WHALE VOCALIZATIONS

**Introduction**

Water is a wonderful medium for sound—sound travels almost five times faster in water than it does in air and it also travels much, much farther. Marine mammals of all types use sound to communicate with other members of their species, and some of the odontocetes (the toothed whales) also use sound, in the form of echolocation, to locate their prey. The sounds (as you will soon hear!) vary from loud to quiet and from deep rumbles and belches to high squeaks and clicks.

Baleen whales typically produce the deepest and loudest sounds. The vocalizations of a blue whale can be less than 20 hertz in frequency and up to 188 decibels (dB) in volume. Roughly speaking, decibels are a measure of the loudness of a sound, and frequency is a measure of its pitch, or frequency. Look over Table 1 to get an idea of the loudness of some common sounds.

Low-pitch sounds, such as those made by many whales, are often inaudible to the human ear, even when they are very loud! We can feel their vibration, but not really hear them.

Sophisticated military technology capable of detecting submarine sounds from far away has been able to listen in on the sounds of a blue whale from over 1500 miles (2400 km) away!

Communication is the most likely reason for whales to vocalize. Because sound travels so well in water, whales do not have to be in visual contact with each other to "be together." Whales that are miles and miles apart may still be part of the same group and in contact with each other!

Exactly how baleen whales create sound is not well understood. Like humans, whales have a larynx, but they have no vocal cords and their paired blowholes release no bubbles when they vocalize.

**Table 1. Common sources of noise.**

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| **Sound** | **Loudness (dB)** |
| Blue whale | 10-40, up to 188 |
| Gunshot | 140 to 170 |
| Jet takeoff | 140 |
| Rock concert | 110 to 120 |
| Diesel locomotive | 110 to 120 |
| Motorcycle | 90 |
| Conversation | 60 |
| Quiet room | 50 |
| Whisper | 30 to 40 |