

ACOUSTICS2008/1443
Effect of vessels and swimmers on the behavior of spinner dolphins
(*Stenella longirostris*) off the Big Island of Hawai'i

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Many cetaceans live in coastal waters that are accessible to humans. In Kealakekua Bay, Hawai'i human activities occur during morning hours, when spinner dolphins rest and socialize (feeding occurs at night). Five human activities (swimmers, kayaks, motorized-boats, and narrow- or broadband engine noises) within 200m of the dolphins were monitored to investigate their effect on dolphin behavior. Dolphin behavior was measured as aerial behavior (high, medium, low energy), acoustic behavior (whistles, burst-pulses, echoclick-trains), herd size, herd coordination (high, medium, low), and diving interval ($DI < 1\text{min}$, $1\text{min} < DI < 2\text{min}$, $DI > 2\text{min}$) in the presence or absence of each human activity. Interactions between human activities and dolphins occurred 71% of the time, having simultaneous presence of several human activities. When only one human activity was present, motorboats and broad-noise increased herd-coordination and number of aerial behaviors; motorboats and both engine-noises reduced number of acoustic behaviors; kayaks and narrow-noise increased herd-coordination, DI and some acoustic behaviors; swimmers reduced herd-coordination and increased number of acoustic behaviors. Therefore, all five human activities studied changed dolphin behavior and changed it differently. Spinner dolphins probably can distinguish efficiently between human activities and may be interrupting their rest cycle to warn each other, which could have effects on this species welfare.