

## DARLENE R. KETTEN

Biology Department  
Woods Hole Oceanographic Institution  
Marine Research Facility/ MS #50  
Woods Hole, Mass. 02543  
office: 508-289-2731  
email: [dketten@whoi.edu](mailto:dketten@whoi.edu)

Department of Otolaryngology  
Harvard Medical School  
Massachusetts Eye and Ear Infirmary  
243 Charles St.  
Boston, Mass. 02114  
website: <http://csi.whoi.edu/>

### EDUCATION

1971	B.A.	Washington University, St. Louis, Mo. Biology and French
1979	M.S.	Massachusetts Institute of Technology, Cambridge, Mass. Biological Oceanography
1985	Ph.D.	The Johns Hopkins University, Bloomberg School of Hygiene and Public Health The Johns Hopkins Medical Institutions Baltimore, Md. Neuroethology and Experimental Radiology

### PROFESSIONAL APPOINTMENTS

2013-present	Chief Scientist Senior Scientist emeritus (joint appt. with Harvard Medical School)	WHOI CT Scanner Facility Biology Department Woods Hole Oceanographic Institution
2013-2015	Professor	Centre for Marine Science and Technology, Dept. of Imaging and Applied Physics Curtin University, Perth, Australia
2002-2013	Senior Scientist with Tenure (joint appt. with Harvard Medical School)	Biology Department Woods Hole Oceanographic Institution
2007-present	Assistant Clinical Professor	Department of Otolaryngology Harvard Medical School (part-time appt.)
1993-2007	Assistant Professor	Department of Otolaryngology Harvard Medical School
1988-1993	Instructor  Research Associate	Department of Otolaryngology Harvard Medical School Cochlear Implant Research Laboratory, Massachusetts Eye and Ear Infirmary

1997-2002	Associate Scientist (joint appt. with Harvard Medical School)	Biology Department Woods Hole Oceanographic Institution
1987-1988	Lecturer	Organismic and Evolutionary Biology, Museum of Comparative Zoology, Harvard University
1985-1987	Post-doctoral Fellow	Eaton-Peabody Laboratory of Auditory Physiology Harvard Medical School
1985-1986	Post-doctoral Fellow	Communications Biophysics Group, Research Laboratory of Electronics, Massachusetts Institute of Technology

### Adjunct Appointments

2013-present	Adjunct Professor	College of Veterinary Medicine Murdoch University Perth, WA Australia
2011-present	Adjunct Professor	Biology Massachusetts Institute of Technology

### AWARDS AND HONORS

2015-2016	Jefferson Science Fellow, National Academy of Science, U.S. Department of State
2015	Fellow and Scholar, Elected jointly in Neurosciences and Marine Research, Hanse-Wissenschaftskolleg Institute for Advanced Study
2014	Acoustical Society of America, Awards Committee electee
2013-2014	Premier's Fellow, Western Australia Fellowship Program
2013	Excellence in Science Communication Award, Society for Marine Mammalogy
2012	AAAS Fellow, elected in Biology for Advances in Comparative Anatomy and Biomedical Imaging, American Association for the Advancement of Science (AAAS)
2012	Acoustical Society of America, Animal Bioacoustics, Individual Expert in Bioacoustics (ASAIE)
2012	Member of the Corporation of the Marine Biological Laboratory, Elected by Science Council, 124 <sup>th</sup> Class
2011	Functional MRI, Honors Fellowship, Martinos Imaging Center, Harvard Medical School
2010	Marine Mammal Research Fellow, Aquatic Mammals, European Cetacean Society
2008	Overseas Fellow, Royal Society of Medicine, UK
2007-2008	Senior Fellow, Auditory Biomechanics Section NIH/NIDCD National Institutes of Deafness and Other Communication Disorders, National Institutes of Health
2001	Fellow, Acoustical Society of America
2001-2004	Fellow, WHOI Ocean Life Institute
2000-2002	Featured Principal Investigator, Office of Naval Research
1998	Seaver Institute Research Award
1997	Mellon Foundation Independent Research Award

1983	Delta Omega Honorary Society, Alpha Chapter Merit Award
1982-1984	NSF Sensory Systems Doctoral Dissertation Research Award
1982-1984	Fellowship in Residence, Smithsonian Institution
1982-1984	Dean's Fellowship, Johns Hopkins Medical Institutions
1981, 1982	Achievement Rewards for College Scientists; ARCS Foundation Fellow and Scholarship Award
1980-1984	NIH Honors Fellowship Award
1978	Sigma Xi Research Award

### **PROFESSIONAL MEMBERSHIPS**

2012- present	American Association for the Advancement of Science (AAAS)
2009- present	International Association of Aquatic Animal Medicine (IAAAM)
2008- present	Royal Society of Medicine (RSM)
2005- present	European Radiological Society (ERS)
2005- present	The Explorer's Club
2004- present	Association of Military Surgeons of the United States (AMSUS)
1996- present	Radiological Society of North America (RSNA)
1982- present	Acoustical Society of America, Fellow (ASA)
1987- present	Association for Research in Otolaryngology (ARO)
1984- present	Society for Marine Mammalogy (SMM)
1987- present	International Society for Stereology
1978- present	Sigma Xi

### **SPECIALTY COURSES/ACCREDITATIONS**

2011	Advanced Functional MRI Imaging, Martinos Center for Biomedical Imaging, Harvard Medical School.
2006	Advanced Forensic Pathology, Armed Forces Institute of Pathology/Certificate
2005	Basic Pathology, MIT-Health Sciences and Technology Program/Faculty Auditor
2004	Veterinary Pathology, Armed Forces Institute of Pathology/Certificate
2003	Neuroradiology and Neuropathology, Armed Forces Institute of Pathology /Certificate
1995	Forensic Pathology, Armed Forces Institute of Pathology/Certificate

### **NATIONAL/INTERNATIONAL BOARDS, PANELS, AND COMMITTEES**

2014-2015	<p>Committee of Scientific Advisors for the Society for Marine Mammalogy</p> <p>Awards Committee, Acoustical Society of America</p> <p>Member of the Corporation of the Marine Biological Laboratory</p> <p>DOSITS Underwater Acoustics Educational Site Review Board</p> <p>NATO 5th Intergovernmental Conference on The Effects of Sound in the Ocean on Marine Mammals</p> <p>Bioacoustics Technical Committee, Acoustical Society of America</p> <p>Subject Matter Expert: Bioacoustics, Acoustical Society of America</p> <p>DOSITS Scientific Advisory Board</p> <p>European Underwater Ambient Noise Monitoring Workshop</p> <p>Expert Testimony; Environmental Noise Hazards, New Zealand Ministry for the Environment</p> <p>Expert Testimony and Advisory Panel, Ministerio de Ambiente, Colombia</p> <p>Review Committee on Ambient Noise Impact Assessments, JIP/NOAA</p> <p>ISO Standards Committee on Bioacoustics</p>
2013-2014	Expert Panel, Cumulative Effects of Underwater Noise, BP

- 2011-2013 Bioacoustics Technical Committee, Acoustical Society of America  
 Subject Matter Expert: Bioacoustics, Acoustical Society of America  
 DOSITS Scientific Advisory Board  
 NATO 4th Intergovernmental Conference on The Effects of Sound in the Ocean on Marine Mammals  
 International Quiet Ocean Experiment, Specialty Panel on Acoustic Ecology, UNESCO, Paris.
- 2009-2010 Bioacoustics Technical Committee, Acoustical Society of America  
 Subject Matter Expert: Bioacoustics, Acoustical Society of America  
 DOSITS Scientific Advisory Board  
 Advisory Board/Expert Panel, Marine Mammals and Sound Workshop, jointly sponsored NOAA Fisheries and Deputy Secretary of the Navy for the Environment  
 Expert Panel, Cumulative Effects of Underwater Noise, BP, Washington, DC  
 Workshop on Dive Physiology, WHOI
- 2008-2009 DOSITS Underwater Acoustics Educational Site Review Board  
 NATO 3<sup>rd</sup> Intergovernmental Conference on The Effects of Sound in the Ocean on Marine Mammals  
 Advisory Board, Acoustic Exposure Guidelines NOAA Fisheries  
 Review Panel, National Science Foundation, OS/BIO, Neural Systems Cluster  
 Animal Bioacoustics Technical Committee member, Acoustical Society of America
- 2006-2007 DOSITS Underwater Acoustics Educational Site Review Board  
 NATO 2<sup>nd</sup> Intergovernmental Conference on The Effects of Sound in the Ocean on Marine Mammals  
 Advisor, USN Integrated Coordinating Group  
 Advisory Board, Acoustic Exposure Guidelines NOAA Fisheries  
 Advisory Board, National Research Program on Sound Effects, CORE  
 Advisory Panel, Behavioral Response Research Team (ONR-NOAA)  
 Review Panel, Marine Mammal Commission International Workshop on Policy on Sound and Marine Mammals  
 Advisory Panel, CORE, Development of Legislative Actions for a National Marine Mammal Research Program  
 Panel Member and Speaker, Brazilian Government and International Geophysical Contractors Seminar on Seismic Impacts, Rio de Janeiro, Brazil  
 Advisory Expert Panel, NOAA-ONR Necropsy Protocol Standardization Committee  
 DOSITS Underwater Acoustics Educational Site Review Board  
 Animal Bioacoustics Technical Committee member, Acoustical Society of America
- 2004-2006 Advisory Panel, House of Representatives, Commerce Committee  
 Advisory Panel, Congressman Gilchrest special session  
 Advisory Panel, Senate Commerce Committee, Acoustic Impacts  
 Participant, Royal Navy Workshop on Underwater Impacts  
 Advisory Panel, European Science Foundation and National Science Foundation Workshop on Underwater Sound Use  
 Section leader and panel, Investigatory Team, NOAA/Northwest Fisheries, Puget Sound/Shoup Incident Report  
 Advisory Board, Stellwagon Bank Sanctuary  
 Panel, Beaked Whale Workshop, NOAA - Marine Mammal Commission  
 Panel, Marine Mammal Commission International Workshop on Policy on Sound and Marine Mammals

- 2003-2004 Subcommittee member and special lecturer, International Whaling Commission Panel Member, Offshore Oil and Gas Producers Workshop on Seismic Impacts, Halifax, N.S. Canada,  
Co-Chairman, ASA Policy on Effects of Sound, Acoustical Society of America Advisory Board, Acoustic Exposure Guidelines NOAA Fisheries  
Advisory Panel Alternate, Effects of Sound, Marine Mammal Commission, FACA panel  
Panel, Beaked Whales and Sound Effects Review Board, Marine Mammal Commission  
Chair, Biomedical Applications in Research, Acoustical Society of America  
Ocean Studies Board, National Academy of Sciences, National Research Council, Panel member: Ambient Noise in the Oceans and Effects on Marine Mammals
- 2002 Panel member: ASA's Role in Marine Mammal Studies, Acoustical Society of America  
Panel member/Lecturer: Sound in the Oceans, Navy-USA Congressional Workshop  
Panel member; Deutsche Forschungsgemeinschaft: Antarctic Policies for Sound Use: Impact of Acoustics on Marine Organisms
- 2000-2005 Northeast Consortium Advisory Board;  
Right Whale Research Review Panel, Northeast Consortium  
Advisory Board on Blast Trauma, NOAA Fisheries  
Review Panel, Acoustic Trauma in Beaked Whales, NOAA
- 1999-2003 Environmental Impact Review Panel Member: Ship Shock Impact Assessment, DDG81
- 1998-1999 Organizing Committee, ASA Special Session: Evolution of Hearing and Sound Production, 137th Meeting, Acoustical Society of America, 2nd Convention of the European Acoustics Association, Berlin  
Executive Organizing Committee, Fourth International Conference on Biological Sonar, NSF-ONR, Algarve, Portugal  
Advisory Panel on Explosive Removal of Oil Platforms, Minerals Management Service (MMS)  
Expert Panel and Voting member for USA: Bioacoustics and Environmental Policy Board, NATO/SACLANT  
Panel Member: Low Frequency Sound Effects Advisory Panel and Workshop, Office of Naval Research  
Panel Member: NMFS Acoustics Guidelines Workshop
- 1997-2000 Low Frequency Active Sonar, ONR Scientific Advisory Board  
Expert Panel Member: High Energy Seismic Systems Workshop Minerals Management Service  
Right Whale Advisory Panel: New England Aquarium  
Animal Bioacoustics Technical Committee member, Acoustical Society of America
- 1996-2003 Review Panel Member: Sea Wolf Ship Shock Impact Assessment  
Sounds in the Sea Advisory Board Member, New England Aquarium
- 1995-1996 Technical Specialty Group Member, Animal Bioacoustics, Acoustical Society of America (ASA)  
Ad hoc Panel Member, ATOC Advisory Board
- 1993 Blast Injury Advisory Panel; Committee on Hearing and Bioacoustics of the National Academy of Sciences (CHABA/NAS)
- 1992-1993 Small Grants Program Review Board; NIH/NIDCD

- 1991 Low Frequency Sound in the Marine Environment; Office of Naval Research Workshop
- 1989-1990 Advisory Board, Dolphin-Tuna Fisheries Acoustic Trauma Workshop, National Marine Fisheries Service/NOAA
- 1982-1983 Cultural Affairs Committee, The Johns Hopkins Medical Institutions  
Gilman Lectureship Selection Committee, The Johns Hopkins Medical Institutions
- 1979-1985 Board of Associates; Bermuda Biological Station

**FEDERAL TESTIMONY, CONGRESSIONAL AND OFFICIAL DoD and PENTAGON BRIEFINGS**

- 2006-2007 Dept of Justice Declaration/Testimony, LFA, Effects of Sound (July 2007)  
Dept of Justice Declaration/Testimony, Pacific Military Exercises, Effects of Sound (Sept. 2007)  
Dept of Justice Declaration/Testimony, California Military Exercises, Effects of Sound (Sept. 2007)  
AUTEK Stranding response briefing and site visit review (Jan. 2007)  
Briefing, ADM Gary Roughhead, Chief of Naval Operations CFFC (July 2007)  
Briefings, Asst. Sec. of the Navy Aides, LCDR Keck, CAPT Robin Brake (Feb 2007)  
Briefing, Deputy Director of the Naval Meteorology and Oceanography Command, and Naval Oceanographic Office 2006 (Oct 2006)  
Briefing, Strategic Studies Group on Thursday (Nov 2007).  
Briefing, CAPT Tattlebach CNMOC (Dec 2006)  
Briefing, Naval Oceanographic Command, CAPTs Brown and Cousins (Jan 2007)
- 2004-2005 Briefings, Asst. Sec. of the Navy, Hon. Donald Schregardus, Acoustic Impacts Testimony and Advisory Panel on MMPA, House Armed Services Committee  
Testimony on MMPA, Senate Armed Services Committee  
Briefing, DARPA Workshop on Underwater Acoustics Research
- 2001-2003 Briefing, Swedish Navy, Panel on Underwater Explosions  
Testimony and Panel, Congressional Workshop, US Congress House-Senate joint staff  
Testimony, Commerce Committee Hearing on Sonar Effects, US House of Representatives  
Testimony and Panel, Congressional Hearing on LFA Sonar Effects, U.S. Congressional Commerce Committee  
Briefings, Sec. of the Navy, Asst. Sec. Navy, SECNAV Staff, LANTFLEET, Acoustic Impacts/Acoustic Trauma
- 2000 Briefing, Oceanographer of the Navy  
Briefing, Senator Edward Kennedy  
Briefing, Commander Naval Operations

**INSTITUTIONAL ACTIVITIES**

**Committees**

- 2004 Liquid Jungle Laboratory Review Committee
- 2001-2005 Gender Climate Assessment Advisory Committee
- 2001 Mary Sears Award Committee  
Ocean Life Institute Proposal Review Committee  
Comprehensive Exam Committee (Biology Department)
- 2000 Faculty Search Committee (Biology Department)

**Lectures/Presentations/Teaching**

- 2012-2013 HIVE Launch (Hub for Immersive Visualisation for eResearch)  
Presentations on Stereoscopic 3D Visualization of Marine Mega to Micro Species, Curtin University  
WAZE Lecture: Veterinary Imaging, Tufts Veterinary School;  
Special Lecture Series: Marine Mammal Auditory Systems and Necropsy Techniques: Taiwan National University, National Chiayi University, National Changkung University  
WHOI CT and Necropsy Facilities Tours: 15 tours/talks for Development, Media, Trustees, K-12 groups, WHOI Departmental Guests (Marine Policy, AOPE, Marine Operations), BP, Senate staffers, Middle East Science Ministers Program, U.S. Dept of State, China Educational Ministers, WHOI Directorate visitors.
- 2011 Biology of the Inner Ear (Marine Biology Laboratory), Lecturer and Faculty, AquaVet Lectures and Practical CME Sessions on Radiologic Imaging; MIT, Brains, Minds, Machines Conference.  
WHOI CT and Necropsy Facilities Tours: 18 tours/talks for Development, Media, Trustees, Meetings, Regional School groups, NSF Program Management, WHOI Departmental Guests (Geochemistry, Biology, Acoustical Oceanography, Marine Policy), NUWC. JIP, Navy, BP, Sen. Scott Brown, WHOI Directorate visitors.
- 2010 Massachusetts Maritime Academy, Special Lecture  
WHOI CT and Necropsy Facilities Tours: 10 tours for Development, Media, Trustees, Meetings, Regional School groups, WHOI Departmental Guests (Geochemistry, Biology, Acoustical Oceanography)
- 2009 Biology of the Inner Ear, Lecture and Faculty, Marine Biology Laboratory  
AquaVet Lectures and Practical CME Sessions on Radiologic Imaging  
Ocean Life Institute Trustee Meeting  
ADM Carr, Director Office of Naval Research inspection tour  
Deputy Secretary of the Navy, W. Natter
- 2008 AquaVet Lectures and Practical CME Sessions on Radiologic Imaging  
WHOI Trustee Meeting and Open House  
Knight Fellows Lecture
- 2007 Lecture on Technologic Developments in Imaging for Minister of the Environment for Spain  
Seaver Institute  
Imaging Facility Tour and Lecture for Saudi Arabia Minister of Education/King Faisal Technical University  
MIT Science Journalism Fellows Lecture  
MRF CT UNIT Tours (3)  
AquaVet Lectures and Practical Sessions on Radiologic Imaging
- 2006 National University of Singapore Collaborative Research Facility Development  
Eighth Wonder/MOU development  
Arctic Commission facilities visit  
Knight Journalism Fellows lecture  
Marine Research facilities tours for trustees and open houses (5)
- 2005 Ocean Science Journalism Fellows
- 2004 WHOI Trustees and Guests Breakfast Series  
Ocean Science Journalism Fellows  
Naval War College
- 2002 WHOI Trustees Dinner and Lecture

	Biology Department Seminar
	US Congressional Staff and ONR Visit/Briefing
2001	ONR Director Briefing and Tour
2000	Biology Department Seminar
	WHOI/MIT Joint Program Alumni Tour
1999	WHOI Summer Student Fellows Lecture and Laboratory Tour
1998-2001	Knight Fellows Lecture
1998	WHOI Trustees Lecture
	WHOI Associates Day of Science Lecture
1997-2000	Naval Command College Lecture

#### **EDITORIAL BOARDS**

1995-1999	Associate Editor, Journal of Marine Mammal Science
2008-present	Curator, Marine Mammals, Encyclopedia of Life

#### **JOURNAL REVIEWS**

Acta Otolaryngologica  
American Journal of Otology  
Anatomical Record  
Animal Behaviour  
Biological Bulletin  
Brain, Behaviour, and Evolution  
Journal of the Association for Research in Otolaryngology  
Journal of the European Cetacean Society  
Journal of Experimental Biology  
Journal of Paleontology  
Journal of Marine Mammal Science  
Journal of the Acoustical Society of America  
Journal of Morphology  
Nature  
Otology and Neurotology

#### **PROPOSAL REVIEWS**

National Science Foundation, Sensory Biology, Neurosciences Cluster  
National Institutes of Health, National Institutes of Deafness and Communication Disorders (NIH/NIDCD)  
Northeast Consortium  
Swiss Science Foundation  
German Science Foundation  
DEFRA  
ESF

#### **RESEARCH INTERESTS**

Functional Anatomy of the Ear; adaptations for air and water, infra to ultrasonic hearing  
Evolution of hearing  
Three-dimensional functional modeling of head and neck anatomy and sensory systems  
Interactive biomedical imaging models  
Cochlear Implant position and speech perception  
Blast and Traumatic Brain Injury trauma diagnostic imaging



My work to date has been divided between the theoretical and the practical. On the theoretical side, I conduct basic research on the functional anatomy vertebrate auditory systems, particularly how differences in ear structures are related to different hearing abilities and niche dependent effects on significant acoustic features; e.g. wavelengths in air vs. water. This work involves direct examination of the auditory system of extant and fossil species and measurement and analysis of the topography and material properties of key tissues. The data are obtained by both classic dissection and microscopy techniques as well as recent and developing technologies such as macro and micro computerized tomography (CT scanning), magnetic resonance imaging (MRI), finite element and finite difference modeling (FEM/FDM) and atomic force microscopy (AFM). On the practical side, my skills in biomedical imaging and dissection are used to assist forensic analyses of human trauma and strandings. These two areas cross-pollinate; the basic research helps us to understand how changes in an ear, brought about by pathology, correlate with specific parameters of hearing loss, and the work with human cases, in turn, gives invaluable opportunities for interactive development of ways to better assess head and neck structure, both normal and abnormal in other vertebrates. In many cases, looking at the anatomy of a specimen, current or past, as not only an example of its taxon but also as a record of its particular life history can enrich our knowledge.

My basic research concentrates on how animals evolved infra to ultrasonic hearing, particularly those with exceptional acuity or living in extreme habitats, like bats, elephants, dolphins and whales, deep divers, desert rats, mole rats and marine infauna. The most recent findings from this work include the development of a mathematical model that explains how cochlear spiral configurations are related to the ability to hear ultra-low frequencies, a feature that I was able to demonstrate is common to modern whales and elephants and is found in varying degrees in fossil proboscideans back to gomphotheres. This work also involves frequency mapping models for the cochlear spiral to estimate hearing ranges in extant and extinct species. I have also demonstrated the presence and likely parallel evolution of specialized fatty tissues that act as pinnae in cetaceans, aquatic reptiles, and diving birds and are a key feature for underwater sound reception and localization.

Research on fundamental mechanisms also entails comparing normal and impaired ears to determine how location and nature of pathologies relate to changes in hearing ability. The mapping and ultrahigh resolution CT techniques developed in the basic animal research have become valuable tools in the human studies as well, particularly for cochlear implant and explosive trauma and tinnitus research. The techniques developed for the exceptionally large and dense dolphin head structures are now used for submillimeter diagnostic exams of *in vivo* abnormalities and intracochlear electrode locations in implant patients. Current studies are focusing on the relationship of electrode position to speech perception and on mechanisms of insertion trauma. Results show the interaction of the array curvature with that of the natural cochlea is a critical factor in the success of the implant placement. While the imaging methods and data on patient differences have already had some impact on surgical planning, the greatest benefit from this research will likely be, in the long term, to foster improvements in cochlear implant designs and to provide intraoperative techniques for optimizing array placement in every patient. Most recently, the ultrahigh resolution imaging algorithms developed in this research have been applied to a range of head and neck traumas and are being used for volumetric analyses in traumatic brain injury cases and to map fragment and shrapnel patterns. In addition, a collaborative effort with researchers at Harvard Medical School on in utero hearing has evolved recently which is an unusual mix benefitting from both my human and underwater research experience.

**FUNDING HISTORY (Total funding, 1992-2013: See also details of WHOI grants, Appended)**

Years	Funding Source	PI/Co-PI	Title	Application
1992-2002	NIH/ NIDCD	P.I. J.B. Nadol, Jr. sub-project P.I. D.R.	Basic and applied research on cochlear prostheses: Anatomy	Basic and Clinical

		Ketten	of implantation	Research
1992-1996	ONR	P.I. D.R. Ketten.	Three-dimensional analyses of marine mammal ears	Basic Research
1993-1996	ONR/ ASSERT Award	P.I. D.R. Ketten	3D digital sectioning and analysis of multimodal data	Basic Research
1995-1999	ONR	P.I. Ketten, D.R.	Measures of auditory function in stranded marine mammals	Basic Research
1996-1998	ONR	P.I. D.R. Ketten	Hearing Adaptations in Deep Divers	Basic Research
1997-1999	Mellon Foundation	P.I. D.R. Ketten	In vitro measures of tissue velocities in dolphins	Basic Research
1997-2000	Seaver Institute	P.I. D.R. Ketten co-PI's J. Buck; D. Brown	Anatomical modeling of the dolphin sonar system	Basic Research
1997-1998	SPAWAR	P.I. D.R. Ketten	Behavioral measures of underwater sound reception mechanisms	Basic Research
1998-2008	ONR	P.I. D.R. Ketten co-PI: R. Price; J. Craig	Experimental measures of blast and acoustic trauma	Basic and Clinical Research
1997-2000	SERDP	P.I. D.R. Ketten	Otopathological analysis of marine mammal ears	Basic Research
1997-2002	NIH/NIDCD	P.I. M. Skinner co-P.I. D.R. Ketten	Strategies to optimize benefit from a cochlear implant	Basic and Clinical Research
1999-2003	Advanced Bionics	P.I. D.R. Ketten	In vivo measures of cochlear length and Clarion electrode position	Clinical
2000-2001	SPAWAR	P.I. D.R. Ketten	Cetacean inner ear models	Basic Research
2000-2001	NOAA/NMFS	P.I. D.R. Ketten	Inner and middle ear pathology of stranded beaked whales	Basic Research
2000-2002	ONR & ONR (DURIP)	P.I. D.R. Ketten	Acquisition of a computerized tomographic 2D/3D imaging facility; 2D/3D visualization of real marine structures	Basic and Clinical Research
2001-2003	ONR - ESME	P.I. D.R. Ketten	Models of whale auditory function	Basic Research
2001-2004	NEC subaward (NOAA prime)	P.I. D.R. Ketten	Hearing in the North Atlantic Right Whale	Basic Research
2001-2004	ONR	P.I. D.R. Ketten co-PI: S. Bartol	Evoked Potential Measures of Underwater Hearing	Basic Research
2001-2003	NIH	P.I. C. Wall Co-PI D. Ketten, P. Guyot	Singular Nerve Measures	Basic and Clinical Research
2003--2008	NIH	P.I. D. Mountan co-PI: D.R. Ketten	Inner Ear Models	Basic Research
2003-2005	NIH	P.I. M. Svirsky co-PI: D.R. Ketten	Cochlear Implants and Speech Perception	Basic and Clinical

				Research
2003-2005	NOPP	P.I. D.R. Ketten co-PI: Mountain, Hubbard	Whale Hearing Models	Basic Research
2005-2008	NIH	P.I. D. Mountain co-PI: D.R. Ketten	Active Filtering in the Cochlea	Basic Research
2003-2005	NOPP	P.I. D.R. Ketten co-PI: Mountain, Hubbard	Beaked Whale Hearing Models	Basic Research
2004-2009	OPNAV/DOD	P.I. D.R. Ketten	Under Impulse and Shock Wave Data/Dolphin and Turtle Safety Zones for Mitigation	Basic and Clinical Research
2007-2009	JIP	P.I. D.R. Ketten, co-PI: Mountain	Modeling Mysticete Hearing	Basic Research
2008-2013	ONR	P.I. D.R. Ketten	Imaging Database to Improve Stranding Response Success	Basic Research
2009-2011	ONR	PI: P Tyack co-PI: Fahlman, Ketten, Moore	Imaging the Lung Under Pressure	Basic Research
2010-2013	WHOI	P.I. D.R. Ketten	Finite Element Modeling of Sound Paths in Cetaceans	Basic Research
2010-2014	NIH	P.I. M. Svirsky co-PI: D.R. Ketten	Cochlear Implants and Speech Perception	Basic and Clinical Research
2010-2013	N45/Env Div/NPGS	P.I. D.R. Ketten, co-PI: Mountain	Modeling Beaked and Baleen Whale Hearing	Basic Research
2014-2015	LMRS	P.I. D.R. Ketten, co-PI: Mountain	Macro to Micro Acoustic Power Flow Hearing Models	Basic Research

## EDUCATIONAL ACTIVITIES

Advisees/Committees (HMS = Harvard Medical School; HST = Harvard Sciences & Technology; WHOI = Woods Hole Oceanographic Institution)

Dates	Student Name	Role	Student Affiliation	Current Position
<b>Medical Research Fellows</b>				
1993-1995	Jan Vandevenne, M.D.	Research Fellow Project Advisor	Radiology, Mass. General Hospital	Radiologist, Brussels, Belgium
1995-1996	Amin Jalaludin, M.D.	Research Fellow Project Advisor	research fellow, HMS Otolaryngology	Otolaryngologic surgeon, Kuala Lumpur, Malaysia
1996-1998	Jaime Rappaport, M.D.	Research Fellow Project Advisor	research fellow, HMS Otolaryngology	Otolaryngologic surgeon, McGill Hospital, Montreal, Canada
1998-1999	Shiao Jiun-Yih, M.D.	Research Fellow Project Advisor	research fellow, HMS Otolaryngology	Otolaryngologic surgeon, Taiwan
<b>Undergraduate</b>				
2005, 2006	Maya Yamato	Advisor	WHOI Summer Student	Matriculated MIT doctoral program 2007
2008-2010	Matthew Dunn	Advisor	WHOI Summer	Boston College, Boston,

2010	Sarah McKay Strobelh	Advisor	Student WHOI Summer Student	MA Princeton University
2010	Alexandra Scharr	Advisor	WHOI Summer Student	Pomona College, California
<b>M.S. Students</b>				
1993-1995	Lek Mui, M.S.	M.S. Thesis Advisor	MIT/HST, Biomedical Imaging	M.S. awarded, 1995 Macmillan Fellow, Oxford University, Ph.D. student, HST
1995-1997	Edward Baik, M.S.	M.S. Thesis Advisor	MIT/HST, Biomedical Imaging	M.S. awarded, 1997 Engineer, Jet Propulsion Laboratories
1998-2001	Sarah Marsh, M.S.	M.S. Thesis Advisor	M.S. student, MIT, Biology	M.S. awarded 2001 Ph.D. student, Genetics, Univ. of Wisconsin Medical School
2011- 2013	Carolin Nieder	M.S. Thesis co-Advisor	Guest student, Neurosciences	M.S. Awarded 2013, University of Frieberg
<b>Ph.D. Students</b>				
1998-2000	Patrick Miller, Ph.D.	Ph.D. Thesis Committee member	MIT- joint program	Ph.D. awarded 2000, Postdoctoral Investigator, St. Andrews University
1999	Sirpa Nummela, Ph.D.	Official opponent, Ph.D. defense, thesis committee	Ph.D. candidate, Univ. of Helsinki	Ph.D. awarded 1999, Postdoctoral Researcher, Ecology and Systematics, Univ. of Helsinki; Asst. Prof. Northern Ohio Medical School
1999-2004	Jennifer Hammock	Ph.D. Thesis Advisor	Ph.D. student, Biology, MIT	Ph.D. awarded 2005, Research Scientist, FDA2006; Research Associate, Smithsonian Inst.
1999-2004	Susan Parks	Committee member, thesis subproject advisor	Ph.D. student, Biology, MIT	Ph.D. awarded 2004, Post-doctoral investigator, Cornell University 2005- 2006, Asst. Prof. Univ. Penn
1999-2004	Stephanie Watwood	Ph.D. Thesis Committee	Ph.D. student, Biology, MIT	Ph.D. awarded 2004, Rsch Assoc. MIT
2000-2001	Brenda Jensen	Chair, Ph.D. defense	Ph.D. student, Biology	Post-doctoral Fellow, Environmental Health, Boston Univ.
2000-2006	Eric Montie	Thesis Committee	Ph.D. student, Biology, MIT	post-doctoral fellow WHOI, Univ. of Florida
2000-2005	Joanna Wilson	Chair, Ph.D. Thesis proposal	Ph.D. student, Biology, MIT	Post-doctoral fellow WHOI

2002-2006	Regina Campbell Malone	defense Thesis Committee	Ph.D. student, Biology, MIT	Ph.D. awarded 2007, Post doctoral fellow Johns Hopkins University
2007- 2012	Maya Yamato	Ph.D. Thesis Advisor	Ph.D. student, Biology, MIT	Ph.D. Completed Sept. 2012, Post-doctoral fellow, Smithsonian Paleontology
2011- present	Michael Gray	Thesis Committee	Ph.D. student, Georgia Tech Univ.	Graduate Student
2011- present	Sherri Eldridge	Thesis Committee	Ph.D. student, Boston Univ.	Graduate Student

**Postdoctoral  
Fellows  
Scholars**

2001-2004	Heather Koopman, Ph.D.	Research Advisor	Postdoctoral Scholar	Associate Professor, Univ. of N. Carolina at Wilmington
2001-2004	Soraya Bartol-Moein, Ph.D.	Research Advisor	Postdoctoral Investigator	Asst. Prof. Virginia Wesleyan University
2004-2005	Jennifer Hammock, Ph.D.	Research Advisor	Postdoctoral Investigator	Research Associate, Smithsonian Institution,
2009	Songhai Li, Ph.D.	Research Advisor	Postdoctoral Investigator	Hydrobiolgoy Institute, Wuhan, China
2008-2010	T. Aran Mooney, Ph.D.	Research Advisor	Postdoctoral Scholar	Asst. Scientist, WHOI

**Guest Students/Co-Advisor**

Alexandra Scharr, graduate student, Stanford, Neurosciences, 2011  
Maggie Ryan, High School Summer student, 2011  
Matthew Dunn, Boston College Undergraduate, 2009-2011  
Louise Brooks, University of California, graduate student (2004-2005)  
Susannah Prahl, Kiel University, Germany, graduate student (2000-2006),  
Klaus Lucke, Kiel University, Germany, graduate student (1998-99, 2002-2005)  
Pedro Frazao Univ. of Lisbon, Portugal, senior honors research thesis (1999)  
Paco Olliverdes, Univ. of Texas, doctoral student (1999)  
Itamar Tsur D.V.M.; senior Ph.D. candidate, Biology, Univ. of Tel Aviv (2000, 2008, 2009, 2012)  
Chantal Van Ginkel, Eckerd College, undergraduate summer student fellow (2013)

**TEACHING**

**Courses Taught**

2012	WAZE Animal Imaging, Tufts University
2009, 2011	Marine Biology Laboratory, Biology of the Inner Ear
2010	WHOI, Marine Mammals: Principles of Neuroethology and Marine Sensory Systems
1998-2000	WHOI, Behavior of marine animals: Physiology of Perception
1996-1999	WHOI/MBL/BUMP, joint course: Biology of Marine Mammals
1987-1988	Harvard University, Course Laboratory Assistant, Comparative Physiology
1981-1984	Towson State University, Introductory Biology, Evolutionary Biology
1982-1983	Goucher College, Animal Behaviour
1974-1979	Suffolk University, Embryology, Introductory Biology, Marine Biology

**Visiting Faculty Appointments/Specialty Lectures**

2012	Guest Lecturer	University of Massachusetts, Boston, Graduate Neurosciences
	Guest Lecturer	WAZE Lecture: Veterinary Imaging, Tufts Veterinary School
	Guest Lecturer	Special Lecture Series: Marine Mammal Sensory Systems and Necropsy Techniques: Taiwan National University, National Chiayi University, National Changkung University
2010	Lecturer/Prosector	Tufts University Veterinary School, Special lecture on Veterinary Imaging AquaVet Special Lectures and Practical Sessions on Radiologic Imaging
2009	Lecturer/Prosector	Necropsy Workshop II, Ministry of the Environment and Bahamas Marine Mammal Research Organisation. Nassau, Bahamas Necropsy Workshop: Cook Islands Stranding Network, Rarotonga, CI
2008	Lecturer/Prosector	Necropsy Workshops I, Ministry of the Environment and Bahamas Marine Mammal Research Organisation. Nassau, Bahamas
2005	Lecturer/Prosector	Necropsy Workshop, Australian Ministry of the Environment, Conservation, Wildlife Impacts and Protection, Dept. of the Environment and Heritage, Hobart, Tasmania and Sydney, NSW, Australia.
2004	Lecturer	NOAA Fisheries Lecture Series on Ocean Acoustics
1989-present	Lecturer	In-service Radiology lectures, MEEI
	Lecturer	Clinical Pathology Conferences, Department of Otology and Laryngology, Harvard Medical School, MEEI
1987- present	Lecturer	Sensory Physiology, Marine Mammal Biology, Brandeis University
2001	Faculty	Pauley Foundation Workshop, Univ. of Hawaii Institute of Marine Biology
2000	Lecturer	Animal Behaviour and Communications Workshop University of California at Davis
1999	Faculty	Acoustical Society Short Course, Marine Mammal Bioacoustics
	Visiting Professor	Institute of Biology, Odense Universitet, Denmark
	Lecturer	Lowell Lecture Series; New England Aquarium
1998	Guest Lecturer	Neurosciences Forum, Parmley Hearing Research Institute, University of Chicago
	Visiting Professor	Acoustical Engineering/Biology, National University of Singapore
	Faculty	Cochlear Implant Workshop, American Academy of Otolaryngology-Head and Neck Surgery
	Faculty	Surgical Workshop; American Academy of Otolaryngology-Head and Neck Surgery
1997	Lecturer	Underwater Acoustics and Low Frequency Sonar: Naval War College
	Guest Lecturer	Sensory Neurosciences Program, Zoology Department, University of Maryland
	Senior Faculty	Marine Forensics Workshop; National Marine Fisheries Service and Armed Forces Institute of Pathology

1996	Senior Faculty	Office of Naval Research Biosonar Workshop, University of California at Santa Cruz
	Instructor	Temporal Bone Workshop, Association for Research in Otolaryngology
1995	Instructor	Acoustical Society of America, Short Course in Marine Mammal Bioacoustics
	Lecturer	NIH Consensus Development Conference, Cochlear Implants
	Section Instructor	Course: Cochlear Implants: The Clinical Issues, Massachusetts Eye and Ear Infirmary
1994	Visiting Lecturer	Earth and Planetary Sciences, Massachusetts Institute of Technology
1993	Guest Lecturer	Neuroradiology Grand Rounds, Barnes Hospital and Washington University School of Medicine
	Guest Lecturer	Neuroscience Colloquium: Howard Baker Lectures, Dept. of Psychology, Florida State University
	Faculty	3-D Reconstruction of Temporal Bones, Satellite Course, Amer. Acad. of Otol.-Head and Neck Surgery
	Senior Faculty	In situ sectioning of cochlear implants, Satellite Course, Amer. Acad. of Otol.-Head and Neck Surgery
1992	Visiting Scientist	Neurobiology, Shoals Marine Laboratory, Cornell University
1991	Research Associate	Sensory Neurobiology Program, Syracuse University

## COLLABORATIONS and CO-AUTHORS

### Marine Mammal Research

Craig, James; Naval Surface Weapons Center; blast trauma  
 Dolphin, William, Ph.D., Boston University; marine mammal evoked potentials  
 Fahlman, Andreas, Ph.D., National Medical Center, Bethesda, MD, dive physiology  
 Fish, Frank, Ph.D., West Chester University; marine mammal hydrodynamics  
 Hubbard, Allyn, Ph.D., Boston University; marine mammal head Finite Element Models  
 Jepson, Paul, Ph.D., London Zoo, marine mammal Pathology.  
 McCall, Sherman; M.D., Armed Forces Inst. of Pathology; blast trauma  
 Nachtigall, Paul, Ph.D., University of Hawaii; marine mammal evoked potentials  
 Nweeia, Martin, D.O., Harvard Medical School, narwhals  
 Seibert, Ursula, DVM, Kiel University, Germany, marine mammal cranial pathology  
 Reidenberg, Joy, Ph.D., Mt. Sinai Hospital; blast trauma  
 Sandberg, Glenn, M.D., Armed Forces Inst. of Pathology; blast trauma

### Invertebrates

Cohen, Anne, Ph.D., WHOI; coral structure and climate change  
 Cantin, Neal, Ph.D., University of Queensland, AU; coral structure  
 Lavery, Andone, Ph.D., WHOI; acoustic scattering models  
 Stanton, Timothy, Ph.D., WHOI, marine acoustics

### Fishes

Edds-Walton, Peggy, Ph.D., Marine Biology Laboratories; fish hearing  
 Fay, Richard R., Ph.D., Marine Biology Laboratories; fish hearing  
 Naylor, Gavin, Medical University of South Carolina, elasmobranch  
 Popper, Arthur, Ph.D., Univ. of Maryland; fish hearing  
 Potter, John, Ph.D., University of Singapore; ocean acoustics  
 Webb, Jacqueline, Ph.D., University of Rhode Island fish anatomy and evolution

### Auditory Systems and Medical Imaging

Carr, Catherine, Ph.D., University of Maryland, avian and reptilian columellar systems

Chadwick, Richard, Ph.D., NIH, cochlear models and atomic force microscopy  
 Eddington, Donald, Ph.D., MIT, Mass. Eye and Ear Infirmary; cochlear implants  
 Guyot, Jean-Phillipe, M.D., Hopital Universitaire de Geneve, vestibular surgical approaches  
 Holden, Tim, Ph.D., Washington University Medical School; cochlear implants  
 Hubbard, Allyn, Ph.D., Boston University; inner and middle ear Finite Element Models  
 Lahav, Amir, Brigham and Women's Hospital, fetal and neonate hearing  
 Long, Christopher, Ph.D., Cochlear Limited, University of Colorado; cochlear implants  
 Mason, Jeffrey, M.D., Ph.D., AFIP, MicroMRI of the Inner Ear and Traumatic Brain Injury  
 Mountain, David, Ph.D., Boston University; inner and middle ear Finite Element Models  
 Nadol, J.B. Jr., M.D., Harvard Medical School, Mass. Eye and Ear Infirmary; inner ear implants, pathology  
 Potter, Kimberley, Ph.D., AFIP, MicroMRI of the Inner Ear and Traumatic Brain Injury  
 Riquimaroux, Hiroshi, Ph.D. Doshisha University, Kyoto, Japan, bat biosonar  
 Simmons, Andrea, Ph.D., Brown University, Amphibian hearing  
 Simmons, James, Ph.D., Brown University, Bat biosonar  
 Sisneros, Joseph, Ph.D., University of Washington, fish hearing  
 Skinner, Margaret, Ph.D., Washington Univ. School of Medicine; cochlear implants  
 Svirsky, Mario, Ph.D., New York University Medical School; cochlear implants and speech perception  
 Wall, Conrad, Ph.D., Harvard Medical School, vestibular systems and prostheses  
 Walsh, Edward, Ph.D., Boys Town National Research Hospital, large carnivore hearing

## BIBLIOGRAPHY

### Refereed Journal Publications

(pdfs available <http://csi.who.edu>)

- 1977 Bishop, J.K.B., J.M. Edmond, D.R. **Ketten**, M.P. Bacon, and W.B. Silker The chemistry, biology, and vertical flux of particulate matter from the upper 400 m. of the equatorial Atlantic Ocean. *Deep-Sea Research*, 24, pp. 511-548.
- 1978 Bishop, J.K.B., D.R. **Ketten**, and J.M. Edmond The chemistry, biology, and vertical flux of particulate matter from the upper 400 m. of the Cape Basin in the S.E. Atlantic Ocean. *Deep-Sea Research*, 25, pp. 1121-1161.
- 1979 **Ketten**, D.R. and J.M. Edmond Gametogenesis and calcification of planktonic Foraminifera. *Nature*, 278, pp. 546-548.
- 1980 Bishop, J.K.B., R.W. Collier, D.R. **Ketten**, and J.M. Edmond The chemistry, biology, and vertical flux of particulate matter from the upper 1500 m. of the Panama Basin. *Deep-Sea Research*, 27A, pp. 615-640.
- 1989 Graybeal, A., J.J. Rosowski, D.R. **Ketten**, and A.W. Crompton Inner ear structure in *Morganucodon*, an Early Jurassic mammal. *Zool. Jour. Linn. Soc. Lon.*, 96, pp. 107-117.
- 1990 **Ketten**, D.R. and D. Wartzok Three-dimensional reconstructions of the dolphin ear. In: *Sensory Abilities of Cetaceans: Field and Laboratory Evidence*, J. Thomas and R. Kastelein (eds.), Plenum Press, Proc. NATO ASI Ser. A, Life Sci., vol. 196 pp. 81-105.



- 1991 Zhaxi, L. and D. R. **Ketten** CT Scanning and computerized reconstructions of the inner ear of multituberculate mammals. *J. Vert. Paleont.* , 11(2): 220-228.
- 1993 **Ketten**, D.R., J. Lien, and S. Todd Blast injury in humpback whale ears: Evidence and implications. *J. Acous. Soc. Am.*, Vol. 94, no. 3, pt. 2, pp. 1849-1850.
- 1993 **Ketten**, D.R. The Cetacean Ear: Form, frequency, and evolution. In: *Marine Mammal Sensory Systems*, J. Thomas, R. Kastelein, and A. Supin (eds.), Plenum Press, pp. 53-75.
- 1993 **Ketten**, D.R., D.K. Odell, and D.P. Domning Structure, function, and adaptation of the manatee ear. In: *Marine Mammal Sensory Systems*, J. Thomas, R. Kastelein, and A. Supin (eds.), Plenum Press, pp. 77-95.
- 1994 Nadol, J.B., Jr., **Ketten**, D.R., and B. Burgess Otopathology in a case of cochlear implantation, *Laryngoscope*, vol. 104, no. 3, pp. 299-303.
- 1994 Skinner, M., **Ketten**, D., Vannier, M., Gates, G., Yoffie, R., and Kalender, W. Determination of the position of Nucleus cochlear implant electrodes in the inner ear. *Am. Jour. Otol.* vol. 15, no. 5, pp. 644-651.
- 1994 **Ketten**, D.R. Functional Analyses of Whale Ears: Adaptations for Underwater Hearing, *I.E.E.E Underwater Acoustics*, vol. 1, pp. 264 - 270.
- 1994 **Ketten**, D. R. The Role of temporal bone imaging in cochlear implants. *Curr. Opn. Otol. & HN Surg., Otolology-Neurotology*, vol. 2, no. 5, pp. 401-408.
- 1995 GA Gates, K Daly, WJ Dichtel, et al. Cochlear implants in adults and children. *JAMA: The Journal of the American Medical Association* 274 (24), 1955-1961
- 1995 **Ketten**, D.R. Estimates of blast injury and acoustic trauma zones for marine mammals from underwater explosions. In: *Sensory Systems of Aquatic Mammals*, R. Kastelein, J. Thomas, and P. Nachtigall (eds.), De Spil Publishers, pp. 391-408.
- 1996 Todd, S., S. Stevick, J. Lien, F. Marques, and D. **Ketten** Behavioural effects of exposure to underwater explosions in humpback whales (*Megaptera novaeangliae*). *Canadian Journal of Zoology*, 74(9):1661-1672.
- 1996 HL Roitblat, D Ketten, WWL Au, PE Nachtigall. A computational model of early stages of dolphin hearing. *The Journal of the Acoustical Society of America* 100 (4), 2643-2643
- 1996 Wang, G., Vannier, M., Skinner, M., Kalender, W., Polacin, A., and **Ketten**, D. Unwrapping cochlear implants by spiral CT, *IEEE Trans. Biomed. Eng.*, vol. 43, no. 9, pp. 891-900.
- 1997 Mass, A.M., D. K. Odell, D.R. **Ketten**, and A. Ya. Supin Ganglion layer topography and retinal resolution of the Caribbean Manatee, *Trichechus manatus latirostris*. *Dokl. Akad. Nauk* 355(3): 427-430 [In Russian]. English translation: *Doklady Biological Sciences* 355: 392-394.
- 1997 **Ketten**, D.R. Structure and Function in Whale Ears, *Bioacoustics*, vol. 8, no. 1, pp. 103-136.

- 1997 André, M., C. Kamminga, and D. **Ketten** Are Low Frequency Sounds a Marine Hearing Hazard: A Case Study in the Canary Islands. Proc. of the Inst. of Acoustics, vol. 19, no. 9, pp. 35-43.
- 1998 **Ketten**, D.R. Marine mammal ears: An Anatomical perspective on underwater hearing. Proc. Int. Cong. on Acoust., vol. 3, pp. 1657-1660.
- 1998 **Ketten**, D.R., Skinner, M., Wang, G., Vannier, M., Gates, and Neely, G. *In vivo* Measures of Cochlear Length and Insertion Depths of Nucleus® Cochlear Implant Electrode Arrays. Annals of Otology, Rhinology, and Laryngology, vol. 107, no. 11, pp. 1-16.
- 2001 Nadol, J.B., Jr., J.Y. Shiao, B.J. Burgess, D.R. **Ketten**, D.K. Eddington, B.J. Gantz, I. Kos, P. Montandon, N.J. Coker, J.T. Roland, Jr., and J.K. Shallop Histopathology of Cochlear Implants in humans. Annals of Otology, Rhinology, and Laryngology. 110(9):883-91.
- 2001 EJ Walsh, DR Ketten, J Arruda, DL Armstrong, T Curro, LG Simmons, LM Wang Temporal bone anatomy in *Panthera tigris*. Acoustical Society of America Journal 115, 2485-2486
- 2001 Webb, J.F., Smith, W.L. and **Ketten**, The Laterophysic Connection, A Unique Swim Bladder-Lateral Line Connection in Butterflyfishes: An Evolutionary Novelty with Implications for Sensory Function. J. Morphol. 248(3): 298-299.
- 2002 de Muizon, C., D.P. Domning, and D.R. **Ketten** Odobenocetops peruvianus, the walrus-convergent delphinoid from the lower Pliocene of Peru. Smithsonian Cont. Paleobiology., no. 93:223-261.
- 2002 Skinner, M.W., D.R. **Ketten**, L.K. Holden, B.R. Whiting, K.T. Bae, L.T. Cohen, J.G. Neely, G.A. Gates, P.G. Smith, G.R. Kletzker Is there a relation between speech recognition and the position of cochlear implant electrodes in the inner ear? Seminars in Hearing, vol. 23(1):97-98.
- 2002 Skinner, M.W., D.R. **Ketten**, L.K. Holden, P.G. Smith, G.A. Gates, J.G. Neely, B. Brunsten, and B. Blocker CT Derived Estimation of Cochlear Morphology and Electrode Array Position in Relation to Word Recognition in Nucleus-22 Recipients. JARO, 03: 332-350.
- 2003 MF Dorman, D Ketten Adaptation by a cochlear-implant patient to upward shifts in the frequency representation of speech Ear and Hearing 24 (5), 457-460
- 2003 Mountain, D.C., Hubbard, A.E., **Ketten**, D.R. and O'Malley, J. The helicotrema: Measurements and models In: Biophysics of the Cochlea: from Molecules to Models. A.W. Gummer, E. Dalhoff, M. Nowotny, M. Scherer (eds.). World Scientific, Singapore, pp. 393-399.
- 2004 **Ketten**, D.R., T. Rowles, S. Cramer, J. O'Malley, J. Arruda, and P. Evans. Cranial Trauma in Beaked Whales. Proceedings of the Workshop on Active Sonar and Cetaceans, ECSN, no. 42, pp. 21-27.
- 2004 Ramcharitar, J.U, Deng, X., **Ketten**, D., and Popper, A. N. Form and Function in the Unique Inner Ear of a Teleost: The Silver Perch (*Bairdiella chrysoura*). J. Comparative Neurology, 475(4), pp. 531-539.

- 2004 **Ketten**, D.R. Marine Mammal Auditory Systems: A Summary of Audiometric and Anatomical Data and Implications for Underwater Acoustic Impacts. *Polarforschung*, 72. Jahrgung, Nr. 2/3, pp. 79-92.
- 2005 Horowitz, S., Simmons, A.M., and **Ketten**, D.R. Optical and tomographic imaging of a middle ear malformation in the bullfrog (*Rana catesbeiana*), *Jour. Acous. Soc. of Amer.*, Vol. 118, No. 2, pp. 1166–1171, August 2005
- 2006 Cox, T.M., T.J. Ragen, A.J. Read, E. Vos, R.W. Baird, K. Balcomb, J. Barlow, J. Caldwell, T. Cranford, L. Crum, A. D'Amico, G. D'Spain, A. Fernández, J. Finneran, R. Gentry, W. Gerth, F. Gulland, J. Hildebrand, D. Houser, T. Hullar, P.D. Jepson, D. **Ketten**, C.D. MacLeod, P. Miller, S. Moore, D. Mountain, D. Palka, P. Ponganis, S. Rommel, T. Rowles, B. Taylor, P. Tyack, D. Wartzok, R. Gisiner, J. Mead, L. Benner. Understanding the Impacts of Anthropogenic Sound on Beaked Whales, *Journal of Cetacean Research and Management*, vol. 7(3), pp. 177-187.
- 2006 Fish, F. E., Nusbaum, M. K., Beneski, J. T. and **Ketten**, D. R.. Passive cambering and flexible propulsors: cetacean flukes. *Bioinspiration and Biomimetics* 1: S42-S48
- 2006 Miller, B.S., Zosuls, A.L., **Ketten**, D.R. and Mountain, D.A. Middle ear stiffness of the bottlenose dolphin (*Tursiops truncatus*) *IEEE Journal of Oceanic Engineering*, vol. 31(1), pp. 87-94
- 2006 Koopman, H.N., S.M. Budge, D.R. **Ketten**, and S.J. Iverson. The topographical distribution of lipids inside the mandibular fat bodies of odontocetes: Remarkable complexity and consistency. *IEEE Journal of Oceanic Engineering*, vol. 31(1), pp. 95-106.
- 2006 Webb, J.F., Smith, W.L., **Ketten**, D.R. The laterophysic connection and swim bladder in butterflyfishes in the genus *Chaetodon* (Perciformes: Chaetodontidae). *Journal of Morphology*. 267:1338–1355.
- 2006 Miller, B.S., S.O. Newburg, A.L. Zosuls, D.C. Mountain, and D.R. **Ketten**. Biomechanics of Dolphin Hearing. A comparison of middle and inner ear stiffness with other mammalian species. In: Nuttal, A.L. (ed.) *Auditory Mechanisms: Processes and Models*. Pp. 121-124.
- 2006 Chadwick, R.S, Manoussaki, D., Dimitriadis, E.K., Shoelson, B., **Ketten**, D.R., Arruda, J., O'Malley, J.T. Cochlear coiling and low-frequency hearing. In: Nuttal, A.L. (ed.) *Auditory Mechanisms: Processes and Models*. pp. 417-424.
- 2007 Parks, S. E., **Ketten**, D. R., O'Malley, J.T., and J. Arruda. Anatomical Predictions of Hearing in the North Atlantic Right Whale. *The Anatomical Record*. 290:734–744
- 2007 Fish, F.E., Beneski, J.T., and D.R. **Ketten**. Examination of the Three-Dimensional Geometry of Cetacean Flukes Using Computed Tomography Scans: Hydrodynamic Implications. *The Anatomical Record*. 290:614–623.
- 2007 Montie, E, Schneider, G., **Ketten**, D., Marino, L., Touhey, K., and Hahn, M. Neuroanatomy of the Subadult and Fetal Brain of the Atlantic White-Sided Dolphin (*Lagenorhynchus acutus*) from in situ Magnetic Resonance Images. *The Anatomical Record*. 290:1459-1479.

- 2007 Southall, B. L., A. E. Bowles, W. T. Ellison, J. J. Finneran, R. L. Gentry, C. R. Greene Jr., D. Kastak, D. R. **Ketten**, J. H. Miller, P. E. Nachtigall, W. J. Richardson, J. A. Thomas and P. L. Tyack. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. *Aquatic Mammals*, vol. 33 (4), pp. 1 - 521
- 2008 Montie, E, Schneider, G., **Ketten**, D., Marino, L., Touhey, K., and Hahn, M Volumetric Neuroimaging of the Atlantic White-Sided Dolphin (*Lagenorhynchus acutus*) brain from in situ magnetic resonance images. *The Anatomical Record*, 291: 263-282.
- 2008 Popper, A.N. and D.R. **Ketten**, Underwater Hearing. In: *The Senses: A Comprehensive Reference* , Elsevier Press, Oxford, England. Vol 3 (225-236).
- 2008 Manoussaki, D., Chadwick, R.S, **Ketten**, D.R., Arruda, J., Dimitriadis, D., O'Malley, J.T. The Influence of Cochlear Shape on Low-Frequency Hearing. *Proc. Natl. Acad. Sci*, vol. 105(6): 6162-6166. (Featured Article of Issue)
- 2008 **Ketten**, D.R. Underwater ears and the physiology of impacts: Comparative liability for hearing loss in sea turtles, birds, and mammals. *Bioacoustics*, vol. 17, no. 1-3, pp. 312-315.
- 2008 Yamato, M., **Ketten**, DR , Arruda, J, and Cramer, S Biomechanical and structural modeling of hearing in baleen whales. *Bioacoustics*, vol. 17, no. 1-3, pp. 100-102.
- 2008 Mountain, DC, Zosuls, A, Newburg, S, and **Ketten**, DR. Predicting cetacean audiograms. *Bioacoustics*, vol. 17, no. 1-3, pp 77-80.
- 2008 Prahl, S., **Ketten**, D.R, Siebert, U. Examinations of Ears in Harbour Pospoises from the North and Baltic Seas. *Bioacoustics*, vol. 17, no. 1-3, pp 85-87.
- 2009 D'Amico, A. D., Gisiner, R., **Ketten**, D. R., Hammock, J. A., Johnson, C., Tyack, P. & Mead, J. Beaked whale strandings and naval activities. *Aquatic Mammals*, vol. 35 no. 4 pp. 452-472.
- 2009 Filadelfo R, Mintz, J., Michlovich E, D'Amico AD, Tyack P, **Ketten** DR. Correlating military sonar use with beaked whale mass strandings: what do these historical data show *Aquatic Mammals*, . 35 no. 4 pp. 435-444.
- 2009 Filadelfo, R., Pinelis, Y. K., Davis, S., Chase, R., Mintz, J., Wolfanger, J., Tyack, P. L., **Ketten**, D. R., and D'Amico, A. Correlating whale strandings with Navy exercises off Southern California. *Aquatic Mammals*, vol. 35 no. 4 pp. 452-472
- 2010 Webb, J. F., Herman, J. L., Woods, C. F. and **Ketten, D. R.** The ears of butterflyfishes: 'Hearing generalists' on noisy coral reefs? *Journal of Fish Biology*, 77: 1434-1451. doi: 10.1111/j.1095-8649.2010.02765
- 2010 Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Nachtigall, PE, **Ketten**, DR. 2010. Sound detection by the longfin squid (*Loligo pealeii*) studied with auditory evoked potentials: sensitivity to low-frequency particle motion and not pressure. *Journal of Experimental Biology*, vol. 213:3748-3759
- 2011 Fontella, J, FE Fish, N Rybczynski, M Nweeia, and DR **Ketten**,. Three-Dimensional Geometry of the Narwhal (*Monodon monoceros*) Flukes in Relation to Hydrodynamics. *Marine Mammal Science* (DOI: 10.1111/j.1748-7692.2010.00439). *Marine Mammal Science*, p.1-10

- 2011 Hooker, S.K., A. Fahlman, M. J. Moore, N. Aguilar de Soto, Y. Bernaldo de Quirós, A. O. Brubakk, D. P. Costa, A. M. Costidis, S. Dennison, K. J. Falke, A. Fernandez, M. Ferrigno, J. R. Fitz-Clarke, M. M. Garner, D. S. Houser, P. D. Jepson, **D. R. Ketten**, P. H. Kvadsheim, P. T. Madsen, N. W. Pollock, D. S. Rotstein, T. K. Rowles, S. E. Simmons, W. Van Bonn, P. K. Weathersby, M. J. Weise, T. M. Williams, P. L. Tyack. Deadly diving? Physiological and behavioural management of decompression stress in diving mammals. *Proc. R. Soc. B* Published online, doi: 10.1098/rspb.2011.2088
- 2011 Mooney, A. T., Li, S., **Ketten, D. R.**, Wang, K., and Wang, D. Auditory temporal resolution and evoked responses to pulsed sounds for the Yangtze finless porpoises (*Neophocaena phocaenoides asiaeorientalis*), *Journal of Comparative Physiology A Neuroethology, Sensory, Neural, and Behavioral Physiology*, 12/2011, vol. 197, Issue 12, p.1149-1158.
- 2012 Mass, A.M., D. R. **Ketten**, D. K. Odell, A. Ya. Supin. Ganglion Cell Distribution and Retinal Resolution in the Florida Manatee, *Trichechus Manatus Latiostris*. On line: DOI: 10.1002/ar.21470. *The Anatomical Record: Advances in Integrative Anatomy and Evolutionary Biology*, vol. 295 (1): 177–186.
- 2012 **Ketten, D.R.** Marine Mammal Auditory System Noise Impacts: Evidence and Incidence. In: *The Effects of Noise on Aquatic Life*, A. Popper and A. Hawkins (eds). *Advances in Experimental Medicine and Biology*, vol. 730, pp. 207-212.
- 2012 Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, **Ketten, DR**, Nachtigall, PE. “The potential for sound sensitivity in cephalopods.” In: *The Effects of Noise on Aquatic Life*, A. Popper and A. Hawkins (eds). *Advances in Experimental Medicine and Biology*, vol.730, pp. 125-128.
- 2012 Vigness-Raposa, K.J., G. Scowcroft, J. H. Miller, D.R. **Ketten**. Discovery Of Sound In The Sea: An On-Line Resource. In: *The Effects of Noise on Aquatic Life*, A. Popper and A. Hawkins (eds). *Advances in Experimental Medicine and Biology*, vol.730, pp. 135-138
- 2012 Tubelli, A., A. Zosuls, D. R. **Ketten** and D. C. Mountain. Prediction of a Mysticete Audiogram via Finite Element Analysis of the Middle Ear. In: *The Effects of Noise on Aquatic Life*, A. Popper and A. Hawkins (eds). *Advances in Experimental Medicine and Biology*, vol.730, pp. 57-60.
- 2012 Zosuls, A., S. O. Newburg, D. R. **Ketten** and D. C. Mountain. Reverse Engineering the Cetacean Ear to Extract Audiograms. In: *The Effects of Noise on Aquatic Life*, A. Popper and A. Hawkins (eds). *Advances in Experimental Medicine and Biology*, Volume 730, pp.61-64.
- 2012 Yamato, M., **Ketten D. R.**, Arruda J. J., Cramer S. R., and Moore K. The auditory anatomy of the minke whale (*Balaenoptera acutorostrata*): a potential fatty sound reception pathway in a baleen whale, *The Anatomical Record*, vol. 295:991-998.
- 2012 Svirsky, M. A., M B Fitzgerald, A Neuman, E Sagi, C-T Tan, D R **Ketten**, and B Martin. Current and planned cochlear implant research at New York University Laboratory for Translational Auditory Research, *Journal of the American Academy of Audiology*, vol. 23, Issue 6, New York, p.422-437.

- 2012 **Ketten**, D.R., J. Simmons, H. Riquimaroux, S. Cramer and J. Arruda Cochlear structural variants in echolocators, *Journal of the Acoustical Society of America*, 04/2012, Volume 131, Issue 4, p.3423-3423.
- 2012 Christensen-Dalsgaard, J, C Brandt, K Willis, CB Christensen, D **Ketten**, P Edds-Walton, R R. Fay, PT Madsen, CE Carr. Specialisation for underwater hearing by the tympanic middle ear of the turtle, *Trachemys scripta elegans*. *Proc. Royal Soc. Biol. Sci*, vol. 279, Issue 1739, pp. 2816-2824.
- 2012 Foote, K., M. Hastings, **D.R. Ketten**, Y-T Lin, J. Reidenberg, and K. Rye. Sonar-induced pressure fields in a post-mortem common dolphin. *Journal of the Acoustical Society of America*, vol.13, Issue 2, pp.1595-1604.
- 2012 Tubelli, A., A. Zosuls, D. **Ketten**, M. Yamato, and D. Mountain. A prediction of the minke whale (*Balaenoptera acutorostrata*) middle-ear transfer function. *Journal of the Acoustical Society of America*, vol. 132(5), pp. 3263-3272.
- 2013 **Ketten**, D.R., J. Simmons, H. Riquimaroux, S. Cramer, J. Arruda. Critical Cranial and Cochlear Structures in Echolocators. 11th European Conference on Underwater Acoustics 2012 (ECUA 2012), Proceedings of the Institute of Acoustics Volume 34 Pt.3, pp. 572-577.
- 2013 **Ketten**, D.R., T.A. Mooney, S. Cramer, J. Arruda. Evidence of hearing loss in marine mammals via Auditory Evoked Potentials (AEP), Otoacoustic Emissions (OAE), and Computerized Tomography (CT). 11th European Conference on Underwater Acoustics 2012 (ECUA 2012), Proceedings of the Institute of Acoustics Volume 34 Pt.3, pp. 717-720.
- 2013 Willis, K.L., J. Christensen-Dalsgaard, D. R. **Ketten**, and C. E. Carr. Middle ear cavity morphology is consistent with an aquatic origin for testudines. *PLoS One*, 8(1): e54086. doi:10.1371/journal.pone.0054086
- 2013 Williams, S.R, Dennison, S., Dunnigan, B., Moore, B., Zagzebski, K., **Ketten, D.R.**, Cramer, S., Arruda, J. Diagnosis and Management Of Intestinal Partial Obstruction In A Loggerhead Turtle (*Caretta caretta*).*Journal of Zoo and Wildlife Medicine*. 44(2):457-461. doi: <http://dx.doi.org/10.1638/2011-0179R1.1>
- 2014 Tubelli, A.A., Zosuls, A., **Ketten**, D.R., and Mountain, D.C. Elastic modulus of cetacean auditory ossicles. *The Anatomical Record*; vol. 297, issue 5, pp. 892-900.
- 2014 Mooney, TA, S Li, D R **Ketten**, K Wang, D Wang Hearing pathways in the finless porpoise, *Neophocaena phocaenoides*. *Journal of Experimental Biology*, 217, 444-452, doi: 10.1242/jeb.093773.
- 2014 Kim, S.L., Thewissen, J.G.M., Churchill, M.M., Suydam, R.S., **Ketten, D.R.**, and Clementz, M. T. Unique biochemical and mineral composition of whale ear bones. *Physiological and Biochemical Zoology*. 87(4):576–584. DOI: 10.1086/676309
- 2014 Yamato, M., Koopman H., Niemeyer, M., and **Ketten**, D. Characterization of lipids in adipose depots associated with minke and fin whale ears: comparison with “acoustic fats” of toothed whales. Submitted: *Marine Mammal Science*; DOI: 10.1111/mms. 121 20, 15 pp/.

- 2014 **Ketten, D.R.** Sonars and Strandings: Are Beaked Whales the Aquatic Acoustic Canary? *Acoustics Today*. 10(3): 46-56. (Cover article)  
[https://acousticstoday.org/issues/2014AT/Summer2014/AT\\_SUMMER\\_2014.pdf](https://acousticstoday.org/issues/2014AT/Summer2014/AT_SUMMER_2014.pdf)
- 2014 Edds-Walton P.L., Arruda J., R.R. Fay, R.R., and **Ketten D.R.** Computerized Tomography of the Otic Capsule and Otoliths in the Toadfish, *Opsanus tau*. *Journal of Morphology*. 13 pp. DOI 10.1002/jmor.20336.
- 2014 Scharr A.L., Mooney T.A., Schweizer F.E., **Ketten, D.R.** Aminoglycoside Induced Damage in the Statocyst of the Longfin Inshore Squid, *Doryteuthis pealeii*. *Biol. Bull.* **227**: (1):51-60.

#### **In Press/Submitted**

- 2015 **Ketten, D.R.**, J. Arruda, and S. Cramer, M. Yamato. Great ears: Low Frequency Sensitivity Correlates in Land and Marine Leviathans. In: *The Effects of Noise on Aquatic Life, II*. A. Popper and A. Hawkins (eds). Springer-Verlag. 15 pp. In press.
- 2015 Yamato, M., **Ketten, D.**, Feijoo, G. Sound propagation through the minke whale (*Balaenoptera acutorostrata*) head modeled using the finite element method. Submitted: *Journal of the Acoustical Society of America*. In revision
- 2015 Mooney T.A., W.C. Yang, H.Y. Yu, **D. R. Ketten**, and I.F. Jen Hearing abilities and sound reception of broadband sounds in an adult Risso's dolphin (*Grampus griseus*), *Journal of Comparative Physiology A*. In press.
- 2015 Ellison et al., Modeling the aggregated exposure and responses of bowhead whales (*Balaena mysticetus*) to multiple sources of anthropogenic underwater sound. Submitted.

#### **Book Chapters/Technical Reports**

- 1992 **Ketten, D.R.** The Marine mammal ear: Specializations for aquatic audition and echolocation. In: *The Evolutionary Biology of Hearing*, D. Webster, R. Fay, and A. Popper (eds.), Springer-Verlag, pp. 717-750.
- 1996 **Ketten, D.R.** Estimates of Explosive Impacts on Marine Mammals. Report to East Coast Ecosystems, Government of Canada, Canadian Office of Naval Operations.
- 1997 **Ketten, D.R.** Assessments and Calculations of Acoustic Impacts from Subsurface Blasts. NMFS and Mass. Water Resources Authority Report.
- 1998 **Ketten, D.R.** Marine mammal Hearing and Acoustic Trauma: Basic Mechanisms, Marine Adaptations, and Beaked Whale Anomalies. In: *Report of the Bioacoustics Panel*, NATO/SACLANT, A. D'Amico and W. Verboom (eds.), pp. 2/21, 2/63-78.
- 1998 **Ketten, D.R.** Marine Mammal Auditory Systems: A Summary of Audiometric and Anatomical Data and Its Implications for Underwater Acoustic Impacts. NOAA Tech. Memor. NMFS, NOAA-TM-NMFS-SWFSC-256, 74 pp.
- 1999 Wartzok, D. and D.R. **Ketten** Marine Mammal Sensory Systems. In: *Biology of Marine Mammals*. J. Reynolds and S. Rommel (eds.), Smithsonian Institution Press, pp. 117-175

- 1999 Popper, A., **Ketten**, D.R., Dooling, R., Yost, W., Brill, R., Ridgway, S., and Shusterman, R. Effects of Anthropogenic Sounds on Hearing in Marine Animals. ONR Tech. Rpt., pp. 52-89.
- 2000 **Ketten**, D.R. Cetacean Ears. In: Hearing by Whales and Dolphins. W. Au, R. Fay, and A. Popper (eds.), SHAR Series for Auditory Research, Springer-Verlag, pp. 43-108.
- 2003 Committee on Potential Impacts of Ambient Noise in the Ocean on Marine Mammals, Ocean Noise and Marine Mammals. National Research Council, 204 pages.
- 2004 International Whaling Commission, Scientific Committee Report Annex K: Report of the Standing Working Group on Environmental Concerns, Marine Mammal Hearing and Evidence for Hearing Loss, Appendix 4 (pp 27-31).
- 2005 Norman, S.A., S. Raverty, B. McLellan, A. Pabst, D.R. **Ketten**, M. Fleetwood, J.K. Gaydos, B. Norberg, L. Barre, T. Cox, B. Hanson, and S. Jeffries Multidisciplinary Investigation of Harbor Porpoises (*Phocoena phocoena*) Stranded in Washington State from 2 May – 2 June 2003 Coinciding with the Mid-Range Sonar Exercises of the USS SHOUP. NOAA Northwest Fisheries. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, NOAA Technical Memorandum NMFS-NWR-34.
- 2005 **Ketten**, D.R. Beaked Whale Necropsy Findings for Strandings in the Bahamas, Puerto Rico, and Madeira, 1999-2002, Woods Hole Oceanographic Institution Technical Publication WHOI-2005-09. 36 pp.
- 2006 **Ketten**, D.R., I. Fischer, S. Cramer, S.M. Bartol, and J. OMalley Water, Fats, and Acoustic Impedance: Soft tissue adaptations for underwater hearing in turtles, seabirds and marine mammals. 23rd International Symposium on Sea Turtle Biology and Conservation, Living with Sea Turtles, NOAA Technical Report, p. 162.
- 2007 Nachtigall, Paul E., Purdy Michael G., Tyack Peter L., West Richard D., Worcester Peter F., Costa Daniel P., D' Spain Gerald, **Ketten** Darlene R., and Orcutt John A. Scientific research caucus statement: Report of the federal representatives of the marine mammal commission advisory committee on acoustic impacts on marine mammals (supplement), 01/2006, p.1-22,
- 2007 Young, N. (ed) Authors: Arruda, J.; Costidis, A.; Cramer, S.; **Ketten**, D.R.; McLellan, W.; Montie, E.W.; Moore, M.; Rommel, S., Odontocete salvage, necropsy, ear extraction, and imaging protocols. ONR/NOA Fisheries, 157 pp.  
<https://reefshark.nmfs.noaa.gov/pr/mm/sysadmin/nrsworkshop/>
- 2007 **Ketten**, D. R., S. Cramer, and J. Arruda. A Manual for the Removal, Fixation, and Preservation of Cetacean Ears. WHOI Technical Report. WHOI-2012-01, 26.pp.
- 2008 **Ketten**, D. R., E. Montie. Imaging Procedures for Stranded Marine Mammals. WHOI Technical Report, WHOI-2008-02, pp. 1-27.
- 2011 Bureau of Ocean Energy Management (BOEM), Department of Navy (DON), National Oceanic and Atmospheric Administration (NOAA), Marine Mammals and Sound Workshop: Report to the National Ocean Council Ocean Science and Technology Interagency Policy Committee, 69 pp.



- 2015 **Ketten, D.R.** Naval Sonars, Strandings, and Responsible Stewardship of the Seas. In: Navies and Soft Power: Historical Case Studies of Naval Power and the Non-use of Military Force, B. A. Elleman and S.C.M. Paine (eds.) Naval War College Press. Pp. 127-145.

**Theses**

- 1979 **Ketten, D.R.** Development of Planktonic Foraminifera: Oceanic Distributions and Growth in Culture. M.S. thesis, Massachusetts Institute of Technology, 128 pp.
- 1984 **Ketten, D.R.** Correlations of Morphology with Frequency for Odontocete Cochlea: Systematics and Topology. Ph.D. thesis, The Johns Hopkins University, 335 pp.

**Plenary/Keynote Lectures**

- 1998 **Ketten, D.R.** Man-made noise in the oceans: Irrelevant or irreparable? Plenary lecture, World Marine Mammal Conference; joint meeting, European Cetacean Society and the Society for Marine Mammalogy, Monaco.
- 1998 **Ketten, D.R.** Marine mammal ears: An Anatomical perspective on underwater hearing. Plenary Lecture, Acoustical Society of America, joint with International Acoustical Society, Seattle, Washington.
- 2002 **Ketten, D.R.** Structure, function, and injury: Marine vs. air-adapted ears. Plenary Lecture, Workshop on Significance of Sound Waves in the Marine Environment. Universitaet Kiel, Forschungs- und Technologiezentrum Westkueste, Germany.
- 2003 **Ketten, D.R.** If You've Seen One Mammal Ear, Have You Really Seen Them All? Keynote Lecture, International Conference on Communication by Animals, Acoustical Society of America, College Park, MD
- 2004 **Ketten, D.R.** Science, Strandings, and Conservation. Keynote Lecture, Workshop on Australian and New Zealand Stranding Response Efforts, Australian Ministry of the Environment, Conservation, Wildlife Impacts and Protection, Dept. of the Environment and Heritage, Sydney, NSW, Australia.
- 2005 **Ketten, D.R.** How to See What Whales Hear: Anatomical and Mathematical Modeling of Underwater Hearing. NIH-NIDCD Special Lecture.
- 2006 **Ketten, D.R.** Lessons from strandings: hearing, underwater sound, and hearing loss. Invited paper, Seismic Activity and the Marine Environment, Seminar, Rio de Janeiro, Brazil.
- 2006 **Ketten, D.R.** Mitigation: new directions and dead ends Invited plenary paper, Seismic Activity and the Marine Environment, Seminar, Rio de Janeiro, Brazil.
- 2007 **Ketten, D.R.** and S. Bartol-Moehn Hearing in Sea Turtles, Invited plenary paper The Effects of Noise on Aquatic Life, Nyborg, Denmark
- 2007 **Ketten, D.R.** Underwater Ears and the Physiology of Impacts: Comparative Liability for Hearing Loss in Sea Turtles, Birds, and Mammals, Invited plenary paper The Effects of Noise on Aquatic Life, Nyborg, Denmark
- 2007 **Ketten, D.R.** Effects of Noise: Comparisons for Air and Water Borne Sounds in Mammalian Ears. Neurosciences Colloquium, University of Maryland.

- 2009 **Ketten, D.R.** Underwater Ears and Potential Impacts: What whales can and cannot hear. Israeli Zoological Society, Keynote Lecture, University of Tel Aviv, Tel Aviv, Israel.
- 2009 **Ketten, D.R.** Whale and Bat Sonar: Imaging to Understand Convergence, Divergence, and Parallelism Hadassah Hospital, Dept. of Otolaryngology, Special Lecture for the Neurosciences, Jerusalem, Israel.
- 2013 **Ketten, D.R.** The Vertebrate Ear: Does Better Hearing Carry Higher Risk? 3<sup>rd</sup> International Conference: The Effects of Noise on Aquatic Life. Budapest, Hungary.
- 2014 **Ketten, D.R.** J. Arruda, S. Cramer, A. Zosuls, and D. Mountain. Biomechanical Modeling of Hearing in Whales: Implications for Underwater Acoustic Impacts. Keynote Address, Marine Megafauna Symposium, Australian Marine Science Association (AMSA 2014), Canberra, Australia.
- 2015 **Ketten, D.R.** Underwater Ears: Structure, Function, and Noise, Neurosciences Colloquium, Institut für Zoologie Rheinische Friedrich-Wilhelms-Universität, Bonn University, Bonn, Germany.

#### **Invited Lectures/Papers**

- 1978 Bishop, J.K.B., D.R. **Ketten**, R. Collier, M. Kurz, and J.M. Edmond The chemistry, biology, and vertical flux of particulate matter from the upper 1500 m. of the equatorial Pacific Ocean. Invited paper, Amer. Soc. of Limnology and Oceanography.
- 1984 **Ketten, D.R.** and D. Shirazian Stenurus infections of the harbor porpoise: A new finding and its behavioral implications. Invited paper, Helminthological Society of Washington.
- 1984 **Ketten, D.R.** Applications of recent radiographic procedures to the cochlear structures of cetaceans. Invited paper, Delta Omega Honor Society, Ann. Sess. Rsch. in Public Health.
- 1989 **Ketten, D.R.** and D. Wartzok Three-dimensional reconstructions of the dolphin cochlea. Invited paper, Sensory Biology Symposium, Fifth International Theriological Congress, Rome, Italy.
- 1990 **Ketten, D.R.** The Marine mammal ear: Specializations for aquatic audition and echolocation. Invited paper, Wever-Van Berjeik Symposium on the Evolution of the Ear.
- 1991 **Ketten, D.R.** Multi-electrode Interactions with Inner Ear Structure. Invited paper, Asilomar Conference on Cochlear Implantation.
- 1991 **Ketten, D.R.** The Cetacean Ear: Form, Frequency, and Function. Invited paper, Sensory Systems and Behavior of Marine Mammals, USSR Academy of Sciences, Severtsov Institute of Evolutionary Morphology and Ecology of Animals, and The Andreev Acoustical Institute, Third International Symposium on Marine Mammals, Moscow, USSR.
- 1991 **Ketten, D.R., D.K. Odell, and D.R. Domning** Structure, Function, and Adaptation of the Manatee Ear. Invited paper, Sensory Systems and Behavior of Marine Mammals, USSR Academy of Sciences, Severtsov Institute of Evolutionary Morphology and Ecology of Animals, and The Andreev Acoustical Institute, Third International Symposium on Marine Mammals, Moscow, USSR.

- 1991 **Ketten**, D.R. Specializations of marine mammal ears for aquatic audition and echolocation. Invited paper, Symposium on Communication, Ninth Biennial Conference on the Biology of Marine Mammals.
- 1992 **Ketten**, D.R. If you've seen one mammalian cochlea, have you really seen them all? Invited paper, Association for Research in Otolaryngology.
- 1992 **Ketten**, D.R. Anatomy and Function of the Whale Ear. Invited paper, American Association of Veterinary Anatomists.
- 1993 **Ketten**, D.R. Cetacean inner ear anatomy: How to see what whales hear. Invited paper, National Marine Fisheries Service and International Wildlife Coalition, Northeast Regional Marine Mammal Stranding Conference.
- 1993 **Ketten**, D.R., J. Lien, and S. Todd Blast injury in humpback whale ears: Evidence and implications. Invited paper, 126th Meeting, Acoustical Society of America.
- 1993 Lien, J., S. Todd, P. Stevick, F. Marques, and D. **Ketten** The reaction of humpback whales to underwater explosions: Orientation, movements, and behavior. Invited paper, 126th Meeting, Acoustical Society of America.
- 1993 **Ketten**, D.R. Low frequency tuning in marine mammal ears, Invited paper, Symposium on Low Frequency Sound in the Ocean, Tenth Biennial Conference on the Biology of Marine Mammals.
- 1994 **Ketten**, D.R. Differences in post-meningitic occlusions in children vs. adults, Invited paper, Conference on Pediatric Implantation, New York.
- 1994 **Ketten**, D.R., J. Lien, S. Todd, and S. Ridgway Acoustic damage in whale ears: Aging vs. injury. Invited paper, Harderwijk International Marine Mammal Sensory Symposium, Netherlands.
- 1994 **Ketten**, D.R. Functional Analyses of Whale Ears: Adaptations for Underwater Hearing, Invited paper. I.E.E.E Underwater Acoustics Conference, OSATES Oceans '94, Brest, France.
- 1994 **Ketten**, D.R. Whale ears: Structural analyses and implications for acoustic trauma. Invited paper, 128th Meeting, Acoustical Society of America.
- 1995 **Ketten**, D.R. Radiologic Assessment. Invited paper, Cochlear Implants in Adults and Children. 100th NIH Consensus Development Conference, Washington, D.C.
- 1995 **Ketten**, D.R. How Low Can a Whale Ear Go: A Three-D Model Approach to Marine Mammal Hearing. Invited paper, XXIV International Ethological Conference, Hawaii.
- 1995 **Ketten**, D.R. and M.W. Skinner Three-Dimensional Measures of Inner Ear Neuroanatomy and Position of Nucleus Cochlear Implant Electrodes. Invited paper, 1995 International Conference on Implantable Auditory Prostheses. Asilomar, California.
- 1996 **Ketten**, D.R., J.B. Nadol, Jr., B.J. Burgess, J.A. Trehey In vivo vs. in situ measures in cochlear implantation. Invited paper, Association for Research in Otolaryngology, Temporal Bone Workshop.

- 1996 **Ketten**, D.R. Structure of the Cetacean Ear. Invited paper, Association for Research in Otolaryngology, Marine Mammal Symposium.
- 1996 **Ketten**, D.R. Acoustic Trauma in Whale Ears. Invited paper, American Cetacean Society.
- 1997 **Ketten**, D.R. Marine Mammal Hearing: How do they do it and what are we doing to it? Invited paper, 1997 Northeast Regional Stranding Network Conference.
- 1997 **Ketten**, D.R., M. W. Skinner, G. Gates, J. B. Nadol, Jr., and J. G. Neely In vivo Measures of Intracochlear Electrode Position and Greenwood Frequency Approximations, Invited paper, 1997 International Conference on Implantable Auditory Prostheses. Asilomar, California.
- 1997 Brill, R.L., P. W. B. Moore, L. A. Dankiewicz, and D.R. **Ketten** Evidence of hearing loss in an Atlantic bottlenose dolphin (*Tursiops truncatus*). Invited paper, 134th Meeting, Acoustical Society of America.
- 1997 **Ketten**, D.R., P. W. B. Moore, L. A. Dankiewicz, and W. Van Bonn The slippery slope of a Johnsonian ear: Natural variability versus natural loss. Invited paper, 134th Meeting, Acoustical Society of America.
- 1998 **Ketten**, D.R. Imaging the Auditory System from Stem to Stern: Inner ear disease and cochlear implantation, Invited paper, Special Session on Imaging, American Academy of Audiology.
- 1998 **Ketten**, D.R. Marine mammal Hearing and Acoustic Trauma: Basic Mechanisms, Marine Adaptations, and Beaked Whale Anomalies. Invited paper, Bioacoustics Session. NATO/SACLANT Mtg. on LFS Effects, La Spezia, Italy.
- 1998 **Ketten**, D.R. *In vivo* Imaging of Intracochlear Electrode Positions, Invited paper, Cochlear Implant Workshop, Amer. Academy. of Otolaryngology-Head and Neck Surgery.
- 1998 **Ketten**, D.R. In vivo Analyses of Insertion Trauma, Invited paper, Surgeon's Workshop on Cochlear Implantation, Amer. Academy. of Otolaryngology-Head and Neck Surgery.
- 1998 **Ketten**, D.R. Acoustic/Explosive Effects on Marine Mammals, Invited paper, 1998 Information Transfer Meeting, Minerals Management Service.
- 1999 **Ketten**, D.R. Whale Ears and Anatomy: How to See What They Hear. US NE Student Chapter for Marine Mammalogy. Invited paper, WHOI.
- 1999 **Ketten**, D.R., H. Krum, E. Chittick, C. Merigo, and E. Melvin Acoustic Fatheads: Parallel Evolution of Soft Tissue Conduction Mechanisms in Marine Mammals, Turtles, and Birds, Invited paper. Joint meeting, Acoustical Society of America/ European Acoustics Association, Berlin. J. Acoust. Soc. Am. Volume 105, Issue 2, pp. 1110-1110.
- 1999 **Ketten**, D.R. M. W. Skinner, J.Y. Shiao, J. B. Nadol, Jr., and C. J. Long Implantation measures: Electrode Paths, Trauma Sites, and Spiral Ganglion Distributions Invited paper, Conference on Implantable Auditory Prostheses.
- 1999 **Ketten**, D.R. Ear damage in whales, Invited paper, Marine Mammal Bioacoustics Short Course, Acoustical Society of America and Society for Marine Mammalogy.

- 2000 **Ketten**, D.R. In vivo Imaging and Cochlear Implants: Current Images and Future Directions. Invited paper. CI2000: International Surgical Conference on Implantation.
- 2001 **Ketten**, D.R. Whales, Ship Strikes, and Sound: What We Know and What We Need to Know, Invited paper, European Cetacean Society, Rome, Italy.
- 2001 **Ketten**, D. R., O'Malley, J., Mead, J., Sandberg, G., and McCall, S. Beaked Whale Auditory Systems: Structure, Specializations, and Correlates of Trauma, Invited paper, Thirteenth Biennial Conference on the Biology of Marine Mammals.
- 2002 **Ketten**, D.R. Ocean noise as a stressor of marine mammals, Invited paper, Florida Marine Mammal Health Conference, Gainesville, Fla.
- 2002 **Ketten**, D.R. Bahamas Beaked Whales, Invited paper, Annual Meeting of NOAA Fisheries Working Group on Marine Mammal Unusual Mortality Events.
- 2002 **Ketten**, D.R. Marine Mammal Hearing and Evidence for Hearing Loss, Invited paper, IAGC Workshop on Seismic Exploration.
- 2002 **Ketten**, D.R. Anthropogenic effects of Ocean Noise: Known and potential causes of hearing loss in Marine Mammals Invited paper, Deutsche Forschungsgemeinschaft, Workshop, Impact of Acoustics on Marine Organisms, Berlin.
- 2002 **Ketten**, D.R. Marine Mammals and Ocean Noise: Normal vs. Damaged Hearing Invited paper, SERDP Annual Technology Exchange Meeting, Washington, D.C..
- 2003 **Ketten**, D.R. Effects of noise on Hearing: Marine mammal evidence and analyses Invited paper, European Cetacean Society, Workshop on Effects of Sonar, Gran Canarias.
- 2003 **Ketten**, D.R. Underwater Ears and the Physiology of Impacts: Is it Don Ho, Smoking Sonars, or What? Invited paper, Fourteenth Biennial Conference on the Biology of Marine Mammals
- 2004 **Ketten**, D.R. Cranial Trauma: Evidence for and against acoustic impacts. Invited paper, IWC, Sorrento, Italy.
- 2004 **Ketten**, D.R. Marine Mammal Hearing and Evidence for Hearing Loss, Invited paper, IWC Workshop on Acoustics, Sorrento, Italy.
- 2004 **Ketten**, D.R., Dolphin, W.F, Williams, R. Arruda, J.O'Malley, J. In vivo imaging correlated with otoacoustic emissions as a metric for ear disease in seals. Invited paper Acoustical Society of America, San Diego.
- 2005 **Ketten**, D.R., J. Shoshani, D. P. Domning, J. O'Malley, J. Arruda, S. Cramer, C. O'Connell, and J. Meng Great ears: functional comparisons of land and marine leviathan auditory systems. Invited paper, 9th International Mammalogical Congress. Sapporo, Japan
- 2008 **Ketten**, D. R , A. E Bowles, W. T Ellison, J. J. Finneran, R. L Gentry, C. R Greene , D. Kastak, J. H. Miller, P. E Nachtigall, W. John Richardson, B. Southall, J. A Thomas, and Peter Tyack . Proposed Marine Mammal Noise Exposure Criteria: Current Data Base, Limitations, and Research Needs. Acoustical Society of America, ACOUSTICS 2008, Paris, France. Journal of the Acoustical Society of America, 06/2008, Volume 123, Issue 5, p.2988.

- 2008 **Ketten**, D.R., J. Arruda, J. O'Malley, S. Cramer, and J. Hammock Non-Anthropogenic deafness in marine mammals: Hearing that is Going, going, gone. Invited paper Acoustical Society of America, Miami. Journal of the Acoustical Society of America, 11/2008, Volume 124, Issue 4, p.2505
- 2009 Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, **Ketten**, DR, and Nachtigall, PE. Do squid hear echolocating predators? Acoustic sensitivity of the longfin squid, *Loligo pealeii*. 5th Animal Sonar Symposium. Kyoto, Japan.
- 2009 **Ketten**, D. R., Yamato, M., Clark, C., Ellison, W., Mountain, D., Zosuls, A. Mysticete Hearing: Basso, Biosonar, or Both? Invited paper 5th Animal Sonar Symposium, Kyoto, Japan.
- 2010 **Ketten**, D.R. Marine Mammal Auditory System Noise Impacts: Evidence and Incidence. 2<sup>nd</sup> International Meeting on the Effects of Noise on Aquatic Life. Cork, Ireland.
- 2010 Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, **Ketten**, DR, and Nachtigall, PE. The hearing of the longfin squid (*Loligo pealeii*) and sensitivity to low frequency noise. 2<sup>nd</sup> International Meeting on the Effects of Noise on Aquatic Life. Cork, Ireland.
- 2010 **Ketten**, D.R., J. Arruda, S. Cramer, and M. Dunn Cochlear Morphometrics from CT: Length, Insertion, and Neuronal Distribution Estimates. Objective Measures in Auditory Implants, 6<sup>th</sup> International Symposium, St. Louis, Mo.
- 2011 Mooney, TA, S Li, D R **Ketten**, K Wang, D Wang Hearing pathways in the finless porpoise, *Neophocaena phocaenoides*, and implications for noise impacts. J. Acoust. Soc. Am. Volume 129, Issue 4, p. 2431.
- 2011 **Ketten**, D R, C R Williams, TA Mooney K Matassa, and K Patchet *In vivo* measures of hearing in seals via auditory evoked potentials, otoacoustic emissions, and computerized tomography. The Journal of the Acoustical Society of America 129, p. 2431.
- 2011 **Ketten**, D.R. Hearing Risks in Underwater Ears: What the Incidence of Hearing Impairment in Wild Animals May Tell Us about Potential Impacts. NATO Conference on Effects of Sound on Marine Mammals, Amsterdam, Netherlands.
- 2011 **Ketten**, D.R. Noise Impacts in Air-Adapted Ears: Mechanisms of Damage, Recovery, and Permanent Loss. International Bioacoustics Congress, La Rochelle, France
- 2012 **Ketten**, D.R., J. Simmons, H. Riquimaroux, S. Cramer, J. Arruda. Cochlear Structural Variants in Echolocators. Special Session on Biosonar: Joint meeting: Acoustical Society of America (ASA), Acoustical Society of China (ASC), Western Pacific Acoustics Conference (WESPAC) and the Hong Kong Institute of Acoustics (HKIOA), Journal of the Acoustical Society of America, 04/2012, Volume 131, Issue 4, p.3423-3423.
- 2012 **Ketten**, D.R. Underwater Hearing Impacts: Causes, Severity, and Types of Hearing Loss in Marine Species. Ocean Acoustics 2012, Third International Conference on Ocean Acoustics, Office of Naval Research Ocean Acoustics Program, The Chinese Academy of Sciences, National Natural Science Foundation of China, Beijing, China.

- 2012 **Ketten, D.R.** Modeling Minke Whale Hearing: Anatomical Substrates of Hearing. 2<sup>nd</sup> Programme Review Meeting of the Joint Industry Programme (JIP) on Exploration & Production Sound and Marine Life. Herndon, VA.
- 2012 **Ketten, D.R., T.A. Mooney, S. Cramer, J. Arruda.** Evidence of hearing loss in marine mammals via Auditory Evoked Potentials (AEP), Otoacoustic Emissions (OAE), and Computerized Tomography (CT). Hearing Physiology Special Session 11<sup>th</sup> European Conference on Underwater Acoustics (ECUA 2012), Edinburgh, UK
- 2012 **Ketten, D.R., J. Simmons, H. Riquimaroux, S. Cramer, J. Arruda.** Critical Cranial and Cochlear Structures in Echolocators. Biomimetics Special Session 11<sup>th</sup> European Conference on Underwater Acoustics (ECUA 2012), Edinburgh, UK
- 2012 **Ketten, D.R., D Wang, T.A. Mooney, S Li, K Wang.** Rivers to Open Ocean: Evidence for Marine Mammal Hearing Impacts. Sensory World of Fish and Fisheries: The Impact of Human Activities, Shanghai Ocean University
- 2012 **Ketten, D.R. Error! Reference source not found.** answers. Australian Acoustical Society. Australian Acoustical Society. Fremantle, WA.
- 2013 **Ketten, D. R.,** "The vertebrate ear: does better hearing carry higher risk?", 3rd International Conference: The Effects of Noise on Aquatic Life, Budapest, Hungary, pp. 85, 2013.
- 2013 **Ketten, D.R.** Parallel Adaptations for Underwater Hearing in Whales, Turtles, and Sea Birds. Colloquium, Interdisciplinary Center for Vertigo and Balance Disorders, Zürich University Hospital.
- 2014 **Ketten D.R., J. Simmons and H. Riquimaroux:** Inner Ear Determinants of Sensitivity in Bats and Cetaceans: Curvature and Inputs, International Congress on Neuroethology, ICN/JSCP, Dynamic analysis of bat biosonar and predator-prey interactions”HNW2014 (Hokkaido Neuroethology Workshops 2014, Sapporo, Japan
- 2014 **Ketten, D.R.** and D. C. Mountain: Inner ear Frequency Maps: First Stage Audiograms of Low to Infrasonic Hearing in Mysticetes. ESOMM 2014, Amsterdam, Netherlands.
- 2014 **Ketten, D.R., S. Cramer, J. Arruda and D. C. Mountain:** How Modeling of Auditory Systems Can Provide Hearing Estimates for Whales. SOLAMAC (Sociedad Latinoamericana de Especialistas de Mamíferos Acuáticos), XVI Reunión de expertos en Mamíferos Acuáticos de América del Sur, Simposio sobre el impacto de las prospecciones sísmicas en los mamíferos marinos y sus ecosistemas, Cartagena, Colombia.
- 2014 **Ketten, D.R., J. Shoshani, J. Arruda, S. Cramer, A. Zosuls, D. C. Mountain, A. M. Simmons, J. Simmons, and H. Riquimaroux.** Extreme Hearing: Functional analyses of land and marine micro to mega ears. 1<sup>st</sup> Annual Meeting of the Society of Bioacoustics, 19<sup>th</sup> Auditory Research Forum (ARF2014), Lake Biwa, Japan.
- 2015 **Ketten, D.R.** Modeling of Auditory Systems to Assess Underwater Hearing in Whales, Einladung zum Vortrag im Rahmen des Kolloquiums Biologie und Umweltwissenschaften, Cochlear and Auditory Brainstem Physiology, Department of Neuroscience, School of Medicine and Health Sciences, Carl von Ossietzky University Oldenburg, Germany.

- 2015 **Ketten, D.R.** Looking at Leviathans: How and Why We Want to Know What Whales Hear  
Hanse-Wissenschaftskolleg Institute for Advanced Study. Fellows Lecture Series.  
Delmenhorst, Germany

**Short Communications: Contributed Papers at Refereed Meetings**

- 1975 Bishop, J.K.B., J.M. Edmond, D.R. **Ketten**, M. Bacon, and W. Silker The chemistry of particulate matter collected by large volume in-situ filtration of the surface 400 m. at 2°N, 9°W in the Atlantic Ocean. American Geophysical Union.
- 1975 Bishop, J.K.B., J.M. Edmond, and D.R. **Ketten** The chemistry and vertical flux of particulate matter collected by large volume in situ filtration of the surface 400 m. at stations in the S.E. Atlantic Ocean. Amer. Geophys. Union.
- 1979 **Ketten**, D.R., J.K.B. Bishop, and J.M. Edmond Reproductive stages of planktonic Foraminifera in culture and open ocean. Amer. Geophys. Union.
- 1979 **Ketten**, D.R., J.M. Edmond, and B. Grant Correlations of plankton distributions in the Amazon estuary with salinity, silicate, and particulate concentrations. Amer. Geophys. Union.
- 1981 **Ketten**, D.R. and D. Wartzok Comparative anatomy of the peripheral auditory system of odontocetes. Fourth Biennial Conference on the Biology of Marine Mammals.
- 1983 **Ketten**, D.R., D. Shirazian, and D. Wartzok Nematode infestations of the acoustic sinuses of Phocoena. Fifth Biennial Conference on the Biology of Marine Mammals.
- 1983 **Ketten**, D.R., F. Starr, and D. Wartzok Comparative cochlear morphology of odontocetes. Fifth Biennial Conference on the Biology of Marine Mammals.
- 1983 **Ketten**, D.R., F. Starr, and D. Wartzok Comparative cochlear morphology in echolocating cetaceans. Jour. Acous. Soc. Amer., S1.
- 1983 **Ketten**, D.R., E. May, D. Meyers, and D. Wartzok Histological analyses of stranded cetacean cochlea. Fifth Biennial Conference on Marine Mammals.
- 1988 Rosowski, J.J., D.R. **Ketten**, and W.T. Peake Allometric correlations of middle-ear structure in one species, the alligator lizard. Assoc. Rsch. Otolaryn.
- 1989 Northrup, C. , D.R. **Ketten**, and R. Eavey A Consistent mesenchymal fold in the newborn middle ear. Conference on the Eustachian Tube and Middle Ear Disease, Geneva, Switzerland.
- 1990 **Ketten**, D.R., J. B. Nadol, Jr., and B.J. Burgess In situ sectioning of multiple electrode implants: Techniques for histology, morphometry, and reconstruction. Second International Cochlear Implant Symposium.
- 1990 **Ketten**, D.R. and J. B. Nadol, Jr. Imaging and Temporal Bone Diagnostics in Cochlear Implantation. Second International Cochlear Implant Symposium, Iowa City, Iowa.
- 1990 **Ketten**, D.R., A. Weber, and J.B. Nadol, Jr. Enhanced CT techniques for temporal bone diagnostics in cochlear implantation. 76th Scientific Assembly, Radiological Society of North America.



- 1991 **Ketten**, D.R., J. B. Nadol, Jr., and B.J. Burgess Short-term effects of multiple electrode implants. Association for Research in Otolaryngology.
- 1992 Nadol, J. B., Jr., **Ketten**, D.R., and B.J. Burgess Histopathology of the Spiral Ganglion Following Short-term Cochlear Implantation, Association for Research in Otolaryngology.
- 1993 **Ketten**, D.R. and D.K. Odell Anatomical evidence for poor sound localization in manatees, Association for Research in Otolaryngology.
- 1993 **Ketten**, D.R., J. Vandevenne, and J.B. Nadol, Jr. Differences in post-meningitis occlusions of the inner ear in children vs. adults. Third International Cochlear Implant Conference, Innsbruck, Austria.
- 1993 **Ketten**, D.R., J.B. Nadol, Jr., and S.D. Rauch In vivo measures of post-meningitic inner ear occlusions in children vs. adults, Amer. Acad. of Otol.-Head and Neck Surg..
- 1993 **Ketten**, D.R. 3-D Reconstruction of Temporal Bones, Satellite Course, Amer. Acad. of Otol.-Head and Neck Surg..
- 1993 **Ketten**, D.R. In situ sectioning of cochlear implants, Satellite Course, Amer. Acad. of Otol.-Head and Neck Surg..
- 1993 **Ketten**, D.R., D.K. Odell, and D.R. Domning An Anatomical model of manatee hearing, Tenth Biennial Conference on the Biology of Marine Mammals.
- 1994 **Ketten**, D.R. Whale ears: Structural analyses and implications for acoustic trauma. J. Acous. Soc. Am., Vol. 96, no. 5, pt. 2, pp. 3269-3270.
- 1994 Tzinas, G., D.R. **Ketten**, H. Krum, R. Cooper, P. Sylvia, S. Belle and L. Kaufman A preliminary study of pathologies associated with the maintenance of bluefin tuna (*Thunnus thynnus*) in captivity, 25th Annual IAAAM Conference.
- 1994 Matassa, K., G. Early, D.R. **Ketten**, B. Wyman, H. Krum, R. Cooper, G. Tzinas and R. Prescott Frequencies of live Atlantic Ridley (*Lepidochelys kempi*) and Loggerhead (*Caretta caretta*) turtle strandings in the Northeast Stranding Network region; associated clinical techniques and pathologies, 25th Annual IAAAM Conference.
- 1994 **Ketten**, D.R., M.W. Skinner, M.W. Vannier, and G. Wang In vivo measures of patient cochlear anatomy and electrode placement, 4th International Cochlear Implant Symposium, Melbourne, Australia.
- 1995 **Ketten**, D.R., S. Ridgway, and G. Early Apocalyptic Hearing: Aging, Injury, Disease, and Noise in Marine Mammal Ears. Eleventh Biennial Conference on the Biology of Marine Mammals.
- 1996 **Ketten**, D.R. The Cetacean Ear: Adaptations for Infra to Ultrasonic Underwater Hearing, International Congress on Secondary Adaptation to Life in Water, Poitiers, France.
- 1996 Roitblat, H.L., D. R. **Ketten**, W.W.L. Au, and P.E. Nachtigall A Computational model of the early stages of dolphin hearing, Joint Meeting, Acoustical Society of America and the Acoustical Society of Japan, J. Acous. Soc. Am., p. 2643.

- 1997 Meng, J., J. Shoshani, and D. **Ketten** Evolutionary Evidence for Infrasonic Sound and Hearing in Elephants, Society for Vertebrate Paleontology.
- 1997 André, M., C. Kamminga, and D. **Ketten** Are Low Frequency Sounds a Marine Hearing Hazard: A Case Study in the Canary Islands. Underwater Bio-Sonar and Bioacoustics Symposium, Loughborough University, England.
- 1998 **Ketten**, D.R., Dolphin, W.F., Chittick, E.J., Krum, H.N., and Merigo, C. In vivo imaging correlated with otoacoustic emissions as a metric for ear disease in seals, World Marine Mammal Conference; joint meeting., European Cetacean Society and the Society for Marine Mammalogy, Monaco.
- 1998 **Ketten**, D.R. Dolphin and Bat Sonar: Convergence, Divergence, or Parallelism. Fourth International Biosonar Conference, Algarve, Portugal.
- 1998 Brill, R.L., P. W. B. Moore, L. A. Dankiewicz, and D.R. **Ketten** Specialized sound sites in the dolphin's peripheral hearing system. Fourth International Biosonar Conference, Algarve, Portugal.
- 1999 **Ketten**, D.R. and J. R. Potter Anthropogenic ocean noise: Can we quantify the impact? joint meeting, Acoustical Society of America/European Acoustics Association.
- 1999 **Ketten**, D.R. Water, Fat, and Acoustic Impedance Matching: Soft Tissues Adaptations for Underwater Hearing in Turtles, Seabirds, and Marine Mammals. 1st International Conference on Sensory Processing of the Aquatic Environment, Great Barrier Reef, Australia.
- 1999 Marsh, S. E., J. Hammock, D. R. **Ketten**, and Frazao, P., Morphometric analyses of ears in two families of pinnipeds, Twelfth Biennial Conference on the Biology of Marine Mammals.
- 1999 **Ketten**, D.R., Krum, H.N., Chittick, E.J., Merigo, C., and Gulland, F. Acoustic Fatheads: Soft Tissue Adaptations for Underwater Hearing. Twelfth Biennial Conference on the Biology of Marine Mammals.
- 2000 Webb, J.F., Smith, W.L. and **Ketten**, D.R. CT (Computerized Tomography) provides new views of the swimbladder in butterflyfishes (Chaetodon) with a novel specialization of the mechanosensory lateral line system. Amer. Zool. Soc., Amer. Zool. 39: 16A
- 2000 **Ketten**, D.R., J.Y. Shiao, and J.B. Nadol, Jr. In vivo Imaging of Cochlear Implants: Spiral Ganglion Populations vs. Electrode Penetration Depths. Assoc. for Rsch. in Otolaryngology.
- 2000 **Ketten**, D.R., W. Dolphin, A. Quick, S. Mumford, E. Chittick, and E. F. Melvin Parallel evolution of underwater sound reception mechanisms in dolphins, seals, turtles, and sea birds. Assoc. for Rsch. in Otolaryngology.
- 2001 Webb, J.F., Smith, W.L. and **Ketten**, D.R. The Laterophysic Connection, A Unique Swim Bladder-Lateral Line Connection in Butterflyfishes: Morphological Variation and Putative Sensory Function. International Congress of Neuroethology, Bonn, Germany.
- 2001 Reidenberg, J.S., D.R. **Ketten**, S. Marquez, and J.T. Laitman Is there a clinical price in deviating from the norm? An investigation of structural and functional asymmetry in the upper respiratory tract. Assoc. for Rsch. in Otolaryngology. Vol. 24: 167.

- 2001 Skinner, M.W., D.R. **Ketten**, L.K. Holden, B.R. Whiting, K.T. Bae, L.T. Cohen, J.G. Neely, G.A. Gates, P.G. Smith, and G.R. Kletzker Is there a relation between speech recognition and the position of cochlear implant electrodes in the inner ear?, *New Frontiers in the Amelioration of Hearing Loss*, Central Institute for the Deaf.
- 2001 Webb, J.F., Smith, W.L. and **Ketten**, D.R. The Laterophysic Connection, A Unique Swim Bladder-Lateral Line Connection in Butterflyfishes: An Evolutionary Novelty with Implications for Sensory Function, Sixth International Congress of Vertebrate Morphology, Jena, Germany, *J. Morph.* 248(3): 298-299.
- 2001 **Ketten**, D. R., Cramer, S., O'Malley, J., Fischer, I., Reidenberg, J., Naples, V., McCall, S., Craig, J., Tussing, R., Rye, K., Lewis, W., Potter, C., Ososky, J. and Merigo, C. Experimental Measures of Blast Trauma in Marine Mammals, Thirteenth Biennial Conference on the Biology of Marine Mammals, vol. 14: 114-115.
- 2001 Marsh, S.E., Fischer, I., Arruda, J. and **Ketten**, D.R. Morphometric analyses of hearing in two families of pinnipeds, *Acoustical Society of America*.
- 2001 **Ketten**, D. R., O'Malley, J., Moore, P. W. B., Ridgway, S., and Merigo, C. Aging, injury, disease, and noise in marine mammal ears, *Acoustical Society of America*.
- 2001 Reidenberg, J.S., **Ketten**, D.R., Marquez, S., and Laitman J.T. Who is crooked, and who is not: A comparative study of anatomical versus functional asymmetry in the airway. *Am. J. Phys. Anthropol., Suppl.* 32:124.
- 2002 Webb, J.F., Smith, W.L., Tricas, T.C., **Ketten**, D.R. . The laterophysic connection: A novel specialization thought to enhance sound pressure sensitivity in butterflyfishes (Chaetodontidae, Chaetodon). *Acoustical Society of America, J. Acoust. Soc. Am.* 112(5): 2203.
- 2002 Fish, F. E. and **Ketten**, D. R.. Examination of three-dimensional geometry of cetacean flukes using CT-scans. *Integrative and Comparative Biology*, 42(6): 1230.
- 2003 **Ketten**, D.R., J. Arruda; S. Cramer; J. O'Malley; J. Reidenberg, J; S. McCall; V. Naples; J. Craig, Experimental Measures of Blast Trauma in Marine Mammals, Environmental Consequences of Underwater Sound Workshop, San Antonio, Texas, p.30 (abstracts also available on ONR website).
- 2003 **Ketten**, D.R. , I. Fischer, S. Cramer, S.M. Bartol, and J. OMalley Water, Fats, and Acoustic Impedance: Soft tissue adaptations for underwater hearing in turtles, seabirds and marine mammals. 23rd International Symposium on Sea Turtle Biology and Conservation, Kuala Lumpur.
- 2003 Hammock, J., Lytwyn, K., Dacey, J., **Ketten**, D. 2003. A Behavioural Olfactogram of the Sea Otter, *Enhydra lutris*. Oral presentation given at the Society for Marine Mammalogy Biennial Conference, Greensboro, NC
2003. Fish, F. E. and **Ketten**, D. R. Examination of three-dimensional geometry of cetacean flukes using CT-scans. Annual Meeting of the Society for Integrative and Comparative Biology.

- 2003 Koopman, H. N., Budge, S. M., **Ketten**, D. R., and Iverson, S. J. Sound reception by beaked whales and porpoises: Implications of variation in lipid composition of jaw fats. 17th Conference of the European Cetacean Society, Las Palmas de Gran Canaria.
- 2003 Koopman, H. N., Budge, S. M., **Ketten**, D. R., and Iverson, S. J. The influence of phylogeny, ontogeny and topography on the lipid composition of the mandibular fats of toothed whales: Implications for hearing. Symposium on Environmental Consequences of Underwater Sound, San Antonio, Texas.
- 2003 Moein Bartol, S. and **Ketten**, D. R. Auditory Brainstem Responses of Multiple Species of Sea Turtles. Symposium on Environmental Consequences of Underwater Sound, San Antonio, Texas.
- 2003 **Ketten**, D. R. Beaked Whale Heads: Is There a Smoking Sonar? Symposium on Environmental Consequences of Underwater Sound, San Antonio, Texas.
- 2003 Mountain, D., D. Ma, A. Zosuls, D. **Ketten**, and A. Hubbard Models of Whale Auditory Function. Symposium on Environmental Consequences of Underwater Sound, San Antonio, Texas.
- 2003 Reidenberg, J., **Ketten**, D., Laitman, J. Effect of blast derived shock waves on the appearance of odontocete respiratory tissues, Fourteenth Biennial Conference on the Biology of Marine Mammals. Vol. 15:136
- 2003 Koopman, H.N., Budge, S. M., **Ketten** D. R., and Iverson, S. J. Focusing sound to the odontocete ear: Does the complex topographical arrangement of specific lipids form a wave guide through the mandibular fats? Fourteenth Biennial Conference on the Biology of Marine Mammals.
- 2003 Walsh, E.J., **Ketten**, D.R., Wang, L.M., Armstrong, D.L., Curro, T., Simmons, L.G. and McGee, J.. Bioacoustics in *Panthera tigris*. Soc. Neurosci., 33rd Annual Meeting, New Orleans, LA.
- 2003 Edds Walton, P., D.R. **Ketten**, and R. Fay. Extreme Variations in Skull Density of Toadfish, *Opsanus Tau*, Acoustical Society of America., Austin, TX
- 2003 Reidenberg, J.S., D.R. **Ketten**, and J.T. Laitman Effect of blast derived shock waves on the appearance Assoc. for Rsch. in Otolaryngology.
- 2003 Reidenberg, J.S., **Ketten**, D.R., and Laitman, J.T. Effect of blast derived shock waves on the appearance of odontocete respiratory tissues. Biennial Conf. Biol. Marine Mammals, Abstr. Vol. 15:136.
- 2004 Parks, S.E, D.R. **Ketten**, J.T. O'Malley, and J. Arruda Hearing in the North Atlantic right whale: Anatomical predictions. Acoustical Society of America, New York, NY.
- 2004 S.O. Newburg, S.O., B.S. Miller, A.L. Zosuls, D.R. **Ketten** and D.C. Mountain. Biomechanics of Dolphin Hearing. Proceedings of the Biomedical Engineering Society Annual Meeting.
- 2004 Smith, M. E., **Ketten**, D.R., Hastings, M. C., and Popper, A. N. Head Holes Help Hearing: the Auditory Periphery of *Otocinclus* Catfish. Association for Research in Otolaryngology

- 2004 Webb, J.F., Tricas, T.C., Shearman, E. Walsh, R. **Ketten**, D.R., and Herman, J.L. , Ear and Swim Bladder Morphology in Chaetodontid Fishes: Adaptations for Enhancement of Hearing. International Congress of Vertebrate Morphology, Boca Raton, FL. *J. Morphology*. 260(3): 339
- 2004 Prahl, S., **Ketten**, D.R., Lucke, K., O'Malley, J., and Siebert, U. Assessing the Potential Impact of Sound on Harbour Porpoises in the North and Baltic Sea: A Histo-Pathological Attempt. European Cetacean Society.
- 2004 Reidenberg, J.S., **Ketten**, D.R., and Laitman, J.T. (2004) Effects of blast pressure exposures on the dolphin and porpoise larynx. American Association of Anatomists: Experimental Biology Meeting, FASEB Journal, p.A33.
- 2004 Montie, E., M. Moore, D. **Ketten**, J. Arruda, A. Bogomoini, and M. Hahn. Using Magnetic Resonance Imaging (MRI) to Obtain Shapes and Sizes of Pinniped and Cetacean Brain Regions that Depend on Thyroid Hormones for Maturation. EPA STAR Graduate Fellowship Conference.
- 2004 Montie, E., M. Moore, D. **Ketten**, J. Arruda, S.Cramer, I. Fischer, K.Touhey. K.Patchett, A. Bogomoini, B. Lentell, B. Sharp, G. Early, and M. Hahn. Anatomy, Three-Dimensional Reconstructions, and Volume Estimation of the Brain of the Atlantic White-sided Dolphin (*Lagenorhynchus acutus*) from Magnetic Resonance Images. NE Stranding Conference
- 2004 Walsh, E.J., **Ketten**, D.R., Wang, L.M., Armstrong, D.L., Curro, T., Simmons, L.G. and McGee, J.. Temporal Bone Anatomy in *Panthera tigris*, Acoustical Society of America, New York.
- 2004 **Ketten**, D.R., J. Simmons, A.E. Hubbard, and D. Mountain. Dolphin and Bat Sonar: Convergence, Divergence, and Parallelism. Acoustical Society of America, New York.
- 2004 Raverty, S, S Norman, M Fleetwood, J Gaydos, D **Ketten**, A Pabst, W McLellan, L Barre, B Hanson, S Jeffries, D Lambourn, S Cramer, T Cox, and B Norberg Pathologic findings in Harbor Porpoises (*Phocoena phocoena*) stranded in Washington State 2 May to 2 June 2003 coincident with the mid-frequency sonar exercises by the USS Shoup. American College of Veterinary Pathology
- 2004 Hammock, J., Lytwyn, K., O'Malley, J., **Ketten**, D.R., Dacey, J.W.H. 0.00000000005 if by Land, 0.000000004 if by Sea; the Chemical Ecology of Olfactory Sensitivity. Biennial Conference of the European Chemoreception Research Organization, Dijon, France
- 2004 Hammock, J., Lytwyn, K., O'Malley, J., **Ketten**, D.R., Dacey, J.W.H. Tools and Context: The Nasal Morphology and Chemical Ecology of Olfactory Sensitivity. Japanese Association for the Study of Smell and Taste/International Symposium on Olfaction and Taste Conference, Kyoto, Japan
- 2004 Hammock, J., Lytwyn, K., Dacey, J., **Ketten**, D., O'Malley, J. 2004. Chemical Ecology of Olfactory Repertoire. American Society of Mammalogists Conference, Arcata, CA
- 2005 Norman, SA, B. Norberg, L. Barre, S. Raverty, J.K. Gaydos, D.R. **Ketten**, S. Cramer, M. Fleetwood, W.A. McLellan, A. Pabst, T. Cox, B. Hanson, S. Jeffries Multidisciplinary Investigation of Stranded Harbor Porpoises (*Phocoena phocoena*) in Washington State with an

Assessment of Acoustic Trauma as a Contributory Factor, International Association for Aquatic Animal Medicine

- 2005 Miller, B., D. Mountain, A. Zosuls, S. Newburg, and D. **Ketten** Middle and Inner Ear Stiffness Measurements in the Bottlenose Dolphin, *Tursiops truncatus*. Assoc. Res. Otolaryngol. Abs. 1175
- 2005 Montie, E., Schneider, G., Moore, M., **Ketten**, D., Arruda, J., Touhey, K., Bogomolni, A., and Hahn, M Using Magnetic Resonance Imaging (MRI) to Obtain Volume Estimates of Cetacean Brain Regions that Depend on Thyroid Hormones for Maturation. Florida Marine Mammal Health Conference, Gainesville, FL
- 2005 Woods, C.F. Webb, J.F. and **Ketten**, D.R. The Physoclistous Swim Bladder of Chaetodontid Butterflyfishes: Implications for Acoustic Function, ASIH.
- 2005 Webb, J.F., Herman, J.L. and D.R. **Ketten**. 2005. Ear and otolith morphology in a prominent group of coral reef fishes with a putative specialization for enhanced hearing. Society for Integrative and Comparative Biology, San Diego, CA.
- 2005 Webb, J.F., Herman, J.L., Walsh, R.M.; **Ketten**, D.R.; Casper, B. M.; Mann, D.A The Ear and Auditory Capabilities of Butterflyfishes with a Laterophysic Connection (Family Chaetodontidae), ASIH.
- 2005 Chadwick, R.S, Manoussaki, D., Dimitriadis, E.K., Shoelson, B., **Ketten**, D.R., Arruda, J., O'Malley, J.T. Is cochlear coiling a determinant of low-frequency hearing ability? Biophysics of the Cochlea: from Molecules to Models.
- 2005 Moein-Bartol, S., D.R. **Ketten** Functional Measures of Sea Turtle Hearing, Environmental Consequences of Underwater Sound, NOPP-ONR Review, Arlington, Virginia.
- 2005 **Ketten**, D., Cramer, S., Arruda, J., Brooks, L., O'Malley, J., Reidenberg, J., McCall, S.A., Craig, J., Rye, K. (2005) Experimental Measures of Blast Trauma in Sea Turtles. Symposium on Environmental Consequences of Underwater Sound, Office of Naval Research, Arlington, VA (paper available on ONR website).
- 2005 **Ketten**, D.R., D. Mountain, A.E. Hubbard, R. Hillson and G. Schmidt Models of Beaked Whale Hearing and Responses to Underwater Noise Environmental Consequences of Underwater Sound. ECOUS Workshop, Arlington, VA
- 2005 Fish, F. E. , M. K. Nusbaum, J. T. Beneski, D. R. **Ketten**, and T. M. Williams: Dolphin flukes as passively self-adjusting flexible propulsors, Society for Integrative and Comparative Biology, San Diego, CA,
- 2005 Bowles, A, R, Gentry, W. Ellison, J. Finneran, C. Greene, D. Kastak, D. **Ketten**, J. Miller, P. Nachtigall, J. Richardson, B. Southall, J. Thomas, P. Tyack. Strategies for weighting exposure in the development of acoustic criteria for marine mammals. Acoustical Society of America, NY.
- 2005 Webb, J.F., J.L. Herman, and D.R. **Ketten**. 2005. Ear and otolith morphology in a prominent group of coral reef fishes with a putative specialization for enhanced hearing. Society for Integrative and Comparative Biology, San Diego.

- 2005 Campbell-Malone, R., Daoust, P-Y., De Guise, S., Doyle, K., **Ketten**, D.R, Moore, M. J. Bones Beyond the Beach: Investigating bone lesions discovered after necropsy. Northeast Right Whale Consortium. New Bedford, MA
- 2005 Webb, J.F., W.L. Smith, J.L. Herman, C.F. Woods, and D.R. **Ketten**. 2005 The laterophysic connection: Peripheral specialization for reception of acoustic stimuli in Chaetodontid butterflyfishes? The 2005 Meeting of the J.B. Johnston Club and the Seventeenth Annual Karger Workshop, Washington, D.C.
- 2005 Campbell-Malone, R., Daoust, P-Y., DeGuise, S., **Ketten**, D.R., Moore, M. J. Interpretation of the timing and pathology of mandibular fractures in ship-struck right whales. 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, CA
- 2005 Fish, F. E., M. K. Nusbaum, J. T. Beneski, D. R. **Ketten**, and T. M. Williams. Dolphin Flukes as Passively Self-Adjusting Flexible Propulsors for High Efficiency Transport, 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, CA
- 2005 Miller, Brian S.<sup>1</sup>; Zosuls, Aleks L.<sup>1</sup>; Newburg, Seth O.<sup>1</sup>; **Ketten**, Darlene R.<sup>2</sup>; and Mountain, David C A hearing test for dead odontocetes: what cadaver ears can tell us about dolphin hearing 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, CA
- 2005 Montie, E., **Ketten**, D., Schneider, G., Moore, M., Touhey, K., Bogomolni, A., and Hahn, M Neuroanatomy, Brain Volume Estimates, and Pathologies of Cetaceans and Pinnipeds from Magnetic Resonance Images. 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, CA
- 2005 Hammock, J. O'Malley, J. Arruda, J. Lytwyn, K. Rifenburg, K. Marshall, J. Dacey, J.W.H., **Ketten**, D.R. What's a marine nose for? A comparison of the structure and function of the sea otter nasal cavity with those of terrestrial mammals. 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, Calif.
- 2005 Norman, S.A., S. Raverty,, D.R. **Ketten**, W. A. McLellan, A. Pabst, J.K. Gaydos, M. Fleetwood, T. Cox, B. Norberg, L. Barre, B. Hanson, S. Cramer, and S. Jeffries Multidisciplinary Investigation of Harbor Porpoises (*Phocoena phocoena*) in Washington State with an Assesment of Acoustic Trauma as a Contributory Factor. 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, CA.
- 2005 Hartley, D., C. Merigo, T. W. Blanchard, J. L. Dunn, T, Frady, D.R.T. **Ketten**, D. S. Rotstein, and J. Whaley.. Managing Solitary Beluga Whales in the Northeastern US - the story of "Poco". 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego, CA.
- 2006 **Ketten**, D.R.,J. Arruda, S. Cramer, J. O'Malley, D. Manoussaki, E. K. Dimitriadis, R. S. Chadwick. Great Ears: Functional comparisons of land and marine leviathan ears .J. Acoust. Soc. Am., vol. 120, Issue 5, p. 3265
- 2006 Miller, B.S., Zosuls, A.L., Newburg, S. O., **Ketten**, D.R.and Mountain, D.A Modeling the mechanics of dolphin hearing. Assoc. for Research in Otolaryngology
- 2006 Campbell-Malone R., J. Arruda, J. A. Muller, I. Tsukrov, D. R. **Ketten**, M. J. Moore. Achilles' Jaw: Morphology and Mechanical Properties of the Right Whale Mandible as a Model Bone for Ship Strike Mortality., American Society of Mammalogists.

- 2006 **Ketten**, D.R., J. Arruda, S. Cramer, M. Yamato, J. O'Malley, D. Manoussaki, E. K. Dimitriadis, R. S. Chadwick J. Shoshani., J. Meng. Great Ears: Functional comparisons of land and marine leviathan ears. *J. Acoust. Soc. Am.*, vol. 120, Issue 5, p. 3265
- 2006 Prah, S., O'Malley, J., **Ketten**, D.R., Arruda, J., Bechman, R., and Siebert, U. Do pingers acoustically impact the Ears of Harbour Porpoises? 20th Annual Conference of the European Cetacean Society, Gdynia, Poland, p. 84
- 2006 Woods, CF, Webb, JF and **Ketten** DR. 2006. The physoclistous swim bladder of chaetodontid butterflyfishes: Implications for acoustic function. *J. Acoust. Soc. Am.* 120: 3326.
- 2006 Prah, S., O'Malley, J., **Ketten**, D.R., Arruda, J., Siebert, U. (2006): Do pingers acoustically impact the Ears of Harbour Porpoises? CMM'06 Characterisation du Milieu Marin, Brest, France.
- 2007 Yamato, M., **Ketten**, D.R., Arruda, J., Cramer, S., Anatomical Studies of Mysticete Hearing: A Key to Understanding How and What Whales Hear. ASLO
- 2007 Southall, BL, AE Bowles, WT Ellison, JJ Finneran, RL Gentry, CR Greene Jr., D Kastak, DR **Ketten**, JH Miller, PE Nachtigall, WJ Richardson, JA Thomas, and PL Tyack. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. The Effects of Noise on Aquatic Life, Nyborg, Denmark.
- 2007 Prah, S., **Ketten** D.R., Beineke, A., Sanchez Hanke M., Siebert, U. Mucosa-Associated Lymphoid Tissue in the Middle Ear of the Harbour Porpoise (*Phocoena phocoena*). Association for Reaserach in Otolaryngology (ARO), Denver, Colorado, USA., p. 43.
- 2007 Prah, S., O'Malley, J., **Ketten** D.R., Arruda, J., Bechmann, R., Siebert, U. Do pingers acoustically impact the ears of harbour porpoises? Abstracts of 30<sup>th</sup> Annual Midwinter Research Meeting of the Association for Research in Otolaryngology (ARO), Denver, Colorado, p. 43-44.
- 2007 Prah, S., **Ketten**, D.R, Jepson, P.D., Siebert, U. (2007): Examinations of Ears in Harbour Pospoises from the North and Baltic Seas. The Effects of Noise on Aquatic Life, Nyborg, Denmark.
- 2007 Mountain, D.A, Zosuls, A.L., Newburg, S. O., and **Ketten**, D.R. Predicting Cetacean Audiograms. . The Effects of Noise on Aquatic Life, Nyborg, Denmark
- 2007 Arruda, J, Reidenberg, JS, Cramer, S, **Ketten**, DR, and Laitman, JT "Lopsided" odontocetes: a CT investigation of structural and functional asymmetry in the upper respiratory tract. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa.
- 2007 Montie, E., **Ketten**, D., Schneider, G., Marino, L., Touhey, Kand Hahn, M. Neuroanatomy and Volumetric Neuroimaging of the Atlantic White-Sided Dolphin (*Lagenorhynchus acutus*) Brain from In Situ Magnetic Resonance Images. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa.
- 2007 Yamato, M., D. R. **Ketten**, J. Arruda, and S. Cramer. Biomechanical and Structural Modeling of Hearing in Baleen Whales. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa.



- 2007 **Ketten**, D. R., Arruda, J, Cramer, S, Yamato, M., Zosuls, A., Mountain, D. Chadwick, R. S., Dimitriadis, E. K., Shoshani, J., O'Connell-Rodwell, C. How Low Can They Go: Functional analyses of the largest land and marine mammal ears. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa.
- 2007 Cramer, S., Arruda, J., **Ketten**, D. R., Montie, E., Prah, S., Williams, S. R. Dunnigan, B., Romano, T., Campbell-Malone, R., Young, N. Elementary, My Dear Watson! Biomedical imaging techniques for forensic analyses of trauma, defects, and disease in marine mammals. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa.
- 2008 **Ketten**, D. R., Cramer, S., Arruda, J., Prah, S., Williams, S. R., Dunnigan, B. CT and MRI Techniques for Analysis of Trauma and Disease in Marine Mammals, Florida Marine Mammal Health Conference, Gainesville, Fla.
- 2007 Reidenberg, JS, Arruda, J, Cramer, S, **Ketten**, DR, and Laitman, JT Crooked crania and lop-sided larynges: New insights from CT imaging of the cranio-cervical region in odontocetes (toothed whales, dolphins, porpoises). American Society of Anatomists, San Diego.
- 2008 **Ketten**, D.R., E. K Dimitriadis, R. S Chadwick and D. Mountain. AFM and BSEM: Novel approaches to the Basilar Membrane. Acoustical Society of America, ACOUSTICS 2008, Paris, France. Journal of the Acoustical Society of America, 06/2008, Volume 123, Issue 5, p.3775.
- 2009 Yamato, M., D.R. **Ketten**, H. Koopman, G. Feijoo, J. Arruda, S. Cramer, and S. Sharp Hearing in baleen whales: Learning from stranded animals. Northeast Regional Stranding Conference (NERSC), Salem, MA
- 2009 Cramer, S., D. R. **Ketten**, J. Arruda, S. Prah, S. R. Williams, and B. Dunnigan. Computerized tomography (CT) techniques for analysis of trauma and disease in marine mammals. Northeast Regional Stranding Conference (NERSC), Salem, MA
- 2009 Arruda, J., J.S. Reidenberg, S. Cramer, D.R. **Ketten**, and J.T. Laitman. "Lop-sided" odontocetes: A CT investigation of structural and functional asymmetry in the hyoid, laryngeal, and pharyngeal regions, Northeast Regional Stranding Conference (NERSC), Salem, MA
- 2009 Williams, C.R. and D.R. **Ketten**, The Use of Positional Computerized Tomography (CT) to Determine the Presence of Free Gas in the Coelom of a Sea Turtle. Northeast Regional Stranding Conference, Salem, MA.
- 2009 Landry, S., S.M. Sharp, D. R. **Ketten**, M.J. Moore, B. Sharp, and K.M. Touhey. Understanding a Minke Whale Entanglement Case from a Variety of Angles New England Regional Stranding Conference (NERS), Salem, MA
- 2009 Mooney, TA, and **Ketten**, DR. The why and how of testing hearing in stranded animals. Northeast Regional Stranding Network Conference. Salem, MA.
- 2009 Southall, B. L., Bowles A. E., Ellison W. T., Finneran J. J., Gentry R. L., Greene, Jr. C. R., D. Kastak, D. R. **Ketten**, J. H. Miller, P. E. Nachtigall, W. J. Richardson, J. A. Thomas and P. L. Tyack. Marine mammal noise exposure criteria: initial scientific recommendations. Proceedings of the 157th Meeting of the Acoustical Society of America. 125, 2517.

- 2009 Arruda, J., D. R. **Ketten**, Cramer, S., M. Yamato,. Computed Tomography (CT): 3D Visualization Of The Odontocete Melon Using Computerized Tomography, 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec City, Quebec, Canada.
- 2009 Cramer, S., D. R. **Ketten**, J. Arruda, S. R. Williams, M. Yamato, C. Merigo, K.Touhey, and A. Mooney. Computed Tomography (CT): A non-invasive technique for assessing trauma and disease in stranded marine mammals, 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec City, Quebec, Canada.
- 2009 Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, **Ketten**, DR and Nachtigall, PE. Detecting echolocating odontocetes: Can squid hear toothed whale predators? 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec, Canada.
- 2009 Moore, MJ; Arruda, J; Cramer, S; Hammar, T; **Ketten**, D, Moore, C; Fahlman, A; Dennison, S Hyperbaric computed tomography: a novel tool to quantify the behavior of air-filled structures and gas emboli in cetacean and pinniped carcasses under a range of pressures. 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec City, Quebec, Canada.
- 2009 Tubelli, A, A. Zosuls, DR **Ketten**, DC Mountain,. Prediction of a Mysticete Audiogram via Finite Element Analysis of the Middle Ear, 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec City, Quebec, Canada.
- 2009 Yamato, M., Mooney, T.A., **Ketten**, D.R., Cramer, S. Arruda, J. Auditory anatomy and sound reception in the beluga whale (*Delphinapterus leucas*) compared to the bottlenose dolphin (*Tursiops truncatus*). 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec, Canada.
- 2009 **Ketten**, D. R., Ridgway, S., Arruda, ,J., Dunn, M., Hammock, J., and J., Prah, S., Williams, S.R. Marine Mammal Hearing Loss: Repeat that, please? 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals. Quebec, Canada.
- 2009 **Ketten**, DR Database Development for Ocean Impacts: Imaging, Outreach, and Rapid Response, Office of Naval Research, Marine Mammals and Oceanography Program Review, Alexandria, VA.
- 2009 M. Yamato, T.A. Mooney, D.R. **Ketten**, S. Cramer, and J. Arruda Auditory anatomy and sound reception in the beluga whale (*Delphinapterus leucas*) compared to the Bottlenose Dolphin (*Tursiops truncatus*). Office of Naval Research, Marine Mammals and Oceanography Program Review, Alexandria, VA.
- 2009 Mooney, TA, **Ketten**, DR, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, and Nachtigall, PE. Squid hearing and their ability to detect echolocating predators. Office of Naval Research, Marine Mammals and Oceanography Program Review, Alexandria, VA.
- 2010 Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, **Ketten**, DR and Nachtigall, PE. What squid hear: An evoked potential study of the longfin squid (*Loligo pealeii*). Association for Research in Otolaryngology, Anaheim Calif.
- 2010 Christensen-Dalsgaard, J, CE Carr,, PT Madsen, C Brandt, K Willis, D **Ketten**, P Edds-Walton, R R. Fay Specialisation for underwater hearing in the red-eared slider turtle, *Trachemys scripta elegans* Association for Research in Otolaryngology, Anaheim Calif.

- 2010 Christensen-Dalsgaard, J, CE Carr,, PT Madsen, C Brandt, K Willis, D **Ketten**, P Edds-Walton, R R. Fay Underwater hearing in the red-eared slider turtle, *Trachemys scripta elegans*. International Society for Neuroethology
- 2010 **Ketten**, D. R., Arruda, J., S. Cramer, Dunn, M., and Ridgway, S. Mature Mammal Hearing Loss: A Natural Experiment in Presbycusis. Association for Research in Otolaryngology, Anaheim Calif.
- 2010 Vigness-Raposa, KJ, G Scowcroft, J H Miller, DR **Ketten** Discovery of Sound in the Sea: An On-line Resource. 2nd International Meeting on The Effects of Noise on Aquatic Life. Cork, Ireland.
- 2010 Tubelli, A., A. Zosuls, D. R. **Ketten** and D. C. Mountain. Prediction of a Mysticete Audiogram via Finite Element Analysis of the Middle Ear. 2nd International Conference of the Effects of Noise on Aquatic Life, Cork, Ireland
- 2010 Zosuls, A., S. O. Newburg, D. R. **Ketten** and D. C. Mountain. Reverse Engineering the Cetacean Ear to Extract Audiograms. 2nd International Conference of the Effects of Noise on Aquatic Life, Cork, Ireland.
- 2011 Mooney, TA and DR **Ketten** Using Auditory Evoked Potentials to Examine Hearing Loss in Aquatic Animals: From Marine Mammals to Squid. Assoc. for Rsch in Otolaryngology, Baltimore, MD.
- 2011 Fontanella, J. E., Fish, F. E., Rybczynski, N., Nweeia, M. and **Ketten**, D. R. Three-dimensional geometry of the narwhal (*Monodon monoceros*) flukes in relation to hydrodynamics. Society for Integrative and Comparative Biology.
- 2011 **Ketten**, D.R., Shoshani, J., Arruda J., Cramer S., Reidenberg J., Yamato M. Great ears: Functional comparisons of land and marine leviathan ears, Tetrapod Evolution: Return to Water,, San Diego, CA.
- 2011 Yamato, M., **Ketten** D. R., Arruda J. J., Cramer S. R., & Moore K. The auditory anatomy of the Minke Whale (*Balaenoptera acutorostrata*): Insights into potential sound reception pathways in a baleen whale. 19th Biennial Conference on the Biology of Marine Mammals. Abstracts, 319.
- 2011 **Ketten**, D. R., Mooney A. T., Williams R. C., Matassa K., Patchett K., Arruda J. J., et al. Hearing Loss in Harbor Seals: Differential Diagnoses of Conductive and Sensorineural Losses via Auditory Evoked Potentials (AEP), Otoacoustic Emissions (OAE), and Computerized Tomography (CT). 19th Biennial Conference on the Biology of Marine Mammals. 156.
- 2011 Mooney, A. T., Li S., **Ketten** D. R., Wang K., & Wang D. Hearing pathways of the finless porpoise: Form and function in an 'unrepresentative' species. 19th Biennial Conference on the Biology of Marine Mammals. Abstracts, 209-210.
- 2011 Tubelli, A. A., Zosuls A. L., **Ketten** D. R., & Mountain D. C. The effects of mechanical property manipulation on Minke Whale hearing sensitivity. 19th Biennial Conference on the Biology of Marine Mammals. Abstracts, 296-297.

- 2012 Shorter, K. A. , T. Hurst, M. Johnson, S. Cramer, D. **Ketten**, M. Moore. Suction and skin: the effect of vacuum loading on the skin of a common dolphin. American Society of Biomechanics, Abstracts, 189-190.
- 2012 Tubelli, A.A., Zosuls, A., **Ketten**, D.R., and Mountain, D.C. Prediction of a mysticete audiogram via finite element analysis of the middle ear. 2<sup>nd</sup> International Conference on the Effects of Noise on Aquatic Life, Cork, Ireland.
- 2013 M. Yamato, H.N. Koopman, G. Feijoo, D.R. **Ketten**, and M. Niemeyer. Aquatic sound reception in cetaceans. 73rd Annual Meeting of the American Society of Mammalogists, Philadelphia, PA.
- 2013 Yamato, M., H.N. Koopman, G. Feijoo, D.R. **Ketten**, and M. Niemeyer. Fatty sound reception in minke whales: the lipid composition and potential function of fats associated with mysticete ears. 20th Biennial Conference on the Biology of Marine Mammals, Dunedin, NZ.
- 2013 **Ketten**, D. R., Simmons, J., Riquimaroux, H., Cramer, S., Arruda, J., Mountain, D.C., Zosuls, A., Tubelli, A. Auditory Structures that Impact Sensitivity and Acuity in Cetaceans: Location, Location, Location. 20th Biennial Conference on the Biology of Marine Mammals, Dunedin, NZ (*Awarded Best Conference Presentation, Society for Marine Mammalogy*).
- 2013 Cramer, SR; **Ketten**, DR; Arruda, JA; Manchester, R; Niemeyer, M. Centralizing Marine Mammal Stranding Data: A Web-based Content Management System. 20th Biennial Conference on the Biology of Marine Mammals, Dunedin, NZ.
- 2013 Arruda, J., **Ketten** D.R., Williams, C.R., Cramer S.R., Zagzebski, K.A., Shaffer, K.A. A CT Case Study: The Use of Computerized Tomography as a Diagnostic and Surgical Planning Tool in the Rehabilitation of Harbor Seals. 20th Biennial Conference on the Biology of Marine Mammals. Dunedin, NZ
- 2013 **Ketten, DR**, Arruda, JA; Cramer, SR; Zosuls, A, Mountain, D. Biomechanical Evidence of Low to Infrasonic Hearing in Mysticetes: Implications for Impacts. Ettore Majorana Foundation and Centre for Scientific Culture School of Ethology - 30th workshop. Erice, Sicily.
- 2014 **Ketten, D.R.**; Simmons, J.; Riquimaroux, H., Cramer, S.; Arruda, J. Twists and Turns, in Cochlear Anatomy: Curvatures related to Infra vs Ultrasonic Hearing. Acoustical Society of America (ASA), Providence, RI USA.

### Case Reports

1989-present Clinical Reports: Detailed analyses on pre and post operative status of head and neck anatomy and pathologies in implant patients, trauma victims, forensic requests, ear and throat prosthetics, and reconstructive surgery cases. Reports filed with surgeon, radiology, and law enforcement agencies.

To date: 130 in vivo patient case reports; 29 cadaveric reports.

1992-present Marine Mammal Case Reports: Detailed analyses of gross and microscopic anatomy including cause of death, chain of custody, and pathology cases for all marine mammal groups. Reports filed with NOAA Fisheries and other governmental agencies.

To date: 13 in vivo case reports; 112 postmortem reports.

## POPULAR PRESS/ MEDIA

### Newspaper and Magazine:

- “Sounds in the Oceans”, *U.S. News and World Report* (1996)
- “New Laboratory Aids Modeling of Dolphin Sonar Systems”, *WHOI Annual Report* (1997).
- “An Ear to the Fathoms”, *Woods Hole Currents*, Vol. 7 (3): 6-7 (1997)
- “Whales Downed by Sound?”, *Harvard Magazine*, Vol. 103 (1):19 (2000)
- “Noise Pollution: Not-So-Silent Seas”, *Audubon Magazine*, September-October (2000)
- “How Dolphins Hear Without Ears”, *New Scientist*, December 25/January 1 (2000)
- “A Roaring Debate over Ocean Noise”, *Science*, Vol. 291, pp. 576-578 (2001)
- “Do we kill whales with sound?” *Discover Magazine*, feature article, April (2002)
- The Times of London, *Science* supplement feature article on Sound (2002)
- How to See What Whales Hear: Biomedical imaging reveals new insights *Oceanus* (2005)
- <http://www.whoi.edu/oceanus/viewImage.do?id=12193&aid=5759>
- Sound in the Sea Series, *The Virginian-Pilot Newspaper* (2005)
- Doing the Right Thing for the Right Whale, *Oceanus Magazine* Dec. (2005)
- <http://www.whoi.edu/oceanus/viewArticle.do?id=9211&archives=true>
- Sonar and Whales, *Military Officers Magazine* (2006)
- The Marine Scientist Magazine*, syndicated, Sept. (2006)
- Australian Broadcasting Corporation, on-air interview (2006)
- Ocean Sound and Hearing, *Scholastic Magazine* (2006)
- Mass Strandings Keep New Facility Busy, *Oceanus Magazine* (2006)
- <http://www.whoi.edu/oceanus/viewArticle.do?id=12866>
- Whither the North Atlantic Right Whale, *Oceanus Magazine* (2006)
- <http://www.whoi.edu/oceanus/viewArticle.do?id=2482>
- Playing Tag with Whales, *Oceanus Magazine* (2006)

<http://www.whoi.edu/oceanus/viewArticle.do?id=3820>

Run Deep, But Not Silent, *Oceanus Magazine* (2006)

<http://www.whoi.edu/oceanus/viewArticle.do?id=3818>

Scientists Muster to Help Right Whales, *Oceanus Magazine* (2006)

<http://www.whoi.edu/oceanus/viewArticle.do?id=37146&sectionid=1021>

The Sound of Sonar and the Fury about Whale Strandings, *Oceanus Magazine* (2008)

<http://www.whoi.edu/oceanus/viewArticle.do?id=2474>

Seeing what they hear, to better understand ourselves, *Harvard Gazette* (September, 2008)

<http://www.news.harvard.edu/gazette/2008/09.25/05-ketten.html>

California Blue Whale Strandings: *Fort Bragg Advocate News* (Nov. 2009)

Investigating sonar and whale strandings. *Oceanus Magazine*. 47(2), 38-41 (2009)

Supreme Court Weighs in on Whales and Sonar, *Oceanus Magazine* (2009)

<http://www.whoi.edu/oceanus/viewArticle.do?id=2474>

Turtle Skulls Prove to be Shock-Resistant, *Oceanus Magazine* (2009)

<http://www.whoi.edu/oceanus/viewArticle.do?id=54786&sectionid=1021>

Marine Mammal Research Pioneer, *Live Better Magazine, cover article*, April (2009)

<http://www.livebettermagazine.com/eng/magazine/>

Ask the Expert: Why do whales beach themselves? *Scientific American* June (2009)

<http://www.scientificamerican.com/article.cfm?id=why-do-whales-beach-themselves>

Ketten, D. R. America's Grade of Shame. *Live Better Magazine*. Issue 7. 4 pgs. (2010)

[http://www.centerforabetterlife.com/eng/magazine/article\\_detail.lasso?id=142](http://www.centerforabetterlife.com/eng/magazine/article_detail.lasso?id=142)

## Website Features

Discovery Channel, Website interview (2001)

NMFS national press conference (2001)

Women in Oceanography: Website feature interview (2002)

Discovery of Sound in the Sea, featured scientist; URI DOSITS site

<http://www.dosits.org/gallery/research/5.htm>

The My Hero Project: Science Heroes

[http://www.myhero.com/myhero/hero.asp?hero=Darlene\\_Ketten\\_06](http://www.myhero.com/myhero/hero.asp?hero=Darlene_Ketten_06)

ONR Science and Technology Website: Featured Principal Investigators

[http://www.onr.navy.mil/sci\\_tech/34/341/archives\\_pi/darlene\\_ketten.asp](http://www.onr.navy.mil/sci_tech/34/341/archives_pi/darlene_ketten.asp)

Ocean World and The Science Nation: [www.HearTheAnswer.com](http://www.HearTheAnswer.com)

Ear to the ground on shark sense

<http://www.sciencewa.net.au/topics/fisheries-a-water/item/2932-ear-to-the-ground-on-shark-sense>

<http://www.bbc.com/earth/story/20150225-do-dying-whales-go-to-graveyards>

### **Radio/Feature Interviews**

“Sound in the Environment” Canadian Broadcasting Corporation Science Series 1996

“Hearing Underwater”, BBC Radio Science series. 1997

“Science Friday”, PBS Radio (1997)

BBC Radio, Science Unit 1999

“Living on Earth”, PBS Radio 1999

“Ocean World” PBS Radio 2000

“LFA and Whales”, PBS Radio, Todd Mundt Show 2002

NPR, Earth and Sky, On air Interview, Jan. 2006

Our Ocean World, syndicated broadcast, On air Interview, July 2006

NPR, Science Friday, On air live Interview, May 2006

NPR, Scientists at Work, On air Interview, July 2008

Univ. of Tasmania, Radio, On air Interview, 2006

New Scientist, On air Interview, June 2009

Nova, Video taped Interview, June 2009

Aquatic Mammals, Marine Mammal Research Fellows, Video taped Interview, 2010

USN: Sonar and Sound Impacts, Fleet Educational Services, Video taped Interview, 2010

## Television

“Deaf Whale/Dead Whale”, BBC Television, BBC Horizon series, The Learning Channel/ PBS Nova. (1995)

“Evolutionary Morphing: Mesonychids to Marine Mammals” (instructional video, D. Ketten) PBS. (1995)

“3D Visualization of the inner ear and cochlear implants *in vivo*”, Instructional video (1996)

“CT imaging and reconstruction techniques”, Instructional video (1996)

“Whale Hearing”, *Scientific American Frontiers*, PBS/Learning Channel (1997)

“Marine Mammals: Acoustic Fatheads”, Discovery Channel (1999)

“Science Times” National Geographic Television (2001)

CBS Sixty Minutes II (2001)

BBC Television, Science Division News Service (2002)

NBC Nightly News: Whales and Sonar (2002)

Tasmanian television interview (2006)

National Geographic Special, Biomedical Imaging (Dec., 2008)

Discovery Channel, Canada, Women in Marine Mammal Research (2008)

Mona Lisa Productions, French television, Canale 1, Animal Senses (2008)

National Geographic Special, The Kingdom of the Blue Whale (March, 2009)

Mona Lisa Productions, French television, Canale 1, The Sentinels (2009)

Animal Planet Series: Nick Baker, BBC (2009)

Discovery Channel, Canada: Daily Planet: Cephalopods (2010)

Icon Films, National Geographic, UK: Unknown Ocean Creatures (2010)

Windfall Films, UK: Inside Giants: Giant Squid (2010)

BBC: Horizons: Sir David Attenborough, Oceans (2010)

Discovery: Shark Week (2012)