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**How toothed whales echolocate to find and capture prey in the deep ocean**

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Sperm and beaked whales dive to feed on squid and deepwater fish. We have attached sound-and-orientation recording tags to study how these whales use echolocation to forage at depth. Tagged whales are usually silent when starting a dive, but start producing echolocation clicks at a few hundred meters depth, shallower than the depth at which they feed, suggesting that descending whales scan the deep layers where they will feed. Once sperm or beaked whales encounter prey, they switch from regular search clicks to a buzz of rapid clicks. Tags on beaked whales not only record outgoing clicks, but also echoes from prey at ranges out to 10-20 m. Beaked whales produce clicks every 0.2-0.4 sec when searching. Echoes from several targets are often detected after each beaked whale click. Beaked whales will pass by many targets before selecting one. Whales may switch from the search clicks to a buzz as they close within a body length of the prey. Sperm and beaked whales have an angular acceleration at the end of the buzz, which probably indicates turning to catch the prey.