iAtlantic - Integrated Assessement Atlantic Marine Ecosystems in Space and Time: an all-Atlantic scientific research experience

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Área: Pesquisa

iAtlantic is an EU-funded research project set to assess the health of deep-sea and open-ocean ecosystems across the Atlantic Ocean. The project was executed between 2019 and 2024 under the coordination of the University of Edinburgh (Scotland, UK). UNIVALI was one of 38 partner organizations from the EU, Iceland, Canada, EUA, South Africa, Brazil and Argentina. Jose Angel Perez (Polytechnic School - UNIVALI) was a member of the project Steering Committee, and responsible for coordination iAtlantic activities in the Southwest Atlantic. Throughout the 5-year project, researchers in the Laboratory of Marine Applied Research (LEMA – UNIVALI) were involved in different activities, including capacity building, research and Atlantic conservation science-policy debate. UNIVALI's post-graduate students were engaged in training courses offered for students all around the Atlantic Ocean focused on: cold-water coral taxonomy (Federal University of Santa Catarina, Brazil, student: Thaise Fonseca), multivariate statistics applied to time series analysis (University of Montreal, Canada – student: Rodrigo Sant'Ana), Systematic Conservation Planning techniques (University of Cape Town, South Africa, student: Julia Alves Costa) and the development of a low-cost deep-sea drift camera system ('Azors Drift Cam' – University of Azores, Portugal, student: Lucas Gavazzoni). Research activities concentrated in two main topics: mapping deep-sea habitats of the Southwest Atlantic and the effect climate change on marine ecosystems. The former activities were conducted in association with research groups and students in the UK, Germany and Portugal and involved the analysis of large-scale bathymetric maps and water columns properties to describe potential deep-sea habitats and estimate suitable habitats of deep sea species, including commercial fish and crustaceans, as well as cold-water corals. This work supported the development of one graduate dissertation (Oceanography course - Lucas Gavazzoni) and on doctorate thesis (Environmental Sciences and Technology - Rodrigo Sant'Ana). The latter also comprised most of the research focusing on climate change effects, which included predicting deep-sea species distribution under future environmental scenarios, and demonstrating climate change-induced 'tropicalization' of marine fisheries off southern Brazil. This study granted a publication in the high-impact journal Communication Earth and Environment (Nature portfolio), winning one of iAtlantic's best publication award in 2023. Ocean tropicalization studies were conducted in association with research groups and students in Scotland, France, Canada and Iceland, and has motivated and supported other two on-going doctorate thesis in UNIVALI's Environmental Sciences and Technology program (Daniel Tha and Natali Piccolo) that focus on economic, nutritional and management consequences of 'tropicalization' of marine fisheries in Santa Catarina. In 2022, UNIVALI led an oceanic expedition on board research vessel 'Vital de Oliveira' (Brazilian Navy) to

describe deep sea habitats of Santos Basin. This 17-day expedition was operated by an iAtlantic research team formed by graduate, post-graduate students and post-doctorates from UNIVALI, Federal University of Santa Catarina (UFSC), Federal University of Espírito Santo (UFES) and University of São Paulo (IOUSP). Lastly research outcomes were part of policy debates all around the Atlantic, including UN Decade of Oceans Science for Sustainable Development, UN Agreement on Marine Biodiversity of Areas beyond National Jurisdiction, the Mining Code –Draft Exploitation Regulations (International Seabed Authority) and others. In summary, iAtlantic was a unique opportunity to align scientific research at UNIVALI with international standards and globally-relevant science. It benefitted UNIVALI's graduate and post-graduate students enabling an invaluable interaction with students of different countries around the Atlantic Ocean. These benefits will continue in the years to come, as much of the scientific work is still being developed at UNIVALI and new opportunities can emerge from the established international scientific network.

Palavras-chave: Deep-sea ecosystems; Southwest Atlantic; Climate changes

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