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Ridleys Tagged with Passive Integrated Transponder (PIT)

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With the cooperation of Jack Woody, U.S. Fish and Wildlife Service, Albuquerque, New Mexico, and Dr. James Dixon, Department of Wildlife and Fisheries Science, Texas A&M University, College Station, Texas, the National Marine Fisheries Service (NMFS), Southeast Fisheries Center, Galveston laboratory's Sea Turtle Head Start Research Project has tested the passive integrated transponder (PIT) as a tag for Kemp's ridley sea turtles (*Lepidochelys kempi*). The PIT tag¹ essentially is a pre-programmed microchip capable of receiving and transmitting specific radio signals. The signals received by the transponder from the reading device induce it to emit a signal which is normally converted by the reading device to a numerical code containing up to nine digits. PIT tags have been used successfully to mark salmon smolt, rockfish, tuna, swordfish, and marlin (Glenn Callahan, NMFS, NFWC, Seattle, Wash., pers. comm.).

We PIT-tagged eight turtles (averaging 2443.6 g total weight, 25.2 cm straight-line carapace length, and 23.2 cm straight-line carapace width) from the 1985 year class of Kemp's ridleys. Tags were placed intramuscular in the left front flipper posterior to the radius bone of four of the turtles and in the carapace at the left fifth marginal scute in all eight turtles. Tags were placed in the flippers using a syringe and plunger applicator. Tags were placed in the carapace by first drilling a hole in the shell with a 3/32" drill bit, inserting the PIT tag, and plugging the hole with hystoacryl-blue (B. Brunmelsungen¹).

At 147 days post-tagging, two of the eight PIT tags embedded in the carapace had been lost, two remained in place, and four were in the process of being expelled. The four PIT tags that had been injected into the left front flipper were still in place as verified by x-ray. All tags, including those that had been expelled from the carapace, were interrogated with the reading device and all responded with the proper identification number. The PIT tags in the carapace were then removed, cleaned, and disinfected with 70% ethanol.

The PIT tags removed from the carapace were placed in the left front flipper of those turtles that had not been tagged previously. Unfortunately, an error was made and two PIT tags were placed in the left front flipper of two turtles that already had tags there. The error was not detected until the turtles were x-rayed to verify tag retention. Interestingly enough, upon interrogation by the reading device both tags were recognized and the proper identification numbers of each tag were displayed, one after the other. The PIT tag shows great promise as a potential life-time tag for individual sea turtles. Manufacturer's specifications suggest the life span of the tag equals the life span of the tagged animal. It causes no adverse tissue reaction when implanted intramuscular in the flipper of the Kemp's ridleys, though we recommend against its implantation in the carapace.

¹ Mention of brand names or commercial products should not be construed as an endorsement or recommendation for use.