

# SEAREFINERY




## IMPROVED VALORIZATION OF MARINE SOURCES AND PROCESSING WASTE FOR RESOURCE EFFICIENT BLUE FOOD/FEED AND ENVIRONMENTALLY SUSTAINABLE MATERIALS DEVELOPMENT

SEAREFINERY aims to establish a novel bio-based blue food/feed and blue food packaging materials production platform by embracing marine-based sources and wastes at transnational level





### Biobased Products (BBPs) of SEAREFINERY



#### BBP 1: High value-added compounds

-  **Biopolymers** (protein, lipids, alginate, chitosan, collagen, carrageenan) from marine algae and jellyfish
-  **Calcium carbonate** from seashells, and **hydroxyapatite** from fish bone and fish scale
-  **Bioactive molecules** from seaweed and bioactive peptides from fish waste



#### BBP 2: Blue food products

-  **Meat and cheese analogue** based on marine-based ingredients
-  **Functional bread** enriched with protein, phenolics, inorganics, dried whole algae powder, essential amino acids and omega 3 fatty acids

#### BBP 3: Blue feed products

-  **Microalgae biomass** rich in essential amino acids, oil and fatty acids as sources of high-quality feed for farmed fish
-  **Single Cell Protein** from fish waste/aquaculture derived volatile fatty acids

#### BBP 4: Smart and active food packaging materials

-  **Food packaging products** (edible coating, active film with antioxidant/antimicrobial capability, nanofiber)
-  **Biosensor** developed from marine-based biochar

### Biorefinery Platform



**Blue food pathway** will start with extraction of high-value added materials from *the Black Sea, the Mediterranean Sea* and *the Atlantic Ocean* followed by use of these materials in blue food production and smart and active packaging material for the blue food.

**Blue feed pathway** will cover use of aquaculture wastewater and fisheries from *the Baltic Sea* and *the North Sea* as the raw materials for the production of fish feed from microalgae and bacteria (single cell protein).

**Environmental, economic and social evaluation pathway** will focus on the end products based on life cycle assessment, market assessment, and stakeholder and citizen engagement

“ SEAREFINERY platform will be designed through innovative approaches within a multidisciplinary and smart collaboration platform for developing a breakthrough eco-centric strategy considering the local sources, economic and social perspectives at transnational level within the EU.

