

Curriculum vitae

Miguel Fernandes Guerreiro, MSc, MSc



Nationality: Portuguese Homepage

Education

2019- Faculty of Sciences, University of Lisbon

PhD in Marine Ecology Supervisors: Professor Rui Rosa, University of Lisbon and Doctor Henk-Jan Hoving, Geomar-Kiel.

2014-2017 Faculty of Sciences, University of Lisbon

MSc in Bioinformatics and Computational Biology (16 out of 20): Thesis entitled “Microbial structure and nitrite reducing communities across the Atlantic Ocean” (17/20). Supervisors: Professor Gerhard Herndl, University of Wien and Professor Octávio Paulo, University of Lisbon.

Erasmus+ internship at the University of Vienna, Department of Limnology and Bio-Oceanography. Working in the comparison of performance of pipelines (Mothur, Qiime and Uparse), and modeling the sequencing and qPCR data from the Geotraces Cruises.

Subjects: Programming Fundamentals (16/20); Introduction to Databases (16/20); Multivariate Data Analysis (14/20); Computational Biology and Genomics (17/20); Computational Methods in Evolution and Ecology (20/20); Phylogenetics (17/20); Bioinformatics (13/20); Information Integration and Analytical Data Processing (15/20); Computer Programming Complements (11/20); Computational Models and Methods in Biology (12/20); Statistical Methods in Bioinformatics (17/20); Bioimaging (19/20).

2010-2012 Faculty of Sciences, University of Lisbon

MSc in Marine Ecology (17 out of 20): Thesis entitled “Cephalopod Fauna in the Southern Ocean using the diet of wandering albatrosses *Diomedea exulans*: a stable isotopes approach” (19/20). Supervisors: Professor José Carlos Caetano Xavier, Institute of Marine Research (IMAR) and Professor Rui Rosa, University of Lisbon. Subjects: Remote sensing and GIS (14/20); Marine Resources (15/20); Deep-sea ecology (15/20); Fish Ecology (16/20); Marine primary production (16/20); Entrepreneurship (17/20); Aquariology (in the Oceanário de Lisboa facilities; 17/20); Tropical marine biology (18/20).

2007-2010 Faculty of Sciences, University of Lisbon

Undergraduate degree of Environmental Biology, with a focus on Marine Biology (15 out of 20). Above Average subjects: Anthropology (15/20); Numerical Biology (15/20); Marine Ecology (15/20); Assessment Technics in Marine Biology (15/20); Animal Biology I & II (15/20 & 17/20); Terrestrial Ecology (16/20); Animal Physiology (16/20); Ichthyology (16/20); Marine Biology (18/20); Biostatistics (18/20); Operational Methods in Marine Biology (18/20).

Work Experience

2016 (April) - 2019 (October) - University of Vienna, Department of Limnology and Bio-Oceanography - IT and Bioinformatics Technician - Bioinformatic pipeline design and advising (Metagenomic analysis); Scripting for statistical analysis; Management of hardware and software resources, including network and server administration; Social-media management (homepage [TYPO3 backend], Social-media networks [video and image editing]).

2015 (Dec) - 2016 (Jan) - University of Vienna, Department of Limnology and Bio-Oceanography - IT staff - Updating the departments hardware to the new delivery system, ordering and managing new licensed software purchases, registering new hardware to the department and managing the already existing computer resources.
2015 (Jul-Aug) - University of Lisbon - Laboratory of Guia - Lecturer to the PI - Teach the theoretical and practical knowledge on the basics of programming and algorithms, and how to apply this knowledge to statistical analysis and modulation of ecological data while using the R language.

Research Career

2014 (Jun-Jul) - Instituto Superior de Psicologia Aplicada (ISPA) - Dr. Maria Dias Research Assistant in Selvagem Grande island - Visit the Seabirds nests for ring control (and ringing), handling, biometric data and geolocator recovery from *Calonectris diomedea* and *Bulweria bulwerii*, nests censuses for monitoring population trends (*Calonectris diomedea*).
2012 (Feb) - Centre d'études biologiques de Chizé (CEBC)/ Centre Nationale de la recherche scientifique - Research student as part of my MSc Thesis- Processing and statistical analysis of the data retrieved from the stable isotopes readings.
2011 (Sep-Oct) - Instituto do Mar (IMAR) - Research student as part of my MSc Thesis- Sample processing of Cephalopod beaks for stable isotopes readings.
2011 (Aug-Sep) - British Antarctic Survey - Research student as part of my MSc Thesis- Analysed stomach contents (the cephalopod component) from Wandering albatross (*Diomedea exulans*) boluses using cephalopod beak identification books and further treatment and sorting of these Cephalopod beaks for future Stable isotopes analysis, as part of the British Antarctic Survey research projects CEPH, POLAR, PROPOLAR and international programs ICED and SCAR AnT-ERA.
2009 - Faculty of Sciences, University of Lisbon - Silvia Loureno's Research Student in the project "*Biologia, distribuição e abundância de fauna pelágica no Mar de Scotia (Antártica), integrado no Programa Polar Português*" (translation: Biology, distribution and abundance of pelagic fauna in the Scotia sea (Antarctic), integrated in the Portuguese Polar Program) - Supporting the age estimation of mictophids, by corroborating observations of their otolith annual growth rings.

Participation in Expeditions

2021 - Cruise on board of the RV "Pelagia" (5 days: 5-10 June) of the shore of Terceira island (Azores, Portugal).
2020 - Cruise on board of the RV "Pelagia" (5 days: 28 October- 1 November) of the shore of Terceira island (Azores, Portugal).
2014 - Cruise on board of the NTP "Creoula" (1 week: 20-26 September) on the EMEPC (Portuguese Task Group for the Extension of the Continental Shelf) program M@rBis /Arrábida2014 campaign. National Museum of natural history and science (MUHNAC) of Lisbon Marine Biologist representative. Sampling, screening and labelling of biological samples.
2013 - Cruise on board of the Portuguese fisheries research vessel "Noruega" (1 week: 10-15 November) as part of IPMA's (*Instituto Português do Mar e Atmosfera*; Translation: Portuguese institute of sea and atmosphere) "CERTIFICA" project. Student Assistant on biological sampling, screening and biology of fish species.
2010 - Cruise on board of IPMA's (*Instituto Português do Mar e Atmosfera*; Translation: Portuguese institute of sea and atmosphere) research vessel "Noruega" around the southern coast of the Iberian Peninsula (1 week: 20-28 April). Student Assistant in CTD data log, labeling of the plankton samples and on biological sampling, screening and biology of fish species.
2007/2008 - Antarctic educational cruise on board of the MV "Ushuaia" on the Scotia Sea and Antarctic Peninsula (2 weeks: December 2007-January 2008), as part of the International Polar Year educational program.

Talks and Posters

14. Raymond, B., Agüera, A., Alderman, R., Andrade, C., Bestley, S., Blanchard, J.L., Cherel, Y., Connan, M., Constable, A.J., Deagle, B.E., Flores, H., **Guerreiro, M.**, Hindell, M.A., Hckstdt, L., Jarman, S., Lea, M.-A., McCormack, S.A., McInnes, J.C., Melbourne-Thomas, J., Revill, A.T., Schaafsma, F.L., Stowasser, G., Trebilco, R., van de Putte, A.P., van Franeker, J.A., Walters, A., Xavier, J.C. (2018) The SCAR Southern Ocean Diet and Energetics Database. MEASO conference 9-13 April. (Hobart, Australia) (Talk)

13. **Guerreiro, M.**, Phillips, R. A., Cherel, Y., Ceia, F. R., Alvito, P., Rosa, R., Xavier, J. C. (2015) Habitat and trophic ecology of Southern Ocean cephalopods from stable isotope analyses. CIAC conference 7-15 Nov. (Hakodate, Japan) (Poster)
12. Alvito, P.M., Rosa, R., Phillips, R. A., Cherel, Y., Ceia, F., **Guerreiro, M.**, Seco, J., Baeta, A., Vieira, R. P., Xavier, J. C. (2015). Cephalopods from South Georgia Antarctic waters during the Austral Winter: information from top predators. CIAC conference 7-15 Nov. (Hakodate, Japan) (Poster)
11. Silva, A., Marques, V., Santos, A.M.P., dos Santos, A., Barra, J., Bento, T., **Guerreiro, M.**, Malta, T., Matos, A., Pereira, A., Rodríguez-Climent, S., Domínguez, R., Santos, C., Silva, A.V. (2014). PORTUGAL (IPMA) JUVESAR13 (02061013). Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES (WGACEGG) areas VII, VIII and IX, Vigo, Spain, Nov17-21 (Talk)
10. Seco, J., Roberts, J., Ceia, F. R., Baeta, A., Alvito, P., **Guerreiro, M.**, Xavier, J. C. (2014). The role of cephalopods around South Sandwich Islands: Information from predators' diet (*Dissostichus eleginoides* and *Dissostichus mawsoni*) and Stable Isotopes. SCAR Open Science Conference, Auckland, New Zealand, Aug 25-28, 2014 (Poster)
9. **Guerreiro, M.**(2014). Wandering Albatrosses and Antarctic cephalopods: Polar Pelagic Ecology. In II Biology Research Journeys, Faculty of sciences of the University of Lisbon, Lisbon, Portugal March 6 (talk)
8. Alvito, P., Rosa R., Phillips, R., Cherel, Y., Ceia F., **Guerreiro, M.**,Seco, J., Baeta, A., Vieira, R., Fox, D. and Xavier, J.C. (2014). Cephalopods in the diet of nonbreeding black-browed and grey-headed albatrosses from South Georgia. VIII SPEA Ornithology Congress. Frum Municipal Romeu Correia, Almada, Portugal (Poster)
7. Seco, J., Roberts, J., Ceia, F. R., Baeta, A., Alvito, P., **Guerreiro, M.**,J. C. Xavier (2013). The role of cephalopods around South Sandwich Islands: information from predators diet (*Dissostichus eleginoides* and *Dissostichus mawsoni*) and stable isotopes. In 5 Portuguese conference on polar sciences, University of Algarve, Faro, Portugal (Poster)
6. Xavier, J. C., Loureno, S., Ceia, F. R., Tavares, S., Kruger, L., Seco, J., Alvito, P., **Guerreiro, M.**,Gonalves, A. R., Pedro, S., Valente, T., Velez, N., Azinhaga, P., Cruz, B., Paiva, V., Ramos, J. A., Marques, J. C. (2013). Effects of environmental change in the structure and function of the Southern Ocean. In 5 Portuguese conference on polar sciences, University of Algarve, Faro, Portugal (talk)
5. Alvito, P., Rosa R., Phillips, R., Cherel, Y., Ceia F., Vieira, R., **Guerreiro, M.**,Seco J., Baeta, A., Xavier, J.C. (2012). Stable isotopic signatures of the cephalopod fauna in South Georgia waters. IV Portuguese Conference on Polar Science 19 Oct, 2012 (Talk)
4. Xavier, J. C., Loureno, S., Ceia, F., Collins, M., Vieira, R. P., Paiva, V. H., Cruz, B., Phillips, R. A., Cherel,Y., Murphy, E., Johnston, N., Alvito, P., Bloom, S.,**Guerreiro, M.**, Seco, J., Gonalves, A. R., Velez, N., Ramos, J. A., Marques, J. C. . Marine Resources in the Southern Ocean: Insights from Top Predator Diets on the Role of Krill and Cephalopods. IV Portuguese Conference on Polar Science 19 Oct, 2012 (Talk)
3. Xavier, J. C., Ramos, J. A., Ceia, F. R., Loureno, S., Vieira, R. P., Bloom, S., Paiva, V., Monticelli, D., **Guerreiro, M.**, Alvito, P., Cruz, B., Seco, J., Marques, J. C. (2011). POLAR SCIENCE at the Institute of Marine Research (IMAR-CMA), University of Coimbra. 8th Symposium on Polar Studies, Palma de Mallorca, 7-9 September 2011, University of the Balearic Islands (Poster)
2. Xavier, J. C., Ramos, J. A., Ceia, F. R., Loureno, S., Vieira, R. P., Bloom, S., Paiva, V., Monticelli, D., **Guerreiro, M.**, Alvito, P., Cruz, B., Seco, J., Marques, J. C. (2011). POLAR SCIENCE at the Institute of Marine Research (IMAR-CMA), University of Coimbra. In Xavier, J. C., T. Barata, A. Machado, J. Ramos, G. Vieira, A. S. David, S. Loureno, Marques, J. C. (2011). III Conference on Polar Sciences. IMAR-CMA, University of Coimbra (12th April) (Poster)
1. **Guerreiro, M.** (2008). IPY/IGLO worldwide interactive videoconference, themed Our Changing Planet: Past and Present. Association of Science Technology Centers. Lisbon, Portugal (March 13). (Talk)

Selected Refereed Journal Articles

8. van Tonder, A., Lübcker, N., **Guerreiro, M.**, Xavier, J. C., Cherel, Y., Nico de Bruyn, P. J. (2021) The ecology of *Moroteuthopsis longimana* at the sub-Antarctic Prince Edward Islands, as revealed through stable isotope analysis on squid beak prey remains. *Marine Ecological Progress series*. DOI: 10.3354/meps13556
7. **Guerreiro, M.** (2019) Exciting General Palaeontology book versus mesmerising visual Scientific Guide. *Marine Ecology*. DOI:10.1111/maec.12566
6. Rosa, R., Lopes, V. M., **Guerreiro, M.**, Bolstad, K., Xavier, J. C. (2017) Biology and ecology of the worlds largest invertebrate, the colossal squid (*Mesonychoteuthis hamiltoni*): a short review. *Polar Biology*. DOI:10.1007/s00300-017-2104-5
5. Rosa, R., Paula, J. R., Sampaio, E., Pimentel, M., Lopes, A. R., Baptista, M., **Guerreiro, M.**, Santos, C., Campos, D., Almeida-Val, V., Calado, R., Diniz, M., Repolho, T. (2016) Neuro-oxidative damage and aerobic potential loss of sharks under elevated CO₂ and warming. *Marine Biology* 163:60. DOI:10.1007/s00227-016-2898-7
4. Rosa, R., Pimentel, M., Galan, J. G., Baptista, M., Lopes, V.M., Couto, A., **Guerreiro, M.**, Sampaio, E., Castro, J., Santos, C., Calado, R., Repolho, T. (2016) Deficit in digestive capabilities of bamboo shark early stages under climate change. *Marine Biology* 163:60. DOI: 10.1007/s00227-016-2840-z
3. **Guerreiro, M.**, Phillips, R. A., Cherel, Y., Ceia, F. R., Alvito, P., Rosa, R., Xavier, J. C. (2015) Habitat and trophic ecology of Southern Ocean cephalopods from stable isotope analyses. *Marine Ecological Progress series* 530: 119134. DOI: 10.3354/meps11266
2. Alvito, P.M., Rosa, R., Phillips, R. A., Cherel, Y., Ceia, F., **Guerreiro, M.**, Seco, J., Baeta, A., Vieira, R. P., Xavier, J. C. (2014). Cephalopods in the diet of nonbreeding black-browed and grey-headed albatrosses from South Georgia. *Polar Biology*. DOI: 10.1007/s00300-014-1626-3
1. Xavier, J. C., Barbosa, A. , Agusti, S., Alonso-Sez, L., Alvito, P., Ameneiro, J., Ávila, C., Baeta, A., Canário, J., Carmona, R., Catry, P., Ceia, F., Clark, M. S., Cristobo, F. J., Cruz, B., Duarte, C. M., Figuerola, B., Gili, J., Gonçalves, A. R., Gordillo, F. J.L., Granadeiro, J. P., **Guerreiro, M.**, Isla, E., Jiménez, C., López-González, P. J., Loureno, S., Marques, J. C., Moreira, E., Mota, A. M., Nogueira, M., Núñez-Pons, L., Orejas, C., Paiva, V. H., Palanques, A., Pearson, G. A., Pedrós-Alió, C., Cantero, Á. L. P., Power, D. M., Ramos, J. A., Rossi, S., Seco, J., Sañe, E., Serrão, E. A., Taboada, S., Tavares, S., Teixidó, N., Vaqué, D., Valente, T., Vázquez, E., Vieira, R. P., Viñegla, B. (2013). Polar marine biology science in Portugal and Spain: Recent advances and future perspectives. *Journal of Sea Research* 83: 9-29. DOI: 10.1016/j.seares.2013.05.013

Science Reports

Silva, A., Marques, V., Santos, A.M., Santos, A., Barra, J., Bento, T., **Guerreiro, M.**, Malta, T., Matos, A., Pereira, A., Rodríguez-Climent, S., Santos, C., Silva, A.V. (2014). IPMA Report, JUVESAR13 cruise report. Instituto Português do Mar e da Atmosfera, Lisboa, Portugal

Conference/Seminars and Workshops

- 2020** - Network analysis for marine ecologists using R (MNF-bioc-202). GEOMAR Kiel(May 6-20, 2020).(Participant).
- 2019** - Introductory course on Species distributions models: concepts, methods, applications, and challenges. Science Retreats and the Biodiversity Chair at the University of Évora, Portugal (18 to 24 November).(Participant).
- 2017** - Seminar Course on Bioinformatics for Metagenomics and Metatranscriptomics. Department für Mikrobiologie und Ökosystemforschung, Division für Computational Systems Biology, Universität Wien, Austria (6 to 10 of February). (Participant).
- 2016** - Workshop on “Programming 101”. Objectives: To learn theoretical and practical knowledge on the basics of programming and algorithms, while using the Python language. Department of Limnology and Bio-Oceanography at the University of Vienna, Austria (11 to 14 of July). (Lecturer).
- 2016** - Workshop on “Programming 101”. Objectives: To learn theoretical and practical knowledge on the basics of programming and algorithms, while using the Python language. Department of Limnology and Bio-Oceanography at the University of Vienna, Austria (1 to 5 of February). (Lecturer).

2014 - Marine Megafauna: An Introduction to Marine Science and Conservation (Coursera online course) (March to April). (Participant).

2014 - 8th Ornithology Congress of SPEA “VIII congress de Ornitologia da SPEA”. Fórum Municipal Romeu Correia, Almada, Portugal (1 to 4 of March). (Participant).

2013 - Data Analyzes in R (part of the Advanced Education Program of the Center of Oceanography). Center of Oceanography, Faculty of Sciences of the University of Lisbon, Portugal (7 to 10 of May). (Participant).

2012 - IV APECS PORTUGAL. Centro de Química Estrutural, Instituto Superior Técnico, Lisbon (18th October). (Participant).

2011 - SIBAE Training School on Stable Isotopes and Sampling Issues. Objectives: To acquire theoretical and practical knowledge on the use of stable isotopes in environmental and ecological studies. (Faculty of Sciences, University of Lisbon) (30 October to 6 November). (Participant).

2010 - APECS PORTUGAL. University of Coimbra, Portugal (19th March). (Participant).

2008 - 8th larval biology Symposium. Faculty of Sciences of the University of Lisbon, Portugal (6 to 11 of July). (Staff Support of the organizing committee).

Thesis

Guerreiro, M. (2017). Microbial structure and nitrite reducing communities across the Atlantic Ocean. Thesis for MSc in Bioinformatics and Computational Biology, University of Lisbon, Portugal.

Guerreiro, M. (2012). Cephalopod Fauna in the Southern Ocean using the diet of wandering albatrosses *Diomedea exulans*: a stable isotopes approach. Thesis for MSc in Marine Ecology, University of Lisbon, Portugal.

Member of Research Organizations

Member of the Deep Sea Biology Society (DSBS; 2021-present)

Member of the Portuguese Society for the Study of Birds (SPEA; 2014)

Member of the association of Polar Early Career Scientists (APECS; 2010-present)

Referee for the following scientific journals:

Marine Ecological Progress Series

Marine Biology

Scientific Reports

Fisheries Research

Regional Studies in Marine Science

Awards

2019 - Doctoral grant supported by the Portuguese Foundation for Science and Technology (SFRH/BD/148070/2019)

2011 - Travel and Accommodation grant for the course “SIBAE Training School on Stable Isotopes and Sampling Issues” COST Action ES0806 SIBAE, financed by COST and European Science Foundation (ESF) (750 euros)

2011 - Mobility grant for early career polar scientists from the bank “Caixa Geral de Depósitos” (800 euros; José Xavier as supervisor)

2007 - Winner of the Portuguese international polar year committee contest “Latitude 60!”.

Other Activities

November 2013-September 2014 - Assistant at the National Museum of natural history and science (MUHNAC) of Lisbon, at the marine invertebrates collection (November 2013 to present), working in the renewal of the labelling and conservation medium of the specimens, as well as cataloging new collection specimens entering the museum.

2013 - Work at Desertas islands Natural Reserve (from 20th June to 5th July), in the assistance of the Forest Rangers in monitoring and surveying, maintenance of the local biodiversity and registering local fauna and flora for research purposes.

2008 - Visit to Tarifa (Spain) for In-Situ observation of cetaceans with *Escola de Mar*. (participant)

Media and Other Publications (Science Related)

6. **Guerreiro, M.**, Alves, M., Martins, M. (2008). Interviews to national magazine *Visão Júnior*, and regional magazine *Almada Informa* on the Antarctic Educational trip of 2007/2008.
5. **Guerreiro, M.** (2008). “Madrugada de ansiedade - Uma aventura na Antártida” article in @a um passo de alcançar a latitude 60! Blog.
4. **Guerreiro, M.**, Alves, M. (2008). Radio interviews to the national radio stations *Antena 3* (1) and TSF (1).
3. **Guerreiro, M.**, Alves, M., Martins, M. (2008). TV interviews to national TV station RTP 1 (1).
2. **Guerreiro, M.**, Alves, M., Martins, M. (2007). TV interviews to national TV station LIVE EARTH show (RTP 1).
1. **Guerreiro, M.**, Alves, M., Martins, M. (2007). Radio interviews to the national radio station *Antena 1* (1).

Computer Skills

Trained in using tools for Remote sensing (IDRISI), Geographical Information Systems (ESRI, ArcGIS, IDRISI), Image processing and Analysis (ImageJ), statistics (SPSS, STATISTICA), as well as Microsoft Office (Word, Excell, Power-Point).

Experienced with L^AT_EX (document preparation system), QGIS (Geographical Information Systems), GIMP (raster graphics editor) and DaVinci Resolve (video editor).

Proficient in programming languages (**Python** [>15000 lines], **R** [>1500 lines], **MATLAB** [~500 lines] and **SQL**).

Languages

Mother language: **Portuguese**

Other languages:

English

IELTS Certificate: Overall Band 7.5

Listening 7.0 Reading 8.0 Writing 7.0 Speaking 8.0

German

Certificate: A1

Spanish

Self-assessment (European level): B2

Hobbies and Interests

Physical programming, Free-diving, Scuba-diving, Snorkeling, Fishkeeping, Hiking, Geocaching, Photography, Kayaking, Sailing, Yatching, Standup Paddleboarding.