

“Discovery of Sound in the Sea” Website

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<http://www.dosits.org>

LONG-TERM GOALS

The long-term goal of this effort is to produce resources to educate the public on the basic science of sound in the sea; how it is used to communicate, navigate, and explore the oceans; and the effects of sound on marine life.

OBJECTIVES

The objective of this effort is to develop and maintain resources that address the long-term goal. The resources include a website (Figure 1), educational CD-ROM, tri-fold educational pamphlet, and informational brochure.

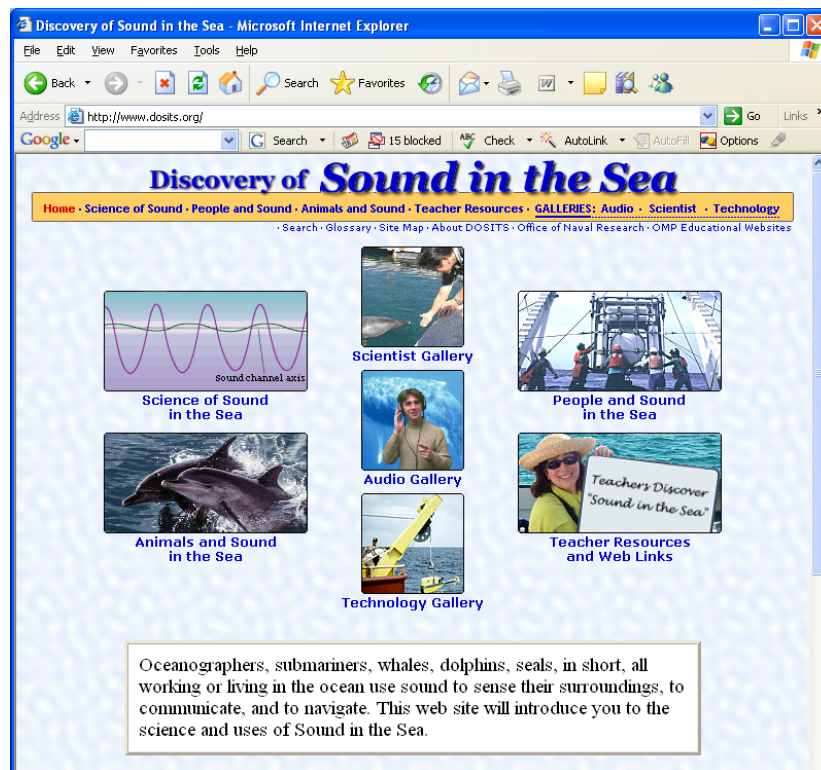


Figure 1: Front page of “Discovery of Sound in the Sea” website (<http://www.dosits.org>)

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APPROACH

Efforts have focused on enhancing and expanding the website that was launched in November 2002, and developing structured online tutorials and resources designed for the media. During the past five years, Marine Acoustics, Inc. (MAI) has developed a successful working relationship with the University of Rhode Island's Office of Marine Programs (OMP). This relationship involves MAI drafting content material and providing technical guidance for OMP staff to produce additional science content and educational materials focused on sound in the sea and the effects of sound on marine animals. The quality of material on the website is enhanced by an advisory panel and external peer review.

WORK COMPLETED

During the fifth year of research, MAI focused on several tasks to enhance and expand the website that was launched in November 2002, and to outreach to additional audiences that have not been targeted in the past. These tasks included the following:

- Development of a section on the historical perspective of people's use of underwater sound. The Acoustical Society of America recently celebrated its 75th anniversary. As part of its celebration, they published a book commemorating the history of acoustical studies and significant milestones in the development of the field of acoustics. This section discusses the development of acoustics and how people's use of underwater sound has matured as the scientific field became established.
- Creation of structured online tutorials. The website is constructed as a free-flowing environment. While this is effective, a more structured setting mimics more traditional educational resources. The structured tutorials direct the user through a series of web pages designed to lay the appropriate educational foundation and then build into more complex topics. Three structured tutorials are being developed, including a Science of Sound Tutorial and a Technology Gallery Tutorial at the high school level, and an Effects of Sound Tutorial targeting public affairs officers and the general public.
- Produce backgrounder for journalists. The DOSITS team has been responsive to requests for information from the media and has been proactive in addressing misinformation in the popular press, particularly regarding the effects of sound on marine animals. To provide a more permanent resource for the media, a backgrounder, in the form of a case study of the scientific method, was created and will be posted on the website under a new section titled "Media Resources." In addition to serving as a resource for journalists writing about sound in the sea, this will allow the DOSITS team to be efficiently responsive by pointing the media in the right direction when misinformation is published.
- As part of the initiative to outreach to the media, the DOSITS team presented a workshop for the Metcalf Institute for Environmental Reporting (<http://www.metcalfinstitute.org>). The mission of the Metcalf Institute is to promote clear and accurate reporting of scientific news and environmental issues; to strengthen understanding and working relationships between members of the scientific community and members of the news media; and to provide opportunities for journalists to learn, on both a formal and an informal level, how to improve their skills in marine

and environmental reporting. The workshop presented a case study of the scientific method using the marine mammal research that occurred as part of the Acoustic Thermometry of Ocean Climate (ATOC) project.

- Reviewing and expanding the section “What are the effects of anthropogenic sound on marine animals?” in the Animals and Sound in the Sea section. Bioacoustics is an active area of research, and the effects of underwater sound on marine animals continue to be investigated. In order to provide the most up-to-date, peer reviewed research findings to the public, this section of the website has received considerable attention.
- Revising and expanding the Audio Gallery and Technology Gallery. Presentations have been given at recent scientific conferences that have provided contacts with researchers studying and using underwater sound. These individuals have provided material to revise and expand the two galleries. In addition, Cornell University’s Bioacoustics Research Program is providing video clips that are being integrated into the Audio Gallery, allowing the website to showcase animals making sounds under water.
- Adding cross-links between existing content. The DOSITS website has grown by leaps and bounds. While an attempt was made to integrate new material with existing content, it is clear that additional cross-references between content pieces would provide a broader understanding of this complex topic. In addition, with four years of detailed web traffic data, cross-links from web pages that receive high amounts of web traffic, such as the Audio Gallery, will draw the user into pages that have traditionally received less traffic.
- Producing a CD. The CD contained the revised version of the website for use while not connected to the internet, and PowerPoint files of the major sections of the website for teachers to use in their classroom. The PowerPoint files covered the website sections of Science of Sound in the Sea, People and Sound in the Sea, Marine Mammals and Sound in the Sea, Fish and Invertebrates and Sound in the Sea, the Name That Sound activity, and the Jeopardy activity, and were accompanied by Word documents that included teaching notes and suggestions.
- Printing a tri-fold educational pamphlet and informational booklet. During 2005, the DOSITS team produced two valuable public affairs publications. The tri-fold pamphlet introduces the public to the issues and science content of DOSITS. The second publication is a 12-page educational booklet that provides an in depth look at Sound in the Sea and targeted issues for interested stakeholders, policymakers, and the public.
- Conducting peer review of the website. A review meeting with the advisory team was held at URI during November 2006 and May 2007 to review the draft revised version of the website. All new and revised content created for the website underwent peer review during this time period. In addition to the advisory team, the DOSITS scientific content has been reviewed by over 20 scientific experts (see <http://www.dosits.org/siteinfo/info1.htm> for a complete list).

RESULTS

The “Discovery of Sound in the Sea” website has received an incredible response. It was first launched in November 2002. In 2006, the site logged over 3 million “hits” during that year alone. This level of

traffic is outstanding and exemplifies the public and academic need for the information presented on the website.

IMPACT/APPLICATIONS

The “Discovery of Sound in the Sea” website and printed publications are resources for educating and exposing the public to the basic science of sound in the sea and how it is used to communicate, navigate, and explore the oceans. By providing information in multiple formats, teachers can bring this content into their classrooms; public affairs personnel can inform themselves of controversial issues and provide materials to Congress; and the public can begin to include science in their decisions.

TRANSITIONS

The results of research done under this task are being used to further enhance and expand the website. Future work includes printing another edition of the two publications, the tri-fold pamphlet and educational brochure, to reach additional audiences and further enhance understanding of sound in the sea; posting, revising, and editing the online structured tutorials; adding any newly published research to the website, particularly in the effects of sound section; and facilitating peer review of website material that is new or revised.

RELATED PROJECTS

The University of Rhode Island’s Office of Marine Programs (OMP) is funded under a separate award for their participation in the “Discovery of Sound in the Sea” project.

REFERENCES

N/A

PUBLICATIONS

“Discovery of Sound in the Sea” website

“Discovery of Sound in the Sea” CD-ROM

Scowcroft, G., Vigness Raposa, K., Knowlton, C., and Johnen, J. 2006. Discovery of Sound in the Sea. University of Rhode Island. (12-page information booklet)

Scowcroft, G., Vigness Raposa, K., Knowlton, C., and Johnen, J. 2006. Discovery of Sound in the Sea. University of Rhode Island. (tri-fold pamphlet)

PATENTS

N/A