Fidji Berio

https://fberio.github.io
fidji.berio@gmail.com
French Citizenship

Social Network

Bluesky
ResearchGate
Google Scholar
Github
Orcid

Languages

French ●●●●●
English ●●●●○
Spanish ●●●○○

Certifications

Level 2 FFESSM (Advanced PADI)
Level 1 Nitrox
PADI Freediver

Hard Skills

R programming
Machine learning
MicroCT imaging
Histology
Functional tests

Research Interests

Evo-Devo – Climate change – Biomechanics – Chondrichthyans

Working Experience

Jan 2025–Current — **Postdoctoral researcher** — University of California San Diego
Projects Fish biomechanics & Skeletal mineralization under climate change [3–5]

Nov 2022–Dec 2024 — **Postdoctoral researcher** — Stockholm University
Projects Fish biomechanics [6–7, 9]

Sept–Oct 2022 — **Guest professor** — University of Vienna
Teaching Functional evolution of jaw structures [10]

2021–2022 — **Science communicator** — Futura Sciences
Activities Online writing of popularization articles, interviews
Topics Marine biology, paleontology, paleoanthropology

2017 – 2021 — **PhD Student** — ENS Lyon & Institute of Evolution Sciences of Montpellier
Project Physical and genetic factors impacting development and evolution of elasmobranch odontodes [8, 11–13, 16–19]
Methods microCT imaging, histology, machine learning and geometric morphometrics with R, functional tests on *Scyliorhinus canicula* embryos, comparative anatomy

2017 — **Master Thesis** — Univ. du Québec à Rimouski
Project Regionalisation of the vertebral column in a skate [15]
Methods microCT imaging, clustering with R, Clear & Stain double coloration

2016 — **Master Thesis** — Oceanological Observatory of Banyuls-sur-mer
Project Long-term experiment on growth dynamics of hydrothermal mussels *Bathymodiolus thermophilus* related to hydrothermal fluids dynamics
Methods Sclerochronology, Fast Fourier Transform, Mutvei staining

2015 — **Bachelor Thesis** — Institute for Cognitive and Integrative Neuroscience, Bordeaux
Project Effects of serotonin on aggressiveness of the invasive Louisiana crayfish *Procambarus clarkii*
Methods Video tracking with EthoVision, ethology, functional tests on mature specimens

Education

2017 – 2021 — **PhD Studies** — ENS Lyon & Institute of Evolution Sciences of Montpellier
Evo-devo of chondrichthyans

2015 – 2017 — **Master Studies (1/31)** — European Institute for Marine Studies, Brest
Littoral and Sea Sciences with focus on Marine ecosystems and Polar environments

2012 – 2015 — **Bachelor Studies (1/60)** — Univ. of Bordeaux
Biology of Organisms and Ecosystems

2010 – 2012 — **Bachelor Studies** — Univ. of Montpellier
Hypokhâgne & Khâgne – Literature studies (French and Spanish)

Teaching

2022 — **To Master & PhD Students** — Univ. of Vienna
Functional Evolution of Jaw Structures

2019 — **To Bachelor Students** — Univ. of Montpellier
Integrative Biology of Organisms and Comparative Anatomy

2019 — **To High School Students** — Univ. of Montpellier
Embryo and Evolution

2018 — **To Bachelor Students** — Univ. of Montpellier
Life Cycles – Genetics

Publications

Under review

[1] F. **Berio** and D. S. Valentina. "Century-scale changes in skeletal mineralization of a marine fish under climate change". In: *Global Change Biology* (Under review).

[2] J. H. Gayford, K. Soares, and F. **Berio**. "Sexual ornamentation and weapons of sexual conflict in cartilaginous fishes". In: *Reviews in Fish Biology and Fisheries* (Under review).

Online

[3] V. Di Santo, X. Qi, F. **Berio**, A. Albi, and O. Akanyeti. "Inherent instability leads to high costs of hovering in near-neutrally buoyant fishes". In: *Proceedings of the National Academy of Sciences* (2025). DOI: 10.1073/pnas.2420015122.

[4] S. Z. Marketaki, F. **Berio**, and V. Di Santo. "Compensatory sensory mechanisms in naïve blind cavefish navigating novel environments after lateral line ablation". In: *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology* (2025). DOI: 10.1016/j.cbpa.2025.111863.

[5] F. **Berio** and V. Di Santo. "Speed-dependent locomotor patterns during steady swimming in a demersal shark". In: *Journal of Fish Biology* (2025). DOI: 10.1111/jfb.70043.

[6] F. A. López-Romero, E. Villalobos-Segura, J. Türtscher, F. **Berio**, S. Stumpf, R. P. Dearden, J. Kriwet, and E. Maldonado. "Evolution of the Batoidea Pectoral Fin Skeleton: Convergence, Modularity, and Integration Driving Disparity Trends". In: *Evolutionary Ecology* 39 (2025), pp. 111–134. DOI: 10.1007/s10682-025-10330-x.

[7] M. Ishida, F. **Berio**, V. D. Santo, N. H. Shubin, and F. Iida. "Paleoinspired robotics as an experimental approach to the history of life". In: *Science Robotics* 9.95 (2024), eadn1125. DOI: 10.1126/scirobotics.adn1125.

[8] O. J. Atake, F. **Berio**, M. Debiais-Thibaud, and B. F. Eames. "Extant cartilaginous fishes share trabecular and areolar mineralization patterns, but not tesserae, and evidence for a paedomorphic chimaera skeleton". In: *eLife* (2024). DOI: 10.7554/elife.94900.1.

[9] F. **Berio**, C. Morerod, X. Qi, and V. Di Santo. "Ontogenetic Plasticity in Shoaling Behavior in a Forage Fish under Warming". In: *Integrative And Comparative Biology* 63.3 (2023), pp. 730–741. DOI: 10.1093/icb/icad043.

[10] F. **Berio**, A. Éon, R. Charron, E. Meunier, J. Marie, D. Florent, M. Simonet, N. Verschraegen, and N. Hirel. "Husbandry conditions of spotted ratfish (*Hydrolagus colliei*, Chimaeriformes) in aquaria for successful embryonic development and long-term survival of juveniles". In: *Zoo Biology* 43.2 (2023), pp. 188–198. DOI: 10.1002/zoo.21813.

[11] R. Zimm, F. **Berio**, M. Debiais-Thibaud, and N. Goudemand. "A shark-inspired general model of tooth morphogenesis unveils developmental asymmetries in phenotype transitions". In: *Proceedings of the National Academy of Sciences* 120.15 (2023), e2216959120. DOI: 10.1073/pnas.2216959120.

[12] F. **Berio**, Y. Bayle, S. Agret, D. Baum, and N. Goudemand. "3D models related to the publication: Hide and seek shark teeth in Random Forests: Machine learning applied to *Scyliorhinus canicula*". In: *MorphoMuseuM* (2020), pp. 3–6. DOI: 10.18563/journal.m3.164.

[13] F. **Berio**, Y. Bayle, D. Baum, N. Goudemand, and M. Debiais-Thibaud. "Hide and seek shark teeth in Random Forests: Machine learning applied to *Scyliorhinus canicula*". In: *PeerJ* 10 (2022), e13575. DOI: 10.7717/peerj.13575.

[14] F. A. López-Romero, F. **Berio**, D. Abed-Navandi, and J. Kriwet. "Early shape divergence of developmental trajectories in the jaw of galeomorph sharks". In: *Frontiers in Zoology* 19 (2022), p. 7. DOI: 10.1186/s12983-022-00452-1.

[15] F. **Berio**, Y. Bayle, C. Riley, O. Larouche, and R. Cloutier. "Phenotypic regionalization of the vertebral column in the thorny skate *Amblyraja radiata*: Stability and variation". In: *Journal of Anatomy* 240.2 (2021), pp. 253–267. DOI: 10.1111/joa.13551.

[16] F. **Berio**, M. Broyon, S. Enault, N. Pirot, F. A. López-Romero, and M. Debiais-Thibaud. "Diversity and evolution of mineralised skeletal tissues in chondrichthyans". In: *Frontiers in Ecology and Evolution* 9 (2021), p. 660767. DOI: 10.3389/fevo.2021.660767.

[17] F. **Berio**. "Multiscale variation of 3D tooth forms in selachians and developmental and evolutionary inferences: Odyssey of a scyliorhinid tooth". PhD thesis. Institut de Génomique Fonctionnelle de Lyon and Institut des Sciences de l'Evolution de Montpellier, 2021. URL: https://theses.hal.science/tel-03279588.

[18] F. **Berio**, A. Evin, N. Goudemand, and M. Debiais-Thibaud. "The intraspecific diversity of tooth morphology in the large-spotted catshark *Scyliorhinus stellaris*: insights into the ontogenetic cues driving sexual dimorphism". In: *Journal of Anatomy* 237 (2020), pp. 960–978. DOI: 10.1111/joa.13257.

[19] F. **Berio** and M. Debiais-Thibaud. "Evolutionary developmental genetics of teeth and odontodes in jawed vertebrates: a perspective from the study of elasmobranchs". In: *Journal of Fish Biology* 98.4 (2019), pp. 906–918. DOI: 10.1111/jfb.14225.

Conferences

2023	**Poster presentation** Society for Experimental Biology	United Kingdom
2022	**Oral presentation** Sharks International	Online Edition
2020	**Oral presentation** ToScA Global	Online Edition
2019	**Oral presentation** Comparative Cartilage Biology meeting	France
2018	**Poster presentation** Evolution	France
2018	**Poster presentation** EuroEvoDevo	Ireland
2018	**Oral presentation** Symposium of Morphometry and Evolution of Forms	France

Referees

Valentina Di Santo, Assistant Professor, Scripps Institution of Oceanography
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Mélanie Debiais-Thibaud, Professor, Université de Montpellier
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Richard Cloutier, Professor, Université du Québec à Rimouski
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