

BRIEFING STATEMENT

DATE: June 17, 1993

TO: Dave Flemming, Chief, Endangered Species

FROM: Ren Lohofener, Coordinator for Sea Turtle Recovery

SUBJECT: Kemp's Ridley Sea Turtle Mass Stranding in Louisiana: Part II

The mass stranding of juvenile Kemp's ridley sea turtles in the vicinity of Grand Isle, Louisiana appears to be over. As of June 14, 1993, the stranding rate was down to about one small ridley per one or two days.

It is unlikely that we will ever know for sure the cause of the mass stranding. Mr. Larry Ogren and I spent three days in the Grand Isle area, walking beaches and talking to the local people. In 1986, Larry was working in this general area of Louisiana and witnessed a similar incident. We found circumstantial evidence of what may have been the cause of, or at least contributed to, the 1993 mass stranding. The following are our observations and my hypotheses.

Synopsis

In late May, strong north winds and a full moon caused strong tides. As a result, much of the marsh was exposed at low tide. Large runs of shrimp were coming out of the marsh and riding the current through the passes. Hundreds of shrimp fishermen, using the butterfly net type of fishery, were fishing the passes that separate Barataria Bay from the Gulf of Mexico. In the passes, the boats using butterfly nets were so thick that it would have been impossible to swim in a straight line through the pass and not encounter one or more nets. Also, shrimp trawlers were working the passes and the nearshore Gulf of Mexico waters. The juvenile Kemp's ridleys were either following the crabs and shrimp out of the marsh, or leaving with the strong tides; in either case, they were in the passes. The juvenile turtles were captured by the shrimp fishery. The juvenile turtles may have been entangled in the butterfly nets and drowned, may have been repeatedly captured by butterfly nets and the repeated forced immersion eventually caused them to become debilitated, and they drowned, or they may have been captured by shrimp trawlers and drowned in the nets. A day or so later, they began to wash ashore on the Grand Isle beaches, the only beach habitat in the area.

Rationale:

- Based on historical literature, and numerous accounts and observations, the Louisiana salt and brackish water marshes, and nearshore Gulf of Mexico waters, are believed to be a major, perhaps the major, habitat for juvenile, subadult, and adult Kemp's ridley sea turtles. Kemp's ridleys favored prey are crabs, especially blue crabs, and the Louisiana habitats abound with blue crabs.
- After hatching at Rancho Nuevo, Mexico, the hatchling Kemp's ridleys are believed to spend about two years offshore, riding the currents and probably foraging on anything they can catch in the masses of seaweed floating in the Gulf of Mexico.
- When they are about 20 cm in shell length (two or more years old), the juvenile Kemp's ridleys start showing up in shallow water habitats from Texas to Florida, with the major area of abundance thought to be Louisiana. Researchers that have studied Gulf of Mexico currents believe the Kemp's ridleys are probably transported to the nearshore habitats by gyres that spin off of the Loop Current.
- We know almost nothing about the life history of the ridleys in the shallow nearshore and marsh habitats. They probably spend the next 12 to 15 years, the period before they reach sexual maturity, following the crabs as they move in the marshes and the nearshore waters. In winter, they must move out of the very shallow bays and find warmer water. Except for shrimp trawlers, we have little knowledge of other threats to the turtles in these habitats.
- After reaching sexual maturity, the females go ashore and nest every one, two, or three years at Rancho Nuevo. After the nesting season, adult male and females disperse and return to shallow water Gulf of Mexico habitats.
- In May, 1993, a projection of the Loop Current was close to shore just west of the Mississippi River. It may be that a large number of juvenile Kemp's ridley sea turtles were transported by the current to the nearshore waters near Grand Isle. Once nearshore, the ridleys would have moved into the marsh habitats associated with Barataria Bay (the waters inland of the Grand Isle barrier islands). However, every year juvenile ridleys move from the open Gulf habitat to the inshore habitat and it may be that the inshore waters in the Grand Isle area are a naturally preferred habitat.
- The mid to late-May weather in southern Louisiana was unusual. The winds, sometimes strong winds, were from the north. Usually, by late May the winds have switched to the south. About the third week of May, the moon was full. The north winds and the full moon caused unusually strong tides.

- The strong tides caused unusually low water in the marsh, especially at low tide, and the conditions coincided with the start of the shrimp season. Butterfly nets are a favored method of catching shrimp in shallow water Louisiana habitats. Butterfly nets are shrimp nets put on a rectangular frame, perhaps 10 feet high and 15 feet wide. One net is on each side of the boat or barge (hence, the name "butterfly nets"). From the large rectangular opening, the net tapers back to a point, some 30 or 40 feet from the opening. If the tide is strong, the boat or barge may remain stationary in the channel, lower the nets, and let the outgoing tide or current, carry the shrimp and bycatch into the nets. Once lowered, the nets are not raised, just the tail end of the net (bag) is brought on board to dump the catch.
- The shrimp, along with the other aquatic marsh fauna, were pulled out of the marshes by the low tide. The juvenile Kemp's ridleys either followed the crabs and shrimp or were also traveling out with the tide. Once in the passes the juvenile sea turtles encountered the butterfly nets and, just outside of the marshes and passes, shrimp trawlers.
- A state employee told us that his son is a shrimp fisherman and uses butterfly nets. He was catching 2 to 3 small sea turtles per night in pass east of Grand Isle. He said the sea turtles were released alive. Another individual, with years of experience with the shrimp fishery in this area, told us that the butterfly nets were underwater for up to 12 hours. Just the bag of the net is dragged aboard to dump the catch. However, the individual said that it would be very easy for a small sea turtle to become entangled in the folds in the net before reaching the bag. If so, the entangled turtle could be held underwater for a period of time long enough to drown.
- Another possibility is that the butterfly nets were so numerous that a juvenile turtle would get caught in one, become oxygen deprived, be brought aboard and tossed overboard alive, only to encounter another net and be held under again. The juvenile turtles could have been drowned by repeated forced submersions.
- Shrimp trawlers (shrimpers) were also fishing the area. The National Marine Fishery Service (NMFS) believes most shrimpers were complying with the regulations that mandate use of turtle excluder devices (TEDs). However, NMFS reported that the shrimpers were using the TEDs with the escape hatch on the bottom and without floats. Hence, the trapdoor that could allow a sea turtle to escape the net would have been dragging on the bottom and might not let a small turtle escape.
- We watched two shrimp trawlers that were fishing close to shore and neither had a hard frame TED in the nets. About one-half of the large shrimp boats we observed tied up along shore had either circular or square hard frame TEDs in their nets. However, we would have been unable to see soft TEDs (TEDs made of netting and without frames) and we also could not see if the trapdoors on the TEDs were tied shut.

- People that talked to us, not knowing we were representing the Fish and Wildlife Service (Service), told us that many shrimpers did not use TEDs, and those that did use TEDs had them rigged so the trap doors would not open. No one told us that TEDs were being used as required by regulations.
- The Loop Current may or may not have been responsible for concentrating juvenile Kemp's ridleys in the area. We know so little about Kemp's ridleys in Louisiana marshes it is possible that Barataria Bay is a favored habitat for the juvenile turtles. The strong north winds and full moon coincided with the opening of shrimp season. Large runs of shrimp were forced out of the passes and shrimpers concentrated on the fishery. The Kemp's ridleys were incidentally captured and, by whatever method, were drowned.
- Coincidentally, a menhaden fishery boat captured, killed, and dumped a large school of menhaden which began washing ashore on Grand Isle beach. Because Grand Isle beach, about 5 miles long, is the only swimming beach in eastern Louisiana, the dead fish attracted attention and a clean up began. During the clean up the sea turtles were discovered.
- There is very little beach habitat in this area. Most of the terrestrial habitat is rugged marsh accessible only by boat or float plane or helicopter. Consequently, the numbers of dead sea turtles were surely much greater than just the numbers found on the beach. A juvenile Kemp's ridley of the same size was found, during the same time period, on Isles Dernieres (an island about 45 miles east of Grand Isle). However, a portion of Timbalier Island (about 30 miles east of Grand Isle) was searched and no recently stranded Kemp's ridleys were found. Breton Island National Wildlife Refuge personnel searched about 10 miles of beach (islands west of the Mississippi River) and did not find any stranded sea turtles.
- By early June, the winds were from the south and the moon was no longer full. The conditions that had caused such a large shrimp run were over and the fishery effort had subsided. Numbers of stranded sea turtles decreased to only one turtle per 2 to 3 days.

This unfortunate event has exposed a flaw in the effort to recover the Kemp's ridley sea turtle. Kemp's ridley sea turtles spend the majority of their life in shallow Gulf of Mexico habitats and probably a good portion of life is spent in salt marsh habitats. Yet, we know almost nothing of the life history of Kemp's ridleys in these habitats. Except for shrimp trawlers, we do not know the threats to the sea turtles while they are in these habitats. Many of these threats may be within the jurisdiction of the Service to mitigate or prosecute.

The Service, probably in conjunction with NMFS, needs to fund a study of the distribution and life history of Kemp's ridley sea turtles in Louisiana salt marsh habitats. Sea turtles could be captured with either gill nets or trawls. The small turtles could have radio transmitters attached. Larger sea turtles might have satellite transmitters attached. The life history of blue crabs in these waters is well known. The data from the sea turtles could be correlated with what is known about blue crab ecology. It may be that understanding blue crabs is sufficient to predict the distribution of Kemp's ridley and the threats they may encounter.

I suggest that the Service try to find a minimum of \$40 K in FY94 to initiate the study. NMFS should be asked to contribute an equal amount. The Service's National Wetland Research Center in Lafayette could be a focal point for coordination of the studies.

cc:

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