

FRANTS HAVMAND JENSEN

Visiting Investigator

Woods Hole Oceanographic Institution, MA, USA

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EDUCATION

2007-2011: PhD in Biology, Aarhus University, Denmark

2006-2009: MSc (Honours) in Biology, Aarhus University, Denmark

2002-2006: BSc in Biology, Zoophysiology, Aarhus University

APPOINTMENTS

2019- Visiting Investigator, Woods Hole Oceanographic Institution, MA, USA

2018 Associate Lecturer (Education Focused), University of St. Andrews, Scotland, UK

2017-18: Assistant Professor, *Marie Skłodowska Curie* COFUND Junior Fellow, Aarhus Institute of Advanced Studies (AIAS), Denmark

2016-17: *Marie Skłodowska Curie* COFUND Junior Fellow, AIAS, Denmark

2014-16: *Carlsberg Foundation* Postdoctoral Fellow,

Ecology and Evolutionary Biology Department, Princeton University, NJ, USA

Co-mentors: Profs. Simon A. Levin, Daniel I. Rubenstein, and Iain D. Couzin

2011-14: *Danish Council for Independent Research, Natural Sciences* Postdoctoral Fellow

Woods Hole Oceanographic Institution, MA, USA

Mentor: Prof. Peter L. Tyack

2011: Post Doc, Zoophysiology, Dept. Biological Sciences, Aarhus University, Denmark

Supervisor: Prof. Peter T. Madsen

AWARDS, FELLOWSHIPS AND RESEARCH GRANTS

2019: Dolphin Quest Research grant (25k USD)

2019: Human Frontiers Research Program (1.35M USD: co-wrote grant but was not eligible to be PI)

2018: BEACON Center research award (MSU), 118.761 USD

2017: BEACON Center research award (MSU), 90.158 USD

2016: BEACON Center research award (MSU), 124.304 USD

2016: *Carlsberg Foundation* field research grant, 38.741 USD †

2016: MOBILEX fellowship, Danish Council for Independent Research, 384.762 USD † Ψ

2016: *Marie Skłodowska Curie* COFUND Fellowship, 2.5 years of salary + research expenses

2015: *Carlsberg Foundation* travel grant, 54.460 USD †

2014: *Carlsberg Foundation* travel grant, 54.460 USD †

2014-2016: Office of Naval Research, research grant, 117.013 USD

2011-2014: Sapere Aude: Young Elite Researcher Award, Danish Council for Independent Research | Natural Sciences, 156.737 USD †

2011-2014: Postdoctoral Fellowship, Danish Council for Independent Research, 278.700 USD †

2007-2011: PhD Scholarship, Faculty of Science and the School of Aquatic Sciences, 202.280 USD †

2007: WWF Verdensnaturfonden, 4668 USD †

2007: The Siemens Foundation, 6224 USD †

(†: Grant or fellowship in DKK and converted to USD; Ψ Grant awarded but declined)

METRICS

Publications: 30 peer-reviewed international papers; 2 book contributions

Citations: Google: 989 citations; h-index 15; Web of Science: 621 citations; h-index 13

Conferences: 1 Invited plenary talk; 3 invited conference talks; Total of 16 oral, 4 poster and 25 co-author conference presentations; 1 conference workshop organized; full list available on request

PEER-REVIEWED INTERNATIONAL PUBLICATIONS (* Denotes student mentee author)

30. **Jensen F. H.**, * Keller O. A., Tyack P. L. and Visser F. (2020): Dynamic biosonar adjustment strategies in deep-diving Risso's dolphins driven partly by prey evasion. *The Journal of Experimental Biology* **223**, jeb216283.
29. * Pedersen M. B., Fahlman A., Borque-Espinosa A., Madsen P. T., **Jensen F. H.** (2020): Whistling is metabolically cheap for communicating bottlenose dolphins (*Tursiops truncatus*). *The Journal of Experimental Biology* **223**, jeb212498
28. * Kragh I. M., McHugh K., Wells R. S., Sayigh L. S., Janik V. M., Tyack P. L., **Jensen F. H.** (2019): Signal-specific amplitude adjustment to noise in common bottlenose dolphins (*Tursiops truncatus*). *The Journal of Experimental Biology* **222**, jeb216606.
27. Goldbogen J.A., Cade D. E., Wisniewska D. M., Potvin J., Segre P.S., Savoca M. S., Hazen E. L., Czapanskiy M. F., Kahane-Rappoport S. R., DeRuiter S. L., Gero S., Tønnesen P., Gough W. T., Hanson M. B., Holt M., **Jensen F. H.**, Simon M., Stimpert A. K., Arranz P., Johnston D. W., Nowacek D. P., Parks S., Visser F., Friedlaender A. S., Tyack P. L., Madsen P. T., Pyenson N. D. (2019). Why whales are big but not bigger: Physiological drivers and ecological limits in the age of ocean giants. *Science* **366**, 1367-1372.
26. Ladegaard M., Mulsow J., Houser D. S., **Jensen F. H.**, Johnson M., Madsen P. T., Finneran J. (2019): Dolphin echolocation behaviour during active long-range target approaches. *Journal of Experimental Biology*, <https://doi.org/10.1242/jeb.189217>
25. **Jensen F. H.**, Johnson M., Ladegaard M., Wisniewska D., Madsen P. T. (2018): Narrow acoustic field of view drives frequency scaling in toothed whale biosonar. *Current Biology*, <https://doi.org/10.1016/j.cub.2018.10.037>
24. Fahlman A., McHugh K., Allen J., Barleycorn A., Allen A., Sweeney J., Stone R., Bedford G., Moore M., **Jensen F. H.**, Wells R. S. (2018). Resting metabolic rate and lung function in wild offshore common bottlenose dolphins, *Tursiops truncatus*, near Bermuda. *Frontiers in Physiology* **9**, 886. doi: 10.3389/fphys.2018.00886.
23. * Martin M. J., Gridley T., Elwen S. H., **Jensen F. H.** (2018): Heaviside's dolphins (*Cephalorhynchus heavisidii*) relax acoustic crypsis to increase communication range. *Proceedings of the Royal Society B: Biological Sciences* **285** (1883), 20181178.
22. Fahlman A., **Jensen F. H.**, Tyack P. L., Wells R. S. (2018): Modeling tissue and blood gas kinetics in coastal and offshore common bottlenose dolphins, *Tursiops truncatus*. *Frontiers in Physiology* **9**, 838. doi: 10.3389/fphys.2018.00838.
21. * Soerensen P. M., Wisniewska D. M., **Jensen F. H.**, Johnson M., Teilmann J., Madsen P. T. (2018): Click communication in wild harbour porpoises (*Phocoena phocoena*). *Nature Scientific Reports* **8** (1), 9702.
20. King S. L., Friedman W. R., Allen S. J., Gerber L., **Jensen F. H.**, Wittwer S., Connor R. C., Krützen M. (2018): Bottlenose dolphins retain individual vocal labels in multi-level alliances. *Current Biology* **28**, 1993-1999.e3.
19. * De Freitas M., Smith J., Bejder L., **Jensen F. H.**, Beedholm K., Madsen P. T. (2018): Echolocation click source parameters of Australian snubfin dolphins (*Orcaella heinsohni*). *Journal of the Acoustical Society of America* **143** (4), 2564-2569.
18. * Hughey L. F., Hein A. M., Strandburg-Peshkin A., **Jensen F. H.** (2018): Challenges and solutions for studying collective animal behavior in the wild. *Philosophical Transactions of the Royal Society B: Biological Sciences* **373** (1746), 20170005. doi: 10.1098/rstb.2017.0005.
17. * Ladegaard M., **Jensen F. H.**, Beedholm K., da Silva V. M. F., Madsen P. T. (2017): Amazon river dolphins (*Inia geoffrensis*) modify biosonar output level and directivity during prey interception in the wild. *Journal of Experimental Biology* **220**, 2654-2665.

16. * Marrero Pérez J., **Jensen F. H.**, * Doñate L. R., Aguilar Soto N. (2017): Different modes of acoustic communication in short-finned pilot whales. *Marine Mammal Science* 33 (1): 59-79.
15. * Ladegaard M., **Jensen F. H.**, De Freitas M., da Silva V. M. F., Madsen P. T. (2015): Amazon river dolphins (*Inia geoffrensis*) use a high frequency short range biosonar. *Journal of Experimental Biology* 218(19): 3091-3101.
14. **Jensen F. H.**, Beedholm K., Wahlberg M., Johnson M., Madsen P. T. (2015): Single-click beam patterns suggest dynamic changes to the field of view of echolocating Atlantic spotted dolphins (*Stenella frontalis*) in the wild. *Journal of Experimental Biology* 218, 1314-1324.
13. * De Freitas M., **Jensen F. H.**, Tyne J., Bejder L., Madsen P. T. (2015): Echolocation parameters of Australian humpback dolphins (*Sousa sahulensis*) and Indo-Pacific bottlenose dolphins (*Tursiops aduncus*) in the wild. *Journal of the Acoustical Society of America* 137, 3033-3041.
12. * Macfarlane N. B. W., Howland J., **Jensen F. H.**, Tyack P. L. (2015). A 3D stereo camera system for precisely positioning animals in space and time. *Behavioral Ecology and Sociobiology* 69: 685-693.
11. **Jensen F. H.**, * Rocco A., Mowgli R. M., Smith B., Janik V., and Madsen P. T. (2013): Clicking in shallow rivers: Short-range echolocation of Irrawaddy and Ganges river dolphins in a shallow, acoustically complex habitat. *PLoS ONE* 8(4): e59284. doi:10.1371/journal.pone.0059284.
10. Kyhn L. A., Tougaard J., Beedholm K., **Jensen F. H.**, Ash E., Williams R., Madsen P. T. (2013): Clicking in a killer whale habitat: Narrow-band, high-frequency biosonar clicks of harbour porpoise (*Phocoena phocoena*) and Dall's porpoise (*Phocoenoides dalli*). *PLoS ONE* 8(5): e63763. doi:10.1371/journal.pone.0063763.
9. Tervo O. M., Christoffersen M. F., Simon M., Miller L., **Jensen F. H.**, Parks S. E. and Madsen, P. T. (2012): High source levels and small active space of high-pitched song in bowhead whales (*Balaena mysticetus*). *PLoS ONE* 7(12): e52072. doi:10.1371/journal.pone.0052072.
8. **Jensen F. H.**, Beedholm K., Wahlberg M., Bejder L. and Madsen P.T. (2012): Estimated communication range and energetic cost of bottlenose dolphin whistles in a tropical habitat. *Journal of the Acoustical Society of America* 131, 582-592.
7. **Jensen F. H.**, Marrero Perez J., Johnson M. P., Aguilar Soto N., Madsen P. T. (2011): Calling under pressure: Short-finned pilot whales make social calls during deep foraging dives. *Proceedings of the Royal Society B: Biological Sciences*. 278: 3017-3025.
6. Madsen P. T., **Jensen F. H.**, Carder D. A., Ridgway S. H. (2011): Dolphin whistles: a functional misnomer revealed by heliox breathing. *Biology Letters* 8 (2): 211-213.
5. Wahlberg M., **Jensen F. H.**, Aguilar Soto N., Beedholm K., Bejder L., Johnson M. P., Oliveira C., Rasmussen M., Simon M., Villadsgaard A., Madsen P. T. (2011): Source parameters of echolocation clicks from wild bottlenose dolphins (*Tursiops Aduncus* and *Tursiops truncatus*). *Journal of the Acoustical Society of America* 130(4): 2263-2274.
4. Kyhn L. A., **Jensen F. H.**, Beedholm K., Tougaard J., Hansen M., and Madsen P. T. (2010): Echolocation in sympatric Peale's dolphins (*Lagenorhynchus australis*) and Commerson's dolphins (*Cephalorhynchus commersonii*) producing narrow band high frequency clicks. *Journal of Experimental Biology* 213: 1940-1949.
3. **Jensen F. H.**, Bejder L., Wahlberg M., Aguilar Soto N., Johnson M., and Madsen P.T. (2009): Vessel Noise Effects on Delphinid Communication. *Marine Ecology Progress Series* 395: 161-175.
2. Kyhn L. A., Tougaard J., **Jensen F. H.**, Wahlberg M., Stone G., Yoshinaga A., Beedholm K., Madsen P. T. (2009): Feeding at a high pitch: Source parameters of narrow band, high-frequency clicks from echolocating off-shore hourglass dolphins and coastal Hector's dolphins. *Journal of the Acoustical Society of America* 125(3): 1783-1791.

1. **Jensen F. H.**, Bejder L., Wahlberg M., and Madsen P.T. (2009): Biosonar adjustments to target range of echolocating bottlenose dolphins (*Tursiops sp.*) in the wild. *Journal of Experimental Biology* 212: 1078-1086

BOOK CONTRIBUTIONS

2. **Jensen, F. H.** (2018). The Devil Is in the Details Box 7.2 Cognition of Deep-Diving Toothed Whales. In: Field and Laboratory Methods in Animal Cognition: A Comparative Guide (eds: N. Bueno-Guerra, F. Amici). Cambridge University Press, Cambridge, UK.
1. Fenton B. M. B, **Jensen F. H.**, Kalko E. K. V., Tyack P. L. (2014): Sonar Signals of Bats and Toothed Whales. In: Biosonar (eds: P. E. Nachtigall, A. M. Surlykke, A. N. Popper, R. R. Fay). Springer, New York (Springer Handbook of Auditory Research).

INVITED TALKS (14 invited talks, including 3 invited conference talks and 1 invited plenary)

14. Jensen, F. H. (2020): The Sensory Ecology of Distributed Animal Groups. Max Planck Society, Berlin, Germany, January 2020 (**invited talk**).
13. Jensen F. H. (2018): Peeking into the deep: Diving and foraging ecology of offshore bottlenose dolphins. Oceanografic Foundation, Valencia, Spain, April 2018 (**invited talk**)
12. Jensen F. H. (2018): Coordinated, distributed foraging in deep-diving pilot whales. Department of Evolutionary Biology and Environmental Studies, University of Zurich, Switzerland, April 2018 (**invited departmental talk**)
11. Jensen F. H. (2016): Studying foraging ecology of deep divers using acoustic tags. Bermuda Underwater Exploration Institute, August 2016 (**invited talk**)
10. Jensen F. H. (2016): Changing perspectives on the acoustic ecology of deep-diving toothed whales: From individual biosonar parameters to collective foraging strategies. Acoustics Research Laboratory, National University of Singapore, July 2016 (**invited departmental talk**)
9. Jensen F. H. (2016): Living life on the edge: Social ecology and coordination in deep-diving pilot whales. University of Hong Kong, July 2016 (**invited departmental talk**)
8. Jensen F. H. (2016): Pilot whale group coordination and underlying sensory mechanisms. Scottish Oceans Institute, St. Andrews University, April 2016 (**invited departmental talk**)
7. Jensen F. H. (2015): Studying communication and social coordination in wild delphinids using acoustic and movement tags. Communication and Cognition workshop, 21st Biennial Conference on the Biology of Marine Mammals, San Francisco, USA, 2015 (**invited talk**)
6. Jensen F. H. (2015): Communication and spatiotemporal coordination of delphinids. Danish Marine Mammal Symposium, Aarhus, Denmark, 2015 (**invited conference plenary**)
5. Jensen F. H. (2015): Quantifying movement coordination in bottlenose dolphin dyads. Watkins memorial marine mammal bioacoustics conference, New Bedford, MA, USA, 2015 (**invited conference talk**)
4. Jensen F. H. (2014): Quantifying coupling of movement in bottlenose dolphin dyads. Exeter University, December 2014 (**invited departmental talk**)
3. Jensen F. H. (2013): Social coordination and group synchrony in deep-diving pilot whales. Princeton University, September 2013 (**invited talk**)
2. Jensen F. H. (2013): Social context and group dispersion of long-finned pilot whales. Duke University, April 2013 (**invited talk**)
1. Jensen F. H. (2013): Studying acoustic communication in pilot whale social groups. 166th Meeting of the Acoustical Society of America. San Francisco, CA, 2013 (**invited talk**)

TEACHING EXPERIENCE (Portfolio available on request)

I have taught on a range of undergraduate and graduate level courses from marine mammal ecophysiology to statistics and marine bioacoustics. I have experience with planning and executing lectures and laboratory exercises, designing and managing active learning components in small-groups, and coordinating modules using several learning management systems (Blackboard, MMS). I am passionate about embracing modern e-learning techniques and have used blended and collaborative learning elements in teaching at Aarhus University and University of St. Andrews.

Professional development courses:

2018	Convening a Module + University Assessment workshops, University of St Andrews
2017	University Teacher Training Programme, Aarhus University (1 semester, 5 ECTS)
2017	Research Leadership in Action course, Aarhus Institute of Advanced Study (2 days)
2016	PhD supervision course, Aarhus University (2 days)

Undergraduate/BSc level courses taught:

- **Marine Bioacoustics** (BSc course), St. Andrews University, UK
Role: Lecturer; Responsible for flipped classroom and active learning components, lectures, theoretical + practical exercises, continual and final assessment (2018)
- **Applied Statistics** (BSc course), Aarhus University, DK
Role: Teaching assistant; Theoretical and computer exercises (2007-2010)
- **Animal Physiology: Muscles, nerves and hormones** (BSc course), Aarhus University, DK
Role: Teaching assistant; Theoretical and laboratory exercises (2007-2008)
- **Genetics** (BSc course), Aarhus University, DK
Role: Teaching assistant; Small group teaching, theoretical exercises (2006, 2009)
- **Microbiology** (BSc course), Aarhus University, DK
Role: Teaching assistant; Theoretical and laboratory exercises (2005)

Graduate/MSc level courses taught:

- **Marine mammal ecophysiology** (MSc Course), Aarhus University, DK
Role: Guest lecturer; Lectures and small group teaching (2017)
- **Marine Bioacoustics** (MSc course), St. Andrews University, UK
Role: Guest lecturer; Lectures and theoretical exercises (2014)

Graduate/PhD level courses taught:

- **Sensory Biology** (PhD topics course), Woods Hole Oceanographic Institution, USA
Role: Lecturer on echolocation; Lectures and small group discussions (2013)
- **DTAG workshop** (PhD + faculty course), Woods Hole Oceanographic Institution, USA
Role: Organizer; Design and implementation of workshop, lectures, and practicals for a workshop on tag data handling, processing and analysis (2012)
- **Acoustic Localization Workshop** (PhD course), University of Southern Denmark
Role: Teaching assistant; Practical exercises and demonstrations (2009)
- **Acoustic Communication** (PhD course), University of Southern Denmark
Role: Teaching assistant; Practical exercises and demonstrations (2009)

Guest lectures

- Behavioral Ecology (BSc course), Aarhus University, DK (2016-2018)
- Marine Mammal Biology (BSc course), University of Southern Denmark (2010-2011)

Examination experience

- Marine Bioacoustics (BSc course, written exam), St. Andrews University, UK (fall 2018)
- Behavioral Ecology (BSc course, oral exam), Aarhus University, DK (2016)
- External examiner for Honours student working on the songs of migrating bowhead whales (Supervisor: Prof. Will Ambrose). Bates College, Maine, USA (2013)

SUPERVISION EXPERIENCE

I find it both a joy and a privilege to mentor students and help them develop and complete independent research projects. I have mentored a highly diverse range of students from Denmark, US, UK, and Asia. I work with students to ensure a good fit between their interests and research projects and to make sure that the project helps students learn or expand meaningful skills (especially programming, quantitative analysis and statistics expertise) at the same time. I strive to ensure that each project is of a high international quality and to help students publish findings in high-quality journals.

Supervising

- 2018-2019: Michael B. Pedersen (MSc Student), Aarhus University, DK
Grade 12 of 12 (DK grading scale) (1 paper in press, JEB)
- 2017-2018: Michael B. Pedersen (BSc student), Aarhus University, DK
Grade 10 of 12 (DK grading scale), now enrolled as MSc student
- 2017-2018: Rebecca J. Nielsen (BSc student), Aarhus University, DK
Grade 12 of 12 (DK grading scale), currently enrolled as MSc student
- 2017: Ivana Maria Suradja (BSc Student summer project), HKUST, Hong Kong
Grade A (with distinction), now working for Indonesian conservation NGO
- 2016-2017: Onno Keller (MSc Student), University of Amsterdam, NL
Grade 9 of 10 (Dutch grading scale), enrolled in PhD program (1 paper, JEB)
- 2016-2017: Ida Marie Kragh (MSc Student), Aarhus University, DK
Grade 12 of 12 (DK grading scale), teaching high school (1 paper, JEB)

Co-supervising

- 2019-2022: Pernille M. Soerensen (PhD Student), University of Western Australia, Australia
On-going, primary supervisor S. L. King
- 2018-2019: Emily R. H. Kelly (BSc Student), Cognitive Science, Aarhus University, DK
On-going, primary supervisor Riccardo Fusaroli
- 2016-2020: Laia Rojano Doñate (PhD Student), Aarhus University, DK
Ongoing, primary supervisor P. T. Madsen
- 2016-2019: Marco Casoli (PhD Student), St. Andrews University, UK
Ongoing, primary supervisor P. L. Tyack

Mentoring (extensive involvement but no formal responsibility)

- 2016-2018: Morgan J. Martin (PhD Student), U. Pretoria, South Africa (1 paper, Proc Roy Soc)
- 2017-2018: Pernille M. Soerensen (MSc Student), Aarhus University, DK (1 paper, Sci Rep)
- 2017: Taylor Machette (BSc student intern), Princeton University, DK
- 2016: Clair Evers (MSc Student), St. Andrews University, UK
- 2016: Alicia Cardona Barreña (MSc Student), St. Andrews University, UK
- 2015-2016: Toluwani Dawodu (BSc Student), Princeton, US
- 2014-2016: Michael Ladegaard (PhD student), Aarhus University, DK (3 published papers)
- 2014-2015: Mafalda de Freitas (MSc. Student), Aarhus University, DK (2 published papers)
- 2011-2015: Nicholas B. W. Macfarlane (PhD student), WHOI, US (1 paper, Beh Ecol Sociobiol)

SERVICES

Research grant assessment

Research Grants Council of Hong Kong (2018, 2019)

Editorial experience

2018-2019: Guest associate editor for special issue joint between *Frontiers in Physiology* and *Frontiers in Ecology and Evolution* titled "Ecology and Behaviour of Free-Ranging Animals Studied by Advanced Data-Logging and Tracking Techniques".

Conference and workshop organization

2020: Member of the scientific committee for the 7th International Biologging Science Symposium (October 2020, Hawaii, USA)

2017: Co-organizer: Communication and Movement in Animal Groups workshop, 6th International Biologging Science Symposium (October 2017, Konstanz, Germany)

Journal reviewer

Current Biology; eLife; Behavioral Ecology and Sociobiology; Journal of Experimental Biology; Movement Ecology; Naturwissenschaften; Journal of Environmental Management; Endangered Species Research; Animal Conservation; Marine Ecology Progress Series; Journal of Experimental Marine Biology and Ecology; Ethology; Journal of the Acoustical Society of America; Bioacoustics; PLOS ONE; Journal of Cetacean Resource Management; Aquatic Mammals; Marine Mammal Science

Book reviewer

Marine Mammal Science

Committee services

2013-2014 Postdoctoral Representative, WHOI Postdoctoral Association

2003-2007 Student Representative, Board of Studies, Life Sciences, Aarhus University

2004-2006 Student Representative, Academic Council, Faculty of Science, Aarhus University

2002-2007 Member of various student politics organizations

Public outreach

2012-2019 Annual contributions to Nicks n Notches (Sarasota Dolphin Project newsletter)

2012-2018 Various public outreach talks

2012-2014 New Bedford Whaling Museum seminars for under-privileged teenagers

2012-2013 Falmouth Academy Science Fair judge

2007-2011 Aarhus University Visitors Service (High-school-level lectures)

PROFESSIONAL AFFILIATIONS

- International Biologging Society
- Society of Marine Mammalogy
- European Cetacean Society;

PROGRAMMING AND STATISTICAL LANGUAGES

Matlab (Mathworks): Fluent (Acoustic localization, quantitative analysis and modelling, DTAG processing and analysis, time series analysis, causality analysis, Monte Carlo resampling statistics)

JMP (SAS): Fluent (Univariate and multivariate statistics, GLMs, statistical modelling, taught as part of undergraduate course for 4 years)

R (The R project for Statistical Computing): Beginner (mainly generalized mixed effects analyses)

Python (Python Software Foundation): Beginner (mainly machine learning and ABM simulations)

C/C++: Beginner (programming Arduino devices and tag microcontrollers)

Onshape: Intermediate (3D design and modelling)

FIELDWORK EXPERIENCE & FIELD SKILLS

Experience: 19 field expeditions; 59 weeks in the field; 7 expeditions as chief scientist

Skills: Tagging (cetaceans, carnivores, fish); Tag design, programming, construction and testing; Tag handling, configuration, testing, troubleshooting and post processing; acoustic calibration and recordings; sound localization (linear and GPS-linked arrays); sound propagation measurements and analysis; anthropogenic noise measurement; sound playback experiments; VHF tracking; focal-follow data collection;

REFERENCES

Prof. Peter T. Madsen [PhD advisor]

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Dr. T. Aran Mooney [Sponsor of current position]

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