

JEROEN HUBERT

Postdoctoral researcher & teacher

Wageningen University – Department of Animal Science (ASG) – Marine Animal Ecology

RESEARCH EMPLOYMENT

- 2024 – now: Postdoctoral researcher (50%) & teacher (50%) at Wageningen University, Marine Animal Ecology group
Biodiversity effects of (floating) structures in offshore windfarms. Teaching on marine sciences and ecology.
Project: HybridLabs, funded by NWO (ORC) with additional support from [...] (total: € 13 million).
- 2021 – 2023: Postdoctoral researcher at Leiden University
The effects of offshore windfarms on pelagic fish communities and harbour porpoises and (improving) the efficacy of acoustic deterrent devices.
Project: APELAFICO, funded by NWO (NWA) with additional support from Rijkswaterstaat, Van Oord, and Vattenfall (total: ~ € 1 million) and additional in-kind contributions from PFA, Rijkswaterstaat, and Flanders Marine Institute (funded by the Research Foundation Flanders).
- 2016: Research assistant at Leiden University (10 months)
The avoidance effects of artificial sounds on European seabass in a large self-build floating pen in the Oosterschelde sea-arm.
- 2015: Research assistant at Leiden University (5 months)
The iambic-trochaic law in zebra finches, studies using an identification task in skinnerboxes.

EDUCATION

- 2017 – 2020: PhD, thesis: “Sound Investigation: Effects of noise on marine animals across trophic levels”, Leiden University (defended September 2021)
Supervised by Hans Slabbekoorn and Carel ten Cate.
Project: PCAD4Cod, funded by The E&P Sound & Marine Life Joint Industry Programme (~ € 3 million) and additional in-kind contributions from Flanders Marine Institute (funded by the Research Foundation Flanders).
- 2013 – 2015: MSc Biology, Animal Biology and Disease Models, Leiden University
Internships at Institute Biology Leiden on rhythm perception of birds and humans (5 months) and sound impact on fish (10 months).
- 2008 – 2012: B Agr Animal husbandry, Hogeschool Inholland Delft
Internships at Avifauna Bird Park (5 months) and The Dutch Society for the Protection of Animals (5 months).

PUBLICATIONS

a. Submitted/in review

[2] Demuynck, J. M., van Tilburg, T., Mirck, D., Slabbekoorn, H., Doksæter Sivle, L., & **Hubert, J.** (submitted). Response Triggering Potential of Pulse Train Variants in Pelagic Fish: a behavioural test using wild-caught Herring.

[1] Hermans, A., Maris, T., **Hubert, J.**, Rochas, C., Scott, K., Murk, A. J., & Winter, H. V. (submitted). From Subsea Power Cable to Small-spotted Catshark: behavioural effects of electromagnetic fields in tank experiments.

b. Peer reviewed

[18] **Hubert, J.**, Willems, M., & Varkevisser, J. M. (2024). Pseudoreplication of sound treatments in underwater exposure studies. *Anim. Beh.* 215C, 125-130. doi: 10.1016/j.anbehav.2024.07.005.

[17] Schmidlin, S., Parcerisas, C., **Hubert, J.**, Watson, M. S., Mees, J., Botteldooren, D., Devos, P., Debusschere, E., & Hablützel, P. I. (2024). Comparison of the effects of reef and anthropogenic soundscapes on oyster larvae settlement. *Sci. Rep.* 14, 12580. doi:10.1038/s41598-024-63322-2.

[16] de Bruyn, W., Schendstok, J., & **Hubert, J.** (2024). VGWatch: A low-cost stand-alone monitor to measure the valve gape of bivalves in the field. *Ecol. Indic.* 163, 112085. doi:10.1016/j.ecolind.2024.112085.

[15] **Hubert, J.**, Demuyck, J., Rimmelzwaal, M. R., Muñiz, C., Debusschere, E., Berges, B., & Slabbekoorn, H. (2024). An experimental sound exposure study at sea: no spatial deterrence of free-ranging pelagic fish. *J. Acoust. Soc. Am.* 155 (2), 1151-1161. doi:10.1121/10.0024720.

[14] de Gier, W., & **Hubert, J.** (2023). Something's Fishy: An Unexpected Intertidal Encounter with the New Zealand Lancelet, *Epigonichthys hectori* (Benham, 1901), near the Whangarei Heads, NZ. *Diversity.* 15, 1017. doi:10.3390/d15091017.

[13] Dekker, L., Geraedts, V. J., **Hubert, J.**, Duijndam, D., Durieux, M. D. J., Janssens, L., Moojen, W. A., van Zwet, E. W., Wermer, M. J. H., Kruyt, N. D., & van den Wijngaard, I. R. (2023). Prehospital triage of intracranial hemorrhage and anterior large vessel occlusion ischemic stroke: value of the rapid arterial occlusion evaluation. *Stroke Vasc Interv Neurol.* 0:e000947. doi:10.1161/SVIN.123.000974.

[12] **Hubert, J.**, van der Burg, A. D., Witbaard, R., & Slabbekoorn, H. (2023). Separate and combined effects of boat noise and a live crab predator on mussel valve gape behaviour. *Behav. Ecol.* 34, 495-505. doi:10.1093/beheco/arad012.

[11] **Hubert, J.**, Moens, R., Witbaard, R., & Slabbekoorn, H. (2022). Acoustic disturbance in blue mussels: recovery varies with pulse train speed but no sound impact on filtration rate. *ICES J. Mar. Sci.* 79, 2540-2551. doi:10.1093/icesjms/fsac193.

[10] **Hubert, J.**, Booms, E., Witbaard, R., & Slabbekoorn, H. (2022). Responsiveness and habituation to repeated sound exposures and pulse trains in blue mussels. *J. Exp. Mar. Bio. Ecol.* 547, 151668. doi:10.1016/j.jembe.2021.151668.

[9] van der Knaap, I., Reubens, J., Thomas, L., Ainslie, M. A., Winter, H. V., **Hubert, J.**, Martin, B., & Slabbekoorn, H. (2021). Effects of a seismic survey on movement of free-ranging Atlantic cod. *Curr. Biol.* 31, 1555-1562.e4. doi:10.1016/j.cub.2021.01.050.

[8] **Hubert, J.**, van Bemmelen, J. J., & Slabbekoorn, H. (2021). No negative effects of boat sound playbacks on olfactory-mediated food finding behaviour of shore crabs in a T-maze. *Environ. Pollut.* 270, 1–8. doi:10.1016/j.envpol.2020.116184.

[7] **Hubert, J.**, Campbell, J. A., & Slabbekoorn, H. (2020). Effects of seismic airgun playbacks on swimming patterns and behavioural states of Atlantic cod in a net pen. *Mar. Pollut. Bull.* 160, 111680. doi:10.1016/j.marpolbul.2020.111680.

[6] **Hubert, J.**, Neo, Y. Y., Winter H. V., & Slabbekoorn, H. (2020). The role of ambient sound levels and stimulus pulse rate on behavioural disturbance of seabass in a net pen. *Behav. Process.* 170, 103992. doi:10.1016/j.beproc.2019.103992.

- [5] **Hubert, J.**, Campbell, J., van der Beek, J. G., den Haan, M. F., Verhave, R., Verkade, L. S., & Slabbekoorn, H. (2018). Effects of broadband sound exposure on the interaction between foraging crab and shrimp – A field study. *Environ. Pollut.* 243, 1923-1929. doi:10.1016/j.envpol.2018.09.076.
- [4] Neo, Y. Y., **Hubert, J.**, Bolle, L., Winter, H. V., ten Cate, C., & Slabbekoorn, H. (2018). European seabass respond more strongly to noise exposure at night and habituate over repeated sessions. *Environ. Pollut.* 239, 367-374. doi:10.1016/j.envpol.2018.04.018.
- [3] Spierings, M., **Hubert, J.**, & ten Cate, C. (2017). Selective auditory grouping by zebra finches: testing the Iambic-Trochaic law. *Anim. Cogn.* 20, 665–675. doi:10.1007/s10071-017-1089-3.
- [2] Neo, Y. Y., **Hubert, J.**, Bolle, L., Winter, H. V., ten Cate, C., & Slabbekoorn, H. (2016). Sound exposure changes European seabass behaviour in a large outdoor floating pen: Effects of temporal structure and a ramp-up procedure. *Environ. Pollut.* 214, 26–34. doi:10.1016/j.envpol.2016.03.075.
- [1] Ten Cate, C., Spierings, M., **Hubert, J.**, & Honing, H. (2016). Can birds perceive rhythmic patterns? A review and experiments on a songbird and a parrot species. *Front. Psychol.* 7, 1–14. doi:10.3389/fpsyg.2016.00730.

c. Conference proceedings

- [4] Demuyndck, J., Slabbekoorn, H., & **Hubert, J.** (2024). Persistent Response and Habituation to Repeated Sound Exposure During a Test in Captivity with Pulse Train Variants in Pelagic Fish. In *The Effects of Noise on Aquatic Life: Principles and Practical Considerations* (ed. Popper, A. N., Sisneros, J., Hawkins, A., Thomsen, F.). Springer, Cham. doi:10.1007/978-3-031-10417-6_192-1.
- [3] **Hubert, J.**, Booms, E., Moens, R., van der Burg, A. D., Witbaard, R., & Slabbekoorn, H. (2023). Effects of repeated and continuous sound exposures on mussels (*Mytilus* spp.) in the lab. In *The Effects of Noise on Aquatic Life: Principles and Practical Considerations* (ed. Popper, A. N., Sisneros, J., Hawkins, A., Thomsen, F.). Springer, Cham. doi:10.1007/978-3-031-10417-6_68-1.
- [2] **Hubert, J.**, Wille, D. A., & Slabbekoorn, H. (2020). Exploring effects of sound on the time budget of fishes: An experimental approach with captive cod. *POMA*. 37, 010012. doi:10.1121/2.0001253.
- [1] **Hubert, J.**, Neo, Y. Y., Campbell, J., & Slabbekoorn, H. (2016). Particle motion and pressure soundscape in outdoor vs indoor set-up. *POMA*. 27, 1-7. doi:10.1121/2.0000273.

d. Popular article

- [1] Soudijn, F. H., **Hubert, J.**, & van der Knaap, I. (2020). Herrie onder water: Hoe geluid het gedrag van kabeljauw beïnvloedt. *Visionair*. 57, 38-41.

FUNDING

- 2022: Fieldwork contribution from the industry (€ 38.000)
- 2016: Travel grant Aquatic noise conference (\$ 504 + registration fee)

FIELDWORK

- 2021 – 2023: Belgium & The Netherlands, North Sea: Deploying multi-sensor frames with echosounders, C-pods, and hydrophones to monitor pelagic fish and harbour porpoises in windfarms and control locations.
- 2020: Saudi Arabia, Red Sea: Tagging and conducting experimental playback trials with spider conches and giant clams in situ at coral reefs.

- 2017 – 2018: Belgium, North Sea: Deploying tag receivers to track tagged Atlantic cod in the context of a seismic survey.
- 2014, 15, 17, 18: The Netherlands, Oosterschelde: Assembling a study island with large floating pen and experimentally exposing tagged European seabass and Atlantic cod to sound.

CONFERENCE PRESENTATIONS/POSTERS/INVITED PRESENTATIONS

- 2024: Invited talk: Sounds of change. *DSWH symposium*.
- 2024: Invited keynote talk: Underwater soundscapes. *NCSB LOBS (student conference)*.
- 2024: Invited talk: Drowning in Noise: Understanding the Impact of Underwater Sound on Marine Life. *Seminar of Behavioural Ecology group WUR*.
- 2024: Talk: Acoustic Ecology of Pelagic Fish Communities. *APELAFICO public end meeting*.
- 2023: Talk: Effects of piling of offshore wind turbines on pelagic fish presence and behaviour. *NVG meeting*.
- 2023: Talk: Pelagic fish presence and behaviour during pile driving in two windfarms. *Bioacoustic day*.
- 2023: Poster: Pelagic fish presence and behaviour during pile driving in two offshore windfarms. *CWW*.
- 2023: Invited talk: Impulsive sound impact from seismic surveys and pile driving on fishes? *BfN Expert Workshop Hamburg*.
- 2023: Talk: How harmful is offshore windfarm construction for pelagic fish and can this be mitigated? *IBL symposium*.
- 2022: Talk: Deterrence tests at sea. *Bioacoustic day*.
- 2022: Invited talk: What do we know about Atlantic cod and pelagic fish in windfarms? *Offshore wind seminar Oslo*.
- 2022: Talk: Impact of sound on mussels: effects and mechanisms. *Aquatic Noise*.
- 2021: Talk: Does sound pull a mussel? *ASAB winter meeting*.
- 2021: Talk: Does sound pull a mussel? *NVG meeting*.
- 2021: Invited talk: PCAD4Cod scaled exposure studies. *Spawnseis symposium*.
- 2020: Poster: Boat sound does not negatively affect olfactory-mediated food finding in shore crabs. *NVG meeting*.
- 2019: Talk: Effects of seismic airgun playbacks on swimming patterns and behavioural states of Atlantic cod. *NVG meeting*.
- 2019: Talk: Cod behavioural response to seismic airgun playbacks. *Bioacoustic day*.
- 2019: Speed talk + poster: Seismic airgun playback to double tagged Atlantic Cod. *Aquatic Noise*.
- 2018: Poster: Effects of sound exposure on foraging crab and shrimp. *NVG meeting*.
- 2016: Poster: Particle motion and pressure soundscape in outdoor vs indoor set-up. *Aquatic Noise*.
- 2014: Talk: Behavioural response of European seabass to artificial sound exposures in an outdoor setting. *NVG meeting*.

CONFERENCES ATTENDED

ASAB (2021), Aquatic noise (2016, 2019, 2022), BfN Expert Workshop Hamburg (2023), Bioacoustic day (2014, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024), CWW (2023), NVG meeting (2014, 2015, 2016, 2018, 2019, 2020, 2021, 2022, 2023), Offshore wind seminar Oslo (2022).

COURSES

- 2023: Writing an excellent research grant proposal
- 2022: B-VCA – safety on the workfloor (valid until: August 2032)
- 2021: STCW (Standards of Training, Certification, and Watchkeeping) basic – offshore safety (valid until: June 2026)
- 2019: PhD courses: Communication, Scientific communication, Planning, & Scientific integrity
- 2016: Laboratory Animal Science (FELASA category C, Dutch article 9 WOD)
- 2015: NVG Master Class on Animal Personality

TEACHING

- 2024 – now: BSc: Introduction to Marine Sciences – coordinator
- 2024 – now: MSc: Research Master Cluster Proposal Writing – Supervisor for proposal writing
- 2024 – now: MSc: Marine Animal Ecology: Coach for proposal-writing
- 2024 – now: BSc: Introduction to Animal Ecology – giving lectures on biomes and species richness, and supervisor for essay writing
- 2018 – 2023: BSc year 2: Behavioural biology field course – giving/coordinating three practicals on measuring and processing (underwater) sound, graphics in R & glm's in R. Also supervising 1-2 groups of students on a 2.5-week research project
- 2019 – 2023: BSc year 2: Behavioural biology theory – giving a lecture on foraging behaviour and giving several practicals, for example on measuring brain regions using ImageJ, and the 7 sins in behavioural biology research (Milinski, 1997)
- 2019 – 2023: BSc year 1: Ecology, Biodiversity and Behaviour project – supervising 2-8 groups of students on their first behavioural experiment (6 days)
- 2021 – 2023: BSc year 1: Behavioural biology – giving a talk on my own research
- 2018 – 2021: BSc year 1: Bionieuws symposium – giving a talk on my own research for student to write a science communication article about
- 2019, 23: MSc: Intro course – giving a talk on my own research
- 2018: MSc: Animal personality – chairing a book chapter discussion

INTERNSHIP SUPERVISION

I supervised 17 BSc and seven MSc internship projects, two MSc literature projects, and one BSc honours project (including current students). BSc internships were always 5 months, and MSc internships varied between 5 and 9 months. All projects consisted of a written proposal, end report, multiple presentations, data processing and statistics, and often also designing and conducting an experiment. I had weekly meetings with the students and helped them throughout all stages of their project. Since 2023, I also served as a second examiner for internship projects I was not involved in.

PHD CANDIDATE SUPERVISION

2021 – now: Co-supervision: Jozefien (Fien) M. Demuynck – Effects of offshore windfarms and acoustic deterrence on pelagic fish and harbour porpoises.

ACADEMIC SERVICES

Reviewer for journals: Animal Behaviour (2019), Aquaculture Environment Interaction (2019), Aquaculture Research (2021), Behavioural Processes (2022, 2024), Behavioural Ecology (2023), Biological Invasions (2024), Environmental Pollution (2 x 2020, 2024), Ethology (2023), Fish and Fisheries (2023), Frontiers in Marine Science (2023), ICES Journal of Marine Science (2019), Journal of Ichthyology (2017), Journal of Marine Science and Engineering (2022), Marine Biology (2024), Marine Biology Research (2022), Marine Pollution Bulletin (2021), Nature Communications (2021), Science of the Total Environment (2024), Scientific Reports (2021, 2022), The Journal of the Acoustical Society of America (2023).

Other reviews: External examiner for a Master thesis for Utrecht University (2019)
Grant reviewer for Aquaexcel (2022)

PhD opposition: Fabian Heim (2022)

2024 – 2027: Thesis Advisory Committee Max Willems (AWI)

2021 – 2023: Member of the Institute Council; monitors and advises management team and educational office of IBL (Institute of Biology Leiden)

2019 – 2023: Member of the IPPA; organizes social events for PhD's and PostDocs of IBL

PUBLIC OUTREACH

2024: Online: Energeia – Onverwachte gevolgen van wind op zee
<https://energeia.nl/onverwachte-invloed-van-offshore-wind-op-het-zeeleven/>

2024: Newspaper: NRC – De stille ramp van een lawaaiige Noordzee
<https://www.nrc.nl/nieuws/2024/06/24/de-stille-ramp-van-een-lawaaiige-noordzee-a4857501>

2024: Radio: Radio 1 – 5 dagen over windenergie
<https://www.nporadio1.nl/uitzendingen/5-dagen/34bf4423-4ea2-491b-b9dc-90ccc349d057/2024-04-10-5-dagen-over-windenergie> (from 4:30)

2024: Radio: Swammerdam – Onderwatergeluid
https://open.spotify.com/episode/4ztOXmwGKGqC5u3M8FtaJf?si=UN_TKZUpQVyXxJ0tdrSmUQ

2023: Newsletter: Wetenschapsspecial – Herrie bij de haring
https://www.noordzeeloket.nl/publish/pages/223539/2023_10_10-rws-wozep-wetenschapsspecial_v3_definitief.pdf

2023: Magazine: HP/De Tijd – Oceaan in gevaar
Without paywall: <https://reportersonline.nl/hij-warmt-op-en-verzuurt-oceaan-in-gevaar/>

2023: Theater: Talkshow de Toekomst – Wat doen klimaatopwarming en windmolens met de natuur?
<https://open.spotify.com/episode/18p955UOWVNYMY3bb6OQD8>

2023: TV: EditieNL – Geluid uit de diepte

<https://www.rtl.nl/programma/5243649/editie-nl?videoid=ff555dab-6eb2-4ecb-8ee3-f5546a67f1a1>

- 2023: TV: Focus – A science tv program on the effects of offshore windfarms on biodiversity
https://www.npostart.nl/focus/10-06-2023/VPWON_1344836
- 2023: Magazine: VPRO gids – Windrevolutie op zee
<https://www.vprogids.nl/2023/23/inhoud/etalage/p42-zaterdag/etalage-116329.html>
- 2023: Radio: Radio1 – Effecten van windmolens op het onderwaterleven in de Noordzee
<https://www.nporadio1.nl/nieuws/binnenland/4c0443a1-0bfc-4c36-a7b7-574d668b4bfa/is-een-windmolenpark-op-zee-slecht-voor-vissen>
- 2023: Online: NWO – A movie featuring our APELAFICO project
<https://youtu.be/6BxsKk6cnFo>
- 2023: TV: EditieNL – Dolfijnen 'schreeuwen' naar elkaar als ze geluidsoverlast hebben van mensen
<https://www.rtlnieuws.nl/editienl/artikel/5359200/dolfijnen-verheffen-stem-over-mensen-heen-komen-geluidsoverlast-zee>
- 2022: TV: Eénvandaag – Zo beschermen perenbomen, visverjagers en zelfs windmolens de vissen in de Noordzee
<https://eenvandaag.avrotros.nl/item/zo-beschermen-perenbomen-visverjagers-en-zelfs-windmolens-de-vissen-in-de-noordzee/>
- 2022: Online: Leeuwarder courant – Heeft een mossel hinder van lawaai?
<https://lc.nl/friesland/WadWeten-Heeft-een-mossel-hinder-van-lawaai-27733408.html>
- 2021: Magazine: Waddenmagazine – Rumoer onder water
<https://twitter.com/JeroenHubert/status/1382357242469625857>
- 2019: Online: Mare – Onderwaterherrie
<https://www.mareonline.nl/wetenschap/brugada-onderwaterherrie-zorgstress/>
- 2016: TV: Vroege vogels – Lawaai onder water
<https://www.bnnvara.nl/vroegevogels/videos/283480> (from 14:35)
- 2016: Radio: BNR – Effecten van explosies op bruinvissen
<https://www.bnr.nl/player/archief/20160729113200300>

ANCILLARY ACTIVITIES

- 2024 – now: MER
- 2007 – 2024: Voluntary work at YVZ (Speed skating club Zoetermeer), this included giving training (13 years), making and maintaining the website (11 years), and coordinating the jury for speed skating competitions (5 years)