Marine Turtle Newsletter

Issue Number 94. *October 2001.*

Marma Tribal trader offering olive ridley turtle eggs for sale in a market at Bandarban, Bangladesh (Islam pp. 10)

IN THIS ISSUE:

ISSN 0839-7708

MTN/NTM Online - The *Marine Turtle Newsletter* and *Noticiero de Tortugas Marinas* are both available at the MTN web site: <http://www.seaturtle.org/mtn/> and <http://www.seaturtle.org/ntm/>.

Noticiero de Tortugas Marinas (NTM) - This is the Spanish edition of the MTN. Submissions should be made to the editors of the MTN.

Subscriptions and Donations - Subscriptions and donations towards the production of both the MTN and NTM should be sent c/o Chelonian Research Foundation (see inside back cover for details).

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Produced with assistance from:

CONSERVATION INTERNATIONAL

CHELONIAN RESEARCH FOUNDATION

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

U.S. FISH & WILDLIFE SERVICE DEPARTMENT OF THE INTERIOR

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Editorial MTN/NTM: Status Update

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There were a number of issues pertaining to funding of the MTN which we highlighted in MTN 92: 1 (Editorial: Making the books balance and the look to the future) which we revisit here:

NTM: suspension of hardcopy distribution imminent

In our appeal in MTN 92 we asked NTM readers to become more involved, helping us to find potential sources of funding to specifically support the Spanish version. We received no response. An additional more recent appeal for letters of support to assist us with funding initiatives through e-mail networking raised few responses. We regret, therefore, that unless we find a major donor to specifically support the NTM in the coming months we will have to suspend the hardcopy subscription of the NTM until further notice. The NTM will still be made available in PDF format at the NTM archive <http://www.seaturtle.org/ntm/archivos.shtml> and all NTM readers will receive a copy of the MTN unless they request removal from the hardcopy mailing list. We regret having to take these measures but unless we are sure that the NTM is fully appreciated (the NTM costs nearly 4 times more per capita than each MTN) we have to be economical with limited funding.

The MTN still needs your donations!!

The Editors and Editorial Board are currently proactively seeking funds to allow the MTN/NTM increased financial stability. Indeed, we have seen both Cayman Turtle Farm and Seaworld Inc. return as major donors in recent months. We still have a long way to go and need to encourage donations from private individuals and small organisations. We included a donation form with issue 92. Thank you if you completed and returned it along with some funds. If you didn't, please do so today. Remember, there is now a secure donation interface within the MTN-online which is linked from the front page <http://www.seaturtle.org/mtn/>

How many are you?

As we try to rationalise our limited resources and find additional funding to allow the role of the MTN to increase, it is worthy to examine the magnitude and geographic scope of the MTN. The MTN has grown substantially since its inception by Nicholas Mrosovsky in 1976. The subscription base of the MTN hardcopy stands at approximately 1620 and the NTM at 330.

MTN-online: from strength to strength!

Already more and more of you are switching to online usage. It is envisioned that this number will be ever-growing, especially once all issues (1-present) are available online which we envision with the next year. The usage of the online version is ever increasing (see figure 1) and already 465 of you are registered online subscribers. Please consider removing yourself from the hardcopy list today but please also visit MTNonline subscription services <http://www.seaturtle.org/mtn/subscribe/> and register as an online user so that you can be sent regular updates and so that we know how many online users we serve.

Where are you?

The MTN/NTM is used in over 100 nations spanning the globe (See figure 2). However, we are aware that there will be many worthy candidates who would benefit from receipt of the MTN/NTM. Please put them in contact with us. We are particularly keen to source worthy recipients in the nations that are not yet represented. As part of our current fundraising efforts, we are seeking to source funds to assist with capacity building so that the potential utility of the MTN/NTM can be fully attained.

Guiding the input

The MTN continues to grow not only in geographic scope but also in the amount and diversity of material presented by authors from around the world. Along with popular news digests and recent publications sections: original articles regarding status reports, innovative techniques as well as a host of meeting reports and announcements are included. We thank the many authors for their contributions and encourage more along the same lines. We are especially keen to encourage authors to submit preliminary field reports and updates of time series data, which are so important in the assessment of the status of turtle populations. Finally, the MTN is also the perfect venue for publishing reports of failed attempts at innovation. Save others repeated wasted efforts in the future; tell us when it doesn't work!

Acknowledgements: Many thanks to Anders G.J. Rhodin and Michael S. Coyne for preparation of data and figures used.

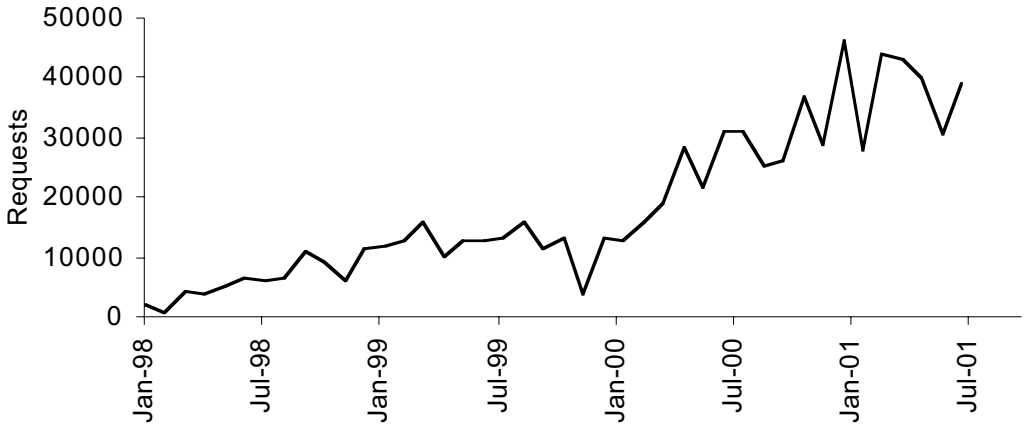

Figure 1 Number of requests for MTN-online pages for each month from Jan 1998 to August 2001. The steady increase in usage is apparent.

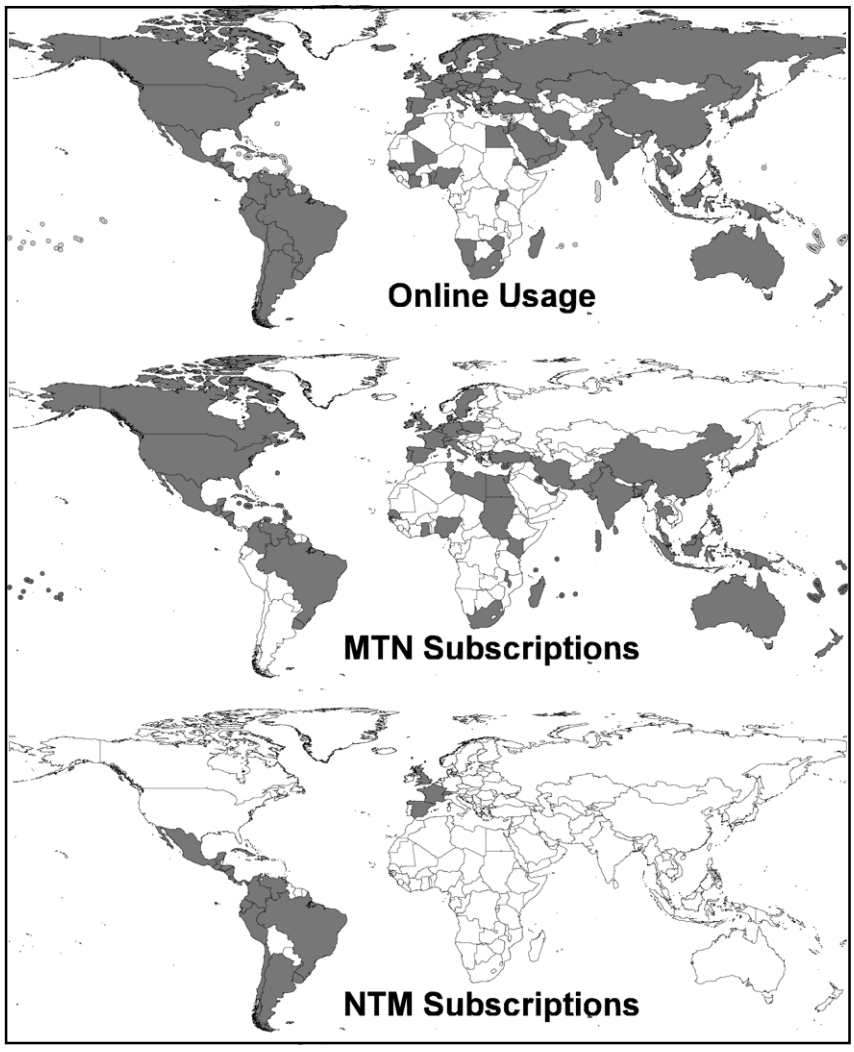

Figure 2 Geographic distribution of usage of the MTN-online, MTN and NTM. It is evident that although the coverage is wide it is not exhaustive and there is still work to be done to ensure the MTN is as widely distributed as it needs to be.

Post-nesting movements of the green turtle, *Chelonia mydas*, nesting in the south of Bioko Island, Equatorial Guinea, West Africa

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Research on sea turtles in the Gulf of Guinea is only quite recent. Therefore, the developmental, nesting and foraging habitats, and migratory routes of most populations, have not yet been fully identified. Integrated knowledge of the different habitats used by individuals within a sea turtle population is indispensable when elaborating conservation programs (Eckert 1999). Conservation efforts in the Gulf of Guinea are crucial due to several serious anthropogenic pressures threatening population survival (Dontaine & Neves 1999; Formia 1999; Formia *et al*. 2000) and the likelihood that this is an area important for regional populations.

Although the presence of four sea turtle species (*Chelonia mydas*, *Dermochelys coriacea*, *Lepidochelys olivacea* and *Eretmochelys imbricata*) nesting in Bioko Island, Equatorial Guinea (E.G.), has been known for a decade (Butynski & Koster 1989), critical population monitoring was not carried out until recently. In October 1996, the Spanish NGO Asociación Amigos de Doñana, in collaboration with the University of Valencia, started a tagging programme on the beaches of the south of Bioko (between 8º23'E-3º16'N and 8º40'E-3º13'N). This programme continued for two nesting seasons, until March 1998. Tagging focused mainly on the green turtle, the most abundant of the four species (Tomas *et al*.

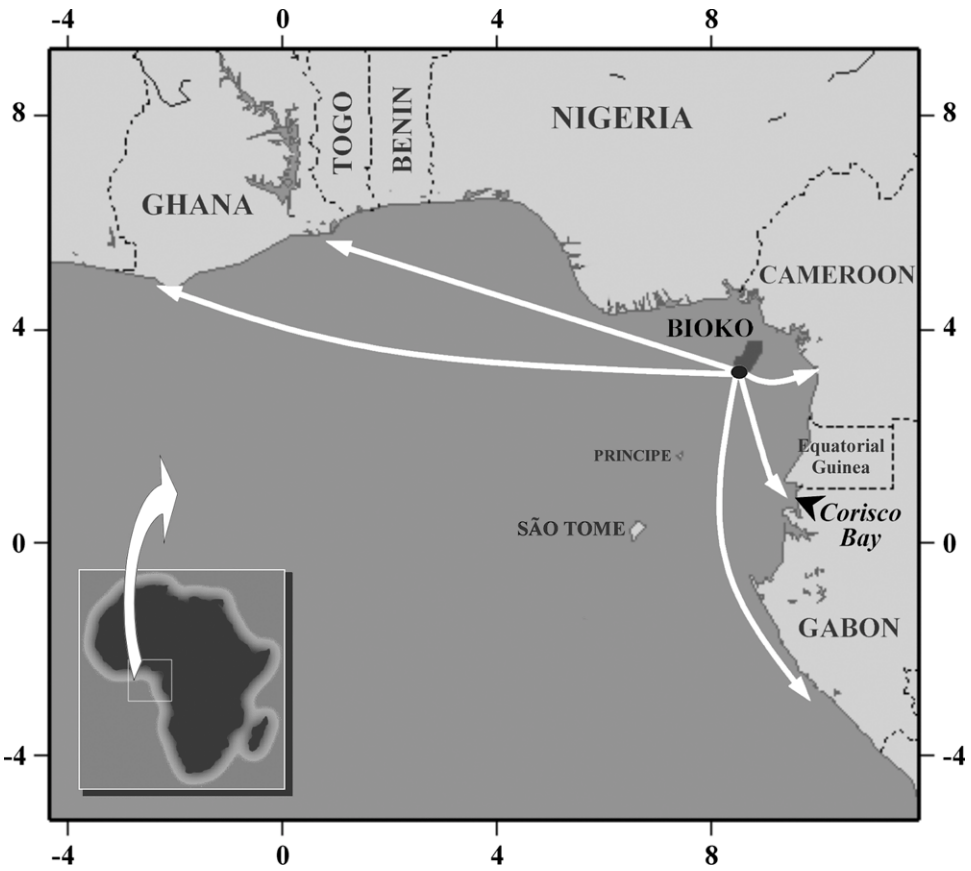

Figure 1. Schematic trajectories of the tagged turtles between South Bioko and their recapture site.

Tagging details			Recapture details					
Tag	**CCL (cm)**	**Date**	**Distance**	**At large (days)**	**Location**		**Method**	**Fate**
392-393*	98	1/13/97	1250	n.r.	Kengen (Ghana)	5º 0' N - 2º 38' W	fished	n.r.
451-452	103	12/3/96	920	250	Ada Seas (Ghana)	5º 40' N - 0º 42' W	fished	released
107-108	101	10/30/96	890	265	Lekpongounor beach (Ghana)	6º 2' N - 1º 3' E	captured near the beach	n.r.
329-330*	103	12/17/96	900	45	east coast (Ghana)	n.r.	n.r.	n.r.
337*-338	100	12/22/96	760	80	Nyanga (Gabon)	2º 59' S - 10º 17' E	fished	released
201*-202	97	11/8/96	350	140-170	Libreville (Gabon)	0º 20' N- 9º 28' E	stranded dead	-
503-504	92	12/12/96	280	270-280	Mbanye Island (Corisco Bay) Gabon	0º 35' N - 9º 30' E	fished	sold for consumption
475-476*	99	12/28/96	280	520-550	Mbanye Island (Corisco Bay) Gabon	0º 35' N - 9º 30' E	fished	slaughtered for consumption
248-249	84	11/21/96	270	n.r.	Corisco (Equatorial Guinea)	0º 55' N - 9º 19' E	fished	n.r.
473*-474	92	12/28/96	270	n.r.	Corisco (Equatorial Guinea)	0º 55' N - 9º 19' E	fished	n.r.
n.r.	-	-	280	n.r.	Cap Estérias (Gabon)	0º 35' N - 9º 20' E	probably fished	sold for consumption
n.r.	-	-	130	n.r.	south coast (Cameroon)	n.r.	probably fished	sold for consumption

Table 1. Recapture data for 12 turtles tagged in the south of Bioko Island (Equatorial Guinea). Includes carapace length (CCLn-t) at the time of tagging, minimum distance from the place of tagging to the place of recapture, time at large, location, capture method and final destination of the turtle.*: lost or unreported tags, n.r.: not reported

1999; 2000). Analysis of recapture data within nesting seasons resulted in a preliminary estimation of a population size of 400-600 female green turtles per season (Tomas *et al*. 1999; 2000). Based on this estimate, South Bioko should be classified as one of the most important nesting areas for the green sea turtle in central Africa, and surely as the most important in the Gulf of Guinea (Tomas *et al*. 1999).

Between 1997 and 1999, several recaptures of turtles tagged in Bioko have been reported from other countries in the region. Based on these tag recoveries, we formulate hypotheses concerning the post-nesting migratory movements of green turtles to their feeding habitats. This is the first study on this subject for green sea turtles in the region.

Materials and Methods

During the nesting season of 1996/1997, we tagged 196 green turtles, and in 1997/98, we tagged 15 more. Of these 211, 168 were marked with two tags in both front flippers, and the rest with one tag in one front flipper. We used yellow plastic cattle-ear tags, with the inscription: BIOKO-SUR APTDO. 2182, 41080 SEVILLA-SPAIN. In the entire Gulf of Guinea, this type of tag was used only in Bioko.

We also measured curved carapace length from notch to tip (CCLn-t) (Bolten 1999). Recaptures were reported by one of the authors (A.F.), by other researchers and NGOs working in the area, or directly by fishermen. The minimum distance between the tagging site and the recapture site was calculated (error = ±10 km).

Results and Discussion

Twelve green turtles were recaptured away from the nesting grounds in the 3 years since tagging began (Table 1). With respect to the tag recoveries from Cap Esterias and Cameroon, we were not notified of the total number of captured tagged individuals, so we include the minimum estimate of one recapture per site. In addition, we know of 4 tags, corresponding to 2-4 Bioko turtles, which were captured by fishermen in Corisco waters for sale in Bata (E.G.) or in Libreville (Gabón), but we were unable to examine these tags to confirm their numbers. Four of the 12 turtles migrated westward, one remained close to Bioko and the others migrated to the south: 6 to Corisco Bay and the north of Gabon, and

one further away, reaching southern Gabon. Minimum migration distances ranged from 130 km to 1250 km (Table 1, Figure 1). The turtle size was positively correlated to the distance from the place of tagging to the place of recapture (n= 10, r= 0.749, p= 0.013). However, a larger sample size and/or analyses with satellite telemetry is necessary to confirm that larger turtles travel greater distances than smaller ones.

Turtle #329, which was not seen re-nesting in Bioko after being tagged, covered the distance to Ghana (900 km) in 45 days, which translates to a mean swimming speed of 20 km/day or 0.83 km/h. This estimated migration rate is lower than others reported elsewhere for the species (Balazs *et al.* 1994; Cheng & Balazs 1998; Luschi *et al*. 1998). Satellite tracking studies have shown that sea turtles often migrate following straight trajectories (references in Lohmann *et al*. 1997) but we do not assume that this turtle only arrived in Ghana exactly 45 days after leaving Bioko. The longer times to recapture may simply reflect that either the turtles may have already been at large in the area for some time before being captured, that they did not make a straight-line journey or that they stopped along the route.

Based on number of recaptures and the additional information collected, we suggest that the area of Corisco Bay is a frequent destination of post-nesting green turtles from Bioko, and probably represents one of the main foraging grounds for this population. The area harbours extensive beds of seagrass and algae, forming a suitable feeding habitat for this species (Formia 1999). However, the recaptures in Ghana and southern Gabon suggest that the post nesting dispersal from Bioko is not restricted to Corisco Bay, and that there may be other important green turtle feeding grounds on the Atlantic continental shelf of Africa. Green turtles from the same nesting beach can disperse to different foraging areas, as shown by the present study and in other parts of the world (Cheng & Balazs 1998; Solé 1994). Moreover, more than one nesting population can share the same feeding grounds (Bass *et al*. 1998). Thus, the Bioko nesting population may be mixing with turtles from other nesting populations while feeding in Corisco Bay. Genetic analysis is currently being carried out by A.F. in order to identify the breeding stock origins of the Corisco Bay feeding population, as well as the distribution of the Bioko nesting population and the extent of its contribution to the feeding aggregate. In addition, we recommend tagging and satellite tracking programs in this feeding area to further elucidate its composition.

Some of the recapture information obtained from fishermen was imprecise, probably because they lacked the means to effectively communicate tag data or because of conflicting interests. In fact, fishermen may be reticent to admit capturing a tagged turtle and may keep a tag for months, until they see the opportunity of obtaining economic benefit from it. Offering rewards for tag recovery information might be a useful strategy to maximise recapture data, but should be used with caution. However, based on our experience, in some cases an acknowledgement letter may be enough reward. Nonetheless, our data are useful as a basis for future work in the area and to strengthen the case for protection initiatives.

The green sea turtle is seriously threatened throughout the Gulf of Guinea due to capture for consumption both at nesting beaches and in foraging habitats. We recommend the implementation of efficient educational programmes, as well as the establishment of compensatory funds to provide economic alternatives to turtle hunting. Encouraging the collaboration of local people is essential to achieving conservation goals.

In addition to local fisheries, oil exploitation, with its corresponding seismic surveys, is becoming a major threat to turtles in the Gulf of Guinea. Such exploitation and exploration activities are developing offshore of Bioko and Rio Muni (continental Equatorial Guinea), and even in the Corisco area <http://www.eia.doe.gov/emeu/cabs/eqguinea.html>. Although the physical effects on sea turtles of seismic surveys and other activities related to the oil industry are still relatively unknown, significant impacts may include noise disturbance and increased collisions with vessels (Pendoley 1997), and also water contamination from spills and light pollution from platforms and gas flares. Long-term drilling for oil may result in the removal of the sea turtles from their natural nesting and feeding habitats.

Acknowledgements: Special thanks to Ramon Castelo, of the Asociación Amigos de Doñana, and Jacques Fretey for supplying information, comments and field assistance. We also thank Guy-Philippe Sounguet, of Aventures Sans Frontières and the local fishermen of the different recapture sites, for their collaboration. We wish to express our gratitude for the economic support of the project ECOFAC (funded by the European Union) and the collaboration of the Equatorial Guinea authorities (especially the Ministry of Fisheries and Forests) and the people of Ureca village (South Bioko).

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Commensal Barnacles of Sea Turtles in Brazil

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A variety of marine organisms occur as symbionts of green (*Chelonia mydas*) and loggerhead (*Caretta caretta*) sea turtles (Dodd 1988; Hirth 1997). Among the commensal symbionts associated with *C. mydas* and *C. caretta,* stalked and encrusting barnacles occur with high frequency (Caine 1986; Dodd 1988; Hirth 1997). Unfortunately, the literature focusing on carapace epibionts is scattered in taxon specific articles that are largely hidden from turtle biologists (Caine 1986). An example of Caine's assertion is the absence of records of commensal barnacles collected in Brazil on green turtles (Hirth 1997) in spite of the published records of barnacles on sea turtles from this country (e.g. Young 1990; 1991). According to Young (1999), the cirriped fauna of Rio Grande do Sul, the southernmost state of Brazil, shows high diversity of species, composed by Subantarctic Argentine species and Subtropical Brazilian species. Although, there are a few records of barnacle species associated with other zoological groups from the region (Young 1999). In this paper we present data on the occurrence of barnacles associated with green and loggerhead turtles from southern Brazil. Additionally, we provide a summary of past studies that report the occurrence of commensal barnacles collected from sea turtles in the Brazilian territory.

Barnacles were collected from the carapaces of dead stranded sea turtles encountered on the beaches of the State of Rio Grande do Sul, Brazil, between Torres (29°20'S; 49°44'W) and Arroio Chuí (33°45'S; 53°22'W) from August 1997 to May 1998. All of the green turtles examined were juveniles (mean Curved Carapace Length (CCL)38.3cm, SD 1.96cm, range 35-43cm, n=13). The loggerheads examined represented subadult and adult size classes (mean CCL 72.2cm, SD 11.5cm, range 63-98cm, n=9). Barnacles were obtained by scraping the turtle carapace or by removing scutes.

Barnacle species	*Chelonia mydas* (n=13)		*Caretta caretta* (n=9)	
	% occurrence (references)	# of specimens per host (range)	% occurrence (references)	# of specimens per host (range)
Suborder Lepadomorpha				
Family Lepadidae				
Lepas anatifera	15.4	2-44		
Lepas hilli * (A)				
Conchoderma virgatum	7.8	11		
Suborder Balanomorpha				
Family Coronulidae				
Chelonibia caretta *			(B & C)	
Chelonibia testudinaria	30.8 (B & D))	1-21	(B & C)	
Family Platylepadidae				
Platylepas decorata *	(B)			
Platylepas hexastylos	30.8 (B)	1-8	100	2-24
Platylepas sp. *sensu* Young (1991)			11.1 (B)	31
Stomatolepas elegans *	(B)			
Stomatolepas transversa *	(B)			
Family Balanidae				
Balanus improvisus	23.1	6-70	11.1	4
Balanus venustus	15.4	**		

Table 1. Commensal barnacles on stranded green and loggerhead turtle in southern Brazil, with a review of records from the Brazilian territory. (*) Species not recorded in the present study; (**) data not obtained; letters in parentheses indicate references that have previously reported barnacle species from Brazilian turtles. "A" refers to Young (1990; turtle host species not specified), "B" refers to Young (1991), "C" refers to Farrapeira-Assunção (1991), "D" refers to Serafini & Soto (2000).

Samples were preserved in 70% ethanol.

The present study recorded seven barnacle species associated with sea turtles in southern Brazil (Table 1). Four barnacle species (*Balanus improvisus*, *B. venustus, Conchoderma virgatum*, and *Lepas anatifera*) were previously unknown associates of sea turtles in Brazilian waters. Three species (*B. venustus, C. virgatum* and *L. anatifera*) occurred only on *C. mydas*. One barnacle species (*Platylepas* sp.) occurred only on *C. caretta*.

Platylepas hexastylos and *Chelonibia testudinaria* were the most frequent barnacles associated with green turtles. The former species was also the most frequent commensal barnacle collected from loggerheads (Table 1). Both *P. hexastylos* and *C. testudinaria* have been previously documented to associate with green and loggerhead turtle populations around the world (Dodd 1988; Hirth 1997). *Chelonibia testudinaria* was the most common barnacle found on loggerheads in the United States (Caine 1986), as well as the most common barnacle observed on green turtles in Australia (Limpus *et al.* 1994). Interestingly, *C. testudinaria* was not collected from any of the nine loggerhead specimens in this study. Two *Balanus* species (*B. improvisus* and *B. venustus*) were found in this study. *Balanus improvisus* occurred on both green and loggerhead turtles in profuse incrustations. Despite the extensive records of *Balanus* spp. associated with live sea turtles (e.g. Caine 1986; Frick *et al.* 2000; Lutcavage & Musick 1985), balanids are not obligate commensal barnacles (Foster 1987). Recruitment of the barnacles may occur on dead and drifting specimens, especially coastal and fast growing barnacle species, as *Balanus* spp. On the other hand, some cirriped species may dissociate from dead sea turtles as occurs with other commensal taxa, which are rarely found on dead stranded sea turtles. An interesting topic for further studies would be to compare commensal assemblages from stranded sea turtles with those from live or recently dead sea turtles in the same area.

The number of barnacle specimens per host turtle ranged from 1 to 70 (Table 1). Individual turtles hosted up to three different barnacle species. Associations were recorded between *Balanus improvisus/B. venustus/ Lepas anatifera; B. improvisus/Platylepas hexastylos/ Platylepas* sp.; and *Conchoderma virgatum/L. anatifera*. In general, barnacles were attached to the anterior marginal scutes and to posterior 1/3 of the carapace, as described by Caine (1986). *Platylepas hexastylos* were tightly encrusted on the hosts causing deep lesion at soft parts of the turtles.

Prior to our study, *Balanus improvisus* was unknown as an associate of loggerhead and green turtles. In the same way, *B. venustus* and *Lepas anatifera* were also unknown commensals of green turtles (Hirth 1997). *Conchoderma virgatum* and *Platylepas* sp. are the first records from Rio Grande do Sul, according to Young (1999). *Lepas hilli*, *Chelonibia caretta*, *Platylepas decorata*, *Stomatolepas elegans* and *S. transversa* are recorded for Brazil as symbionts with sea turtles, but were not found in this study (Table 1).

Acknowledgements: We are grateful to Paulo S. Young, of the National Museum, Rio de Janeiro, for helping with identification of barnacles, Maria Virgínia Petry, of Universidade do Vale do Rio dos Sinos, for logistic facilities in field work and J. Frazier and M. Frick for comments on the manuscript. Funds were provided by UNESCO and PIBIC-UFRGS/CNPq.

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Link Between Green Turtles Foraging in Brazil and Nesting in Costa Rica?

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The largest known foraging and nesting populations of green turtles (*Chelonia mydas*) in the Atlantic are found along the Caribbean coasts of Nicaragua and Costa Rica (Bjorndal *et al.* 1999, Hirth 1997). A recent analysis of male and female individuals from the foraging grounds in Nicaragua found that the majority of individuals came from the nearby nesting grounds of Tortuguero, Costa Rica with a small percentage coming from the Suriname nesting populations (Bass *et al.* 1998). Nesting females from Ascension and Suriname largely forage in waters off of Northeastern Brazil (Carr 1975; Pritchard 1976), hence one may expect to find relatively low-level exchange between these southern populations and that of Tortuguero. This was recently confirmed by a tag return of an individual turtle tagged on the Brazilian feeding grounds and later recaptured in Nicaraguan waters (Lima *et al.* 1999). Here we present data on a tag return of an adult green turtle that moved in the opposite direction: from Tortuguero to Brazil. On 7 February 2001, a dead green turtle in the early stages of decomposition was found on the beach of Goiabeiras located in the municipality of Fortaleza, Ceará (3° 43' S, 38° 32' W). An external inspection revealed several perforations in the neck from different fishing hooks. The turtle had two external inconel tags, bearing the numbers 83028 and 83029, attached to the front flippers, and it measured 107 cm in curved carapace length (CCL) and 93cm in curved carapace width (max). This turtle had been originally tagged on the nesting beach of Tortuguero (10º 35' N, 83º 31' W to 10º 21' N, 83º 23' W) on 25 March 1999, and at that time had a CCL of 106 cm. This individual was seen during nesting events on 7 and 20 April of the same year, but was never seen on the beach again after this date. The minimum distance traveled by the turtle between Tortuguero and Brazil was approximately 5000 km. We suggest that genetic studies, satellite telemetry, and capture-mark-recapture programmes be integrated together to provide information on the origin and behavior of sea turtles in foraging areas such as Ceará, Brazil.

Acknowledgements: We thank CCC research assistant Ana Maria Suárez (Colombia) for her skillful application of the Inconel tags that remained attached to green turtle 83028/ 83029 after almost two years. Bass, and Luiziane Moreira do Nascimento of IBAMA/Fortaleza who found and reported the turtle in Brazil. We also thank Peter Eliazar of the Archie Carr Center for Sea Turtle Research for facilitating exchanges of tag return information, and Matthew Godfrey for help. Projeto TAMAR-IBAMA is comanaged by the Fundação Pró-TAMAR and officially sponsored by Petrobras. The Frankfurt Zoological Society generously supports the work at the TAMAR station in Almofala.

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Notes on the Trade in Marine Turtle Products in Bangladesh

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The marine turtle populations of Bangladesh appear to be severely depleted as a result of various threats, including direct exploitation for meat and eggs, habitat disturbance and fishery bycatch. Reports regarding the identification of species nesting in Bangladesh are contradictory, but Rashid (in Das 1989) confirmed that the olive ridley (*Lepidochelys olivacea*), green (*Chelonia mydas*) and hawksbill turtles (*Eretmochelys imbricata*) nest on St. Martin's Island and that the olive ridley turtle is the most common species nesting on the Bangladesh coast.

MarineLife Alliance is currently investigating the extent of trade in turtle products in Bangladesh. There are many obstacles to effective marine turtle conservation in Bangladesh today, including the lack of enforcement of existing laws. Despite existing protective legislation banning the import, export and trade in marine turtle products, traders continue to operate with impunity. Stuffed, sub-adult specimens of hawksbill turtles were observed on sale at curio shops in the Cox's Bazar district during December 1999, January 2000 and in January - March 2001. At least six specimens have been sold this year at the time of writing, one of which was sold for between Bangladeshi Taka 1800-3000 (approximately US$35-55). An olive ridley turtle carapace was also found offered for sale at a coastal curio shop for approximately US$10. The primary market for these products is Bangladeshi tourism and even Government officials are alleged to have purchased stuffed marine turtles.

Marine turtle eggs were observed on sale during January 2001 in the local market of Bandarban, a small town situated along the Sangu River in the hill-tract district of Bandarban. Bandarban is situated 35 kms east from the Bay of Bengal coast and between 40-100 kms from the nearest major marine turtle rookeries of Sandwip, Kutubdia, Sonadia Island, Cox's Bazar and Teknaf peninsular beach. Hence, traders are transporting eggs over relatively large distances to satisfy localised demand. A volunteer for MarineLife Alliance observed approximately 1,500 olive ridley turtle eggs (see front cover) on sale in Bandarban, which had allegedly been collected from the Cox's Bazar district.

Several marine turtle rookeries, where conservation projects have not yet been established, are currently subject to poaching. Various smuggling points exist in southeastern Bangladesh on the borders of Myanmar and the eastern Indian state of Tripura. Turtle eggs are illegally collected for human consumption from the rookeries of St. Martin and between Cox's Bazar and Teknaf peninsular beach and sold to Myanmar citizens in the nearby town of Teknaf, apparently one of the most significant smuggling points in southeastern Bangladesh. The author has also heard unconfirmed reports of trade in turtle eggs in Khagrachari and Rangamati, as well as unconfirmed reports of trade in turtle eggs and meat in the city of Chittagong. MarineLife Alliance is unaware of any records of illegal transportation of turtle products by air to or from Bangladesh.

About 85-95% of the Bangladeshi population is Muslim, the remainder made up of Hindus, Buddhists and Christians. Muslims tend not to consume turtle products due to their religious beliefs, but they will trade. The local market tends to be primarily made up of Buddhist tribal communities. Hindu communities also consume turtle products and will trade in turtle products to supplement their income.

Although Bangladesh recently signed the '*The Memorandum of Understanding (MoU) for the Conservation and Management of marine turtles and their habitats of the Indian ocean and south east Asia* (Hykle 2000), the Bangladesh Government is not yet meeting its commitments under this MoU.

The marine turtle populations of the Indian Ocean are a shared resource and their continued existence can only be assured if all Indian Ocean range states contribute to their conservation. The author urges the Government of Bangladesh to meet its commitments to this MoU and proactively affect the conservation of Bangladesh marine turtle populations by protecting important marine turtle rookeries and highlighting the plight of Bangladesh's marine turtles through the popular media.

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An Oft Told Story: Man's Impact on Green Turtles in the Caribbean, *Circa* 1720

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During a recent foray through a private, rare book collection, the following factual, as well as fanciful, item by William Smith (1745) was discovered. We believe that one passage from his delightful natural history notes is worth quoting in its entirety not only for its historical significance, but also the mention of man's impact on sea turtles at the Caribbean island of Nevis and other nearby islands, *circa* 1720. His discourse follows:

"*There are seven or eight kinds of Turtle, alias Tortoise, though but one of them eatable, which is called Green Turtle, because its fat is of a green colour, and not of the sort, whose Shell serves for Snuff-Boxes. They are so common that they need no description; and the manner of catching them at Nevis is as follows. When a person sees any of their Tracks in the Sea Sands, he next Night sits up to watch, and turn them upon their Backs, and then they are quite helpless. Their blood is cold; and upon opening one of them, I have seen, at least, two hundred Eggs that are exactly round, (like a School-boy's Marble) taken out of it, about forty of which were enclosed in whitish tough skins, with a water-coloured, or jellyish substance round the Yolk, and were ready to be laid at one time. Woods Rogers, page 276* (*)*, saw at the Islands, called Tres Marias, in the South Sea, a Turtle that had at least eight hundred Eggs in its Belly, a hundred and fifty of which were skinned, and ready for laying at once. The Turtle lays them close to the Sea, which has there, very small Ebbings and Flowings, and covering them lightly with Sand, leaves them to be hatched by the Sun's warm Beams: And this is effected in eight and forty hour's time, as I was informed by those who made it their business to fetch them from Maroon uninhabited Islands, where they are vastly plentiful, and where they see almost every day, great numbers of young ones, not broader than a Shilling, newly hatched, hastening down into the Sea. Woods Rogers asserts the same. As they are disturbed so much at Nevis, and other inhabited Islands, they seldom care to come a shore there*."

Smith's (1745) observations are in part remarkably accurate. We can only truly find two inaccuracies. Firstly, the only Tres Marias Islands of which we are aware are those off the Pacific coast of Mexico, immediately south of the Gulf of California (21°N, 106°W) and secondly, the 48 hour incubation duration described is undoubtedly a misconception.

* The author's reference to Woods Rogers (page 276) is an older form of referencing past literature, which in modern parlance would likely appear as: Rogers (17xx, page 276). Unfortunately, we have been unable to acquire a copy or proper citation of the Woods Rogers publication that Mr. Smith is referring to in the above passage.

SMITH, W. 1745. A natural history of *Nevis*, And the rest of the *English* Leeward *Charibee* Islands in *America*. With many other observations on nature and art: Particularly, An Introduction to the Art of Decyphering. In, Eleven Letters from the Rev[d] Mr. Smith, sometime Rector of St. *John's* at Nevis, and now Rector of St. *Mary's* in Bedford; to the Rev[d] Mr. Mason, B.D. *Woodwardian* Professor, and Fellow of *Trinity-College*, in *Cambridge*. Cambridge, J. Bentham. 327 pp. [Letter VIII, paragraph 17, pp. 196-198.]

Long distance transportation of turtle eggs from Sukabumi to Bali (Indonesia)

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As a catalyst for discussion with other workers, we would like to inform readers of the *Marine Turtle Newsletter* about our success in long-distance transportation of marine turtle eggs. As part of long term conservation work at Pangumbahan Beach, Sukabumi, West Java, green turtle (*Chelonia mydas*) eggs have been transported to Serangan island (Bali) and other sites.

We would be happy to correspond further regarding methodologies but in summary: 150-400 eggs were placed in wooden boxes with sand from the local beach placed between the layers of eggs. When the transportation was carried out immediately after the eggs had been laid or after they had been in the box for 3 weeks, success was high. Eggs were either hatched in the boxes or in sand hatcheries and then hatchlings were either released, headstarted or reared for ceremonial slaughter.

MEETING REPORTS

Marine Turtle Conservation in the Wider Caribbean Region: A Dialogue for Effective Regional Management

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Proceedings from a landmark regional meeting, "Marine Turtle Conservation in the Wider Caribbean Region - A Dialogue for Effective Regional Management" (Santo Domingo, Dominican Republic, 16-18 November 1999) are now available (Contact: Amy Mackay, WIDECAST Information Officer, St. Croix, US Virgin Islands E-mail: chelonia@viaccess.net). The meeting was hosted by the Government of the Dominican Republic, and sponsored by the Wider Caribbean Sea Turtle Conservation Network (WIDECAST), the IUCN/SSC Marine Turtle Specialist Group, the World Wide Fund for Nature (WWF), and the UNEP Caribbean Environment Programme.

The purpose of the meeting was to develop a better understanding of regional sea turtle management needs, as well as to foster greater cooperation and collaboration among Wider Caribbean governments towards recovery of sea turtle populations in the Region. Forty-eight resource managers and scientists from 29 Caribbean states and territories discussed a variety of topics relevant to the management of sea turtles and their habitats, including: (i) status assessment, recovery criteria, and management considerations, (ii) minimal requirements for population monitoring and the sharing of information for management purposes, and (iii) the application of legal instruments for multilateral cooperation in the management of shared populations of sea turtles.

Participants produced a "Santo Domingo Declaration" to provide recommendations on the conservation of sea turtles and their habitats for consideration by Caribbean governments, international organizations, non-governmental organizations, academic institutions, and other sectors of society.

The "Declaration" recognizes that sea turtles comprise a unique part of the biological diversity of the region and an integral part of the cultural, economic, and social aspects of the societies found therein; that all sea turtles are characterized by specific biological aspects (e.g., slow growth, late maturity, long life, high rates of mortality during early life stages) that must be understood before effective management programs can be developed and implemented; that sea turtles are fundamental to the health and structure of important marine ecosystems, and have complex life cycles which depend on a diversity of environments; and that these

ancient creatures, while in general depleted throughout the region, retain high consumptive and non-consumptive use values to Caribbean nations and peoples. Because of the migratory habits of sea turtles, cooperation and collaboration among range states is prerequisite if populations are to recover to densities able to withstand sustainable consumptive and non-consumptive uses.

The "Declaration" also recognizes that sea turtles are threatened by loss and degradation of critical habitat, by unregulated legal and illegal harvests, and by high levels of incidental capture in artisanal and commercial fishing gear, as well as by a general insufficiency of scientific information available for management purposes, especially from long-term monitoring of sea turtles and their habitats.

Because of their generally depleted status over the course of the last two centuries, sea turtles are recognized in the respective national legislations of the majority of States of the region as requiring special attention for fisheries and wildlife management and conservation activities. Furthermore, all sea turtle species that occur in the Caribbean Sea are specifically included under special conservation categories (such as threatened, endangered and critically endangered) in diverse international and regional agreements.

Finally, the "Declaration" recognizes that the diverse nations and peoples of the Caribbean Region have, despite limited resources, endeavoured to advance the conservation of sea turtles and their habitats at the local, national and regional levels. Knowing well that the successes of recent decades have been due to strong collaborative bonds within and among nations, the meeting participants explicitly congratulated the governmental authorities, intergovernmental agencies, non-governmental organizations, civic groups and individuals from diverse countries and sectors of society for their efforts, investment and advances made to develop programs and actions to conserve sea turtles and their habitats.

In closing, the meeting recommended that a number of actions be taken by the appropriate authorities, organizations, civic groups and other stakeholders, including:

1. Promote mechanisms for enhancing dialogue, collaboration, information-sharing, and technology exchange among diverse agencies, organizations, researchers and other stakeholders in the Wider Caribbean Region (WCR);

2. Promote greater community participation in the identification of management priorities and actions, as well as in the development, implementation and evaluation of activities directed at the conservation of sea turtles and their habitats;

3. Promote scientific research, assessment and monitoring of sea turtles and their habitats, and standardize methods of data collection and analysis;

4. Develop and implement national and regional management plans based on the best available scientific information, and designed to restore and stabilize sea turtle populations and their habitats to levels that provide broad social, cultural, economic and environmental benefits to the peoples of the WCR;

5. Promote the harmonization of national policies and legislation concerning the conservation of sea turtles and their habitats throughout the WCR, and support efforts to improve the implementation of relevant national, regional and global commitments; and

6. Strengthen mechanisms for providing the resources required to design and implement these activities, including human, financial, logistic, and political resources.

The recommendations go on to include the specific results (which were adopted by the meeting) of Working Groups convened to discuss "Determining Population Distribution and Status", "Monitoring Population Trends", "Promoting Public Awareness and Participation", "Reducing Threats on Foraging Grounds and Inter-nesting Habitats", "Reducing Threats at Nesting Beaches", and "Strengthening the Regulatory Framework". In all, the bilingual (English and Spanish) Proceedings include 18 technical chapters, 3 Open Forum plenary discussions, and 6 Working Group reports, in addition to the "Declaration".

The Spanish and English versions of the Proceedings will be made available for downloading from: <http://www.tortugas.unam.mx/mtsg/mtsg_publications.htm>

GIS Workshop

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As part of the 21st Annual Symposium on Sea Turtle Biology and Conservation in Philadelphia, Pennsylvania, about 50 participants gathered for an informal workshop regarding the use of geographic information systems (GIS) in sea turtle research and conservation. This meeting was organized to bring together GIS users to discuss available software and resources. It was intended for those currently using GIS, who know what it is and what they can do with it, but need to know about some of the latest tools. Participants were encouraged to ask question and share experiences with the application of GIS to sea turtle research.

The workshop was kicked off by Mario Mota who gave an informative presentation with practical examples on how GIS is used to support NASA and their operations. The remainder of the workshop consisted primarily of a question and answer session dominated by questions related to data availability and software. As a reminder, there is a GIS resources page located at <http://www.seaturtle.org/gis/> containing many links to GIS data sources and software vendors. Anyone familiar with other useful resources is encouraged to contact Michael Coyne (details above).

As a follow-up to the workshop a GIS E-mail list has been created, hosted by seaturtle.org. The purpose of the mail list is to provide a forum for discussion of issues related to sea turtles and GIS. To join the list please contact Michael Coyne (details above).

Training Workshop on Marine Turtle Research and Conservation in Viet Nam

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A training workshop on the biology and conservation of marine turtles was held in Vung Tao city and on the Con Dao National Park islands in southern Viet Nam between July 23 and 28, 2001. The workshop was attended by 37 participants from different Provincial Governments, Government Agencies and from several NGOs. In addition, three delegates from Cambodia were invited to participate in the workshop, to strengthen regional training initiatives previously established under the ASEAN Marine Turtle MoU and through the Southeast Asian Fisheries Development Centre (SEAFED).

The workshop was organised by the Ministry of Fisheries Viet Nam, IUCN Viet Nam, the Convention on Migratory Species (CMS) and Universiti Malaysia Sarawak. Funding support for the workshop was provided through the Convention on Migratory Species (CMS), the Danish International Aid programme (DANIDA), the Ocean Conservancy, the National Fish and Wildlife Foundation (NFWF), and National Marine Fisheries Service of the United States of America. The project aimed to train research and conservation workers and government officials in general turtle biology, conservation needs, and management methods through a two-phase training workshop. The first phase targeted researchers and conservation personnel in both theory and hands-on training, while the second phase targeted government officials concerning legislation, international agreements and existing Memoranda of Understanding.

The objective of the technical and policy training/ capacity workshop was to strengthen and upgrade the capacity and capability for research education and conservation of marine turtles in Viet Nam waters, to improve access to current knowledge and experience, and to increase institutional cooperation between national partners and international development organizations involved in research and conservation of marine turtles. In the long-run, equipping the people of Viet Nam people with the knowledge and tools with which to conserve turtles benefits not simply turtles in Viet Nam, but throughout their migratory range, which is known to extend out to the Indian and Pacific Oceans.

Presentations by IUCN Species Survival Commission Marine Turtle Specialist Group (MTSG) members Chan Eng Heng, Jeff Miller and Nicolas Pilcher provided participants with background information on 'General Biology of Marine Turtles', 'Taxonomy and Species Identification', 'Status of Marine Turtle Research and Conservation in Southeast Asia', 'General Beach Survey Techniques' and on 'Tagging, Marine Turtle Statistics and Database Management'. These presentations are currently being developed into on-line, web-based educational resources. Additional presentations on 'Research, Conservation and Management of Marine Turtles in Viet Nam' and on the 'Status on Marine Turtle Research and Conservation in Con Dao islands' by experts from Viet Nam and further presentations on 'Threats to Marine Turtles' and 'Development of a Marine Turtle Conservation Action Plan' by IUCN Viet Nam and a presentation on the 'Convention on the Conservation of Migratory Species' by CMS completed the theoretical component of the workshop.

Subsequent to the theoretical aspects covered in Vung Tao city, participants proceeded via a fourteen hour overnight ferry crossing to Con Dao National Park, home to Viet Nam's most successful marine turtle conservation programme. Here delegates were treated to an introduction to the Park and its activities by its Director, Dr. Le Xuan Ai, followed by discussion on the development of a National Action plan for the Conservation and Management of Marine Turtles in Viet Nam. An excursion by boat was then arranged to the nesting beaches on Bay Canh island, where participants were introduced to basic beach surveys, measuring and tagging of adult turtles, egg and hatchling study techniques, and to general discussions on methodologies and the philosophy of turtle conservation.

Over the course of the workshop meetings were also held with Provincial Leaders and representatives of the local Fishery Associations to discuss the potential impact / acceptance of conservation strategies among locals. It was acknowledged that turtles are a fairly frequent by-catch in their nets, but at the same time that turtles occupied an important cultural legacy among coastal people, and that fishermen would assist where possible conservation activities. One of the largest threats to turtles was the curio trade: whole, stuffed turtles and tortoiseshell products are available throughout the country, and represent a significant trading resource. MTSG members counted over 130 stuffed carapaces and identified at least six stalls selling tortoiseshell products in one morning in Vung Tao. Tortoiseshell products were also on sale in major hotels and at the Ho Chi Minh airport.

One of the main activities by the group over the last two days was the development of the first components of a National Action Plan for the conservation of marine turtles and their habitats in Viet Nam. This was carried out as group discussions following the basic outline of the Conservation and Management Plan of the recently concluded Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South East Asia (IOSEA MoU).

A welcome benefit to the workshop was the official signing on behalf of the Viet Nam Government of the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South East Asia (IOSEA MOU), which was recently concluded in Manila (June 2001). Viet Nam became the ninth signatory to the MoU, and the signing of this important international instrument further strengthens Viet Nam's commitment to a broader regional approach to marine turtle conservation.

It is acknowledged that this is the first step in what will be a protracted effort to conserve marine turtles in Viet Nam. At the same time however, this first step has sown the seeds of a Nation Action Plan, has prepared local scientists for beach monitoring and data collection activities, and has enabled upper level managers to better understand the biological constraints within which marine turtle conservation may be achieved. It is hoped that the continued support of international funding agencies and the Marine Turtle Specialist Group of IUCN will result in the long-term legislative and physical protection and conservation of marine turtles in Viet Nam. A long-term project is currently being developed by IUCN Viet Nam with input from MTSG members from Southeast Asia that will address Viet Nam's commitments to existing Memoranda of Understanding (IOSEA and ASEAN), as a signatory of CITES, and which will provide the baseline information on which to base legislation, and enhance enforcement of national laws and policies with regard to the conservation of marine turtles and their habitats.

ANNOUNCEMENTS

Will the Real *Chelonibia testudinaria* Please Come Forward: An Appeal

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The most often reported turtle barnacle by far is the large and conspicuous "*Chelonibia testudinaria*". Wherever adult sea turtles have been found, especially those on nesting beaches, nearly every one hosts a few or dozens of *C. testudinaria*. This sessile barnacle preferentially settles on the carapace (Frick & Slay 2000) and plastron, but it is also known to occur on the head, flippers and skin (Rees & Walker 1993), as well as congeners, and even on metal tags used for individually marking sea turtles (G. Balazs personal communication).

Barnacles of the genus *Chelonibia* differ from all other barnacles that settle on sea turtles by having eight wall plates (Darwin 1854; Ross & Newman 1967). This may not be obvious from a cursory examination of the outer surface of their wall. However, as Darwin (1854) noted, "by slight violence" the broad rostral plate is rendered into three pieces. The remaining derived turtle barnacles, or platylepadids, are commonly much smaller, often inconspicuous and have only six wall plates. These settle predominantly on the skin, usually in great numbers, where they are often found deeply embedded (i.e. *Platylepas* sp.). At least two species of platylepadids are known to settle and evidently thrive in the mouth, tongue and gullet of sea turtles (i.e. *Stomatolepas* sp.), clearly an unusual environment for any barnacle (Green 1998; Pilsbry 1910; Wells 1966).

The authorship of *Chelonibia testudinaria* is attributed to Linnaeus, seemingly by default. Darwin (1854: 393) believed "*It is impossible to feel sure which of the three species of the genus Linnaeus had in view, when describing his Lepas testudinaria; but as Spengler has well discriminated the following species under the specific name of caretta, and Ranzani the third species under patula, the present name may, without question, be retained for ...*" *C. testudinaria*, but which one?

Taxonomists inherently prefer to delimit species so that there is no question as to what is in hand. Nonetheless, through no great fault of Linnaeus, the description of *testudinaria* is somewhat incomplete because we do not know the species name of the host turtle and especially the locality from which his specimens were collected. Noteworthy, Linnaeus' barnacles in the collections of the Linnaean Society of London are of dubious authenticity (Ross 1963), and it appears many of them had been substituted for "*newer, bigger or shinier ones*", not an uncommon practice in the field of "conchcology" in the late 1700's and early 1800's. This conundrum poses a dilemma for taxonomists. Because all large white barnacles on the carapace of a sea turtle are simply reported as "*testudinaria*" it has been assumed, *ipso facto*, it has a worldwide distribution in warm waters.

Although the jury has not returned with a verdict we do know, from the few collections available to us, based on preliminary morphological evidence, there is more than one species hiding behind the name "*testudinaria*". To simply conclude the barnacle in hand is *testudinaria* has not been provident. Moreover, it has proven detrimental to resolving the status of *testudinaria* on a worldwide basis. Although taxonomic "splitters" normally win 2 to 1 or better, morphological studies are enticing harbingers for DNA analyses, both of which may discriminate genetically isolated populations.

Over the next year or so we will be undertaking studies to confirm the major question of whether or not there is one or more species of "*testudinaria*". Workers in any and all parts of the world interested in having their specimens of "*testudinaria*" or any other turtle barnacles identified, which we strongly encourage, are welcome to submit them to us (A. Ross). Preferably they should be preserved in 95% ethanol or air dried for DNA analyses, but specimens in 70% ethanol are also acceptable. And, we promise not to charge for our services nor do we guarantee to return the specimens.

One of the intriguing questions we will address and hope to answer is simply, does Kemp's ridley host the same species of "*testudinaria*" as does the olive ridley, both of which occur in separate regions of the Caribbean western-Atlantic? Also, can turtle barnacles, in general, serve as indicators of different populations of sea turtles?

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The 22nd Annual Symposium on Sea Turtle Biology and Conservation Miami USA (4-7th April 2002) : Update

Earl E. Possardt

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For a full announcement and details of the symposium, please see the article in the previous MTN (MTN 93: 35-37). This brief announcement serves as an addendum.

Registration fees have been set and reflect the estimated costs of running the symposium. Those registering and ensuring receipt of payment by February 1, 2002 will pay $80 (students $45). Fees for those registering or paying after February 1 will be $125 (students $65). So please register before February 1 if at all possible; it will help the organisers with our planning and you will save money. In recognition of the extra difficulties that many of our foreign participants confront to make prepayments we will allow those registering before February 1 to pay the $80 registration fee when checking in at the registration desk in Miami. I want to emphasise that this applies only to those having pre-registered before February 1. We expect those foreign participants that are able to prepay without undue hardship to do so.

I also want to encourage our international travellers to apply for US visas as soon as they are reasonably certain they will be attending. If difficulties arise, the possibility of being able to help sort out problems with US Embassies and Consulate Offices will diminish at an exponential rate as we get closer and closer to the symposium. I stand ready to help but please do your part.

I am also happy to announce a Reunion of West African Specialists on April 3, 2002 the day immediately preceding the beginning of Symposium 2002. The meeting is being organized by Dr. Jacques Fretey, FFSSN Museum of Natural History, 57 rue Cuvier 75231, Paris cedex 05, France. E-mail: jfretey@imatech.fr

Workshops and field trips are still being determined as of mid-August but should be on the symposium web site <http://www.seaturtle.org/> by the time you are reading this.

EuroTurtle 2001 Facelift

Europe's first sea turtle biology & conservation website for science and education has a complete new look: <http://www.euroturtle.org>. The website has been fully modernised and split into two sections designed more specifically for education and conservation. Both sections are fully linked but now enable educators, conservationists and biologists to locate suitable material quickly and effectively.

MCS Turtle Conservation Fund

In September 2001, the Marine Conservation Society (MCS) launched its Turtle Conservation Fund to support marine turtle research and conservation projects worldwide. The MCS is the UK charity dedicated to the conservation of the marine environment and its wildlife and joint lead partner of the Marine Turtles Grouped Species Action Plan (SAP) for the conservation of marine turtles in UK waters and UK Overseas Territories.

The Turtle Conservation Fund is part of the MCS Marine Turtle Conservation Programme, which was established this year with the support of Cheltenham & Gloucester plc, the UK's third largest mortgage lender. MCS has also accumulated funds through initiatives like 'Adopt-a-Turtle', launched by Professor David Bellamy in May 2001. The Turtle Conservation Fund will continue to benefit from Adopt-a-Turtle, sale of turtle merchandise and other fundraising initiatives.

Through the Turtle Conservation Fund, MCS will award grants to non-profit organisations and individuals who are significantly contributing to the conservation of the leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), loggerhead (*Caretta caretta*), green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*) and olive ridley (*Lepidochelys olivacea*) turtles and their terrestrial and marine habitat worldwide. Grants of no more than UK£15,000 and no less than UK£500 will be available to projects selected by the MCS award panel. All applications will be considered, although the award panel will prioritise applications from projects that satisfy one or more of the following criteria:

Priority funding criteria

- Projects that contribute to the UK Marine Turtles Grouped Species Action Plan (available at <http://www.ukbap.org.uk/Plans/Species/GP_turtles.htm>
- Projects that benefit local communities and promote their participation in conservation
- Research projects that contribute to the knowledge of marine turtles in a way that will enhance their conservation
- Projects that involve collaboration with one or more national government agencies
- Projects that contribute to the development of progressive approaches to environmental education and community involvement
- Projects that involve a mechanism of sustainability
- Projects where MCS can contribute primary funding

The full criteria for funding and application forms can be downloaded from the MCS website:

<http://www.mcsuk.org>

or can be requested via post or E-mail. The award panel will meet three times a year to review proposals. The first deadline for the submission of proposals is the 1st of December 2001, thereafter application deadlines will be the 1st of April, August and December of each year.

For more information, please visit the MCS website or contact Sue Ranger, MCS Wildlife Projects Officer using the contact details below:

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BOOK REVIEWS

Title: Interaction of Marine Turtles with Fisheries in the Mediterranean. Mediterranean Action Plan

Year: 1999
Author: G. Gerosa and P. Casale
Publisher: UNEP; Regional Activity Centre for Specially Protected Areas (RAC/SPA); Tunis, Tunisia.
ISBN: 9973-9926-6-0
Pages: 59 pages

Published as a resource document for UNEP's Mediterranean Action Plan for marine turtles, this volume sets an important precedent. Various international instruments for marine turtle conservation are being developed in different parts of the world: the western hemisphere (Frazier 2000a), the Indian Ocean and South-East Asia (Anon 2000; Hykle 2000; Al-Ghais & Frazier 2001), and west Africa (CMS 2000), as well as the Mediterranean. The measures included in these instruments, and the actions implemented by the Parties and Signatory States, will depend ultimately on political decisions. To increase the chances of these decisions being informed, and relevant to the issues that need to be resolved, it is imperative that up-to-date, balanced documents be made available to decision-makers in each of the participating nations. At the same time, these resource documents must be clear, informative, and succinct; there is little chance that bureaucrats will wade through reams of documentation, much less be able to synthesize and extract the most pertinent problems and solutions.

The book, published by UNEP, Tunisia, meets the criteria for informing decision-makers. Beginning with the front cover, where one colour photo vividly portrays a turtle hooked in the mouth and another shows hatchling turtles hopelessly entangled in a gill net, the effort has been to drive the message home quickly.

After the introduction, the following nine chapters deal with longlines, trawls, gill nets, indirect mortality, the Mediterranean fishing fleet, zones frequented by turtles, possible ways to reduce fishing induced sea turtle mortality, reducing Mediterranean fishery-sea turtle interaction: available options, and assessing/evaluating Mediterranean fishery-sea turtle interaction: some priorities. The stated object of the report is to provide a general summary of the problem of fisheries interactions in the Mediterranean, and to help identify priority areas for research and conservation. It makes clear that there is still a great deal to be learned, and that much of the available information is difficult to interpret.

The booklet presents a valuable synthesis of literature on incidental capture of marine turtles in the Mediterranean, and is further enhanced by drawing from a number of key publications on fisheries, not directly related to marine turtles. Incidental capture is of course a fisheries issue, and as such can only be understood and resolved by understanding fisheries.

The authors rightly emphasise the primary importance of reducing fishing effort, not only for the sake of marine turtles, but also for other animals impacted by fishing as well as for marine environments. In their discussion of different types of fishing gear, Gerosa and Casale make a number of interesting points, including economic and social insights as to why certain types of fishing are carried out. In so doing, they correctly show that just technological considerations are inadequate for understanding and resolving marine conservation issues. It is also important to appreciate that many fishing vessels in the Mediterranean employ a variety of different gear types, so during certain seasons they may longline, and during others they may trawl. Clearly, this adds other layers of complication, notably for analyses of fleet sizes, distribution and fishing effort; managing and implementing measures for these multi-purpose fleets will also be complex.

The authors point out that some of the species identifications may be erroneous, for fishermen may confuse one turtle with another: there is a tendency to group all marine turtles as the most common/best-known species, *Caretta caretta*. This could explain, in part, why there are so few records of *Chelonia mydas* in fisheries interactions.

Their review leads them to the conclusion that: 1) loggerheads are the only species known to be significantly impacted by fisheries, and 2) the Spanish longline fleet has far greater (perhaps 61 times) probability of catching a turtle than do any of the other fleets in the eastern basin of the Mediterranean. Hence, although the Spanish fleet is but a few hundred vessels, the evidence indicates that it has far more impact than other fleets that are much greater (the Italian and Greek fleets both number in the thousands of vessels).

They rightly explain that a large number of parameters must be considered when assessing a fishing activity and its impacts, including gear, environment fished (depth of water, depth fished, bottom type,

currents, etc.), time of day, season, weather conditions, "soak time" of the gear, and so on. Hence, it is not uncommon for expert opinions about various aspects of incidental capture to vary, or even contradict each other.

Gerosa and Casale point out that documenting direct, or observed, mortality is not sufficient, for all types of gear can produce delayed mortality: pieces of netting may be left entangled on a live animal, later to produce necrosis and debilitation; hooks in live animals may cause infections or perturbations to the digestive system; forced submersion in any gear can result in physiological stress and consequent debilitation.

In general, it seems that Mediterranean fishermen (from the lack of any reference to "fishers," it appears that there are few, if any, women in the Mediterranean who fish) have no desire to catch turtles, nor have they any use for them – indeed in some societies it is regarded as bad luck to catch and harm turtles, and in some cases there is even appreciation that these are endangered species and merit special consideration. However, in some places the meat and blood are relished, so there is a stimulus for keeping and selling turtles, even if they are caught accidentally.

Gill nets are categorised as potentially dangerous: their use is widespread throughout the Mediterranean, and mortality rates for entangled turtles are generally quite high. It is remarkable that some of this gear has been in use in the Mediterranean for centuries, if not millennia: surface longlines since 177 BC and drifting gill nets since 171 AD. Because ostensibly passive nets with entangled fish may actively attract turtles, they question the apparently simple categorisation of gear into "passive" and "active". However, the usual meaning of "active" gear is that it is actively moved through the water in an effort to catch prey, not that it is or is not attractive.

There are unfortunately a number of confused or dubious statements that detract from the value of the book, notably in the Introduction.

The claim (page 5) that "Mediterranean populations of both species [*Caretta caretta* and *Chelonia mydas*] seem to be genetically isolated from the Atlantic ones" appears to be an error of translation, for the authors cite the studies of Bowen *et al.* (1993) and Laurent *et al*. (1993) which clearly argue that a significant proportion of the *C. caretta* sampled from the Mediterranean show genetic markers comparable to individuals known to nest on west Atlantic beaches; hence the "Mediterranean populations" of this species are in fact mixed stocks.

Likewise the statement (page 5) "the bigger (older) a specimen is, the greater is its contribution to the demographic growth of the population" seems to imply that size and age are directly related to each other, and also to reproductive contribution. There is no question that "large" adults have a greater reproductive value to the population than "small" juveniles. However, the situation with the "larger" sizes is not so clear; there is no certainty that every individual larger than the minimum known breeding size is reproductively mature. Individuals, even from the same population, do not become sexually mature at the same size, and several studies have shown that near adulthood, size and age are not directly related (e.g., Limpus *et al.*, 1994a; 1994b). Hence, the "bigger" animals do not always have a greater reproductive value. Furthermore, demographic studies (including those cited by Gerosa and Casale, 1999) do not claim that the older an adult is, the more it contributes (thus, negating any effect from senility), but rather that a breeding adult – as a member of an age class - contributes more, and hence is worth more to the population, than a juvenile. Experienced breeders may contribute more, on average, than inexperienced breeders, but this is not the same as an across the board generalisation that older individuals contribute more.

Some statements cut corners to draw generalised conclusions. For example, the claim (page 5) that "[m]arine turtles go through two main ecological phases during their lives, first pelagic and then demersal" is used to make the point that turtles (presumably adults and large juveniles) in coastal waters are more important to a population than those on the high seas. Certainly, the terrestrial phase (incubation in the nest and nesting by females), although it is an extremely brief proportion of the total life cycle, is not only of critical importance for reproduction, but also the time when the animals are exposed to exceptionally intense sources of mortality.

The conclusion that pelagic/surface longlines are of little significance to leatherback turtles (*Dermochelys coriacea*) may be in strict keeping with the available evidence (page 9), but it is not in keeping with the precautionary principal: the lack of scientific evidence/ proof is not sufficient basis for ignoring conservation needs. What is known of this species in other seas has been enough to raise global concern about the dangers of pelagic fisheries, especially longlines (e.g., Eckert & Sarti 1997; Spotila *et al*., 2000). This is not the first time that conservation requirements of the leatherback have been obscured by "scientific logic" (Frazier 2000b), and it emphasises the pressing need to develop realistic policies based on the best available scientific

information, but also sensitive to the limitations of contemporary science.

The statements that gill nets can be used "to catch exactly the target species they want" and that they "are almost species specific" (page 23) are hard to accept. Likewise, the conclusion that surface longlines in the Mediterranean "seems to be a very homogenous method" (page 7) is remarkable, for it is followed by a series of possible sources of variation in this technique.

These, and various other questionable nuisances that are less than convincing evidently stem from language problems. The value of the publication would have been enhanced had it been given a final "polishing" for language.

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Title: Sea Turtles of the Indo-Pacific: Research, Management and Conservation. Research, Management and Conservation. Proceedings of the Second ASEAN Symposium and Workshop on Sea Turtle Biology and Conservation.
Year: 2000
Editor: Nicolas Pilcher and Ghazally Ismail
Publisher: ASEAN ACADEMIC PRESS. UK.
ISBN: 1-901919-22-6
Pages: 361 pages
Price: US$80
To order, contact: Manager, Research and Services Division, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia **Fax** ++ 60 82 671903
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"REPRESENTATIVES, concerned scientists and participants from the countries of the Indo-Pacific and Indian ocean regions, including Southeast Asian member nations, having met at Kota Kinabalu, Sabah, Malaysia from July 15 – 17, 1999 to participate in the 2nd ASEAN Symposium and Workshop on Sea Turtle Biology and Conservation;
ACKNOWLEDGE that:
Six of the worlds seven sea turtles inhabit the waters of the Indian ocean and Indo-Pacific ...
Marine turtles of the Indo-Pacific and Indian ocean region are a shared resource with cultural, ecological and economic value; ..."

This excerpt of the 'Sabah Declaration', a resolution passed at the 2nd ASEAN Symposium, represents an overwhelming need in the world of conservation, and an important direction that sea turtle conservationists have taken. The need for regional cooperation and action is especially true of migratory species like sea turtles which are likely to be shared resources between many countries. This has already been reflected in the form of regional treaties and meetings and the formation of regional associations. Despite the importance of the Asian region for marine turtles, regional meetings are a fairly recent phenomenon. The second ASEAN meeting on sea turtle conservation, held from July 17 – 19, 1999 in Sabah, Malaysia, with 150 local and international participants including scientists, managers and other conservationists, provided further impetus the move towards regional cooperation and consolidated available information on various aspects of sea turtle biology and conservation in Asia. This volume is a collection of papers presented at this meeting.

Notably, the book begins with the Sabah Declaration, and also includes the text of two resolutions on turtle conservation in Orissa and on the reefs and islands of the Spratly Archipelago. The first section of the book deals with the conservation and management of turtles, which includes accounts of programs in India, Pakistan, Sri Lanka and Indonesia. It also has an excellent review of the effect of artificial lighting and the recovery of sea turtles. This is a particularly relevant issue in Asia, as urbanization and coastal development is fast creating major beach lighting problems. However, given the other pressures on sea turtles, and given the political and social pressure in favour of development in the region, this has not been given adequate importance or attention. If the political leaders in the region could heed the warnings of the west and learn from the mistakes, the problems of beach lighting can perhaps be preempted and the extent of damage vastly reduced.

The second section includes papers on nesting and foraging populations, and reviews the status and declines of turtles in India, Indonesia, Australia and other areas. The third section, "Beyond the beach" represents the theme of the symposium. There are excellent scientific papers here, including both reviews as well as research. Jeanette Wyneken's review of sea hatchling orientation and navigation and Samuel Sadove's account of leatherback physiology are comprehensive accounts of these fascinating facets of turtle biology. Jeanne Mortimer's summary of sea turtle conservation in the Seychelles including satellite telemetry, molecular genetics and conventional field research demonstrates how a combination of techniques serves to provide better insights into the lives of sea turtles, and can be used to frame management strategies. Two studies on nearshore hatchling predation deal with an issue that is uppermost in the minds of many turtle biologists, but few studies have addressed thus far.

This is followed by a section on turtle research on nesting beaches. Since the beginning of sea turtle biology, nesting beaches have been the focus of most studies, simply because they were the easiest phase of the animal's life to study. However, one aspect that has recently gained currency recently, simply with the advent of technologies such as satellite imagery and GIS, is the characterisation and dynamics of the geomorphology of beaches. Prusty *et al.* present an account of the mass nesting beaches in Orissa which have been drastically altered in the past 10 years. This is particularly relevant in the context of species like ridleys that nest near river mouths on highly dynamic sand bars and spits. Amarasooriya provides a system of classification of nesting beaches in Sri Lanka, which addresses an important issue in conservation today, namely prioritization.

The range of research and conservation tools that are used for the management of sea turtle populations. On one hand, recent research techniques such as molecular genetics, can provide insights into the biology of these species, which help us frame strategies for conservation. On the other hand, international agreements and treaties are powerful political and legal instruments which can force attention and focus on the conservation of endangered species and populations. There are papers that cover both these areas, and a paper on coordinated planning for sea turtle recovery in Australia, which reflects the general opinion that an integrated approach is required for any sustainable solution to sea turtle conservation.

All turtle biologists talk about Turtle Excluder Devices, and all turtle conservationists advocate them, but few have up to date technical information about the design and function of TEDs. While several fisheries agencies in the USA and Australia (and elsewhere) have worked on the design and implementation of TEDS, much of this information is not available to conservationists working on the field. This collection of papers on TEDS provides an excellent compilation of available information and useful material to share with relevant fisheries sectors.

At this point, let me say that it is highly creditable, given the logistic difficulty with getting symposium papers together, even abstracts, that the editors were able to put this volume together so soon after the meeting. Further, the papers have been carefully reviewed and edited, and are generally of high quality. The CD ROM included in the volume is a good idea, but it might have been useful to include the text of the articles in the CDROM so that readers / users may have had the option of searching for the information using computerized searches. The audio files are certainly interesting (and worth preserving), but one is not sure how useful they are. It would also have been useful to have an index in a volume that contains substantial information on a range of topics related to sea turtles.

In the last section of the book, Sali Jayne Bache provides an account of the role of policy while Douglas Hykle presents the role of the Convention of Migratory Species (CMS) in sea turtle conservation. The recent conference on marine turtles at Manila Philippines, in June, 2001, (following the meeting in Kuantan, Malaysia in July 2000 and Perth, Australia in 1999) hosted by the Government of Philippines and CMS, finalised a *Conservation and Management Plan* to go with the *Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia*, which was signed by 8 countries. This is the essence of sea turtle conservation, in that these highly migratory species both require cooperation and offer an opportunity (provide an excuse, if you will) to bring people together under the aegis of a common goal. That is why these Oceanic Ambassadors are truly flagships for conservation, in particular the protection of marine ecosystems.

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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, 2811 SW Archer Road G-49, Gainesville FL, 32608, USA.

AFRICA

Nigeria gets US clearance to export shrimps

Nigeria's renewed interest in the protection and management of the environment for sustainable development has yielded fruits with the United States Government endorsing the country alongside 42 other countries to export all categories of shrimps into the US next year. Source: *Africa News*, 31 May 2001.

THE AMERICAS

Sea turtle incident sends Kaua'i man to prison

A man who admitted capturing two green sea turtles was sentenced to six months in prison. Isobe, a fisherman, said he was catching black crab when he came across the turtles and took them home. Isobe made statements to investigators that he was attempting "to fill an order" for the two turtles. Isobe was caught with the turtles, a male and a female, in his pick-up truck after a Kaua'i police officer pulled him over for speeding. Source: *Honolulu Advertiser*, 1 May 2001.

Companies donate $10,000 to protect sea turtles

San Antonio-based H.E. Butt Grocery Co., the National Park Foundation and Unilever Bestfoods have donated $10,000 to the Kemp's Ridley Sea Turtle Conservation Program at Padre Island. Unilever is also setting aside a portion of proceeds from sales of its products for the programme. Source: *San Antonio Business Journal*, 1 May 2001.

Lawsuit against longliners filed in California

Facing new limits in the waters of Hawaii, a fleet of longline fishing vessels is relocating to California to avoid a federal judge's decision to enforce protections for the endangered leatherback sea turtle. In response, Turtle Island Restoration Network and the Center for Biological Diversity working with attorneys from Earthjustice Environmental Law Clinic filed suit in federal court in San Francisco today asking the National Marine Fisheries Service to close this regulatory loophole and enforce the Endangered Species Act. In April, Hawaii a Judge ordered the closure of the Hawaii based longline swordfish fleet and reduced fishing of the tuna fleet to reduce the longliners' impacts on threatened and endangered sea turtles. Source: *Environment News Service*, 2 May 2001.

Turtles safe from shrimp trawl in 43 countries

The United States has added Honduras and Pakistan to a list of states allowed to export shrimp to the United States because they had taken steps to protect sea turtles, the State Department said. The others listed were Belize, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Indonesia, Mexico, Nicaragua, Nigeria, Panama, Suriname, Thailand, Trinidad and Tobago and Venezuela. A further 25 nations plus Hong Kong were listed as having fishing environments that did not pose a danger to sea turtles. Consignments of shrimp from other countries need to have special documentation certifying that they were harvested in a way that does not threaten sea turtles. Source: *Reuters*, 2 May 2001.

Two men charged with poaching sea turtle eggs

Two men were arrested on May 15 and charged with poaching sea turtle eggs along Palm Beach County's shores, the Florida Fish and Wildlife Conservation Commission reported. The suspects were found with 115 eggs, thought to be those of loggerhead turtles. Eight eggs were retained for evidence and DNA testing, while the remainder were still viable and reburied on the beach. Source: *Ft. Lauderdale Sun-Sentinel*, 16 May 2001.

198 rare sea turtles found dead on shores

The bodies of nearly 200 sea turtles have washed up near the mouth of the Chesapeake Bay and along Maryland's Atlantic coast in the past four weeks. Worried federal fishery managers imposed emergency restrictions on some Virginia fishing nets. The turtles began washing up on the region's shores in late May, said Jack Musick, head of the Virginia Sea Turtle Stranding Network. Most are loggerheads. About one in 10 are Kemp's ridley turtles. As many turtles have been stranded in the past few weeks as are normally seen in an entire year. But Musick, who has been studying sea turtles since 1979, said many of the creatures die here between late May and mid-June every year, and the numbers have been steadily increasing. The animals' bodies revealed no cause for the deaths, the marine scientists said. But Ryder and Musick said studies show that pound nets - weighted fishing nets that form enclosures, attached to posts pounded into the bay bottom - frequently kill turtles. The new federal rule, which will be in effect for 30 days, requires Virginia fishermen who use large-mesh pound nets to roll up the long, straight net "leaders" that funnel fish into the enclosures. Source: *Baltimore Sun*, 20 June 2001.

Groups sue fisheries service again to protect endangered turtles from longline hooks

Turtle Island Restoration Network and the Center for Marine Conservation, represented by Earthjustice, filed a lawsuit in the federal district court for the district of Hawai'i against the National Marine Fisheries Service, the Department of Commerce, and Donald L. Evans, Secretary of Commerce, challenging the defendants' decision to authorize continued killing of endangered leatherback and green sea turtles by the Hawai'i-based longline fishery. On March 31, 2001, NMFS, as required by the Endangered Species Act, issued a Biological Opinion evaluating the longline fishery's impacts on protected species. CMC and Turtle Island have long maintained that the longline fishery is jeopardizing the turtles' existence. In its new Biological Opinion, NMFS finally agreed, concluding that the Hawai'i longline fishery is "appreciably increasing the risk of extinction" of leatherback and green turtles. NMFS has placed some restrictions on the longline fishery. Yet, although NMFS has stressed that these species are precariously poised on the brink of extinction and are besieged by fisheries around the Pacific, NMFS has again given the longline fishery permission to keep killing turtles. Source: *Turtle Island Restoration Network press release*, 22 May 2001.

Florida nuke plant catches dozens of sea turtles

A total of 45 sea turtles have been caught in the water intake areas of the Crystal River nuclear power plant in Florida since January 1, the plant's operators have reported. Under its licensing agreement, the Plant is required to report to the Nuclear Regulatory Commission if its facilities snare more than 40 live sea turtles within any two year period. That number is set by the National Marine Fisheries Service. The 40th snared turtle, was found on April 9. The live turtles are kept by licensed rehabilitators for observation, then released back into the sea. Source: *Environmental News Service*, 30 May 2001.

Proposed fishing pier threatens sea turtles

On June 2, Gulf Specimens Marine Laboratory released six endangered Kemp's ridley sea turtles into the Gulf of Mexico. The turtles were caught by recreational fishermen that use the marine laboratory's dock on Dickerson Bay. The lab released the turtles to draw attention to a proposed public fishing pier which, it believes, would decimate the recovering population of endangered turtles. The lab's greatest concern is the unintentional capture of Kemp's ridleys by fishermen, who would then release the turtles back into the water lodged with hooks, or kill them by hauling them up by hook to the new elevated dock. Local fishing enthusiasts planned a fishing tournament on the same day as the turtle release to rally support for the new pier. Caribbean Conservation Corporation is working with Gulf Specimens Marine Laboratory to either halt the pier's construction or make sure safeguards for Kemp's ridleys are incorporated into the pier's design and management. Source: *Environmental News Network*, 6 June 2001.

The fishing of the marine turtle could be allowed

The fishing of marine turtles could be allowed as long as it is by means of a strict study that guarantees its healthy control. The statement was declared by Miguel Mèndez Sanchez, President of the Federation of Fishing Cooperatives of the state of Baja California Sur, who noted that it's lamentable that whenever this subject is touched the ecologists "beat it with shouts," although the population of the turtle already is totally recovered. He commented that to avoid poaching and bad management, the study must be made distant from interests that are unrelated to the tourist benefits of the locality and the fishing sector. Source: *El Sudcalifornіano*, 12 June 2001 (translated from the Spanish by Wallace J. Nichols).

WTO upholds US right to protect sea turtles

The United States is free to implement its law protecting sea turtles from shrimping nets, a World Trade Organization dispute settlement panel ruled. The ruling will allow the US to refuse to import shrimp that are caught with gear that can harm threatened and endangered sea turtles. The World Trade Organization (WTO) determined that the United States' implementation of its law to protect sea turtles is consistent with WTO rules and in compliance with earlier WTO Appellate Body recommendations. The US law in question - Section 609 of Public Law 101-162 - restricts imports of shrimp caught in a way that harms endangered sea turtles. Source: *Environment News Service*, 19 June 2001.

Padre Island impact study ordered

A Texas official has ordered an environmental impact study of proposals to let the Navy use Padre Island as a bombing range in place of Puerto Rico's Vieques Island. "Bombing Texas beaches just doesn't make sense," said state Comptroller Carole Keeton Rylander. Using 220,000 acres of sparsely populated Kenedy County for practice bombing is one plan being considered as an alternative to the training now done on Vieques. President Bush has said bombing on Vieques will end by May 2003. The Navy has said it's too early to comment on the Texas plan, but Kenedy County commissioners have already voted unanimously against the idea. Environmentalists also call the area a critical habitat for migratory birds and several endangered species, including the Kemp's Ridley sea turtle. Source: *Associated Press*, 5 July 2001.

Environmentalists protest plans for BajaCalifornia

The Mexican government is proposing its biggest tourism development in 20 years, a network of upscale marinas around Baja California that President Vicente Fox says is critical for economic growth but environmentalists call a threat to one of the world's great marine wildlife sanctuaries. Nautical Steps, which would cover more than 2,500 miles of coast, is aimed at luring the 1.6 million boat owners in California and other nearby US states into a new system of harbors, wharves, hotels and restaurants. Environmentalists say the project threatens the Gulf of California, also called the Sea of Cortez, a body of water with whales, sea lions, dolphins, turtles and other diverse wildlife. Source: *Washington Post*, 6 May 2001.

Villagers eat satellite tagged sea turtle in Baja

Gata, a 310lb female eastern Pacific green sea turtle was consumed at a community feast at a fishing village recently in southern Baja California despite the presence of a $2,500 satellite transmitter. According to Wallace J. Nichols, of Wildcoast, as many as 25 percent of his flipper-tagged turtles are harvested each year. Last summer, Nichols and his Mexican colleagues attached a satellite transmitter to Gata. Last week, Nichols received an alarming report. Gata was slaughtered and barbequed—the center of a traditional feast for more than 100 people. Source: *Wildcoast press release*, 10 July 2001.

Study finds deep-set lines could spare most turtles

Loggerhead turtles generally spend most of their time at or near the ocean's surface and seldom dive deeper than 75 feet, National Marine Fisheries Service scientists have discovered. As a result, they concluded, turtles are not likely to be caught by longline fishing gear if it is set deep in northern waters. This was among findings in a study of diving behavior of loggerhead and olive ridley turtles by ocean ecologist Jeffrey Polovina and turtle specialist George Balazs. Their research confirms that the present management plan for longline fishermen will substantially reduce loggerhead turtle catches, said Polovina. He said the plan, which prohibits shallow longline gear in northern waters, will protect endangered loggerheads while allowing longliners to set deeper gear to go after tunas or perhaps swordfish. Source: *Honolulu Star-Bulletin*

Deeper lines could still snag turtles, critics say

Setting longlines deeper for swordfish may not protect loggerhead turtles, according to an environmental lawyer and a fisherman. Paul Achitoff, the Earthjustice Legal Defense Fund attorney who sued the National Marine Fisheries for failing to protect turtles, said he doesn't question results of recent research by two NMFS scientists. "I only question extrapolating too far with it to the point where you're suggesting you can't catch loggerhead turtles with deep-set gear," he said. "You may not catch as many of them, relative to shallow gear, but you still would catch some." Isaac Harp, Lahaina fisherman and member of the Hawaiian Environmental Alliance, said he's not sure deeper lines, which are used for tuna, would be effective for swordfish. And it's questionable whether they would protect turtles, he said. Source: *Honolulu Star-Bulletin*

ASIA

No respite for ridleys

The world's largest rookery of the olive ridley turtle, Gahirmatha beach in Orissa, is fast becoming their largest graveyard, too. This year's record-breaking mass nesting of 800,000 turtles sent waves of jubilation among conservationists. But, the figure of 6,000 dead turtles washed ashore ebbed this jubilation. Last year when 720,000 nested, 20,000 were found dead. In the last five years, the toll has reached an alarming 75,000. The turtles die after getting entangled in nets cast by trawlers. Source: *Down to Earth*, 30 April 2001.

1 year for illegal turtle dealer

The Denpasar District Court sentenced on Wednesday a 46-year-old man to one year of imprisonment for illegally trading green turtles. The court also fined Widji Zakaria, alias Wewe, Rp 3 million for the offense. Several weeks earlier Maliyani, 45, a skipper on one of Wewe's boats, was sentenced to eight months in prison for illegally transporting green turtles. Maliyani had just returned from a poaching expedition in Sulawesi and was caught with around 93 live green turtles on the boat he commanded. His capture led to the later arrest of Widji Zakaria. Source: *Jakarta Post*, 10 May 2001.

Turtle rescue team honoured on World Environment Day 2001

A husband and wife team from Malaysia who have rescued over a quarter of a million turtle eggs are among this year's winners of the prestigious Global 500 Award. The awards are presented every year by the United Nations Environment Programme, on World Environment Day (5 June), to individuals and organizations who have made outstanding contributions to the protection of the environment. Dr Chan Eng Heng and her husband Liew Hock Chark began their crusade to save turtle eggs from being sold for food in 1993 after becoming alarmed that turtles on Malaysia's Redang Island were facing extinction as a result of the government-licensed, egg-collection trade. The team, based at the Sea Turtle Research Unit in University College, Terengganu, decided to raise funds and buy the eggs from the collectors, allowing them to incubate and hatch naturally on the beach where they were laid. Source: *United Nations Environment Programme press release*, 29 May 2001.

34 Chinese fishermen apprehended

Philippine maritime police have apprehended 34 Chinese fishermen caught while allegedly poaching in waters off Palawan Province, 700 kilometers southwest of Manila. Maritime police officials said the fishermen were on board two fishing vessels of Chinese origin when caught. The boats were loaded with 150 sea turtles worth about $150,000, the officials said. Cases of poaching, illegal entry and illegal catching of endangered species are being prepared against the fishermen, officials said. Source: *Asian Economic News*, 4 June 2001.

EUROPE

MEDASSET's worst fears realised

After the staff at the nearby Soda Sanayi A.S. Soda-Chrome factory bulldozed the retaining walls releasing Chromium waste into the Mediterranean Sea, the dead remains of the critically endangered Mediterranean green sea turtles are washed up on the beaches. Sea water samples analysed show chromium concentration 13,500 times natural occurrence. It has taken some time, since MEDASSET's original disclosure on 20th March 2001 but at last the Turkish media have taken the matter up, forcing the government to address the sensitive issue. So far 23 dead green turtles and 6 dead loggerheads have been washed ashore. Source: *MEDASSET press releases*, 8 May and 29 June 2001.

Movie threat to turtles

Hoteliers and developers in Cephalonia hoping to cash in on the success of Captain Corelliís Mandolin are putting important loggerhead turtle nesting grounds at risk, environmentalists have warned. Huge demand from tourists wanting to visit the Greek island after seeing the film has prompted entrepreneurs on beaches near Katelios, on the south-east coast, to propose new hotels directly overlooking fragile nesting sands. A local environmental group is concerned that growing numbers of tourists in the area could disturb turtle eggs, and that lights from hotels will confuse hatchlings. Environmentalists are worried that the Captain Corelli effect will trigger a rash of developments, backed by local authorities on the island. They claim that developers have resorted to driving heavy vehicles along the beach to crush turtle nests, in an attempt to convince environmental inspectors from the European Union that no loggerheads nest there. Source: *The Times (UK)*, 26 June 2001.

Five month probation by the European Court of Justice to protect Mediterranean sea turtles

A five-month probationary period has been allowed to Greece after the hearing of the European Court of Justice on 12 July 2001 to fully implement conservation measures for the protection of the loggerhead sea turtle on Zakynthos. The court came to its decision after taking into consideration a report presented by the Greek Government, which stated that they simply did not have enough time to fully implement its commitment. The court also took under consideration reports from involved non-governmental organizations like MEDASSET, ARCHELON (STPS Greece) and WWF Greece. The Greek state is now under enormous pressure to implement the decision of the Court by the end of the sea turtle season, October 2001. Source: *MEDASSET press release*, 20 July 2001.

OCEANIA

Dugongs and turtles to be surveyed in Moreton Bay marine park

The Queensland Parks and Wildlife Service is conducting a survey of dugongs and turtles in the Moreton Bay marine park. The survey is exploring the impact of blue-green algae blooms as well as the effect of boats and litter. Last year's survey found 22 per cent of loggerhead turtles had propeller cuts and fractures from boat strikes. Environment Minister Dean Wells is urging boaties to observe the five "go slow" areas in the bay, which are recognised as important feeding areas for turtle and dugong populations. Source: *Australian Broadcasting Corporation*, 8 June 2001.

Injured turtle leaves Melbourne with clean bill of health

A sea turtle found close to death after swallowing a plastic bag was today taken from Melbourne back to his native Queensland, ready for release with a clean bill of health. The Loggerhead Turtle, which began rehabilitation at the Melbourne Aquarium in August last year, had put on 11 kilograms and was considered ready to return to the wild. The turtle was specially packed on a flight to Brisbane, and will be held at the nearby Mooloolaba Aquarium until a release date is set. Source: *Australian Associated Press Newsfeed,* 14 June 2001.

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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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OLSON, P. A., R. L. PITMAN, L. T. BALLANCE, K. R. HOUGH, P. DUTTON & S. B. REILLY. 2001. Summary of seabird, marine turtle, and surface fauna data collected during a survey in the eastern tropical Pacific Ocean, July 28-December 9, 2000. NOAA Technical Memorandum NMFS, NOAA-TM-NMFS-SWFSC-304: 58 pp. This Tech. Memo. is available in PDF format at: http://swfsc.ucsd.edu/mmd/star/default.htm. (address same as above)

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ACKNOWLEDGEMENTS

Publication of this issue was made possible by donations from the following individuals: Judith L. Anderson, Paulo C. R. Barata, Pamela Plotkin Bernardo, Karen A. Bjorndal, Pieter Borkent, Vincent J. Burke, S. Jean Cantwell, Orville D. Clayton, Laurie Defatte, C. Kenneth Dodd, Jr., Karen L. Eckert, David W. Ehrenfeld, Alejandro Fallabrino, Gordon Firestein, Roberto Flores, Benjamin L. Frick, Robert H. George, Hedelvy Guada, Janet Hochella, Jennifer Homcy, Sophie Jakowska, William J. Keenan, Matthew J. Kelly, Arthur Kopelman, Dean Lipke, William E. Margolis, Elizabeth A. Mitchell, Greg & Lani Muelrath, Cynthia Nardella, Irvin S. Naylor, Graham Owens, Jennifer Prout, J. Perran Ross, R. Thomas Ross, Michael Salmon, Arnie P. Schildhaus, Erik W. Schwartz, Frank J. Schwartz, Gordon Seyfarth, Tatsuo Shibasaki, Sandra E. Shumway, Robert J. Smit, Robert P. Stoll, Anton Tucker, Frances A. Velay, Holger Vetter, Kennard P. Watson, Ross Witham, Ruth A. Yender, George R. Zug,

The following organizations support the MTN: Bedford Institute of Oceanography, Caribbean Conservation Corporation, Cayman Turtle Farm, Ltd., Center for Marine Conservation, Chelonian Research Foundation, Columbus Zoo, Conservation International, Ecotrust, Sea World, Inc., US Fish & Wildlife Service, US National Marine Fisheries Service-Office of Protected Resources.

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

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