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PROMOTING BLUE ECONOMY: TOWARDS A SUSTAINABLE AQUACULTURE PRODUCTION AND CONSUMPTION IN THE ATLANTIC

N. Ospina-Alvarez*, T. Li Chen and P. Silva

AIR Centre - Atlantic International Research Centre. 9700-702 Terceira Island, Azores (Portugal)

E-mail: natalia.ospina@aircentre.org

The AIR Centre

The Atlantic International Research Centre (AIR Centre) is an international collaborative organisation that promotes an integrative approach to space, climate, ocean, and energy in the Atlantic, supported by emerging technological innovations and advances in data science, and through South-North and North-South cooperation.

The AIR Centre is based in Portugal, with headquarters in Terceira Island, Azores, and facilities in Lisbon, and is the outcome of a long process of scientific diplomacy called Atlantic Interactions, which is an ongoing intergovernmental initiative to unleash the full potential of the Atlantic Ocean for society. These diplomatic discussions resulted in an international collaborative scientific agenda for space, climate, energy, and ocean sciences in the Atlantic that started in 2012.

Promoting Blue Economy: The AIR Centre contribution to sustainable aquaculture for food security and ocean conservation

The AIR Centre thematic missions provide a clear orientation to foster knowledge-driven economic development in the Atlantic region and among them, the AIR Centre identifies, provides, and promotes activities, projects, and programs to look beyond their internal resources to develop new products, services, and financial frameworks in alignment with the Sustainable Development Goals (SDGs).

These thematic missions are:

- Clean and productive bays and estuaries.
- Resilience to coastal natural hazards.
- Sustainable food production.
- Improved management of marine and coastal resources.
- Improved environmental and maritime monitoring.

Within this framework, the AIR Centre, fosters through different projects the Blue Farming concept, as a low carbon source of food and feed and a sustainable food system.

Leading, co-leading and being part of those projects, the AIR Centre promotes the ‘*Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021-2030*’ of the European Commission and contributes specifically to the SDGs 1 (No poverty), 2 (Zero Hunger), 3 (Good health and wellbeing), 12 (Responsible consumption and production), 13 (Climate action) and 14 (Life below water).

ASTRAL Project

All Atlantic Ocean Sustainable, Profitable and Resilient Aquaculture



ASTRAL focuses on integrated multi-trophic aquaculture (IMTA) farming, aiming to define, support, and promote this type of sustainable aquaculture production across the Atlantic area. IMTA is the farming of species from different trophic levels in a way that allows one species' uneaten feed and wastes to be used as inputs (fertilisers and feed) for another species.

ASTRAL goals include the increase of circularity and the achievement of zero-waste aquaculture systems, as well as the creation of appropriate business models to increase profitability. Potential climate risks and emerging pollutant (microplastics, harmful algae blooms, pathogens) will be assessed, together with the development of innovative technology (specific sensors and biosensors, IoT and AI data analytics), with the final aim to provide monitoring recommendations to policy makers. Sharing knowledge and capacity development are among ASTRAL priorities, to build a collaborative ecosystem along the Atlantic Ocean with industrial partners, SMEs, scientists, policy makers, social representatives, and other relevant stakeholders.

ASTRAL is a HORIZON 2020 project (GA 863034) financed under the Blue Growth programme. Further information: www.astral-project.eu/

CE2COAST Project

Downscaling Climate and Ocean Change: Thresholds and Opportunities



CE2COAST aims to provide 'Climate Services Innovation' in the form of a new way of exploiting observations and modelling tools to deliver climate information (e.g. temporal changes, seasonal differences, time of emergence of the ocean change signals). One of the objectives of the project is to investigate the added value of improved downscaled projections for determining future pressure (stressor) changes relevant to key ocean services, such as aquaculture.

Aquaculture is vulnerable to climate change including warming, acidification, changes in rainfall patterns, sea level rise, and deoxygenation. Changes in these ocean pressures can result in serious reduction in productivity. The climatic information provided by CE2COAST will give maximal support to decision-making towards creating adaptation and mitigation plans to aid fish producers and aquaculture farmers to adapt and / or reduce the impact of climate change and extreme climatic events in their production.

CE2COAST is a JPI Climate and JPI Oceans project supported under the 2019 'Joint Transnational Call on Next Generation Climate Science in Europe for Oceans'. Further information: www.ce2coast.com/

Açores IntAIRsect Project

Internationalization of the AIR Centre within the scope of the Azores sectorial challenges



Açores IntAIRsect intends to promote all the scientific potential of the Azores within the international scientific community. The main goal is to strengthen relations between entities and countries and leverage scientific projects of international collaboration, with European, African and American partners.

Açores IntAIRsect will focus on 6 thematic areas, including Marine Resources and Biodiversity. The aim of this thematic area, is to promote the development of projects related to the sustainability of marine resources, including the development of sustainable fisheries and fishing communities, increase the value of fisheries products, and sustainable aquaculture. These projects will focus on addressing and finding solutions for challenges that affect the Azores and/or the Atlantic region.

Açores IntAIRsect is a Açores 2020 project (ACORES-01-0145-FEDER-000138) is co-financed by European Regional Development Fund (FEDER) under Operational Program Azores 2020. Further information: <https://www.aircentre.org/projects/acoes-intairsect/>

NEXTOCEAN

Next Generation of Fishing and Aquaculture Services



NextOcean aims to develop a set of operational Earth Observation based services in Sustainable Fishing and Aquaculture under a common service delivery platform, leveraging on Copernicus data and products and complemented by the assimilation of other sources of data including in-situ.

The project includes use cases that shall consider monitoring aquaculture sites and their impacts, allowing to understand their environmental impact and for risk assessments. Examples of this are detection of ocean color around productions sites, analyses currents before settling sites, and model disease risk. Support to decision making such as need to apply pharmaceuticals, delay restocking, anticipate harvesting, or physically move cages are all dependent on the spatial dispersion patterns of pathogens that often follow currents.

NEXTOCEAN is an Innovation Action from H2020 under the frame of H2020-SPACE-2018-2020 topic DT-SPACE-01-EO-2018-2020 with the Grant Agreement n° 101004362.

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