that may or may not have been pit tagged.
- 4) Establishment of a system of regular and open communication, such as a specific listserve and an annual gathering, to support greater collaboration, information sharing, and technical assistance among Atlantic leatherback researchers and conservationists.

- 5) Encourage the FAO to expedite the adoption of means to reduce leatherback-fisheries interactions (including new gear technologies) and the reporting of leatherback status. (In accordance with recent outcomes of the FAO Technical Consultation Bangkok, 2004).
- 6) Encourage all trawl fisheries operating in the Atlantic where leatherback turtles are impacted to adopt the use of TEDs that exclude leatherback turtles.

- 7) Encourage all states in the Atlantic that are not signatories to the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC) or the CMS MoU for Atlantic Africa to sign and ratify those instruments.

Acknowledgements: The Retreat was organized by Caribbean Conservation Corporation and the St Catherine's Island Foundation. Additional financial support was provided by Hubbs-Sea World Research Institute, Ocean Foundation and Winn Foundation. Scott Eckert and Felix Moncada provided useful information on leatherback turtles in Trinidad and Cuba. A full report on the event is available at <<http://www.cccturtle.org/leatherbacks>>.

Séptima Reunión Anual del Grupo Tortuguero: ¡Revolución Tortuguera!

Kama Dean

Co-Director, Pro Peninsula (E-mail: kama@propeninsula.org)

The 7th Annual Meeting of the Grupo Tortuguero (GT7) was held January 28-30, 2005 in Loreto, Baja California Sur, Mexico. The theme of this year's meeting - ¡Revolución Tortuguera! - reflects the mission of the Grupo Tortuguero to empower people and their communities to conserve sea turtles, inspiring a revolution in our relationship with the ocean. The meeting has grown from a small gathering of 45 peninsula residents who wanted to save sea turtles in 1999, to the region's premiere grassroots conservation meeting.

Focus on Community

GT7 was held in the historic center of Loreto, utilizing local hotels, restaurants and open spaces. We wanted to foster economic activity within the community of Loreto, as well as give participants an opportunity to get to know and understand the beauty and history of Loreto. The central location of the meeting, as well as the use of local businesses, added to the grassroots feel of the meeting and highlighted the importance of community in conservation.

Over 300 people attended GT7 - more than ever before! Participants came from all over the Baja California peninsula, mainland Mexico and the U.S., and represented communities, grassroots and international organizations, government agencies, businesses, cultural societies, universities and research institutions. This unique blend of fishermen, scientists, students and activists is what sets this meeting apart; it is truly a diverse group of individuals connected by a common goal: bringing healthy sea turtle populations back to the Eastern Pacific.

The Orantes Prize: Celebrating Native Cultures

This year members of two indigenous groups, the Seri community of Sonora and the Nahuatl community of Colola, Michoacan, were chosen to receive the Don Manuel Orantes Conservation Award. The award is named after one of the pioneers of sea turtle conservation on the peninsula, and is given at the meeting each year for outstanding conservation work. Thanks to the efforts of Pro Peninsula staff, our funders, and the communities themselves, five members of the Seri

community and three members of the Nahuatl community were present to accept their awards and celebrate their work along the Pacific coast of Mexico to rescue the black sea turtle.

1st Encuentro para Niños

In order to include the next generation of sea turtle protectors, this year a separate youth conference ran concurrent to the adult conference. The encuentro was an overwhelming success! Close to 40 youth participated in the conference and learned about the life of sea turtles, created turtle murals, performed plays and songs, and went on night monitoring walks searching for nesting turtles.

Acknowledgements: This year's meeting would not have been possible without the support of our sponsors and the tireless efforts of our volunteers- we thank you! Animal Alliance, Fernando Arcas and the GEA Staff, H. VIII Ayuntamiento de los Cabos, Barb Andrews, Baja Books and Maps, Blue Ocean Institute, George Binney Foundation, Ann Brownlee, California Academy of Sciences, Erika Castanon Moreno, Conservation International, Gayle and John Dean, Defenders of Wildlife, Stephen Delgado, Cecilia Fisher, Grupo Ecologista Antares, Mary Joy Harris, Heather Glass, Hermosa Beach Sister City Association, IEMANYA Oceanica, International Community Foundation, Journey Mexico, Tony and Linda Kinner, Gabriela Llañez, Loreto Bay, Loreto Bay Foundation, David Maldonado Diaz, Carl Moczydlowsky, Peter Marquez, Bertha Montano, National Marine Fisheries Service, Melissa Pastón, Hoyt Peckham, PROBEA, ProCaguama, Programa para la Protección de la Tortuga Marina del Municipio de Los Cabos, B.C.S., Karen and Sasha Retford, Mark Spalding, Erin Spencer, Graciela Tiburcio, UABCS, Underwater Images, U.S. Fish and Wildlife Service, Frances Velay and the Panaphil Foundation, Velas de Loreto S de RL de C.V., Wildcoast, Sam Wilks, World Wildlife Fund, Mexico, Annie Young, Darlene and Gray Tait.

For a list of participating communities, as well as the titles and summaries for all presentations, documentaries and workshops please contact Pro Peninsula at <info@propeninsula.org> to request a copy of the conference proceedings or visit <<http://www.propeninsula.org>>.

The African Regional Meeting at the 25th Annual Symposium on Sea Turtle Biology and Conservation

Angela Formia¹ & Manjula Tiwari²

¹*Department of Animal Biology and Genetics, University of Florence, Via Romana 17, 50125 Florence, Italy (E-mail: aformia@seaturtle.org)*

²*Marine Turtle Research Program, NOAA-National Marine Fisheries Service, Southwest Fisheries Science Center, 8604 La Jolla Shores Drive, La Jolla, California 92037, USA (E-mail: Manjula.Tiwari@noaa.gov)*

The fifth regional meeting on African sea turtle research and conservation was attended by 22 people, representing 10 countries. Eritrea was present for the first time at a sea turtle symposium, and several participants were also attending for the first time.

The meeting began with an update on the Memorandum of Understanding for the conservation of marine turtles along the Atlantic coast of Africa. The Conservation Plan for the signatory states is now complete and available from the CMS (Convention on Migratory Species). A second meeting of the signatory states is expected to take place this year. In addition, a Resolution on the Memorandum of Understanding (MoU) Concerning Conservation Measures for Marine Turtles of the Atlantic Coast Of Africa was presented to the group, thanks to the efforts of Jack Frazier and Manjula Tiwari. This resolution urges states whose waters are included within the Atlantic coast of Africa, or whose flag vessels or nationals impact the turtles and their habitats in this region, to sign and support the MoU. Following minor modifications, the resolution was approved for submission to the International Sea Turtle Society Board of Directors and plenary meeting. With respect to the CMS, project representatives were reminded to submit their CMS project questionnaires, recently circulated online. These are used to report to the CMS (and according to the MoU) the accomplishments and priorities of each project. Gathering this data is an important way to indicate to the CMS that projects are active in the region and deserving of continued support.

Michael Coyne of seaturtle.org presented several services and tools available to African sea turtle researchers through the seaturtle.org website. These include the Africa Fund Drive, which due to the Tsunami Relief Campaign had to be temporarily removed from the main homepage, but which will be re-established in the next few months. The Africa Fund Drive is expected to gather funds to be disbursed to African sea turtle projects based on an application process to be defined. The Fund will allow projects to gain visibility and to facilitate raising of matching funds, in support of small projects which can make a big difference in African sea turtle conservation. The Fund page currently presents short descriptions of several ongoing projects, but its final aim is to increase its focus to become representative of African sea turtle projects as a whole. Another communication tool available through seaturtle.org is the web logs, diaries written by sea turtles around the world and posted regularly. This is the second most read item on the site, so would be a good way to disseminate information and issues on African sea turtles. Michael encourages anyone who would like to submit news stories or logs of their experiences to contact him for a blog author account.

Brendan Godley of the Marine Turtle Research Group suggested that the African regional group should make an official statement to

the symposium in favour of greater emphasis on African sea turtle research and the promotion of greater African representation at the 2006 symposium in Greece. It was agreed that the issue would be raised at the Board of Directors' meeting for discussion, given that next year's symposium appears to be the ideal venue to emphasise Africa due to geographic proximity and because fewer visa obstacles are expected for those wishing to travel from African countries. Additionally, as editor of the Marine Turtle Newsletter, Brendan suggested that a special issue of the newsletter could be produced on the status of African sea turtles. The importance of publications and the increase of project visibility were stressed. Publication of a brief organisational profile in the MTN was encouraged as a way to make African activities known to the wider sea turtle community and to improve a group's publication record (which donors tend to view favourably).

The Africa discussion listserv, also supported by seaturtle.org, currently has 140 members. The group discussed how to make participation more beneficial to listserv members, so that the list can be a communication tool to share experiences and collaborations within African sea turtle projects, rather than as a source of expert advice (for which other sources such as cturtle are more appropriate). Greater collaboration between regions and neighbouring countries was advocated, hopefully facilitated by the listserv. It was mentioned that language barriers, as well as geographic barriers (East/West/North Africa, or Atlantic/Mediterranean/Indian ocean basins) make it difficult for members to form a cohesive group. Although it was suggested that the African group should be split according to a more well-defined regional focus, it was eventually decided that this would unnecessarily dilute efforts and that sufficient points of common interests and objectives exist within the African continent as a whole. The strength of the group derives from its identity as a unit, and it was decided to continue to develop bonds within the group by encouraging participation, though at the same time maintaining existing sub-regional networks.

Arona Soumare, the representative from Senegal, brought to the attention of the group the potential of large organisations, such as the WWF, to become more involved in sea turtle symposia and programmes spanning large regions (such as the East and West Ecoregions, where WWF is implementing regional action plans). Regional-level meetings such as those sponsored by WWF could be used to increase exposure of sea turtle conservation issues. At the Western Indian Ocean Regional Meeting, for instance, 10 countries recently met to further develop their network, define priorities for action and produce a status report for the region.

One of the suggested objectives for the group was the compilation of a list of potential funders for sea turtle projects in Africa, including those providing support for fieldwork, education and training, and

conference participation. It was suggested that the Africa listserv can be used to pool common funding information into a reference list for all to benefit from. Another suggestion was the creation of a newsletter (possibly online) which could compile African blogs or other news stories, allowing the prompt announcement of urgent issues and other relevant events. Yet another suggestion was the creation of a regional training centre in Cabo Verde where workshops could gather sea turtles from around Africa.

Other points on the agenda included delivering messages to the group from absent members Josea Dossu-Bodjrenou and Jacques

Fretey (Jacques solicited ideas for priorities in preparation of a GEF proposal submission). Finally, Sarah Matthews, representative of the Brock Initiative (www.brockinitiative.org), described the aims of her organisation which works with NGOs, researchers and local people to make conservation films that can be produced and distributed with small budgets yet are of good quality, and can be highly effective in education and environmental campaigns. She solicited collaborations with any interested projects, as well as any available footage.

Workshop Report: Rehabilitation of Injured Sea Turtles in the Mediterranean

Aliki Panagopoulou

ARCHELON, the Sea Turtle Protection Society of Greece, Solomou 57, GR-104 32 ATHENS, Greece (E-mail: aliki@archelon.gr)

The Mediterranean Workshop for the rehabilitation of injured sea turtles was conducted on 19-20 November 2004 at the town hall of Glyfada, close to Athens, Greece. The Workshop was organised by ARCHELON, the Sea Turtle Protection Society of Greece and the Municipality of Glyfada, which has supported the operation of ARCHELON's Rescue Centre for more than ten years. The meeting took place in the context of a LIFE-Nature project undertaken by ARCHELON and co-funded by the European Commission, aiming to reduce mortality of sea turtles in the Greek seas. Over 30 colleagues from across the Mediterranean participated in the meeting, which was chaired by Dimitris Margaritoulis, Regional Chair of IUCN's Marine Turtle Specialist Group, while UNEP-RAC/SPA was represented by Atef Ouerghi.

The aim of the workshop was to bring together sea turtle experts from across the region in order to exchange experiences and expertise so that rehabilitation practices and the efficiency of stranding networks can be improved. Another important aim of the workshop was to explore the opportunities that rescue centres may provide to sea turtle conservation in the Mediterranean, as well as the benefits of creating a network of Rescue Centres in the region.

The meeting was divided into four sessions, each addressing different aspects of the operation of rescue centres and included a guided visit to ARCHELON's Rescue Centre, which was launched in 1994 and has treated over 450 sea turtles.

During the discussion on the infrastructure suitable for rescue centres, the participants stressed the fact that RAC/SPA guidelines are available for reference in setting up Rescue or Emergency Centre facilities, which can be downloaded at <http://www.rac-spa.org/download/gllrs.pdf>. The second session concerned sea turtle rehabilitation methods. Using specific cases and examples, important issues such as euthanasia and the significance of temperature were discussed.

The most important discussions involved determining the priorities of a conservation orientated rescue centre and exploring the possibility of creating a Mediterranean Sea Turtle Rehabilitation Network. It was agreed that a conservation orientated rescue centre

should include activities concerning the rehabilitation of injured or debilitated sea turtles, environmental education and public awareness, having access to a stranding network and/or outreach to fishermen, being part of a network which can influence policy makers and assessing and communicating on causes of death or injuries. This should be the foundation from which the Rescue Centre can expand into further conservation orientated measures, which are more remote from the rehabilitation of individual turtles (e.g. field research, monitoring, training).

All participants stressed the need for communication among Mediterranean Rescue Centres. This communication should focus in topics such as sharing expertise, protocols, re-housing of turtles to centres with differing facilities, profiles of rescue centres being made available between the group, documentation and databases and volunteer and staff exchange. As a first step towards the creation of such a network, it was decided that Rescue Centres should communicate electronically, initially without the setting up of a listserv. It was also decided to set up a web page in an appropriate website, not affiliated to any specific organisation or country (e.g. Mediterranean domain in MTSG website) with public and restricted access sections. The web page will be mastered by Vasilis Kouroutos, while the editing team was decided to be Flegra Bentivegna, Paolo Casale, Alvaro G. De Los Rios Y Loshuertos, Atef Ouerghi, and ALan Rees (coordinator).

The Workshop closed with the preparation of a draft document containing the conclusions and agreements made among the participants for each of the sessions. For the complete Workshop Results and Conclusions Document, please Aliki Panagopoulou, aliki@archelon.gr.

Acknowledgements: ARCHELON wishes to thank the Municipality of Glyfada for providing the venue for the workshop, the dinner in honour of the participants and their continuing support of ARCHELON's Rescue Centre. Thanks are also due to the Greek Ministry of Agriculture for providing documents concerning the existing legislation on the operation of Wildlife Rehabilitation facilities in Greece.

Seri Leatherback Release Ceremony: Renewing Spiritual and Ecological Traditions

Kama Dean

Co-Director, Pro Peninsula (E-mail: kama@propeninsula.org)

Due to declines in leatherback populations, the last time the Seri people, an indigenous group from northwest Mexico, were able to perform their sacred four-day ceremony celebrating the animal was in 1981. The Seri consider the leatherback, the largest of all sea turtle species, sacred and have profound respect for the animal. Years ago on the rare occasion when a leatherback was captured, the ceremony was held to provide protection for the turtle before it was released, unharmed. Today, the Pacific leatherback is one of the world's most endangered marine turtles. The Seri have strong emotional, spiritual and cultural ties to the leatherback and the elders are dedicated to continuing their ceremonial practices in order to bring protection to the leatherback and to the people of the region. The elders envision singing to the leatherback and praying for her protection once again. Both the youth and elders fear that without a concerted effort the ceremonial traditions could be lost.

During the first week in February, five members of the Seri community had the opportunity to perform the ancient and nearly forgotten ceremony. In collaboration with Pro Peninsula, the Grupo Tortuguero and ASUPMATOMA, a group of Seri travelled to Agua Blanca, BCS, a leatherback nesting beach on the east cape of the peninsula, to perform the release ceremony with leatherback hatchlings. In Agua Blanca, ASUPMATOMA runs an incubation programme to ensure the successful hatching of leatherback eggs.

The full four-day ceremony was performed in Agua Blanca, with a few modifications. A number of precautions were taken to safeguard the fragile hatchlings that were used for the ceremony, including keeping the turtles in the incubator as opposed to a house built by the Seri. Additionally, the ceremony is traditionally a community event, with an entire Seri village taking part in the festivities. There were only five Seri members present at this ceremony, however members of Pro Peninsula, Grupo Tortuguero, ASUPMATOMA and others became the community, painting their faces, dancing, playing games, and taking part in all aspects of the sacred activities. This traditional ceremony puts emphasis on the importance of protecting sea turtles throughout the region and renews the spiritual and cultural practices of the Seri Indians. This monumental event helped the Seri elders pass this important tradition on to the next generation of conservationists, the Seri youth.

Acknowledgements: We would like to thank ASUPMATOMA, Raquel Briseno, World Wildlife Fund, Mexico and the Seventh Generation Fund for their support in making this event a reality. To see a collection of photos from this event, visit <<http://www.propeninsula.org/>>. For more information on the event, email Pro Peninsula at info@propeninsula.org.

Report of the XII Meeting of Latin American Sea Turtle Specialists (Savannah, Georgia, January 17-18, 2005)

Shaleyla Kelez¹, Martin Laporta², Gustave Lopez³ & Anabella Barrios⁴

¹Grupo de Tortugas Marinas – Peru / APECO, Parque Jose de Acosta 187, Lima 17-Peru, skelez@yahoo.com, ²C.I.D., Proyecto Karumbé, Tortugas Marinas del Uruguay, J. Paullier 1198/101, Montevideo-Uruguay, negrolapo@adinet.com.uy, ³Projeto TAMAR-IBAMA, Caixa Postal 2219 Salvador, Bahia, CEP 40223-970 Brazil, guslopez@tamar.org.br, ⁴MILENYA, 14 av A 15-10 zona 6, Guatemala 1006, anabella_barrios@yahoo.com

As every year, the Latin American Meeting was held two days before the Annual Symposium on Sea Turtle Biology and Conservation. This year's meeting, in Savannah, was titled "Incidental Captures of Sea Turtles in Latin America: Sharing Experiences". The Organizing Committee chose this theme because currently a great amount of effort to conserve sea turtle populations needs to be brought to the sea where fisheries are one of the main threats that sea turtle have to face. Nowadays there is an enormous necessity for Latin American countries to work together with the fishermen in order to find out the best practices that will allow them to continue fishing but will also conserve sea turtle populations.

A total of 65 persons including scientists, conservationists and government representatives participated in the meeting. Twelve Latin American countries were represented: Argentina (2), Brazil (4), Colombia (3), Costa Rica (7), Ecuador (2), Guatemala (6),

México (13), Nicaragua (2), Panamá (2), Perú (3), Puerto Rico (2) and Uruguay (1). Also, five non Latin American countries were represented by scientists that conduct or support research in Latin America: Germany (1), Australia (2), Spain (1), USA (11), UK (3).

On the 17th January the meeting started with national presentations about sea turtles interactions with national fishing practices, programmes and activities currently ongoing to minimize these interactions, and future projects that would be developed. A special format for these presentations was prepared. Later Juan Carlos Cantu talked about the best practices for handling, dehooking and liberating sea turtles captured incidentally, Joca Thome shared Proyecto TAMAR-IBAMA's experience working together with fishermen in Brazil, Marco Solano talked about the Inter American Convention for the Conservation and Protection of Sea Turtles (IAC) and the Second COP's results and agreements.

The second day, the meeting started with the last part of the national presentations. During the rest of the day, six presentations were made; Randal Arauz talked about the importance and the role of on-board observers in sea turtle conservation; Martin Hall presented ideas to design and standardize experiments to reduce sea turtles incidental capture; Rod Mast gave the participants key points to collect funds and also a report about the activities of the Marine Turtle Specialist Group. Martin Laporta presented a talk on the importance of working with fishermen and their role in the conservation of sea turtles. Larry Crowder presented the Global Bycatch Assessment project and Gustavo Lopez explained the use of Geographic Information Systems in the sea turtle incidental capture studies. The meeting ended with final reflections about all the information shared during the last two days. It is very important to mention that this meeting allowed many of the participants to

increase their knowledge about what is going on with sea turtles and the incidental capture by fisheries. Several participants mentioned that in their countries there are no mitigation measures being applied. Moreover, in some countries there is a huge lack of information about the level of the impact that fisheries cause in sea turtles populations.

The XIII Meeting of Latin American Sea Turtles Specialists will be held next year in Greece two days before the 26th Annual Symposium on Sea Turtle Biology and Conservation. The Organizing Committee will soon be elected.

Acknowledgments: The Organizing Committee want to thank the following people for all their help to make the meeting possible: Thame Wibbels, Jaime Peña, Jeff Seminoff, Etilma Morales, Ana Barragan, Jack Frazier and Patricio Opay. Thanks to WWF, UICN and the IAC Secretary for economic support.

BOOK REVIEW

Title: Sea Turtles: A Complete Guide to Their Biology, Behavior, and Conservation

Year: 2004

Author: James R. Spotila

Publisher: Johns Hopkins University Press, Baltimore

<<http://www.press.jhu.edu>>

ISBN: 0-8018-8007-6

Pages: 240

Price: US \$24.95

Years ago, when rifling through the reprint library of my graduate supervisor, I remember finding the engrossing seminal sea turtle publications written by Caldwell, Carr, Harrison, Hendrickson, Hughes and Pritchard. These days, scientific journals don't afford the space or leeway that earlier authors had to include their personal observations, anecdotal stories and vibrant writing, much less their own opinions. In Jim Spotila's new book, there is plenty of room for all of these along with factual information, and the combination keeps the reader engaged. And those pictures – they make even loggerheads look beautiful! The gorgeous color photographs are of National Geographic caliber (in fact, several of the photos come from their image library) and the drawings are quite appealing. The book itself is organized into different chapters that cover basic biology, natural history, paleontology, conservation, and each of the seven species (or “swimmers”). Interspersed are maps, tables and about a dozen profiles of researchers or conservationists whose work impacts sea turtle conservation. The qualities of this book have been covered in two recent reviews (Hays 2005; Janzen 2005), and I agree that the author has done a good job of covering much of biology of sea turtles and their conservation.

However, every rose has its thorns, and the following are examples of three types of shortcomings of “*Sea Turtles*.” First, the book has several errors (e.g. on page 41, fibropapillomatosis tumors actually can and often do grow back after surgical removal; on page 63, *Natator* is missing from the list of existing genera in the

Cheloniidae). Second, the book is incomplete in terms of appropriate credit. For instance, the jacket cover suggests that Spotila was the first to document TSD in sea turtles when in fact TSD was first described by Yntema and Mrosovsky in the pages of this newsletter in 1979. Also, mating of leatherbacks off the nesting beach is stated to have been discovered by Spotila's team of collaborators (page 202), when a note on this behavior in Suriname had been published previously (Godfrey & Barreto 1998). These are two cases with which this reviewer is familiar. Hays (2005) noted a lack of attention given to recent advances in telemetry work and I am sure that others may find further omissions.

Finally, Spotila's opinion of what constitutes “good” and “bad” conservation may be hard for some to swallow. On page 76, he offers a list of ten best and ten worst countries for sea turtle conservation, apparently ranked according to a matrix of factors. Not surprisingly, Asian countries fare rather poorly (6 out of 10 on the “worst” side) with Japan at the top of the list. Cuba makes it to 9th worst place, although others have rated its sea turtle management program as “commendable” (Fleming 2001). Interestingly, the USA is ranked as second best for sea turtle conservation even when some of Spotila's criteria include managing fisheries related mortalities. Note that more than 3000 stranded turtles were documented on the east coast of the USA in 2001 (STSSN 2005). If the number of observed strandings represents between 7-13% of actual fisheries-related mortalities (Epperly et al. 1996), then the real number of sea turtles killed or injured in 2001 in US waters was more than 17,000 individuals. French Guiana, ranked 6th best, does not require the use of TEDs and has ongoing bycatch of adult leatherbacks in some of its gillnet fisheries (Chevalier 2001). For this reader, it appeared that the overriding criterion used in the ranking was whether the countries allowed consumptive use of sea turtles and/or their eggs and products. Costa Rica is an exception to this rule: it ranks in the top 10 ‘best’ countries while maintaining a legal harvest of eggs in Ostional. Altogether, a subjective list of this kind is of little utility. Finally, the most deeply felt thorn jabbed me on pages 141-143, in the discussion of the management program at Ostional. Not only

is Spotila too dismissive of the biological work done in Ostional under always limited financial and more recently tumultuous political circumstances, but he puts a new twist on the social accomplishments of the project, arguing that the continued harvest of eggs is somehow repressing the pride, ambitions and education of the villagers of Ostional. Funny, I've read that the egg collection cooperative at Ostional has used some of the money from the harvest to pay for a house for a school teacher, a communal building for use by visiting health care workers, the extension of electricity to the village, and for educational scholarships for youths in their community (Campbell 1998). Isn't this part of community-based conservation that Spotila extols the virtues of on pages 84 and 90? Overall, while I enjoyed such a book that allows for assertions, they were sometimes too much for me.

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Reviewed by Matthew H. Godfrey, North Carolina Wildlife Resources Commission, 1507 Ann Street, Beaufort, NC 28516 USA (E-mail: mgodfrey@seaturtle.org)

ANNOUNCEMENTS

The Sea Turtle Symposium in Greece

Dimitris Margaritoulis

President-Elect, International Sea Turtle Society, c/o ARCHELON, Solomou 57, GR-10432 Athens, Greece (e-mail: margaritoulis@archelon.gr)

The 26th Annual Sea Turtle Symposium will take place in Greece, at the crossroads of Europe, Africa and Asia. Specifically it is scheduled for 4-8th April 2006 on the island of Crete. Negotiations are going on with three candidate hotels, all of which are close to the international airport of Herakleion. The venue will be posted, as soon as it is finalized, at the Symposium website, CTURTLE and other listservs. A detailed announcement will appear in the

July edition of the Marine Turtle Newsletter. Please note, that in addition to the usual mandate of excellent oral and poster presentations, there will be special sessions focusing on marine turtles in the Mediterranean and adjacent regions (e.g. Africa) as well as on other inspiring subjects (e.g. ecological roles of sea turtles). Start your preparations from now and do not miss the opportunity of a springtime holiday in Greece.

International Graduate School of Conservation Biology 2005

In order to enhance education and capacity building in the field of scientifically sound biodiversity conservation, the Croatian Biological Society is organizing a School of Conservation Biology (SCB). This year, SCB is mostly aimed at marine conservation biology. It will take place in the historic city of Rovinj, Croatia, on northern coast of the Adriatic Sea, from 29 May to 5 June 2005.

It will introduce graduate students to the scientific discipline of conservation biology, through an intensive, practical 8-day course. The School will be taught in English by a team of international lecturers and guest speakers, lead by Asst. Prof. Selina Heppell (Department of Fisheries and Wildlife, Oregon State University,

and adjunct faculty at Nicholas School of the Environment, Duke University, USA). It will include lectures, discussion groups, computer practicals, group projects and a two day field course. As SCB will also include basics of population dynamics and modeling of sea turtles, graduate students working on sea turtles are encouraged to apply for the School.

Detailed information on SCB program, instructors, course and lab topics may be found at SCB web: <http://www.hbd1885.hr/scb>. **Bojan Lazar**, President of SCB Organizing Committee, Department of Zoology, Croatian Natural History Museum, Demetrova 1, HR-10000 Zagreb, Croatia (E-mail: Bojan.Lazar@hpm.hr)

The UK Leatherback Turtle Tour

Jodie Le Cheminant

London Zoo Aquarium, Zoological Society of London, Regent's Park, London NW1 4RY, (E-mail: jodie.lecheminant@zsl.org.)

A life size model of a leatherback turtle is currently touring around England, Wales, Scotland and Ireland as part of the EAZA Shellshock campaign. It is visiting 34 aquariums and zoos and ending its tour in October. Its aim is to raise awareness and funds for desperately needed tortoise and turtle conservation projects identified by ShellShock as critical, including a leatherback satellite tracking project in Africa. See <http://www.eaza.net> (and under "campaigns" on the website) for more information on the ShellShock campaign and <http://www.zsl.org> for a list of tour venues and dates. Watch out for the turtle's progress on its tour and help make its journey as successful as possible! If you would like any further information about the turtle tour contact Jodie Le Cheminant (details above).

Research Vessel Available

Mike Marshall

Dos Mares Coastal Zone Institute, P. O. Box 20818, Bradenton, Florida 34204-0818 USA (E-mail: mike@dosmares.org)

Dos Mares Coastal Zone Institute <<http://www.dosmares.org>> would like to announce the availability of a 45 foot research vessel for projects in Nicaragua. It is equipped for fisheries research but it can be used for a wide range of projects. It is based in Bilwi (=Puerto Cabezas), Nicaragua. From there it is a 6 hour trip to the Cayos Miskitos. We can also provide trilingual (Miskito, Spanish, and English) research assistants and guides. Please contact: Mike Marshall for availability and costs.

Bibliography of the Loggerhead Sea Turtle

C. Kenneth Dodd

USGS/Florida Integrated Science Centers, 7920 NW 71st Street, Gainesville, FL 32653 USA (E-mail: ken_dodd@usgs.gov)

The latest version of "A Bibliography of the Loggerhead Sea Turtle *Caretta caretta* (Linnaeus, 1758), Including References to Fossils Placed in the Genus *Caretta*" dated January 2005, is now available at: <http://www.flmnh.ufl.edu/natsci/herpetology/caretta/caretta.htm#Top>

As always, I am interested in omissions, especially for theses and publications outside the standard international herpetological, ecological, and marine journals. No gray literature or unpublished reports, please! If you have trouble accessing the bibliography, contact Dr. Wayne King at the Florida Museum of Natural History <kaiman@flmnh.ufl.edu>.

Biology of Sea Turtles

Dr. Jeanette Wyneken will be teaching 'Biology of Sea Turtles' from May 16-28 2005. The course involves lectures, lab, and field course and introduces the behavioral, ecological, and evolutionary adaptations of sea turtles. Major topics include species identification, functional anatomy, eggs, nest and hatchlings, orientation and navigation, threats to survival and conservation strategies. Contact Harbor Branch Oceanographic at <www.hboi.edu/education> for information.

NEWS AND LEGAL BRIEFS

This section is compiled by Kelly Samek. You can submit news items at any time online at <<http://www.seaturtle.org/news/>>, via e-mail to news@seaturtle.org, or by regular mail to Kelly Samek, 127 E 7th Avenue, Havana, Florida 32333, USA. Many of these news items and more can be found at <http://www.seaturtle.org/news/>, where you can also sign up for news updates by E-mail.

GLOBAL

UN Report: Shut Down Fisheries to Save Sea Turtles

A new report by the United Nations Food and Agriculture Organization (FAO) has repeated the recommendation of an earlier panel of experts that immediate attention be given to the plight of endangered Pacific leatherback and loggerhead sea turtles. Among recommendations to address the threat of extinction of leatherback and loggerheads, the report recommended that fisheries posing the greatest threats should be closed, fishing capacity and effort reduced and financial support be directed towards developing countries to support conservation efforts. This call for closures echoes statements made by 622 scientists from 54 countries and representatives of 173 non-governmental organizations from 35 countries urging the UN to take immediate action to protect turtles by implementing a Pacific-wide moratorium on gillnets and longlines. Source: Sea Turtle Restoration Project press release, 29 November 2004.

UN Agency Draws up Fishing Guidelines to Avoid Deaths

The United Nations Food and Agriculture Organization (FAO) will soon start working on a series of guidelines to reduce accidental sea turtle deaths in fishing by promoting the wider use of new technologies, such as hooks and bait that do not snare the endangered creatures. The guidelines will be based on recommendations drawn up by a group of 28 countries and the FAO at a technical meeting in Bangkok, Thailand, organized by the agency's Fisheries Department. The FAO will begin producing bi-annual reports to provide updates on the status of sea turtles stocks as well as on progress in reducing fisheries-related impacts on turtles. It will also assist governments in assessing sea turtle-fisheries interactions and putting appropriate management measures in place - with a special focus on assisting developing countries, which often lack the technical capacity or financial resources needed to undertake this work. Source: UN News Centre, 22 December 2004.

AFRICA

West African Gas Project: Unresolved Environmental Issues

As the consortium of oil companies plan to revive the West African Gas Pipeline project (WAGP) that will pipe gas from Nigeria to some West African countries, experts and concerned groups want the issue of environmental impact of the project resolved. Chevron is leading a consortium of private company investors financing the development of a 690km gas pipeline linking natural gas from fields in Nigeria to markets in Benin, Togo and Ghana at an estimated cost of US \$500 million. Having considered these factors and others, environmental experts, watchers and rights bodies are recommending that construction work should be halted until the EIAs are improved to include the creation of a specific action plan to aid in the presentation of threatened sea turtle species found

in the project area and maps and risk impact assessment of the pipeline on fishing zones, protected habitats and residential areas, corals and turtle nesting sites in Ghana. Source: AllAfrica.com, 7 November 2004.

THE AMERICAS

Adrift in Nets

Divers removed more than 10,000 pounds of tangled fishing nets and ropes from a reef in Kaneohe Bay that was endangering living coral, green sea turtles and boaters. The huge mass was the largest amount of marine debris ever removed from a Hawaiian island in one day, said specialists for the National Oceanic and Atmospheric Administration. The work in Kaneohe Bay marked the first time the NOAA divers, who have removed hundreds of tons of debris from the Northwestern Hawaiian Islands, had tackled debris in the main Hawaiian islands. And at least one sea turtle had been snagged in the nets and freed by a passer-by. Source: Honolulu Star-Bulletin, 19 November 2004.

Emergency Sea Wall Plan Could Become Statewide Model

A long struggle seeking protections for endangered sea turtle nesting areas has finally ended as the US Fish and Wildlife Service approved a Habitat Conservation Plan (HCP) that guards wildlife and could potentially serve as a model for future emergency sea wall construction statewide. For over five years, the environmental law firm Earthjustice, representing the Caribbean Conservation Corporation, has been involved in negotiations with Indian River County in eastern Florida and the Florida Department of Environmental Protection to approve an agreement that protects turtle nesting areas from incidental harm due to the construction of illegal emergency sea walls. The county submitted a habitat conservation plan that affects nesting areas for threatened or endangered sea turtle species. Source: *Earthjustice press release*, 2 December 2004.

Hawksbill in 'Drastic Decline' in Mexico

Activists of the World Wildlife Fund called on Mexico and the Caribbean nations on Tuesday to urgently implement plans to reverse what the organization called "a drastic decline" in the population of hawksbill sea turtles. The group said the turtle population had fallen to half its previous levels, according to final reports from counts in 2004. The population numbers were already low, and are now only about half of the 5,595 nests found in 2000 on the beaches of the Mexican states of Veracruz, Campeche, and Yucatan. WWF called on the government to launch studies to explain the decline, and prevent the population from further diminishing. Source: *Associated Press*, 18 January 2005.

La. Shrimpers Get Extended Exception on TEDs

Eastern Louisiana shrimpers can continue to forgo using TEDs through the scheduled end of the current shrimp season. A ruling this week by NMFS extended an order granted shortly after mid-September hurricanes littered shrimping grounds with debris. Shrimpers reported matted grasses, branches, sunken buoys and metal roofing material getting caught in their nets. Instead of using TEDs, shrimpers have been asked to limit their tow times. By not trawling as long, officials hope any sea turtles caught in nets will not be harmed. Source: *Associated Press*, 27 November 2004.

Endangered Loggerhead Turtles in Serious Decline

Endangered loggerhead turtles along Florida beaches are in serious and rapid decline, but last year's four hurricanes are probably not to blame, experts said. According to the Archie Carr National Wildlife Refuge, a 20-mile stretch on Florida's east coast from Melbourne Beach to Wabasso Beach, the number of loggerhead nests have dropped steadily since 1998, from 18,000 nests to approximately 8,000. Loggerhead nesting activity is inconsistent from year to year. There are high and low cycles that last a few years each and are considered normal. But after six years of lows, experts say something might be wrong. Source: *Associated Press*, 21 January 2005.

County Passes Tougher Turtle Protection

Despite opposition by some beachfront homeowners, Sarasota County commissioners agreed to give greater protection to nesting sea turtles. By a unanimous vote, commissioners agreed to amend the sea turtle protection ordinance to require beach-front property owners to remove temporary structures, including beach furniture, on area beaches used by nesting sea turtles at night. The ban would only be in effect during the sea turtle nesting season from May through October. Source: *Venice Gondolier*, 15 December 2004.

Feds Reject Scallop Fishery Closures to Protect Sea Turtles

Federal authorities have concluded that scallop fishery gear hurts, but does not endanger, loggerhead sea turtles and rejected proposals to close mid-Atlantic fishing areas to protect them. The National Oceanic and Atmospheric Administration's Fisheries Service said that while about 750 sea turtles may be killed or injured by heavy scallop dredges in the next year, it will not "jeopardize" the loggerheads or leatherbacks. The finding was immediately criticized by the Washington, D.C.-based environmental group Oceana, which is suing the federal government to require greater protection for the turtles. Source: *Associated Press*, 17 December 2004.

Venezuela Joins US List for Shrimp Export

Venezuela has been added to the list of countries eligible to export wild shrimp to the United States while Trinidad and Tobago and Panama have been dropped because of concerns about conservation of endangered turtles, a notice from the State Department has said. Venezuela joins the group of countries whose exports are certified as eligible because their shrimpers' practices pose no harm to endangered sea turtles, the department said. Trinidad and Tobago and Panama join a few countries, including India, lacking State Department certification that allows them to export wild shrimp to the US. Source: *NewKerala.com*, 5 January 2005.

Hurricanes, Cold Water Devastate Turtle Nests

Four hurricanes, and possibly some nippy water, caused huge drops in sea turtle nesting this year, statewide and in Brevard. Some beaches saw nine of every 10 nests destroyed. Biologists on both Florida coasts found up to 90 percent of sea turtle nests -- and much of the beach itself -- washed away at some beaches. This year's hurricanes thwarted a statewide upward trend for green sea turtles and worsened a six-year drop for loggerheads. Source: *Florida Today*, 29 November 2004.

Flagler Halts Beach Driving

A suit filed in August by longtime sea turtle advocate Shirley Reynolds and part-time northeast Flagler County resident Stephen Belida claims that by allowing beach driving, Flagler is harming sea turtles and violating the Endangered Species Act. Following a 4-1 vote by the County Commission to end beach driving on Flagler County beaches, Reynolds promised to drop her suit. Source: *Daytona Beach News-Journal*, 23 December 2004.

ASIA

Tsunami Affects Turtle Conservation Programmes

Marine turtle conservation programmes surrounding the Indian Ocean suffered considerable damage from the giant ocean waves, severely undermining regional plans to save the highly endangered marine reptile. The Indian Ocean and South East Asian Marine Turtle Memorandum of Understanding (IOSEA MoU) has started assessing the extent of damage following the tsunami tragedy. The secretariat has been coordinating the turtle revival programme in the region since 2001. Facilities in the Indian Nicobar Islands, Sri Lanka and Thailand were the hardest hit with reports of dead and missing field staff and destruction of research stations. The Andaman Nicobar Environment Trust field station at Campbell Bay in Great Nicobar was devastated when seismic waves slammed the island. Six out of seven field staff are still missing. The Gahirmatha marine sanctuary in India's Kendrapara district, the largest breeding ground for the Olive Ridley, escaped the wrath of the tsunami. The Kosgoda nesting beach on the southern coast of Sri Lanka was hit by a six-metre high wave which surged 1.5km inland. The Turtle Conservation Project (TCP) is managed by 17 local egg-protectors, six research officers and some foreign volunteers. Three egg-protectors were swept into the sea. The TCP field station located 1km inland was inundated and suffered damage to equipment and educational materials although the building remained intact. Several privately-owned turtle hatcheries were also affected by the killer waves which shattered holding tanks and washed away the reptiles. Source: *Malaysia Star*, 18 January 2005.

Tsunami Damages Endangered Sea Turtles

Endangered sea turtles were also casualties of the tsunami, with the monster waves possibly hastening their extinction. At least 24 turtles swept up by the waves have been found on the shores of Phuket island, some dead, others with cuts, scrapes and broken shells. But the titanic wave also swept away about two dozen endangered olive ridley turtles that were part of a breeding program which had been increasing their numbers. Their fate is unknown. Source: *Associated Press*, 8 January 2005.

UN to Assess Damage to Coral Reefs, Forests

The United Nations yesterday set aside \$1 million to assess environmental damage caused by the devastating tsunami, as reports of destroyed coral reefs and uprooted mangrove forests began trickling in. Dive operators and marine biologists are reporting that from Sri Lanka to Thailand corals are suffocating under layers of mud, heaps of rotten fish, are clogging beachfronts, and rare turtle nesting sites have been washed out to sea. Source: Boston Globe, 31 December 2004.

Breeding Farm Sea Turtles Lost

The navy's efforts to conserve sea turtles in the Andaman sea have been set back by the tidal waves which ravaged the breeding and conservation centre at a naval base in Phangnga. Three places at Tap Lamu naval base where the sea turtles aged from two months to seven years were bred and raised are now in ruins. Source: Bangkok Post, 1 January 2005.

Saving Sri Lanka's Sea Turtles

The tsunami ended so many human lives, the environmental impact has taken second place. In Sri Lanka, though, there are fears entire species can be wiped out. At particular risk are sea turtles. The waves killed thousands of baby turtles that were to have been released into the sea the very day the tsunami struck. Of more than 20,000 turtle hatchlings ready to be released, only 400 were saved. A 3-year-old green turtle was also swept away. The few turtles that have been recovered were found up to 5 kilometers away washed into a local river system. Source: CNN, 7 January 2005.

Tasman Spirit Oil Spill at Karachi Caused Colossal Damages

The Tasman Spirit oil spill on the Karachi coast last year caused colossal damages to environmental, marine life and the human beings with contaminating approximating 2062 square kilometers of marine area. A few sea turtles were recovered in carcass surveys. Sub-lethal effects are expected in the affected turtle population as turtles feeding in waters within an area of about 200 square kilometers could still be contaminated. Significant levels of PAHs were detected in turtles blood and egg tissue in 2003 nesting period. accumulation of toxic fractions of hydrocarbons such as Polynuclear Aromatic Hydrocarbons (PAHs), and may also produce synergistic negative effects on the metabolic processes and reproductive physiology of the marine organisms living in the oil polluted habitats. Source: *Pakistan Times*, 1 December 2004.

Experts Concerned over Killings

Wildlife experts have expressed concern over rampant killing of olive ridley turtles in Orissa. Every year thousands of the endangered species become prey to the trawlers used for fishing illegally off the state's coast. Trapped in the sharp motor blades, many get ruthlessly butchered or suffocate in the fishermen's gill nets. This year too at least 1,500 turtles have been washed ashore in the last two months after being killed by the trawlers used by fishermen in shallow waters. Nearly 70 dead turtles were counted at the Chandrabhaga and Ramchandi beaches alone. Biwajit Mohanty, an environmentalist, said that patrolling should be intensified day and night along the coastline to prevent illegal fishing. Source: Asian News International, 13 January 2005.

Eight Arrested for Fishing at Orissa Sanctuary

At least eight fishermen engaged in illegal fishing at a protected turtle-nesting sanctuary in Orissa were arrested and their four trawlers seized. The fishermen were caught using mechanized trawlers at the Gahirmatha Marine Sanctuary, in Kendrapada district. Gahirmatha is one of the world's largest turtle nesting sites of the endangered olive ridley turtle. So far, 22 violators have been arrested and ten trawlers seized, following the state government's ban on fishing at these sites during the turtle breeding season. Source: *Indo-Asian News Service*, 16 November 2004.

Orissa Plans for Port Despite Court Order

The Orissa government seems to be going ahead with its plans for a port near the nesting site of the endangered olive ridley turtles despite a Supreme Court order that it be relocated. Though a central empowered committee of the Supreme Court had said in April that the government should look for an alternative site for the Dhamra port in view of the adverse impact on the turtles, Orissa has invited private companies for the venture. As a result of the government's move, several companies like BHP and Larsen and Toubro have announced plans for building the Dhamra port in the coastal district of Bhadrak, only 12 km from the major sea turtle nesting site at Nasi Islands in Gahirmatha. This could sound a death knell for the turtles, warned Biswajit Mohanty, secretary of the Wildlife Society of Orissa. Source: *Indo-Asian News Service*, 18 November 2004.

EUROPE

Greece Taken to Court over British Tourists

Greece is being taken to court by the European Commission – for failing to protect rare sea turtles against UK holidaymakers. Young tourists out for a good time on the Greek island of Zakynthos have been blamed for destroying the breeding grounds of the loggerhead sea turtle. The new Greek EU environment Commissioner Stavros Dimas is taking his own country to court for risking the extinction of one of the world's most endangered species. Source: *The Scotsman*, 14 December 2004.

OCEANIA

Local Solutions for Threatened Leatherback Turtles

Marine environmentalists from Canada, the US and the Pacific meeting in the Solomon Islands say they hold serious fears over rapidly falling numbers of giant Leatherback turtles in the region. Delegates representing coastal communities from PNG, Solomon Is, Vanuatu and Indonesian-Papua, along with marine environmentalists and conservation NGO's attending the Melanesian Marine Turtles Conservation Forum in Gizo, Western Province, say that swift action is needed to prevent the threat of possible extinction of the leatherback from the region. While the waterways in and around Vanuatu, the Solomon Islands and Papua New Guinea have been home to the world's largest Leatherback populations, studies now show that the reptiles may soon disappear from all Pacific waters. Source: Port Vila Presse, 2 November 2004.

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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.

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Michael Coyne (Online Editor)
Marine Turtle Newsletter
1 Southampton Place
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