# 2013 REPORT ON THE MEXICO / UNITED STATES OF AMERICA POPULATION RESTORATION PROJECT FOR THE KEMP´S RIDLEY SEA TURTLE, *Lepidochelys kempii*, ON THE COASTS OF TAMAULIPAS, MEXICO

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## Report presented by:

**Dr. Patrick M. Burchfield**
Gladys Porter Zoo - Brownsville, Texas

## Report prepared by:

**Luis Jaime Peña**
Gladys Porter Zoo - Brownsville, Texas

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## LIST OF ACRONYMS AND ABBREVIATIONS

The following institutional acronyms and terms may be found throughout this document:

| | |
|---|---|
| CDEN | Sociedad Civil Para la Conservación y Desarrollo De Espacios Naturales |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CRIP | Regional Center for Fisheries Research (Centro Regional de Investigaciones Pesqueras) |
| CONANP | National Commission of Protected Natural Areas (Comision Nacional de Areas Naturales Protegidas) |
| CONAPESCA | National Commission of Aquaculture and Fisheries |
| DOF | Diario Oficial de la Federacion |
| ESA | U.S. Endangered Species Act of 1973 |
| FWS | U.S. Fish and Wildlife Service, Department of Interior |
| GPZ | Gladys Porter Zoo |
| HEART | Highly Endangered Animals—Ridley Turtles |
| IUCN | International Union for the Conservation of Nature |
| KRWG | Kemp's Ridley Working Group |
| MARPOL | Marine Pollution Control Act |
| MIH | Mullerian inhibiting hormone |
| NGO | Non-governmental organization |
| NMFS | National Marine Fisheries Service, Department of Commerce |
| NOAA | National Oceanic and Atmospheric Administration - Department of Commerce |
| NOM | Norma Oficial Mexicana or Official Mexican Norm |
| NPS | National Park Service, Department of Interior |
| PAIS | Padre Island National Seashore, Department of Interior |
| PIT | Passive integrated transponder |
| PROFEPA | Federal Ministry for Environmental Protection, Mexico |
| RAMSAR | Convention on Wetlands of International Importance |
| RV | Reproductive value |
| RRV | Relative reproductive value |
| SAGARPA | National Fisheries Commission of the Secretariat of Agriculture, Cattle Raising, Rural Development, Fishing and Food |
| SEMARNAT | Secretariat of Environment and Natural Resources, Mexico |
| SEDUE | Secretariat of Urban Development and Ecology, Mexico |
| SEPESCA | Secretariat of Fisheries, Mexico |
| STSSN | Sea Turtle Stranding and Salvage Network |
| TED | Turtle Excluder Device |
| TEWG | Turtle Expert Working Group |
| TPWD | Texas Parks and Wildlife Department |
| UAB | University of Alabama at Birmingham |

## INTRODUCTION

Of the eight species of sea turtles in the world, the Kemp's ridley, *Lepidochelys kempii*, is the most vulnerable and endangered. One of the key elements in its critically endangered status is that over 90% of this species' population nests within one 78 mile stretch of beach in Mexico. Should any disaster, manmade or natural, befall that epicenter, the entire species could be lost. Other species, such as the leatherback sea turtle, which is also critically endangered, especially in the Pacific, have the advantage of being worldwide in their nesting distribution. It is the smallest sea turtle and the only species which nests primarily during the daytime. Because of its critically low numbers, the Kemp's ridley, called "tortuga lora" in Spanish, is also considered to be a conservation dependant species.

In the United States of America, the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.) (ESA) establishes policies and procedures for identifying, listing, and protecting species of wildlife that are endangered or threatened with extinction. The purposes of the ESA are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species..." The ESA defines an "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range." A "threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The Kemp's ridley sea turtle (*Lepidochelys kempii*) was listed as endangered throughout its range on December 2, 1970, and has received Federal protection under the ESA since that time. The Kemp's ridley was listed on Appendix I by the Convention on International Trade in Endangered species of Wild Fauna and Flora (CITES) on July 1, 1975, which prohibited all commercial international trade. The International Union for the Conservation of Nature lists the Kemp's ridley as Critically Endangered.

The Secretaries of the Department of the Interior and the Department of Commerce are responsible for administering the ESA's provisions. Authority for endangered and threatened species under the Departments' jurisdictions has been delegated to the FWS and NMFS. FWS and NMFS share Federal jurisdiction for sea turtles, with FWS having lead responsibility on the nesting beaches and NMFS in the marine environment.

To help identify and guide species recovery needs, section 4(f) of the ESA directs the Secretary to develop and implement recovery plans for listed species or populations. Such plans are to include: (1) a description of site-specific management actions necessary to conserve the species or populations; (2) objective, measurable criteria which, when met, will allow the species or populations to be proposed to be removed from the endangered and threatened species list; and (3) estimates of the time and funding required to achieve the plan's goals and intermediate steps.

In Mexico, the General Directorate for Wildlife of the Secretariat of Environment and Natural Resources (SEMARNAT) is entrusted with applying the policies in order to conserve and protect marine turtles species, in coordination with the National Commission of Natural Protected Areas (CONANP), the Federal Attorney for Environmental Protection (PROFEPA) and the National Fisheries Commission of the Secretariat of Agriculture, Cattle Raising, Rural Development, Fishing and Food (SAGARPA).

The legal situation of the marine turtles is determined by the General Law of Ecological Balance and Protection to the Environment, the General Law of Wildlife and the Official Mexican Standard NOM-O59-SEMARNAT-2001 (published in the Mexican Federal Register, Diario Oficial de la Federación-DOF in 2002). The latter lists all marine turtle species as "in danger of extinction."

## SPECIES DESCRIPTION

The Kemp's ridley and its congener, the olive ridley, are the smallest of all extant sea turtles. Size is a poor predicator of maturity, but the weight of an adult is generally between 32-49 kg and the straight carapace length is around 60-65 cm. Adult shells are almost as wide as they are long. The coloration changes significantly during development from the grey-black dorsum and venter of hatchlings to the lighter grey-olive carapace and cream-white or yellowish plastron of adults. There are two pairs of prefrontal scales on the head, five vertebral scutes, usually five pairs of costal scutes and generally twelve pairs of marginals on the carapace. In each bridge adjoining the plastron to the carapace, there are four scutes, each of which is perforated by a pore. This is the external opening of the Rathke's gland, which secretes a substance of unknown (possibly pheromonal) function. Males are not well described but resemble the females in size and coloration. Secondary sexual characteristics typical of males of sea turtle species are present: longer tail, more distal vent, recurved claws, and a softened mid-plastron during breeding. The eggs are between 34-45 mm in diameter and 24-40 g in weight. Hatchlings generally range from 42-48 mm in straight line carapace length, 32-44 mm in width and 15-20 g in weight.

### TAXONOMY

Kemp's ridley was first described by Samuel Garman in 1880, as *Thalassochelys kempii* (or *Colpochelys kempii*). The sea turtle was named for Richard M. Kemp, a fisherman interested in natural history who submitted the type specimen from Key West, Florida. Later, *kempii* was allocated to the genus, *Lepidochelys,* when it was realized that Kemp's ridley and the Indo-Pacific olive ridley, *Lepidochelys olivacea*, were congeneric. Several others subsequently considered *L. kempii* to be a sub-species of *L. olivacea*, but currently it is recognized as a full species clearly distinct from *L. olivacea*. The latter species is distributed in the Pacific and Indian Oceans and predominately in the southern Atlantic. Although individuals occasionally reach the northwestern Atlantic, the olive ridley is not sympatric with *L. kempii*, a more northern species in the Atlantic. A taxonomic review of the genus including a detailed morphological description of the two species, established that they have enough morphological differentiation to justify designation as separate full species, and this status is widely accepted.

### LIFE HISTORY/ECOLOGY

Kemp's ridley females lay their eggs on coastal beaches where the eggs incubate in sandy nests. After a couple of months of embryonic development, the hatchlings emerge usually at night or early in the morning, *en masse,* and swim offshore into deeper, ocean water where they feed and grow in the ocean zone followed by later development in nearshore coastal habitats. This life history pattern is characterized by three basic ecosystem zones:

(1) **Terrestrial zone** (supralittoral) - the nesting beach where both oviposition and embryonic development occur.

(2) **Neritic zone** - the nearshore (including bays and sounds) marine environment (from the surface to the sea floor) where water depths do not exceed 200 meters and includes the continental shelf.

(3) **Oceanic zone** - the vast open ocean environment (from the surface to the sea floor) where water depths are greater than 200 meters.

POPULATION DISTRIBUTION AND TRENDS

The Kemp's ridley has a restricted distribution. Nesting is essentially limited to the beaches of the western Gulf of Mexico, primarily in the Mexican state of Tamaulipas (see appendices.) Nesting also regularly occurs in Veracruz, Mexico, and a few historical records exist for Campeche, Mexico. Most Kemp's ridley nests located in the U.S. have been found in south Texas.

## CONSERVATION HISTORY

This sea turtle has received continuous attention on the part of the Mexican government since 1966, when the National Program for Research and Conservation began. In 1978, a collaborative bi-national program between Mexico and the United States was developed to try and restore this species' population to a self sustainable level.

Sea turtle research and conservation in Mexico was formalized in 1962 with Instituto Nacional de la Pesca (INP) then named Instituto Nacional de Investigaciones Biologico-Pesqueras (INIBP) being the lead agency. Conservation efforts for the Kemp's ridley were initiated in 1966; the project began on the beach near the ranching community of Rancho Nuevo, in the municipality of Aldama, Tamaulipas. This locale is the only one in the world where massive nesting aggregations, "arribadas", of this sea turtle were and are known to occur. Because of it being the only known major nesting beach for the "tortuga lora", this beach was declared the first National Reserve for the Management and Conservation of Sea Turtles in Mexico on July 4, 1977.

In 1981, the U. S. Fish and Wildlife Service requested the Gladys Porter Zoo to administer the United States' field portion of the joint US/Mexico effort to protect and increase the production of Kemp's ridley sea turtles at their natal beaches located in the State of Tamaulipas, Mexico.

Historically speaking, the population of the Kemp's ridley sea turtle has been declining at an alarming rate since the 1940's. A film made in 1947 by Andres Herrera, from Tampico, Tamaulipas, was presented by Dr. Henry Hildebrand of the University of Corpus Christi, Texas, to the American Society of Ichthyologists and Herpetologists in 1961 at their annual conference. The film, fourteen years old at that time, revealed an estimated 40,000 female Kemp's ridleys nesting on the beach at one point in time. This was the first time scientists had observed this type of massive synchronized nesting behavior. This extraordinary phenomenon is termed "arribada" or "arribazon" in Spanish. It has two literal translations; "great arrival", and "to put into port under stress", either of which is equally appropriate in this case.

What could have appeared more stressful than thousands of these turtles clambering over one another's shell with flippers flailing and sand being tossed high into the air in every direction? Many turtles actually excavated the eggs from the females which preceded them. The result was that *L. kempii* was its own worst predator at that point in time. That, needless to say, was soon to change.

From 1966 to 1987, conservation efforts focused on the area of Rancho Nuevo with the camp located first at Barra Calabazas and then at Barra Coma where it presently exists. In 1978, the U.S. joined with Mexico at Rancho Nuevo. In 1988, the program, now a bi-national one, expanded to the south to Barra Del Tordo with a camp at Playa Dos. In 1989 a third camp was established to the north at Barra Ostionales on Rancho Los Pericos. The north camp's location was changed 10 kilometers to the north of its original location, to near the town of Tepehuajes in 1996 for logistical reasons. In 1996, in coordination with the Tamaulipas' State Government, as in Tepehuajes, a camp was established in La Pesca. In that same year, CRIP Tampico and CetMar No. 9, as well as API Altamira, also expanded the project to include the beaches of Ciudad Madero and Altamira (Playa Miramar and Playa Tesoro respectively.) In 1997, the area of Lechuguillas, Municipality of Vega de Alatorre, Veracruz, began protection efforts in cooperation with CRIP Veracruz.

Since 1978, the Mexican and U.S. biologists working with the Kemp's ridley sea turtle have learned a lot about the biology of nesting sea turtles. When the project began, it basically was at ground zero. We now know that although some turtles nest in subsequent seasons, the majority of them nest every other year. We know that each female nests on average from 2.6 to three times per female per season, laying a clutch of 95-100 eggs which require from forty-two to sixty-two days incubation depending on the temperatures.

Kemp's ridley turtles will return to nearly the same spot on the beach where they nested in previous seasons, however, if they are disturbed, or encounter impossible nesting conditions; they possess the behavioral "plasticity" to move several kilometers up or down the beach to a novel nest site.

A few ridleys will and do nest at night even though the norm for this species is diurnal nesting. The first beach patrol or "recorrido" as it is called in Spanish, used to be at 8:00 am C.S.T. for years and years and that was early enough to find the first nesting turtles of the day. In 2003, the first beach patrols began encountering crawls (tracks) and nests which were apparently from late in the afternoon of the previous day or perhaps from night time or early morning hours. The first and last "recorridos" were moved to an earlier and later hour respectively, and eventually, nesting turtles (or the nests) were found as early as 5:30 am during the cover of darkness and as late as 9:30 pm. Needless to say, this caused a readjustment in beach management and patrol schedules. If the nests do not remain on the beach for long periods of time and are translocated to protective corrals as soon as possible, the hatchling emergence rate will be higher. Additionally, the turtles have to be actually seen in order to check for tags or tag returns, and/or, if time permits, to tag the turtles, in an attempt to determine internesting intervals. Although not indispensable, from a management point of view, tagging information helps in knowing how often the individual turtle nests each season, the fertility rate of the eggs, the nest site fidelity and an entire suite of other data.

## 2013 SEASON

### Summary

The scope of the project is essentially as follows: the United States field assistance group and the CONANP/SEMARNAT and Tamaulipas' State Government crews, under the supervision of trained sea turtle biologists, aid in beach patrols. If needed, PROFEPA provides wildlife law enforcement. Relevant data are recorded and subsequently, as many of the egg clutches as feasible are translocated to protective corrals, many nests are protected *in situ*, and some egg clutches are protected in Styrofoam™ boxes. In the latter part of the season, Styrofoam™ box incubation is used in anticipation of tropical storm inundations and hurricanes.

The first Kemp's ridley nest of the 2013 nesting season was recorded on March 11 at the Playa Tesoro-Altamira field station. The last Kemp's ridley hatchlings were released into the Gulf of Mexico from the Rancho Nuevo field station on October 9, 2013.

Since 2002, two auxiliary corrals have been used on the Rancho Nuevo beach. One, located first at Barra Carrizo, and starting in 2013 at the 5.7 kilometer marker, is the north auxiliary corral. The other auxiliary corral, first located at the 5.1 kilometer marker and starting in 2013 at the 5.4 kilometer marker is located to the south of the main camp. The corrals were constructed to facilitate the quick reburial of the eggs and to relieve the pressure at the main corral at Rancho Nuevo. Patrols at the north and at the south part of the beach quickly transfer the nests to their respective corrals during arribadas, and those patrols nearest the main camp use the main corral. The auxiliary corrals were built to exclude predators and have tented facilities to house personnel who watch the area at night. This methodology of auxiliary corrals has been adopted by the south camp in Barra Del Tordo and the north camp in Tepehuajes.

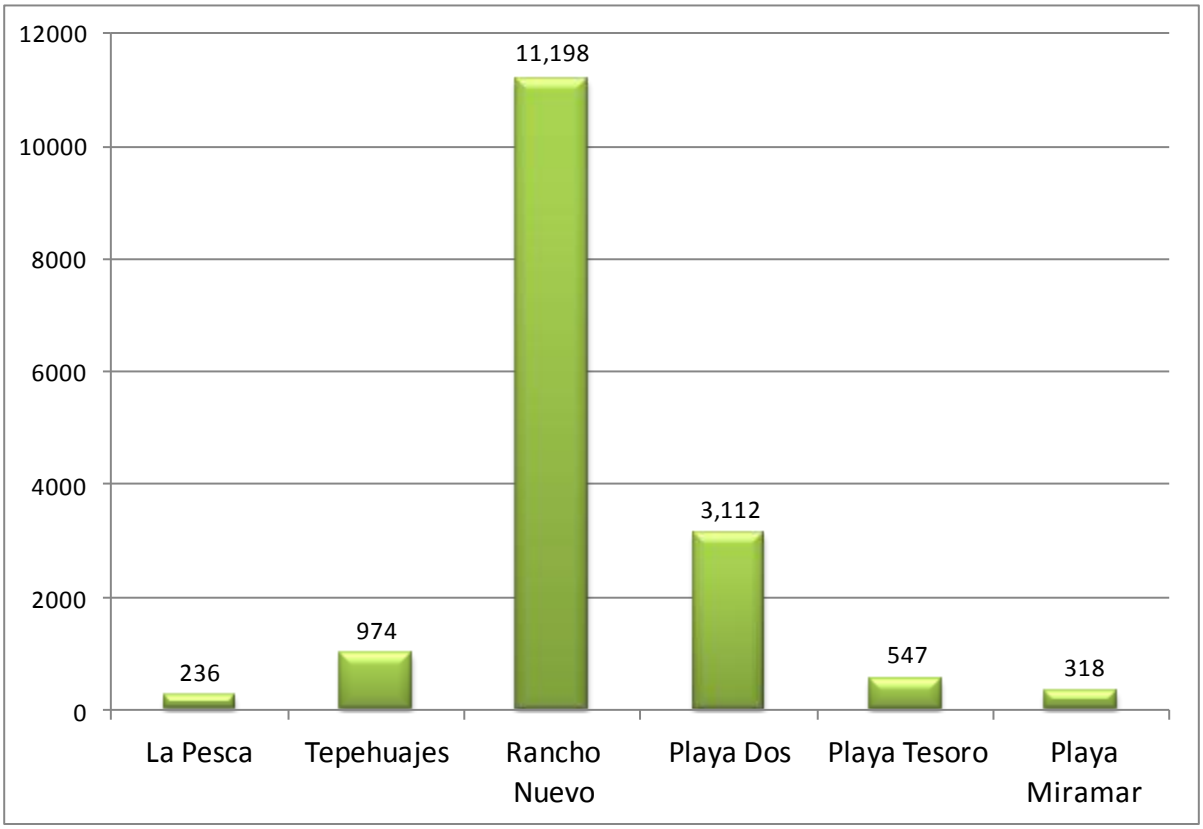
In the 2013 season, 16,385 nests were registered – 68.33 % of these nests were registered in the Rancho Nuevo beach (see appendices); and 755,428 hatchlings released into the Gulf of Mexico (see below for the summary data analysis for all six sea turtle field stations located in Tamaulipas.) The number of registered nests represents a 24.81% decrease in registered nests from 2012 to 2013.

### Nesting Events

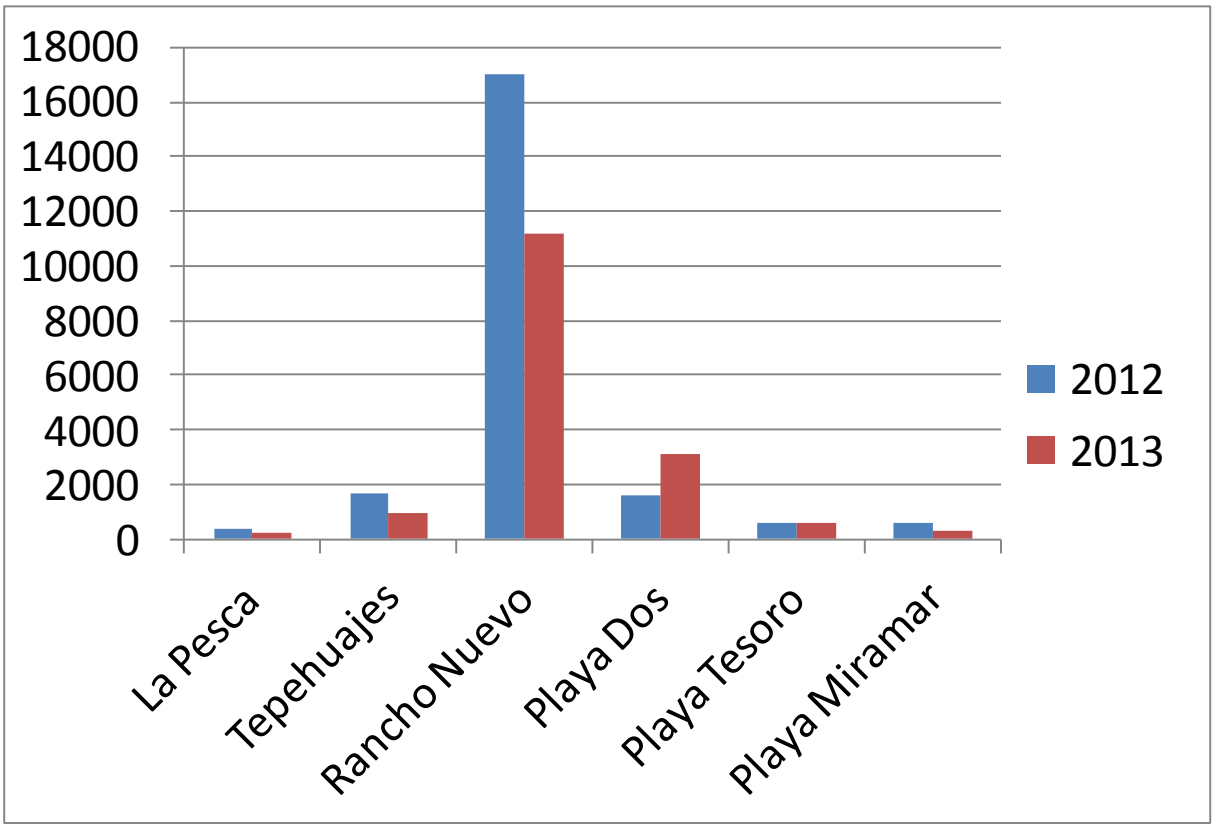
Three major nesting events were recorded in the 2013 Season. On April 11, over 2,000 nesting females arrived to nest at the Rancho Nuevo beach. On May 3, approximately 2,000 nests were recorded at the Rancho Nuevo beach, and an estimated 800 nests at the Barra del Tordo beach. And on June 6, over 3,000 nests were recorded at the Rancho Nuevo beach.

Summary Data Analysis

| Location | Registered Nests | Released Hatchlings |
|---|---|---|
| La Pesca | 236 | 19,667 |
| Tepehuajes | 974 | 61,451 |
| Rancho Nuevo | 11,198 | 523,974 |
| Tordo | 3,112 | 109,214 |
| Altamira | 547 | 26,609 |
| Miramar | 318 | 14,513 |
| **TOTAL** | **16,387** | **755,428** |



Registered Nests – 2012-2013 Seasons




**RECOVERY**

Overview

The Kemp's ridley nesting population is increasing at a steady rate and recovering from its historic low point in the mid-1980s. Conservation efforts on the primary nesting beaches in Mexico and required TED-use in the U.S. and Mexico are the likely reasons for the population's increase. Thus, the highest priority needs for Kemp's ridley recovery is to maintain and strengthen the conservation efforts that have proved to be successful. Priorities include reinforcing habitat protection efforts on the nesting beaches, protecting nesting females, and maintaining and increasing hatchling production levels. The use of TEDs must be maintained in fisheries currently required to use them and expanded to all trawl fisheries of concern. Mortality in gillnet fisheries must also be reduced. It is not sufficient just too maintain current efforts, even though these efforts have clearly been successful as evidenced by the continuing and consistent annual increase in nesting. Agencies must be vigilant to current or emerging issues impacting on the population because of the time lag between impacts on particular age classes or life stages and our ability to detect these impacts with nesting population trend data. Further, all government regulated fisheries involving take have a responsibility under ESA Section 7 and 9 to minimize take of an endangered species where reasonable measures exist.

Adequate enforcement in both the terrestrial and marine environment is essential to meeting recovery goals. Additional research and monitoring are needed to identify important marine foraging, breeding, and internesting habitats; to collect basic biological information on major nesting beaches; to establish monitoring sites in foraging areas; to determine migratory pathways among foraging grounds and between foraging grounds and nesting beaches; and to collect interaction data in recreational and commercial fisheries, especially the Mexican shark fishery. In Mexico, community social/economic programs must be developed for the fishing sector to reduce incidental capture of Kemp's ridleys in fisheries. Finally, sources of increased funding for conservation efforts must be identified and sustained.

Numerous second and third priority needs will need to be addressed and actions undertaken. Important among them include raising public and industry awareness of existing laws and continuing education programs. Maintaining and building partnerships with local, state, federal, private, and international entities will be essential to ensure long-term protection and sustainability of the Kemp's ridley sea turtle well after it is delisted.

Goal

The recovery goal is to conserve and protect the Kemp's ridley sea turtle so that protections under the ESA are no longer necessary and it can be removed from the List of Endangered and Threatened Wildlife.

The primary intent of the ESA is to recover listed species, and the ecosystems on which they depend, such that the protections of the ESA are no longer necessary. Biological recovery criteria form the basis from which to gauge the species' current status, recovery and subsequent risk of extinction, whereas listing factor criteria ensure that the threats will be controlled or eliminated.

The two downlisting demographic criteria for the Kemp's ridley sea turtle are as follows:

1. A population of at least 10,000 nesting females in a season (as estimated by clutch frequency per female per season) distributed at the primary nesting beaches (Rancho Nuevo, Tepehuajes, and Playa Dos) in Mexico is attained. Methodology and capacity to implement and ensure accurate nesting female counts have been developed.

2. Recruitment of at least 286,000 hatchlings to the marine environment per season at the three most important nesting beaches (Rancho Nuevo, Tepehuajes, and Playa Dos) in Mexico is attained to ensure a minimum level of known production either through *in situ* or corrals or a combination of both.

*Note: this is the downlisting criteria from the latest draft of the Kemp's Ridley Sea Turtle Bi-National Recovery Plan*.

One of the key elements in the current population increase has been the stabilization of hatchling production through the adequate management of the nesting beaches in Mexico, primarily at Rancho Nuevo. Population modeling has characterized the contribution that different levels of hatchling production make to the population growth being achieved and that if these levels are not maintained, the recovery goals will be hindered.

The participation of the three levels of government in Mexico and the cooperation of the United States, as well as the work done by NGOs, the shrimping industry and the Universities, has set the pace for the Kemp's ridley sea turtle to be on the road to recovery. Since the Kemp's ridley is endemic to the Gulf of Mexico and the majority of nesting occurs on the beaches of Tamaulipas, the protection and conservation of the Kemp's ridley terrestrial habitat is also essential. The fact that the fishing industry is working with governmental agencies and environmentalists in both Mexico and the United States is a big step in the right direction and hopefully one which will serve as a model for other endangered species programs where difficult economic and socioeconomic issues exist. There are still problems, points of contention and difficult issues to be resolved. By working together for a common goal, "a Healthy Gulf of Mexico", much needed resources may be put where they are needed, and productive, versus and endless array of litigation and mistrust.

Clearly we are moving in the right direction but we cannot diminish our efforts if we are to succeed in our downlisting objective.

Date of Recovery

"In following criteria from the Recovery Plan for the Kemp's Ridley Sea Turtle, we anticipate the Kemp's ridley may attain its **first downlisting** criterion of 10,000 nesting females in a season by 2015. The main delisting criteria for the Kemp's ridley is an average population of at least 40,000 nesting females per season (as measured by clutch frequency per female per season) over a 6-year period distributed among nesting beaches in Mexico and the U.S. is attained. Based on population growth rates of 7-10% per year, and assuming the more conservative growth rate, we anticipate that this will occur by 2038."

*FWS Kemp's Ridley Project – 2009 Final Report*

Recovery Strategy

The Kemp's ridley nesting population is increasing at a steady rate and recovering from its historic low point in the mid-1980s. Conservation efforts on the primary nesting beaches in Mexico and the required TED-use in the U.S. and Mexico are the likely reasons for the population's increase. Thus, the highest priority needs for Kemp's ridley recovery is to maintain and reinforce habitat protection efforts on the nesting beaches, protect nesting females, and maintain hatchling production levels. The use of turtle excluder devices (TEDs) must be maintained in fisheries currently required to use them and expanded to all trawl fisheries of concern. Mortality in gillnet fisheries must also be reduced.

It is not sufficient, however, to maintain current efforts, even though these efforts clearly have been successful as evidenced by the almost continuing and consistent annual increase in nesting and number of hatchlings released. Agencies must be vigilant to current or emerging threats, especially bycatch in fisheries impacting on the population because of the time lag between impacts on particular age classes or life stages and our ability to detect these impacts with nesting population trend data. Adequate enforcement in both the terrestrial and marine environment is essential to meeting recovery goals.

Because sea turtles undertake seasonally migration for foraging through subtropical waters or for breeding they may be vulnerable to a number of threats. The migratory corridors need to be determined and threats identified. The full range of the species needs to be determined with special attention to ascertaining whether there are foraging grounds adjacent or to the south Veracruz nesting population. In order to create accurate population models to predict growth trend in the future along with testing possible outcomes from alternative management actions we need good knowledge of key population parameters. The existing Kemp's ridley data base is insufficient to determine adult female survivorship, post nesting movements, migratory corridors, possible alternative nesting sites and foraging habitats. To make informed decisions on the utilization of existing resources for this species we need to further elucidate migratory pathways among and between foraging grounds and nesting beaches.

Interaction data in recreational and commercial fisheries, especially the shark fishery, need to be collected. Most importantly, sources of funding for conservation efforts must be identified and sustained.

Specific Recovery Actions

- Protect and manage nesting and marine habitats
- Protect and manage populations on the nesting beaches and in the marine environment
- Maintain a stranding network
- Educate the public
- Develop community partnerships
- Maintain and develop local, state, and national government partnerships
- Maintain, promote awareness, and expand U.S. and Mexico laws
- Implement international agreements
- Enforce laws in the marine and terrestrial environment
- Expand and legislate the official status of the core nesting epicenter of this species' total reproductive effort in Mexico to include Tepehuajes south to Barra del Tordo (~93% of the known nesting effort)

## TAMAULIPAS SEA TURTLE STRANDINGS

Starting in 2001, personnel from Gladys Porter Zoo, working with CONANP/SEMARNAT and the State of Tamaulipas began a year round survey to document stranding events along the coastline of Tamaulipas. Prior to this coordinated effort, the stranding data in Mexico had been anecdotal and were recorded only during the months of nesting activity at the principal nesting beaches. This survey period may not have represented average annual strandings because Mexico implements a shrimp closure during the Kemp's ridley nesting season, and strandings are likely lower during this period. Stranding data are a source of important information relative to various life history parameters and improved information on natural and anthropogenic causes of strandings. The year round stranding network on the Tamaulipas coastline effectively gives regulatory agencies of both Mexico and the U.S. a clearer picture of the life cycle, causality, locality and temporality of sea turtle mortality on the Gulf of Mexico's Mexican Coastline in Tamaulipas, the primary nesting habitat for the Kemp's ridley sea turtle.

The importance of the stranding network in Mexico for the Kemp's ridley sea turtle populations is in that it helps to protect and manage them in the marine environment. The stranding network documents hot spots of negative human/sea turtle interactions and provides data that can be used to develop, implement, evaluate, and improve the effectiveness of TEDs and other regulations/management actions to conserve Kemp's ridley turtles in the marine environment. Also, it collects information on the biology of the species, which is important for protection and management in the marine environment. Additionally, live stranded turtles are rehabilitated *in situ* if possible or transported to facilities and a large percent are later released, thus directly contributing to conservation. The stranding project helps ensure the effectiveness of protection activities for sea turtle species.

2012-2013 Season - 1 September, 2012 - 31 August, 2013

During this period of fifty-two weeks, 179 sea turtles were found stranded on the Tamaulipas coast. Species composition included 82 Kemp's ridleys, 73 green turtles, 14 loggerheads, 9 hawksbills, and 1 leatherback. A previously reported undetermined species stranding at Rancho Nuevo (registered on 2 December, 2012), was later to be identified as a green turtle specimen. All turtles were found offshore. 40 turtles were found stranded at La Pesca, 56 turtles at Tepehuajes, 32 at Rancho Nuevo, 26 at Playa Dos - Barra Del Tordo, 14 at Playa Tesoro, Altamira, and 11 at Playa Miramar, Ciudad Madero.

All stranded dead specimens (or their parts) were found in either a moderate to severe state of decomposition. The majority of the specimens recorded dead in Playa Dos, Barra Del Tordo showed signs of net entanglement. No necropsies were performed. One specimen, a green sea turtle juvenile was found stranded live at La Pesca on January 7, 2013 and released that same day.

| Location | *Lepidochelys kempii* | *Chelonia mydas* | *Caretta caretta* | *Eretmochelys imbricata* | *Dermochelys coriacea* | Total for Camp |
|---|---|---|---|---|---|---|
| **MIRAMAR** | 9 | 2 | 0 | 0 | 0 | **11** |
| **ALTAMIRA** | 4 | 7 | 2 | 1 | 0 | **14** |
| **TORDO** | 8 | 10 | 4 | 4 | 0 | **26** |
| **RANCHO NUEVO** | 15 | 14 | 1 | 2 | 0 | **32** |
| **TEPEHUAJES** | 30 | 19 | 6 | 1 | 0 | **56** |
| **LA PESCA** | 16 | 21 | 1 | 1 | 1 | **40** |
| **TOTAL BY SPECIES** | 82 | 73 | 14 | 9 | 1 | **179** |

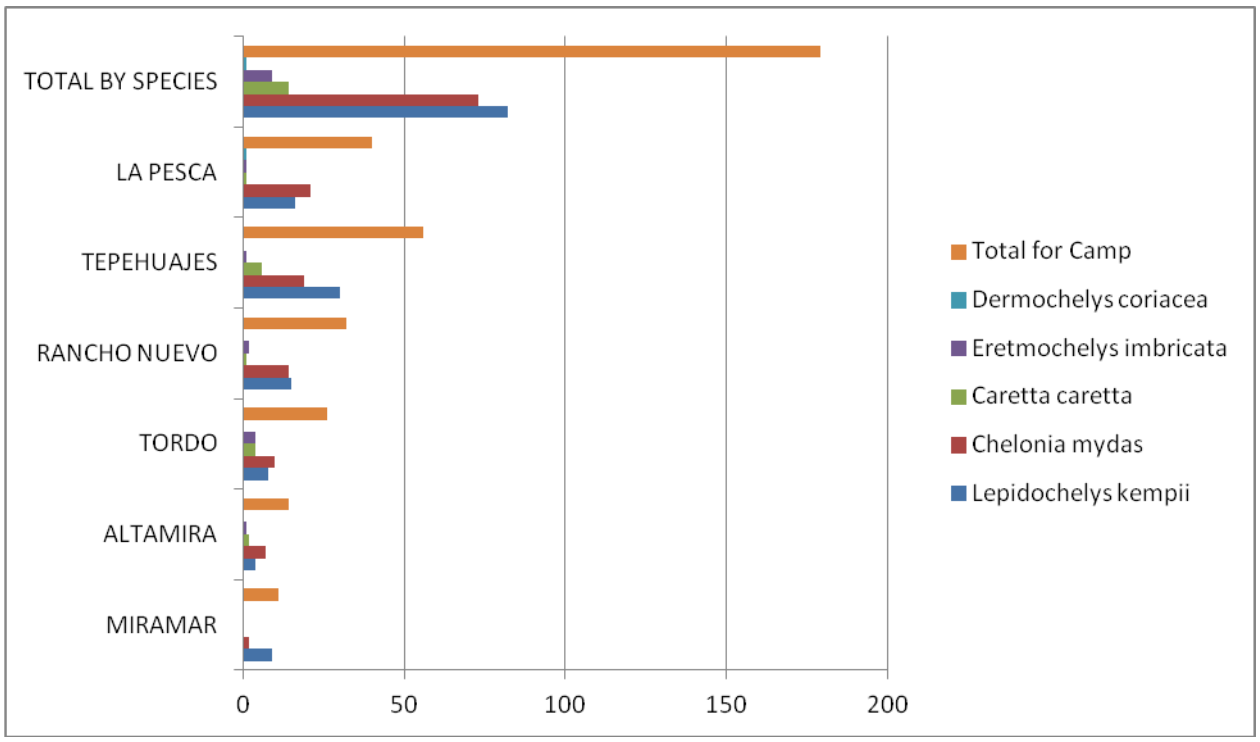



**Figure 1. - Sea Turtle Strandings in Tamaulipas - September 1, 2012 - August 31, 2013**

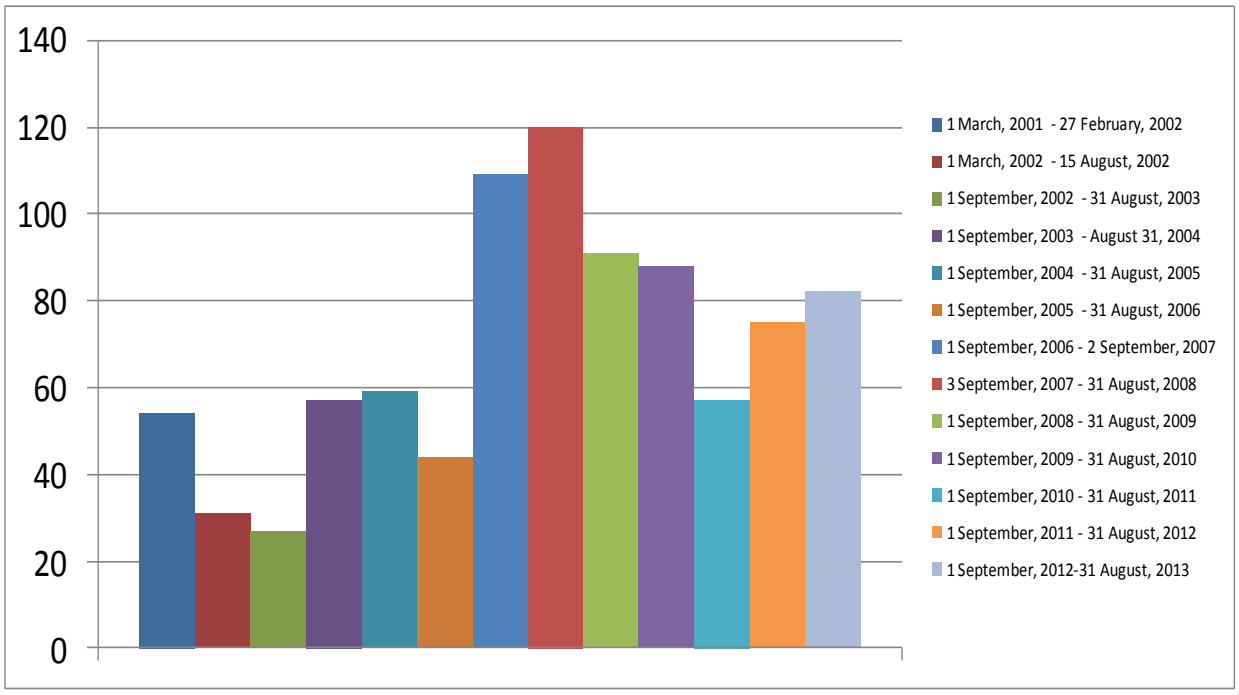



**Figure 2. - Kemp's ridley strandings in Tamaulipas - 2001-2013**

# STRANDING TABLES

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| LA PESCA | 4-Sep-12 | Lk | MALE | 615 | N 23° 50.240' W 97° 44.900' | |
| LA PESCA | 4-Sep-12 | Lk | MALE | 695 | N 24° 00.410' W 97° 43.590' | |
| LA PESCA | 28-Sep-12 | Cm | FEMALE | 0 | N 24° 09.100' W 97° 43.210' | |
| LA PESCA | 15-Oct-12 | Lk | FEMALE | 0 | N 23° 47.254' W 97° 44.710' | |
| LA PESCA | 18-Nov-12 | Cm | UNDETERMINED | 285 | N 23° 52.344' W 97° 44.121' | |
| LA PESCA | 23-Dec-12 | Lk | FEMALE | 610 | N 23° 59.380' W 97° 44.430' | |
| LA PESCA | 31-Oct-12 | Cm | UNDETERMINED | 268 | N 23° 55.930' W 97° 44.248' | |
| LA PESCA | 18-Nov-12 | Cm | UNDETERMINED | 276 | N 24° 00.768' W 97° 44.000' | |
| LA PESCA | 7-Jan-13 | Cm | UNDETERMINED | 330 | N 24° 12.204' W 97° 43.340' | released at the Soto La Marina river |
| LA PESCA | 7-Jan-13 | Cm | UNDETERMINED | 340 | N 24° 12.416' W 97° 43.100' | |
| LA PESCA | 15-Jan-13 | Cm | UNDETERMINED | 350 | N 24° 11.570' W 97° 43.570' | |
| LA PESCA | 15-Jan-13 | Cm | UNDETERMINED | 370 | N 24° 11.450' W 97° 43.720' | |
| LA PESCA | 15-Jan-13 | Cm | UNDETERMINED | 290 | N 24° 11.124' W 97° 43.990' | |
| LA PESCA | 17-Jan-13 | Cm | UNDETERMINED | 360 | N 24° 10.580' W 97° 43'112" | |
| LA PESCA | 17-Jan-13 | Cm | UNDETERMINED | 485 | N 24° 10.461' W 97° 43.127' | |
| LA PESCA | 19-Jan-12 | Cm | UNDETERMINED | 460 | N 24° 15.300' W 97° 42' .488' | |
| LA PESCA | 19-Jan-12 | Cm | UNDETERMINED | 360 | N 24° 15.197' W 97° 42''457" | |
| LA PESCA | 19-Jan-13 | Cm | UNDETERMINED | 390 | N 24° 06.348' W 97° 43.335' | |
| LA PESCA | 22-Jan-13 | Lk | UNDETERMINED | 0 | N 23° 57.108' W 97° 44.239' | only skull was found |
| LA PESCA | 22-Jan-13 | Cm | UNDETERMINED | 474 | N 23° 56.320' W 97° 44.253' | |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| LA PESCA | 11-Feb-13 | Lk | UNDETERMINED | 700 | N 24° 12.192' W 97° 43.072' | |
| LA PESCA | 11-Feb-13 | Cm | UNDETERMINED | 370 | N 23° 53.906' W 97° 44.247' | flippers missing |
| LA PESCA | 14-Feb-13 | Cm | UNDETERMINED | * | N 23° 53.840' W 97° 44.271' | * not measured |
| LA PESCA | 26-Feb-13 | Lk | UNDETERMINED | * | N 23° 49.421' W 97° 44.249' | * not measured |
| LA PESCA | 14-Mar-13 | Lk | FEMALE | 670 | N 23° 47.215' W 97° 44.154' | |
| LA PESCA | 14-Mar-13 | Lk | FEMALE | 620 | N 24° 14.219' W 97° 42.872' | |
| LA PESCA | 18-Mar-13 | Lk | UNDETERMINED | 595 | N 24° 01.971' W 97° 43.919' | |
| LA PESCA | 18-Mar-13 | Lk | UNDETERMINED | 710 | N 24° 11.269' W 97° 43.160' | |
| LA PESCA | 25-Mar-13 | Cc | UNDETERMINED | 800 | N 23° 48.907' W 97° 44.222' | |
| LA PESCA | 30-Mar-13 | Lk | FEMALE | 620 | N 23° 56.106' W 97° 44.254' | |
| LA PESCA | 30-Mar-13 | Cm | UNDETERMINED | 280 | N 24° 08.470' W 97° 43.407' | |
| LA PESCA | 2-Apr-13 | Dc | UNDETERMINED | 1505 | N 23° 52.306' W 97° 44.212' | |
| LA PESCA | 3-Apr-13 | Lk | UNDETERMINED | 425 | N 24° 12.979' W 97° 42.813' | |
| LA PESCA | 4-Apr-13 | Lk | FEMALE | 660 | N 23° 55.357' W 97° 44.402' | |
| LA PESCA | 17-Apr-13 | Lk | FEMALE | 720 | N 24° 02.795' W 97° 43.863' | |
| LA PESCA | 18-Apr-13 | Cm | UNDETERMINED | 290 | N 23° 50.033' W 97° 44.204' | |
| LA PESCA | 21-Apr-13 | Lk | FEMALE | 660 | N 23° 57.776' W 97° 44.224' | |
| LA PESCA | 2-May-13 | Ei | UNDETERMINED | 170 | N 24° 13.827' W 97° 42.906' | |
| LA PESCA | 26-Jun-13 | Cm | FEMALE | 1105 | N 24° 09.693' W 97° 43.284' | |
| LA PESCA | 19-Jul-13 | Cm | UNDETERMINED | * | N 23° 59.765' W 97° 44.092' | * not measured |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Tepehuajes | 3-Sep-12 | Cc | FEMALE | 1000 | N 23° 45.759' W 97° 44.226' | |
| Tepehuajes | 4-Sep-12 | Cc | FEMALE | 875 | N 23° 34.663' W 97° 45.067' | |
| Tepehuajes | 5-Sep-12 | Cm | UNDETERMINED | 660 | N 23° 20.839' W 97° 46.190' | |
| Tepehuajes | 6-Sep-12 | Cm | FEMALE | 1004 | N 23° 21.272' W 97° 46.185' | |
| Tepehuajes | 7-Sep-12 | Lk | MALE | 650 | N 23° 28.693' W 97° 45.655' | |
| Tepehuajes | 8-Sep-12 | Cm | UNDETERMINED | 680 | N 23° 33.740' W 97° 45.168' | |
| Tepehuajes | 9-Sep-12 | Lk | FEMALE | 570 | N 23° 30.954' W 97° 45.459' | |
| Tepehuajes | 10-Sep-12 | Cc | FEMALE | 740 | N 23° 36.274' W 97° 44.896' | |
| Tepehuajes | 11-Sep-12 | Cm | UNDETERMINED | 265 | N 23° 26.805' W 97° 45.820' | |
| Tepehuajes | 12-Sep-12 | Cm | UNDETERMINED | 370 | N 23° 43.473' W 97° 44.373' | |
| Tepehuajes | 13-Sep-12 | Cm | UNDETERMINED | 270 | N 23° 36.789' W 97° 44.851' | |
| Tepehuajes | 14-Sep-12 | Cm | UNDETERMINED | 290 | N 23° 33.726' W 97° 45.160' | |
| Tepehuajes | 15-Sep-12 | Cm | UNDETERMINED | 365 | N 23° 44.086' W 97° 44.353' | |
| Tepehuajes | 16-Sep-12 | Cm | UNDETERMINED | 295 | N 23° 43.125' W 97° 44.373' | |
| Tepehuajes | 17-Sep-12 | Cm | UNDETERMINED | 370 | N 23° 42.885' W 97° 44.386' | |
| Tepehuajes | 18-Sep-12 | Cm | UNDETERMINED | 355 | N 23° 42.885' W 97° 44.386' | |
| Tepehuajes | 19-Sep-12 | Cm | UNDETERMINED | 390 | N 23° 39.090' W 97° 44.568' | |
| Tepehuajes | 20-Sep-12 | Cm | UNDETERMINED | 515 | N 23° 43.854' W 97° 44.360' | |
| Tepehuajes | 31-Jan-13 | Cm | UNDETERMINED | 417 | N 23° 30.369' W 97° 45.509' | |
| Tepehuajes | 4-Feb-13 | Cm | UNDETERMINED | 610 | N 23° 22.677' W 97° 45.444' | |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Tepehuajes | 4-Feb-13 | Cm | UNDETERMINED | 345 | N 23° 32.583' W 97° 45.298' | |
| Tepehuajes | 9-Feb-13 | Cm | UNDETERMINED | 285 | N 23° 25.650' W 97° 45.914' | |
| Tepehuajes | 26-Feb-13 | Lk | MALE | 675 | N 23° 38.363' W 97° 44.696' | |
| Tepehuajes | 26-Feb-13 | Lk | UNDETERMINED | 575 | N 23° 33.056' W 97° 45.249' | |
| Tepehuajes | 6-Mar-13 | Lk | MALE | 650 | N 23° 40.327' W 97° 44.524' | |
| Tepehuajes | 7-Mar-13 | Cm | UNDETERMINED | 245 | N 23° 25.085' W 97° 45.969' | |
| Tepehuajes | 15-Mar-13 | Lk | MALE | 665 | N 23° 31.132' W 97° 45.443' | |
| Tepehuajes | 15-Mar-13 | Lk | FEMALE | 645 | N 23° 25.085' W 97° 45.969' | |
| Tepehuajes | 17-Mar-13 | Lk | FEMALE | 775 | N 23° 42.880' W 97° 44.386' | |
| Tepehuajes | 21-Mar-13 | Lk | MALE | 640 | N 23° 27.480' W 97° 45.763' | |
| Tepehuajes | 22-Mar-13 | Lk | FEMALE | 665 | N 23° 27.565' W 97° 45.757' | |
| Tepehuajes | 22-Mar-13 | Lk | MALE | 650 | N 23° 42.401' W 97° 44.400' | |
| Tepehuajes | 26-Mar-13 | Lk | FEMALE | 660 | N 23° 38.960' W 97° 44.629' | |
| Tepehuajes | 27-Mar-13 | Lk | MALE | 710 | N 23° 40.210' W 97° 44.502' | |
| Tepehuajes | 4-Apr-13 | Lk | FEMALE | 700 | N 23° 22.821' W 97° 46.120' | |
| Tepehuajes | 4-Apr-13 | Lk | MALE | 625 | N 23° 24.215' W 97° 43.722' | |
| Tepehuajes | 4-Apr-13 | Lk | MALE | 675 | N 23° 29.057' W 97° 45.622' | |
| Tepehuajes | 4-Apr-13 | Lk | MALE | 625 | N 23° 41.005' W 97° 44.805' | |
| Tepehuajes | 4-Apr-13 | Lk | FEMALE | 540 | N 23° 28.041' W 97° 45.430' | |
| Tepehuajes | 5-Apr-13 | Lk | FEMALE | 660 | N 23° 22.682' W 97° 46.124' | |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Tepehuajes | 5-Apr-13 | Lk | FEMALE | 690 | N 23° 22.811' W 97° 46-117' | |
| Tepehuajes | 5-Apr-13 | Lk | FEMALE | 698 | N 23° 24.764' W 97° 45.980' | |
| Tepehuajes | 5-Apr-13 | Lk | FEMALE | 705 | N 23° 20.149' W 97° 46.207' | |
| Tepehuajes | 5-Apr-13 | Lk | MALE | 700 | N 23° 36.798' W 97° 44.849' | |
| Tepehuajes | 6-Apr-13 | Lk | MALE | 640 | N 23° 34.528' W 97° 45.081' | |
| Tepehuajes | 6-Apr-13 | Cc | UNDETERMINED | 750 | N 23° 41.918' W 97° 44.419' | |
| Tepehuajes | 10-Apr-13 | Lk | MALE | 640 | N 23° 28.344' W 97° 45.691' | |
| Tepehuajes | 10-Apr-13 | Cc | UNDETERMINED | 795 | N 23° 36.907' W 97° 44.842' | |
| Tepehuajes | 12-Apr-13 | Cc | UNDETERMINED | 810 | N 23° 36.921' W 97° 44.839' | |
| Tepehuajes | 19-Apr-13 | Lk | FEMALE | 640 | N 23° 30.950' W 97° 45.460' | |
| Tepehuajes | 22-Apr-13 | Lk | FEMALE | 655 | N 23° 31.515' W 97° 45.403' | |
| Tepehuajes | 27-Apr-13 | Lk | UNDETERMINED | 600 | N 23° 44.959' W 97° 44.319' | |
| Tepehuajes | 16-May-13 | Lk | UNDETERMINED | 665 | N 23° 35.783' W 97° 44.932' | |
| Tepehuajes | 19-May-13 | Lk | MALE | 670 | N 23° 31.876' W 97° 45.369' | |
| Tepehuajes | 24-May-13 | Cm | UNDETERMINED | 285 | N 23° 28.549' W 97° 45.665' | |
| Tepehuajes | 20-Aug-13 | Ei | FEMALE | 550 | N 23° 44.528' W 97° 44.339' | |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Rancho Nuevo | 26-Nov-13 | Lk | UNDETERMINED | | N 23° 10.720' W 97° 45.999' | only skull was found |
| Rancho Nuevo | 2-Dec-13 | Cm | UNDETERMINED | | N 23° 09.552' W 97° 45.946' | only skull was found |
| Rancho Nuevo | 15-Dec-13 | Lk | FEMALE | 610 | N 23° 05.941' W 97° 45.786' | |
| Rancho Nuevo | 15-Dec-13 | Cm | UNDETERMINED | 260 | N 23° 13.738' W 97° 46.113' | |
| Rancho Nuevo | 24-Dec-13 | Cm | UNDETERMINED | 300 | N 23° 09.532' W 97° 45.948' | |
| Rancho Nuevo | 12-Jan-13 | Lk | FEMALE | 710 | N 23° 10.194' W 97° 45.985' | |
| Rancho Nuevo | 27-Jan-13 | Cm | UNDETERMINED | 230 | N 23° 10.049' W 97° 45.982' | |
| Rancho Nuevo | 31-Jan-13 | Cm | FEMALE | 890 | N 23° 07.307' W 97° 45.878' | |
| Rancho Nuevo | 2-Feb-13 | Cm | UNDETERMINED | 650 | N 23° 13.010' W 97° 46.082' | only carapace was found |
| Rancho Nuevo | 2-Feb-13 | Cc | FEMALE | 640 | N 23° 15.213' W 97° 46.161' | |
| Rancho Nuevo | 2-Feb-13 | Cm | UNDETERMINED | 275 | N 23° 19.076' W 97° 46.219' | |
| Rancho Nuevo | 2-Feb-13 | Cm | UNDETERMINED | 280 | N 23° 07.480' W 97° 45.889' | |
| Rancho Nuevo | 26-Feb-13 | Lk | FEMALE | 720 | N 23° 06.096' W 97° 45.828' | |
| Rancho Nuevo | 3-Apr-13 | Lk | FEMALE | 710 | N 23° 03.876' W 97° 45.733' | |
| Rancho Nuevo | 3-Apr-13 | Lk | FEMALE | 710 | N 23° 09.447' W 97° 45.937' | |
| Rancho Nuevo | 4-Apr-13 | Lk | FEMALE | 660 | N 23° 09.450' W 97° 45.952' | |
| Rancho Nuevo | 5-Apr-13 | Lk | FEMALE | 685 | N 23° 18.439' W 97° 46.199' | |
| Rancho Nuevo | 5-Apr-13 | Lk | Male | 634 | N 23° 13.101' W 97° 46.102' | |
| Rancho Nuevo | 17-Apr-13 | Lk | FEMALE | 699 | N 23° 08.772' W 97° 45.896' | |
| Rancho Nuevo | 18-Apr-13 | Cm | UNDETERMINED | 570 | N 23° 08.720' W 97° 45.907' | only carapace was found |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Rancho Nuevo | 18-Apr-13 | Lk | FEMALE | 698 | N 23° 07.709' W 97° 45.902' | |
| Rancho Nuevo | 18-Apr-13 | Ei | FEMALE | 860 | N 23° 05.363' W 97° 45.775' | |
| Rancho Nuevo | 21-Apr-13 | Lk | FEMALE | 587 | N 23° 08.006' W 97° 45.913' | large wound on the neck |
| Rancho Nuevo | 22-Apr-13 | Lk | FEMALE | 660 | N 23° 06.113' W 97° 45.792' | |
| Rancho Nuevo | 23-Apr-13 | Lk | FEMALE | 720 | N 23° 17.605' W 97° 46.210' | |
| Rancho Nuevo | 28-Apr-13 | Cm | UNDETERMINED | | N 23° 15.030' W 97° 46.218' | carapace destroyed |
| Rancho Nuevo | 29-Apr-13 | Lk | FEMALE | 680 | N 23° 18.788' W 97° 46.268' | |
| Rancho Nuevo | 26-May-13 | Cm | UNDETERMINED | 335 | N 23° 06.203' W 97° 45.796' | |
| Rancho Nuevo | 3-Jun-13 | Cm | Male | 1110 | N 23° 04.254' W 97° 45.730' | |
| Rancho Nuevo | 8-Jun-13 | Cm | UNDETERMINED | 350 | N 23° 03.740' W 97° 42.720' | |
| Rancho Nuevo | 12-Jun-13 | Cm | FEMALE | 1050 | N 23° 10.863' W 97° 46.002' | |
| Rancho Nuevo | 28-Aug-13 | Ei | FEMALE | 663 | N 23 ° 13.418' W 97° 46.102' | |

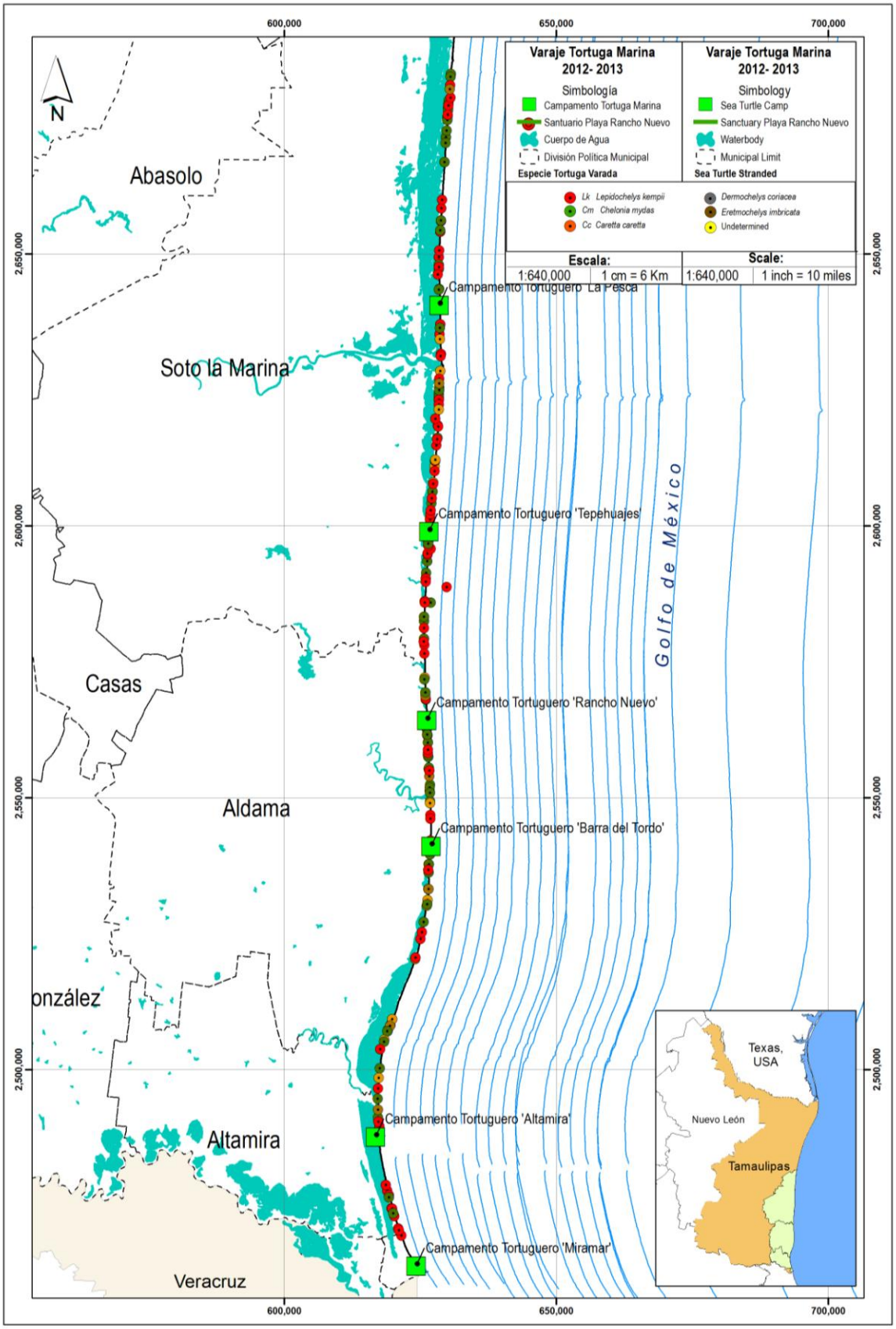
| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Tordo | 12-Oct-12 | Cm | UNDETERMINED | 315 | N 22° 55.803' W 97° 45.935' | carapace smashed, missing right hind limb |
| Tordo | 30-Oct-12 | Cm | UNDETERMINED | 344 | N 22° 57.589' W 97° 45.780' | signs of net entanglement |
| Tordo | 30-Oct-12 | Cm | UNDETERMINED | 315 | N 22° 57.841' W 97° 45.755' | |
| Tordo | 3-Nov-13 | Cm | UNDETERMINED | 330 | N 22° 52.603' W 97° 46.128' | |
| Tordo | 1-Dec-12 | Cm | UNDETERMINED | 423 | N 22° 56.609' W 97° 45.903' | half head missing |
| Tordo | 4-Dec-12 | Cm | UNDETERMINED | 342 | N 22° 41.184' W 97° 49.988' | |
| Tordo | 4-Dec-12 | Cm | UNDETERMINED | 330 | N 22° 40.584' W 97° 50.176' | |
| Tordo | 10-Dec-12 | Cc | FEMALE | 830 | N 22° 53.042' W 97° 46.057' | |
| Tordo | 9-Jan-13 | Cm | UNDETERMINED | 395 | N 23° 02.725' W 97° 45.706' | |
| Tordo | 15-Jan-13 | Cc | FEMALE | 885 | N 22° 41.184' W 97° 49.988' | |
| Tordo | 15-Mar-13 | Ei | FEMALE | 612 | N 22° 47.147' W 97° 47.467' | |
| Tordo | 15-Mar-13 | Lk | FEMALE | 670 | N 22° 56.018' W 97° 45.962' | |
| Tordo | 22-Mar-13 | Lk | FEMALE | | N 23° 01.484' W 97° 45.696' | signs of net entanglement |
| Tordo | 24-Mar-13 | Lk | FEMALE | 660 | N 23° 01.154' W 97° 45.713' | knife wound on the neck |
| Tordo | 31-Mar-13 | Lk | FEMALE | | N 22° 47.307' W 97° 47.401' | signs of net entanglement, unable to measure |
| Tordo | 2-Apr-13 | Lk | FEMALE | 704 | N 22° 49.181' W 97° 46.883' | missing limbs |
| Tordo | 20-Apr-13 | Lk | FEMALE | 640 | N 22° 01.658' W 97° 45.628' | |
| Tordo | 20-Apr-13 | Cc | FEMALE | 765 | N 22° 54.130' W 97° 45.975' | |
| Tordo | 20-Apr-13 | Ei | FEMALE | 768 | N 22° 54.120' W 97° 45.970' | signs of net entanglement |
| Tordo | 23-Apr-13 | Cm | UNDETERMINED | 355 | N 23° 02.909' W 97° 45.736' | |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Tordo | 27-Apr-13 | Lk | FEMALE | 704 | N 22° 49.821' W 97° 46.726' | signs of net entanglement |
| Tordo | 3-Jun-13 | Cc | FEMALE | 820 | N 23° 02.677' W 97° 45.721' | fishing hook on mouth |
| Tordo | 5-Jun-13 | Lk | FEMALE | 640 | N 22° 58.967' W 97° 45.718' | signs of net entanglement |
| Tordo | 10-Jun-13 | Cm | UNDETERMINED | | N 22° 50.869' W 97° 46.498' | half carapace |
| Tordo | 16-Jun-13 | Ei | UNDETERMINED | 592 | N 22° 52.466' W 97° 46.153' | signs of net entanglement |
| Tordo | 24-Jul-13 | Ei | UNDETERMINED | 786 | N 22° 40.512' W 97° 50.220' | signs of net entanglement |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| ALTAMIRA | 29-Dec-12 | Cm | UNDETERMINED | 337 | N 22° 31.409' W 97° 41.520' | |
| ALTAMIRA | 16-Feb-13 | Cc | Female | 707 | N 22° 39.146' W 97° 50.831' | missing head |
| ALTAMIRA | 22-Mar-13 | Lk | Female | 660 | N 22° 30.504' W 97° 51.441' | |
| ALTAMIRA | 23-Mar-13 | Ei | Female | 605 | N 22° 32.174' W 97° 51.568' | missing head |
| ALTAMIRA | 23-Mar-13 | Cm | UNDETERMINED | 275 | N 22° 36.317' W 97° 51.359' | |
| ALTAMIRA | 26-Mar-13 | Cc | Male | 934 | N 22° 35.343' W 97° 51.476' | |
| ALTAMIRA | 31-Mar-13 | Cm | UNDETERMINED | 340 | N 22° 38.932' W 97° 50.885' | |
| ALTAMIRA | 15-Apr-13 | Lk | Female | 650 | N 22° 38.207' W 97° 51.300' | ropes around the neck |
| ALTAMIRA | 16-Apr-13 | Cm | UNDETERMINED | 420 | N 22° 40.146' W 97° 50.436' | |
| ALTAMIRA | 27-Apr-13 | Lk | UNDETERMINED | - | N 22° 31.007' W 97° 51.374' | hit by propeller, unable to measure |
| ALTAMIRA | 27-Apr-13 | Cm | UNDETERMINED | 495 | N 22° 40.013' W 97° 50.490' | signs of net entanglement |
| ALTAMIRA | 5-Jun-13 | Cm | Female | 930 | N 22° 33.283' W 97° 51.591' | wound on the left side |
| ALTAMIRA | 18-Jun-13 | Lk | UNDETERMINED | 695 | N 22° 34.284' W 97° 51.567' | smashed carapace |
| ALTAMIRA | 17-Aug-13 | Cm | UNDETERMINED | 298 | N 22° 39.992' W 97° 50.504' | missing head |

| Location | Date | Species | Sex | CCL (mm) | Coordinates | Observations (no observations = dead specimen) |
|---|---|---|---|---|---|---|
| Miramar | 12-Mar-13 | Lk | Female | 635 | N 22° 22.341' W 97° 50.206' | hit by propeller |
| Miramar | 22-Mar-13 | Lk | Female | 625 | N 22° 24.089' W 97° 50.663' | |
| Miramar | 25-Mar-13 | Lk | Female | 660 | N 22° 21.570' W 97° 49.926' | |
| Miramar | 7-Apr-13 | Lk | Female | 570 | N 22° 23.637' W 97° 50.479' | |
| Miramar | 7-Apr-13 | Lk | Female | 680 | N 22° 22.287' W 97° 50.132' | |
| Miramar | 8-Apr-13 | Cm | Undetermined | 340 | N 22° 21.851' W 97° 50.034' | |
| Miramar | 12-Apr-13 | Lk | Female | 660 | N 22° 19.603' W 97° 49.194' | |
| Miramar | 22-Apr-13 | Cm | Undetermined | 280 | N 22° 23.437' W 97° 50.464' | |
| Miramar | 3-May-13 | Lk | Female | 640 | N 22° 20.335' W 97° 49.511' | |
| Miramar | 7-May-13 | Lk | Undetermined | 186 | N 22° 24.655' W 97° 50.817' | |
| Miramar | 25-May-13 | Lk | Male | 660 | N 22° 20.130' W 97° 49.450' | |

**Figure 3. - Map**


600,000
650,000
700,000
2,650,000
2,600,000
2,550,000
2,500,000
N
Varaje Tortuga Marina
2012- 2013
Simbología
Campamento Tortuga Marina
Santuario Playa Rancho Nuevo
Cuerpo de Agua
División Política Municipal
Especie Tortuga Varada
Lk Lepidochelys kempii
Cm Chelonia mydas
Cc Caretta caretta
Escala:
1:640,000
1 cm = 6 Km
Varaje Tortuga Marina
2012- 2013
Simbology
Sea Turtle Camp
Sanctuary Playa Rancho Nuevo
Waterbody
Municipal Limit
Sea Turtle Stranded
Dermochelys coriacea
Eretmochelys imbricata
Undetermined
Scale:
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1 inch = 10 miles
Abasolo
Soto la Marina
Casas
Aldama
onzález
Altamira
Veracruz
Golfo de México
Campamento Tortuguero 'La Pesca'
Campamento Tortuguero 'Tepehuajes'
Campamento Tortuguero 'Rancho Nuevo'
Campamento Tortuguero 'Barra del Tordo'
Campamento Tortuguero 'Altamira'
Campamento Tortuguero 'Miramar'
Texas, USA
Nuevo León
Tamaulipas

## ENVIRONMENTAL EDUCATION AND OUTREACH PROGRAM

In 2012, a multiagency cooperative effort began work on the formalization of another very important component of the Kemp's Ridley Project: Education. An Environmental Education and Outreach Program was created and implemented with the main objective of reaching children from both the main urban and rural areas near the turtle camps. In the 2013 Season, approximately 3,000 persons were reached (close to 2,000 of those being children between the ages of 6 and 12), in several locations across the State of Tamaulipas from La Pesca to Ciudad Madero.

One of the goals of this Program is to use it as an indicator and a guide to continue the development of a more formal Binational Education and Outreach Program. The Education Program is helping to establish adequate logistics for each of the locations that need to be reached – from La Pesca and Tepehuajes, to Rancho Nuevo, Barra del Tordo, Altamira and Ciudad Madero.

Shelldon, Gladys Porter Zoo's sea turtle ambassador, was once again a key component of the Education Program in Tamaulipas and South Texas

If resources are available, the education efforts will continue in 2014 with additional displays and interactive activities; always with the goal of reaching more children (and adults) in Tamaulipas and South Texas.

*Photo by Javier Montaño Cuevas*


*Photo by Héctor Raúl Chenge Alvarez*



As part of 2013's Education Program, custom wristbands and reusable bags were given to the school children at the end of the Program's presentation and activities

*Photos by Javier Montaño Cuevas*

# APPENDICES

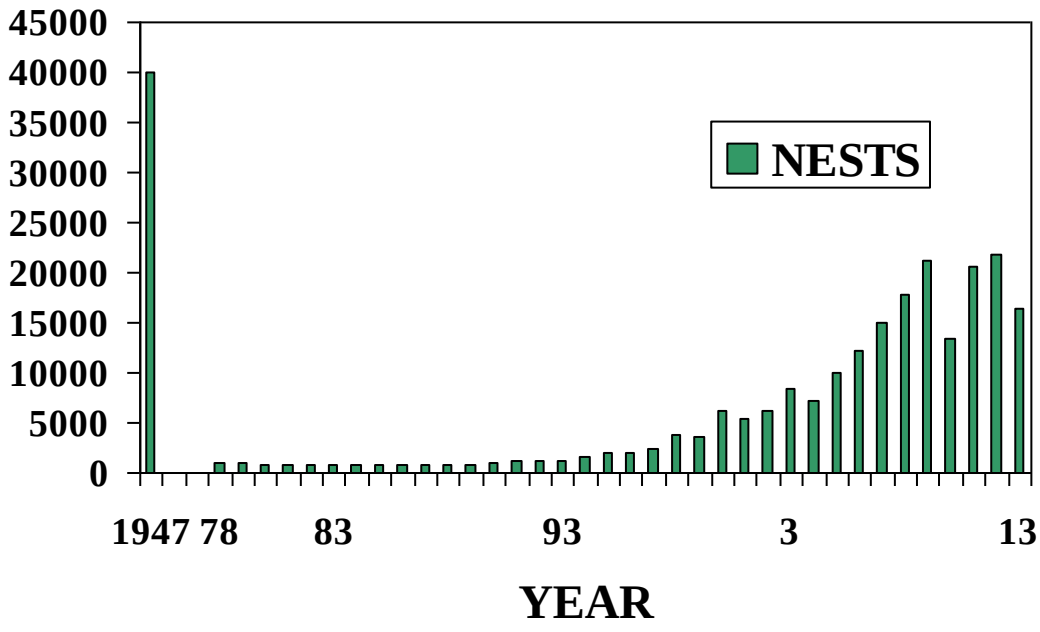
## DATA SUMMARY – 1978-2013

| YEAR | NESTS | HATCHLINGS |
|---|---|---|
| 1978 | 924 | 48009 |
| 1979 | 954 | 63996 |
| 1980 | 868 | 37378 |
| 1981 | 897 | 53282 |
| 1982 | 750 | 48007 |
| 1983 | 746 | 32921 |
| 1984 | 798 | 58124 |
| 1985 | 702 | 51033 |
| 1986 | 744 | 48818 |
| 1987 | 737 | 44634 |
| 1988 | 842 | 62218 |
| 1989 | 828 | 66802 |
| 1990 | 992 | 74339 |
| 1991 | 1178 | 79749 |
| 1992 | 1275 | 92116 |
| 1993 | 1241 | 84605 |
| 1994 | 1562 | 107687 |
| 1995 | 1930 | 120038 |

**DATA SUMMARY – 1978-2013 (*continued*)**

| YEAR | NESTS | HATCHLINGS |
|---|---|---|
| 1996 | 2080 | 119196 |
| 1997 | 2387 | 149567 |
| 1998 | 3845 | 183920 |
| 1999 | 3648 | 228148 |
| 2000 | 6277 | 395150 |
| 2001 | 5442 | 317127 |
| 2002 | 6436 | 402969 |
| 2003 | 8323 | 476138 |
| 2004 | 7147 | 500767 |
| 2005 | 10099 | 630737 |
| 2006 | 12143 | 782319 |
| 2007 | 15032 | 1023675 |
| 2008 | 17882 | 817103 |
| 2009 | 21144 | 1089452 |
| 2010 | 13302 | 723065 |
| 2011 | 20576 | 685387 |
| 2012 | 21,797 | 1115527 |
| 2013 | 16,385 | 755428 |

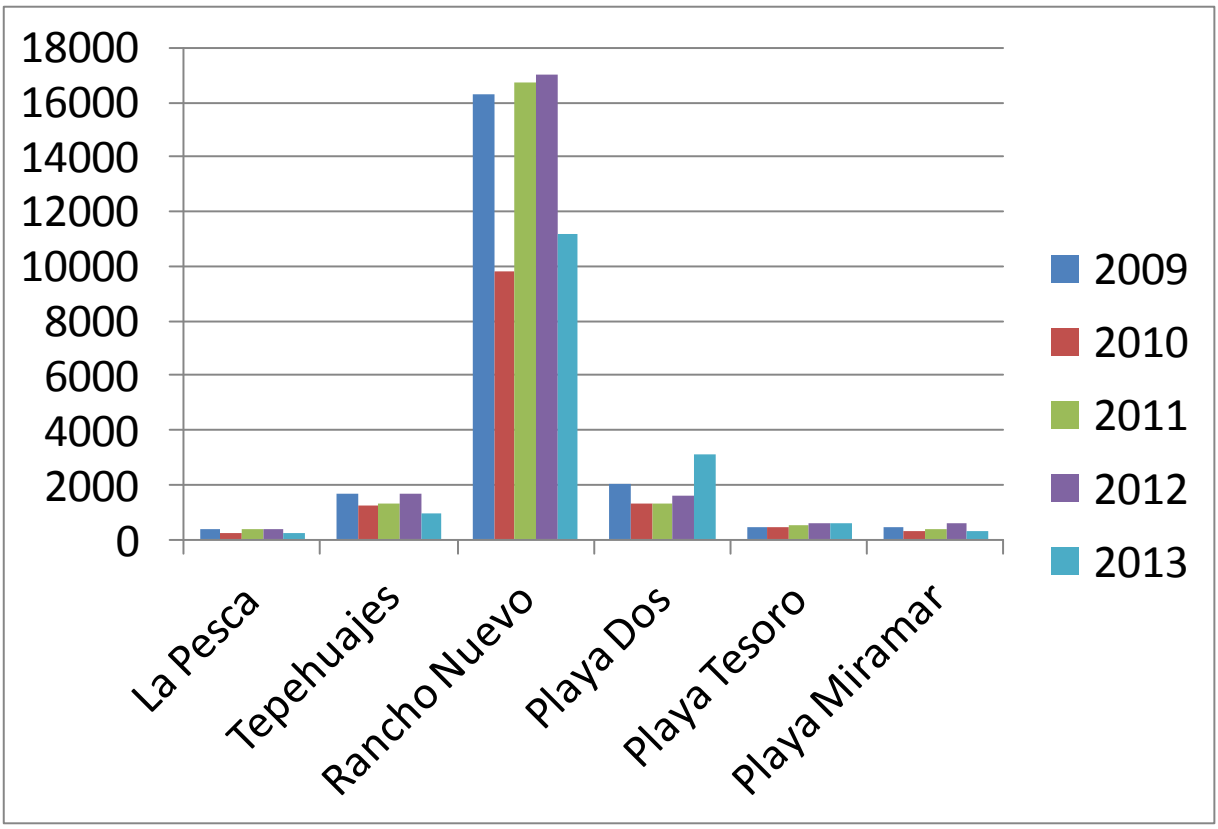
# KEMP'S RIDLEY REGISTERED NESTS
# 1947 / 1978 – 2013



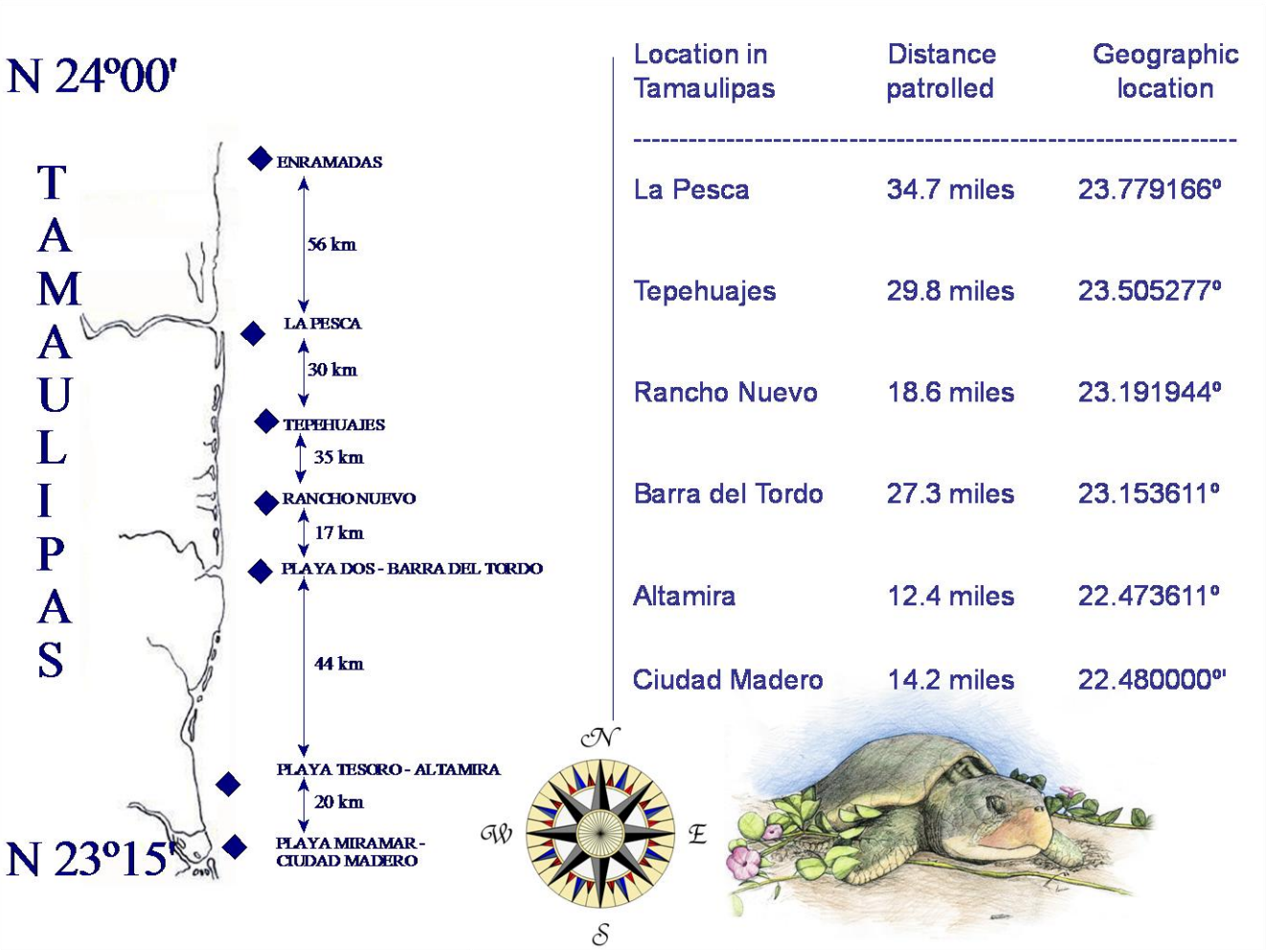

**Number of nests recorded during surveys of nesting beaches at Tamaulipas and Veracruz, Mexico (Source: CONANP, Gladys Porter Zoo, and U.S. Fish and Wildlife Service). Notes: The 1947 number was derived from an amateur film by Andres Herrera and is a single reference point representing nesting females on a single day. The total nests over the entire 1947 nesting season is believed to be much higher. Systematic surveys of the Rancho Nuevo nesting beach began in 1966 and were extended to other beaches in 1988.**

**The bi-national project was initiated at Rancho Nuevo in 1978. Starting in 1988, data include nests from the south camp (data from the south camp located at Playa Dos, at Barra Del Tordo for 1989 or 1990 are not available). Starting in 1989, data include nests from the north camp (located first in Barra Ostionales and then in Tepehuajes). Starting in 1996, data include nests recorded in La Pesca and Altamira. From 1997 to 2006, nests from Lechuguillas, Veracruz are included.**

# KEMP'S RIDLEY REGISTERED NESTS
## 2009 - 2013 Seasons

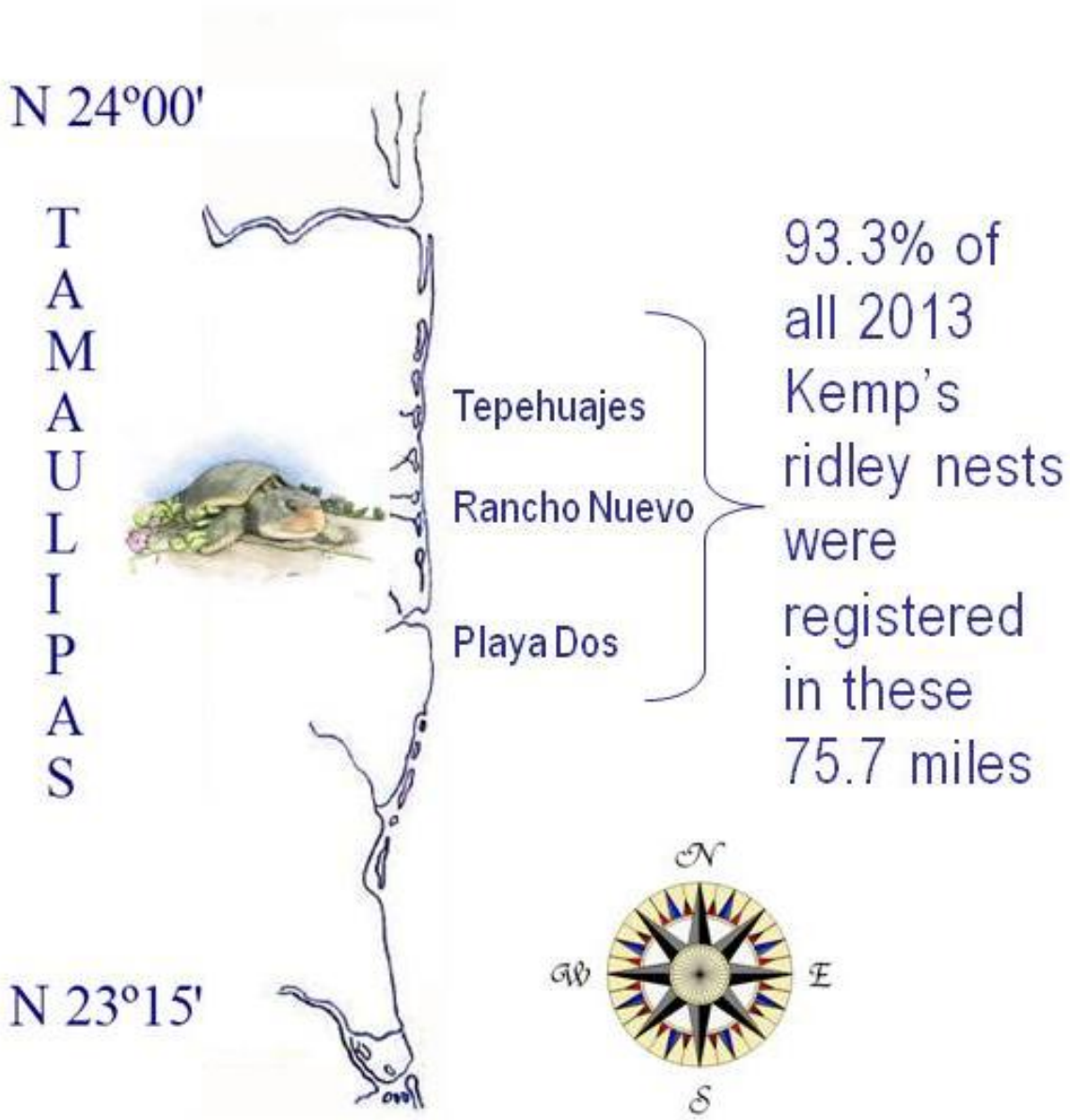



| Year | Total Number of Registered Nests | % of annual increase or decrease |
|---|---|---|
| 2009 | 21,144 | 18.24% increase |
| 2010 | 13,302 | 37.08% decrease |
| 2011 | 20,576 | 54.63% increase |
| 2012 | 21,797 | 5.96% increase |
| 2013 | 16,385 | 24.81% decrease |




| Location in Tamaulipas | Distance patrolled | Geographic location |
|---|---|---|
| La Pesca | 34.7 miles | 23.779166° |
| Tepehuajes | 29.8 miles | 23.505277° |
| Rancho Nuevo | 18.6 miles | 23.191944° |
| Barra del Tordo | 27.3 miles | 23.153611° |
| Altamira | 12.4 miles | 22.473611° |
| Ciudad Madero | 14.2 miles | 22.480000°' |

Kemp's ridley sea turtle primary nesting beaches




Kemp's ridley sea turtle nesting epicenter

16,385 nests were recorded in Tamaulipas during the 2013 Season. 93.3% of these nests occurred in the 75.7 miles of beach comprising the Tepehuajes, Rancho Nuevo and Barra del Tordo Sea Turtle Field Stations.

*Photos by Hector Raul Chenge Alvarez*

Dr. Thane Wibbels, Amy Bonka and Elizabeth H. Bevan, from the University of Alabama at Birmingham observe a Kemp's ridley nesting female at the Rancho Nuevo beach. Dr. Wibbels has been coordinating a sex ratio studio at Rancho Nuevo since 1998.

*Photo Courtesy of Thane Wibbels*

In the 2013 Season, from April to June, seven massive nesting aggregations were recorded at the Rancho Nuevo beach. The biggest arribada occurred on June 6 with over 3,000 recorded nesting females.

*Photo by Hector Raul Chenge Alvarez*

On June 6, 2013, over 3,000 Kemp's ridley nests were registered at the Rancho Nuevo beach. The Binational crew worked tirelessly day and night to place the majority of the egg clutches from this arribada in the three protective corrals.

*Photos by Hector Raul Chenge Alvarez*

A solitary hatchling swims into the Gulf of Mexico from the Rancho Nuevo beach. The last hatchlings of the 2013 Season were released on October 9, 2013.

Tiffany Anderson, a volunteer from Sea Turtle, Inc., releases hatchlings at the Rancho Nuevo beach. Over 750,000 hatchlings were released from the coasts of Tamaulipas into the Gulf of Mexico during the 2013 season.

*Photos by Hector Raul Chenge Alvarez*

# NOTES


GLADYS PORTER ZOO