



Shark Tagging Update



The California Department of Fish and Game

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Welcome to the final edition of the Shark Tagging Update. We will no longer be issuing a yearly update after this one, but you may contact me at anytime if you would like an update on tagging and recapture data.

In December, we issued our last remaining large 'SH' tags; however, we still have a few of the small 'JS' tags available for those who are interested in tagging sharks that are less than 3 feet. For those who still have either the 'SH' or 'JS' tags, please continue to tag and send the postcards to the Department of Fish and Game's Los Alamitos office. The Department will continue to maintain the historical database and receive all tagging and recapture data.

This update is dedicated to all our volunteers who stuck with us this past year. The Department would also like to thank all of our volunteers who have tagged sharks since the inception of the tagging program in 1983. Your time, effort, and support made the shark tagging program a success.

-Valerie Taylor, Marine Biologist



2003 TAGGING OVERVIEW

This year 17 active volunteers tagged 93 sharks, bringing the total to more than 11,800 sharks (Table 1). Six species of shark were tagged: blue shark (*Prionace glauca*), shortfin mako shark (*Isurus oxyrinchus*), thresher shark (*Alopias vulpinus*), leopard shark (*Triakis semifasciata*), brown smoothhound (*Mustelus henlei*), and sevengill shark (*Notorynchus maculatus*). Nine tagged sharks were recaptured in 2003, bringing the recapture total to 242 (Table 1). The recaptures consisted of eight mako sharks and one leopard shark.

Table 1. Summary of tagged (T) and recaptured (R) sharks, 1983-2003 (includes sharks tagged by CDFG and NMFS biologists).

	1983-2002		2003*		Total	
	T	R	T	R	T	R
Blue Shark	7935	65	135	0	8070	65
Shortfin Mako	3067	144	27	8	3094	152
Thresher Shark	153	6	4	0	157	6
Angel Shark	107	6	0	0	107	6
Basking Shark	58	0	0	0	58	0
Sevengill Shark	84	7	4	0	88	7
Leopard Shark	145	5	17	1	162	6
White Shark	53	0	0	0	53	0
Soufjin Shark	7	0	0	0	7	0
Spiny Dogfish	5	0	0	0	5	0
Smoothhounds	3	0	1	0	4	0
Other Species	31	0	2	0	33	0
Total:	11648	233	190	9	11838	242

*2003 preliminary data

SHARK MOVEMENTS

MAKO SHARKS

Eight mako sharks were recaptured this year, all within the Southern California Bight. Of the eight, two were caught within 25 nm of their tagging positions. One was at liberty for a little over a year while the other was at liberty for almost two years.

Two sharks were recaptured near San Clemente Island. The first was recaptured on August 25, 2003; the second was recaptured on December 19, 2003. Unfortunately, the tagging data for both of these sharks is missing. However, based on information in our tagging database, the first shark was most likely tagged in the summer of 2000 near Oceanside, California, and the second shark was most likely tagged in the summer of 2003, either near San Clemente Island or the 175 Spot.

The remaining four sharks all traveled over 60 nm from their tagging positions (Figure 1). The first shark was tagged on August 4, 2002, at Avalon Bank. It traveled 65 nm and was at liberty for slightly over a year. The second shark was tagged near the 270 Spot on July 23, 2002, and was recaptured near La Jolla Canyon, approximately 88 nm from its point of release. It was at liberty for less than a year. The remaining two sharks were tagged near La Jolla Canyon. The first one was tagged on July 4, 2002. It traveled 89 nm and was at liberty for over a year. The second shark was tagged on August 6, 2002. It was recaptured 136 nm from its point of release and was at liberty for less than one year.

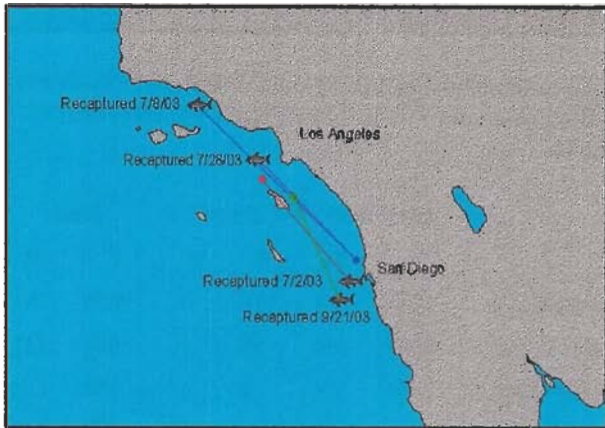


Figure 1

LEOPARD SHARKS

One leopard shark was recaptured this year. It was tagged and recaptured within the San Francisco Bay. It was at liberty for a almost one year.

2003 SHARK TAGGERS

The following permit holders volunteered their time, effort, and expenses to help continue using the Department of Fish and Game's shark tags this year. All of their efforts are greatly appreciated.

- | | |
|-----------------------|-----------------------|
| Howard Arnold | Jeff Landesman |
| Jason Blower | Mike McGill |
| David Brackman | John O'Cain |
| Donald Bragg | Keith Poe |
| Manny Ezcurra | Deana Poe |
| Walter Heim | Steve Prime |
| Guy Irwin | Debbie Prime |
| Rich Johnson | Mike Schmidt |
| Wayne Kelly | |

The Department would also like to thank the following agencies and institutions for their continued cooperation and time:

Monterey Bay Aquarium, Cabrillo Marine Aquarium, and the National Marine Fisheries Service.

SHARK TAGGING ACTIVITIES

The National Marine Fisheries Service (NMFS) conducted their annual shark tagging cruise aboard the *R/V David Starr Jordan* in June and July of this year. Two longline sampling sets were conducted each day, totaling 5,635 hooks fished at 28 sampling stations. All captured sharks were measured, tagged with conventional spaghetti tags, and released. Several were tagged with satellite transmitting tags and injected with tetracycline (OTC). The catch included 66 mako sharks, 104 blue sharks, one common thresher shark, and 30 pelagic rays.

The catch and effort data indicates an overall catch rate of 0.33 per 100 hook-hours for mako and 0.54 per 100 hook-hours for blue sharks. This catch rate continues a declining trend in catch rate for mako sharks and only a slight increase in that for blue sharks (Figure 2).

During the survey, one common thresher shark and 47 mako sharks were tagged with conventional tags for movement data. Thirty-four were injected with tetracycline for age and growth studies. (These specially tagged fish carry a white tag in the dorsal fin with a 3-digit number. This tag notifies an angler to take the fish and save a 6 inch section of the vertebra for age and growth analysis. A \$25.00 reward is offered for the return of the vertebrae of these OTC marked fish.)

Satellite pop up tags were deployed on eleven mako sharks in a continuing series of habitat, migration, and survival studies. All eleven survived the tag and release process. Early results indicate that they travel throughout the entire coastal and offshore waters from Point Conception, California, to Magdalena Bay in Baja California Sur, Mexico.

Four adult blue sharks were also tagged with satellite archival tags to define their physical habitat and rate of movement. Early results indicate that in addition to occupying the southern California bight, blue sharks will move several hundred miles offshore. There is also a cash award for the return of these satellite archival tags. - *Dave Holts, NMFS*

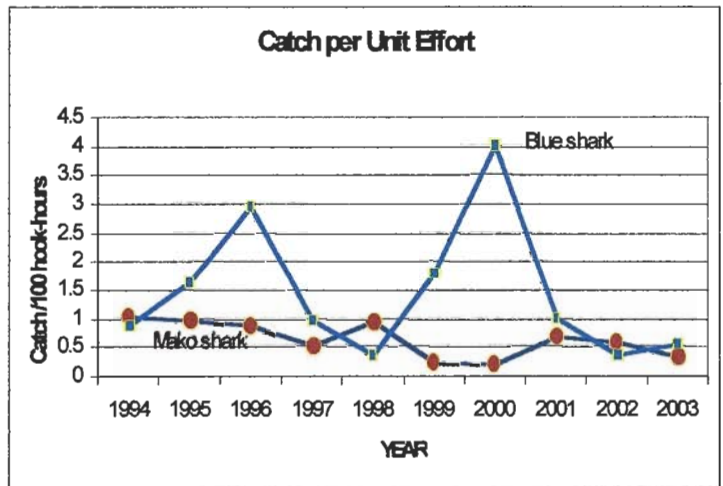


Figure 2