Fear of sharks helps preserve balance in the world's oceans

June 4 2013, by Lilyvania Mikulski

(Phys.org) —A prey's fear of a shark is critical to protecting ocean biodiversity, according to researchers at Florida International University. Without this fear, a cascading effect within the ecosystem could destabilize the world's oceans.

Seagrass beds provide habitats for other fish and marine life—many of which people rely on. When predators, such as tiger sharks, rove in areas near seagrasses, herbivores including turtles and sea cows often navigate away from these areas. This prevents the seagrasses from being devoured to the point of elimination.

"Predators can have major impacts without having to eat anything, because animals will change their behavior to avoid becoming a meal," said Mike Heithaus, marine sciences researcher and executive director of the School of Environment, Arts and Society at FIU. "If there are no predators to fear, these grazers will take advantage."

The findings were published today in the *Journal of Animal Ecology*.

Heithaus, Derek Burkholder and James Fourqurean all of FIU, along with researchers from the University of Washington in Seattle and Simon Fraser University in Canada, amassed more than 15 years of studies of predators and prey combined with experimental work within the seagrass beds of Shark Bay, Australia. This is the first study to examine the viability of seagrasses where herbivore, shark and seagrass

populations are intact. Heithaus recently co-authored another study that suggests as many as 100 million sharks are caught every year, far exceeding their reproductive rate.

"There just aren't many places where sharks are still around in big numbers," Heithaus said. "The most important thing to take away is that large sharks are critical for the health of ecosystems. If we lose the sharks, we could lose seagrasses that are habitats for fish that fishermen want to catch. It's a cascading effect that has far-reaching implications."

The researchers insist that protecting these top predator populations must be a priority.

"We really need to start looking beyond just protecting what's left," Heithaus said. "We need to start talking about rebuilding these populations."

More information: onlinelibrary.wiley.com/doi/10 … -2656.12097/abstract

Provided by Florida International University