

A Circular Blue Economy for the Mediterranean: current practices and opportunities



Fostering Circular
Blue Economy
in the Mediterranean

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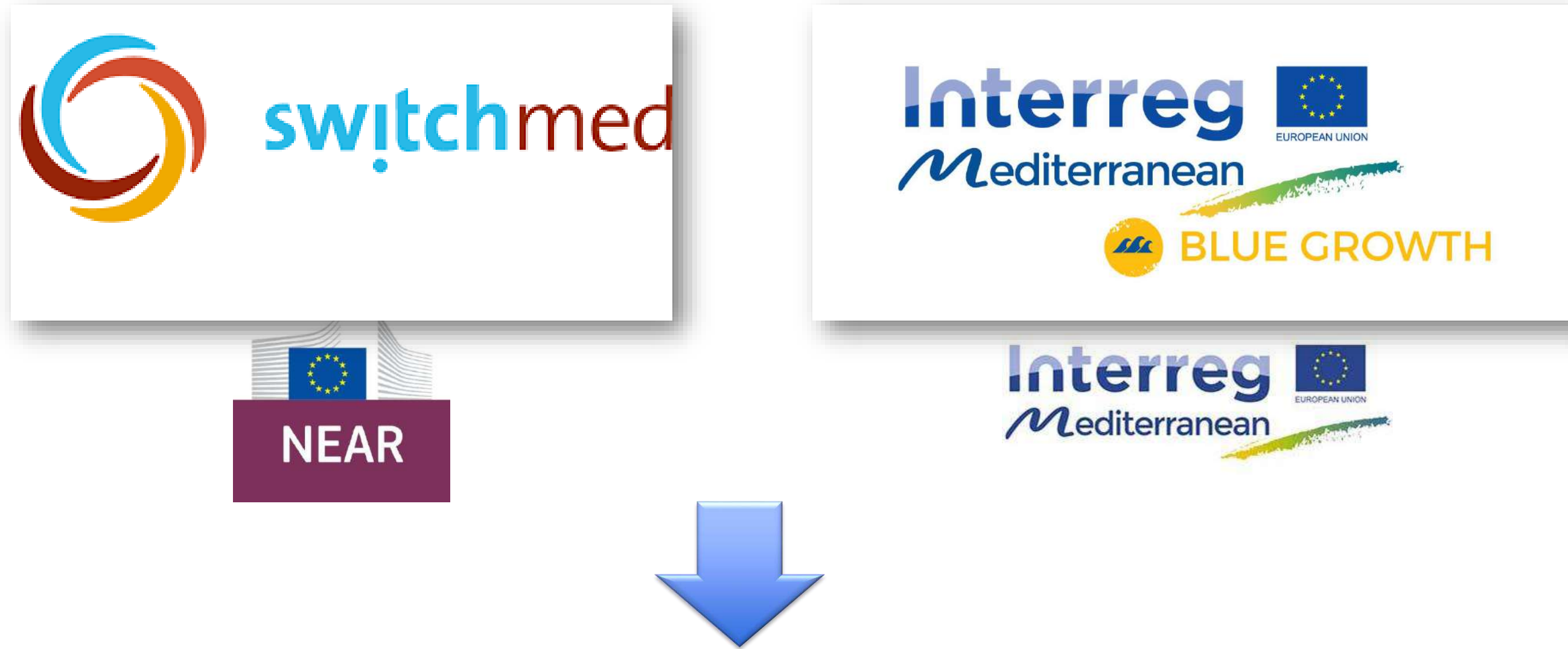
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Mediterranean

BLUE GROWTH

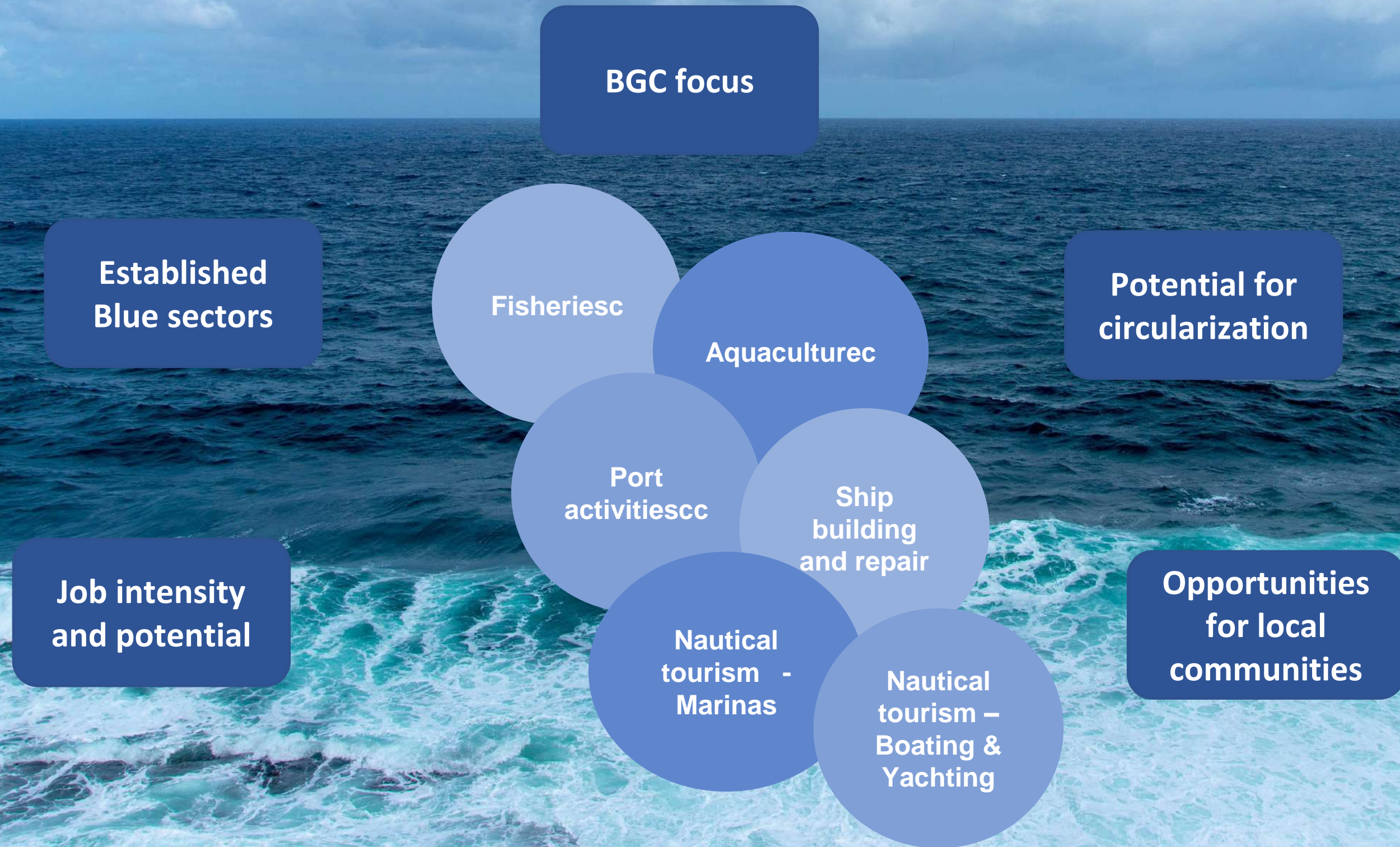
RATIONALE & BACKGROUND

JOINT INITIATIVE



REPORT ON CIRCULAR BLUE ECONOMY IN THE MEDITERRANEAN

BLUE SECTORS



STATE OF PLAY

Fisheries and Aquaculture

Great opportunities of CE developments at all stages of product life: eco-design, production, use of boats/gears, waste recycling (Bluefasma project results)

Port activities

Opportunities for CE on different paths: circularity in ports assets and equipment, circular flows of materials within ports, ports as part of circular markets (Loop-Ports project results)

Ship building and repair

Well-established and growing sectors with huge potential to develop circular industrial models on repair, maintenance, refurbishment, dismantlement and component harvesting

Marinas

Opportunities for circularity linked to renting and sharing are facilitated by digitalization but rebound effect should be considered.

Boating and yachting

A circular economy approach is pushed forward by innovative recyclable composites, collection and dismantling of end-of-life boats, commerce of spare pieces and recycling of glass-fiber.



CE PRACTICES

Examples of experiences from all around the Mediterranean and excellent, transferable experiences from beyond



FIELD OF ACTION

- ECO-DESIGN
- REPAIR
- REUSE
- REDUCE
- UPCYCLE
- RECYCLE
- DIGITALIZATION

AQUACULTURE

FIELD OF ACTION

ECO-DESIGN

REPAIR

REUSE

REDUCE

UPCYCLE

RECYCLE

DIGITALIZATION

BIODEGRADABLE OR REUSABLE NETS FOR MUSSEL FARMING

Mussel nets in bioplastic

Pilot projects: Life Muscles, Cozza Plastic Free, Miami

□ **Geographic scope:**

Italy. These practices can be easily applied across the entire Mediterranean.

□ **Description:**

Life Muscles project (2021-2025) implements two innovative alternatives: (i) a **washing and recycling process** starting with shredding the tubular nets, oxidizing the residual organic material, washing and finally reusing the recovered polypropylene; (ii) the **use of an innovative biopolymer** - “mater-bi” - produced by the Italian company Novamont.

The goal of Cozza Plastic-Free (2021) is to replace the plastic nets used for the growth of mussels with Novamont's MATER-BI bioplastic nets in all mussel farms in the Campania Region.

The project Miami (2021) worked to identify a **biodegradable material or technopolymer alternative to nylon** and to experiment the technical reliability (deformability, strength and plasticity) of the use of the innovative materials, for the production of socks for the sowing and breeding of mussels.

These solutions have been tested in the Tyrrhenian and in the Adriatic Seas.

□ **Promoters:**

Life Muscles - Legambiente, University of Siena, Bologna, Rome-La Sapienza

Cozza Plastic Free - Coldiretti Impresa Pesca Campania, Università Federico II – Dipartimento di Medicina Veterinaria e Produzioni Animali, Novamont e Legambiente Campania

MIAMI - Regione Puglia



RECREATIONAL BOATING



RECYCLABLE COMPOSITES FOR A CIRCULAR YACHT ECONOMY

rComposite for recyclable racing boats



□ **Geographic scope:**

Italy. This technology can be extended across the Mediterranean.

□ **Description:**

Composite is a new composite made with original vegetable fibers (mainly flax) and an innovative thermoplastic resin Elium® that is possible to separate from the fibers and regenerate by a simple pulverization and dissolution process. In the case of realization of a sandwich laminate, the soul of the composite in Atlas HPE is recyclable too. Thanks to the innovative resin that is possible to “dissolve”, it is possible to separate and recover the individual constituent elements (fiber, core, resin). The recovered fibers retain their initial properties and they can be reused in a new cycle.

Racing boats such as dinghy, foiling dinghy, racing yacht have been already prototyped and produced with this new material. Besides being completely recyclable and sustainable, these boats maintain the mechanical characteristics of the boats built with traditional laminate (glass and polyester or vinylester resin). In place of glass fibers that aren't reusable or recyclable once in the resin, the new technology is based on the use of bio-based fibers to reduce carbon footprint.

Moreover, the production process is the vacuum infusion that guarantees a better working environment, free of harmful emissions of any kind.

□ **Promoters:**

Northern Light Composites is a brand by Northern Light Srl viale San Marco 13/B, Monfalcone, (Gorizia), Italy

MARINAS

FIELD OF ACTION

ECO-DESIGN

REPAIR

REUSE

REDUCE

UPCYCLE

RECYCLE

DIGITALIZATION

RE-USE OF WASTE COOKING OIL

ROULE MA FRITE 17

□ Geographic scope:

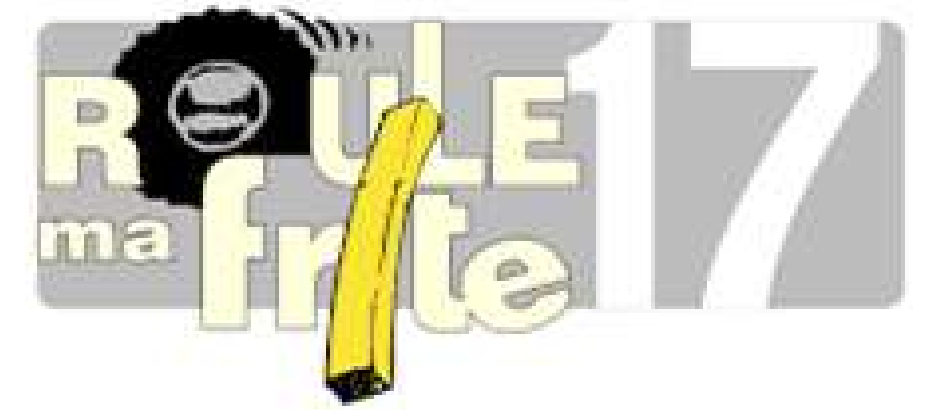
Aquafil (Italy), branches in Slovenia, Croatia, USA, UK, China, Thailand. Fil & Fab — 29217, Fil & Fab (France)

□ Description:

A boat cleaner based on frying oil. It proved being ultra-degreaser and stain remover for boats' hull and fully biodegradable boat fuel. The oil is collected by the Association not only from the restaurants of the port. There is a network of 400 restaurateurs, canteens, nursing homes and communities, which allow the collection of approx. 80,000 litres of used cooking oil intended to be transformed into biofuel. Since the legislation prevents from producing more, the association sought new outlets for its cooking oil thanks to the support of Corsican company Bio Corse that develops professional cleaners and technical oils based on frying oil. **This is an important step forward considering the quantity of soaps used in marinas for boat cleaning.** These soaps often contain chlorine and nutrients, such as ammonia and phosphates, that can cause excessive plants and algae growth and decrease the amount of oxygen available to other organisms.

□ Promoters:

Association Roule ma Frite 17



RECREATIONAL BOATING

FIELD OF ACTION

ECO-DESIGN

REPAIR

RE-USE

REDUCE

UPCYCLE

RECYCLE

DIGITALIZATION

REUSE ON LAND OF DISUSED BOATS

Bathô

□ Geographic scope:

Rezé, in the district of Nantes, in the department of Loire-Atlantique of the French region Pays de la Loire.

□ Description:

Bathô is a Solidarity Company of Social Utility (ESUS) for the reuse of old pleasure boats by converting them for various purposes on land. **The main use is for tourism accommodation but solutions are developed also for bar and restaurant, domestic use (additional room in the garden), playgrounds, exhibitions, as extra spaces for companies (e.g. meeting rooms).**

The company buys the old boats for a symbolic euro discharging the old owner of the concern to get rid of it. The boats are emptied of their fitting interiors. Their equipment (engines, navigation accessories) is dismantled and then resold or recycled. The interior of the boats is re-arranged in a personalized way, the hull and the deck are preserved and repainted. The boats are connected to water and electricity networks.

The company also offer courses of training, in nautical and boat interior fittings trades. Bathô is committed to the creation of a regional sector reuse of pleasure boats with the ambition to treat 30% of abandoned ships in Pays de la Loire and to extend its lifespan by at least 10 years.

□ Promoters:

Bathô, 24 rue de l'Abbé Grégoire 44400 – Rezé, France Contact@batho.fr



FISHERIES

FIELD OF ACTION

ECO-DESIGN

REPAIR

RE-USE

REDUCE

UPCYCLE

RECYCLE

DIGITALIZATION

REGENERATED NYLON FROM DERELICT FISHING GEARS

ECONYL® by Aquafil: the Healthy Seas initiative / Nylo® by Fil&Fab

□ Geographic scope:

Aquafil (Italy), branches in Slovenia, Croatia, USA, UK, China, Thailand. Fil & Fab — 29217, Fil & Fab (France)

□ Description:

Aquafil regenerates fishing nets and other nylon waste (e.g. textile production scraps) into a new yarn, having the same characteristics as nylon made of virgin raw material called ECONYL®.

Aquafil works with fishing nets coming from aquaculture and fish industries and the oceans nets recovered by volunteer divers though the Healthy Sea initiative (global scale). Healthy Seas tackles ghost fishing phenomenon through **clean-ups with volunteer divers and by working with stakeholders of the fishing sector** toward marine litter prevention, volunteers collect end-of-life and abandoned/lost fishing nets. Health Seas initiative runs across the world (North Sea, Mediterranean Sea, Red Sea, Baltic Sea, Pacific Ocean). The fishing nets are first cleaned, sorted and then sent to regeneration plants (for the Mediterranean, in Slovenia).

Fil&Fab brings together maritime, public, financial and technical players from the French province of Bretagne, Normandie, Occitanie and Provence-Alpes-Côte d'Azur. Nylo® are 100% recycled fishing net polyamide



□ Promoters:

Aquafil Spa, via Linfano, 9 – 38062 Arco (Trento) Italy
Fil & Fab — 29217, Plougonvelin, France

PORTS

FIELD OF ACTION

ECO-DESIGN

REPAIR

RE-USE

REDUCE

UPCYCLE

RECYCLE

DIGITALIZATION

PORT OF AMSTERDAM



□ Geographic scope:

The Netherlands

□ Description:

The Port of Amsterdam offers start-ups and scaleups the opportunity to connect with other circular and bio-based initiatives and other industries through crossovers.

The Port organizes its work on circular economy around four pillars:

- i) **revaluing municipal waste** by offering circular companies the opportunity to connect with initiatives that extract energy from waste and innovations in the field of water cycles;
- ii) setting itself as a **biorefinery cluster** engaged in extracting biofuel, electricity and heating s from fertilizers and complex organic matter;
- iii) **hosting a large number of innovative and specialized chemical plants** that offer start-ups and scaleups in the circular economy the option of co-siting and collaboration;
- iv) promoting R&D and innovation infrastructure so as to offer specialized plug-and-play facilities for biobased and circular innovation. In this way, start-ups and scaleups can accelerate their vision.

□ Promoters:

Port of Amsterdam

RECOMMENDATIONS (1/2)

- Communicate Circular Economy as a business opportunity, increase opportunities for the sectors to participate to information and training initiatives.
- Fully implement existing strategic and policy frameworks and further develop of appropriate sectoral policies, strategies and action plans.
- Frame “circularity” into coherent policies at national and international level (e.g. waste definition and management rules).
- Share practical and understandable knowledge and know-how, link academia studies analysis with blue economy industries, promote sharing of best practices for technology and eco-design
- Develop standards for circularity, or expand existing standards for new products and services (e.g. of circular fishing gear design).



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RECOMMENDATIONS (2/2)

- Promote sustainable industrial development, facilitating reduction / substitution of intermediate inputs, including raw materials, energy consumption and other goods and services usually needed for production.
- Design and implement circular business models e.g. by retaining of product ownership, extending product life, designing for recycling.
- Create circular supply chain by e.g. establishing good practices agreements, include circularity requirements within tenders, use fees and rebates for good environmental practices, and choose long concession times to attract investments.
- Ensure financial resources, using also innovative financial tools and fiscal instruments and incentives.



CONCLUSIONS

- There are quite many initiatives related with Circular Economy in Blue sectors in the Mediterranean, having different scales: from small artisanal activities to industrial ones.
- Cross-fertilization among Mediterranean countries with success-experiences is recommended. Some excellent initiatives are also available beyond the Med, that can be capitalized and adapted to the Mediterranean context (e.g. some excellency in ports).
- Many of the available practices in the region are related with recycling of wastes, some with repairing and re-using, and only a minor part implements up-cycling or eco-design.
- Blue sectors in the Mediterranean are working towards circularity mainly by turning problems into opportunities. A drastic change of paradigm in production approach is still far to be a common practice. Eco-design and zero-waste concepts, as well as the whole circular economy approach, should be further promoted and communicated, incentivized and facilitated.



Fostering Circular Blue Economy in the Mediterranean

Save The Date Hybrid Event

10 - 11 May Barcelona + Online



01 Fisheries & Aquaculture

Save The Date Hybrid Event


10 - 11 May Barcelona + Online



02 Nautical Tourism

Save The Date Hybrid Event

10 - 11 May Barcelona + Online



03 Port Activities

Save The Date Hybrid Event

10 - 11 May Barcelona + Online

Thank you



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