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MAI

MARINE ACOUSTICS, INC.

809 Aquidneck Avenue : Middletown, RI02842 : 401-847-7508 (phone) : 401-847-7864 (fax)

30 July 2012

Office of Naval Research
One Liberty Center
875 North Randolph St.
Arlington, VA 22203-1995

Attention: Dr. Michael J. Weise

Subject: N00014-11-C-0431; Final Report (CDRL A002)

Dear Dr. Weise,

I have enclosed the subject report for the period 7 July 2011 – 30 June 2012.

If you have any questions or need any additional information, please call me at the above telephone numbers or via e-mail at ken.graf@marineacoustics.com.

Sincerely,

Kenneth R. Graf
Contracts Manager

CC: MAI 795
File

1. Technical Work Accomplished:

A. Redesign of the *Discovery of Sound in the Sea* website

- Enhancement of copyright feature: worked with URI (Holly Morin) on contacting all data providers of sound files to DOSITS to complete a copyright authorization form and determine whether their sound files could be made available under Creative Commons Licensing
- Addition of scientific names to DOSITS: worked with URI (Holly Morin) on how to deal with adding scientific names to DOSITS given Raytheon's content management system
- Reworking navigation issue: Decrease the length and number of subtitles within DOSITS

B. Maintain and develop the *Discovery of Sound in the Sea* website

- Worked with Holly Morin (URI) to get her up-to-speed on status of tasking after her maternity leave
- Drafted ONR Code 32 annual report for FY 2011 funding
- Made notes to lead discussion on Revision of Older DOSITS Pages at upcoming review meeting
- Reviewed Animals > Fish > Effects > Hearing loss and > Physiological stress edited by Holly Morin (URI)
- Discussions with Chris Knowlton (URI) regarding spectrogram structure and content in updated Audio Gallery
- Prioritized tasking for Spring 2012 Review Meeting
- Worked with URI personnel to add Feature Teachers extension to the website
- Reviewed recently published literature on effects of underwater sound on marine life; entered new manuscripts into EndNote database
- Revised Animals > Effects > Masking section
 - o Comment by Advisory Panel member that there was a new publication demonstrating that melon-headed whales change their vocalizations because of ambient noise of snapping shrimp; manuscript has not been published yet
 - o Provided final revised version of content to members of the Advisory Panel for review and comment
- Revisions to Animals > Hearing > Hearing in Pinnipeds
 - o Working with Dr. Brandon Southall and recent results at UCSC Long Marine Lab; work has not been published yet. Will coordinate with Dr. Darlene Ketten for ear images and update section with manuscripts that have been published
- Edits to Advanced Topic > Introduction to Decibels and Science > Sound in Air vs Water to make compatible with ANSI Standards
 - o Created definitions for "source level" and "received level", in addition to reviewing references to "sound pressure level" and "intensity" with regard to ANSI Standards

- Edits to Facts and Myths page in response to comments from the Advisory Panel at the November 2011 Review Meeting
- Reviewed Icebergs Colliding content for the Audio Gallery

C. New topics on the *Discovery of Sound in the Sea* website

- Prepared new content on Animals > Advanced Topic > What components of sound do animals hear? for review at Fall 2011 Review Meeting
 - o Worked with Brandon Southall (SEA, Inc) on new data on pinnipeds hearing; this work has not been published yet
 - o Coordinated with David Zeddies (JASCO, Inc) on the animations he supplied to us. He does not have the software or time to fix the animation but provided the raw Adobe Illustrator files for someone else to edit. No one at URI has the skills to edit the animation. Will post the new content without the animation.
- Prepared new content on Animals > Advanced Topic > How do odontocetes hear? for review at Spring 2012 Review Meeting
 - o Received movie files from Darlene Ketten (WHOI), email exchange on the details that the movie demonstrates
 - o Obtained reprints of recent literature on cetacean hearing evolution from URI libraries
 - o Reviewing material in appropriate textbooks

D. Outreach with outside organizations interested in communicating underwater sound topics

- Prepared abstract for presentation at the Educators Workshop prior to the Society of Marine Mammalogy Biennial Conference in Tampa, FL, Saturday, November 26, 2011
- Made travel plans for Biennial Conference (bought airfare, made hotel reservations, registered for conference)
- Correspondence with Dr. Whitlow Au and Dr. Paul Nachtigall to determine availability for a speaker at the DOSITS IEEE/MTS workshop in Hawai'i
- Prepared abstract for Southeast New England Marine Educators (SENEME) conference
- Prepared and presented talk at the Southeast New England Marine Educators (SENEME) conference, Project Oceanology, Groton, CT, Sat 15 Oct 2011
- Working on request from Yeosu Expo (2012 World's Fair in South Korea): request to use DOSITS images
- Prepared and presented talk at the Education and Conservation Workshop at the 19th Biennial Conference on the Biology of Marine Mammals
- Travel to and participate in the 19th Biennial Conference on the Biology of Marine Mammals, 25 Nov – 3 Dec 2011, Tampa, FL
- Determined conferences at which DOSITS would participate and who would attend

- Reviewed Acoustical Society of America teacher resources for possible links on DOSITS
- Reviewed sonoluminescence article by the BBC for possible link on DOSITS
- Reviewed digital textbook information on Duke's Cachalot project
- Worked with URI (Holly Morin, Chris Knowlton, Celia Cackowski) on presentation for National Science Teachers Association Meeting
- Worked with URI (Holly Morin, Chris Knowlton, Gail Scowcroft) on response to Michael Stocker and the Ocean Conservancy Research's website plagiarizing DOSITS
- Reviewed and revised draft abstracts for the National Marine Educators Association conference
- Worked with URI (Holly Morin) on abstract for DOSITS half-day workshop at the 2013 National Science Teachers Association Meeting
- Worked with URI (Holly Morin) on presentation and travel details for the National Marine Educators Association Meeting, 24-28 June 2012 in Anchorage, AK
- Worked with URI (Chris Knowlton) on preparing and printing the DOSITS poster for the ONR Marine Mammal and Biology Program Review Meeting, 16-18 Apr 2012 in Arlington, VA
- Travel to and participate in the ONR Marine Mammal and Biology Program Review Meeting, 16-18 Apr 2012 in Arlington, VA
- Discussions with URI colleagues re: Ocean Conservation Research (Michael Stocker)'s inappropriate/illegal use of DOSITS material
- Planning for October Acoustical Society of America gala (10-yr anniversary of DOSITS online)

E. Review of the *Discovery of Sound in the Sea* Scientific Content

- Helped incorporate final edits from the Advisory Panel for the 12-page educational booklet
- Planning for November 2011 Advisory Panel Review Meeting: draft agenda, participant list; revise agenda; help with logistics of hosting researchers
- Led fall review meeting at URI, 16-18 Nov 2011
- Worked with URI (Holly Morin) on planning and logistics for Spring 2012 Review Meeting (5-7 Jun 2012 at URI)
- Prepared draft one-page abstract for ONR Marine Mammal and Biology Program Review Meeting; submitted to ONR by 23 March 2012 deadline
- Discussions with URI colleagues regarding June 2012 Program Review Meeting: agenda, tasks to be completed prior to meeting, priorities for review meeting
- Led spring Advisory Panel Review Meeting, June 5-7, 2012 at URI

2. Meetings Attended:

- Status meeting with University of Rhode Island personnel, 16 August 2011
- Status meeting with University of Rhode Island personnel, 13 September 2011

- Status meeting with University of Rhode Island personnel, 2 November 2011
- Fall review meeting at URI, 16-18 Nov 2011
- Southeast New England Marine Educators (SENEME) conference, Project Oceanology, Groton, CT, Sat 15 Oct 2011
- Education and Conservation Workshop at the 19th Biennial Conference on the Biology of Marine Mammals, 26 Nov 2011
- 19th Biennial Conference on the Biology of Marine Mammals, 27 Nov – 2 Dec 2011
- Status meeting with University of Rhode Island personnel, 17 January 2012
- Status meeting with University of Rhode Island personnel, 15 February 2012
- Status meeting with University of Rhode Island personnel, 6 March 2012
- Status meeting with University of Rhode Island personnel, 13 March 2012
- Status meeting with University of Rhode Island personnel, 27 March 2012
- ONR Marine Mammal and Biology Program Review Meeting, 16-18 Apr 2012
- Status Meeting with URI colleagues, 24 Apr 2012
- Work Session with URI colleagues, 25 Apr 2012
- Reviewed draft manuscript for European Conference on Underwater Acoustics
- Status Meeting with URI colleagues, 15 May 2012
- Discussions with URI colleagues regarding the Acoustical Society of America Kansas City meeting and DOSITS participation in the Girl Scout event hosted by Women in Acoustics
- Status Meeting with URI colleagues, 29 May 2012

3. 2012-2013 Tasking:

- Coordinated with colleagues on Spanish translation of DOSITS
- Outlined Needs Assessment for informal educators and undergraduate educators
- Outlined Career Gallery
- Outlined DOSITS iBook that will be created