

THOMAS F. NORRIS

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PRESENT POSITION

Senior Scientist / Marine Vertebrate Biologist. Science Applications International Corporation (SAIC).

Current Projects:

3-D analysis of acoustic data from sperm whales collected from a deep-towed hydrophone array in the Gulf of Mexico (for [Scripps Institute of Oceanography MPL](#). Funded by [SWSS - TAMU/MMS](#)).

P.I.: The Ni'ihau-Na'Pali Survey: A pilot project to investigate deep-water species of cetaceans and their habitats around the Hawaiian Islands using acoustic/visual methods ([Cetos Research Org](#)).

Co-P.I.: The application of satellite oceanographic data to a predictive model of marine mammal distribution and abundance. (A collaborative effort with [SWFSC](#) and [NASA-JPL - NESDIS](#) Funded).

EDUCATION

Bachelor of Science - Zoology. University of California, Santa Barbara. 1987. (Dean's Honors).

Master's of Science - Marine Science. Moss Landing Marine Laboratories (SJSU). 1995.

SELECTED WORK EXPERIENCE

Research consultant / Bioacoustician. 02/04-present. [NOAA/Northwest Fisheries Science Center](#).

A multi-year field research effort to investigate distribution and behavior of Southern Resident Killer Whales in outer coastal waters of the U.S. Pacific Northwest. Responsible for designing, developing and implementing passive bio-acoustic system for detecting, monitoring, tracking and recording killer whales from a research vessel (NOAA R/V [McArthur II](#)). Team leader for bio-acoustics group supervised 3-4 field bio-acousticians and responsible for acoustic data summary and analysis.

Research consultant / Head bioacoustician. 07/03-07/05..Oregon State University/ [SWSS program](#) Minerals Management Service A research program to investigate the effects of oil exploration on sperm whales in the northern Gulf of Mexico. Operated passive bio-acoustic system for detecting, monitoring, and recording sperm whale locations from their vocalizations.

Principle Investigator 02/03-02/04. SAIC([ONR funded](#)) The Marine Animal Tracking Apparatus (MANTA).

A project to develop and test a new micro-electronic, acoustic-transponder tag for real-time (3-D) tracking, monitoring and acquisition of environmental data from large marine vertebrates.

Research biologist / bioacoustician. 10/02. NMFS, Southwest Fisheries Science Center, La Jolla, CA.

[HICEAS](#) - a survey of marine mammals in US EEZ waters of the Hawaiian Island chain.

Operated passive bio-acoustic system for detecting, monitoring, surveying and recording cetaceans.

Alternate Mitigation Team Leader. 04/0-06/01. SAIC. USN DDG-81 Winston Churchill Shock Trials Served as primary backup to the mitigation leader and marine mammal observer for ship and aerial monitoring of marine mammals and turtles during at-sea shock trials of the USS Winston Churchill.

Research consultant. 01/98-06/98. NMFS, Southwest Fisheries Science Center, La Jolla, CA.

A comparative analysis of humpback whale songs recorded across the central and eastern North to determine migration and distribution patterns of migrating humpback whales.

Head bioacoustician. 09/98-12/98. NMFS, Southwest Fisheries Science Center, La Jolla, CA.

An oceanographic survey of marine mammals and turtles in the Eastern Tropical Pacific.

In charge of passive bio-acoustic field operations for entire 4 month research cruise.

Head bioacoustician. 03/97-05/97. NOAA, NMFS, Southwest Fisheries Science Center, La Jolla, CA.

A research cruise to examine the population biology of sperm whales in the temperate Eastern Pacific.

In charge of passive bio-acoustic field operations for duration of 4 month research cruise.

Research consultant / bioacoustician. University of California, Santa Cruz. 05/95-09/96.

A study of the foraging ecology and vocal behavior of fin whales in the Sea of Cortez.

Senior research staff. Univ. of Hawaii/ Hubbs-Sea World Research Institute/ SIO. 12/92-03/94

The ATOC marine mammal research program, Kauai. Designed field monitoring and supervised junior field staff during all aspects of field work including acoustic, aerial and shore-based methods.

Principle Investigator/Co P.I. Moss Landing Marine Laboratories, Moss Landing, CA. 90-94

An investigation of the acoustic behavior and population biology of humpback whales off Kauai.

OTHER EXPERIENCE

Extensive (> 7 yrs) aerial survey observer experience -Hawaii, East and West Coasts.
EA / EIR / EIS document preparation and review.
Marine Mammal permit applications (current permit holder).
Technical report writing for various marine science-related projects.
Government and commercial proposal preparation.

SELECTED GRANTS & CONTRACTS AWARDED

The Office of Naval Research ([ONR](#)) \$140 K.
The National Environmental Satellite Data and Information System ([NESDIS](#)) \$99K.
The Northwest Fisheries Science Center (NOAA/NMFS/NWFSC). Various totaling > \$ 70K.
The Southwest Fisheries Science Center (NOAA/NMFS/[SWFSC](#)). Various totaling > \$50K.
[The Packard Foundation](#).

OTHER PROFESSIONAL ACTIVITIES / WORKSHOPS

Member: [Acoustical Society of America Technical Committee](#) on Animal Bioacoustics - American Institute of Physics. (Appointed to 2003-2005 term).
Member: Technical Committee on Noise: American Institute of Physics, Acoustical Society of America. 2001.
Invited Participant: ONR Effects of sound on the marine environment (ESME) workshop. URI, 2001.
Participant: ONR acoustical oceanography workshop I & II. Univ. Calif., Santa Cruz, CA. 1996 & '97.
Proposal Reviewer: [National Oceanographic Partnership Program \(NOPP\)](#). 2003.

SELECTED PRESENTATIONS

Environmental Consequences of Underwater Sound ([ECOUS](#)) Symposium
San Antonio, Texas, May 2003 (oral presentation)
Norris, T.F. and Flagg, M. [MANTA: The Marine Animal Tracking Apparatus](#).

ONR Effects of Sound on the Marine Environment ([ESME](#)) Workshop
2nd Workshop Hosted by the URI, August. 2001. (oral presentation)
Norris, T.F. (for J. Barlow). Estimating Cetacean Abundance.
Norris, T., Petipas, L., Clarke, J. and Loftus, C. The Living Marine Resource Information System.

Biennial Conferences on the Biology of Marine Mammals
16th Conference 2005, San Diego (oral presentation)
Norris, et al. Hear Me, See Me: An Acoustic and Visual Survey of Deep-water Cetaceans in Hawaiian Waters

15th Conference 2003 Greensboro, NC (oral presentation)
Norris, T., Flagg, M. and Croll, D. MANTA: the Marine Animal Tracking Apparatus.

14th Conference 2001 Vancouver, BC
Norris, T.F., Morse, .L. and Barlow, J. Sounds recorded from blue and humpback whales off northern Peru.
Petipas, L., Norris, T., Clarke, J. and Loftus, C. The Living Marine Resource Information System.

11th Conference 1999 Orlando, FL (oral presentation)
Norris, T. F. The effects of boat noise on the singing behavior of humpback whales.

The Acoustical Society of America Biannual Conference
140th Meeting December 2000 Newport Beach, CA. (oral presentation)
Norris, T.F. and Barlow, J. Short duration sounds recorded from blue whales off Peru.

23rd European Association of Remote Sensing Laboratories ([EARsel](#)) Symposium 2002
Norris, T., Loftus, C., Barlow, J. and Ferguson, M. Satellite Oceanographic Data versus In-Situ Data as Inputs for Predictive Models of Marine Mammal Occurrence.

SELECTED PUBLICATIONS AND TECHNICAL REPORTS

Norris, T.F., Smultea, M. A., Zoidis, A. M., Rankin, S., Loftus, C., Oedekoven, O., Hayes, J. L., and Silva, E. 2005. "A Preliminary Acoustic-Visual Survey of Cetaceans in Deep Waters around Ni'ihau, Kaua'i, and portions of O'ahu, Hawai'i from aboard the R/V *Dariabar*, February 2005." Prepared by: Cetos Research Organization, Bar Harbor, ME., under contract #2057SA05-F to Geo-Marine, Inc. for NAVFAC Pacific.

Smultea, M. A., W.R. Koski, and T.F. **Norris** 2005. Marine mammal monitoring during Lamont-Doherty Earth Observatory's marine seismic study of the Blanco Fracture Zone in the Northeastern Pacific Ocean. October-November 2004. LGL Rep. TA2822-29. Rep from LGL Ltd. King City, Ont. Canada. for Lamont-Doherty Earth Observatory of Columbia University. Palisades, NY, and the National Marine Fisheries Service, Silver Spring, MD. 89p.

Norris, T. F. 2005. A comparison of satellite versus in-situ data as inputs for GAM based predictive models of cetacean distribution and abundance in the eastern temperate Pacific. Contract report to SWFSC, La Jolla, CA.

Oswald, J. Barlow, J. and **Norris** T. 2003. Acoustic identification of nine delphinid species in the eastern tropical Pacific Ocean. *Marine Mammal Science*. 19(1): 20-37. ([abstract](#))

Cerchio, S., J. Jacobsen and T. **Norris**. (2001). Geographic and temporal variation in songs of humpback whales (*Megaptera novaeangliae*): synchronous change in Hawaiian and Mexican breeding assemblages. *Animal Behavior*. 62:313-329.

Norris, T.F., Jacobsen, J. Cerchio, S. and McDonald, M. M. 2000. A comparison of humpback whale songs in the pelagic eastern North Pacific to songs from Socorro, Mexico. [NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC-295](#). 29pp.

Norris, T. F., McDonald, M. M. and Barlow. J. 1999. Acoustic detections of singing humpback whales in the eastern North Pacific during their northbound migration. *Journal of the Acoustic Society of America*. J. Acoust. Soc. Am. 105: 506-514. ([abstract](#))

Thode, A., **Norris**, T., and Barlow, J. 2000 Frequency beamforming of dolphin whistles using a three-element towed array. *J. Acoust. Soc. Am.* 107(6): 3581-3584. ([abstract](#))

OTHER SKILLS

Working knowledge of Spanish.
Basic programming skills.
Proficient small boat operator.

PERSONAL

Enjoy surfing and other outdoor ocean activities.