

2B-BLUE

Boosting the Blue
Biotechnology community
in the Mediterranean

Catalogue of blue biotechnology
demonstration sites



2B-BLUE

Interreg
Euro-MED



Co-funded by
the European Union

Introduction of 2B-BLUE project

Human health, food and energy security, and environmental sustainability are challenges that require innovative solutions. Many of these can be found in the study and exploitation of marine and freshwater resources, also known as Blue Biotechnologies. However, their development in Europe is still in its infancy. 2B-BLUE will foster them by establishing 5 interactive Blue Biotechnology Hubs (BBHubs) that will facilitate collaboration, know-how transfer and innovation. These will integrate partners across the Mediterranean in the areas of research, industry, governance, civil society, and the environment. 2B-BLUE supports public-private cooperation, training, and scientific activities that will continue after the project's end.



Check out our site



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Demonstration sites

2B-BLUE Demonstration Sites (DS) are specific tools of the BBHubs for scaling up technological solutions, support innovation and business development in the Mediterranean blue economy, and ensure cross-regional cooperation, stakeholder engagement, and knowledge transfer. DS in the 2B-BLUE project are defined as designated areas where innovative BBT solutions, practices, and technologies are tested, validated, and showcased under real-life conditions.

These sites serve both as an extension tool and as a crucial bridge between research and commercial application of new technologies, facilitating the adaptation and evaluation of innovations under local field conditions at commercial scale. They provide the opportunity to conduct short-term, small-scale, pilot experiments to collect data and identify potential challenges. This process allows stakeholders to evaluate and assess the feasibility, efficiency, and effectiveness of new or innovative technologies and practices.



2B-BLUE partner

Albanian Center for Environmental Protection and Sustainable Development (ACEPSD)

Location: Tirana, Albania
Type of activity: Research and innovation
Website: <https://webapp.recufe.com/acepsd/about.php>

Private partner

Alb-Adriatico 2013

Location: Vlore, Albania
Website: www.albadriatico.al
Type of commercial activity: Marine aquaculture farming and seafood commercialization



Did you know?

All photos credits: ACEPSD

The region of Vlora owns 85% of marine fish farms in Albania, while the remaining marine fish farms are located in Saranda and Shengjin region. In Vlora and Saranda region there are present fish fattening units of marine fish species (gilthead seabream and European seabass). Mussel farming activity is exclusively localised in Saranda and Shengjin regions, respectively.

https://ec.europa.eu/regional_policy/rest/cms/upload/20092019_105738_euregionsweek_2019_R%20Bakiu.pdf

IMTA for Sustainable Aquaculture and By-Product valorization



DEMONSTRATION SITE AIMS

The Albanian DS focuses on strengthening sustainable aquaculture value chains through the development and implementation of Integrated Multitrophic Aquaculture (IMTA) systems in the Bay of Vlora. By integrating species from different trophic levels (more specifically: gilthead seabream, European seabass, mussels, oysters and sea cucumber) the DS promotes nutrient

recycling, reduces environmental impact, and improves water quality. This approach enhances the aquaculture products value chain by transforming waste into valuable biomass, supporting the production of high-value products for food, feed, and other bio-based sectors. Actually, ACEPSD has established two DS in the Alb-Adriatico 2013 farm.

2B-BLUE partner

French Research Institute for the Exploitation of the Sea (IFREMER)

Location: La Seyne-Sur-Mer, France
Type of activity: Research and innovation
Website: www.ifremer.fr

france

Public partner

Pôle Mer Méditerranée (PMM-TVT)

Location: Ollioules, France
Type of activity: Research and innovation
Website: polemermediterranee.com

Private partner 1

DareWin Evolution

Location: Villefranche-sur-Mer, France
Website: www.darewinevolution.com
Type of commercial activity: Blue biotechnologies



Private partner 2

DIAG4ZOO

Location: Grabels, France
Website: www.diag4zoo.com
Type of commercial activity: Blue biotechnologies



Private partner 3

Greensea

Location: Mèze, France
Website: www.greensea-all.com
Type of commercial activity: Blue biotechnologies and aquaculture



Did you know?

According to recent statistics, France is the second biggest producer of aquaculture in the EU, with a share of 17.2%. According to data released by EUMOFA (2022), in 2019, 80% of the French production occurred in marine waters, while the remaining 20% in freshwater.

<https://ec.europa.eu/newsroom/cinea/items/812606/en>

Private partner 4

Insitu-o / Adict Solutions



Location: Auzeville-Tolosane, France
Website: www.insitu-o.fr
Type of commercial activity: Blue biotechnologies

Private partner 5

POLYCHAETA



Location: Marseille, France
Website: www.polychaeta.net
Type of commercial activity: Aquaculture

DEMONSTRATION SITE AIMS

The objective of the French Hub is to support SMEs in the blue biotechnology and aquaculture fields. Pôle Mer Méditerranée implements support mechanisms adapted to the needs of companies specialized in various markets, such as in nutrition, pharmaceutical and innovative aquaculture (IMTA) sectors.

The identification of opportunities for public and private collab-

oration is proposed. The aim is to develop innovative solutions by accessing research structures specialised in blue biotechnologies and promote networking. The French partner offers the identification of regional, national and European funding opportunities. This support mechanism involves funding monitoring, identifying partners and support the preparation of applications.

2B-BLUE partner

Hellenic Centre for Marine Research (HCMR)

Location: Attiki, Greece
Type of activity: Research and innovation
Website: <https://www.hcmr.gr/en/>

Public partner

International Hellenic University

Location: Thessaloniki, Greece
Type of activity: Academia and research
Website: <https://www.ihu.gr/en/enhome>



INTERNATIONAL
HELLENIC
UNIVERSITY

Private partner

“Mydia O Spyros”

Location: Chalastra, Thessaloniki, Greece
Website: www.midia.gr
Type of commercial activity: Mussel production



Did you know?

All photos credits: HCMR

According to Eurostat, in 2022, 98% of Greek production occurred in sea and brackish waters (almost entirely in marine waters) and the rest in freshwater. The main production method used was cages, in sea water.

Greece is ranked fourth among the EU countries in terms of mussel production.

<https://greekreporter.com/2023/11/14/mussels-from-greece-conquer-european-markets/>

Integrated Mussel–Holothurian Farming in Greece: A Nature-Based Approach for Sediment Bioremediation and Biomass Yield



DEMONSTRATION SITE AIMS

The DS aims to evaluate the feasibility and effectiveness of integrating native sea cucumbers (*Holothuria tubulosa* and *H. mammata*) beneath mussel farms as a nature-based solution for remediating organically enriched sediments. Situated in the NW Thermaikos Gulf, the pilot system mimics natural seabed conditions using a stainless-steel farming frame and sediment-filled baskets, allowing for controlled monitoring of sediment quality, holothurian growth, and survival. This integrated multi-trophic

aquaculture (IMTA) approach seeks to enhance the ecological sustainability of mussel farming by promoting nutrient recycling, improving sediment quality, and reducing the environmental footprint of aquaculture. The site also serves as a proof-of-concept for low-cost, scalable habitat restoration, supporting the development of monitoring protocols, fostering stakeholder engagement, and informing broader adoption of IMTA practices across Mediterranean aquaculture zones.

2B-BLUE partner

National Research Council of Italy (CNR)

Location: Italy
Type of activity: Research and innovation
Website: www.cnr.it

Private partner

Not yet selected.

Location: Italy
Website: /
Type of commercial activity: Aquaculture





Photo credits: Grazia Quero, IRBIM, CNR

DEMONSTRATION SITE AIMS

The research unit will develop and scale up an Integrated Multi-Trophic Aquaculture system in the Mediterranean. The private partner will integrate bivalve, fish and macroalgae aquaculture to reduce nutrient pollution and improve water quality. CNR will assess economic, environmental and social impacts, and translate the outcomes into new business models and policy recommendations, fostering innovation uptake.

2B-BLUE partner

The National Institute of Biology (NIB)

Location: Ljubljana & Piran, Slovenia
Type of activity: Research and innovation
Website: www.nib.si

Private partner 1

AlgEn d.o.o.

Location: Ljubljana, Slovenia
Website: www.algen.eu
Type of commercial activity: Biotechnology



DEMONSTRATION SITE AIMS

The DS will upscale microalgae cultivation to extract high-value compounds for cosmetic applications. AlgEn will optimize biomass production in large-scale bioreactors, while NIB will valorize the biomass by extracting valuable biocompounds and conducting safety, purity and utility tests.



Photo credits: EkoJanez

Did you know?

Rich in antioxidants, vitamins and essential fatty acids, microalgae have proven indispensable for skin health, promoting hydration, rejuvenation and protection from environmental stress. Their ability to be harvested sustainably and without animal testing solidifies their position as premium ingredients in vegan cosmetics.

<https://subitec.com/en/industries/cosmetics/>

Private partner 2

MYTILUS - Ribištvo školjkarstvo Mitja Petrič s.p.

Location: Izola, Slovenia
Website: www.uzivajlokalno.si/ponudba/skoljkarstvo-mytilus/
Type of commercial activity: Collection and cultivation of mussels (mariculture)

DEMONSTRATION SITE AIMS

The DS will assess the feasibility of cultivating sea cucumbers in controlled environments in the Gulf of Trieste, focusing on sea-bottom farming. It will monitor sea cucumber adaptability, growth, and ecological interactions, while also exploring potential applications of sea cucumber compounds in medicine, pharmaceuticals, and sustainable biomaterials.

Private partner 3

Okus morja, Prosub d.o.o.

Location: Izola, Slovenia
Website: www.skoljke.si
Type of commercial activity: Collection and cultivation of mussels (mariculture)

DEMONSTRATION SITE AIMS



Photo credits: Prosub

The DS will collect aquaculture and fishery by-products such as fish skin, shells, and crustacean exoskeletons, ensuring proper storage and transport. It will extract and analyze biopolymers like collagen and chitin for biomedical and cosmetic uses, assess scalability, and conduct pilot trials to optimize production for sustainable commercial application.

2B-BLUE partner

University of Murcia (UMU)

Location: Murcia, Spain
Type of activity: Academia and research
Website: www.um.es

Private partner

Mediterranean Algae



Location: Alicante, Spain
Website: www.mediterraneanalgae.com
Type of commercial activity: Biotechnology



Did you know?

Photo credits: Mediterranean Algae

Macroalgae production is still mainly dependent on harvesting from wild stocks (68% of the macroalgae producing units) but macroalgae aquaculture (land-based and at sea) is developing in several countries in Europe and currently represents 32% of the macroalgae production units. France, Ireland, and Spain are the top 3 countries in number of macroalgae production units.

https://maritime-forum.ec.europa.eu/contents/map-week-macroalgae-and-microalgae-production-facilities_en

Bioremediation of port waters through the cultivation of macroalgae



Photo credits: Amelia Canovas Muñoz
and Mediterranean Algae

DEMONSTRATION SITE AIMS

The Spanish DS investigates the integration of macroalgae cultivation for bioremediation of water quality in port areas, with a block-chain-enabled carbon footprint tokenization system. Mediterranean Algae provides the scientific and technical expertise, designing the bioremediation system and selecting suitable macroalgal species based on their nutrient uptake efficiency and environmental resilience.

UMU manages data collection through IoT sensors to track nutrient removal and system efficiency. It also oversees carbon tokenization by modelling CO₂ uptake and integrating results into a blockchain. The DS aims to support the circular economy, and establish a scalable, algae-driven bioremediation business model with potential for replication in ports, in aquaculture, desalination, and wastewater treatment.



Photo credits first page: Prosub and Mitja Petrič
Photo credits last page: HCMR, Mitja Petrič and Prosub



Albanian Center for
Environmental Protection and
Sustainable Development



ALBANIAN
DEVELOPMENT FUND



INSTITUTE OF OCEANOGRAPHY



CNR
IRBIM
ISTITUTO PER LE
RISORSE BIOLOGICHE
E LE BIOTECNOLOGIE
MARINE



Italian National Agency for New Technologies,
Energy and Sustainable Economic Development



NACIONALNI INSTITUT ZA BIOLOGIJU
NATIONAL INSTITUTE OF BIOLOGY



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