PRACTICE ABSTRACT NO. 27

SEA2LAND

FERTINAGRO BIOTECH

The economics of fishery-based by-products

Main results / outcomes

Fishery and aquaculture industries generate large volumes of by-products that were traditionally discarded. Today, these materials when properly processed can be converted into a wide variety of products.

Practical recommendations

Valorising by-products reduces disposal costs while generating high-value goods. For example, fishmeal and fish oil can be used in animal feed or aquaculture; protein hydrolysates and omega-3-rich oils have applications in food and nutraceuticals; and chitin, collagen, and gelatine are in demand in biomedical and cosmetic industries.

International examples show the potential: Norway valorises up to 76% of its by-products. France and China process fish residues into refined oils and collagen; Mexico and Chile convert shrimp and salmon waste into meal and oil; and Vietnam utilizes catfish by-products for food and feed.

For companies and farmers, investing in valorisation technologies such as enzymatic hydrolysis, oil extraction, biodiesel production, or microencapsulation can turn low-value residues into profitable products. These methods are increasingly efficient and adaptable to different production scales.

The market is growing, especially in aquaculture, functional foods, and green energy. By 2025, fishmeal from by-products could represent up to 50% of global supply. However, regulatory barriers, particularly in the EU, may limit use in human food, requiring careful compliance with safety standards.

Ultimately, valorising fishery by-products supports sustainability, generates revenue, reduces pressure on wild stocks, and minimizes waste. This shift supports a circular economy while creating new income opportunities across sectors.

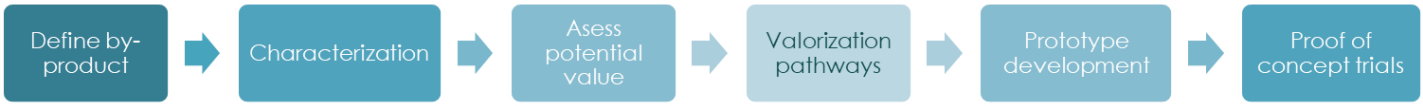

Figure 1: By-products valorization scheme

Further information

- Innovative uses of fisheries by-products. Alberto Ramírez. FAO 2013.
- Develop of Bioprocesses for the upgrading of fish by-products. Tesis Doctoral. Pedro Jesus García Moreno 2013.

About this abstract

Authors: Joaquín Romero, Carlos Fuertes (Fertinagro Biotech)
Date: May 2025

SEA2LAND project is a collaborative Innovation Action(IA) funded by the EU in the frame of the Horizon 2020 programme. The project aims to provide solutions to help overcome challenges related to food production, climate change and waste reuse. Based on the circular economy model, SEA2LAND promotes the production of large-scale fertilisers in the EU from own raw materials. This solution is expected to reduce the soil nutrient imbalance in Europe.

The project is running from January 2021 to June 2025.

Website: www.sea2landproject.eu

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PRACTICE ABSTRACT NO. 27

Economía de los subproductos derivados de la pesca

Principales resultados

Las industrias pesquera y acuícola generan grandes volúmenes de subproductos tradicionalmente desechados. Hoy en día, adecuadamente procesados, pueden convertirse en una gran variedad de productos.

Recomendaciones prácticas

La valorización de subproductos reduce costes de eliminación y permite generar productos de alto valor. Por ejemplo, la harina y el aceite de pescado se utilizan en piensos y acuicultura; los hidrolizados proteicos y aceites ricos en omega-3 se aplican en alimentación y nutracéuticos; y la quitina, el colágeno y la gelatina son muy demandados en las industrias biomédica y cosmética.
Ejemplos internacionales muestran su potencial: Noruega valoriza hasta el 76% de sus subproductos. Francia y China transforman residuos pesqueros en aceites refinados y colágeno; México y Chile procesan los desechos de gambas y salmón en harinas y aceites; y Vietnam aprovecha los subproductos para alimentos y piensos.
Para empresas y agricultores, invertir en tecnologías de valorización como la hidrólisis enzimática o la extracción de aceites puede transformar residuos de bajo valor en productos rentables. Estos métodos son cada vez más eficientes y adaptables a distintas escalas.
El mercado está creciendo: para 2025, la harina de pescado procedente de subproductos podría representar hasta el 50% del suministro global. Sin embargo, barreras normativas, en especial en la UE, pueden limitar su uso en alimentación humana, exigiendo un estricto cumplimiento de los estándares sanitarios.
Por último, valorizar los subproductos pesqueros promueve la sostenibilidad, genera ingresos, reduce la presión sobre los recursos pesqueros y minimiza residuos. Este cambio impulsa la economía circular creando nuevas oportunidades económicas en diversos sectores.

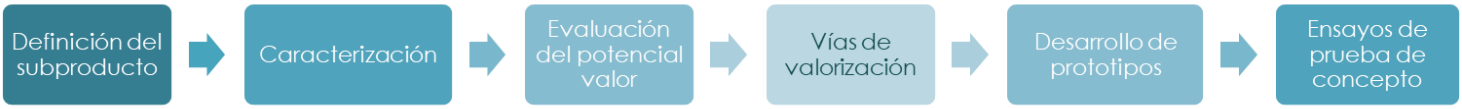

Figure 1: Esquema de valorización de subproductos

Más información

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