



The Natural Laboratory Podcast Transcript: New Findings about Great White Sharks of the North Pacific

Introduction

This is the Natural Laboratory, a podcast exploring science for Bay Area National Parks. I'm Cassandra Brooks.

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Today I'm with Scot Anderson, a local researcher who's studied Great White Sharks here off of Point Reyes Seashore and at the Farallons for more than two decades. In the fall of 2009, Anderson and his colleagues with Stanford University's Tagging of Pacific Predators Program, UC Davis and others, published a paper on the sharks. Their study revealed new information about where the sharks travel to, how they spend their time, and showed that the shark population here off of California is genetically different from great white shark populations throughout the world.

I sat down with Anderson to find out more about the study and what it tells us about these iconic and revered animals.

Scot Anderson Interview

Cassandra Brooks: *Maybe you could tell me a little about what a typical day is like for you out in the field.*

Scot Anderson: *Yeah. OK, so a typical day going out looking for sharks, on the Farallon island runs we leave out of San Francisco now on a big sail boat called the Derek M. Baylis. It has this launch and we go to the island and launch the launch and then we work out of that for six hours on the water looking for sharks. Usually what we do is put a decoy out that's about the size of a small sea lion and then a small piece of whale blubber next to the boat, that's tied to the boat. What that does it provides an area of scent around the boat that gets the sharks interested in sticking around. And then if the shark comes around, we video tape them first, try to document what the shark looks like, who it is, and what their sex is and then we go ahead and tag them.*

CB: *How do you actually tag a great white shark?*

SA: *Yeah, how do you tag a white shark! [chuckles] It sounds like it'd be a complicated process but it's actually quite simple. You wait for the right moment, which is when the shark is at a 90 degree angle to you swimming by the boat. So then the tag is on the end of long pole and it has a harpoon like a dart on the end. Once it's embedded in the sharks' skin it's*

going to stay there until it finally pulls out, one year to two years or something like that.

CB: *And during that year to two years it's collecting data the whole time about where the shark is going?*

SA: *Yeah...okay so there are two kinds of tags we use. The first kind of tag is a satellite tag and that we put on the shark and then it records data, like the depth of the water, the temperature of the water, and light levels and things like that. And that's on the shark until a pre-programmed date that it's released. When it releases it floats to the surface and starts downloading data.*

The other kind of tag is called an acoustic tag and it makes a sound that's a signature sound for each individual shark that comes out to a number. And if they swim within a quarter mile of a receiver, it logs them in. Now these receivers are placed on the bottom and we have one Tomales Point, one at Point Reyes, two at the Farallons, and two at Ano Nuevo.

CB: *Wonderful, so people will just have these underwater devices that are just constantly picking up these pings that are individual to each shark and then you know when they are there and when they are not there.*

Scot Anderson Interview (continued)

CB: *I was hoping you could tell me a bit about the recent study that was published in the Proceedings of the Royal Society and you were co-author on this study.*

SA: *Well it's a study that pulls together a lot of different kinds of data. And so what we did was we took DNA data and looked at it and what we found is that the sharks are very closely related. And then you start looking at where the sharks have migrated to and from and it's actually an area that's well defined. They don't go much past Hawaii, maybe 500 miles beyond that, and they don't go past Midway, and they don't go north of, let's say, the line with Canada, and they are pretty much in this zone.*

CB: *But why do they even migrate as far as past Hawaii?*

SA: *So why do they go there? Well that still remains a question to be answered. But it really looks like it has to do more with breeding than feeding, because this population when they are on the coast is feeding on an abundance of food. So why would you go somewhere where there is very little food?*

CB: *You were talking that this study also shows that this population is genetically distinct, but what does that mean, it means they're not breeding with sharks from South Africa, obviously, or other areas...*

SB: *Because of the genetics, we know they are isolated up here and it's its own distinct population.*

CB: *And that seems like a very important finding in terms of understanding their role in the ecology here in the North Pacific.*

SA: *Yeah...you know when you look at the role animals have in the environment, they are either going to be a producer or a consumer. Obviously great white sharks are apex predators. They're the top of the game here. The role they play in the environment has yet to be totally understood, because we know they eat seals and sea lions—during certain times of year—and we know that they scavenge on dead whales and things, but so do other animals. Whether they are actually keeping the environment healthy and all that has yet to be seen, but probably. They must play some role.*

Conclusion

Looking out over the ocean from Tomales Point, it's surprising to think that great white sharks, among the most massive and mobile predators in the world, don't use the whole Pacific as their playground, and that they don't mate with other white sharks in the world. Instead, they follow a strict and isolating migration path between California and the Hawaii region, which as winter rapidly approaches they are

soon to embark on. Why exactly they make these vast migrations remains to be seen, but until then, Anderson and colleagues will out every fall doing more observational and tagging studies.

[Bring up music]

With the Pacific Coast Science and Learning Center, I'm Cassandra Brooks.