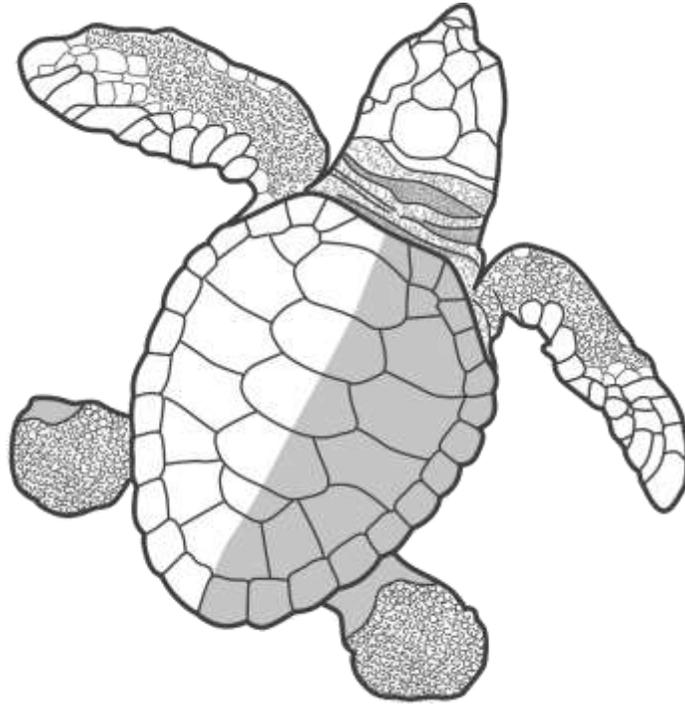


FIVE YEAR REPORT FOR THE
NATURAL RESOURCE TRUSTEES FOR THE
STATE OF TEXAS



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

2011 – 2015

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LIST OF ACRONYMS AND ABBREVIATIONS

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

CDEN	Civil Society for the Conservation and Development of Natural Spaces - 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 - Mexico
CONANP	National Commission of Protected Natural Areas - Mexico
CONAPESCA	National Commission of Aquaculture and Fisheries - Mexico
DOF	Official Diary of the Federation - Mexico
ESA	US Endangered Species Act of 1973
FWS	Fish and Wildlife Service – US Department of Interior
GPZ	Gladys Porter Zoo
HEART	Help 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 – US Department of Commerce
NOAA	National Oceanic and Atmospheric Administration – US Department of Commerce
NOM	Official Mexican Norm
NPS	National Park Service US Department of Interior
PAIS	Padre Island National Seashore - US 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 – Tamaulipas, Mexico
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

The Kemp's ridley, *Lepidochelys kempii*, is the most vulnerable and endangered sea turtle species. 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, *Dermochelys coriacea*, which is also critically endangered, especially in the Pacific, have the advantage of being worldwide in their nesting distribution. The Kemp's ridley 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 dependent 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's General office 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 marine turtles in Mexico 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-059-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, *Lepidochelys olivacea*, are the smallest of all extant sea turtles. Size is a poor predictor 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

The 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 the Kemp's ridley, a more northern species in the Atlantic. A detailed 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; and (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. Virtually all Kemp's ridley nesting occurs along the shores of the western Gulf of Mexico, with about 97% in Tamaulipas, Mexico, 2% in Veracruz, Mexico, and 1% in Texas USA; only scattered nesting occurs elsewhere in the United States. The primary nesting beach for the species is Rancho Nuevo, Tamaulipas. The epicenter of nesting in the USA is Padre Island National Seashore (PAIS), 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 binational 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. As mentioned above, 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, three years after the start of the binational project, the U. S. Fish and Wildlife Service requested the Gladys Porter Zoo to administer the United States' field portion of the joint U. S. / 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 revealed what was thought at the time to be 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" in Spanish. Arribada means "great arrival".

A recent study that quantitatively evaluated the nesting levels of the 1947 Arribada utilizing (1) the Herrera film, (2) Hildebrand's report regarding the 1947 arribada shown in the Herrera film, (3) historic documentation regarding the Herrera film, and (4) current nesting characteristics related to arribada size relative to total nests for a season, estimated a total of approximately 26,916 nests during the 1947 arribada recorded by Herrera. Based on current nesting trends, this this would equate to approximately 121, 517 total nests for the 1947 season (range of 82,514–209,953), which would represent approximately 48,607 nesting females (range of 33,006–83,981). This suggests that during and prior to the 1947 nesting season a relatively robust population of Kemp's ridleys existed, which could support arribadas consisting of at least 26,916 females. The results of the study indicate that from 1947 through 1985 (the lowest point in the decline of Kemp's ridley nesting), the Kemp's ridley population underwent a 99.4% decline.

Although the Kemp's ridley population has been recovering since the 1985 season, it has deviated from its exponential recovery rate and has declined in recent years. The current levels of nesting are still relatively low at an estimated 9 to 10% of the total estimated nests that occurred in 1947. It is currently not clear whether this population will recover to historic levels considering recent nesting trends and due to a variety of threats that may hinder its recovery.

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 1988, the program, now a binational 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 at La Pesca. In that same year, and in coordination with CRIP Tampico, CetMar No. 9, and API Altamira, the project expanded to include the beaches of Ciudad Madero and Altamira (Playa Miramar and Playa Tesoro respectively.)

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 interesting 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.

PROJECT ACTIVITIES - Description and Methodologies

The binational crew at the six sea turtle conservation camps consists of approximately 60 field technicians and biologists from Gladys Porter Zoo, the State Government of Tamaulipas and the Federal Government of Mexico. The majority of the crew is based at Rancho Nuevo.

The Rancho Nuevo beach is the most important nesting site for the Kemp's ridley sea turtle – 75-80% of nesting occurs on this 30 km (18 miles) stretch of the Tamaulipas coast.

General monitoring and protection activities at all camps begin in March of each year and consist of two monitoring teams (patrolling the north and south sides of the beach), doing 3 to 6 daily beach patrols, depending on the time of year, recorded nesting activity, and historical data, to locate nesting females and/or nests. Nesting behavior begins with the Kemp's ridley female crawling out of the water and onto the beach. She then digs a nest cavity with her rear flippers. While depositing eggs into the cavity, the turtle goes into what is called an egg laying trance. She is very vulnerable during this time and seems not to be aware of what is happening around her and often gets covered with sand during the nesting process and can be hard to see on the beach. Once the eggs have been laid, the female covers the nest with sand using her back flippers. She then rocks back and forth to tamp down the sand. Once the turtle has completed that process, she immediately returns to the sea. Nesting takes approximately 45 minutes, with a range of 30 minutes to 60 minutes.

When several females are registered on a patrol, the monitoring team(s) alerts the camps of a possible "arribada" event. During the arribadas, several teams are assigned zones on the beach that may cover up to 3 kilometers and patrol their zones on all-terrain vehicles, collecting biological data when time permits from the females, and relocating clutches to the protected corrals. The priority of the binational crews is to relocate the majority of the clutches to the protective corrals in as little time as possible after the female has finished nesting. The clutches are collected and transported to the corral, not only in as little time as possible, but also with the necessary precautions to avoid movement-induced early embryo mortality. Each clutch is reburied in a nest of similar size and depth as the nest that the female did on the beach and marked for monitoring over the incubation period.

With the help of flagging tape of different colors, the crews know which nests have been on the ground the longest and to pick those up first. With the help of data cards, and by being observant of their zone, the crews know the approximate time that the egg clutches have been on the sand. Nests that have been on the sand for eight hours or more are not relocated to the protective corrals. They are marked with flagging tape and recorded on the data cards as in situ nests.

Since 2002, an auxiliary corral has been used on the Rancho Nuevo beach on each side of the beach. The corrals were constructed to facilitate the quick disposition of the nests 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.

The nest capacity at the protective corrals is as follows: 3,500 at the Rancho Nuevo main corral, 2,300 at the Rancho Nuevo south corral, 1,500 at the Rancho Nuevo north corral, 1,000 at the Tepehuajes main corral, 500 at the Tepehuajes auxiliary corral, 1,000 at the Tordo main corral, 600 at the Tordo auxiliary corral, and 500 at the corrals at La Pesca, Altamira and Ciudad Madero. Once nests have hatched, that space at the corrals may be reused once the area occupied by those nests is cleaned.

If resources are available, a tagging team is on monitor duty on a daily basis and, during arribadas, checks and/or tags as many specimens as possible. The turtle is checked during the nesting stages of egg-laying or during the early stages of nest covering. If the turtle does not present any tags, it will be tagged on the second scale of the left forefront flipper with an Inconel style 1005-681 tag and a PIT tag. Established tagging methodologies similar to those prepared by WIDECASST are used. Relevant morphometric data are also registered.

Since 1998, the University of Alabama at Birmingham (UAB) has coordinated the implementation of the technology for monitoring sex ratios both in nests protected in corral and *in situ*. Comprehensive studies of sex ratios produced at Rancho Nuevo are conducted using temperature data loggers that can be inserted directly into nests or into the sand at nest depth.

Temperature data loggers are also used to monitor sand temperature in the hatcheries at mid-nest depth throughout the nesting season. Also in coordination with UAB, a predation study using camera traps and plots is carried out with the main objectives being the quantification of the predation and survival of eggs and hatchlings from arribadas nests that were left *in situ*; and the monitoring of predator diversity and predator abundance at various locations along the nesting beach near Rancho Nuevo.

All six camps follow the same methodology for the management of the nests in the protective corrals. At 30 days of incubation, a ~40 inch high, ~10 inches wide, ~11 inches in diameter hand-made cylinder of thin hardware cloth is placed centered on top of each nest in the corral. The cylinder is then covered all around and slightly underneath with white tulle netting. This protects the eggs from possible fly infestations.

The crews begin monitoring the corrals in teams of two every two hours at the first sign of hatching in the corrals (when the sand on top of a relocated nest sinks) and until hatchling emergence occurs. This monitoring is in order to prevent mortality caused by high temperatures, avian predators, or the occasional skunk or raccoon that finds its way inside of the corrals. The incubation period may vary from 45 to up to 60 days depending on ambient temperature and precipitation events. Once the hatchlings emerge, they are contained within the hardware cloth cylinder - this makes it easier for the crews to count and collect the hatchlings, and then place them in 24 by 12 inch plastic grid boxes with lids (the kind used by shrimpers), and taken on the ATVs to be released in large groups in different spots on the beach. The content of the nests are excavated after the hatchlings are released to determine hatch success.

At the camps in Tamaulipas, and depending on the season resources, up to 35 ATVs may be used and up to 60 crew members work at the beaches. The work of the crew members represents over 120,000 person-hours in a period of 180 days. Putting together the beach patrols, arribadas and hatchling releases in all six camps in Tamaulipas, close to 150,000 miles are traveled each season (the equivalent of going six times around the world).

General monitoring activities that also consist of daily beach patrols are carried out after the Kemp's ridley nesting season concludes, from the beginning of September to the end of February, in order to record sea turtle strandings in all the six camps in Tamaulipas encompassing the same area as in the nesting season: a little over 220 km (137 miles).

In cooperation with local government agencies, actions are undertaken that raise public and industry awareness of existing laws and continuing education programs in preparation of the implementation of the Project's education component which is carried out throughout the season, with the main talks and presentations done towards the end of the nesting season.

RECOVERY

Overview

The Kemp's ridley nesting population was increasing at a steady rate and recovering from its historic low point in the mid-1980s (702 nests). Conservation efforts on the primary nesting beaches in Mexico, and the regulations went into effect in the United States in 1990 and in Mexico in 1993 which require commercial trawlers to install Turtle Excluder Devices (TEDs) on their boats, 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 to 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 interesting 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:

- 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.
- 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: these are the downlisting criteria from the latest draft of the Kemp's Ridley Sea Turtle Bi-National Recovery Plan.

One of the key elements in achieving this goal is 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 in both countries, has made the Kemp's Ridley Binational Project be one of the longest existing endangered species recovery programs in the world. 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 essential.

Recovery Challenges

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 steady increase from its all-time low of 702 nests in 1985 to over 21,000 nests in 2009. As reported, the level of Kemp's ridley nesting plummeted to less than 12,000 nests in 2014; and even though in 2015 there was an increase from the number of nests registered in 2014 (14,00 nests), nesting has failed to exhibit any signs of long-term increase in the past five years. This means that the population remains highly endangered, maybe even more so than before, depending on what the cause for this decrease is, how many age classes have been impacted and to what extent. More years of studies at the primary nesting beaches in Tamaulipas will be required to offset the recent losses, answer the impact questions and resolve the current status and trends of the population.

Thus, the highest priority needs for Kemp's ridley recovery are 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.

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 Objectives

1. - Continue developing and improving a management plan that includes the adequate protection in corrals and in situ of as many clutches as feasible at all six turtle camps in Tamaulipas to meet recovery criteria above; as well as research geared towards making more informed decisions such as tag-recapture and satellite telemetry studies.
2. - Maintain and improve the Sea Turtle Stranding Network in the State of Tamaulipas.
3. - In cooperation with local government agencies, undertake actions that will 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 population.

SUMMARY REPORTS

2011 SEASON

The first Kemp's ridley nests of the 2011 nesting season were recorded on March 30 at the Rancho Nuevo field station.

In the 2011 season, 20,570 nests were registered – 81.2% of these nests were registered in the Rancho Nuevo beach; and 693,033 hatchlings released into the Gulf of Mexico. The number of registered nests represents a 54% increase in registered nests from 2010 to 2011.

Nesting Events

In 2011 there were two major nesting events recorded at the Rancho Nuevo beach: an estimated 6,000 nests were recorded from April 28 to April 30; and on June 5, an estimated 7,000 nests were registered. The majority of the nests from this arribada were registered on the south side of the Rancho Nuevo beach and had to be left *in situ*.

The June 5 nesting event was evidence that Rancho Nuevo was starting to become an "arribada beach" once again. An arribada nesting strategy results in a large number of nesting turtles on the beach at a given time and consequently a large number of hatchlings. This strategy also results in an increase in nest destruction by conspecifics when they inadvertently dig up one another's nests; however, the overall benefits of an arribada strategy are very significant. Arribada nesters can find mates more easily and can delay nesting until environmental conditions are suitable for nesting. Arribada nesters have high nesting beach site fidelity and stay near shore and are inactive during the interesting period. This behavior potentially conserves energy.

Additionally, we have observed that predators will consume a certain number of offspring (eggs and hatchlings) regardless of the total clutch size. A larger clutch can serve as a predator satiation device and/or social facilitation for hatchling survival. High nest density resulting from the arribada nesting strategy additionally serves as a predator swamping device.

Another important factor to consider when looking at nest predation at the Rancho Nuevo beach is that going back to the 1960's through the mid 1980's, tropical thorn scrub or tropical deciduous forests extended for miles before melting and giving way to the coastal mangrove habitat. That forest is gone replaced by cattle pasture and even shrimp tanks. Predators other than those existing currently in the narrow coastal mangrove would have to cross large expanses of open country. This is highly unlikely. Most importantly, the arribada nesting strategy could result in Rancho Nuevo becoming once again an arribada beach - which it used to be. This means that the field management of the majority of nests would have to be done *in situ*, and thus the survival of the nests would depend on natural pressures such as the existing predator load, tropical storms, hurricanes and drought conditions on a season by season basis.

The dependency that the survival of the nests has on natural pressures is clearly evidenced by the loss of close to 85% of the nests laid during the June 5 arribada to the storm surge caused by Tropical Storm Arlene and the tropical disturbance that preceded it. The storm remained vigorous for most of its duration, and on June 30 attained its peak intensity just prior to landfall on the coast of Veracruz. Crossing the mountains of eastern Mexico, the system weakened into a tropical depression before dissipating early on July 1. The storm surge from Arlene raised sea levels two to four feet above normal in many areas of the Tamaulipas coast, including Playa Miramar, Playa Tesoro, Playa Dos, and Rancho Nuevo.

2012 SEASON

The first Kemp's ridley nests of the 2012 nesting season were recorded on March 31 at the Barra Del Tordo field station. The last Kemp's ridley hatchlings were released into the Gulf of Mexico from the Rancho Nuevo field station on September 12, 2012.

In the 2012 season, 21,797 nests were registered – 77.9% of these nests were registered in the Rancho Nuevo beach; and 1,115,527 hatchlings released into the Gulf of Mexico. The number of registered nests represents a 5.9% increase in registered nests from 2011 to 2012.

Nesting Events

This season the major nesting events recorded at the Rancho Nuevo beach were as follows: 3,269 nests on April 12, over 3,200 nests from April 20 to April 25, and 6,600 nests on May 16. Just as in the 2011 season nesting event of June 5, the May 16 nesting event shows that Rancho Nuevo is starting to become an "arribada beach" once again.

2013 SEASON

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.

In the 2013 season, 16,385 nests were registered – 68.3% of these nests were registered in the Rancho Nuevo beach; and 755,428 hatchlings released into the Gulf of Mexico. The number of registered nests represents a 24.8% 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.

2014 SEASON

The first Kemp's ridley nest of the 2014 nesting season was recorded on April 2 at the Tepehuajes field station. The last Kemp's ridley hatchlings were released into the Gulf of Mexico from the Rancho Nuevo field station on mid-October, 2014.

In the 2014 season, 12,053 nests were registered – 60.3% of these nests were registered in the Rancho Nuevo beach; and 566,127 hatchlings released into the Gulf of Mexico. The number of registered nests represents an estimated 26.4% decrease in registered nests from 2013 to 2014.

A tag-recapture project was started in 2014 as part of the larger Kemp's Ridley Stock Assessment Project. 940 Kemp's ridley nesting females were checked for metallic and electronic (PIT) tags - only 8.5% of these turtles were registered as tag recaptures from previous seasons. The remaining 860 females were tagged with both Inconel tags (GPZ14 series), and PIT tags.

Nesting Events

Only two major nesting events were recorded in the 2014 Season. On April 30, over 2,000 nesting females arrived to nest at the Rancho Nuevo beach. On that day, nesting was recorded in almost all the registered nesting sites in Texas, Tamaulipas, and Veracruz: from Padre Island National Seashore in Corpus Christi, Texas, to Lechuguillas, in Vega de Alatorre, Veracruz. The second major nesting event of 2014 was recorded between June 6 and June 7, with a little over 1,000 nests registered at the Rancho Nuevo beach.

Of interest is the fact that the last registered Kemp's ridley nests were recorded on August 28. One nest was registered at the Barra del Tordo Field Station and the other at the Rancho Nuevo Field Station.

2015 SEASON

The first Kemp's ridley nests of the 2015 nesting season were recorded on April 15 at the Barra del Tordo field station. The last Kemp's ridley nest registered in Tamaulipas was recorded at the Altamira field station on August 23, 2015. The last Kemp's ridley hatchlings were released into the Gulf of Mexico in mid-October, 2015.

In the 2015 season, 14,006 nests were registered – 73.9% of these nests were registered in the Rancho Nuevo beach; and 686,040 hatchlings released into the Gulf of Mexico. The number of registered nests represents a 16.2% increase in registered nests from 2014 to 2015.

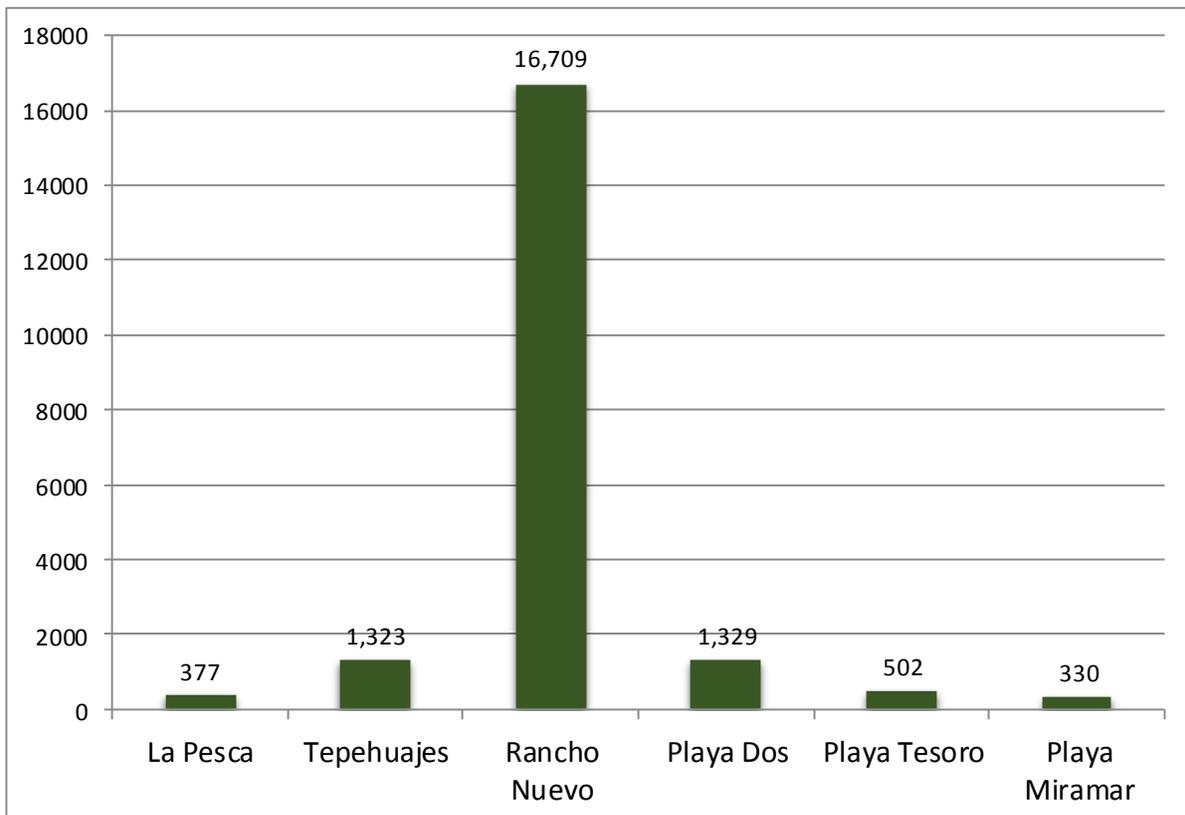
The tag-recapture project started in 2014 continued in 2015 as part of the larger Kemp's Ridley Stock Assessment Project. In the 2015 season, a total of 989 Kemp's ridley nesting females were checked for tags and/or tagged. 85.74% of these turtles (848) were considered "neophytes" - that is, these turtles did not present any type of tags or tagging scars. Nine hundred and forty two turtles (95.24%) were registered nesting once; forty six turtles (4.65%) were registered nesting twice; and only one turtle (0.10%), a neophyte tagged with a 2015 Season tag (GPZ15-126), was recorded nesting three times. The data obtained from this tag-recapture project, in combination with historical data, will have important implications for the development of improved conservation strategies for the Kemp's ridley sea turtle, and an indication of the species' distribution and migration behavior.

Nesting Events

Only two major nesting events were recorded in the 2015 Season. On April 27, over 4,300 nesting females arrived to nest at the Rancho Nuevo beach. The second major nesting event of 2015 was recorded between May 31 and June 2, with a little over 5,700 nests registered at the Rancho Nuevo beach.

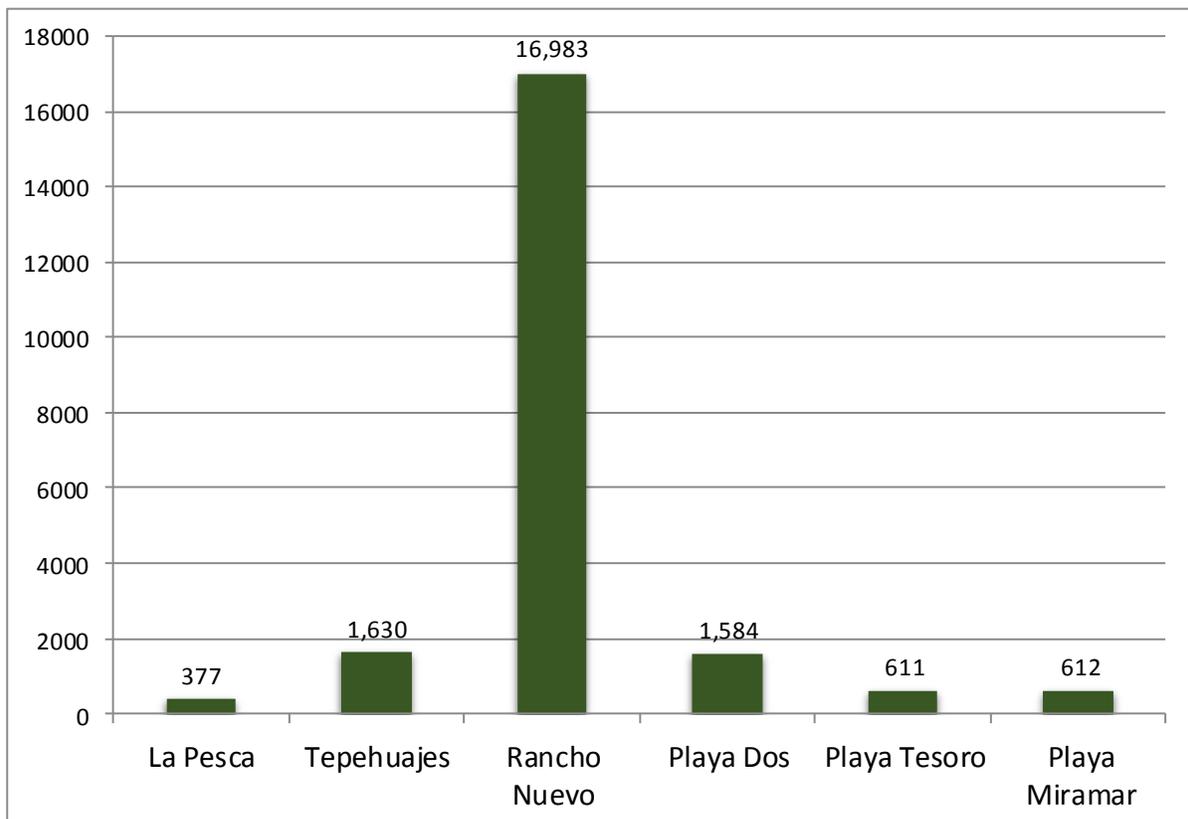
Summary Data - 2011 Season

<u>Location</u>	<u>Registered Nests</u>	<u>Released Hatchlings</u>
La Pesca	377	27,891
Tepehuajes	1,323	95,723
Rancho Nuevo	16,709	460,221
Barra del Tordo (Playa Dos)	1,329	66,748
Altamira (Playa Tesoro)	502	28,068
Ciudad Madero (Playa Miramar)	330	14,382
TOTAL	20,570	693,033



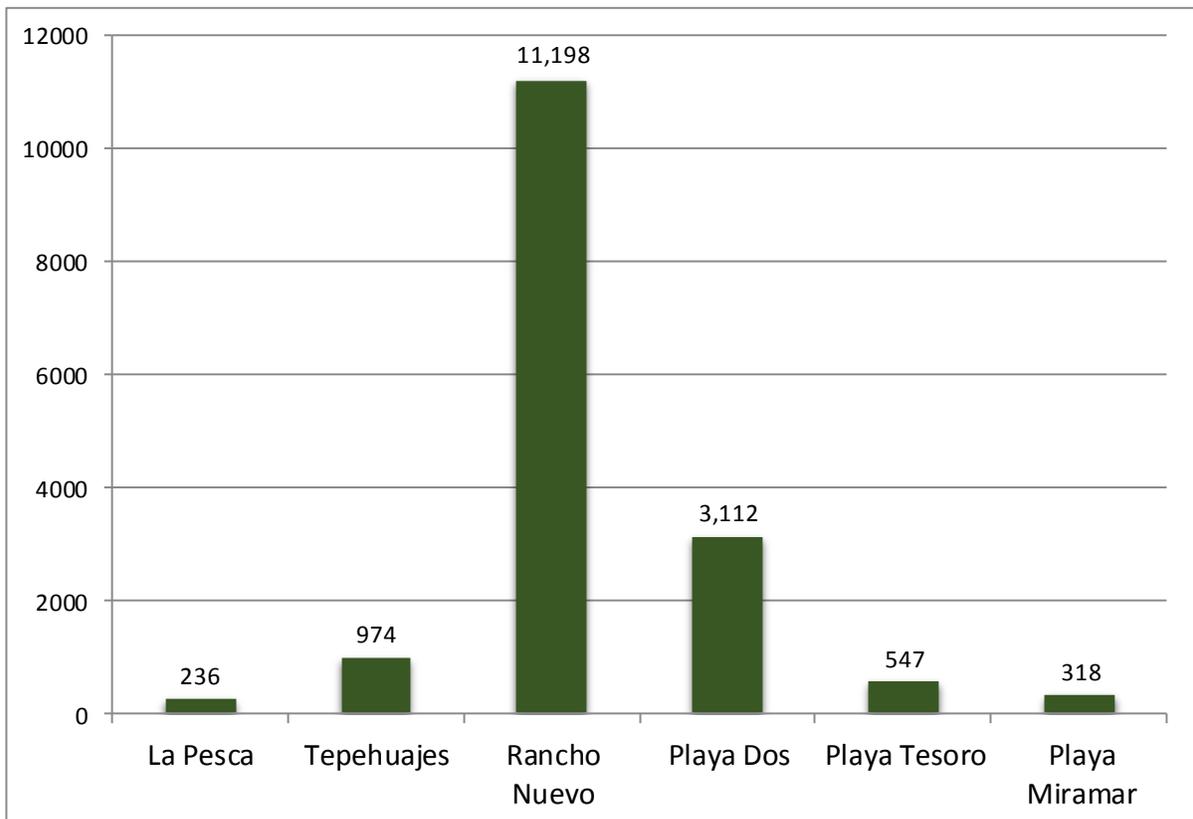
Summary Data - 2012 Season

<u>Location</u>	<u>Registered Nests</u>	<u>Released Hatchlings</u>
La Pesca	377	30,352
Tepehuajes	1,630	100,055
Rancho Nuevo	16,983	813,514
Barra del Tordo (Playa Dos)	1,584	101,967
Altamira (Playa Tesoro)	611	41,096
Ciudad Madero (Playa Miramar)	612	28,543
TOTAL	21,797	1,115,527



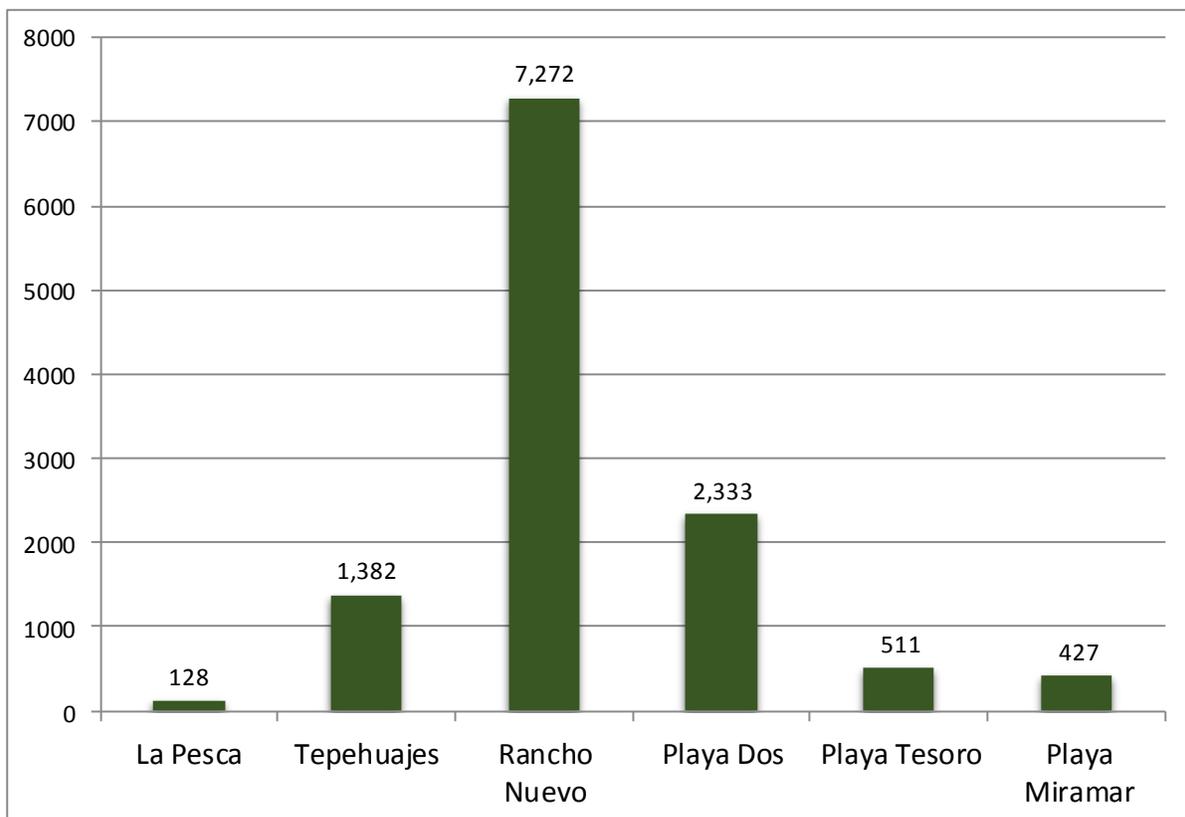
Summary Data - 2013 Season

<u>Location</u>	<u>Registered Nests</u>	<u>Released Hatchlings</u>
La Pesca	236	19,667
Tepehuajes	974	61,451
Rancho Nuevo	11,198	523,974
Barra del Tordo (Playa Dos)	3,112	109,214
Altamira (Playa Tesoro)	547	26,609
Ciudad Madero (Playa Miramar)	318	14,513
TOTAL	16,385	755,428



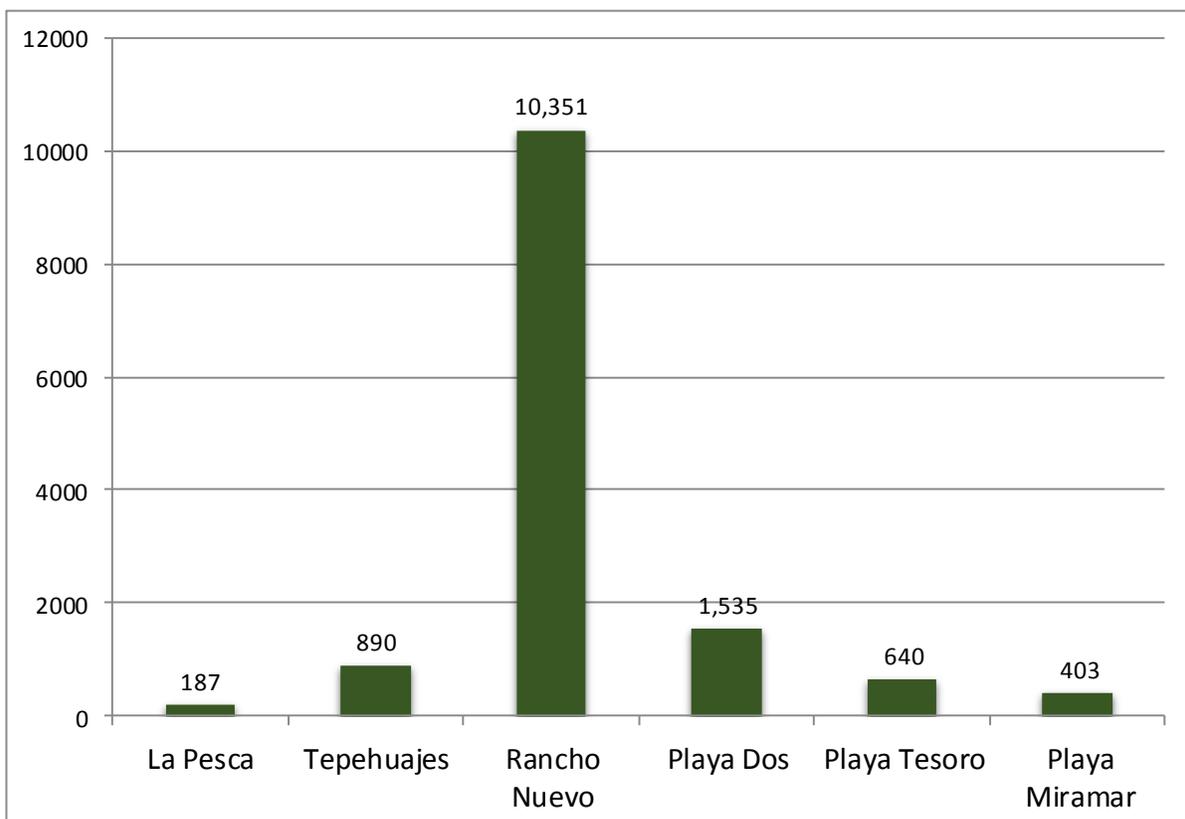
Summary Data Analysis - 2014 Season

<u>Location</u>	<u>Registered Nests</u>	<u>Released Hatchlings</u>
La Pesca	128	6,932
Tepehuajes	1,382	82,377
Rancho Nuevo	7,272	328,246
Barra del Tordo (Playa Dos)	2,333	95,020
Altamira (Playa Tesoro)	511	30,302
Ciudad Madero (Playa Miramar)	427	23,250
TOTAL	12,053	566,127



Summary Data Analysis - 2015 Season

<u>Location</u>	<u>Registered Nests</u>	<u>Released Hatchlings</u>
La Pesca	187	15,731
Tepehuajes	890	63,953
Rancho Nuevo	10,351	447,498
Barra del Tordo (Playa Dos)	1,535	102,044
Altamira (Playa Tesoro)	640	34,792
Ciudad Madero (Playa Miramar)	403	22,022
TOTAL	14,006	686,040



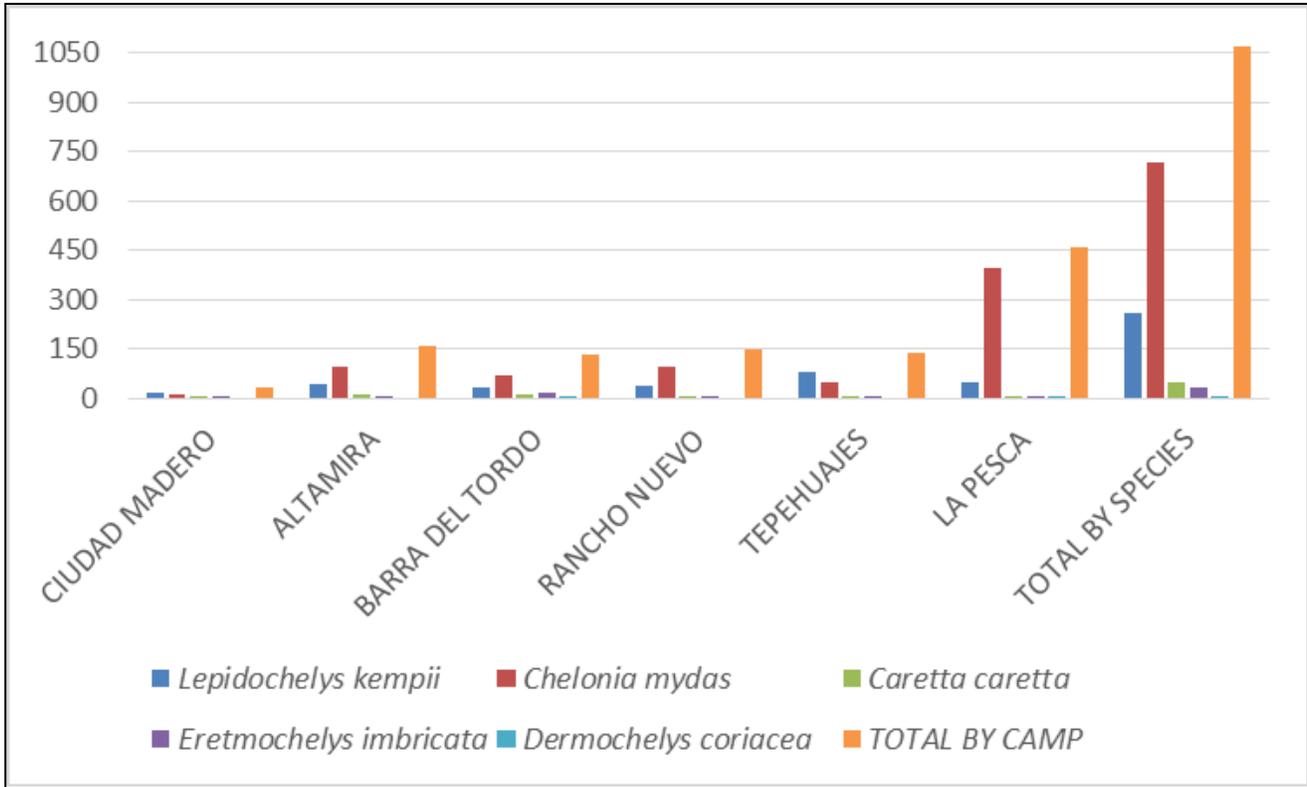
TAMAULIPAS SEA TURTLE STRANDINGS –september 2014 to august 2015 are pending

2011-2015

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.

Camp	<i>Lepidochelys kempii</i>	<i>Chelonia mydas</i>	<i>Caretta caretta</i>	<i>Eretmochelys imbricata</i>	<i>Dermochelys coriacea</i>	Total by Camp
CIUDAD MADERO	18	12	1	1	0	32
ALTAMIRA	42	97	12	7	0	158
BARRA DEL TORDO	31	68	15	16	1	131
RANCHO NUEVO	41	96	8	4	0	149
TEPEHUAJES	81	48	7	4	0	140
LA PESCA	49	398	7	4	1	459
TOTAL BY SPECIES	262	719	50	36	2	1,069



Tamaulipas Sea Turtle Strandings - 2011-2015

2011 Cold-stunning Stranding Events

There were two stranding events due to cold weather at La Pesca, 14-16 January, and 4 February, 2011. A total of sixteen green sea turtle specimens were recorded stranded on 14-16 January – ten alive and six dead. A live juvenile hawksbill was also recorded on 15 January. Temperatures were below zero on 4 February, 2011 and the effects of this drop in temperature were seen from that day until 12 February. On those nine days, a total of three-hundred thirty nine green sea turtle specimens were recorded stranded – three hundred alive and thirty nine dead. A live Kemp's ridley adult male was also recorded on 4 February. Possibly related to low temperatures, two Kemp's ridleys were found stranded dead at Altamira on 12 February. At La Pesca, the Gladys Porter Zoo and the Tamaulipas State Government field crews took care of the specimens, taking the live ones to the field station facilities. Of the above mentioned forty-five dead green sea turtle specimens, nine were partially eaten by coyotes and in two cases by vultures. The cause of death of the remaining thirty-four specimens was very likely related to the effects of the cold-stunning (hypothermia). State Government, Secretaria de Marina, and PROFEPA took care of the final disposition of the dead specimens as well as the release of the live specimens during the week of 7 - 18 February, 2011.

A total of sixteen green sea turtle specimens were recorded stranded at La Pesca on 14-16 January, 2011 – ten alive and six dead.

Also at La Pesca, a live juvenile hawksbill was recorded on 15 January, 2011.





From 4 February to 11 February, 2011, a total of 339 green sea turtle specimens were recorded stranded at La Pesca – 300 alive and 39 dead.



At La Pesca, the Gladys Porter Zoo and the Tamaulipas State Government field crews took care of the stranded live sea turtle specimens, which included an adult male Kemp's ridley (below), taking them to the field station facilities.



Of the recorded forty-five dead green sea turtle specimens, nine were partially eaten by coyotes and in two cases by vultures (right).



Once the intense cold weather passed, State Government of Tamaulipas, Secretaria de Marina, and PROFEPA took care of the release of the live sea turtle specimens during the week of 7 - 18 February, 2011.

TORTUGAS MARINAS DE TAMAULIPAS

Tortugas Marinas de Tamaulipas is an education and outreach program for urban and rural areas near the main sea turtle nesting beaches in Tamaulipas, Mexico

SUMMARY:

Because thousands of children (and their parents) may be reached as part of an education and outreach program, a multiagency cooperative effort was officially established in 2012 as the education and outreach component of the Kemp's Ridley Binational Program. Spearheaded by the Gladys Porter Zoo (GPZ) of Brownsville, Texas, and Conservación y Desarrollo de Espacios Naturales (CDEN), an NGO from Tamaulipas, an Environmental Education and Outreach Program named Tortugas Marinas de Tamaulipas was created and implemented with the main objective of reaching children from both the main urban and rural areas near the turtle camps. GPZ and CDEN had previously worked together on a pilot education program in 2011.

The activities of the Tortugas Marinas de Tamaulipas program include presentations at schools at the main urban areas near the Kemp's Ridley Binational Program turtle camps - Tampico, Altamira and Ciudad Madero, Aldama, and Soto La Marina; as well as hatchling releases on site at the six Kemp's Ridley turtle camps in Tamaulipas. One of the biggest components of the 2012 education and outreach program was the creation of "Shelldon", a sea turtle ambassador. The Tortugas Marinas de Tamaulipas Program is also incorporated into programs such as "Escuelas Verdes" (Green Schools), an environmental education program of SEMARNAT, Mexico's Lead Environmental Agency; the Tamaulipas's State Government's Environmental Awareness Programs at La Pesca; and in events such as Tampico, Altamira and Ciudad Madero's Environmental Week as part of the Earth Day Celebrations. The experience and data obtained with the education and outreach program activities are used as indicators and as a guide to help in the improvement of the established education and awareness programs in Tamaulipas, and solidification of logistics for each of the locations that are reached – from La Pesca and Tepehuajes, to Rancho Nuevo, Barra Del Tordo, Altamira and Ciudad Madero.

BACKGROUND:

- Sea turtle species, population, and/or habitat to be studied:

Kemp's ridley - *Lepidochelys kempii*

Tamaulipas is the main nesting beach for this species worldwide.

Green - *Chelonia mydas*

Over 10,000 nests have been registered in Tamaulipas in the past eight years.

Species of sea turtles that have been registered nesting and stranded in Tamaulipas over the past 30 years include loggerheads (*Caretta Caretta*), hawksbills (*Eretmochelys imbricata*), and leatherbacks (*Dermochelys coriacea*).

- * Threats to sea turtles in this area: Artisanal shark fisheries, poaching.

PROJECT OVERVIEW/METHODS:

The activities of the Tortugas Marinas de Tamaulipas program include interactive presentations and media coverage at schools at the main urban areas near the Kemp's Ridley Binational Program turtle camps - Tampico, Altamira and Ciudad Madero, Aldama, and Soto La Marina.

As a component of the Kemp's Ridley Binational Program, activities may also include presentations and hatchling releases on site at the six Kemp's Ridley turtle camps: Playa Costa Lora at La Pesca, Tepehuajes, Rancho Nuevo, Playa Dos at Barra del Tordo, Playa Tesoro at Altamira, and Playa Miramar at Ciudad Madero.

Materials used in the Tortugas Marinas de Tamaulipas Program consist mainly of PowerPoint presentations, videos, and informational posters. Additional education materials include wristbands and reusable bags, a stand-in, an activity and coloring booklet with a Kemp's ridley as the main character, rub stations and life-size sea turtle replicas.

TARGET AUDIENCE(S) AND BEHAVIOR(S):

One of the main objectives of the education and outreach program is reaching children between 6 and 12 years and their parents. In cooperation with local government agencies, the education and outreach program's actions will include raising public and industry awareness of existing laws through target audience-oriented presentations at local schools, municipal agencies and local fisheries cooperatives. The support, expansion and continuing improvement of education and outreach programs will increase awareness and support for marine turtle conservation tailored to specific regional issues in the state of Tamaulipas, Mexico.

OBJECTIVES, REACH AND OUTCOMES:

- a. Increase the awareness of local communities that they share their landscape with several endangered sea turtle species, with special emphasis on the world's most endangered sea turtle, the Kemp's ridley
- b. Inspire local communities to take pride in their rich wildlife heritage and want to protect it
- c. Mobilize local communities to spread the message that sea turtle conservation can be beneficial to both the sea turtle species and their habitat and the beaches where they are found

On an annual basis, an estimated 3,500-5,000 persons may be reached (close to 2,000-2,500 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. Outputs will be made readily available to all participants and stakeholders in the Tamaulipas conservation community, including those that are part of the Kemp's Ridley Binational Project as well as all other interested parties. Raising public awareness will lead to public support for sea turtle conservation programs. Building and maintaining partnerships with local, state, federal, private, and international entities will be essential to ensure long-term protection and sustainability of sea turtle conservation projects in Tamaulipas.



One of the biggest part of the Education program is Shelldon, GPZ's sea turtle ambassador. Shelldon is a key component of the Education Program in Tamaulipas and South Texas. Shelldon visits schools across the southern part of Tamaulipas from La Pesca to Ciudad Madero and on occasion, visits his fellow ambassadors at Sea Turtle, Inc. at South Padre Island, Texas



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



The education efforts continue each year with additional displays and interactive activities – such as this stand-in; always with the goal of reaching more children (and adults) in Tamaulipas and South Texas.

STAKEHOLDER INVOLVEMENT AND PROJECT ORGANIZATION

The U.S. and Mexico National governments have successfully collaborated for 37 years on the conservation of the Kemp's ridley. The States of Tamaulipas and Texas have also become major partners in conservation efforts during the last decade. Along with these working relationships, there are formal (and informal) cooperative agreements with several institutions in place. Among these are, as mentioned above, both the State of Texas (through the Texas Parks and Wildlife Department), the State Government of Tamaulipas (through SEDUMA), the municipal Governments of Soto la Marina, Aldama, Altamira and Ciudad Madero, API Altamira, TLA, Geostratos, Universidad del Noreste, Instituto Tecnológico de Altamira, Universidad Tecnológica del Mar de Tamaulipas, and CDEN. Because some of these institutions support the conservation work at a local level in the camp that corresponds to their area (i.e. the Municipality of Altamira and API Altamira support the work at Playa Tesoro on Altamira and the Municipality of Madero and Geostratos support the work at Playa Miramar in Ciudad Madero), working alongside them allows the Project activities to be performed properly, as well as achieving the Project objectives and disseminating the results adequately.

The Gladys Porter Zoo (GPZ) is a visitor-oriented zoological and botanical park, dedicated to the preservation of nature through education, conservation and research. Since 1981, GPZ has administered the United States' field portion of the joint U. S. / 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. Currently, the main agencies with which GPZ works with on the Project are:

The Association for the Conservation and Development of Natural Spaces (in Spanish: Conservación y Desarrollo de Espacios Naturales, AC), CDEN, is an NGO dedicated to providing professional environmental services and assessments through which Tamaulipas's natural resources may be used in efficiently and adequately. GPZ and CDEN established a cooperative working agreement in 2012. They currently help with the logistics of GPZ's portion of the Kemp's Ridley Binational Project. NGOs in the US involved in the Kemp's Ridley Binational Project include LGL Ecological Associates, The Harte Charitable Foundation, the Texas Shrimp Association, and Yappalooza among others.

The Texas Parks & Wildlife Department (TPWD) is the US State agency involved in the Project while in Tamaulipas it's the Tamaulipas' State Government's Secretaría de Desarrollo Urbano y Medio Ambiente (SEDUMA).

The main US federal agencies involved are the US Fish and Wildlife Service (FWS), and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). In Mexico, the lead federal agency for the Binational Project is the Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT), SEMARNAT is in charge of Mexico's National Sea Turtle Program through the Comisión Nacional de Áreas Naturales Protegidas (CONANP).

Dr. Patrick Burchfield has been the Project's Coordinator since 1981 and is assisted by Biologist Luis Jaime Peña, the Project's Operations Director since 1998. Both Dr. Burchfield and Mr. Peña oversee and coordinate the field operation of the Kemp's Ridley Binational Program which entails dealing with several government agencies in both countries and the actual operation of six sea turtle conservation camps in Mexico, including hiring all personnel as well as all of the logistical, permitting, and political aspects.

APPENDICES

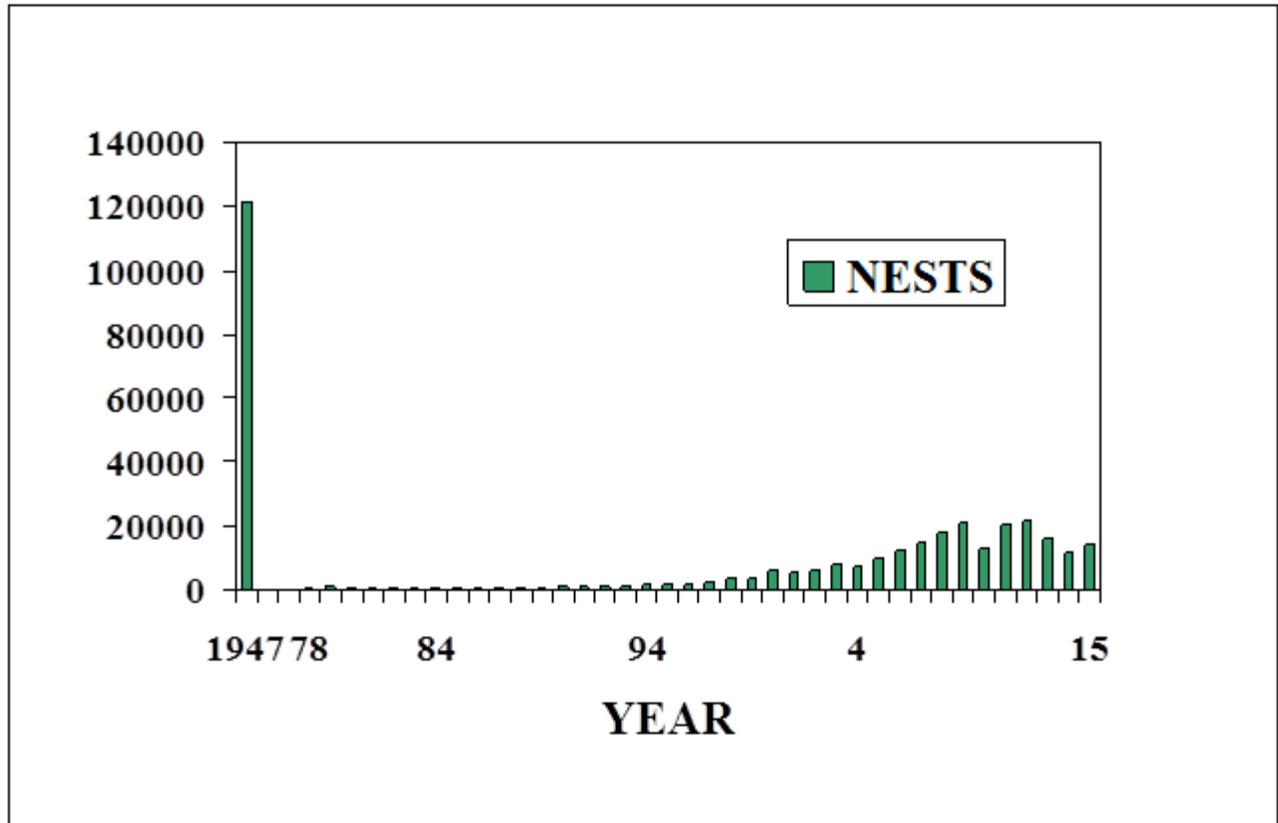
DATA

DATA SUMMARY - 1978-2015		
YEAR	REGISTERED NESTS	HATCHLINGS RELEASED
1978	924	48,009
1979	954	63,996
1980	868	37,378
1981	897	53,282
1982	750	48,007
1983	746	32,921
1984	798	58,124
1985	702	51,033
1986	744	48,818
1987	737	44,634
1988	842	62,218
1989	828	66,802
1990	992	74,339
1991	1,178	79,749
1992	1,275	92,116
1993	1,241	84,605
1994	1,562	107,687
1995	1,930	120,038
1996	2,080	119,196

DATA SUMMARY - 1978-2015 (*continued*)

YEAR	REGISTERED NESTS	HATCHLINGS RELEASED
1997	2,387	149,567
1998	3,845	183,920
1999	3,648	228,148
2000	6,277	395,150
2001	5,442	317,127
2002	6,436	402,969
2003	8,323	476,138
2004	7,147	500,767
2005	10,099	630,737
2006	12,143	782,319
2007	15,032	1,023,675
2008	17,882	817,103
2009	21,144	1,089,452
2010	13,302	723,065
2011	20,570	693,033
2012	21,797	1,115,527
2013	16,385	755,428
2014	12,053	566,127
2015	14,006	686,040

KEMP'S RIDLEY REGISTERED NESTS 1947 / 1978 – 2015

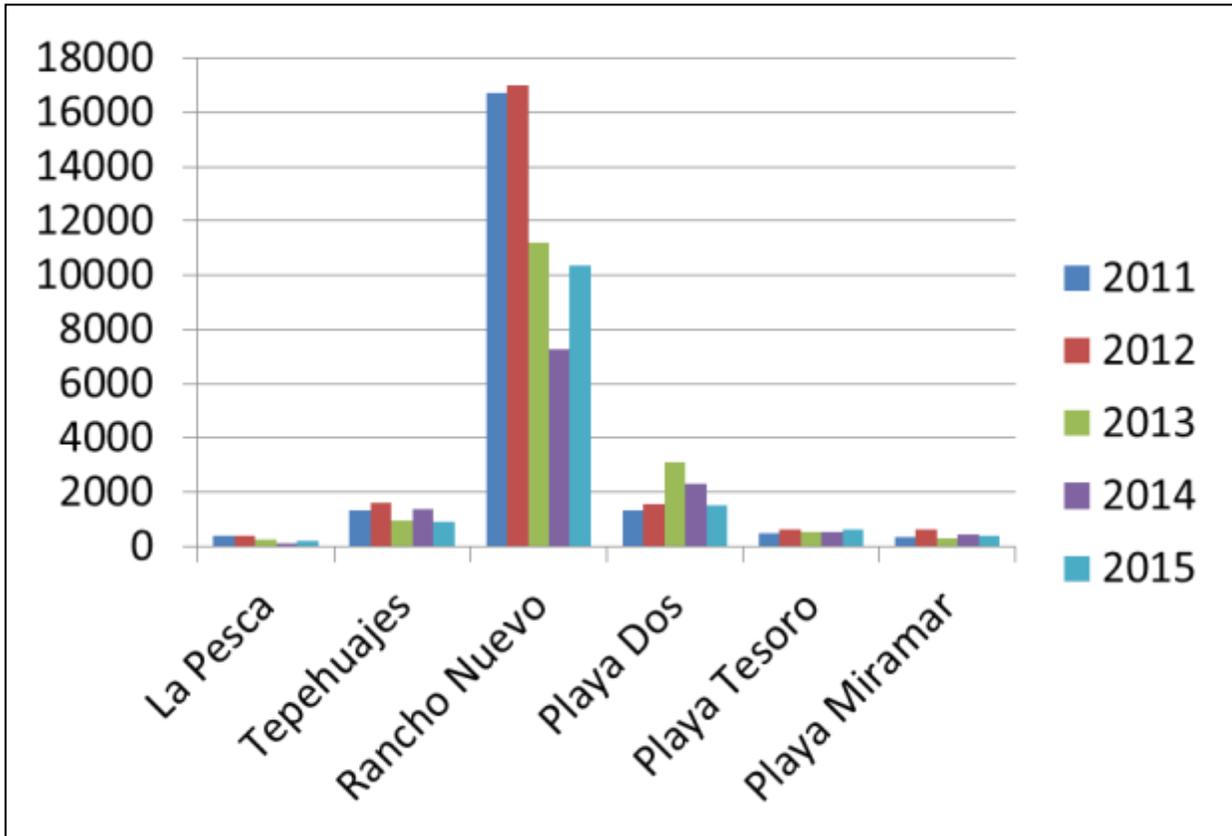


Annual number of nests from the Binational Project for the Kemp's ridley sea turtle starting in 1978 shown together with the estimate from the recent research of the 1947 nesting season.

Bars from 1978 to 2015 indicate total registered nests reported annual by the Binational Project.

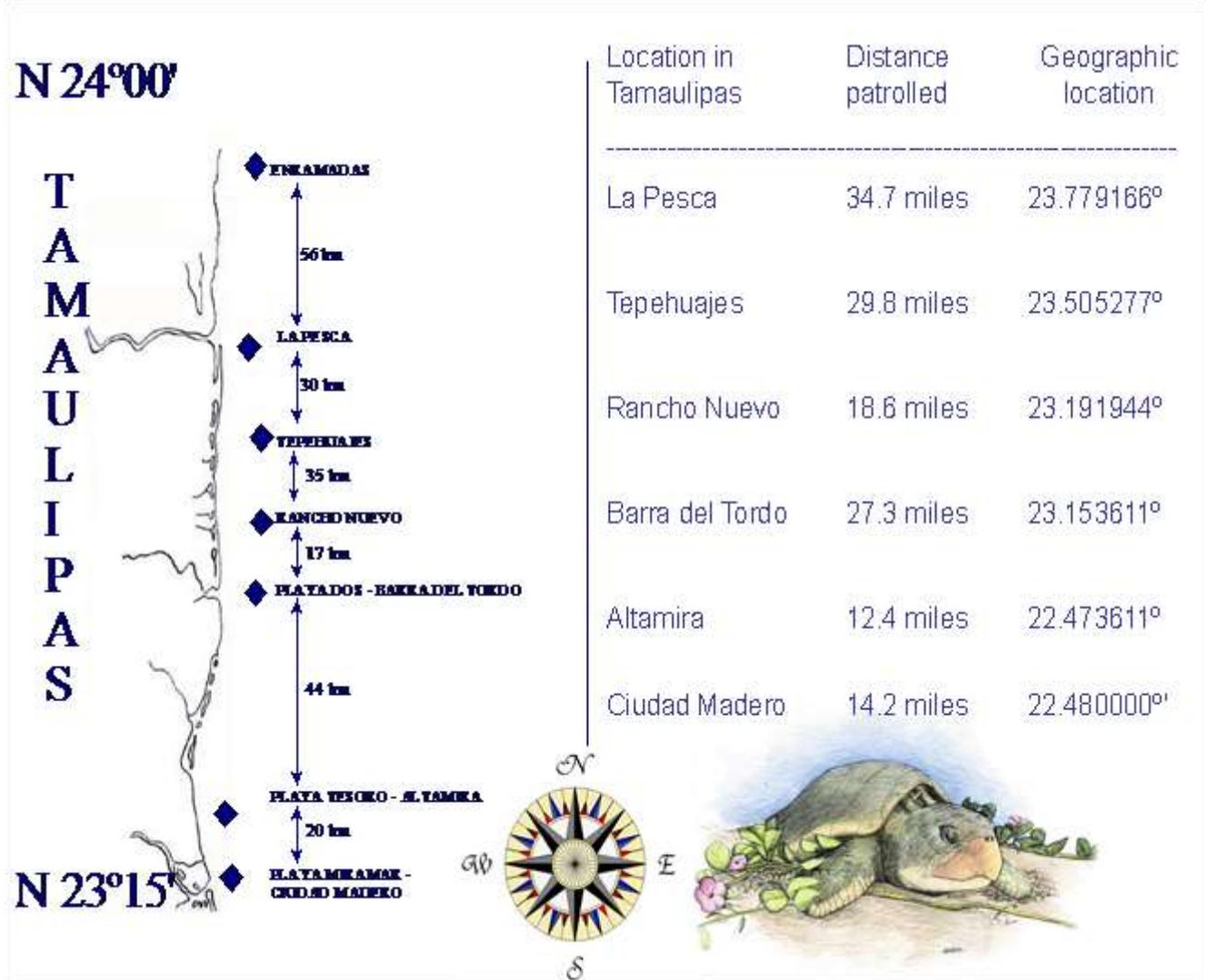
The 1947 bar is the total number of nests estimated for the 1947 nesting season based on an independent quantification of the arribada filmed in 1947 by Andres Herrera.

KEMP'S RIDLEY REGISTERED NESTS 2011 - 2015 Seasons



Year	Total Number of Registered Nests	% of annual increase or decrease
2011	20,570	54.68% increase
2012	21,797	5.93% increase
2013	16,385	24.82% decrease
2014	12,053	26.40% decrease
2015	14,006	16.20% increase

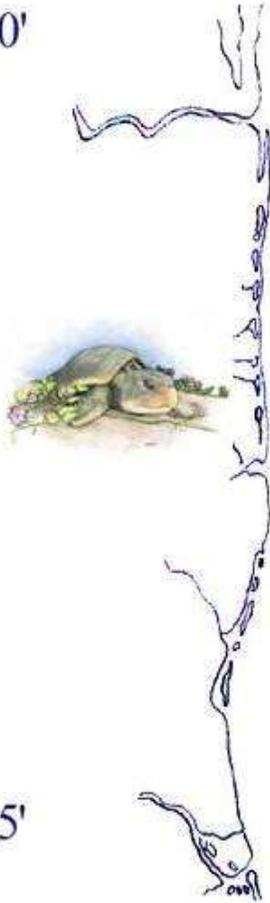
MAPS



Kemp's ridley sea turtle primary nesting beaches

N 24°00'

T
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Tepehuajes

Rancho Nuevo

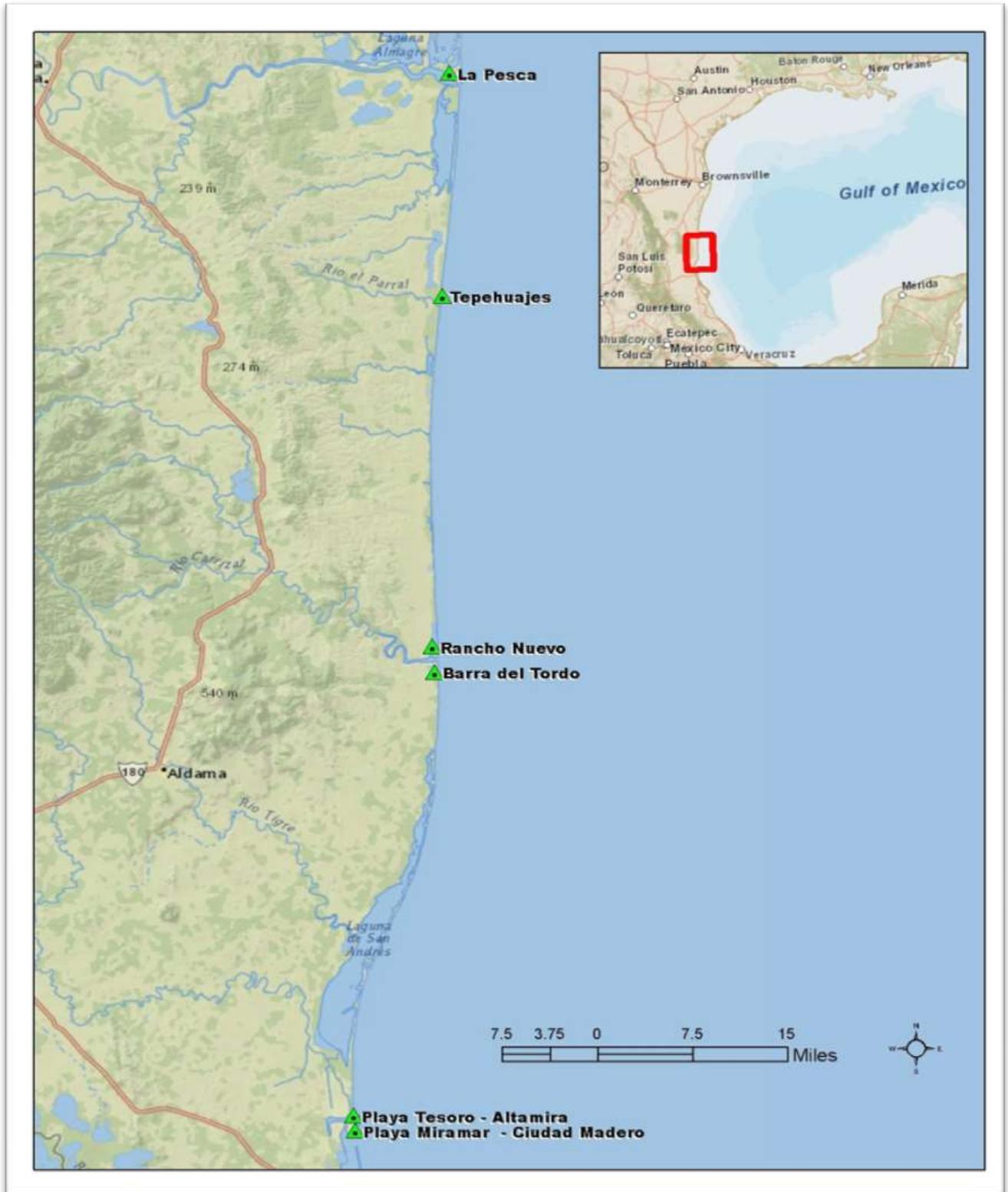
Playa Dos

Over 90% of all
Kemp's ridley
nests are
registered in these
75.7 miles

N 23°15'



Kemp's ridley sea turtle nesting epicenter

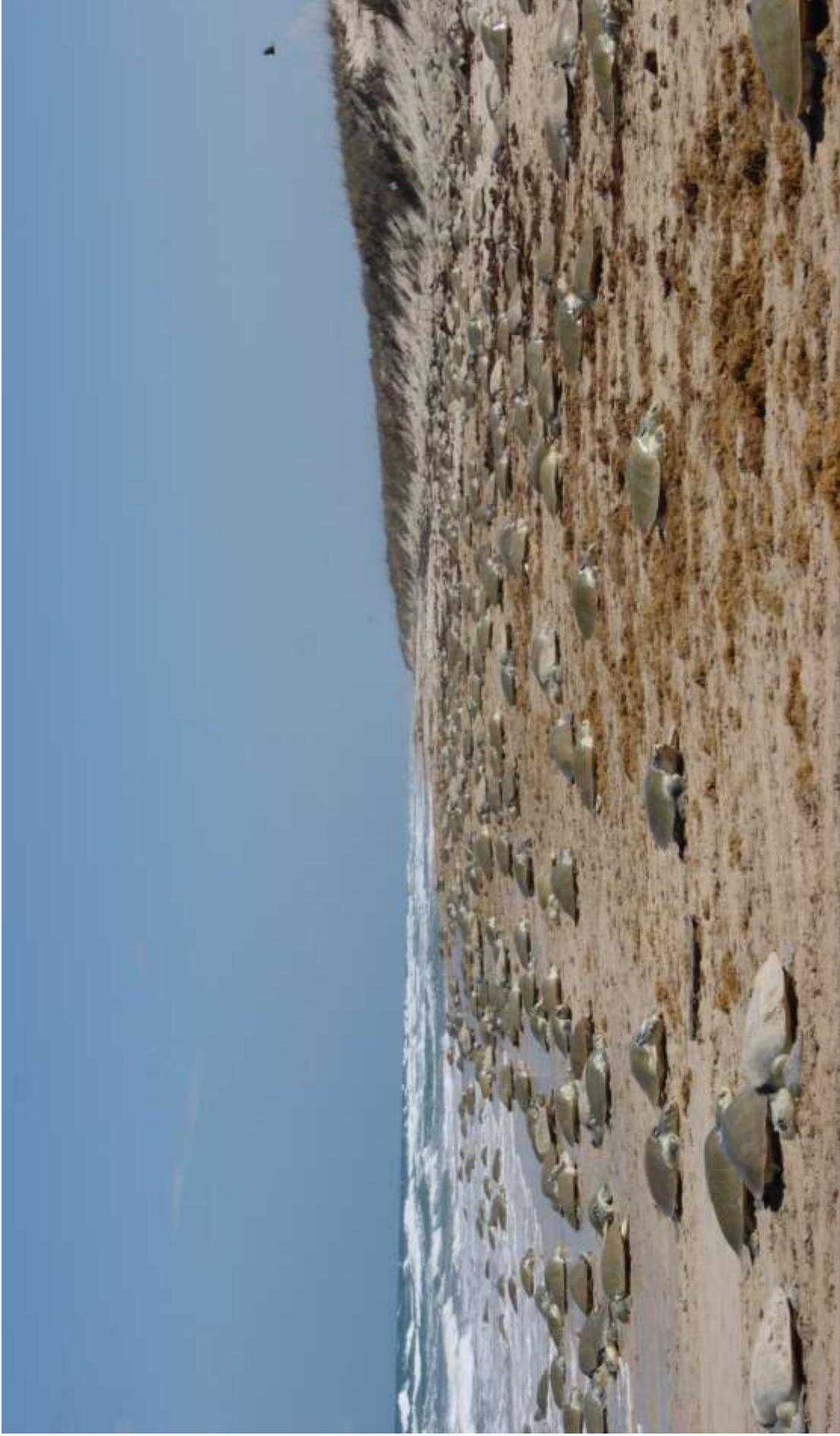


Geographic location of the primary nesting beaches

PHOTOS



20,570 nests were recorded in Tamaulipas during the 2011 Season. 94.1% of these nests occurred in the 78 miles of beach comprising the Tepehuajes, Rancho Nuevo and Barra del Tordo Sea Turtle Field Stations.



On June 5, an estimated 7,000 nests were registered on the south side of the Rancho Nuevo beach. This nesting event shows that a major step towards the recovery of the Kemp's ridley species has been taken: Rancho Nuevo is starting to become an "arribada beach" once again.



Tropical Storm Arlene on June 29, 2011 - from NASA



Close to 85% of the nests laid during the June 5 arribada were lost to the storm surge caused by Tropical Storm Arlene and the tropical disturbance that preceded it. The storm surge from Arlene raised sea levels two to four feet above normal in many areas of the Tamaulipas coast, including Playa Miramar, Playa Tesoro, Playa Dos, and Rancho Nuevo.



Over 690,000 hatchlings were released from the coasts of Tamaulipas into the Gulf of Mexico during the 2011 season.



21,797 nests were recorded in Tamaulipas during the 2012 Season. 92.6% of these nests occurred in the 78 miles of beach comprising the Tepehuajes, Rancho Nuevo and Barra del Tordo Sea Turtle Field Stations.



Gladys Porter Zoo crew member Amy Bonka measures a nesting female at the Rancho Nuevo beach.



Over one million hatchlings were released from the coasts of Tamaulipas into the Gulf of Mexico during the 2012 season.



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.



Dr. Thane Wibbels, Amy Bonka and Elizabeth 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.



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



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.



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.



Gladys Porter Zoo crew member Tiffany Anderson 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.



A Kemp's ridley nesting female arrives at the sargassum-covered beach of Rancho Nuevo on May 3, 2014. Over 12,053 nests were recorded in Tamaulipas during the 2014 Season. The first nest was recorded at the Tepehuajes beach on April 2; and the last one at the Rancho Nuevo beach on August 28.



More than 3,200 Kemp's ridley hatchlings make their way into the Gulf of Mexico from Playa Tesoro, Altamira on July 4 - the last massive hatchling release of the 2014 Season on that beach. Over 565,000 hatchlings were released from the coasts of Tamaulipas into the Gulf of Mexico during the 2014 season.



14,006 Kemp's ridley nests were recorded in Tamaulipas during the 2015 Season. The first nests were recorded at the Barra del Tordo beach on April 15, 2015. The photo above is of a solitary nester at the end of April at the Rancho Nuevo beach. Below is a snapshot of an Arribada at Rancho Nuevo that occurred from May 31 to June 2, 2015.



Over 5,700 nests were registered in the Arribada that occurred from May 31 to June 2, 2015 at the Rancho Nuevo beach.



More than 680,000 Kemp's ridley hatchlings were released from the coasts of Tamaulipas into the Gulf of Mexico during the 2015 season. The last Kemp's ridley nests registered in Tamaulipas were recorded at the Rancho Nuevo and Tepehuajes field stations on August 18, 2015. The last Kemp's ridley hatchlings were released into the Gulf of Mexico from the Rancho Nuevo field station at the end of September 2015.

NOTES

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