

## Pedro Ciarlini Junger, Ph.D.

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### Higher Education

#### 2018-2023 Ph.D. in Ecology and Natural Resources

Federal University of São Carlos, UFSCar, São Carlos-SP, Brazil

Thesis title: "Ecological Processes Structuring the Ocean Microbiome across Space and Time"

Supervisor: Dr. Hugo Sarmento

#### 2020-2021 Ph.D. visiting student

Institute of Marine Sciences, ICM-CSIC, Barcelona, Spain

1-year stay in the log[lab] of the Ecology of Marine Microorganisms Research Group

Supervisors: Dr. Ramiro Logares and Dr. Josep M. Gasol

#### 2014-2016 Masters in Ecology

Federal University of Rio de Janeiro, UFRJ, Rio de Janeiro-RJ, Brazil

Dissertation title: "The Ecological Role of Virus in Tropical Coastal Lagoons"

Supervisor: Dr. Vinicius F. Farjalla

#### 2012-2013 Undergraduate visiting student in Physical Geography

University of Bristol, Bristol, UK

Dissertation Title: "Virus-Bacteria Interaction and its Sensibility to Temperature and Nutrient Conditions in Cryoconite Holes"

Supervisor: Dr. Alexandre M. Anesio

#### 2007-2012 Bachelor's in Ecology

Federal University of Rio Grande do Norte, UFRN, Natal-RN, Brazil

Dissertation Title: "Prevalence of Heterotrophy over a Seasonal Scale in Tropical Semi-Arid Reservoirs"

Supervisor: Dr. André M. Amado

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### Publications

- Menezes, M., **Junger, P. C.**, Kavagutti, V. S., Wanderley, B. et al. 2023. Temporal patterns of picoplankton abundance and metabolism on the western coast of the equatorial Atlantic Ocean. *Ocean and Coastal Research*, v71:e23019. doi:10.1590/2675-2824071.22048mm
- Metz, S., Huber, P., Mateus-Barros, E., **Junger, P.C.** et al. 2022. A georeferenced rRNA amplicon database of aquatic microbiomes from South America. *Scientific Data* 9, 565. doi:10.1038/s41597-022-01665-z
- Gazulla, C.R., Auladell, A., Ruiz-González, C., **Junger, P.C.** et al. 2022. Global diversity and distribution of aerobic anoxygenic phototrophs in the tropical and subtropical oceans. *Environmental Microbiology* 24, 2222-2238. doi:10.1111/1462-2920.15835
- Chaffron, S., Delage, E., Budinich, M., Vintache, D., Henry, N., Nef, C., Ardyna, M., Zayed, A. A., **Junger, P. C.**, Galand, P. E., et al. 2021. Environmental vulnerability of the global ocean plankton community interactome. *Science Advances* 7(35), eabg1921. doi:10.1101/2020.11.09.375295

- Logares, R., Deutschmann, I. M., **Junger, P. C.** et al. 2020. Disentangling the mechanisms shaping the surface ocean microbiota. *Microbiome* 8, 55. doi:10.1186/s40168-020-00827-8
- **Junger, P. C.**, Almeida, R. M., Mendonça, R., et al. 2020. Not all viruses in nature are human enemies: a perspective on aquatic virus ecology in Brazil. *Acta Limnologica Brasiliensia* 32, e105. doi:10.1590/s2179-975x3720
- Almeida, R.M., Hamilton, S.K., Rosi, E.J., Arantes, J.D., Barros, N., Boemer, G., Gripp, A., Huszar, V. L. M., **Junger, P. C.**, et al. 2019. Limnological effects of a large Amazonian run-of-river dam on the main river and drowned tributary valleys. *Scientific Reports* 9, 16846. doi:10.1038/s41598-019-53060-1
- **Junger, P. C.**, Dantas, F. C. C., Nobre, R. L. G., Kosten, S., Venticinque, E. M., et al. 2019. Effects of Seasonality, Trophic State and Landscape Properties on CO<sub>2</sub> saturation in Low-Latitude Lakes and Reservoirs. *Science of the Total Environment*. doi:10.1016/j.scitotenv.2019.01.273
- **Junger, P. C.**, Amado, A. M., Paranhos, R., Cabral, A. S., Jacques, S. M., Farjalla, V. F. 2018. Salinity Drives the Virioplankton Abundance but not Production in Tropical Coastal Lagoons. *Microbial Ecology*. doi:10.1007/s00248-017-1038-3
- Cabral, A. S., Lessa, M. M., **Junger, P. C.**, Thompson F. L. and Paranhos, R. P. R. 2017. Virioplankton Dynamics are Related to Eutrophication Levels in a Tropical Urbanized Bay. *PLoS One*, 12:e0174653. doi:10.1371/journal.pone.0174653
- Almeida, R. M., Nóbrega, G. N., **Junger, P. C.**, Figueiredo, A. V., et al. 2016. High Primary Production Contrasts with Intense Carbon Emission in a Eutrophic Tropical Reservoir. *Frontiers in Microbiology*, 7:717. doi:10.3389/fmicb.2016.00717

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### Pre-prints

- **Junger, P. C.**, Sarmiento, H., Giner, C. R., Mestre, M., Sebastián M., Morán, X. A. G., Arístegui, J., Agustí, S., Duarte, C. M., Acinas, S. G., Massana, R., Gasol, J. M., Logares, R. 2023. Global biogeography of the smallest plankton across ocean depths. *bioRxiv*, 2023.01.13.523743. doi:10.1101/2023.01.13.523743

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### Presentations at conferences

- **Junger, P. C.** et al. 2022. "Niche-partitioning of *Rhodospirillaceae*, an ubiquitous, abundant and previously overlooked group of marine bacteria". (Oral presentation at the 3<sup>rd</sup> Workshop of the Latin American Network in Aquatic Microbial Ecology ( $\mu$ Sudaqua), Florianópolis-SC, Brazil)
- **Junger, P. C.** et al. 2021. "Environmental heterogeneity and water mass variability influence ecological processes structuring picoplankton communities across ocean depths". (Oral presentation at the ASLO Aquatic Sciences Meeting)
- **Junger, P. C.** et al. 2020. "Ecological processes driving picoplankton community assembly across depth layers of the ocean". (Poster presentation at the ISME Virtual Microbial Ecology Summit)
- **Junger, P. C.** et al. 2019. "Ecological Processes Structuring Microbial Planktonic Communities in Contrasting Latitudinal Regions of the Global Ocean". (Poster presentation at the 2<sup>nd</sup> Workshop of the Latin American Network in Aquatic

- Microbial Ecology ( $\mu$ Sudaqua), Chascomús, Argentina)
- **Junger, P. C.** et al. 2019. "High-level ecological processes driving microbial community structure in distinct depth layers of the global ocean". (Poster presentation at the ISME-LA Conference, Valparaíso, Chile)
  - **Junger, P. C.** Sarmiento, H.; 2018. "Structuring Processes of Microbial Communities and Ecological Networks in Latitudinal Gradients of the Global Ocean". (Oral presentation at the Ramon Margalef Summer Colloquium, Barcelona, Spain)
  - **Junger, P. C.** et al. 2017. "Cytometric Signature of Pico- e Nanophytoplankton in Tropical Coastal Lagoons". (Poster presentation - 1<sup>st</sup> workshop of the Collaborative Network in Aquatic Microbial Ecology in Latin America -  $\mu$ Sudaqua)
  - **Junger, P. C.** et al. 2017. "Variação Sazonal de  $p\text{CO}_2$  na Coluna d'água de Três Lagos de Várzea Amazônicos (Rio Madeira – RO)". (Poster presentation at the XVI Brazilian Limnology Conference)
  - **Junger, P. C.** et al. 2015. "Flushing Boosts Heterotrophy in Tropical Eutrophic Semi-Arid Reservoirs". (Oral presentation at the XV Brazilian Limnology Conference)
  - **Junger, P. C.** et al. 2013. "Virus-Bacteria Interactions in Extreme Aquatic Environments". (Poster presentation at the XIV Brazilian Limnology Conference)
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### Research Experience

**2023-Now** – CNRS Postdoctoral researcher at the Institut de Biologie de l'École Normale Supérieure (IBENS), Paris, France.

**2018-2023** – Ph.D. candidate at Laboratory of Microbial Processes and Biodiversity, UFSCar, Brazil.

**2020-2021**– Visiting Ph.D. student at LogLab, Ecology of Marine Microorganisms Research Group, Institute of Marine Sciences (ICM-CSIC), Barcelona, Spain.

**2017**– Volunteer researcher at Laboratory of Microbial Processes and Biodiversity, UFSCar, Brazil.

**2014-2016** – Master's student at Laboratory of Limnology, UFRJ, Brazil.

**2012-2013** – Intern at Low Temperature Experimental Facilities – LOWTEX, School of Geographical Sciences, University of Bristol, UK. (LOWTEX)

**2011-2012** – Intern at Laboratory of Limnology, UFRN, Brazil.

**2010-2011** – Intern at Laboratory of Water Resources and Environmental Sanitation, UFRN, Brazil.

**2010** – Intern at Laboratory of Aquatic Microbiology, UFRN, Brazil.

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### Fieldwork, Laboratory and Technical Skills

- Worked on board of the TARA schooner in two legs (in Brazil and Africa) of the Mission Microbiomes as part of the AtlantECO project (<https://www.atlanteco.eu/>)
- Fieldwork experience: water and sediment sampling and *in-situ* environmental measurements in both freshwater and marine ecosystems;
- Laboratory experience: TARA protocols, DNA extraction, PCRs, Agarose gel electrophoresis, Incubation experiments, Bacterial production (leucine and thymidine incorporation) and respiration measurements; Epifluorescence microscopy, Flow cytometry, Spectrophotometric analysis;
- Data wrangling, analysis and visualization using R language;

- Statistical skills: ecological models, niche-modeling, regression and multivariate analysis, generalized linear mixed models, structural equation modeling, time-series analysis, descriptive statistics
  - Bioinformatics skills using UNIX language;
  - Maps and basic georeferencing skills using Q-GIS;
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### **Selected Courses**

**2021** – Quantitative Ecological Genomics in the TARA Ocean, L'École Normale Supérieure Paris, ENS/Paris, France (virtual version).

**2019** – Microbial Diversity Course, Marine Biology Laboratory (MBL), Chicago University, Woods Hole, MA, USA.

**2019** – Hand-on training in Prokaryotic and Eukaryotic metagenomics (CME10). Università degli Studi di Milano-Bicocca, UNIMIB, Italy.

**2018** – Ramon Margalef Summer Colloquium: Ecology through the Omic Lens – Institute of Marine Sciences (ICM-CSIC), Barcelona, Spain.

**2018** – Ecology and Diversity of Marine Microorganisms (ECODIM X) – Universidad de Concepción, Chile.

**2015** – Data analysis and sharing using R and Github – Federal University of Rio de Janeiro, UFRJ, Brazil; Conducted by Andrew MacDonald (British Columbia University, Canada).

**2015** – New Generation Methods in Microbial Ecology – Federal University of São Carlos, UFSCar, Brazil; Conducted by Hugo Sarmento (UFSCar), Josep M. Gasol (ICM, Spain) and Fernando Unrein (IIB, Argentina)

**2014** – Using R Language in Ecology – Federal University of Goiás, UFG, Brazil; Conducted by Adriano S. Melo (UFG)

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### **Teaching Experience**

**2022 – Instructor**

**Federal University of São Carlos, UFSCar, Brazil**

Delivering practical classes on *Community Ecology Analysis* using R language as part of the course 'Analysis of Microbiomes' for a group of 20 students

**2019 – Organizer and instructor**

**Federal University of São Carlos, UFSCar, Brazil**

Organized and taught the summer course 'Biological data wrangling and visualization using R language' for a group of 14 students

**2015 – Tutor**

**Federal University of Rio de Janeiro, UFRJ, Brazil**

Delivering practical sessions on methods in aquatic microbial ecology for courses in Aquatic Ecology for groups of up to 10 undergraduate students

**2009 – Undergraduate teaching assistant**

**Federal University of Rio Grande do Norte, UFRN, Brazil**

Undergraduate teaching assistant helping students in a Biochemistry course

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### **Outreach and Scientific Communication**

**2021-2022 – Ocean science educator**

**TARA schooner, Mission Microbiomes portcalls**

Participating in ocean science education and outreach activities in two TARA's portcalls in Rio de Janeiro-RJ and Itajaí-SC as part of the EU funded AtlantECO project (<https://www.atlanteco.eu/>)

**2017-2019 – Science educator**

**Federal University of São Carlos, UFSCar, Brazil**

Visiting public high schools to give speeches and interactive activities aimed at biological oceanography literacy, mainly focused on planktonic life.

**2014-2016 – Blogger**

**Federal University of Rio de Janeiro, UFRJ, Brazil**

Writing scientific outreach texts on microbial ecology for the general public in the Limnology Laboratory blogspot (<https://limnonews.wordpress.com/author/pcjunger/>)

**2015 – Science educator**

**Federal University of Rio de Janeiro, UFRJ, Brazil**

Worked in an scientific exposition on aquatic sciences for children and teenagers.

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## Grants and funding

FAPESP <sup>1</sup> Research Abroad Scholarship	(November 2020 – October 2021)
FAPESP <sup>1</sup> PhD's Scholarship	(April 2018 – March 2022)
CNPQ <sup>2</sup> Master's Scholarship	(March 2014 – February 2016)
CNPQ Science without Borders Scholarship	(August 2012 – July 2013)
CNPQ Scientific Initiation Scholarship	(August 2009 – October 2010)

1- FAPESP – São Paulo Research Foundation

2- CNPQ – Brazilian National Council for Scientific and Technological Development

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## Additional Professional Experience

**Environmental Consultant** at *Ecology and Environment do Brasil* – Environmental consultancy company (from September 2016 to September 2017). Work monitoring aquatic ecosystems and writing environmental impact reports. Statistical, fieldwork and laboratory skills were required.

**President and Co-founder** at *ECOSIN – Soluções Ambientais* (2011 – 2012). Environmental Consultancy Junior Start-up Company founded in the Federal University of Rio Grande do Norte (UFRN), Brazil. Teamworking, management and leadership skills were required.

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## Languages

Portuguese – Native Language

English – Speak fluently and read/write with high proficiency:

- IELTS proficiency test;
- 5 week Pre-sessional Course in English for Academic Purposes – Centre for English Language and Foundation Studies, University of Bristol, UK;
- Year Abroad at University of Bristol, UK

Spanish – Speak fluently and read/write with high proficiency

French – Basic reading, listening, speaking and writing