

Whale SENSE

Stellwagen Bank National Marine Sanctuary

Research and Monitoring Fact Sheet

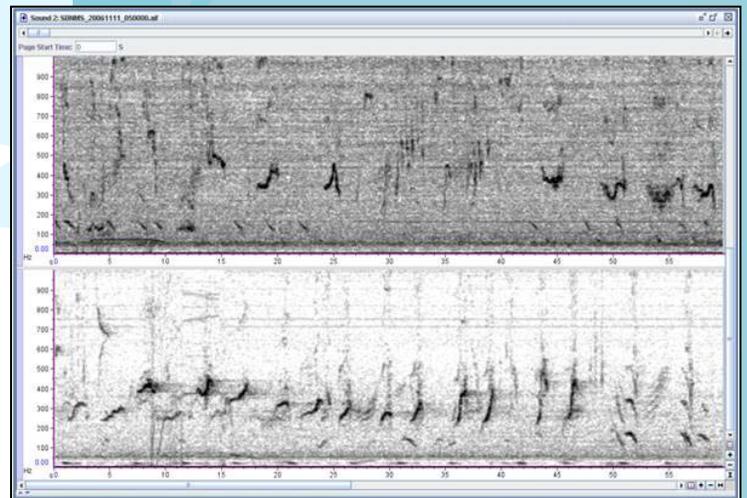
Humpback Whale Vocalizations

Understanding Songs and Social Sounds In the Humpback's Feeding Grounds

Songs, for both humans and animals, consist of vocalizations using long, deliberate, repeatable patterns. Among the most complex songs in the animal kingdom are the songs of the humpback. A humpback song consists of a series of *phrases* repeated to form what is called a *theme*. A song may have up to nine themes, sung in a particular order, and may last anywhere from a few minutes to half an hour. Humpback whales have been known to continue uninterrupted singing during daylight hours and well into the night. Songs are very loud, and can be heard in deep water over distances of 25 miles or more.

Humpback whales in different ocean basins sing their own distinctive songs, and this is certainly true for the North Atlantic population. And while whales in each population generally sing the same song, this song may change progressively over time; two songs recorded a few years apart in the same area can be radically different in form and content. Yet remarkably, all of the whales manage to keep up with these changes. How this happens—whether it occurs entirely by cultural transmission or involves some element of an innate pattern—remains one of the larger mysteries about this fascinating species.

Singers are usually lone males. It is believed that one of the principal functions of humpback whale songs is as a breeding advertisement. Singing occurs primarily, but not exclusively, on the winter breeding grounds in the tropics. In the spring of 1982, scientists were amazed to hear a humpback singing in what is now Stellwagen Bank National Marine Sanctuary. This behavior was initially deemed an anomaly, but the next few years brought more recordings of songs in northern waters – in spring, in fall, and even in the summer. Now, with year-round acoustic monitoring in the sanctuary, these vocalizations are becoming routine. The occurrence of this behavior at a time when the whales are not breeding complicates the debate concerning the function of humpback singing. Whatever their purpose, humpback whale songs remain some of the most hauntingly beautiful sounds in the world's vast ocean.



Top: Two humpback whale songs show a series of repeated sounds. With year-round acoustic monitoring, sanctuary researchers are recording numerous instances of singing in a northern feeding ground. These songs change slowly, but consistently over the winter months.



Credit: WCNE and SBMMS

Photo taken under NOAA Fisheries Permit #981-1707.

Why do whales sing in the feeding grounds? The answer is not known yet, but scientists theorize it may involve practice or play.

Social sounds are more abrupt, carry shorter distances and are used by both males and females. When humpbacks associate with other individuals in pairs or in groups, often during feeding activities, they make sporadic sounds without patterns, including grunts, whoops, groans and moans. These sounds are softer and more localized than the long-distance songs, and although they occur in social contexts their purpose is not known. Less often, males in competitive breeding groups may also make short sounds similar to those heard during feeding activities.

A newly discovered humpback whale sound has been termed "megapclicks." Similar to the sounds emitted by toothed whales during echolocation, these clicks and buzzes have been associated with forays along the seafloor. Scientists theorize that the whales may be using the sounds to chase sand lance, small schooling fish, from their hiding places in sandy sediments.