

Ear to the ground on shark sense

July 7 2014, by Tony Malkovic



Dr Ketten says no animals are naturally profoundly deaf and sound plays a critical role in animal survival, which is the basis of the ‘breed and feed’ theory of sensory systems. Credit: Klaus Stiefel

Research into how sharks hear is set to become the latest tactic to better understand and help prevent fatal shark attacks in Australian waters.

Internationally renowned marine researcher Dr Darlene Ketten will investigate shark hearing as part of her recent appointment as Professor in Imaging and Applied Physics at Curtin University's Centre for Marine

Science and Technology.

"One of the questions we've got is how and what can [sharks](#) hear and how do they use hearing to find prey?" Dr Ketten says.

"And, of course, is that linked with shark attacks?"

"Are there sounds that humans are making that are attractive and possibly causing sharks to attack, or is hearing irrelevant in that case?"

"It's very likely that particularly larger sharks are using lower frequency sounds and that in some way they're cueing on those."

She says that knowing more about what sharks hear may help with the issue of [shark attacks](#).

"My work mostly is on sensory systems and I particularly focus on hearing underwater because that's a sensory system that is critical for every aquatic animal, it's even more important than it is in air," she says.



Finding out how marine animals hear...Dr Darlene Ketten of Curtin University and former colleague Jon Lien study a stranded humpback whale following a stranding in Newfoundland. Credit: Darlene Ketten

Dr Ketten says no [animals](#) are naturally profoundly deaf and sound plays a critical role in animal survival, which is the basis of the 'breed and feed' theory of [sensory systems](#).

"If you want to hear your predators, if you want to hear your mate, if you want to hear your food, you need to have a good auditory system," she says.

Dr Ketten has relocated to Perth and will continue her long-time work on marine mammals such as whales and dolphins.

Over the years, she has carried out post-mortem studies on stranded whales and dolphins to see if their hearing played some part in the strandings.

She often employs computed tomography imaging (CT scans) and [magnetic resonance imaging](#) (MRI) to study animal hearing.

"We analyse the structure of those to help understand what that particular species can hear," she says.

"It's basic research to know more about their hearing to model the [hearing](#) of species we can't test regularly."

Dr Ketten says with sharks another technique might involve using ABR, or auditory brain stem responses, where surface sensors or electrodes are

attached to the animal to determine how well it can hear.

"From those you can look at the amplitude response and get an idea of what the animal can hear and what it can't hear and how sensitive it is to particular frequencies," she says.

Provided by Science Network WA

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