Galleries

Audio Gallery
Explore an extensive gallery of underwater sounds made by animals, people, and natural phenomena.

Scientist Gallery
Watch video interviews with prominent marine scientists.

Technology Gallery
Discover the tools used to measure the temperature of the ocean, track marine mammals, measure ocean currents, and much more.

Resources

Media Resources
Material designed for the media on the basics of sound in the ocean.

Teacher Resources
Activities, powerpoints, tutorials, and links designed for educators.

Student Resources
Tutorials and features designed for students.

Discovery of Sound in the Sea

Education resources include classroom activities, step-by-step instructions for building a hydrophone, and comprehensive lists of printed and Internet resources related to sound in the sea. Further additions to the website are on-going; scientists with recordings of sounds appropriate for the Audio Gallery are encouraged to contact:

Office of Marine Programs
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882
(401) 874-6211
dosits@dosits.org

Project partners
University of Rhode Island Office of Marine Programs
Marine Acoustics, Inc.

Scientific review panel
All DOSITS content has been reviewed by a panel of over 60 ocean scientists led by
Dr. Darlene Ketten, Woods Hole Oceanographic Institution
Dr. James Miller, University of Rhode Island
Dr. Peter Worcester, Scripps Institution of Oceanography

Funding provided by
Office of Naval Research
National Oceanic and Atmospheric Administration
National Science Foundation

Office of Marine Programs
Graduate School of Oceanography
University of Rhode Island
Discovery of Sound in the Sea

Sound provides a three-dimensional view of the underwater environment that is not limited by light levels. The Discovery of Sound in the Sea website (www.dosits.org) describes how marine animals and people use sound to sense their surroundings, to communicate, and to navigate.

This Internet resource provides scientific information for the general public and K–16 educators and students. It also includes advanced level content appropriate for high school physics or undergraduate classes. The website provides an introduction to underwater acoustics and explains how people and animals use sound to accomplish everyday tasks. There is also an in-depth discussion on the effects of underwater sound on marine mammals and fishes. This interactive website has three galleries highlighting sounds in the sea (Audio Gallery), current scientific investigations (Scientist Gallery), and scientific equipment (Technology Gallery).

Animals and Sound in the Sea

How are animals affected by underwater sound?

Specific sounds and increased background noise can impact marine animals. The effects vary depending upon the sounds an animal can hear, the intensity and frequency of the sound, and other variables.

How do animals communicate under water?

Marine animals produce a variety of underwater vocalizations that can be used to communicate over short or long distances. For example, humpback whales produce a series of vocalizations that collectively form a song that can be heard miles away.

Science of Sound in the Sea

How fast does sound travel under water?

In 1826, Daniel Colladon and Charles Sturm measured the speed of sound in water to be five times faster than the speed of sound in air.

How does sound travel through the ocean?

A sound channel in the ocean allows low-frequency sound to travel great distances. This channel is called the SOund Fixing And Ranging, or SOFAR, channel.

What are common underwater sounds?

The ocean is filled with a variety of sounds. Spectrograms are used to display common underwater sounds, such as these dolphin signature whistles.

People and Sound in the Sea

How is sound used to identify fish?

Fish finders use reflected sound to locate fish. Scientists hope to use the unique sonar echoes from different species of fishes in Hawaiian waters to determine population size.

How do explorers find sunken ships?

Side scan sonar is often used to find objects, like shipwrecks, on the seafloor. This sonar image is of the British freighter Empire Knight that sank in 1944 off the Maine coast.

How is sound used to measure ocean temperature?

Ocean temperatures can be calculated by measuring the amount of time it takes for sound to travel a known distance under water. Hydrophone arrays (white dots) have been used to measure the temperature in the North Pacific.