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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
- 2008 – 2012: B Agr Animal husbandry, Hogeschool Inholland Delft

RESEARCH EMPLOYMENT

- 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 (5 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 (10 months)
The iambic-trochaic law in zebra finches, studies using an identification task in skinnerboxes.

RESEARCH INTERSHIPS

- 2014 – 2015: MSc intern at Leiden University (5 months)
Rhythm perception of zebra finches, budgerigars and humans using a Go/Nogo paradigm in skinnerboxes or on a laptop.
- 2014: MSc intern at Leiden University (10 months)
Effects of anthropogenic sound on the swimming patterns of European seabass using a large self-build floating pen in the Oosterschelde sea-arm.

PUBLICATIONS

- a. Peer reviewed

- [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. Accepted in: *S:VIN*.
- [12] **Hubert, J.**, van der Burg, A. D., Witbaard, R. and 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. and 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. and 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. and 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. and 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. and 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., and 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.**, and 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., and 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.**, and 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.

b. Conference proceedings

- [3] **Hubert, J.**, Booms, E., Moens, R., van der Burg, A. D., Witbaard, R. and 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., and 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., and Slabbekoorn, H. (2016). Particle motion and pressure soundscape in outdoor vs indoor set-up. *POMA*. 27, 1-7. doi:10.1121/2.0000273.

c. Popular article

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

FUNDING

2023: Travel compensation BfN Expert Workshop (€ 400)
2022: Fieldwork contribution from the industry (€ 38.000)
2016: Travel grant Aquatic noise conference (\$ 504 + registration fee)

FIELDWORK

Since 2021: 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.
2017 – 2018: Belgium, North Sea: Deploying tag receivers to track tagged Atlantic cod in the context of a seismic survey.
2020: Saudi Arabia, Red Sea: Tagging and conducting experimental playback trials with spider conches and giant clams in situ at coral reefs.
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

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), NVG meeting (2014, 2015, 2016, 2018, 2019, 2020, 2021, 2022), 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

- Since 2019: 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)
- Since 2018: 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
- Since 2019: BSc year 1: Ecology, Biodiversity and Behaviour project – supervising 2-8 groups of students on their first behavioural experiment (6 days)
- 2018 – 2021: BSc year 1: Bionieuws symposium – giving a talk on my own research for student to write a science communication article about
- Since 2021: BSc year 1: Behavioural biology – giving a talk on my own research
- 2019: MSc: Intro course – giving a talk on my own research
- 2018: MSc: Animal personality – chairing a book chapter discussion

STUDENT SUPERVISION

I supervised 17 BSc and seven MSc internship projects, one MSc literature project, 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 the

experiment. I had weekly meetings with the students and helped them through all stages of their project.

PHD CANDIDATE SUPERVISION

Since 2021: 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), Environmental Pollution (2 x 2020), 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 Research (2022), Marine Pollution Bulletin (2021), Nature Communications (2021), 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)

Since 2021: Member of the Institute Council; monitors and advises management team and educational office of IBL

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

PUBLIC OUTREACH

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-eeen-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

- 2007 - 2022: 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)

REFERENCES

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Prof. dr. Carel J. ten Cate
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