



Report to the Western Pacific Fishery Management Council



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*Building a Legacy of
Science & Management*

Pacific Islands Fisheries Science Center

The Pacific Islands Fisheries Science Center (PIFSC) conducts research in a wide variety of programs that may be of interest to the Western Pacific Fishery Management Council (Council). This report is organized around the research divisions of the PIFSC as a series of highlights.



NOAA Fisheries Pacific Islands Region Observes 10 Year Milestone

Technical Breakthrough in Tagging Enables Individual Identification of Hatchling Sea Turtles

Over the past 4 years scientists in the PSD's Turtle Research Program (TRP) have devised and demonstrated a first-ever effective, safe, humane, and practical means to tag newly hatched (5 cm) green turtles, enabling life-long individual recognition of the turtles. The marking of hatchlings in such a manner has been hoped for and periodically pursued by researchers for the past 50 years as a way to advance understanding of turtle ecology and population dynamics. While year-classes of hatchlings have been marked using carapacial tissue grafts and wire-coded tags, tagging to yield individual identities has not been realized.

Working closely with veterinarian Dr. Robert Morris and Jeffrey Pawloski of Sea Life Park Hawaii (SLPH), TRP researcher George Balazs collaboratively developed the

technique using the same Passive Integrated Transponder (PIT) microchip tags employed with larger sea turtles since the mid-1990's, when such tags came into common use to identify dogs and cats. The challenge for Balazs, Pawloski, and Morris was to insert the tag under the skin at a location on the hatchling where it would not only cause no harm, but also stay in place so that detection with a portable electronic reader would be possible as the turtle increased in size to adulthood (90 cm or more, about 100 kg).

Many tests were conducted using salvaged hatchlings that had died of various natural causes over the years. The outcome of this tedious work was determining that the ideal site for insertion of the PIT tag was a dorsal region of a hind flipper. Trials were then conducted on a small number of live captive-bred hatchlings at SLPH. A hind flipper of the turtle was first treated with 1% Lidocaine HCL USP pain block. After inserting the 11 x 2mm glass-encased sterile PIT tag, the tiny puncture of the injection site was sealed using a drop of Vetbond 3M Tissue Adhesive. After these trials, several groups of turtles were subsequently raised in captivity up to 45cm with no negative effect to health or rate of growth. The technique and results of the study were formally presented to peers at the 2013 International Sea Turtle Symposium.

The tagging technique has been approved for use under the US Fish and Wildlife Service permitting process. Thus far, 1,831 newly hatched green turtles from SLPH have been tagged and released into the wild using the new procedure. It is significant to note that the SLPH has been captive breeding green turtles since 1976, as a by-product of their educational display turtle lagoon built with a small sand nesting beach. During this time, over 14,000 newly hatched turtles have been produced and released into the Hawaiian seas by SLPH staff. Sea turtles at SLPH have been and continue to be a valuable asset for an array of high-value cooperative research endeavors.



Application of PIT tag on a newly hatched green turtle.



X-ray of green turtle shows location of PIT tag in dorsal region of right rear flipper (lower flipper in image) 1-yr after insertion.