

## American Fishermen's Research Foundation Involvement in Tagging Pacific Albacore Tuna ©

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Since the 1970's the American Fishermen's Research Foundation (AFRF) has worked in collaboration with the National Marine Fisheries Service Southwest Fisheries Science Center (SWFSC) in tagging studies of albacore tuna. Through these studies, much information has been learned about albacore tunas' trans-Pacific migrations in their younger years between Japan and the Westcoast of North America. Although these early studies proved extremely informative, the extent of oceanographic conditions influence upon young albacore tuna behavior, as well as the timing, extent and routes of migrations are poorly understood.

As a result of this lack of information, a long-term Archival Tagging Project was undertaken in the Spring of 2001 by AFRF and SWFSC. The project is a five-year program that entails surgically implanting high-tech tags in approximately 100 albacore tuna in each of the years 2001 through 2005 for a total of 500 tags deployed by the end of 2005.

The archival tags are sophisticated, small electronic data-logging devices that record depth, water temperature, internal temperature of the fish, and ambient light levels for a period of up to four years. The tags are cylindrical and are roughly three inches long and 1 inch in diameter with an 8 inch stalk connected at one end. The tags are surgically implanted in the abdominal cavity of the fish with the stalk protruding outside. The albacore tuna are tagged by guiding the hooked albacore tuna into a large, modified sling. After carefully guiding it into the sling, it is carefully raised out of the water and brought aboard the chartered fishing vessel using 4 long wooden dowels, 2 attached to each end of the sling. It is set in a tagging cradle that is positioned on the stern rail of the vessel. The dowels are unhooked from the sling and the albacore tuna is positioned in the cradle for tagging. After the surgical tagging is accomplished, the albacore tuna is lifted in the sling and released off the stern, back into the ocean. A video of the tagging procedure may be viewed online at [http://swfsc.nmfs.noaa.gov/albacore\\_tag/](http://swfsc.nmfs.noaa.gov/albacore_tag/).

To date, 16 archival tags have been recovered. Ideally, it is our goal to recover at least 50 archival tags. From the retrieved data on the recovered archival tags, it is known the longest time a tagged albacore tuna was at liberty was 367 days and the greatest net movement between the release and recovery locations was 206 nautical miles. Depth and temperature recorded by the tags indicated a pattern of repetitive diving by the albacore tuna between the surface and depths greater than 492 feet throughout the day, with nights spent in the upper 130 feet. Individual dives routinely exceeded 30 minutes into waters as cold as 45° Fahrenheit. Stomach contents of the recovered albacore tuna included a mixture of mesopelagic animals including pelagic red crabs, anchovies, sardines, and myctophids, suggesting they are feeding on the deep scattering layer, as well as surface feed.

This cutting edge project has provided the first ever detailed records of North Pacific albacore tuna behavior from the eastern Pacific ocean. Some of the recovered data was surprising to researchers, such as the dives of some albacore tuna to depths of nearly 4,000 feet in ocean

waters as cold as 45° Fahrenheit. Most revealing was that the albacore tunas' north-south movements off the coasts of California and Baja California were extensive, yet none made trans-Pacific migrations.

As more tags are recovered, the data are expected to provide new insights into the north Pacific albacore tuna stock structure and habitat use patterns of these juvenile fish. This information is essential for federal fish managers to use to make better decisions regarding fishery management.

For more information about this project, or any other American Fishermen's Research Foundation research project contact Wayne Heikkila, Executive Director, American Fishermen's Research Foundation at [wfoa@charter.net](mailto:wfoa@charter.net) or AFRF, P.O. Box 992723, Redding, CA 96099.

Also contact Dr. Suzie Kohin, SWFSC at (858)546-7104 regarding this collaborative archival tagging project.