

Satellite tagging maps the secret migration of white sharks

April 3 2013



Great white shark

Long-life batteries and satellite tagging have been used to fill in the blanks of female white sharks' (*Carcharodon carcharias*) lifestyles. Research published in the launch edition of BioMed Central's open access journal *Animal Biotelemetry* defines a two year migratory pattern in the Pacific Ocean. Pregnant females travel between the mating area at Guadalupe Island and nursery in Baja California, putting them and their young at risk from commercial fishing.

White sharks are pelagic much of their time, living in the open ocean. However they are also philopatric, in that they return to the same place to find a mate. This commute can be far-ranging, including the Hawaiian Islands, California, and Mexico but while males have been reported returning yearly to mating sites, the behavior of females has before now

been more secretive.

Dr Michael Domeier and Nicole Nasby-Lucas from the California based Marine [Conservation Science](#) Institute mapped the [migration patterns](#) of female white sharks using satellite-linked radio-telemetry tags.

Female [white sharks](#) were found to follow a two-year migration pattern with four distinct phases. Firstly the pregnant females left Guadalupe Island, Mexico and remained offshore for most of their 18 month gestation (on average 465 days). This pelagic area was much larger than the foraging area used by males and in fact the females tended to avoid the male's foraging area while the males were present.

The second phase was a two month sojourn in the coastal waters of Baja California where the sharks gave birth. After leaving the nurseries the female sharks began a [migratory path](#) back to Guadalupe Island in such a way as to avoid males until ready to reproduce. Finally the mating phase at Guadalupe Island lasted up to four and a half months before the two year cycle began again.

Females that skipped a year of reproduction returned to the breeding site after only a single year migration.

Dr Domeier commented, "During the mating phase both males and female sharks are seen with injuries. It's unclear whether males are fighting over food or females or both, but this aggression may be why the females avoid males at other times. Our tracking has also highlighted a previously unknown period of vulnerability when the females are exposed to [commercial fishing](#) off the coast of North America."

Open access publisher [BioMed Central](#) is proud to announce the launch of *Animal Biotelemetry*. This journal joins our growing portfolio in ecology and conservation and marks a significant development in the

area of *Animal Biotelemetry* research.

More information: Two-year migration of adult female white sharks (*Carcharodon carcharias*) reveals widely separated nursery areas and conservation concerns, Michael L Domeier and Nicole Nasby-Lucas, *Animal Biotelemetry* 2013 1:2.

www.animalbiotelemetry.com/content/1/1/2

Provided by BioMed Central

Citation: Satellite tagging maps the secret migration of white sharks (2013, April 3) retrieved 29 April 2024 from <https://phys.org/news/2013-04-satellite-tagging-secret-migration-white.html>

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