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Photo credit: Ursula Keuper-Bennett

Fibropapillomas in marine turtles: a meeting report summarising current knowledge (Aguirre, pages 10-12).

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EDITORIAL

Change of address

First the MTN came to Scotland and now it is moving to Wales! Please note that we have moved location and our new contact details are on the inside cover of this issue.

End of our first year

We would like to take this opportunity to thank our editorial board and many reviewers who have given a great deal of time and effort, enabling the swift turnaround of submitted material. Particular thanks to Michael Coyne for his tremendous efforts in setting up the MTN-Online <http://www.seaturtle.org/mtn/>. If you have not yet visited this site on the internet then please do. Thanks also to Angela Mast and her team for the production of the NTM. It is expected that the NTM-Online will be fully up and running in 1999.

How can you help?

There are a number of ways that you can contribute other than by the submission of articles, notes and letters for publication:

1) If you have not already done so, please fill in the subscriber information/donation sheet inserted in the last issue.
2) Inform us of future events worthy of announcement.
3) Submit relevant items for use in the News and Legal Briefs section (see page 22).
4) Notify us of your published outputs to enable the Recent Publications section to be as current as possible (see page 24).
5) Volunteer to assist with the production of the online versions of the MTN and NTM.

We look forward to hearing from you in 1999. *ACB/BJG.*

More Kemp's Ridley Turtles Return to South Texas to Nest

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Between 12th of April and 15th of June 1998, 13 confirmed Kemp's ridley turtle (*Lepidochelys kempii*) nests were found on the coast of southern Texas, USA. They represented: (1) the only confirmed Kemp's ridley nests found in the USA so far this year; (2) the greatest number of Kemp's ridley nests documented in Texas or in the USA during any single year; and (3) an increase in the number of Kemp's ridley nests detected in Texas for the fourth consecutive year (Shaver 1990, 1994a, 1995a, 1996a, 1997, in press a). Of the 13 nests, nine were found on North Padre Island at Padre Island National Seashore (PAIS), two on Mustang Island, and two on South Padre Island. During the last 50 years, more confirmed Kemp's ridley nests have been located at PAIS in south Texas than at any other location in the USA (Shaver in press a).

During the period 1978-1988, a joint Mexico-USA experimental project was conducted to determine the feasibility of increasing the levels of nesting of this endangered species at PAIS to provide an additional safeguard against extinction (Shaver 1990; US Fish and Wildlife Service and National Marine Fisheries Service 1992). Turtles in the project were hatched from eggs collected at the primary nesting beach at Rancho Nuevo, Tamaulipas, Mexico and incubated at PAIS. Steps were taken to experimentally imprint hatchlings to the beach at PAIS following which they were head-started at the National Marine Fisheries Service Laboratory in Galveston, Texas. The turtles were tagged and released (within their first year of life) into the Gulf of Mexico or adjacent bays (Caillouet *et al.* 1995, 1997). In 1998, there were four confirmed nests in south Texas by three Kemp's ridleys from this project (Table 1). Included were: (1) a 14 year old from the 1984 year-class found to have nested twice this year; (2) a 12 year old from the 1986 year-class found nesting once; and (3) an 11 year old from the 1987 year-class found nesting once. These three nesting females were identified from living tags, magnetic tags, and flipper tag scars. However, without the presence of a metal flipper tag it could not be determined whether the nesting female from the 1987 year-class had been imprinted at PAIS (n=1110) or Cayman Turtle Farm (n=130) (see Caillouet *et al*. 1995).

The first documented nesting in the wild of Kemp's

ridleys from this project occurred at PAIS in 1996, and included: (1) a 13 year old from the 1983 year-class; and (2) a 10 year old from the 1986 year-class (Shaver 1996a, 1996b). Eggs laid by the turtles in this project, and virtually all other Kemp's ridley eggs detected on the south Texas coast from 1980-1998, were collected and incubated in a hatchery at PAIS, and most emerging hatchlings were released at PAIS (Shaver 1990, 1997). The nesting by turtles released as part of this project and production of hatchlings from their nests support the primary working hypothesis of the bi-national project; *viz.* that experimentally imprinted and head-started Kemp's ridleys are able to join the natural, wild population, find their way to nesting beaches, copulate successfully, and produce viable offspring (Eckert *et al.* 1994; Caillouet 1998). Furthermore, these clutches have been laid at or in proximity to the beach to which the turtles were imprinted as hatchlings, and were comparable in size to those at Rancho Nuevo.

The nine other Kemp's ridley nests on the south Texas coast during 1998 could not be conclusively linked to the experimental imprinting and head-starting project. Two Kemp's ridleys were observed by beach visitors but not examined by trained biologists. Four nests were detected only from tracks left in the sand by the nesting females (hatchlings confirmed the species). Two of the nesting turtles examined by the author (DS) had no tags or tag scars and one nesting turtle examined contained a PIT tag implanted when she nested near Rancho Nuevo in 1996. This is the first confirmed nesting in the USA by a Kemp's ridley turtle that had previously nested in Mexico. An individual that had been tagged while nesting at Rancho Nuevo in May 1997, was observed crawling on the beach at PAIS about one month later, but no nest was located during this observation at PAIS. The natal beach of these two tagged turtles could not be ascertained. However, the documentation of these two individuals indicate some movement of Kemp's ridleys between nesting beaches in Mexico and south Texas. Evidence suggests there is only one genetically distinct stock of this species (Bowen *et al.* 1991; TEWG 1998), which nests almost exclusively on western Gulf of Mexico shores (Burchfield *et al.* 1997).

Kemp's ridleys that nest in south Texas today are likely a mixture of returnees from the experimental imprinting and head-starting project and others from the wild stock. They could also include survivors (or their offspring) from hatchlings released in a project started at South Padre Island in 1967 (Francis 1978). As the Kemp's ridley population continues to increase (TEWG 1998) and more turtles from the two egg translocation projects as well as their offspring reach maturity, it is likely that increasing numbers of Kemp's ridleys will come to south Texas to breed and nest. Although it cannot be proven in retrospect, Kemp's ridley nesting may have been more frequent in the USA before over-exploitation of eggs at Rancho Nuevo and incidental capture in shrimp trawls brought the stock to near extinction. Kemp's ridley nesting was documented on the Texas coast long before either of the Rancho Nuevo-to-Padre Island egg translocation projects occurred (Werler 1951; Hildebrand 1963; Carr 1967). In contrast, recent Kemp's ridley nesting records from south Florida (Meylan *et al.* 1990; Anonymous 1994) and the Carolinas (Palmatier 1993) were outside the known historic nesting range for this species (see Bowen *et al.* 1994). Also prior to the egg translocation projects, Hildebrand (1963) considered the possibility that scattered nesting of Kemp's ridley along the stretch of coastline from south Texas to Veracruz, Mexico reflected remnants of former Kemp's ridley rookeries. Lack of information about Kemp's ridley nesting in south Texas prior to the late 1940s could have resulted from the paucity of people that lived on and visited south Texas beaches, and misidentification of Kemp's ridleys as other species (Neck 1978; Hildebrand 1982). For example, the south Texas coast may have been an important nesting zone for the green turtle (*Chelonia mydas*), which was so common in Texas waters prior to the turn of the century that it supported a substantial commercial fishery (Doughty 1984).

Despite Federal regulations requiring turtle excluder devices (TEDs) in shrimp trawls, and repeated assurances by NMFS, the US Coast Guard, and the shrimping industry that compliance with TED regulations is very high, sea turtle strandings on Texas beaches adjacent to the Gulf of Mexico continue to be associated with shrimp fishing in the Gulf along the Texas coast (Shaver 1994b, 1995b, 1996c, 1996d, in press b; Weber *et al.* 1995; Caillouet *et al.* 1996). During 1997 alone, there were 90% fewer sea turtle strandings on Gulfside beaches of Texas during the 8-week Texas Closure (when State and Federal waters of the Gulf along the Texas coast were closed to shrimping) than the 8 week periods preceding and following the closure (Shaver in press a). During the last 1.5 years, more adult Kemp's ridleys (*i.e.,* those 60 cm in straight-line carapace length or larger) were documented stranded in Texas than in any other state in the USA or Mexico (Burchfield *et al.* 1997; Marquez pers. comm.; Teas pers. comm.). Between 1st January 1997 and 22nd June 1998, 42 adult Kemp's ridleys were found stranded on the beaches of the Texas Gulf (including 26 at PAIS). None of the 42 could be linked to the experimental imprinting and head-

	1948-1984		1985-1998			
Year	Total number of nests	Definitely not from HS	Not Examined[a]	Examined but no tags found to identify as HS	Examined and tags found to identify as HS	Source
1948	1	1	-	-	-	Carr (1967)
1950	1	1	-	-	-	Werler (1951)
1962	1	1	-	-	-	Hildebrand (1963)
1974	1	1	-	-	-	Francis (1978)
1976	2	2	-	-	-	Francis (1978)
1979	1	1	-	-	-	Shaver (1990)
1980	2	2	-	-	-	Shaver (1990)
1985	1	-	1	-	-	Shaver (1990)
1988	1	-	-	1	-	Shaver (1990)
1991	1	-	-	1	-	Shaver (1994a)
1994	1	-	-	1	-	Shaver (1994a)
1995	4	-	3	1	-	Shaver (1995a)
1996	6	-	4	-	2	Shaver (1997)
1997	9	-	6	3	-	Shaver (in press a)
1998	13	-	6	3	4[b]	This study

Table 1. Number of confirmed Kemp's ridley turtle (*Lepidochelys kempii*) nests found on the Texas coast between 1948-1998. Nests found during 1948-1984 could not have been from turtles that were experimentally imprinted at PAIS and head-started (HS) in Galveston, Texas from 1978-1988. Turtles were not considered examined for head-start tags unless they were actually inspected by trained biologists. [a] The number of Kemp's ridleys observed nesting would probably have been greater had more resources been available for patrols at PAIS. Beach surveyors attempt to patrol 130 kilometers of beachfront daily, and although patrolling is currently as high as it has been, the coverage at PAIS is still less than at Rancho Nuevo. [b] Four nests from three head-started individuals; one of these individuals was observed nesting twice during 1998.

starting project. However, several lacked front flippers and some carapace scutes, thereby prohibiting a thorough examination for tags. All 42 (15 females, 16 males, 11 undetermined sex) were found dead at times when Gulf waters off the Texas coast were open to shrimping (Shaver in press a). Many of these deaths occurred during the breeding and nesting seasons in 1997 and 1998. Most stranded adult Kemp's ridleys were salvaged and necropsied. Gonads from these individuals were removed and preserved for future analyses to determine breeding condition. However, a few adults were confiscated as law enforcement evidence. No eggs were found in any of the dead females that we examined in 1997 and 1998 (in 1994, one found soon after the Gulf shrimping season opened was gravid).

Adult females are more important than any other life stage with regard to potential immediate contributions toward recovery of the species (Heppell *et al.* 1996; TEWG 1998). The deaths of adult female Kemp's ridleys in south Texas represents a substantial loss, whether the turtles would have contributed to nesting in south Texas or elsewhere. These deaths may have contributed to a reduction in nesting and production of offspring not only in 1997 and 1998, but also in future years.

As a result of Kemp's ridley restoration efforts started by the Mexican government in 1966 and joined by the USA government in 1978, the Kemp's ridley seems on a course toward recovery (TEWG 1998). The Kemp's ridley population appears to be growing at a rate that may be able to sustain some undetermined levels of loss of adults and other life stages to human causes without preventing recovery or placing the species in immediate jeopardy. However, it might be expected that recovery would accelerate with increased protection from anthropogenic mortalities (TEWG 1998). Nevertheless, the success of efforts to enhance the nesting assemblage of Kemp's ridleys in south Texas as an additional safeguard against extinction depends upon ensuring survival of breeding and nesting turtles in the area. Continued loss of adult Kemp's ridleys in south Texas may cancel out a great deal of long term, costly efforts and may prohibit collection of valuable data needed to assess results of the experimental techniques used in this project. Mexico has declared its primary nesting beach at Rancho Nuevo a refuge for nesting Kemp's ridleys, and has established a no-shrimping zone adjacent to this beach to protect the adults during breeding and nesting seasons (Eckert & Eckert 1993). It is time to give serious consideration to similar protection of the south Texas nesting assemblage of this endangered species, using the Rancho Nuevo refuge and adjacent protected waters as a model.

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ANONYMOUS. 1994. Kemp's ridley nests in Florida. Marine Turtle Newsletter 67:16.

BOWEN, B.W., T.A. CONANT & S.R. HOPKINS-MURPHY. 1994. Where are they now? The Kemp's Ridley Headstart Project. Conservation Biology 8:853-856.

BOWEN, B.W., A.B. MEYLAN & J.C. AVISE. 1991. Evolutionary distinctiveness of the endangered Kemp's ridley sea turtles. Nature 352:709-711.

BURCHFIELD, P.M., L. DIERAUF, R.A. BYLES, R. MARQUEZ-M. & R.G. CASTRO MELENDEZ. 1997. Report on the Mexico/United States of America Population Restoration Project for the Kemp's Ridley Sea Turtle, *Lepidochelys kempi*, on the Coasts of Tamaulipas and Veracruz, Mexico. Unpublished report to the U.S. Fish and Wildlife Service. 58 pp.

CAILLOUET, C.W., JR. 1998. Testing hypotheses of the Kemp's ridley head-start experiment. Marine Turtle Newsletter 79:16-18.

CAILLOUET, C.W., JR., C.T. FONTAINE, S.A. MANZELLA-TIRPAK & D.J. Shaver. 1995. Survival of head-started Kemp's ridley sea turtles (*Lepidochelys kempii*) released into the Gulf of Mexico or adjacent bays. Chelonian Conservation and Biology 1:285-292.

CAILLOUET, C.W., JR., B.A. ROBERTSON, C.T. FONTAINE, T.D. WILLIAMS, B.M. HIGGINS & D.B. REVERA. 1997. Distinguishing captive-reared from wild Kemp's ridleys. Marine Turtle Newsletter 77:1-6.

CAILLOUET, C.W., JR., D.J. SHAVER, W.G. TEAS, J.N. NANCE, D.B. REVERA & A.C. CANNON. 1996. Relationship between sea turtle strandings and shrimp fishing effort in the northwestern Gulf of Mexico: 1986-1989 versus 1990-1993. Fishery Bulletin 94:237-249.

CARR, A.F. 1967. So Excellent a Fishe. Natural History Press. Garden City, New Jersey. 248 pp.

DOUGHTY, R.W. 1984. Sea turtles in Texas: A forgotten commerce. Southwestern Historical Quarterly 88:43-70.

ECKERT, S.A., D. CROUSE, L.B. CROWDER, M. MACEINA & A. SHAH. 1994. Review of the Kemp's ridley sea turtle headstart program. NOAA Technical Memorandum NMFS-OPR-3. 11 pp.

ECKERT, K.L. & S.L. ECKERT. 1993. Editorial: Rancho Nuevo strandings emphasize need for at-sea enforcement. Marine Turtle Newsletter 63:4-5.

FRANCIS, K. 1978. Kemp's ridley sea turtle conservation programs at South Padre Island, Texas, and Rancho Nuevo, Tamaulipas, Mexico. In: G.E. Henderson (Ed.). Proceedings of the Florida and Interregional Conference on Sea Turtles. Florida Department of Natural Resources, Florida Marine Research Publications No. 33. pp. 51-52.

HEPPELL, S.S., L.B. CROWDER & D.T. CROUSE. 1996. Models to evaluate headstarting as a management tool for long-lived turtles. Ecological Applications 6:556-565.

HILDEBRAND, H.H. 1963. Hallazgo del area de anidacion de la tortuga marina "lora," *Lepidochelys kempi* (Garman), en la costa occidental del Golfo de Mexico (Rept., Chel.). Ciencia, Mexico 22:105-112.

HILDEBRAND, H.H. 1982. A historic review of the status of sea turtle populations in the western Gulf of Mexico. In: K.A. Bjorndal (Ed.). Biology and Conservation of Sea Turtles. Smithsonian Institution Press. Washington, D.C. pp. 447-453.

MEYLAN, A., P. CASTANEDA, C. COOGAN, T. LOZON & J. FLETEMEYER. 1990. First recorded nesting by Kemp's ridley in Florida, USA. Marine Turtle Newsletter 48:8-9.

NECK, R.W. 1978. Occurrence of marine turtles in the lower Rio Grande of south Texas (Reptilia, Testudines). Journal of Herpetology 12:419-422.

PALMATIER, R. 1993. *Lepidochelys kempii* (Kemp's ridley). Nesting. Herpetological Review 24:149-150.

SHAVER, D.J. In press a. Kemp's ridley sea turtle project at Padre Island National Seashore, Texas. In: University of New Orleans (Compiler). Proceedings: Seventeenth Annual Gulf of Mexico Information Transfer Meeting. Minerals Management Service, Gulf of Mexico OCS Region.

SHAVER, D.J. In press b. Sea turtle strandings along the Texas coast, 1980-1994. NOAA Technical Report NMFS.

SHAVER, D.J. 1990. Kemp's Ridley project at Padre Island enters a new phase. Park Science 10:12-13.

SHAVER, D.J. 1994a. Padre Island National Seashore Kemp's ridley sea turtle project 1994 Report. Unpublished report. National Biological Survey, US Department of the Interior. 32 pp.

SHAVER, D.J. 1994b. Sea turtle strandings along the Texas coast reach alarming levels. Marine Turtle Newsletter 66: 8-9.

SHAVER, D.J. 1995a. Kemp's ridley sea turtles nest in south Texas. Marine Turtle Newsletter 70:10-11.

SHAVER, D.J. 1995b. Sea turtle strandings along the Texas coast again cause concern. Marine Turtle Newsletter 70: 2-4.

SHAVER, D.J. 1996a. Head-started Kemp's ridley turtles nest in Texas. Marine Turtle Newsletter 74:5-7.

SHAVER, D.J. 1996b. A note about Kemp's ridley nesting in Texas. Marine Turtle Newsletter 75:25.

SHAVER, D.J. 1996c. Record numbers of sea turtle strandings along the Texas coast during 1994. In: J.A. Keinath, D.E. Barnard, J.A. Musick & B.A. Bell (Compilers). Proceedings of the Fifteenth Annual Workshop on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-387. pp. 290-293.

SHAVER, D.J. 1996d. Sea turtle strandings along the Texas coast during 1994. In: University of New Orleans (Compiler). Proceedings: Fourteenth Annual Gulf of Mexico Information Transfer Meeting. Minerals Management Service, Gulf of Mexico OCS Region, MMS 96-0024. pp. 45-49.

SHAVER, D.J. 1997. Kemp's ridley turtles from international project return to Texas to nest. In: University of New Orleans (compiler). Proceedings: Sixteenth Annual Gulf of Mexico Information Transfer Meeting. Minerals Management Service, Gulf of Mexico OCS Region, MMS 97-0038. pp. 38-40.

TEWG (TURTLE EXPERT WORKING GROUP). 1998. An Assessment of the Kemp's Ridley (*Lepidochelys kempii*) and Loggerhead (*Caretta caretta*) Sea Turtle Populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409. 96 pp.

US FISH AND WILDLIFE SERVICE AND NATIONAL MARINE FISHERIES SERVICE. 1992. Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). National Marine Fisheries Service. St. Petersburg, Florida. 40 pp.

WEBER, M., D. CROUSE, R. IRVIN & S. IUDICELLO. 1995. Delay and Denial: A Political History of Sea Turtles and Shrimp Fishing. Center for Marine Conservation. Washington, D.C. 46 pp.

WERLER, J.E. 1951. Miscellaneous notes on the eggs and young of Texas and Mexican reptiles. Zoologica 36: 37-48.

Site Fidelity and Size Frequencies of Juvenile Green Turtles (*Chelonia mydas)* Utilizing Near Shore Reefs in St. Lucie County, Florida

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The St. Lucie Nuclear Power Plant is located on Hutchinson Island in St. Lucie County, Florida, USA. It draws cooling water from the Atlantic Ocean, through three large diameter pipes (3.9 - 4.9 m), into a 1500 m long intake canal. The structures housing the intake pipes are 365 m offshore in about 7 m of water. The pipe openings are vertically oriented and are situated 3 m above the ocean floor. A large velocity cap sits approximately 2 m above each pipe opening and extends more than 3 m beyond the pipe diameter. Turtles encountering these structures are often transported into the intake canal where they are captured with tangle nets, dipnets and by SCUBA divers. Morphometric data is collected from each turtle, tags are applied to both front flippers and the turtle is returned to the ocean approximately 750 m north of the canal.

From March of 1976, when the power plant began operation, to April 1998, 5727 sea turtles were captured at the plant's intake canal. This total includes 3357 loggerhead (*Caretta caretta*), 2297 green (*Chelonia mydas*), 34 Kemp's ridley (*Lepidochelys kempii*), 20 leatherback (*Dermochelys coriacea*) and 19 hawksbill (*Eretmochelys imbricata*) turtle captures. The vast majority of turtles entering the canal are in good condition and are not affected adversely by their rapid entrainment. Although some mortalities have occurred