Demonstrable and replicable cluster implementing systemic solutions through multilevel circular value chains for eco-efficient valorization of fishing and fish industries side- streams - Horizon 2020 Innovation Action

Making the fish processing
side-streams
sustainable and efficent

THE PROJECT GOAL IN A NUTSHELL

To streamline the fishing industry operational flows. Including its industrial side-streams. Establishing a climate-neutral regional reproducible cluster based on the bio/blue/green/circular economy approaches. **With a proper focus on valorization of the related waste. For pre-treatment and extraction of bio-active components. And for recycling end of life fishing gear from aquaculture and fisheries. To supply the food, automotive, cosmetic, and packaging industries. Providing fertilizers and biodiesel for agricultural applications as well.**

The project specific objectives

Design, development, and deployment of **innovative bio-mass pre-treatment and specific extraction technologies** to enable: sustainable and efficient utilization of **Fish Processing Side-streams (FPS)** by obtaining bio-actives and gelatin for high value-added food supplements and skin care products, biodegradable, and compostable barrier layer for food packaging;
other Fishing and **Fish-industry Side-streams (FFS)** will be targeted in order to transform their outcomes into fertilizers, biodiesel, components for cosmetic applications, polymer-based automotive constituents, and packaging for cosmetic products.

Plastics & Bioplastics circular system development and implementation:
development and validation of bioplastic films from Fishing industry Side Streams;
local upscaling of bioplastic production;
production of plastic barrier biofilm for food packaging
retrievement of Poly-Lactic Acid (PLA) beads from agri-side-streams for Eco-FISH-boxes injection molding;
EPLA Eco-FISH-boxes production, distribution and recycling;
cleaning and recycling of (Polyamide 6) PA6 derived from fishing and aquaculture nylon nets;
production demo of recycled PLA automotive components products and prove replicability of the recycling process;
compliance assessment of final products obtained by PA6 recycling.
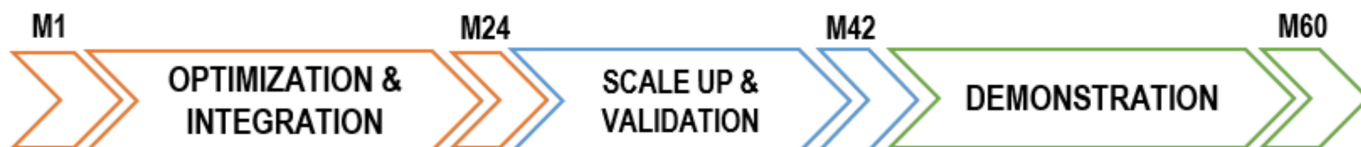
The Three phases of the EcoeFISHent implementation model.

The Cluster and its digital twin

The **Cluster**, once defined and implemented, will make use of a **cloud-based platform** for its **management activities**, and will exploit the **Internet of Things for secure, effective and efficient management its logistics infrastructure**. On top of this, critical and best scenarios for analysis of the cluster performance via dedicated KPIs will be made possible by means of a **specific business model** making use of a **cluster digital twin**, enabling the **assessment of the cluster replicability in other geographic domains** fostering prospective investments.

Involving people

Proper **stakeholders involvement** will be pursued aiming at delivering specific actions for marine ecosystem preservation by means of modeling, best practices collection and application, technology scouting for relevant **reduction of by-catch** and for **impacting the ghost gears critical issue**. Overall **employment of disadvantaged individuals within the cluster**, as well as the **pursuit of distributive justice criteria** will be targeted via specific social and justice inclusion programs.

Six multilevel + synergic circular value chains (CVCs) connecting BLUE and GREEN economies
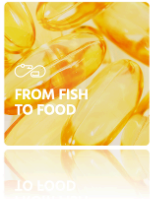
CVC1 - FROM FISHING AND FISH INDUSTRY CO-PRODUCTS (FCP) TO FOOD SUPPLEMENTS
EcoeFISHent Application: food supplements via intermediates such as Omega3 and collagen.
Application sector: nutraceutical industry.

CVC2 - FROM FISHING AND FISH INDUSTRY CO-PRODUCTS (FCP) TO SKIN CARE PRODUCTS
EcoeFISHent Application: skin care products via intermediates such as Omega3 and collagen.
Application sector: cosmetics industry.

CVC3 - FROM FISHING AND FISH INDUSTRY CO-PRODUCTS (FCP) TO COMPOSTABLE BIOPLASTICS
EcoeFISHent Application: barrier bio-polymer coating for compostable food-grade and bio-polymer packaging via intermediates such as gelatine.
Application sector: bio-plastics for food packaging industry.

CVC4 - FROM FISHING AND FISH INDUSTRY SIDE-STREAMS (FFS) TO BIO-CONVERSION PRODUCTS
EcoeFISHent Application: fertilizer, oil and chitin via black soldier fly larvae.
Application sector: agriculture, bio-diesel and cosmetics.

CVC5 - FROM EPLA (POLYLACTIC ACID RESIN FOAM) TO FISH PACKAGING DOWN TO SOIL IMPROVER
EcoeFISHent Application: Biobased Eco FISH boxes produced by using BIOFOAM®.
Application sector: food Packaging for fish & fishing industry (FFI), gardening and agriculture.

CVC6 - FROM FISHING NETS TO CARS (AUTOMOTIVE AND PACKS
EcoeFISHent Application: vehicle components, food and cosmetic packaging via intermediates such as regenerated nylon PA6/PA66 and PE.
Application sector: automotive and cosmetic industry.

Facts & figures

Coordinator

Filse
Finanziaria ligure per lo sviluppo economico

Partners

The project is coordinated by **FILSE spa**, the financial body for economic development of the Ligurian regional administration (Italy).
The EcoeFISHent consortium gathers **34** partners from **7** countries.

> **18 Mio EUR** budget
> **15 Mio EUR** financing
10 different final products
10 involved domains (at least)
6 new Circular Value Chains
5 years duration

Scan the code for details!

SCAN ME

Funding instrument and scheme	**Start date**
Horizon 2020 - Innovation Action	1 October 2021
Grant agreement ID:	**End date**
101036428	30 September 2026
Call for proposals:	Total cost: € 18 583 714,47
H2020-LC-GD-2020 (Building a low-carbon, climate resilient future: Research and innovation in support of the European Green Deal)	EU contribution. € 15 145 267,12
Topic:	As the horizon 2020 program defined several priority challenges where targeted investment in research and innovation can have a real impact benefitting the citizen, the project was funded under the "Climate action, Environment, Resource Efficiency and Raw Materials" one.
LC-GD-3-2-2020 - Demonstration of systemic solutions for the territorial deployment of the circular economy	