

Louise Roberts

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Education and Employment History

2015, **Ph.D. *Biological Sciences*** Institute of Estuarine and Coastal Studies, University of Hull, UK
2010, **M. Sc. (with Merit) *Marine Biology*** Bangor University, UK
2008, **B. Sc. (Hons) *Zoology (2:i)*** University of Durham, UK

2019 – present	Postdoctoral Research Associate	Cornell University, USA
2018	Adjunct Scientist-In-Residence Fellow	Shoals Marine Laboratory; Cornell University; University of New Hampshire, USA
2017 –2019	Postdoctoral Research Associate	Dartmouth College, USA
2015 –2017	Postdoctoral researcher and consultant	IECS, University of Hull, UK
2015 –2016	Part-time benthic technician	IECS, University of Hull
2015	Postdoctoral Research Assistant	Exeter & Bristol Universities, UK
2010	Research Assistant	‘Shark lab’, Bimini Biological Field station, Bahamas

Prizes and research grants awarded

2019	Travel award to attend: ‘5 th <i>International conference of the Effects of noise on Aquatic life</i> ’ – Den Haag, Netherlands; c.a. \$800
2018	<i>Shoals Marine Laboratory Scientist in Residence Fellowship</i> : for island-based field research regarding underwater noise in the Gulf of Maine, USA; c.a. \$9000
2016	Grant: ‘ <i>Effects of substrate-borne vibration upon benthic marine molluscs</i> ’ The Malacological Society of London, £1500 ‘ <i>Young Researcher Prize for novelty of research</i> ’ Awarded at ‘1 st International Symposium of Biotremology’, Italy €150 Travel award to attend: ‘4 th <i>International conference of the Effects of noise on Aquatic life</i> ’, Dublin, Ireland; c.a. \$800
2013	Travel award to attend ‘3 rd <i>International conference of the Effects of noise on Aquatic Life</i> ’, Budapest, Hungary; c.a. \$800
2010	Worshipful Company of Fishmongers Scholarship for M.Sc. Degree c.a. £5000

Publications

Roberts, L. and Laidre, M.E. (2019) Noise alters chemically-mediated search behaviour in a marine hermit crab: studying cross-modal effects on behaviour. *Proceedings of Meetings on Acoustics* 37 (1).

Roberts, L. and Laidre, M.E. (2019) Finding a home in the noise: cross-modal impact of anthropogenic vibration on animal search behaviour. *Biology Open* 8 (7).

Roberts, L. (2019) First person interview- Louise Roberts. *Biology Open* 8 (7).

Roberts, L., and Laidre, M.E. (2019) *Get off my back: Vibrational assessment of homeowner strength.* *Biology Letters* 15 (4).

Roberts, L. and Elliott, M. (2017) Good or bad vibrations? Impacts of man-made vibration upon the marine epibenthos. *Science of the Total Environment* 595: 255 – 268.

Roberts, L., Harding, H., Voellmy, I., Brintjes, R., Simpson, S., Radford, A., Breithaupt, T., Elliott, M., (2017). Exposure of benthic invertebrates to sediment vibration: from laboratory experiments to outdoor simulated pile-driving. *Proceedings of Meetings on Acoustics* 27: (010029).

- Börger, T., Broszeir, S., Ahtiainen, H., Atkins, J.P., Burdon, D., Luisetti, T., Murillas, A., Oinonen, S., Paltriguera, L., Roberts, L., Uyarra, M.C., Austen, M.C. (2016) Assessing costs and benefits of measures to achieve Good Environmental Status in European regional seas: Challenges, opportunities and lessons learnt. *Frontiers in Marine Science* 3: 1-20.
- Roberts, L., Pérez-Domínguez, R., Elliott, M. (2016) Use of baited remote underwater video (BRUV) and motion analysis for studying the impacts of underwater noise upon free ranging fish and implications for marine energy management. *Marine Pollution Bulletin* 112 (1-2): 75- 85.
- Roberts, L. Effects of substrate-borne vibration upon benthic marine molluscs, with focus upon *Mytilus edulis* (2016) *The Malacologist, Bulletin of the Malacological Society of London* volume 67.
- Roberts, L., Cheesman, S., Elliott, M., Breithaupt, T. (2016) Sensitivity of *Pagurus bernhardus* (L.) to substrate-borne vibration and anthropogenic noise. *Journal of Marine Biology and Ecology*: 185 – 194.
- Roberts, L. and Breithaupt, T. (2016). Chapter 115: Sensitivity of crustaceans to substrate borne vibration, *In: Popper, A.N. & Hawkins, A.D. (eds.) Effects of Noise on Aquatic Life II*. Springer, New York.
- Roberts, L., Hawkins, A.D., and S. Cheesman (2016). Chapter 113: Effects of sound on the behaviour of wild, unrestrained fish schools. *In: Popper, A.N. & Hawkins, A.D. (eds.) Effects of Noise on Aquatic Life II*. Springer, New York.
- Roberts, L., Cheesman, S., Elliott, M., Breithaupt, T. (2016) Sensitivity of macroinvertebrates to substrate borne vibration. *Proceedings of the Institute of Acoustics Volume 37: Part 1*.
- Roberts, L., Cheesman, S., Breithaupt, T., Elliott, M. (2015) Sensitivity of the mussel *Mytilus edulis* to substrate-borne vibration in relation to anthropogenically generated noise. *Marine Ecology Progress Series* 538: 185-195.
- Roberts, L. (2015) Behavioural responses by marine fish and macroinvertebrates to underwater noise. Ph.D. thesis, University of Hull, April 2015. Available online at Hydra.hull.ac.uk.
- Hawkins, A. D., Roberts, L., Cheesman, S. (2014) Responses of free-living coastal pelagic fish to impulsive sounds. *Journal of the Acoustical Society of America* 135 (5):3101-3116.
- Roberts, L., Smyth, K., Franco, A. (2013). *Impact of vibration, disturbance and displacement of borehole investigations on lobster*. (Consultancy Report: ZBB829-D-2013, Client: Aberdeen Harbour).
- Spiga, I., Cheesman, S.T., Roberts, L., Hughes, D.T., Pérez-Domínguez, R., Bentley, M.G., Downie, M.J., Elliott, M. (2012) Understanding the scale and impacts of anthropogenic noise in the marine environment; *DEFRA Report number: ME5205. SoundWaves Technical Report*.

In Press:

- Roberts, L. and Howard, D. Substrate-borne vibrational Noise in the Anthropocene: from land to sea. Invited book chapter for *Biotremology 3rd Edition*; editor Hill, P.

Invited Seminars and presentations

Invited:

- Roberts, L. (2019) *Good or bad vibrations: anthropogenic sediment vibrations and marine invertebrates*. Department of Entomology, Cornell University, USA, April.
- Roberts, L. (2019) *Seabed vibration: a multi- and cross-modal disruptor*. Centre for Coastal and Ocean Mapping, Department of Ocean Engineering, University of New Hampshire, USA, April.
- Roberts, L. (2018) *Good good vibrations and crustaceans*. College of Life Sciences and Agriculture University of New Hampshire, USA, May.
- Roberts, L. (2017) *Good vibrations, or not: impact of anthropogenic noise on the marine environment*. Department of Biological Sciences, Dartmouth College, USA, October.
- Roberts, L. (2016) *Underwater noise: Behavioural responses of fishes and invertebrates*. Oil & Gas UK Environmental Seminar, Aberdeen UK, November.

Selected oral presentations:

- Roberts, L. (2019) *Anthropogenic seabed vibration: impacts upon marine invertebrates*. Department of Biology, Boston University, USA, May.
- Roberts, L. (2019) *Noise alters chemical search behaviour: studying cross-modal effects on behaviour*. '5th International conference on the Effects of noise upon Aquatic Life', Den Haag, Netherlands, July.
- Roberts, L. (2019) *Crustacean vibrations in the Osa peninsula*. Osa Conservation Field station, Costa Rica, March.

- Roberts, L. and Laidre, M.E. (2018) *Tropical vibes: vibration use and detection by the hermit crab Coenobita compressus*. '2nd International Symposium of Biotremology', Lake Garda, Italy, September.
- Roberts, L. and Laidre, M.E. (2018) *Get off my back: Vibrational assessment of resource holding potential and shell ownership*. 'International Society of Behavioural Ecology 2018', Minneapolis, USA, August.
- Roberts, L. and Laidre, M.E. (2018) *Good vibrations: ecology of social vibes*. EEESL Lunch Seminar, Biological Sciences, Dartmouth College USA, May.
- Roberts, L. and Elliott, M. (2017) *Use of baited remote video to investigate fish responses to noise*. Underwater Sound Forum, Newcastle UK, May.
- Roberts, L., Harding, H., Voellmy, I., Brintjes, R., Simpson, S., Radford, A., Breithaupt, T., Elliott, M. (2016), *Exposure of benthic invertebrates to sediment vibration: from lab experiments to small-scale pile-driving in the field*. '4th International conference on the Effects of noise upon Aquatic Life', Dublin, July.
- Roberts, L. and Elliott, M. (2016) *Good or bad vibrations: impacts of man-made vibration upon marine invertebrates*. 'First International Symposium of Biotremology', Fondazione Edmund Mach - San Michele all'Adige, Italy, July.
- Roberts, L., Cheesman, S., Elliott, M., Breithaupt (2015) *Sensitivity of macroinvertebrates to substrate-borne vibration*. 'Seabed and Sediment Acoustics: Measurements and modelling', Institute of Acoustics, Underwater Acoustics Group of Bath, UK.
- Roberts, L., Breithaupt, T. (2013) '*Sensitivity of crustaceans to substrate borne vibration*', 3rd International conference of the Effects of Noise on Aquatic Life', Budapest, Hungary, July.
- Roberts, L. (2012) '*Overview of the SoundWaves project*', SOFI NERC funded workshop: Environmental impacts and management of anthropogenic noise: the way forward, Bristol University.

Academic service

- Associate Editor**, *Proceedings of Meetings on Acoustics* (POMA) volume 'Effects of Noise on Aquatic life', and Journal of Acoustical Society of America Special Edition 'Effects of Noise', 2019- present.
- Reviewer** for: Proceedings of the Royal Society of London: B, Marine Pollution Bulletin, Acta Ethologica, Journal of Acoustical Society of America; POMA; Estuarine Coastal and Shelf Science.
- Chair** of session, 'International Society of Behavioural Ecology 2018', Minneapolis, August 2018.
- Advisory Board Member** '5th International conference of the Effects of Noise on Aquatic Life', conference organisation for Den Haag, The Netherlands, 2018- 2019
- Conference Assistant** at two 'Effects of Noise' international conference, Budapest and Dublin, 2013-2016.

- 2020** Certificate in Academic Mentoring, Cornell University
- 2019** Guest lecture for Graduate Skills seminar series, Dartmouth College, USA.
- 2018- 2019** Guest lectures for Social Evolution and Ecology undergraduate classes.
- 2018** Undergraduate student mentor and R instructor – 10 weeks, Shoals Marine Laboratory, USA.
- 2012- 2016** Postgraduate and Undergraduate student mentor, University of Hull.
- 2011- 2015** Teaching Assistant- Practical Marine Biology field course, University of Hull.
- 2011- 2015** Teaching Assistant- Practical Skills for Biologists, University of Hull.
- 2011** Postgraduate Certification in Research Training, University of Hull.
- 2019- 2020** Member of the Entomology Research group, Cornell University.
Member of Graduate and Professional Women's Network (GPWomeN), Cornell University.
Member of Cornell Graduate Women in Science (GWIS), Cornell University.
- 2017-2019** Member of the Ecology, Evolution, Eco and Society Research group, Dartmouth college.
- 2010- 2013** Member of the Functional Ecology and Sensory Ecology research groups, University of Hull.
- 2010- 2012** Postgraduate Research Committee Member (postgraduate welfare), University of Hull.

Outreach and Media Coverage

- 2020** 'Insectapalooza' insect outreach event (bioacoustics stall), Cornell University.
Insect Diagnostics Workshop to NY state turfgrass managers, Cornell University.
- 2019** Outreach presentation to residents, Osa Conservation Field Station, Costa Rica.
How hermit crabs shake off competitors for shells – The Guardian, article re: our Biol. Lett. paper
- 2019** 'Animal Behaviour outreach day', Hermit crab presentation and workshop for local children, Osa Conservation Field Station, Costa Rica.

2017 Oyster press comments for NewsWeek and PBS News 'oysters can hear your noise pollution'.

Society memberships, skills and field experience

Memberships: STEM Women UK; EPSRC UK Acoustics Network (UKAN); National Postdoctoral Association Member (USA); Underwater Sound Forum (UK); International Society of Behavioural Ecology; SoundWaves Research Consortium (2010- 2013).

Field experience: Four years of marine coastal fieldwork in the UK (small and large vessels, underwater noise experiments); four months island field work in the Gulf of Maine, USA (underwater noise); one season of field work in the Bahamas (shark tagging and acoustic tracking); two field seasons of tropical rainforest fieldwork in Costa Rica (hermit crab behaviour); Upcoming season in Managed Turfgrass systems. One summer voluntary zookeeper (reptiles and small mammals); one summer voluntary public aquarium experience.

Animal husbandry: Marine/terrestrial invertebrates, freshwater/marine fish, reptiles, small birds/mammals.

Certifications and skills: Offshore Personal Survival Techniques; RYA Power boat license with Commercial endorsement; VHF Short Range Marine Radio License; RYA ML5 Medical Certificate and ENG1 Medical Certificate; PADI Advanced Diving Certificate; Full UK driving license. *Software:* Basic R; RTPro acoustic analysis (Bruel and Kjør); Raven Acoustics; JMP; SPSS statistical packages.

Research techniques: reproducing man-made noise sources (terrestrial and marine field); vibrational and chemical manipulations; large-scale underwater and sediment playbacks; baited underwater camera systems and sonar for animal observation; passive acoustic monitoring; development of sensors.

Consultancy and industry experience

Regular contribution to projects, proposals and reports whilst part of the Institute of Estuarine and Coastal Studies, with focus upon underwater noise and sediment vibration. For example:

Effects of underwater noise on coastal fish and crustaceans: behavioural responses in the field - DEFRA Research Project (ME5205); A collaborative project involving Newcastle University, Loughine Ltd., Subacoustech Environmental Ltd., IECS Hull, through which Ph.D. was funded. Large-scale field work with invertebrates and fish. (Client: Department for Environment Food and Rural Affairs; 2011-2013).

DEVOTES (Developing innovative tools to understand marine biodiversity and good environmental status) - Addressing the challenges emerging from the implementation of the *Marine Strategy Framework Directive*. Review of existing information regarding the role of underwater noise in the achievement of GES ecosystem and ecosystem services (WP2). (Client: EU Commission; 2012-2016).

Various ecological monitoring projects: including proposal preparation survey design, reporting: e.g. *Boston Barrier Environmental Statement:* Impacts of barrier construction upon the local area, sediment vibration and noise (Report SBB708MMD-D-2016; Client: Mott MacDonald); *Humber Gateway post-construction Fish and Shellfish Surveys:* Post-construction surveys E.On Humber Gateway wind turbine site (2015-2016; Client: E.On); *Impact of vibration and displacement of borehole investigations on lobster.*