



Shark Tagging News



A Newsletter of the CDFG Shark Tagging Program

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Welcome to the California Department of Fish and Game (CDFG) Shark Tagging Program Newsletter. This newsletter is dedicated to all of our volunteers, past and present, who make the tagging program possible. Welcome aboard to our new taggers, and thank you again to all of you who continue to support this program!

As some of you know, the Shark Tagging Program has gone through a few changes this year. One major change was Leanne Laughlin moving on to a different part of our project. She continues to help out with the tagging program as needed, and has been a great mentor to me.

-John Ugoretz, Marine Biologist



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1997 TAGGING OVERVIEW

This year 52 active volunteers in the program tagged 1,156 sharks, bringing the program total to over 8,900 sharks (Table 1). Twelve species of shark were tagged; blue shark (*Prionace glauca*), bull shark (*Carcharhinus leucas*), leopard shark (*Triakis semifasciata*), longfin mako shark (*Isurus paucus*), sevengill shark (*Notorynchus maculatus*), shortfin mako shark (*Isurus oxyrinchus*), sixgill shark (*Hexanchus griseus*), smooth hammerhead shark (*Sphyrna zygaena*), soupfin shark (*Galeorhinus zyopterus*), thresher shark (*Alopias vulpinus*), tiger shark (*Galeocerdo cuvier*), and white shark (*Carcharodon carcharias*). During 1997 twenty tagged sharks were recaptured, bringing the recapture total to 139 (Table 1). The recaptures consisted of thirteen mako sharks, four blue sharks, two sevengill sharks, and one leopard shark.

Table 1. Summary of tagged (T) and recaptured (R) sharks, 1983-1997 (includes sharks tagged by CDFG and NMFS biologists).

| | 1983-96 | | 1997* | | Total | |
|-----------------|-------------|------------|-------------|-----------|-------------|------------|
| | T | R | T | R | T | R |
| Blue Shark | 5296 | 38 | 1164 | 4 | 6460 | 42 |
| Shortfin Mako | 1427 | 71 | 655 | 13 | 2082 | 84 |
| Angel Shark | 107 | 6 | 0 | 0 | 107 | 6 |
| Thresher Shark | 69 | 1 | 7 | 0 | 76 | 1 |
| Basking Shark | 57 | 0 | 0 | 0 | 57 | 0 |
| Sevengill Shark | 51 | 3 | 7 | 2 | 58 | 5 |
| Leopard Shark | 29 | 0 | 4 | 1 | 33 | 1 |
| White Shark | 13 | 0 | 3 | 0 | 16 | 0 |
| Soupfin Shark | 4 | 0 | 1 | 0 | 5 | 0 |
| Spiny Dogfish | 4 | 0 | 0 | 0 | 4 | 0 |
| Smoothhounds | 3 | 0 | 0 | 0 | 3 | 0 |
| Other Species | 11 | 0 | 9 | 0 | 20 | 0 |
| Total: | 7071 | 119 | 1850 | 20 | 8921 | 139 |

*1997 preliminary data

The overall recapture rate for 1997 is 1.0%, continuing a downward trend over the past two years. Both the mako shark (1.9%) and the blue shark recapture rate (0.3%) were about half those of last year. This is possibly due to the El Niño conditions this year (see "El Niño or Not", page 3). Sharks may have relocated due to higher than normal water temperatures last summer.

The capture and tagging of hammerhead sharks off Santa Catalina Island, a tiger shark off San Diego, and a bull shark off Palos Verdes are also indicative of El Niño conditions. All of these species are very uncommon this far north.

SHARK MIGRATIONS

MAKO SHARKS

Of the thirteen mako sharks recaptured this year all but two were caught in the Southern California Bight, within 50 nautical miles (nm) of where they were tagged. One of these sharks was at liberty for nearly two years, the rest were at liberty for one year or less. Of the makos caught over 100 nm from their tagging location, one was recaptured 25 miles off Point Loma, California. It traveled at least 106 nm in less than two months. The other was caught off Monterey Bay. It traveled at least 300 nm in about a year and a half (Figure 1).

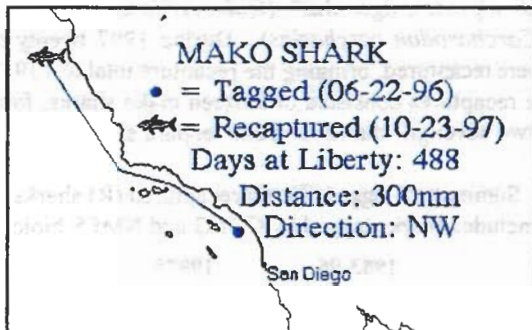


Figure 1

BLUE SHARKS

Four blue sharks were recaptured in 1997. Two were caught within 50 nm of their tagging locations, after almost two months at liberty. Another was caught in 10 days, only 1 nm from its tagging location. This blue was returned to the water unharmed. The fourth blue moved at least 132 nm in 31 days. It was caught near Todos Santos Island, off Ensenada, Mexico (Figure 2).

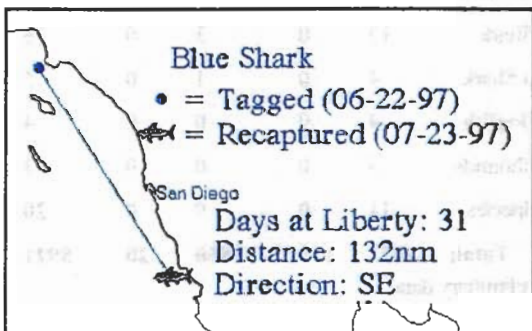


Figure 2

SEVENGILL SHARKS

Two sevengill sharks were recaptured this year. The first had been at liberty for two and a half years and was recaptured within 1 nm of its tagging location in San Francisco Bay. The second sevengill moved at least 190 nm in over two years. It was tagged in San Francisco Bay and recaptured off the Avila Pier, in Port San Luis, California (Figure 3).

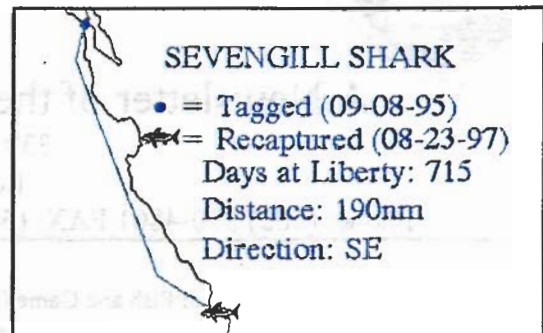


Figure 3

LEOPARD SHARKS

For the first time since the program began, a leopard shark was recaptured this year. The shark was at liberty for nearly 2 and a half years and had only moved about 3 nm. It was tagged and recaptured in San Francisco Bay. In that time the shark grew 9 inches.

Also, this year we tracked down the origin of an unknown leopard shark tag we had previously been unable to identify. This shark was tagged by a researcher in San Francisco Bay in 1979 and recaptured off Palos Verdes in 1990. In the 11 years it was at liberty it grew about 1 1/2 feet and gained 18 pounds. The shark was probably around 20 years old. It is the first and only record of a leopard shark moving from central to southern California.

1997 TOP SHARK TAGGERS

Two of our taggers tagged over 700 sharks this year. Way to go!

Joseph Singer (524) Keith Poe (219)

All of our top taggers this year had over 10 sharks tagged. Thank you all for your efforts:

| Tagger | No. Sharks Tagged |
|------------------|-------------------|
| Deana Poe | 61 |
| Sean VanSommeran | 48 |
| Guy Irwin | 38 |
| Ross Deardorff | 33 |
| Dave Casper | 28 |
| Mark McNees | 25 |
| Donald Bragg | 22 |
| Dexter Henkle | 18 |
| Mark Wagner | 15 |
| Randall Holman | 12 |

PROGRAM ACTIVITIES

This summer, the National Marine Fisheries Service (NMFS) conducted three shark tagging cruises on the *R/V YELLOWFIN*. In July NMFS tagged sharks off Baja California, Mexico, in conjunction with Mexican researchers. CDFG and NMFS have formed partnerships with Mexican biologists, which allow a greater flow of information between our countries. In late July and early August the *R/V YELLOWFIN* worked in the Southern California Bight from San Diego to Santa Cruz Island. Five hundred and four sharks (418 blue sharks, 85 mako sharks, and 1 soupfin shark) were tagged on the NMFS cruises.

In September CDFG conducted its shark tagging cruise aboard the *R/V MAKO*. Several volunteers assisted with the cruise, including some of our shark taggers. The CDFG biologists and volunteers tagged a total of 193 sharks (168 blue sharks and 25 mako sharks). All cruises used longline gear to capture sharks.

On the CDFG cruise a new "shark sling" was used to weigh and collect tissue samples from some of the larger sharks. This new method was devised with the help of Keith Poe (see "Shark Tagger Weighs In", below) one of our top taggers. The sling allowed data to be collected for sharks that would have been impossible to bring on board before. Catch per unit effort data was also collected and will be used as part of an ongoing shark abundance assessment.

We had the opportunity to attend two shark fishing tournaments this summer. The Oceanside Invitational Mako Shark Tournament was again very helpful and cooperative in allowing us to attend. In Oceanside, 16 new taggers joined the program and 19 sharks were measured for length frequency information.

We also attended the Marina Del Rey Mako For Dollars Tournament. This tournament is in its second year and growing. Six new taggers joined the program and 9 sharks were measured at the tournament. The winning shark was a tagged mako, and excellent recapture information was obtained. Both of these tournaments encourage tag and release of sharks under four feet in length. We look forward to participating again next year.

"SHARK TAGGER" WEIGHS IN

Keith and Deana Poe are two of our top volunteer shark taggers. Keith has been with the program for several years and is a constant source of help, including signing up new taggers whenever he can. Deana joined the program late this year after fishing with Keith and



photo courtesy K. Poe

seeing first hand how exciting catching and tagging sharks could be. "After spending plenty of time on the sidelines, helping Keith, I wanted to get out there and do what I could to help the resource."

Early in the year Keith decided to find a way to get more accurate information on the size of sharks he tagged. "Besides the enjoyment I get from fishing, I wanted to get the most information

I could to make my tagging useful." Working independently, he gathered materials and support from a variety of sources and created a shark sling connected to a davit on his boat. The sling hangs from an IGFA approved electronic scale.

On his first weekend testing the sling, Keith tagged and weighed 9 sharks. The sling was effective in subduing the larger makos and allowing lengths to be taken more accurately and sex to be determined; this has been difficult in the past. Since that time the sling has had much use and given us excellent weight information on a large number of mako and blue sharks. One blue, a seven foot female, was recaptured after it was weighed, giving us a return for Keith's efforts.

Keith's idea definitely caught on with the Shark Tagging Program. Using Keith's photos, CDFG biologists designed a sling to be used on our shark tagging cruise. Keith volunteered his time on the cruise and allowed us to use his new electronic scale. The sling vastly improved our ability to determine the sex and length of larger (>5 ft.) sharks. All but 10 large makos were measured on the cruise, and 88% had their sex determined. This compares to only 51% on last year's cruise. The help and creative ideas of anglers like Keith and Deana Poe are a valuable addition to the Shark Tagging Program.



CDFG, 1997

EL NIÑO OR NOT?

In May of 1997 scientists began noticing a typical El Niño weather pattern off the U.S. West Coast. El Niño, known by scientists as the El Niño/Southern Oscillation (ENSO), is a natural phenomenon which occurs when atmospheric pressures at opposite sides of the Pacific ocean reverse. Normal trade winds slacken, allowing a pool of warm water to flow back across the Pacific along the equator.

The effects of this warm water are usually seen off Central and South America around Christmas time. Some say the name El Niño comes from this, referring to the Christ child. This year the equatorial onset of the ENSO event began a few months later, making this year's event similar to the 1982-83 ENSO.

Locally, we began to see the effects of this event in the early summer. Sea surface temperature soared. Temperatures peaked in September, reaching 75°F or higher in the Southern California Bight. Temperatures have since declined, but remain 3° to 4°F higher than normal. Sport fishing boomed this summer. Early catches of yellowtail, dorado, and yellowfin tuna were seen throughout southern California. Our shark taggers in Monterey

began seeing many more blue and mako sharks than they do in normal years. Local taggers reported seeing fewer than normal small blue sharks.

In addition to this, several "exotic" sharks were caught. A tiger shark was caught off San Diego, several hammerheads were caught off Santa Catalina Island, and a bull shark was caught and tagged off Palos Verdes. Other interesting catches included dorado and even a striped marlin off Washington. On our shark tagging cruise, many dorado were caught on the longline. This had never happened on our cruises before and indicated a larger than normal number of these fish in the area.

Newscasters have been taken up by the ENSO fever. In June dire predictions about the coming winter storms were already being made. While these storms are a real possibility, it is very hard to predict what will come of the latest ENSO. It is, however, good to be prepared, especially when reviewing the flooding and high surf of the 1982-83 event. Even so, it is easy to agree with Milton Love in his book "Probably More Than You Want To Know About The Fishes Of The Pacific Coast" when he states that "it seems excessive to blame El Niños for increased divorce rates in Malawi, the poor showing of the Albanian National Lawn Bowling Team or the death of Elvis Presley (I think)."

SPECIAL THANKS

Special thanks are in order for several taggers. These individuals have volunteered time or loaned equipment to us this year. Frank Nielsen, Keith Poe, and Sean VanSommeran all volunteered their time to help with the shark tagging cruise. Keith has made a long term loan of the electronic scale used on the tagging cruise. Joe Singer has lent us three excellent framed photos of sharks being tagged for use at public events. He has also provided 100 stainless steel tagging tips to be distributed to new taggers.

Please contact us if you are interested in helping us beyond tagging. While we can not accept money, loans of time and

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equipment are very helpful. Of course, the help provided by all of our volunteer taggers is already greatly appreciated.

TAGGING REMINDERS

- ▶ White sharks (*Carcharodon carcharias*) are now fully protected under California law. **You may not fish for, or tag, white sharks without a special permit.** Scientists in our program tagged three white sharks this year.
- ▶ **There is a three foot minimum size limit on leopard sharks (*Triakis semifasciata*).** In addition, any shark under three feet in length should not be tagged with our "sh" tags as it may seriously injure them. Call if you would like to receive special "js" tags for small makos and blues.
- ▶ **There is a new gear restriction for sport fishing:** "Mouse Trapping" or "Jugging" gear may not be used to fish for sharks. This gear consists of a float or set of floats that is free floating, not attached to the boat. This gear is very prone to loss, leading to unnecessary waste of the resource.
- ▶ Please completely fill out the tag card as accurately as possible. Location in latitude/longitude format is very helpful. If you can not determine the sex of the shark, leave this section blank, do not guess. Be as accurate as possible on length estimates; many of our taggers attach a measuring tape to the side of the boat to help estimate size. Please list the angler if other than the permittee.
- ▶ If you catch a tagged shark, collect the same information you would when tagging a shark. If possible, leave the tag in the shark and return it to the water. Multiple tag and recapture information is more valuable than single sets. If you cannot read the tag without removing it, re-tag the shark and note the old tag number on the new tag card.