WHAT IS VALORISH?

VALORISH is an EU-funded project focused on developing a sustainable, zero-waste biorefinery for the valorisation of fish waste and by-products from the fishing industry. Using an innovative, computationally-assisted approach, the project aims to **transform waste and by-products into high-value resources through a circular, green cascade valorisation process.**

By integrating advanced computational tools, **VALORISH** supports the design, modelling, optimisation, and scaling of biorefinery processes. **The goal** is to produce valuable bioproducts for various applications, including food, nutraceuticals, food additives, and supplements.

VALORISH promotes sustainable bio-based processes to reduce environmental impact and advance marine biotechnology. It seeks to move away from low-value waste management methods like silage, composting, or biogas production, preventing the direct disposal of fishing industry waste.

PARTNERS

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valorish

GREEN VALORISATION CASCADE APPROACH OF FISH WASTE AND BY-PRODUCTS THROUGH FERMENTATION TOWARDS A ZERO-WASTE FUTURE

www.valorish.eu/

cordis.europa.eu/project/id/101135078

OVERALL PROJET BUDGET:
€ 3 935 845.00

START DATE:
1 May 2024

END DATE:
31 October 2027

TOTAL MONTHS:
42 months

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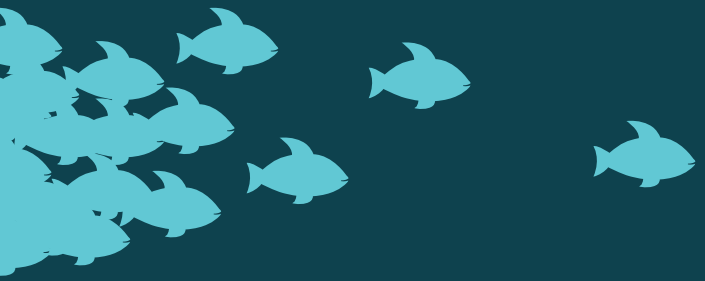
OBJECTIVES



Extract Valuable Compounds
Identify, process, and extract fish oil and fish protein hydrolysates (FPH) from fishing industry waste and by-products.

Bioproduct Development
Utilise fermentation techniques to convert FPH into bio-based products with enhanced nutritional and functional properties.

Product Refinement
Analyse, purify, and formulate bio-based products to meet industry standards and application-specific requirements. These products will undergo rigorous testing for safety, efficacy, and quality.

Process Optimisation
Develop and integrate innovative biorefinery processes using computational modelling and simulation tool to improve efficiency and reduce costs.

Scale-Up & Validation
Validate the core biorefinery units at Technology Readiness Level 5 (TRL5), demonstrating their functionality in an operational environment and preparing them for industrial adoption.

Sustainability Assessment
Evaluate the environmental, economic, and social impact of VALORISH processes and products.

BIOPRODUCTS DEVELOPED BY VALORISH

Fish Oil
A valuable source of omega-3 fatty acids, primarily EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid), which are essential for cardiovascular health, brain function, and reducing inflammation.

Fish Protein Hydrolysates (FPH)
These are bioactive peptides obtained through enzymatic hydrolysis of fish proteins. FPH are highly digestible and have excellent functional properties, making them ideal for use in food products, sports nutrition, and medical diets.

Astaxanthin
A naturally occurring carotenoid pigment with strong antioxidant properties. Beyond its role as a colorant, astaxanthin has gained recognition for its potential health benefits, including improving skin health, reducing oxidative stress, and supporting eye and brain function.

Bacteriocins
Antimicrobial peptides produced by certain bacteria, used as natural preservatives in food. They inhibit the growth of harmful bacteria, helping to extend shelf life and improve food safety.

Calcium-Rich Products
Derived from fish bone residues, these products serve as a natural source of calcium, essential for bone health and osteoporosis prevention.

Vitamin B12
A crucial vitamin involved in red blood cell formation, nerve function, and DNA synthesis. B12 supplements help prevent deficiencies and related health issues, such as anemia and neurological disorders.

Collagen
A structural protein found in connective tissues, skin, and bones. Marine-derived collagen is highly bioavailable and widely used in nutraceuticals, cosmetics, and functional foods for its benefits in improving skin elasticity, joint mobility, and bone strength.

CIRCULAR ECONOMY IN ACTION

...DRIVING THE FUTURE OF SUSTAINABLE MARINE RESOURCES

VALORISH enhances the sustainability of industrial biomass resources by valorising waste, and reducing land dependence. By adopting a circular bioeconomy approach, the project promotes climate neutrality, zero pollution, and resource efficiency. It strengthens industrial competitiveness by improving the strategic autonomy and resource independence of bio-based value chains across the EU.