

Pierre-Louis STENGER | Ph. D. in genomics

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EDUCATION

- 2019 **PhD. D. in Marine Biology** Ifremer – University of French Polynesia – UMR 241
2016 **Masters Environmental Management and Coastal Ecology** University of La Rochelle, France
2014 **Bsc. Marine Biology and Ecology** University of La Rochelle, France

RESEARCH EXPERIENCES

- 2022-Today **Omicsphere Analytics - Independent data analyst & science writer**
SIRET number: 912 540 424 00013
Main customers: IRD (Development Research Institute) from New Caledonia and La Reunion Island (UMR Entropie), IAC (New Caledonian Agronomic Institute), etc.
- 2021-2022 **Post-doctoral Fellow – New Caledonian Agronomic Institute – Nouméa, New-Caledonia**
Environmental DNA for ecological monitoring and restoration
Supervisor: Dr. Fabian CARRICONDE
- 2020 **Post-doctoral Fellow – Lemer Invertebrate Genomics Lab - University of Guam, USA**
Transcriptomic and epigenomic signature of acclimated *Acropora digitifera*
Supervisor: Drs. Sarah LEMER
- 2016-2019 **Ph.D. Candidate - Ifremer – University of French Polynesia – UMR 241 EIO – Tahiti, French Polynesia – UMR 5244 IHPE – Montpellier, France**
Plasticity and chromatic diversity in the pearl oyster *Pinctada margaritifera* var. *cumingii* (Linnaeus 1758): study of the triptych phenome, genome and epigenome - Directors: Dr. Chin-Long KY, Dr. Serge Planes, Dr. Jérémie VIDAL-DUPIOL, Drs. Céline REISSER
- 2016 **Research assistant – CNRS - LIENSs – La Rochelle, France**
Genetic diversity exploration of *Limecola balthica* (Bivalvia) ; Supervisor: Dr. Éric PANTE
- 2016 **Master 2nd year research thesis – CNRS - LIENSs – La Rochelle, France**
Population genetics of the Mediterranean bottlenose dolphin, *Tursiops truncatus*
Supervisors: Dr. Benoit SIMON-BOUHET, Drs. Hélène LABACH
- 2015 **Master 2nd year non obligatory research thesis - CEBC CNRS – Chizé, France**
Photo-detection and spatio-temporal analyses of *C. commersonii* dolphins from the Kerguelen Islands; Supervisors: Dr. Christophe GUINET, Dr. Paul TIXIER
- 2015 **Master 1st year research thesis – CNRS - LIENSs – La Rochelle, France**
Impact of chemical pollution on the genetic diversity of marine molluscs (*Crassostrea gigas*, *Mytilus* sp., *Mimachlamys varia*) ; Supervisor: Drs. Amélia VIRICEL-PANTE
- 2014 **Bsc. 3rd year research thesis - IRD – Nouméa, New-Caledonia**
Grazing impact on the genus *Lobophora* algae in the New-Caledonian lagoons
Supervisors: Pr. Claude PAYRI, Dr. Christophe VIEIRA

PEER-REVIEWED PUBLICATIONS: total number of citations 147

- 2024 Metallic trace elements in marine sponges living in a semi-enclosed tropical lagoon - Maggioni, F., **Stenger, P. L.**, Letourneur, Y., Jourand, P., & Majorel, C. (2024) – *BioMetals*, 37(1), 157-169, <https://doi.org/10.1007/s10534-023-00536-3>
- 2023 A dragon in a trap! A record of using an aquatic trap to collect the Southeast Asian Water Monitor, *Varanus salvator macromaculatus* (Deraniyagala, 1944), in Indonesia (Squamata: Varanidae) - Zdunek, P., & **Stenger, PL** (2023) – *Herpetology Notes*, 16, 937-940, <https://hal.science/hal-04354803>
- 2023 The phylum Chloroflexi and their SAR 202 clade dominate the microbiome of two marine sponges living in extreme environmental conditions - Maggioni, F., **Stenger, PL.**, Jourand, P., & Majorel, C. (2023) – *Marine Ecology*, 44(5), e12757, <https://doi.org/10.1111/maec.12757>
- 2023 First insights into the population characteristics and seasonal occurrence of the great hammerhead shark, *Sphyrna mokarran* (Rüppell, 1837) in the Western Tuamotu archipelago, French Polynesia. - Boube T, Azam C-S, Guilbert A, Huveneers C, Papastamatiou YP, Mourier J, Trujillo JE, Femmami N, Kunovsky A, Bersani F, Laurent E, Bousseyroux A, Thellier T, Follin Y, Pavy T, Jeandel V, Mataarere A, Burlot M, Bouyeure J, Rigoreau B, Rigoreau L, Lenormand A, Chalabi F, Hayek M, Jeandel J-M and **Stenger, PL.** (2023) –*Frontiers in Marine Science*, 10, 1234059, <https://doi.org/10.3389/fmars.2023.1234059>
- 2023 *Enterographa ducouretiana* sp. nov. (lichenized Ascomycota, Roccellaceae), a new foliicolous species from New Caledonia - Lebreton, E., Carriconde, F., Brouste, D., Lespagnol, A., **Stenger, PL.**, Sérusiaux, E., & Ertz, D. (2023) – *Phytotaxa*, 609(3), 247-252, <https://doi.org/10.11646/phytotaxa.609.3.8>
- 2022 The R Package *Anaconda*: Targeted Differential and Global Enrichment Analysis of Taxonomic Rank by Shared Asvs. **Stenger PL.** - publication on CRAN - <https://doi.org/10.13140/RG.2.2.11117.67048>
- 2022 Identifying genes associated with genetic control of color polymorphism in the pearl oyster *Pinctada margaritifera* var. *cumingii* (Linnaeus 1758) using a comparative whole genome pool-sequencing approach - **Stenger PL.**, Ky CL., Vidal Dupiol J., Planes S., Reisser C. (2022) –*Evolutionary Applications*, <https://doi.org/10.1111/eva.13464>
- 2021 Potential of high-throughput eDNA sequencing of soil fungi and bacteria for monitoring ecological restoration in ultramafic substrates: The case study of the New Caledonian biodiversity hotspot. - Nuñez NF, Maggia L., **Stenger PL.**, Lelievre M., Letellier K., Gigante S., Manez A., Mournet P., Ripoll J., Carriconde F. (2021) – *Ecological Engineering*, 173, 106416. <https://doi.org/10.1016/j.ecoleng.2021.106416>
- 2021 Environmentally driven color variation in the Pearl Oyster *Pinctada margaritifera* var. *cumingii* (Linnaeus, 1758) is associated with differential methylation of CpGs in pigment and biomineralization related genes - **Stenger PL.**, Ky CL., Reisser CMO., Cosseau C., Grunau C., Mege M., Planes S. and Vidal-Dupiol J. (2021) - *Front. Genet.* 12:630290. <https://doi.org/10.3389/fgene.2021.630290>
- 2021 Molecular pathways and pigments underlying the colors of the Pearl Oyster *Pinctada margaritifera* var. *cumingii* (Linnaeus 1758). - **Stenger PL.**, Ky CL., Reisser C., Duboisset J., Dicko H., Durand P., Quintric L., Planes S., Vidal-Dupiol J. (2021) - *Genes*, 12, 421. <https://doi.org/10.3390/genes12030421>
- 2020 Contribution of viral genomic diversity to oyster susceptibility in the Pacific Oyster Mortality Syndrome - Delmotte J., Galinier R., De Lorgeril J., Gueguen Y., **Stenger PL.**, Vidal Dupiol J., Mitta G., Montagnani C., Chaparro C., Escoubas JM. (2020) – *Frontiers in Microbiology*, 11, 1579. <https://doi.org/10.3389/fmicb.2020.01579>
- 2020 Differential basal expression of immune genes confers *Crassostrea gigas* resistance to Pacific Oyster Mortality Syndrome - De Lorgeril J., Petton B., Lucasson A., Perez V, **Stenger PL.**, Dégremont L., Montagnani C., Escoubas JM., Haffner P., Allienne JF., Leroy M., Lagarde F., Vidal-Dupiol J., Gueguen Y., Mitta G. (2019) - *BMC genomics*, 21(1), 1-14. - <https://doi.org/10.1186/s12864-020-6471-x>
- 2019 Colour plasticity in the shells and pearls of animal graft model *Pinctada margaritifera* through colour quantification with the HSV system - **Stenger PL.**, Vidal-Dupiol J., Reisser C., Planes S., Ky C. – Scientific Report - <https://doi.org/10.1038/s41598-019-43777-4>

- 2019 Limited interspecific variation in grazing susceptibility of the brown alga *Lobophora* to herbivory - Vieira C., **Stenger PL.**, Moleana T., De Clerck O., Payri C. – Journal of Experimental Marine Biology and Ecology - <https://doi.org/10.1016/j.jembe.2019.151175>
- 2017 Package R *ImaginR*: Delimit and Characterize Color Phenotype of the Pearl Oyster - **Stenger PL.**- publication on CRAN
- 2017 First data on three bivalve species exposed to an intra-harbour polymetallic contamination (La Rochelle, France). Breitwieser M., Viricel A., Churlaud C., Guillot B., Martin E., **Stenger PL.**, [...] & Thomas-Guyon H. (2017). Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology - <https://doi.org/10.1016/j.cbpc.2017.02.006>
- 2015 Photo-Identification Catalogue 2015 Commerson dolphins of the Kerguelens islands. Tixier P., Gasco N., Gravier D., **Stenger PL.**, Delhomme A., Guinet C. & Marteau C. (2015) Published in Elsevier, 2015 - <https://doi.org/10.13140/RG.2.2.11059.02080>

PUBLICATIONS CURRENTLY BEING (or soon) SUBMITTED TO INTERNATIONAL SCIENTIFIC JOURNALS

- 2024 Marine microbiome diversity in a fringing reef: a study case at La Réunion Island – **Stenger PL.**, Tribollet A., Guilhaumon F., Cuét P., Pennober G. and Jourand P. (2024) – *in prep for Microbial Ecology*
- 2024 Anthropic pressure boosts coral microborers communities in La Réunion lagoon following one year of recruitments – **Stenger PL.**, Guilhaumon F., Jourand P. and Tribollet A. (2024) – *in prep for Ecology*
- 2024 Annual Microbial Variations within Dead Coral Blocks in New Caledonia lagoon – **Stenger PL.**, Guilhaumon F., Majorel, C., Jourand P. and Tribollet A. (2024) – *in prep for Microbiome*
- 2024 Microbiome Diversity on the Skin of Dugongs (*Dugong dugon*) from Different Populations in the New Caledonian Lagoon – **Stenger PL.**, Garrigue, C., and Majorel, C. (2024) – *in prep for Applied and environmental microbiology*
- 2024 First Marine and Terrestrial Faunistic and Floristic Inventory of Fanjove Island, Tanzania: Establishing Baselines for a Proposed Marine Protected Area in a Threatened Biodiversity Hotspot – **Stenger PL.**, and Bousseyroux, A. (2024) – *in prep for Ecological Indicators*
- 2024 Rising Plastic Pollution and Its Impact on Marine Life: Investigating the Plastisphere and Microbial Communities on Microplastics in the Indian Ocean –Marillac V., Thibault M., **Stenger PL.**, Guilhaumon F., Jourand P. and Tribollet A. (2024) – *in prep for Marine pollution bulletin*
- 2024 Microplastics Harboring Bacteria: A Potential Cause of Turtle Mortality in Réunion Island – **Stenger PL.**, and Jourand P. (2024) – *in prep for The Journal of Wildlife Management*
- 2024 First Characterization of the Marine Microbiome of Mayotte: Analyzing Fungi, Bacteria, Protists, and Microalgae in Corals, Sediments, and Seawater – **Stenger PL.**, Guilhaumon F., Jourand P. and Tribollet A. (2024) – *in prep for The ISME journal*
- 2024 Advancing Biomonitoring of eDNA Studies with the *Anaconda* R Package: Integrating Soil and One Health Perspectives in the Face of Evolving Traditional Agriculture Practices – **Stenger PL.**, Léopold A., Dinh K., Mournet P., Robert N., Drouin J., Maggia L., Carriconde F. (2024) – *submitted in PlosOne*
- 2024 Adaptation of soil microbial communities over a depth gradient and to micro-spatial heterogeneities induced by nickel accumulating trees in an ultramafic tropical forest – **Stenger PL.**, Isnard S., Juillot F., Dinh K., Mournet P., Maggia L., Carriconde F. (2024) – *in prep for Molecular ecology*
- 2024 Meta-analysis of microbial metagenomic soil data sets of ultramafic soils: towards a soil microbial referential for ecological restoration in the New Caledonian biodiversity hotspot? - Ripoll J., Nuñez NF, Maggia L., **Stenger PL.**, Lelievre M., Letellier K., Gigante S., Manez A., Mournet P., Carriconde F. (2024) – *in prep for Scientific report*

- 2024 First keys to ultramafic topsoil community change in a short-term post-mining restoration context - **Stenger PL.**, Ripoll J., Nuñez NF, Maggia L., Lelievre M., Letellier K., Gigante S., Manez A., Mournet P., Carriconde F. (2024) – *in prep for Land Degrad Dev.*
- 2024 Molecular Characterization and Ecological Interactions of Fungal Pathogens Associated with *Carcinopsis* sp. Wētā in the Dogny Forest, New Caledonia - **Stenger PL.**, Dinh K., Mille CG., Trewick S., and Carriconde F. (2024) - *submitted in Current Research in Environmental & Applied Mycology*
- 2024 First female description of the critically endangered *Caledargiolestes janiceae*, (Lieftinck, 1975), with additional information on male description and enlarged habitats area from South New-Caledonia (Odonata: Zygoptera: Argiolestidae) - **Stenger PL.**, Mille C., J. Theuerkauf, Jourdan H., M. Marinov (2024) - *submitted in ZooTaxa*
- 2024 Social Structure and Habitat Use of the New Caledonian Leopard Skink (Scincidae: *Lacertoides pardalis*): a Radiotelemetric Study – Deuss M., Busseyroux A., **Stenger PL.**, and Jourdan H. (2024) - *submitted in journal of herpetology*
- 2024 Development of Cross-linking Chromatin Immunoprecipitation protocol for the Pearl oyster *Pinctada margaritifera* var. *cumingii* (Linnaeus 1758) Histone Modification Distributions - **Stenger PL.**, Ky CL., Reisser C., Cosseau C., Grunau C., Mege M., Planes S., Vidal Dupiol J., (2024) – *Submitted in methods and protocol*

OTHER COLLABORATIONS

- 2024-now **Pr. Steven Trewick** – Professor in Evolutionary Ecology, Massey University, New Zealand – Genomics on wētās and entomopathogenic fungi
- 2023-now **Dr. Przemysław Zdunek** – IUCN SSC Monitor Lizard Specialist Group - Switzerland
- 2022-now **Dr. Philippe Jourand** – Ingénieur de Recherche IRD - UMR Entropie – La Réunion
- 2021-now **Dr. Seth Bybee** – Associate Professor – Provo, UTAH, USA – Genomics on odonata
- 2021-now **Dr. Milen Marinov** – Entomologist of Ministry for Primary Industries, Wellington, New-Zeland
- 2021-now **Pr. Emmanuel Sérusiaux** and **Dr. Nicolas Magain** – Lichenologists, Botanic Institute, University of Liège, Belgium
- 2021-now **Dr. Nolwenn Callac** – Cadre de recherche Ifremer – Nouvelle-Calédonie
- 2021-now **Dr. Clarisse Majorel** – Ingénieure d’étude - UMR Entropie IRD – Nouvelle-Calédonie
- 2021-now **Dr. Hervé Jourdan** – Chercheur IRAD - UMR IMBE – Nouvelle-Calédonie

CONFERENCES/WORKSHOPS

- 2019 **World Congress of Malacology (WCM 2019), Pacific Grove, California, USA**
Deciphering shell color pigmentation pathways in the pearl oyster *Pinctada margaritifera* (Linnaeus, 1758) through whole transcriptome sequencing and fine gene expression tuning – **Stenger PL.**, Ky CL., Reisser C., Planes S., Vidal-Dupiol J.
- 2017 **GDEGeM European Cetacean Society (GDEGeM ECS 2017), Marseille, France**
Identification of bottlenose dolphin's management units to develop a monitoring and conservation strategy in the French Mediterranean waters
Labach H., **Stenger PL.**, Barbier M., Di-Méglio N., Jourdan J., David L., Roul M., Azzinari C., Robert N., Cesarini C., Ballardini M., Vittoria Riina M., Simon-Bouhet B. & Gimenez O.
- 2015 **International Symposium of Green Chemistry (ISGC 2015), La Rochelle, France**
Testing correlations between genetic diversity and chemical pollution exposure in a bioaccumulating marine bivalve (2015) Viricel A., **Stenger PL.**, Becquet V., Pante E., Bonnet A., Churlaud C., Le Floch S., Graber M., Pageaud M., Thomas-Guyon H.

GENERAL AND TECHNICAL SKILLS

Languages: French (mother tongue) | English (Level B1, Institutional TOEFL ~500 pts)

Scuba diving: FFESSM 3 stars, scientific diving formation BIOSOUM (2016), Submarine photographer

Licenses: Car (French B and international), Coastal and offshore boat license

Laboratory/field techniques: genetics/genomics (Licor-Sequencing, DNA & RNA extraction & purification, ChIP-native, ChIP-crosslink, RT-q-PCR, etc.), ecophysiology (aquarium maintenance with classical parameters measurement, oximetric measures, algal biomasses measurement, etc.), ecology (submarine quadrat measurement, Submarine UVC, taxonomic identification of some Mollusca, submarine photography)

Bioinformatics techniques: Treatment and analyses of Next Generation Sequencing data (transcriptomic (RNA-Seq), genomic (PWGS), epigenomic (ChIP-Seq, WGBS-Seq) meta-barcoding data) under Linux, MacOS and Windows environment. Micro satellites and mitochondrial markers analyses. R (package creation), knitr, bash, cshell encrypting.

Software: classics (Pack Office & LaTeX/Markdown | Gimp | R, R studio | GIS software | GitHub), genetics (Sequencher | Arlequin | PopArt network | Ugene | 4Peaks), NGS base treatments (FastQC | Trimmomatic | TrimGalore! | FlagStat), NGS aligner (Bowtie | TopHat | BWA | Bismark), NGS differential analysis (DeSeq2 | MethylKit | ChromStar), NGS variant calling (FreeBayes | Popoolation2), NGS enrichment (RBGOA | GOATOOLS | REVIGO)

TEACHING EXPERIENCE

- 2018** Master 2nd year teaching: Genomics and selection for aqua and agriculture (2 hours)
Master 2nd year practical work: Study of the expression of two mineralization genes (PIF and Aspein) in the pearl oyster *Pinctada margaritifera*. (16 hours) University of French Polynesia and Ifremer, Tahiti
- 2018** Several presentations on the thematic “coral reef: from gene to ecosystem” for primary schools, colleges and high schools in Tahiti & Raiatea islands (36 hours)

STUDENT SUPERVISION

- 2021** **Andréa Kunovsky**, University of French Polynesia – Mokarran Protection Society, Masters Student: Study of the seasonal presence of the great hammerhead shark *Sphyrna Mokarran* in the Tiputa pass (Rangiroa).
- 2020** **Victoria Moscato**, UOG Marine Lab Research Assistant, Masters Student, Guam. Thesis committee and supervision with Sarah Lemer on transcriptomic part. Characterizing the role of coral color in stress resistance in *Acropora surculosa*.

AWARDS

- 2017** First price for the poster “What are the reasons for internal chromatic variations in the pearl oyster *Pinctada margaritifera* (Linnaeus, 1758)?” - Doctoriales du Pacifique - Punaauia, Tahiti – 640\$

VOLUNTEERING

2019- Today Scientific team member of the *Mokarran Protection Society* (Great hammer head shark *Sphyrna Mokarran*) – <https://www.mokarran.org/fr/organisation/#team> statistical analysis, reports writer, diver, etc.

2020 Volunteering for Bwärä marine turtles in Bourail, New-Caledonia.

2020- 2022 Volunteering for several missions of New-Caledonia's IRD (on Scincidae, Rhynchoetidae, etc. with/for Matthias Deuss, Hervé Jourdan, and Jörn Theuerkauf)

2020- Today Curator of <https://www.inaturalist.org>

SCIENTIFIC AND NATURALIST PUBLICATIONS FEATURING MY PHOTOGRAPHY

2023 Platania, L., & Gómez-Zurita, J. (2023). Analysis of intrinsic evolutionary factors leading to microendemic distributions in New Caledonian leaf beetles. *Scientific Reports*, 13(1), 6909. – Figure 2 – page 4

2022 Ducouret, E., Gouzerh, A., Nevers, T., Henry, C., Desurmont, M. (2022), Guide du pépiniériste – Apprendre à récolter et produire des espèces utiles pour la revégétalisation des sites dégradés sur sols miniers - Association Noé – Programme conservation et restauration de la forêt calédonienne, Nouméa, Nouvelle-Calédonie – page 35 & 81

2021 CIE NC (2021) - Les Cagous - Espèces emblématiques de Nouvelle-Calédonie. – page 11 - EAN 13 : 9791090737129

2017 Étude portant sur *Wasmannia auropunctata* à Tahiti : dynamique dans le milieu naturel, impact écologique de l'infestation comparé à l'impact écologique d'une lutte chimique (2017) – Beaune D., Blancvillain C., and Bousseyroux A. Rapport final de l'étude de la PFF à Tahiti – SOP Manu. – Figure 2.20 – page 42

REFERENCES

Dr. Fabian Carriconde
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