# New College of Florida Leads Groundbreaking Whale Auditory Pathways Study

SARASOTA, FL, UNITED STATES, August 14, 2025 /EINPresswire.com/ -- New College of Florida's Marine Mammal Science program is at the forefront of a pioneering neuroscience discovery. In a study published in PLOS One—Lateralized Cerebellar Connectivity Differentiates Auditory Pathways in Echolocating and Non-Echolocating Whales—Marine Mammal Science student Sophie Flem, alongside Associate Professor Peter Cook, collaborated with researchers from Woods Hole Oceanographic Institution, UC Berkeley, and Oxford University to map brain pathways for hearing in different whale species.

Partnerships between researchers and local stranding organizations provide a unique opportunity to study marine mammals that would otherwise be difficult to access. All response activities are conducted under a federal stranding agreement between IFAW and

This study was the first to use brain network imaging to directly compare auditory brain organization between echolocating (such as dolphins) and non-echolocating whales (like sei whales). The study showed that the strongest difference between these species was in the strength of connection between auditory and cerebellar brain regions, which were much denser in the echolocating dolphins. The cerebellum is a brain region specialized for rapid combination of sensory and motor signals to allow for rapid, time-pressured movement based on prediction. In other words, the dolphins may be using echolocation to build up a type of educated guess of where their fish prey are going, so they can get there ahead of time to intercept them. Many scientists have theorized that enhanced auditory processing has contributed to the evolution of dolphins' and baleen whales' uniquely big brains – by far the largest on the planet.

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> *Sophie Flem*

“Our research sought to understand how the pathways for auditory information differed between echolocating and non-echolocating whales,” said Sophie Flem, lead author and inaugural Marine Mammal Science Master’s student at New College. “In humans, primates, rodents, and dogs, we have well established maps of what parts of the brain contribute to what kind of processing. We don’t yet have those in dolphin brains, which are strikingly unusual compared to terrestrial animal brains.”

This research highlights New College’s growing reputation in cutting-edge marine science. The Marine Mammal Science Master’s program offers exceptional, hands-on opportunities for graduate students to lead original research in marine mammal science and conservation. Sophie Flem and Dr. Peter Cook acknowledge the invaluable partnership with institutions such as Woods Hole Oceanographic Institution, UC Berkeley, and Oxford University. Read more about the collaboration - X-MOLPhys.org

About New College of Florida

Founded in 1960, New College of Florida is a top-ranked public liberal arts college and serves as Florida’s Honors College. Recognized for its academic excellence, rigorous inquiry, and commitment to free expression, New College offers more than 50 undergraduate majors, graduate programs in Applied Data Science and Marine Mammal Science, and a growing NAIA athletics program.

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