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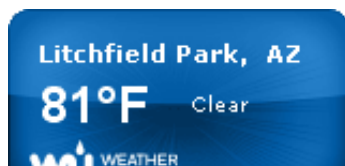
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## All aboard

Submitted by Jeannette Cruz on Fri, 10/09/2015 - 12:00am

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*JEFFREY MILLER, a biology, anatomy and physiology professor at Estrella Mountain Community College in Avondale, holds up a large blacktip shark last month before determining its weight. Miller studied sharks aboard the NOAA Ship Oregon II, an American fisheries research vessel, as part of the Teacher at Sea program. Submitted photo*

## *Avondale teacher researches sharks at sea aboard the NOAA Oregon II*

For the past two decades, the National Oceanic and Atmospheric Administration has given teachers an opportunity to gain first-hand experience working side by side with world-renowned scientists in the

Teacher at Sea program.

Jeffrey Miller, a biology, anatomy and physiology professor at Estrella Mountain Community College in Avondale, was welcomed aboard the NOAA Ship Oregon II, an American fisheries research vessel, in support of the National Marine Fisheries Service to assist scientists in a shark research expedition in the Gulf of Mexico and the western Atlantic Ocean.

The ship set sail on Aug. 31 from Pascagoula, Miss., with scientists and volunteers on board.

## **Surveying the sea**

Throughout the two-week scientific voyage from Mississippi and around to Texas, Miller applied his skills and knowledge as a NOAA volunteer to survey a number of sharks at different stations by collecting them for morphological measurements, including length and weight, and biological samples for research.

One lesson he quickly had to learn was how to properly handle a shark on deck, he said.

“At each collection, we would bait 100 hooks with a chunk of mackerel and use weights to sink them all the way down to the bottom,” Miller said. “At each site we were fishing at, we let the hooks sit for an hour.”

Crews and science teams worked together to set out hooks, haul the catch, measure, weigh and process the fish. One team, which Miller belonged to, worked from noon to midnight, and the other team worked from midnight to noon.

Tissues and fin clips were also collected for DNA and molecular studies; muscle tissues for toxicology studies; blood for hormonal studies; and reproductive organs and vertebrae for age and growth studies.

“It was honestly a lot of work,” Miller said. “You’re pretty busy most of the time — you work 12-hour shifts, get some sleep and do it all

over again.”

Crews collected a wide range of sharks, from 5-foot sharp noses to 7.5-foot tiger sharks.

“You kind of start off with the smaller ones, until you’re used to handling them, and the more experienced people handle the bigger sharks,” Miller said.

The larger sharks required caution and two hands, he said.

“My first impression of them was that they’re very strong,” Miller said. “You hold on to these things and they’re all muscle, so you have to grab the head and the tail at the same time because they’re really flexible.”

Larger sharks were placed onto a cradle and hoisted from the water to be measured and tagged.

The heaviest shark was at least 300 pounds, Miller said.

“They act like fish on deck and will flop around,” he said. “So, you could tell everyone took it really serious when we had big sharks on deck.”

Some sharks were tagged with an identification number to gather data about their migration patterns and to report information about where the same shark was re-caught.

In the process of tagging a shark, a small incision is made at the base of the shark’s dorsal fin where a long tagging needle with an identification code attached is inserted downward into the muscle.

“It’s pretty neat and a lot of smelly work,” Miller said. “It was a weird trip because when I packed for it, I was basically told, ‘Bring old clothes. Bring clothes you don’t want anymore.’ And so I packed all of the oldest and dirtiest clothes I had — it was really a lot of fun.”

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