

Archival Pop-up Tagging of Pelagic Fishes and Sea Turtles, Continued from page 5

tags deployed on turtles should act in a similar fashion, allowing researchers to determine unequivocally the mortality of released animals.

Preliminary findings have started surfacing (literally) in the initial stages of research projects intended to determine, among other things, the survivability of bigeye tuna (*Thunnus obesus*), yellowfin tuna (*Thunnus albacares*), blue marlin (*Makaira nigricans*), bigeye thresher shark (*Alopias supercilliosus*), blue shark (*Prionace glauca*), longfin mako (*Isurus paucus*), oceanic white-tip shark (*Carcharhinus longimanus*), swordfish (*Xiphias gladius*), and sea turtles (Green *Chelonia mydas*, Leatherback *Dermochelys coriacea*, Loggerhead *Caretta caretta*, olive ridley *Lepidochelys olivacea*) caught and released from commercial longline gear. We are using model PTT-100 Archival Pop-up tags in our projects to resolve a number of environmental and behavioral details about the animals, including:

1. daily depth distribution and horizontal and vertical movement patterns;
2. the effects of oceanographic conditions on the sharks' vulnerability to longline gear;
3. the survival rates of sharks captured and released from longline gear; and,
4. stock identification, dispersal and possible fishery interactions.

Last November we traveled to Costa Rica where the incidental capture of sea turtles (primarily olive ridleys) in fishing gear is very high. Our goal was to investigate whether free-swimming green turtles exhibited different behaviors than longline caught and released animals. We affixed archival tags to control animals (n=3) (i.e., caught by divers free swimming) and ones caught directly from longline gear (n=4) (Figure 2). Although horizontal movement patterns for the two groups appeared to be similar and indicated neritic behavior, the vertical behavior differed. While turtles that had been hooked rarely made dives greater than 100m depth, control animals frequently made dives beyond 200m depth. Further studies such as these will provide solid baseline

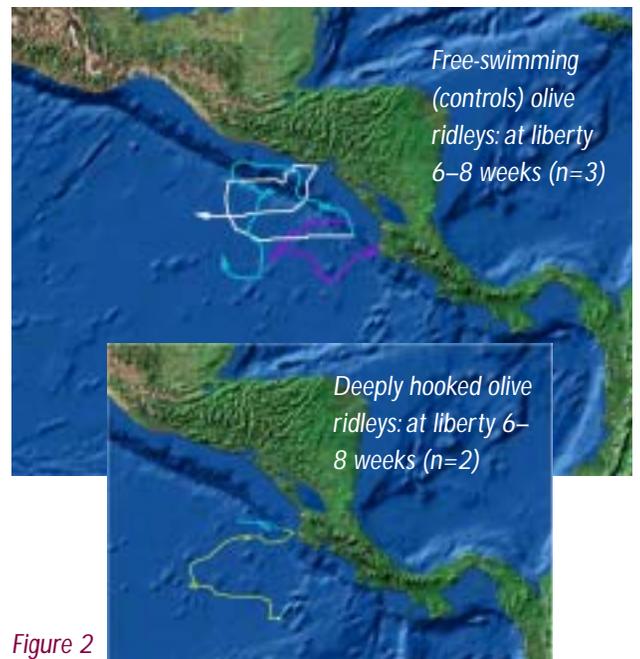


Figure 2

data in which to infer the mortality and morbidity of turtles released from fishing gear.

As for the mortality of tags, there are perils out there besides loss due to sinking, implosion, shedding and shark nuptial bites. We got an e-mail from a Japanese longliner to let us know they had pulled in one of our tagged sharks. The funny thing was, no data had uploaded from the tag even though it should have already. We contacted them to ask about it, and it turned out the crew had put the tag in a tackle box or something, and stored it in the wheelhouse. We figure the tag couldn't establish a link with the satellite because its signal couldn't penetrate the metal of the box or the wheelhouse roof. We asked the ship's crew to place the instrument outside and the tag started to transmit archived data on temperature and depth experienced by the shark for nearly one month. ❖

Current field studies are led by NMFS scientist Dr. Richard Brill and by Drs. Michael Musyl and Yonat Swimmer of UH-PFRP. Other personnel contributing to the success of the projects include crew and officers of the NOAA RV *Townsend Cromwell*, Tom Kazama, Dan Curran, and Lianne Mailloux. For more information, contact Mike Musyl (mmusyl@honlab.nmfs.hawaii.edu).

You need to know...about new Argos IDs

You no doubt have noticed that newer Argos ID numbers are larger than those issued years ago. The new Argos ID numbers are larger than 32768 and are "28 bit" IDs whereas the older ID numbers are 32767 or smaller and are "20 bit" IDs. PTTs with 28 bit IDs require a slightly different sensor format than ones with 20 bit IDs. Be sure Argos is aware of the proper sensor format for each PTT ID you are using. (We will be giving Argos sensor format templates to help them insure you have the correct format for your particular PTT.)

We program in the Argos ID provided by you early in the production process. However, we run final tests through the satellite before shipment. If the ID is found to be in backup service, or no longer in the customer's program, we cannot access the test data. This brings production to a halt until the problem can be resolved.

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