

## Kéver Loïc, PhD

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### **Research experience and Education:**

- 01/10/2016 - 30/05/2019 and 01/10/2019 - 31/01/2020: **Position**: Chargé de recherche F.R.S.-FNRS (Postdoctoral Fellowship) at University of Liège (Belgium). **Supervisor**: Prof. Parmentier. **Project title**: From sound production to electric discharges: diversification of neuromuscular functions in mochokid catfishes. **Keywords**: Mochokid catfish; Elastic Spring Apparatus; Morphology; Neurobiology.
  - Secondment 2 (10/01/2018 – 23/12/2018): **Straka Lab at Ludwig-Maximilian University (LMU)**, Munich. **Training**: patch clamp and tract-tracing of neurons. **Supervisor**: Prof. Chagnaud.
  - Secondment 1 (01/02/2017 – 14/05/2017): **Bass Lab at Cornell University**, Ithaca (NY). **Training**: tract-tracing of neurons and brain immunohistology. **Supervisor**: Prof. Bass.
- 01/06/2019 - 30/09/2019: **Position**: LMU Postdoctoral Fellowship (secondment at Liège University). **Project Title**: Neuronal circuit dynamics of motor systems – how are existing circuits adapted to generate novel behaviours. **Keywords**: Piranha; Electromyography; Sonic Muscles. **Supervisor**: Prof. Chagnaud.
- 15/05/2014 - 15/05/2016: **Position**: BELSPO Postdoctoral researcher at University of Liège (Belgium). **Project title**: Behavioural and genomic aspects of cichlid speciation (<http://genbas.be/>). **Supervisors**: Prof. Poncin and Prof. Parmentier. **Keywords**: Reproductive behaviour; Cichlid fish; Great African Lakes; Brain Transcriptomic; Sound production.
- 25/03/2014: **Doctorate**: PhD in Biological Science at Liège University. **Title of the thesis**: Acoustic communication in Ophidiiformes: a case study using *Ophidion rochei*. **Supervisor**: Prof. Parmentier.
- 01/10/2013 - 01/12/2013: **Position**: PhD student with a ULg grant at Liège University. **Project title**: Acoustic communication in Ophidiiformes. **Supervisor**: Prof. Parmentier. **Keywords**: Fish; Sound production; Electromyography.
- 01/10/2009 - 30/09/2013: **Position**: PhD student with a FRIA (F.R.S.-FNRS) grant at Liège University. **Project title**: Acoustic communication in Ophidiiformes. **Supervisor**: Prof. Parmentier. **Keywords**: Fish; Sound production; Hearing abilities; Sexual dimorphism; Passive acoustic monitoring.
- 17/09/2007-17/09/2009: **Master**: Oceanography at University of Liège (Belgium). **Grade**: The Greatest Distinction. **Master thesis title**: Sound production in *Dascyllus flavicaudus*. **Supervisor**: Prof. Parmentier.
- 15/09/2004-15/09/2007: **Bachelor**: Biology at University of Liège (Belgium). **Grade**: Distinction.

**Research papers in peer-reviewed international journals (18 papers, 141 citations excluding self-citations)**

Picciulin M, **Kéver L**, Parmentier E, Bolgan M (2019). Listening to the unseen: Passive acoustic monitoring reveals the presence of a cryptic fish species. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 29(2), 202-210.

Derycke S, **Kéver L**, Van den Berge K, Van Steenberge M, Van Houdt J, Clement L, Poncin P, Parmentier E, Verheyen E (2018). Neurogenomic profiling reveals distinct gene expression profiles between brain parts that are consistent in *Ophthalmotilapia* cichlids. *Frontiers in Neuroscience*, 12, 136.

**Kéver L**, Parmentier E, Derycke S, Verheyen E, Snoeks J, Van Steenberge M, & Poncin P (2018). Limited possibilities for prezygotic barriers in the reproductive behaviour of sympatric *Ophthalmotilapia* species (Teleostei, Cichlidae). *Zoology*, 126, 71-81.

Raick X, Lecchini D, **Kéver L**, Colleye O, Bertucci F, Parmentier E (2018). Sound production mechanism in triggerfish (Balistidae): a synapomorphy. *Journal of Experimental Biology*, 221, 168948.

Parmentier E, Raick X, Lecchini D, Boyle KS, Vanwassenbergh S, Bertucci F, & **Kéver L** (2017). Unusual sound production mechanism in the triggerfish *Rhinecanthus aculeatus* (Balistidae). *Journal of Experimental Biology*, 220(2), 186-193.

Colleye O, **Kéver L**, Lepoint G, Lecchini D, Parmentier E (2017). Symbiotic relationship between the carapid fish *Onuxodon fowleri* (Ophidiiformes: Carapidae) and the pearl oyster *Pinctada margaritifera* (Mollusca: Bivalvia: Pteriidae). *Scientia Marina* 82(1)

**Kéver L**, Lejeune P, Michel LN, Parmentier E (2016). Passive acoustic recording of *Ophidion rochei* calling activity in Calvi Bay (France). *Marine Ecology* 37: 1315 – 1324

Colleye O, **Kéver L**, Lecchini L, Berten L, Parmentier E (2016). Auditory evoked potential audiograms in post-settlement stage individuals of coral reef fishes. *Journal of Experimental Marine Biology and Ecology* 483:1-9

**Kéver L**, Boyle KS, Parmentier E (2015). Effects of seawater temperature on sound characteristics in *Ophidion rochei* (Ophidiidae). *Journal of Fish Biology* 87: 502-509

Ruppé L, Clément G, Herrel A, Ballesta L, Décamps T, **Kéver L**, Parmentier E (2015). Environmental constraints drive the partitioning of the soundscape in fishes. *Proceedings of the National Academy of Science*. 10.1073/pnas.1424667112

**Kéver L**, Colleye O, Lugli M, Lecchini D, Lerouvreur F, Herrel A, Parmentier E (2014). Sound production in *Onuxodon fowleri* (Carapidae) and its amplification by the host shell. *Journal of Experimental Biology* 217: 4283-4294

**Kéver L**, Boyle KS, Dragičević B, Dulčić J, Parmentier E (2014). A superfast muscle in the complex sonic apparatus of *Ophidion rochei* (Ophidiiformes): histological and physiological approaches. *Journal of Experimental Biology* 214: 3862-3869

**Kéver L**, Colleye O, Herrel A, Romans P, Parmentier E (2014). Hearing capacities and otolith size in two ophidiiform species (*Ophidion rochei* and *Carapus acus*). *Journal of Experimental Biology* 217: 2517-2525.

**Kéver L**, Boyle K, Bolen G, Dragičević B, Dulčić J, Parmentier E (2014). Modification in call characteristics and sonic apparatus morphology during puberty in *Ophidion rochei* (Actinopterygii: Ophidiidae). *Journal of Morphology* 275: 650-660.

Parmentier E, **Kéver L**, Boyle K, Corbisier YE, Sawelew L, Malavasi S (2013). Sound production mechanism in *Gobius paganellus* (Gobiidae). *Journal of Experimental Biology* 216: 3189-3199.

**Kéver L**, Boyle KS, Dragičević B, Dulčić J, Casadevall M, Parmentier E (2012). Sexual dimorphism of sonic apparatus and extreme intersexual variation of sounds in *Ophidion rochei* (Ophidiidae): first evidence of a tight relationship between morphology and sound characteristics in Ophidiidae. [Frontiers in Zoology](#) 9:34

Codina E, **Kéver L**, Compère P, Dragičević B, Dulčić J., Parmentier E. 2012. The barbel-like specialization of the pelvic fins in *Ophidion rochei* (Ophidiidae). *Journal of Morphology* 273: 1367-2376.

Parmentier E, **Kéver L**, Casadevall M, Lecchini D (2010). Diversity and complexity in the acoustic behaviour of [Dascyllus flavicaudus](#) (Pomacentridae). *Marine Biology* 157: 2317-2327.

**Research papers under review in peer-reviewed international journals**

**Kéver L**, Bass AH, Parmentier E, Chagnaud BP. Evolution of a novel communication channel did not require neuronal innovations in synodontid catfish. Under review.

Jublier N, Bertucci F, **Kéver L**, Colleye O, Ballesta L, Nemeth RS, Lecchini D, Rhodes KL, Parmentier E. Passive monitoring of phenological acoustic patterns reveals the sound of the camouflage grouper, *Epinephelus polyphkadion*. Under review.

### **Opinion paper in peer-reviewed international journals**

Verheyen E. on behalf of a consortium of researchers\* (2016). Oil extraction imperils Africa's Great Lakes. *Science*, 354(6312), 561-562.  
(\*<https://www.researchgate.net/publication/309691540>)

### **Chapter in a research monograph**

Colleye O, Parmentier E, **Kéver L** (2016). Hearing in damselfishes. In Frédéric B, Parmentier E (eds), *Biology of damselfishes*, CRC Press, Boca Raton FL: 229-245.

### **Oral communications at international conferences**

**Kéver L**, Bass AH, Parmentier E, Chagnaud BP (06/01/2019). A common neural substrate for sonic and electric signaling in synodontid catfish. SICB Annual Meeting, Tampa, U.S.A.

**Kéver L**, Frédéric B, Lemoine C, Parmentier E (24/11/2017). Evolution of the Elastic Spring Apparatus in mochokid catfish: Morphology and histology of the protractor muscle and Müllerian ramus. Zoology congress, Wageningen, Netherlands.

Derycke S, Herten K, Van Steenberge M, Snoeks J, Van Houdt J, **Kéver L**, Parmentier E, Poncin P, Verheyen E (08/09/2015). Speciation genomics of *Ophthalmotilapia* species from Lake Tanganyika. Cichlid Science, Graz, Austria.

**Kéver L**, Colleye O, Lecchini D, Lerouvreur F, Parmentier E. (14/07/2013). Sound Characteristics and Complex Sonic Apparatus Morphologies in Two Ophidiiformes: *Ophidion rochei* (Ophidiidae) and *Onuxodon fowleri* (Carapidae). Joint Meeting of Ichthyologists and Herpetologists, Albuquerque, U.S.A.

**Kéver L**, Dragičević B, Dulčić J, Parmentier E (06/07/2012). Important variations in sonic apparatus morphology and sound characteristics of *Ophidion rochei* (Ophidiidae). 14th European Congress of Ichthyology, Liège, Belgium.

**Kéver L** & Parmentier E (16/03/2010). Communication acoustique chez les téléostéens. SERENADE seminar, Brest, France. **Invited**

Parmentier E, Mann D, **Kéver L**, Fine ML (11/07/2010). Diversity in the sound production mechanism in Ophidiiformes. Joint Meeting of Ichthyologists and Herpetologists, Providence RI, U.S.A.

### **Posters at international congresses**

**Kéver L**, Lemoine C, Parmentier E (2016). Morphological variations in the Elastic Spring Apparatus of mochokid fishes (Siluriformes). Zoology Congress, Antwerpen, Belgium.

**Kéver L**, Poncin P, Derycke S, Verheyen E, Van Steenberge M, Snoeks J, Parmentier E (2015). The reproductive behavior of two sympatric *Ophthalmotilapia* species (Ectodini) from Lake Tanganyika. Cichlid Science, Graz, Austria.

**Kéver L**, Poncin P, Parmentier E (2014). Fin flickering and associated sounds in the cichlid fish *Ophthalmotilapia ventralis*: a preliminary study. Zoology Congress, Liège, Belgium.

**Kéver L** & Parmentier E (2010). Sound production and sexual dimorphism in the sonic apparatus of *Ophidion rochei* (Teleostei, Ophidiiformes). Benelux Congress of Zoology, Gent, Belgium.

**Kéver L**, Lecchini D, Parmentier E (2009). Variations in sound production in *Dascyllus flavicaudus*. Benelux Congress of Zoology, Wageningen, Netherlands.

### **Research expeditions**

- 20/06/2017 - 13/07/2017: Participant in a mission at Fakarava atoll (French Polynesia). Principal activities: Passive acoustic recording in the pass, fish collection and recordings, scientific support for the 700 sharks Documentary of Laurent Ballesta and Luc Marescot.
- 20/10/2011 - 26/10/2011, 04/03/2012 - 17/03/2012, 25/06/2012 - 27/06/2012: Leader of scientific missions at the STA.RE.SO station (Calvi, Corsica). Principal activities: Passive acoustic monitoring and marine fish collection.
- 01/08/2010 - 15/08/2010 and 12/08/2012 - 24/08/2012: Leader of scientific missions at Oceanology Observatory of the University Pierre et Marie Curie (Banyuls-sur-Mer, France). Principal activities: marine fish collection and sound recordings at sea.
- 16/11/2011 - 14/12/2011: Leader of a scientific mission at Makemo atoll (French Polynesia). Principal activities: Passive acoustic monitoring, fish collection for morphological studies, fish sound recording in the lagoon and in artificial environments.
- 04/05/2010 - 12/05/2010, 04/07/2010 - 14/07/2010, and 04/09 - 18/09/2011: Leader of scientific missions based at the Institute of Oceanography and Fisheries (Split, Croatia). Principal activities: fish collection and sound recordings at sea.
- 08/01/2009 - 08/03/2009: Participant in a mission based at the CRIOBE station (Moorea, French Polynesia). Principal activities: fish collection and sound recordings in the lagoon.

### **Prizes and Awards.**

- Best poster presentation (Master student) at the Benelux Congress of Zoology 2009
- Best oral presentation (PhD student) at the 14th European Congress of Ichthyology (2012)

### **Funding awarded.**

- FRIA grant (2009): four years of salary for a PhD student and 10,000 euros operating money.
- ULg Patrimoine grant (2013): two months of salary for a PhD student.
- Chargé de Recherche FNRS (2016): three years of salary for a PhD and 15,000 euros operating money.
- SYNTHESIS grant (2019): cover the fees of a 10 days visit at the MNHN and 5 days operating their  $\mu$ CT-scanner.

### **Teaching, supervising, and mentoring activities.**

- Co-supervisor of the Master thesis of Xavier Raick (1/10/2014 – 15/09/2015). Thesis title: Production de sons chez *Rhinecanthus aculeatus*

- Supervisor of the Master training course of Cyril Lemoine (1/04/2015- 1/06/2015). Dissertation title: Dissertation: Etude de la production de signaux acoustiques et électriques chez *Synodontis multipunctatus* et *Microsynodontis batesii*
- Co-supervisor of the Research project of Marine Banse (01/03/2019-30/08/2019). Project title: Simultaneous versus alternate activation of the muscles controlled by spinal motoneurons in Piranhas.
- Jury members of four master theses.
- Invited lecturer for the « master environnement et gestion de la biodiversité » of the EPHE (supervisor Lecchini D.) and the Master 1 morphology class of the Prof. Parmentier (ULiège).

### **Reviews for international peer-reviewed journal**

- I have reviewed manuscripts for Cahiers de Biologie Marine, Transactions of the American fisheries Society, Tissue & Cell, and Deep-Sea Research I.

### **Key qualifications**

- Laboratory skills: Animal Experiment Leader (certification: FELASA C), fish euthanasia and anaesthesia, fish husbandry and reproduction, fish dissection and collection of morphological data, electrophysiology (Auditory Brainstem Responses, Electromyography, Patch Clamp recordings), acoustic and electric signal recording and analysis, anatomy (slices staining and sectioning, immunohistology, tracing of nervous cells, 3D reconstruction of tissue and nervous cells), microscopy (optical, epifluorescence, confocal, and transmission electron), quantitative behavioural analysis,
- Field skills: Certified scuba diver [2\* CMAS diver, Belgian Scientific Diver (training: 15/09/2013-21/09/2013)], fishing techniques (beach seine, rod, hand net, etc.), deployment of sound and video recording devices, various methodology for data collection (transect, quadrats, etc.).
- Languages: French (native language), English (very good), German (good)
- Software:
  - Signal analysis: Avisoft SAS Lab Pro, Adobe Audition, Audacity, BioSig.
  - Signal generation: SigGen.
  - Reference manager: Mendeley, EndNote.
  - Illustration manager: Photoshop, Illustrator, InkScape, ImageJ, PowerPoint.
  - Statistical analysis: Statistica, Past, GraphPad Prism, R.