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Endangered Species - Coastal Louisiana. 8/88

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Duval Building
9450 Koger Boulevard
St. Petersburg, FL 33702

T&E Species

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Mr. Howard J. Haiges, Jr.
Chief, Special Programs Division
National Park Service
Denver Service Center
P. O. Box 25287
Denver, CO 80225

Dear Mr. Haiges:

This is in response to your letter of December 21, 1979, requesting information on the presence of endangered species in coastal Louisiana by February 1, 1980.

It would have been of assistance to us to view the map described in Section 910 as we cannot tell where, what type, or how much aquatic habitat is involved. Generally speaking, however, the Kemp's ridley, leatherback, and loggerhead sea turtles are known from that area. Enclosed is a recent report by Dr. Henry Hildebrand that indicates a concentration of Kemp's ridleys in the Louisiana coastal area.

If we can be of further assistance, please contact Carol Justice, Endangered Species Biologist, at 813-893-3366.

Sincerely yours,

E. J. Brakke

for William H. Stevenson
Regional Director

Enclosure



ABSTRACT

All of the five species of sea turtles in the western Gulf of Mexico have declined in abundance in every state from Louisiana to Yucatan with the possible exception of the leatherback, Dermochelys coriacea, because of an intense depredation by man on both the eggs and the subadults and adult turtles.

The major feeding grounds of the Kemp's ridley are identified as the crustacean rich grounds of Louisiana and the Tabasco-Campeche area of the southern Gulf. This places both the feeding grounds and the nesting grounds in the western Gulf of Mexico.

The historical decline of the green turtle fishery in Texas is partially charted. At its peak it was in excess of 500,000 pounds and the catch was virtually nothing when the catch of turtles was outlawed in 1963. Evidence was presented that climatic conditions as well as overfishing played a role in this decline.

The small population of loggerhead turtles in the waters of Texas is being further depleted by incidental catches in shrimp trawls.

The state of Tamaulipas at least in most years is not an important feeding grounds for turtles but it is an extremely important nesting grounds for the Kemp's ridley and in the past for other species as well.

The state of Campeche has the greatest landings of any state in the western Gulf but the catches of all five species which occur there have been declining for more than a decade.

Louisiana is the most important feeding grounds for the Kemp's ridley and the species could well be renamed the Louisiana turtle.

A HISTORICAL REVIEW OF THE STATUS OF SEA TURTLE POPULATION IN THE WESTERN GULF OF MEXICO

The data base for this survey leaves much to be desired. In Texas, the turtle fishery began about the middle of the last century and by 1900 the catch had declined to insignificance. In other words, one is left with the chore of writing the obituary of fishery which disappeared before any scientific gathering of data was attempted. In Louisiana, on the other hand, an organized fishery never existed. However, an unknown but sizeable number of turtles became a delectable part of the shrimpers' diet while at sea. Again this type of exploitation by excellent Cajun cooks leaves few records. On the Mexican Gulf coast until the middle of this century, turtles were regularly taken in a subsistence type fishery and very few animals were sold outside the local village. Turtle statistics gathered from tax records are available from 1948 to the present, however there is no breakdown by species. Since 1966 data have accumulated from a good scientific program developed by the Mexican fisheries department. Rene Marquez has contributed greatly to these investigations.

Laud or leatherback, Dermochelys coriacea

Information on the leatherback is very sparse in the western Gulf of Mexico. It is occasionally taken by shrimp boats in offshore waters, but the numbers are so small that one cannot classify this mortality as significant. Furthermore there seems to be no data that can be used to assess changes in abundance of the leatherback over the years.

Leary (1957) observed on December 17, 1956, an estimated 100 leatherbacks along a 30 mile line extending north from Port Aransas, Texas. The turtles were apparently feeding on the dense aggregations of cabbage head jellyfish, Stomolophus meleagris. This jellyfish is carried out of the bays by the strong currents produced by the northers. This concentration of feeding leatherbacks so near the beach is unusual but undoubtedly they are attracted to these jellyfish concentrations which occur each year with the onset of winter. After the cold wave of January 31 to February 2, 1951, I observed two dead leatherbacks adrift in the channel at Port Aransas. The potential for heavy mortality in winter schools of leatherbacks is certainly present but no records of such a catastrophe has been unearthed in interviews or in the literature.

The species is certainly widely distributed in Mexican waters, but only in Tabasco (Marquez 1976) have small concentrations been reported. These aggregations are found particularly off Barra de San Pedro during

the months of August to October or November.

Nesting records are rare. Hildebrand (1963) reported the species nesting at Little Shell on Padre Island. One report was based on the record of a taxidermist who had mounted one in 1928. It was turned on the beach and he still had an egg preserved in a mason jar in his shop from this turtle. The other authority for nesting leatherbacks was Lewis Rawalt, an Audubon warden and a recognized authority on Padre Island. He had observed the species nesting in the mid-1930's and he had taken a picture of one occurrence. I have no records of leatherbacks nesting on Padre Island during the last 40 years.

The nesting of the species in Mexico is based on 'informed' individuals. The species has nested in the past at Rancho Nuevo, Tamaulipas according to residents of this rancheria. A few times in the past, they had rendered a leatherback for oil. The oil is reputed to have medicinal value particularly for skin and lung disorders. The leatherback will produce up to thirty liters of oil according to my informant. Apparently the species is also used for shark bait in Yucatan according to Carranza (1959). Fishermen at Anton Lizardo have told me that the species occasionally nested on a nearby island. Carranza (1959) also reported the species nesting on Alacranes.

Carey or hawksbill, Eretmochelys imbricata

According to the information available to me the hawksbill is the rarest marine turtle in the Gulf. However, despite the gathering of eggs and the capturing of turtles at all sizes for the curio trade, a small population has persisted at Veracruz during the 25 years that I have known the area. According to Veracruz fishermen the species nests from Isla Lobos to Anton Lizardo. They also state that the species 'prefers' to nest on stormy nights. Perhaps, this explains its persistence in Veracruz. Although the species is not readily taken with ordinary commercial gear, it is easily captured by skin divers. According to Carranza (1959) and Fuentes (1963) the species is taken in small numbers in both Campeche and Yucatan, but its greatest abundance is in Quintana Roo on the Caribbean coast of the peninsula, a region outside my purview.

There are few records of the hawksbill from Texas. Most specimens which I have seen are small individuals (in their first year of life) that wash upon the beach in a moribund condition. Some of these have survived when cared for in aquaria. In 25 years of observations on the Texas coast I have seen only two hawksbill which were captured in a healthy condition.

One was caught along the jetty at Port Mansfield and the other at an off-shore oil rig. Both of these specimens were small, possibly in their second year of life. There are no records for adult hawksbill from the coast of Texas or Louisiana.

Cahuama or loggerhead, Caretta caretta

In the western Atlantic the greatest concentration of loggerheads is found along the Atlantic coast from North Carolina to southern Florida. Smaller concentrations are found along the entire Gulf coast from the Florida Keys to Quintana Roo. Lund (1973) estimates the eastern United States population at 25,000 to 50,000 adult loggerheads. There is no reliable count for loggerheads elsewhere in the Gulf. It is certainly an ubiquitous species but its total number is small. The species is regularly fished in the waters of the Yucatan peninsula where its center of abundance is certainly on the Caribbean side. There is a secondary but much smaller concentration in the state of Campeche. For example, Fuentes (1963) gives a catch of approximately 365 cahuama for Campeche during a year. Since the fishermen will capture everyone they can, this catch is indeed, indicative of a small and depleted population.

In Texas information gathered by me indicates that the species occurs throughout the summer as isolated individuals around oil field platforms, rock reefs and obstructions. Sports fishermen may, at times, see large adults feeding on Portuguese man of war at considerable distance from the coast. There may be a southward migration in the fall and a northward one in the spring but this has not been confirmed by tagging data.

There is no fishery for the loggerhead in Texas. It was utilized before World War I by the inhabitants of the coastal villages and a few were marketed. In recent years a number of dead loggerheads strand on the beach. Rabalais and Rabalais (in press) have studied the strandings of marine turtles on the coast of south Texas from Cedar Bayou to Brazos Santiago. They logged 202 dead loggerheads during the period from September 1976 to October 1, 1979. Most of these turtles were subadult (98 per cent were smaller than 76cm). Strandings were greatest during the fall and spring and in this sense they were correlated with peak inshore shrimping for white shrimp. A few loggerheads are also snagged by sports fishermen, but most of them are released unharmed because it is illegal to harm turtles in Texas. There has been no organized tagging effort on the Texas coast because of the small and scattered population. However over the course of several years in the early 1960's my students tagged eight loggerheads. One half of these tags were recovered within a year. These results support a high mortality rate due to the activities of man. Dead turtles on the beaches of south Texas is not

a new phenomenon, but no counts were made during the early 1950's when I frequently traveled the beach.

Nearly all substantiated records for nesting loggerheads are in the eastern Gulf of Mexico. There is a record of a loggerhead nesting on Chandeleur Island (Ogren 1977) and many reports of turtle tracks possibly this species on the same islands. I have reports of fishermen gathering loggerhead eggs on Grand Isle in the 1930's. Texas is usually placed in the nesting range of the loggerhead mainly on the basis of 'informed' observers. A number of reports of the nesting of large turtles where the species was not determined must surely be this species. Indeed, the now nearly 300 year-old account of the gathering of sea turtle eggs by members of La Salle's illfated expedition may refer to the loggerhead. However, I have been able to fully document only two nests--one in 1977 and the other in 1979 on south Padre Islands. Hatchlings from these nests were identified by me.

In Mexico I have gathered numerous reports of the tracks of large turtles on the beaches of Tamaulipas north of La Pesca and in Veracruz from Tampachichi to Barra de Corazones. In any case whether these nests prove to be the loggerhead as I think they will may be of little importance because almost all of them are soon despoiled by man. Isolated individuals do nest in some years at Rancho Nuevo, Tamaulipas. Loggerheads also nest around the peninsula of Yucatan, but most of the known sites are on the Caribbean side rather than the Gulf.

Lora or Kemp's Ridley, Lepidochelys kemp

Although the Kemp's ridley was described a century ago by Garman, most of the information of the species has been gathered during the past 25 years. There was no organized fishery for the species anywhere except as a by-catch of a green turtle fishery near Cedar Key, Florida. It is probable that the gray loggerhead eaten occasionally by Port Aransas prior to World War I was a ridley.

Hildebrand (1963) estimated the nesting population at Rancho Nuevo at 42,000 ridleys based on a statement of Andres Herrera and an analysis of the areal concentration of the turtles in the film. Exploitation of this population has been high for an undetermined number of years. In fact, the colony was located by following up a chance remark of a friend that an Arab trader packed out jute sacks full of eggs on a pack train of 40 or 50 burros. Although the data from the investigators cannot be used to make precise population counts on the nesting ground, it is obvious that the population has declined. At the start of the investigations in the late 1960's a few thousand (5 to 6000) nested there, but by 1975 it had declined to a few hundred. However, since that time there has been a very slight increase in the number of nesters.

Exploitation of this rookery prior to its official protection in 1966 was confined almost entirely to the collection of eggs. In fact this activity was so widespread in the 1950's and the early 1960's that the demise of the species was predicted (Hildebrand 1963) if it was not stopped. I am not personally aware of any large scale butchering of turtles for their meat or skin, although I have heard and seen such reports. A permit to slaughter ridleys was granted in 1970, but fortunately the arribada did not arrive on schedule and only five turtles were killed according to official accounts.

One can legitimately ask if the present rookery at Rancho Nuevo in the Municipio de Aldama is the sole survivor of many former nesting colonies along the Gulf coast or is it unique. There is no clear evidence of the species nesting in arribadas elsewhere along the Gulf coast. There are records of scattered nesting from Port Aransas to Alvarado, Veracruz. In regard to the rookery at Rancho Nuevo, fishermen from Rancho Cruz told me that the lora nested by the thousands at Rancho Nuevo and by the hundreds in the area from Punta Jerez to Barra del Tordo. E. Liner (pers. comm) informs me that this species probably nested on Ile Derniere in Louisiana and Percy Vioscai stated that it nested on the Chandeleur Islands. It is interesting that Ogren (1977) saw a small turtle which may have been this species crawling up a beach in the same general area more than a century later. Positive identification could not be made from the air, but daytime emergence and small size indicate a ridley.

In outlining the life history of this species, many inferences have been made on scanty data. The following hypothesis best explains the existing data on the Ridley in my opinion. First, the species feeds primarily on decapod crustaceans particularly two genera (Ovalipes and Callinectes) of the swimming or portunid crabs. Portunid crabs occur in the greatest concentration in Louisiana and the Tabasco -Campeche area of Mexico. Secondly current patterns-- either the loop current for northward transport or an eddy for southward transport--favor the distribution of the Ridley to the two areas. It is recognized because of the variability of these current that large number of young in some years could be transported through the Florida Straits via the Gulf Stream. The sporadic nature of the records from the Atlantic coast certainly support this contention. Most of the turtles which pass through the straits are probably lost to the population. It is possible that some do make it back to the ancestral nesting grounds. Particularly if we compare the long migrations from the crab rich grounds off the Guayaquil area of Ecuador to nesting grounds in Mexico by its congener the olive ridley. Thirdly, temperatures are favorable in both areas for the ridley. The Mississippi River has built a ramp across the shelf and the water temperatures are not subject to as much fluctuation as elsewhere in the western Gulf and if these water can support a winter population of king mackerel, Scomberomorus cavalla, there is no reason that they cannot support feeding ridleys. Furthermore

oranges are grown at Venice, Louisiana, the only place on the Gulf coast north of 27°. Fourthly, the offshore drift lines of logs and other debris from the rivers should provide a hiding and feeding place for the young juveniles. There are accounts by sports fishermen of seeing large number of small turtles in such areas. However, conditions must be ideal (flat calm) if one is to see the turtles. These small turtles have not been caught and identified but their location points to the ridley and this is further supported by the behavior pattern reported for its congener in the Pacific. Fifthly, young ridleys were formerly taken in shrimp trawls in shallow water near the outer Gulf beaches. Liner (1955) did not give catch rates for the eleven ridleys caught off Terrebonne Parish in 1952 in 12 feet of water. However these data do give support to a catch rate of one ridley per trawler per day during the spring of the year; his turtles ranged from 7 to 58 pounds. However, many of the ridleys caught off Louisiana then and now were under ten pounds in weight. The utilization of the Tabasco-Campeche white shrimp grounds by immature ridleys is supported by my observations with accompanying fishermen's statements at Dos Bocas, Tabasco and Fuentes (1963 and 1967). Sixthly, the use of both areas as feeding grounds by the fully mature adult is supported by tag returns from nesting females (Chavez 1969). The existing data from tag returns and incidental capture at sea support the concept that the species migrates primarily alongshore rather than in the open Gulf. It is also probable that the mature turtles frequent deeper water than the immatures, e. g., Carr and Caldwell (1948) reported a mature female from 14 fathoms off Terrebonne Parish. In other words the Kemp's ridley nests in arribadas at Rancho Nuevo, Tamaulipas and the feeding grounds for the subadults and adults are the highly productive white shrimp-portunid crab beds of Louisiana (Marsh Island to the Mississippi Delta) and Tabasco-Campeche (Chupilco , Tabasco to Champoton, Campeche). As in the case of the nesting grounds there is some leakage of individuals and small groups to other areas away from the primary sites.

New information will be difficult to obtain because the present law on endangered species has virtually dried-up all information from the fishermen who accidentally catch the species and this makes tagging programs hardly worthwhile in elucidating migrations and mortality.

Tortuga blanca or green turtle, Chelonia mydas

The history of the green turtle fishery in the western Gulf of Mexico still remains to be written. The fishery was the first to develop in the new state of Texas and it was the first to disappear.

The fishery was little more than a memory by 1900. The historian will have the difficult job of separating fact from fiction in the letters, diaries, newspaper accounts and the brochures of promoters. In any case the abundance of large green turtles in the bays were commented upon by the first European entrepreneur and settlers of the state, particularly the Germans. When trade started with markets outside the state of Texas is uncertain but it must have been shortly after independence from Mexico. Turtles could be shipped by schooner to New York or they could go by steamer to New Orleans and then be transhipped to other points. This was an ideal method because the turtles could be shipped alive. The other method was to process the turtles into meat and soup which could be transported as a canned product. Again there is some question when the first cannery was established. Certainly, one was in operation in 1859 when 15,000 dollars worth of turtle soup was canned at Indianola. However, there is an indication that the first cannery was established ten years before that date in 1849. The cannery ran an ad. in the Corpus Christi Ranchero for four months in 1860. The cannery would pay four dollars for every turtle delivered to Indianola. No mention was made of size or species, but perhaps, that was understood by the fishermen. In any case this cannery disappeared probably very early in the Civil War years. After the war and the yellow fever epidemic of 1867 there was again interest in food processing in Texas. Turtle canning came to be closely associated with the beef packeries. At first the packers salt-cured beef in the winter and rendered the animals for tallow in the summer. Ray Stephens (pers. comm.) informed me that the waste was deposited in the bay and it attracted large number of turtles. I assume that the packers thought if they were going to fatten the turtles they might as well can them for a profit. Turtle canneries were reborn at Fulton, Texas probably in 1872. In 1877 the cannery was buying turtles at two cents a pound. A catch of eleven turtles in one week at Shamrock point during the last half of September 1877 was recorded in the Mercer diary.

Charles Stevenson (1893) made a canvas of Texas fisheries for the U. S. Commission of Fish and Fisheries. He reported a catch of 585,000 pounds of green turtle for the entire coast of Texas. Nearly all the turtles were caught in Aransas Bay, Matagorda Bay and the lower Laguna Madre. Most of the turtles were caught in turtle nets--490,000 in Aransas Bay and 48,000 pounds in the lower Laguna Madre. In addition 45,000 pounds were caught in fish seines in Aransas Bay and 2000 pounds in Galveston Bay. The main fishing town on Matagorda Bay, Indianola, was destroyed by a hurricane in 1886. The city was also destroyed by the 1875 hurricane, but this time they called it quits and the city was not rebuilt. The fishermen moved to Aransas or Corpus Christi consequently the Matagorda Bay statistics for 1890 are included in the figures given above. for Aransas Bay, the point where the landings took place.

A reading of the scattered accounts of the fishery shows it was primarily prosecuted from April to November. The turtles were said to be in poor condition in the early part of the year but fat from August to November. Whether the turtles migrated southward in the winter is not clear. John Priour (pers. comm.) told me that after severe cold waves a few people would take wagons along the south shore of Corpus Christi turning moribund turtles on the way out and loading them into the wagons on the way back. It was real hard work loading a 400 pound turtle into a wagon. The turtles were carted to John Superach, a local restaurant owner, who would buy them. One might wonder why the fishery was so intense when the price was never more than 2 cents a pound and the average catch was less than one turtle per day. According to John Priour in other types of work you worked with both hands from sunup to sundown for 50 cents a day, so turtle fishing even if you caught one 400 pound turtle a week was attractive to a number of people

Mostly the turtle nets were set near the major passes but within the bay. The majority of the turtles were caught as they returned to their feeding grounds from their nightly resting places in the deeper water of the bay. In the lower Laguna according to Viktor Delgado (pers. comm.) they used a different method. A man was placed in the mast of a Port Isable scow to find the turtles and determine the direction they were moving in the clear water. They would sail around the turtle and set their nets across his path.

The turtle cannery which packed 900 green turtles weighting 243,000 pounds in 1890 (Stevenson 1893) moved to Tampico in 1896 apparently because of a greater supply of turtles in that area. In any case the fishery deteriorated badly in the last half of the 1890's. The severe freeze of 1894-95 was a disaster and the much more severe freeze of 1899 provided the coup de grace. Others blamed overfishing particularly on the nesting grounds for the failure of the fishery to recover from the freeze. Still others placed the blame on the jettying of unjettied passes or the shoaling of passes like Cedar Bayou after 1899. Nevertheless, a few continued to turtle in a desultory fashion. Harry Mills (pers. comm.) hung up his turtle nets for the last time in 1935. He told me that he thought he was the last turtler on the coast. A few were marketed as a by-catch by fishing and shrimping crews until it became unlawful in 1963.

Green sea turtles still inhabit the same meadow they did before the turn of the century but in greatly reduced numbers. The greatest concentration is in the lower Laguna Madre near Port Isabel. A fishermen with a trot line and good location might catch five in a year, all small. They are usually foul hooked in the flipper and can be readily released.

The nesting grounds of the green turtle are not well known in the Gulf of Mexico and the nesting grounds for the greens which supported the fishery in the nineteenth century in Texas were never identified. Some still nest on Cayo Arcas, Cayo Arenas, Arrecife Alacranes and Arrecife Triangulos on Campeche Bank. An occasional green still nests at Rancho Nuevo. Repeatedly, individuals have told me that the species regularly nested at Playa Washington prior to World War II. This location is approximately 12 miles south of the mouth of the Rio Grande. Neck (1978) reported green turtles nesting at the mouth of the Rio Grande in 1889. I believe this is in error and that these turtles were ridleys. The most probable nesting place for Texas green turtles are the beaches between Boca Jesus Maria and Tuxpan. Certainly if the movement of a turtle cannery from Fulton, Texas to Tampico in 1896 made sense, it was certainly because it was near the nesting ground for the green turtle as no significant feeding grounds are found there.

Areal Status and Outlook

In this section I will review the turtle population in each state in the western Gulf of Mexico. Again, I must point out as in the species accounts that there is a paucity of data.

- Louisiana

Kemp's ridley could be logically labeled the Louisiana turtle because its greatest abundance is found there.. It is beyond a doubt the commonest marine turtle in the state. However, it is concentrated in the shallow water from Marsh Island to the Mississippi Delta. Based on information supplied by the shrimpers it has declined greatly in abundance during the past 25 years. There appears to be little prospect for a quick improvement in its survival status.

One would expect the highly productive waters of Louisiana to support a significant number of leatherbacks at least seasonally. Perhaps the populations are there, but there are no supporting data.

Louisiana is not now and probably never was a major nesting area for marine turtles.

Texas

The most important species in Texas was and is the green turtle which fed in the seagrass meadows from Matagorda Bay to the lower Laguna Madre. Again, as one must repeat continually, we know very little. It is probable that the population is now increasing, but this is based solely on the number of reports we receive concerning the species. It is possible that the increased protection and head starting in Isla Mujeres has resulted in emigration to Texas. The greatest threat to an improved situation in Texas may be a reduction in the acres of grass beds by dredging.

The subadult loggerhead population is obviously under stress because of heavy mortalities due to trawling. Under present fishing pressure along the coast one would expect the mortality to increase.

The ridley occurs in Texas in small numbers and it is probable that all adult ridleys moving from Louisiana to the nesting grounds stay near the coast the entire trip. As in Louisiana and Tam_aulipas they are subject to loss in shrimp trawls.

The leatherback feeds on cabbage head jellyfish, and although it may be locally abundant, it is not greatly affected by human activity in Texas.

The sand beaches of Texas are now and apparently always were of minor importance as nesting beaches. Two of the three species that formerly nested in the state still do, but in smaller numbers.

Tamaulipas

Tamaulipas has been known for years as an important nesting area. The only major rookery for Kemp's ridley occurs at Rancho Nueva. Its beaches were also nesting sites for the loggerhead and the green, although today few use them. The production of turtles in the state has apparently always been small. On the other hand, the eggs have been heavily exploited. Very few nests are overlooked by man outside the heavily protected area at Rancho Nueva.

Veracruz

In contrast to the desolate coast of Tamaulipas many people live near the coast in the state of Veracruz. All five species nested along the coast and the eggs and even the adults were subject to intense depredation by man. The northern part of the state around Cabo Rojo was probably an important nesting site for the green turtle and possibly for the loggerhead. The area from Isla Lobos to Alvarado was a good nesting and feeding ground for the hawksbill.

The catch according to official records has always been small. However, the fishery, although of a subsistence nature, has always been very intense. Turtle nets are still used near the city of Veracruz although the expectation of the fishermen is very low. For example in one village five turtles were caught during the season -- two green turtles while I was in the area at the end of October 1979.

Tabasco

The fishery in Tabasco has always been small. The principal species is Kemp's ridley. No major nesting beaches are known in the state.

Campeche

Campeche has for a number of years been the most productive state in harvested turtle resources in the Gulf of Mexico. In part, this is due to two

major fishing ports and more qualified fishermen than any other state on the east coast of Mexico, but it is also due to more productive waters. In addition to nesting beaches at Isla Aguada and Isla Carmen there are extensive feeding grounds for green turtles, loggerheads and ridleys. The catch has declined considerably in recent years, and there seems little prospect for improvement in the near future.

Yucatan

Production has always been small in the state and the few active nesting grounds are located on offshore cays and arrecifes.

Summary and Conclusions

All species of marine turtles in the Gulf of Mexico with the exception of the leatherback have declined drastically in every area of the western Gulf of Mexico because of the exploitation of the eggs and the adults. In the case of the ridley and the loggerhead significant mortality is caused by shrimp trawlers. The ridley is more subject to capture by trawlers because of its concentrations in areas of crustacean abundance.

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