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Effects of sound on the behavior of toothed whales

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We report initial results from a study on behavioral responses of beaked and other whales to sonar and other sounds. This research is designed to provide new science-based approaches for mitigating the risk of sonar to beaked and other whales. The study was conducted at the Atlantic Undersea Test and Evaluation Center (AUTECE) range near Andros Island in the Bahamas, where Blainville's beaked whales (*Mesoplodon densirostris*) can regularly be detected using passive acoustic monitoring of their echolocation clicks. Tags recorded sound at the whale and behavior of the whale. Data were collected from 10 tag deployments, 6 on Blainville's beaked whales and 4 on pilot whales. 109 hours of data were collected from tags, 74 hours from beaked whales and 34 hours from pilot whales. Playbacks of mid-frequency sonar and killer whale calls were performed on 3 of the tagged whales, 1 beaked whale and 2 pilot whales. The tagged beaked whale responded to both sonar and killer whale sounds by premature cessation of clicking during foraging dives (RL = ~ 117 dB re 1 μ Pa for the killer whale sound, ~ 145 dB for the sonar), and an unusually slow and long ascent.