

Creating Blue Innovation Ecosystems

The Case of Greece

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Managing Director, STRATEGIS - Maritime Center of Excellence

“The Blue Circular Bioeconomy in the Mediterranean” Rimini, Italy Nov. 10, 2022



**8-11
NOVEMBER
2022**
RIMINI EXPO
CENTRE
ITALY



Outline

Creating Blue Innovation Ecosystems

- **Networks of Innovation**
 - STRATEGIS Maritime ICT Cluster, Piraeus
- **Blue Economy - the freshwater case**
 - A Pillar of Growth for freshwater basins in the Balkans
- **The Financing of Sustainable Growth**
 - EU Green Deal (EGD) & “Restore our Ocean & Waters by 2030” Mission



STRATEGIS Maritime Center Of Excellence

STRATEGIS Maritime ICT Cluster

A Catalyst of Regional Blue Growth

MISSION

To offer 21st century maritime services & synergies for growth enabling Smart Sea – sustainable business opportunities in the greater SEE region

21st Century Services & Synergies for Growth

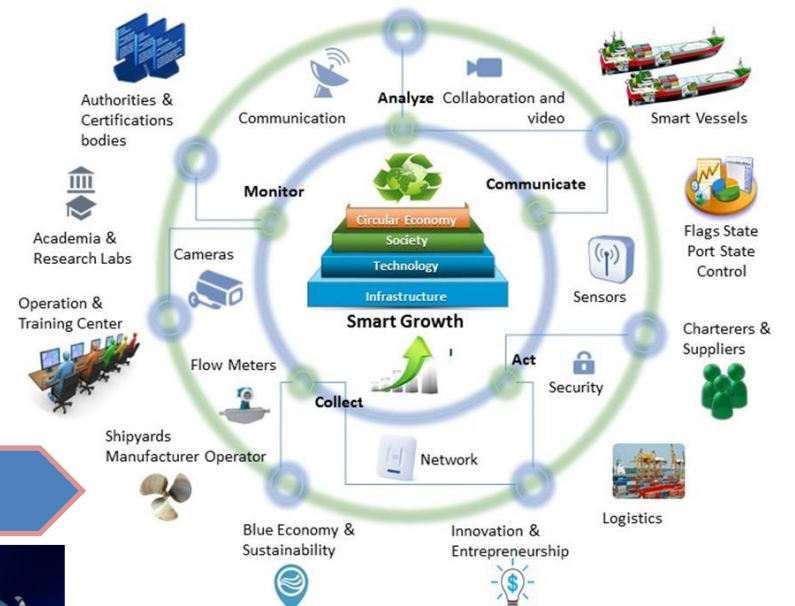
- R&D in Digital Shipping
- Strategy Consulting
- Commercialization of Emerging Technologies
- Education & Training
- Networks of Innovation

Established, Feb. 2016
www.strategis-cluster.net

STRATEGIS Maritime ICT Cluster

Contributing to Piraeus Maritime Cluster & Blue-Growth Digital Innovation Hub (BG-DIH)

MARITIME DIGITALIZATION



Knowledge

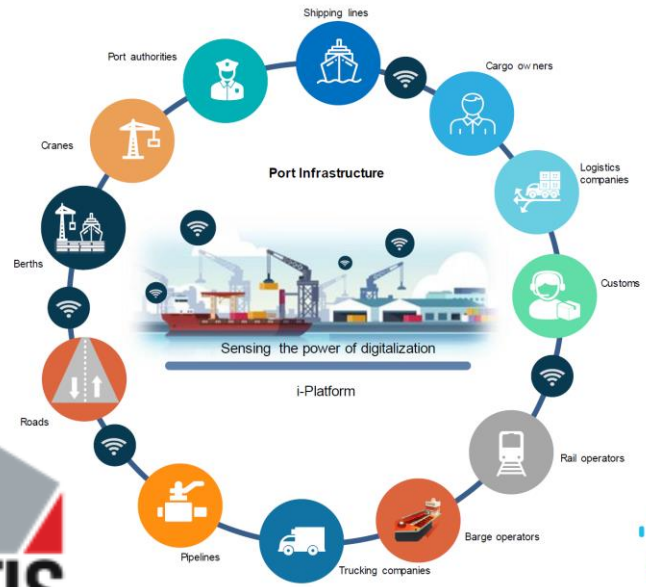




RTD to Commercialization

FIWARE
IMPACT STORIES

BLUE ECONOMY AND SMART CITIES
Reshaping the future of Marinas with Smart Technologies Sammyacht.com



Sensing the power of digitalization



LYNCEUS
People Localization for Safe Ship Evacuation during Emergency

CISCO PARTNER
Gold Certified

MARITIME TRAINING CENTER
GMC MARITIME SERVICES
FURUNO NavSkills Training Center
ABS Quality Approved
IOMG
tm
NAVIS



Openichnos

info@openichnos.com +30 2810 21111 Openichnos Yacht Tracker openichnos.com

FEAC
EXCELLENCE THROUGH ENGINEERING SIMULATION

Posidonia
The International Shipping Exhibition
6-10 June 2016
BOOTH No. 3235

IDE INTRACOM
Defense Electronics

NEREUS

Nereus builds a compact autonomous platform for multiple water applications. Our mission is to build autonomous vessels in order to make marine operations more efficient and safe than ever before.

Fostering a Regional Entrepreneurial Ecosystem

- Aephoria.net & BlueGrowth Piraeus
- Municipality of Piraeus
 - Business Plan Competitions
 - Hackathons
 - Incubators
 - Startups



<http://bluegrowth.gr/>

AQUASERVE™

“Cloud-based water surveillance service with integrated innovative space-borne, air-borne and water-borne sensing technologies & predictive analytics”



TECHNOSCAPE
Strategy & Technology P.C.

TECHNOSCAPE Strategy & Technology P.C.
Member of STRATEGIS Maritime ICT Cluster



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Water Pollution - Impact on Society & Environment

Harmful Algal Bloom (HAB)
\$2.2 billion annually
cost to the US

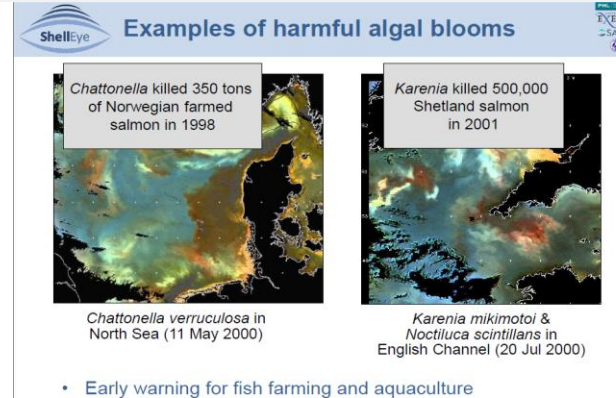
Eutrophication
90% of Germany's
rivers fail EU standards
due to high nutrient

Lake Erie Algae
2014 - 400,000 ppl no
water for days.
Cost **\$272 million** p.a.

Climate Change
Water Scarcity
Flooding, Coastal
Erosion

Eutrophication is a global environmental problem of undesirable algae increase caused by high nutrient levels in water (nitrogen, phosphorus, etc)

- Fertilizer runoffs, septic system effluents, & atmospheric fallout caused by burning fossil fuels are the main reasons to cause eutrophication, an issue **exacerbated by climate change**



SHELLEYE - "Satellite-based monitoring of harmful algal blooms & water quality for aquaculture farms", 2018, P. Miller, PML



Botswana wildlife officials say toxic algae in large rain puddles in the Okavango Delta are to blame for the hundreds of mysterious elephant deaths in recent months. National Park Service, via Agence France Presse. © Getty Images

"Botswana - **toxic algae** in large rain puddles in the **Okavango Delta** are to blame for the **hundreds of mysterious elephant deaths** in recent months.", Rachel Nuwer, NY Times, Sep. 23, 2020

"Lake Erie Algae: 2019 was bad but could have been worse", Great Lakes Now, Jan. 10, 2020

Water quality monitoring is a prerequisite for diagnosing climate impacts on natural or agricultural systems

AQUASERVE Cloud-based Water Surveillance System with Innovative Sensing Technologies & Data Analytics

AQUASERVE Concept Diagram

PARTNERSHIP



TECHNOCAPE Strategy & Technology P.C.



SILVER-DOT Technology & Services Ltd.



Airborne Underwater Geophysical Signals
HELLAS
AUG Signals HELLAS



Satellite

Global Observations, Long history of Earth Observations,

Aerial Drones

Flexible, Multispectral, high-res, 24/7, all-weather, large-scale measurements

In-situ Devices

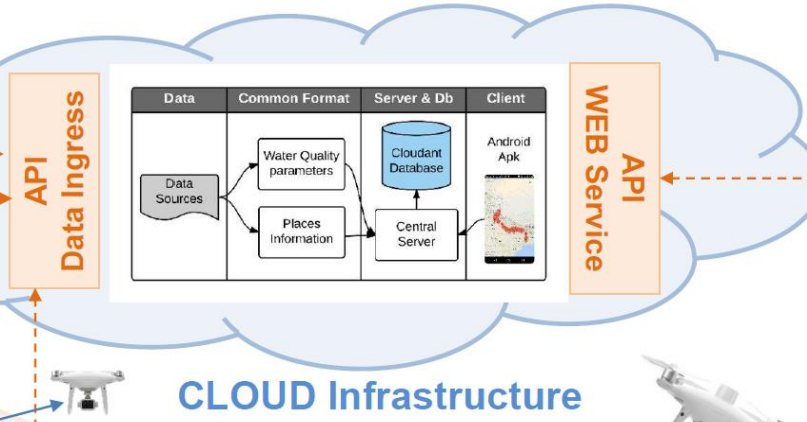
Real-time, continuous, high-accuracy measurements



UAV Operations Centre (UOC)



SENSING Infrastructure



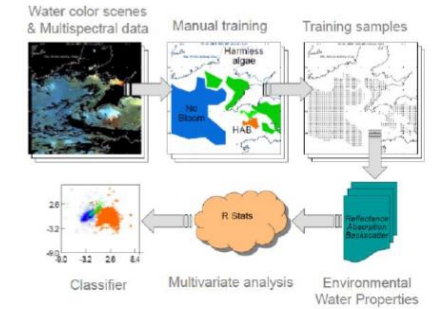
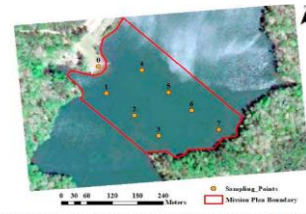
CLOUD Infrastructure



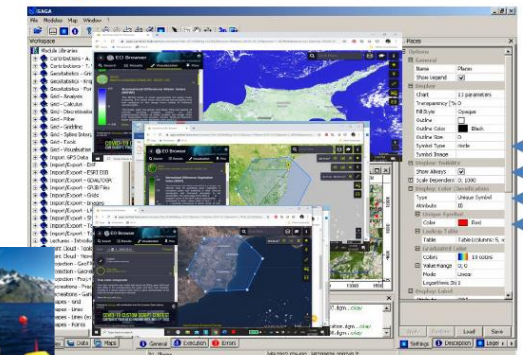
Drone sampling pattern

TESTING SITE

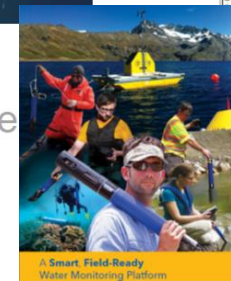
Smart Comprehensive Water Surveillance



CASE STUDY: HAB Harmful Algal Bloom



WEB SERVICE



A Smart Field-Ready Water Monitoring Platform



Strategic Partnerships/Collaborations

- Maritime Surveillance
 - [PROTeus](#) project & Cluster
- Blue Energy
 - [PELAGOS](#) Cluster Affiliation
- Blue Biotechnology
 - MoU with [BIONIAN](#) Cluster (July 4, 2017)
- Defence & Dual-Use Technologies
 - MoU with [AUG Signals Hellas](#) (Feb. 22, 2019)
- Marine & Maritime
 - MoU with [MARE Technology Cluster](#), FVG (Feb. 19, 2021)
- Blue Technologies
 - MoU with [Blue Italian Growth TC](#) (BiG Cluster) (Sep. 28, 2021)



MedBAN - Memorandum of Understanding

MedBAN MoU [July 6, 2022]
@ Federazione Del Mare, Rome

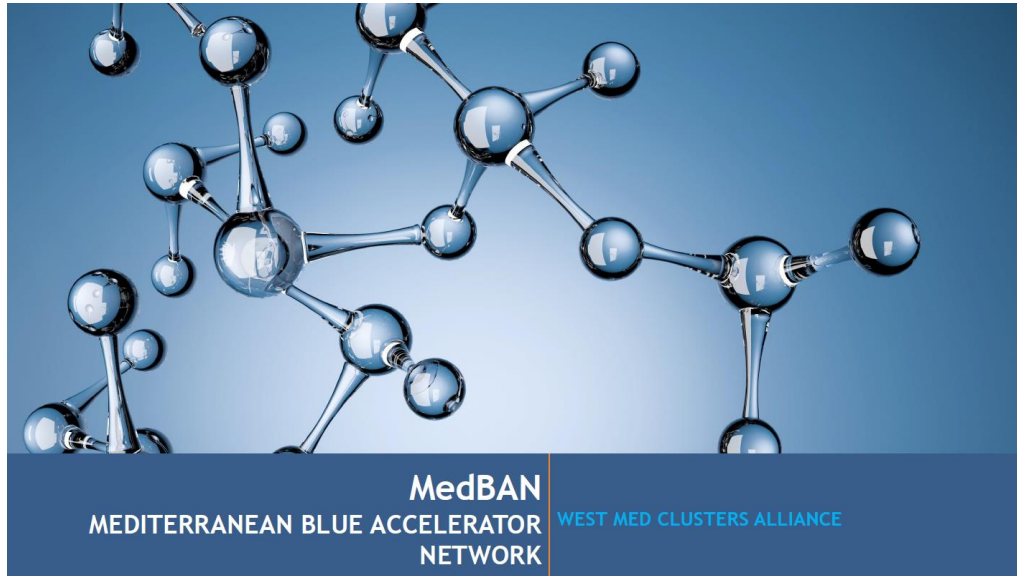


On July 6, 2022, in Rome, an MoU for the establishment of the “MEDBAN - Mediterranean Blue Acceleration Network” was signed by a consortium of six clusters:

[Fórum Oceano](#) (leader),
[Federazione del Mare](#),
[Cluster BIG - Blue Italian Growth](#),
[Pôle Mer Méditerranée](#),
[CMIB Cluster Marítimo Illes Balears](#),
[Strategis - Maritime ICT Cluster](#),

- The MOU signing ceremony was honored with the presence of representatives of the embassies of Portugal and Spain, as well as representatives of the Council of Ministers of the Italian government
- The event took place at the impressive facilities of Confitarma (Italian Shipowners’ Association) & Federazione Del Mare in Rome

The MedBAN EUROCLUSTERS Project



- MedBAN - Mediterranean Blue Accelerator Network #101074763
- SMP - Single Market Programme
- SMP-COSME-2021-CLUSTER-01 Joint Cluster Initiatives (EUROCLUSTERS) for Europe's recovery

MedBAN – Main data

Name:	MedBAN - Mediterranean Blue Acceleration Network	
Programme:	Single Market Programme	
Call:	Joint Cluster Initiatives (EUROCLUSTERS) for Europe's recovery (SMP-COSME-2021-CLUSTER)	
Duration:	24 months	
Consortium:	FO MAG BiG PMM-TVT STR CMIB FdM	Fórum Oceano (PT) Magellan (PT) Cluster Tecnológico Nazionale Blue Italian Growth (IT) Toulon Var Technologies (FR) STRATEGIS – Maritime Center of Excellence (EL) Cluster Marítimo de las Illes Balears (ES) Federazione del Sistema Marittimo Italiano (IT)

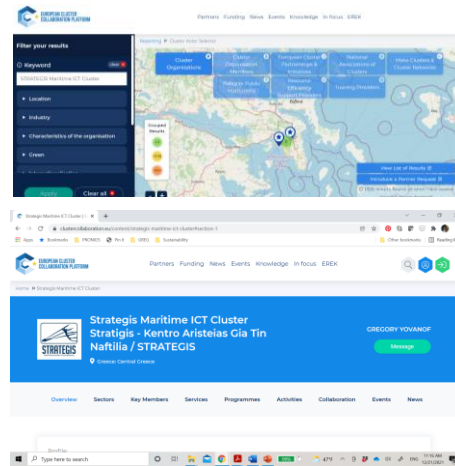
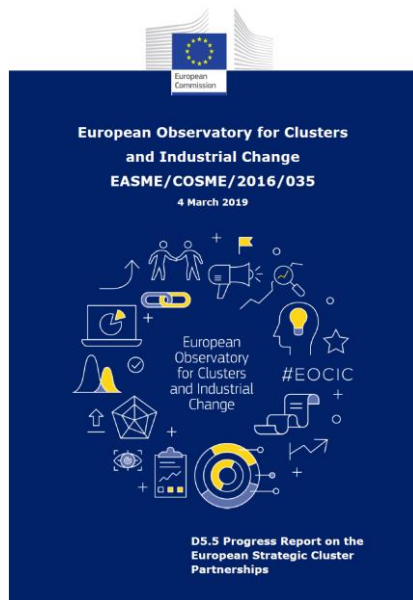
MedBAN - Consortium

 <ul style="list-style-type: none"> • Fórum Oceano (Leader) 	
 <ul style="list-style-type: none"> • Federazione Del Mare • Blue Italian Growth Technology Cluster 	
 <ul style="list-style-type: none"> • Pôle Mer Méditerranée • Cluster Marítimo de Baleares • Strategis Maritime ICT Cluster 	

EU Cluster Collaboration Platform



- [Nov. 2021] STRATEGIS was officially listed on the ECCP Platform
 - <https://clustercollaboration.eu/content/strategis-maritime-ict-cluster>
- It was included in the “European Cluster Panorama 2021”
 - <https://clustercollaboration.eu/knowledge-sharing/publications/european-cluster-panorama>
 - <https://strategis-cluster.net/2022/01/17/strategis-is-part-of-the-eccp-cluster-panorama-2021/>



<https://www.clustercollaboration.eu/cluster-organisations/>



Research Projects

- [MaQuaM](#), “International Qualification on Marine and Tourism for the Mediterranean Harbors” ERASMUS+ Project for Nautical & Coastal Tourism n. 2020-1-IT01-KA202-008459. Oct. 01, 2020 - May. 31, 2023.
- **IKAT Tourism**, #101074716 Topic: SMP-COSME-2021-TOURSME-01, Coordinator: Yolanda Piedra, Clúster Marítimo de las Islas Baleares (CMIB). Duration: Sep. 01, 2022 - Aug. 31, 2024.
- **MedBAN**, #101074763 Call: SMP-COSME-2021-CLUSTER-01, Type of Action SMP-GFS. Acronym MedBAN “Mediterranean Blue Acceleration Network.” Coordinator: Ruben Eiras, Forum Oceano. DURATION: Sep. 01, 2022 - Aug. 31, 2024.
 - STRATEGIS is a member of the “MEDBAN - Mediterranean Blue Acceleration Network” established on July 6, 2022, in Rome.
- **MarMED**, “MARitime cluster Management Education Development”. Action: Cooperation partnerships in vocational education and training. National Agency: IT01 - Agenzia Nazionale Erasmus+ INAPP.

MaQuaM - ERASMUS Project for Nautical & Coastal Tourism



ERASMUS-
MAQUAM
International Qualification on
Marine and Tourism for the
Mediterranean harbours



- [MaQuaM](#) - “International Qualification on Marine and Tourism for the Mediterranean Harbors”
 - ERASMUS+ project: 2020-10-01 to 2023-04-30
n. 2020-1-IT01-KA202-008459
 - Aim: human resource development in the nautical sector favoring the integration between shipbuilding production chains and the growing importance of port and tourist services
- Training course developing the professional profile of “*Manager of integrated services for boating and coastal tourism*”

Partners

- [Provincia di Livorno Sviluppo](#) srl
 - Economic development & training
- [NAVIGO](#)
 - company for the innovation and development of yachting
- [Strategis](#) - Maritime Center of Excellence (Nautical Cluster, Greece)
- [Mediterranean Tourism Foundation](#) (Malta)
- [IBIS](#) Foundation (Albania)

Smart & Sustainable Marina

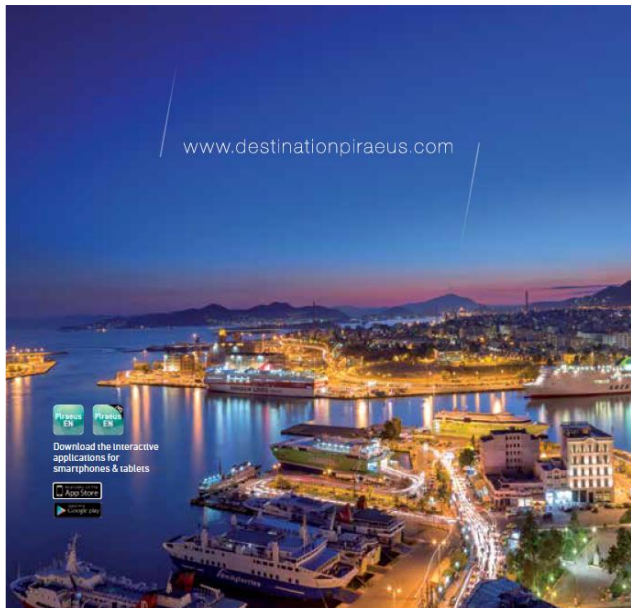


Flisvos Marina is a small-scale model of a town with meticulous architectural aesthetics, perfectly harmonized with the marine environment of the Athenian Riviera. Implementation of the €55 million investment plan transformed the marina into a modern, high-end marina, with the potential to dock 310 mega yachts. Flisvos Marina comprises 2.5 hectares of revitalising parkland and 6,200 sq.m. of high-end facilities with cafés, restaurants and shops, an open-air playground and the “Neraida” floating museum.

- Flisvos Marina is the only marina in Greece with integrated and comprehensive **sustainability and ESG strategy**, which covers all operations.
- Additionally, the only marina in Greece that issues a **sustainability report** in accordance with international standards.
 - The company invests in various events to raise public awareness on issues related to **biodiversity** such as environmental festivals and educational tours, conducts awareness campaigns for **waste disposal** practices and **runs an outdoor composting unit** processing green waste from the marina’s park.
 - The marina sea-water area is cleaned with the use of the Seabin.
- Flisvos Marina was awarded the first prize at the international **“Smart & Sustainable Marina”** competition in Monaco, 2022.

[LAMDA Flisvos Marina, Greece](#)

MAQUAM: Marketing & Management of Tourist Destinations



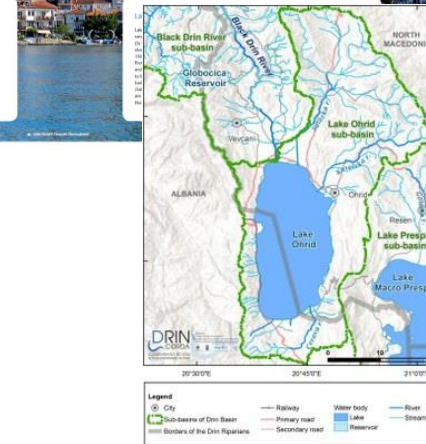
- Destination marketing facilitates the achievement of **tourism policy**, which should be coordinated with the **regional development** strategic plan.
 - Marketing of destinations should also guide the **tourism impacts** optimization and the maximization of **benefits** for the region.
 - Several models exist for strategic marketing and management of destinations.

Ohrid Blue Economy Summit, Nov. 2, 2022



- G. Yovanof, Strategis Maritime Center of Excellence, ***“Blue Economy, Innovation & Entrepreneurship - The Freshwater perspective”***, Unique Hotel, Ohrid, North Macedonia, Nov. 2, 2022.

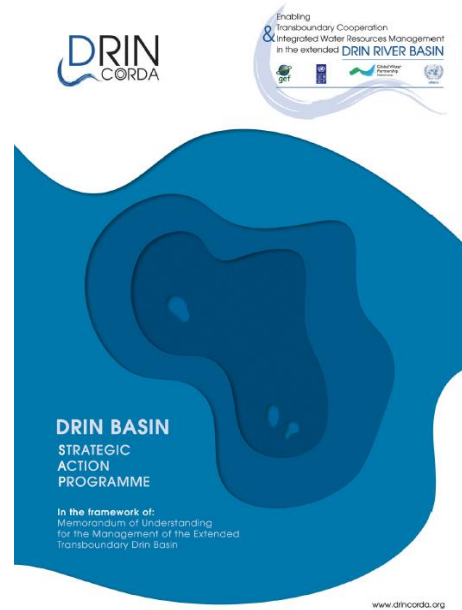
The natural wealth & legacy of the Drin River Basin - West Balkans



- Lake Ohrid, a UNESCO World Heritage site shared between Albania and North Macedonia, sustains economic activities such as **fishing**, **agriculture**, **hydropower** and **tourism** and hosts more than 300 endemic species
- However, in recent years the Lake faces a number of challenges such as **declining fish stocks**, **eutrophication**, **habitat destruction** and **poor water status**
 - To address these challenges, the transboundary Lake Ohrid Watershed Management Plan (LOWMP) was developed under the coordination of Global Water Partnership - Mediterranean (GWP-Med) in the frame of the [GEF Drin Project](#), which promotes improved transboundary water management in the Drin river basin

DRIN Basin Strategic Action Programme

[Apr. 24, 2020]



- The DRIN Strategic Action Programme (SAP) was endorsed by ministers and high-level representatives of the Drin Basin region during an online ceremony on 24 April 2020
- This SAP addresses the four Transboundary Problems:
 - Deterioration of **Water Quality**
 - Natural and Regulated Variability of **Hydrological Regime**
 - **Biodiversity Degradation**
 - **Variability of Sediment Transport Regime**
- Each of these problems is likely to be exacerbated by **climate variability and change**
 - All actions proposed by this SAP to address the four problems will have climate considerations included through the adoption of climate resilient/no-regrets approaches

EU Bioeconomy Strategy Report



- European bioeconomy policy Stocktaking and future developments: report by the European Commission
- Published: 2021-07-12
 - The updated EU Bioeconomy Strategy from 2018 “A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment”
 - provides the policy frame for the deployment of a circular and sustainable bioeconomy in Europe.

Blue Bioeconomy & Blue Biotechnology

Blue bioeconomy and blue biotechnology

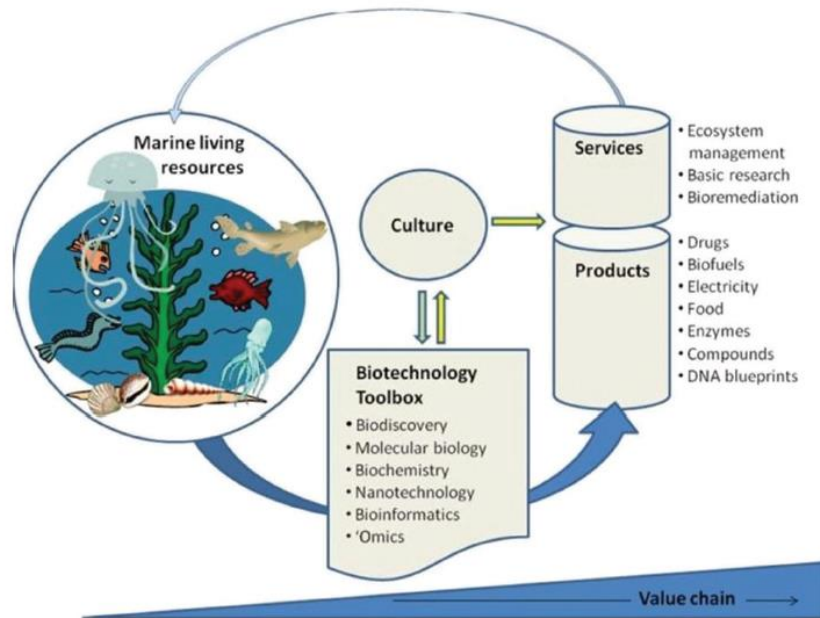


Figure 2.1 Marine biotechnology.

Source: OECD, 2013.

- The emerging blue bioeconomy and biotechnology sectors look at groups of marine organisms that until now often have been ignored for commercial exploitation.
- This includes microorganisms (microalgae, bacteria and fungi), algae and invertebrates (e.g., starfish, sea cucumbers, sea urchins).
- The blue bioeconomy turns aquatic biomass into food, feed, nutraceuticals, pharmaceuticals, cosmetics, energy, packaging, clothes and much more.
- Blue biotechnology is the application of science and technology to living aquatic organisms for the production of knowledge, goods and services (OECD, 2016).

EU Bio-Economy Conference [Oct. 6, 2022]



https://drive.google.com/drive/folders/1v6ZGZ83dHgcqLnoztSEfL_uNaEFdU3KS



Mariya Gabriel
Commissioner responsible for
Innovation, Research, Culture,
Education and Youth

Dear Bioeconomy colleagues,

Bioeconomy is already one of the main innovative European economic sectors.

In this moment of crisis, we need innovation to transform our linear fossil-fuel economy into a dynamic, circular, sustainable bioeconomy.

The New European Innovation Agenda heavily emphasises the role of the bioeconomy.

For example, the new actions to get private investors to put 45 billion euro into deep tech startups will help bioeconomy startups too.

To build the future of upcoming generations, education and training in bioeconomy domains will be a key part of the new action to train 1 million deep tech talents.

Last but not least, today, our 15 brilliant Bioeconomy Youth Ambassadors are presenting their perspectives in order to scale up and deploy a robust and ambitious EU Bioeconomy.



Lausanne: Innovate for Water 2021

INNOVATE 4 WATER - LAUSANNE

18 June 2021

Organisers **In partnership with**



FULL EVENT REPLAY



Micro-algae: Chlorella Superfood



Golden Chlorella micro-algae and superfood that requires 4000% less water than beef protein

Challenge :
Plant proteins not as sustainable as expected due to heavy transformation and protein extraction

Solution :
Alver Golden Chlorella is the most sustainable protein available.
USP = neutral in taste & colour



Majbritt Byskov-Bridges
Co-founder & COO
mbb@alver.ch



We are looking for :
- *Impact Investors who are looking at the next generation of non-animal foods*

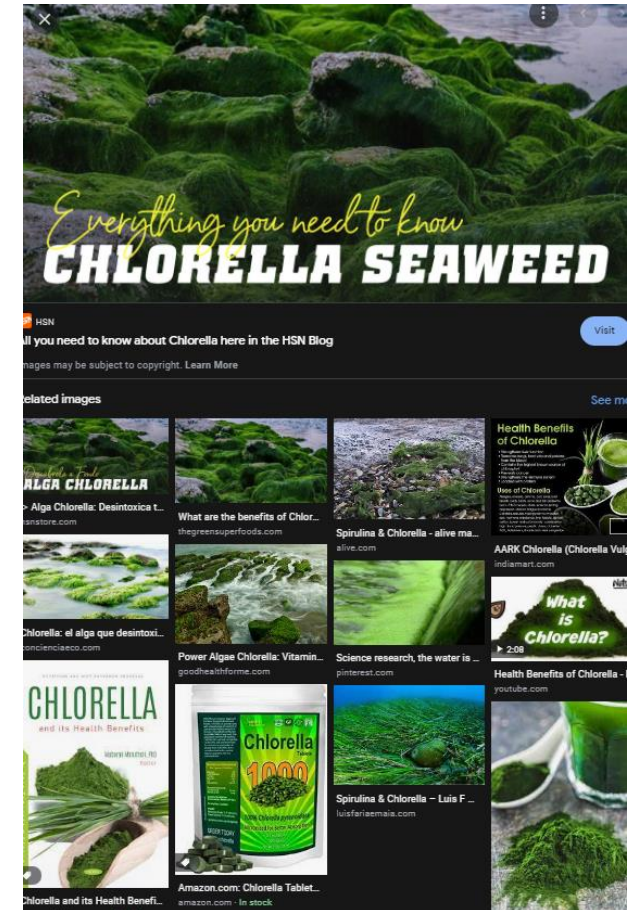


GOLDEN CHLORELLA
SUPER PROTEIN FROM MICROALGAE



Golden Chlorella® is a superfood that consists of only one ingredient: fermented and dried chlorella algae. Unicellular and multicellular microalgae have existed for several billion years. So basically you could say: microalgae are the basis of our existence. Golden Chlorella® contains numerous important nutrients such as vitamins, minerals, amino acids, and omega-3 fatty acids. In addition, this freshwater algae has a natural golden colour and is neutral in taste making it easy to integrate into almost any dish.

<https://www.alver.ch/golden-chlorella-en/>



Lausanne: Innovate for Water 2021

Co-organisers



Created in 2019, InTent is a platform that can quickly mobilize an influential and diverse group of decision-makers for change. We aim to educate, connect and accompany them and their networks in adopting and promoting sustainable practices. InTent works with and seeks to inspire, businesses, civil society, academia, and policymakers to adopt and scale sustainable actions. We engage these stakeholders through stimulating discussions and agenda-setting debates for sustainable change. We create the conditions for new ideas to emerge and to explore concrete solutions.

intentforchange.org



Waterpreneurs aims to help solve the problems raised by the 17 Sustainable Development Goals (SDGs) with a focus on the water nexus, human rights, security and peace. Based in Switzerland, Waterpreneurs acts as a catalyst and mobilises versatile expertise and a global network of influential key stakeholders to accelerate collaborations between existing platforms and scale-up impact in the water nexus, at a local and global scale. Waterpreneurs has created and managed the "Innovate 4 Water" marketplaces since 2017.

www.waterpreneurs.net

Partners



The aim of the Cluster Eau Lémanique - Evian is to promote and develop the water industry and solutions for the preservation of the heritage and the efficiency of the resource (water and plants). It is based on 4 strategic axes:

- Intelligent use of water;
- Water as a vector of energy;
- Plant engineering
- Water and biodiversity.

Its action is to identify the territory's projects, to collectively support the members, to co-construct adapted projects and to promote innovation.



IUCN, the International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges. It supports scientific research, manages field projects all over the world and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy, laws and best practice.



Following the success of the first solar flight around the world, the Solar Impulse Foundation is dedicated to improving the quality of life on Earth by fast-tracking the implementation of clean and profitable solutions to encourage decision makers to adopt more ambitious environmental targets and policies.



WWF is an independent conservation organization tackling the deepening crisis of nature loss caused by human activities, with the ambition to set nature on the path to recovery in the coming decade for the benefit of people and wildlife. Working with many others, we must protect and restore natural habitats, stop the mass extinction of wildlife, and make the way we produce and consume sustainable.

INNOVATE 4 WATER - LAUSANNE

"Innovate 4 Water" Impact

Ecosystem builder

Building bridges between local, regional and global ecosystems of stakeholders



Connect and Scale-up

Create and strengthen the connections and impact of existing local communities.



EU Green Deal (EGD) & “Restore our Ocean & Waters by 2030” Mission

EU Mission “Restore Our Ocean & Waters” by 2030



EU
MISSIONS

Restore our ocean and waters by 2030

Mission objective and targets

Protect and restore marine and freshwater ecosystems and biodiversity in line with EU Biodiversity Strategy

Protect a minimum of 30% of the EU’s sea area and integrate ecological corridors, as part of a true Trans-European Nature Network.

Strictly protect at least 10% of the EU’s sea area

At least 25,000 km of free-flowing rivers are restored

Contribute to relevant upcoming marine nature restoration targets incl. degraded seabed habitats and coastal ecosystems

Prevent and eliminate pollution of our ocean, seas and waters in line with EU Action Plan towards Zero Pollution

Reduce by at least 50% plastic litter at sea

Reduce by at least 30% microplastics released into the environment

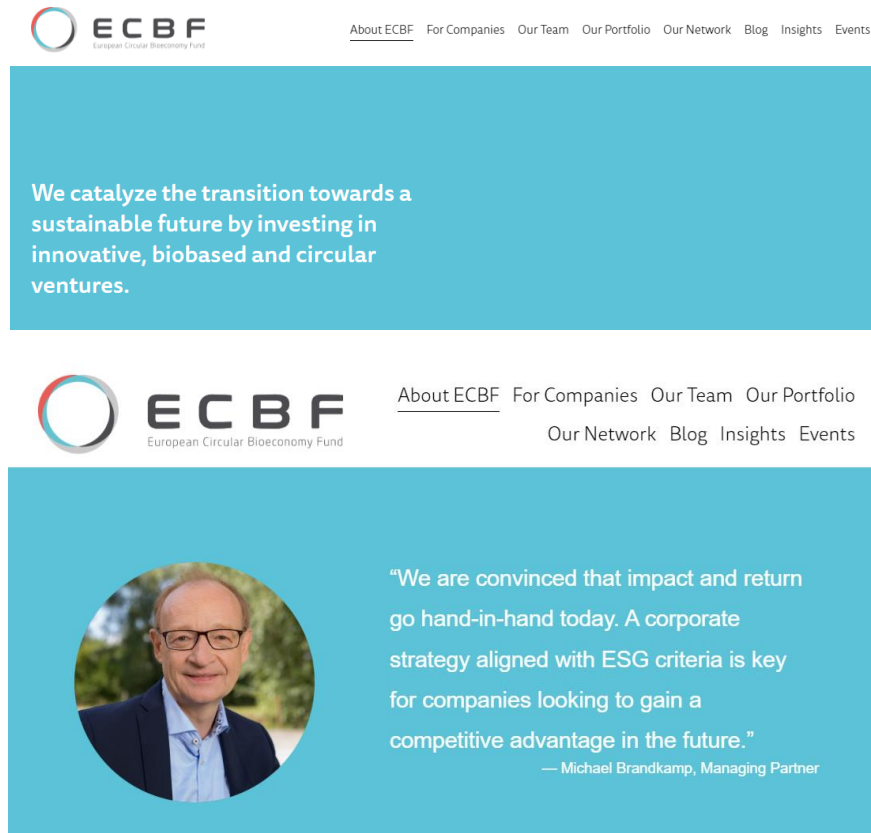
Reduce by at least 50% nutrient losses, the use and risk of chemical pesticides

Make the Blue Economy carbon neutral and circular in line with the European Climate Law

Eliminate greenhouse gas emissions from maritime economic activities in the EU and sequester those emissions that cannot be avoided (net zero maritime emissions)

Develop zero-carbon and low-impact aquaculture, and promote circular, low-carbon multi-purpose use of marine and water space.

ECBF: Circular Bioeconomy Thematic Investment Platform



The screenshot shows the ECBF website homepage. At the top left is the ECBF logo (European Circular Bioeconomy Fund) and a navigation menu with links: About ECBF, For Companies, Our Team, Our Portfolio, Our Network, Blog, Insights, and Events. Below the navigation is a teal banner with the text: "We catalyze the transition towards a sustainable future by investing in innovative, biobased and circular ventures." Below this banner is another teal banner featuring a circular portrait of Michael Brandkamp, Managing Partner, and a quote: "We are convinced that impact and return go hand-in-hand today. A corporate strategy aligned with ESG criteria is key for companies looking to gain a competitive advantage in the future." — Michael Brandkamp, Managing Partner.

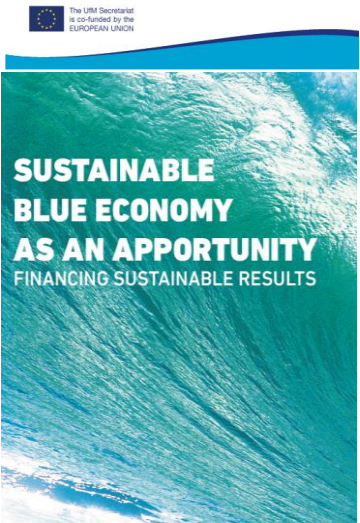
- **European Circular Bioeconomy Fund - ECBF:** catalyzes the transition towards a sustainable future by investing in innovative, biobased and circular ventures.
- With the aim to build pan-European market leaders, ECBF invests **EUR 300m** in growth-stage companies with high potential for innovation, favorable returns, and sustainable impact.

<https://www.ecbf.vc>

UfM: Sustainable Blue Economy as an opportunity



Towards a Sustainable Blue Economy in the Mediterranean region
2021 Edition



- A number of sustainable financing opportunities, public and private, are increasingly being made available for the blue sectors across the Mediterranean.

Public grants for a sustainable Blue Economy

- [The Neighbourhood, Development and International Cooperation Instrument \(NDICI\)](#) is an EU financing instrument aimed to support regional partnership.
- The next [INTERREG EURO MED](#) programme 2021- 27, has a strong focus on the circular economy, enhancing biodiversity and reducing pollution.
- In parallel, the new “[INTERREG NEXT programme](#)” on EU external borders targets neighbouring partner countries.
- With the implementation of the 2021-2027 EU budget, the newly established European Climate, Infrastructure and Environment Executive Agency (CINEA), previously INEA, will support the implementation of the European Green Deal by managing relevant EU programmes, with a total budget of **€52bn**.
- The [European Maritime, Fisheries and Aquaculture Fund \(EMFAF\)](#) has a simplified process to unlock its **€6.108** billion budget for the period 2021-2027.
- [The Switchers Fund](#), developed by UNEP/ MAP and funded by SwitchMed among other institutions, is an impact fund for green start-ups covering the whole Mediterranean region.

Conclusions



Established and emerging Blue Economy sectors such as Environmental Protection and Blue Bioeconomy & Biotechnology have the potential for strong sustainable growth



Cross-border cooperation mechanisms are necessary to ensure the proper management of a region's natural wealth



Innovation Networks can mobilize blue economy SMEs to adopt innovative blue growth processes and technologies for a greener, more digital and more resilient economy



Several sources of Green-Blue finance: the EU Mission “Restore Our Ocean & Waters by 2030” of the European Green Deal, Public & Private Green Investment Funds

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Thank You!