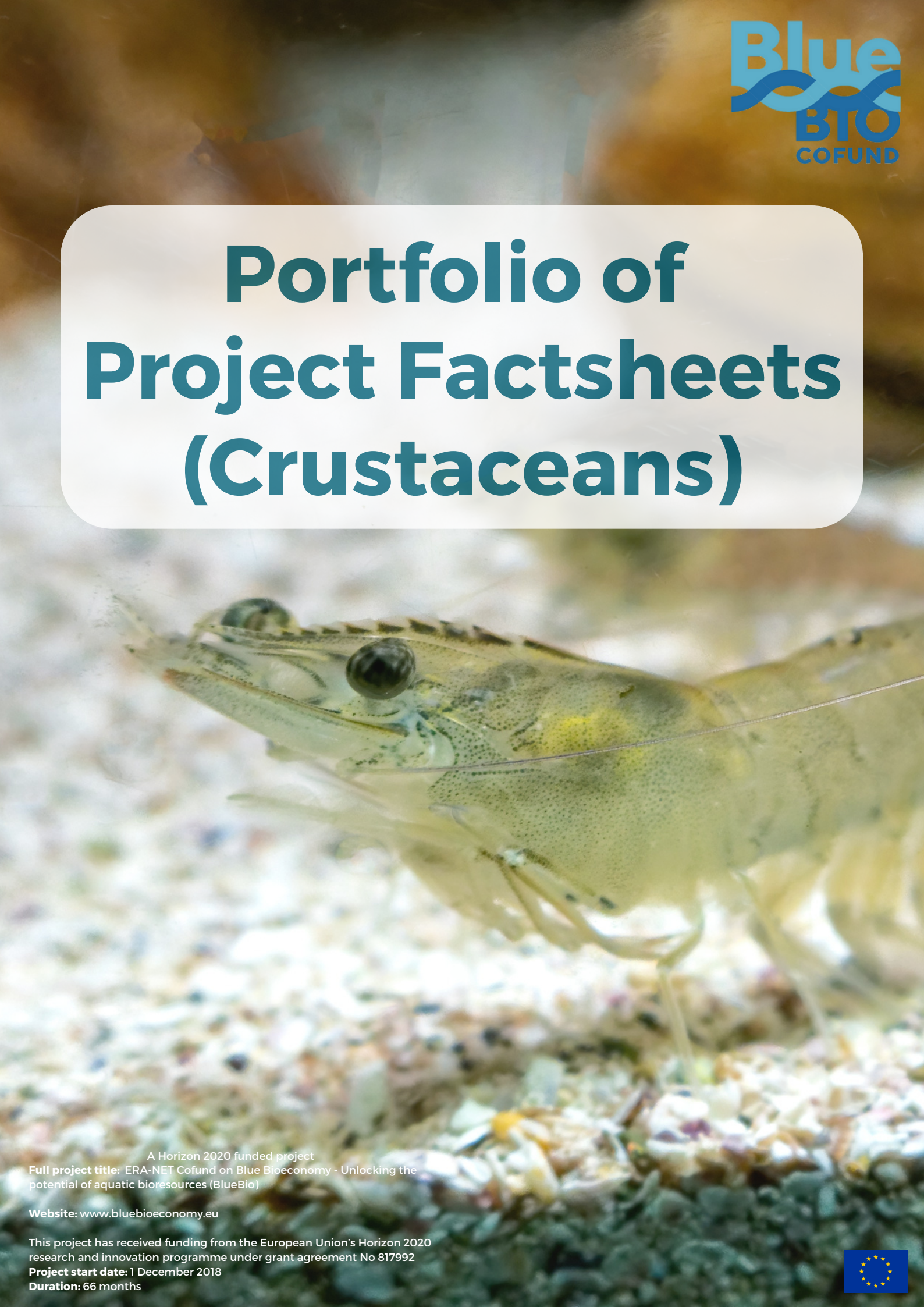
Portfolio of Project Factsheets (Crustaceans)



A Horizon 2020 funded project

Full project title: ERA-NET Cofund on Blue Bioeconomy - Unlocking the potential of aquatic bioresources (BlueBio)

Website: www.bluebioeconomy.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817992

Project start date: 1 December 2018

Duration: 66 months

Overview

These factsheets outline the outputs and commercialisation needs for the 36 BlueBio funded projects as of November 2023. This includes 17 projects from the cofunded call ( ), 9 projects from the 1st additional call ( ), and 7 from the 2nd additional call ( ).

Each factsheet contains the following information:

- Project Name
- Brief description/tagline
- Relevant Blue Invest sectoral opportunity icon (see next page for description)
- Website (if applicable)
- Country flags of industry partners in the consortium
- Outputs (including Technology Readiness Level (TRL), brief description, Intellectual Property Rights (if provided)
- Commercialisation Needs or Next Steps

More information on the projects available on **www.bluebioeconomy.eu**

Blue Invest Sector Opportunities

Aquaculture

- Aquafeed
- Broodstock
- Disease battling & fish welfare
- Equipment
- Rearing/ Harvesting

Blue Biotechnology

- Biofuels
- Cosmetics
- Food & Feed
- General
- Nutraceuticals
- Pharmaceuticals
- Waste Reduction

Blue Biotechnology

- Fishery Services
- Fishing
- Fishing Gear
- Ship Equipment

From Blue Invest report: An Ocean of Opportunities available at https://blueinvest-community.converve.io/

Blue BIO COFUND

BIOSHELL

Recycling crustacean shell wastes for developing biodegradeable wastewater cleaning composites

https://icechim.ro/project/bioshell-en/

Portfolio of Outputs and Commercialisation Needs

Project consortium includes 1 enterprise:

Outputs

Valorisation methodologies for crustacean waste

TRL 4

Obtaining crude chitosan from chitin extracted from waste crustaceans.

Optimised wastewater treatment processes

TRL 5

Micropilot set-up for wastewater purification (heavy metal & antibiotic retaining and microbial effect demonstration).

Industry partners: Edas exim

Products targeting pollutants

TRL 4

Three products targeting bacteria & pathogens with antibiotic resistant genes, metal ions and antibiotics.

Commercialisation Needs

- Upscale of processes
- More collaboration in getting product ready
- Improved visibility and alignment across new products
- Advertising/ marketing for promoting technologies
- Find beneficiary

Blue BIO COFUND

BLUECC

Commercial exploitation of marine collagen and chitin from marine sources

https://bluecc.eu/

Portfolio of Outputs and Commercialisation Needs

Project consortium consists of research organisations

Outputs

Optimised collagen extraction methods

TRL 5/6

Homogenisation and ultrasound application used to reduce pre-treatment time and solution for starfish. Ultrasound increased collagen yield in jellyfish.

Enzyme production from microorganism

TRL 4/5

By changing the chitin source material, it is possible to obtain different enzymes (chitinases) through the degradation pathways used by the microorganism Chi5.

Chitosan extract as flocculant

TRL 5/6

Chitosan extracted from Chinese mitten crab used to harvest (flocculate) microalgal cells from cultivation medium.

Commercialisation Needs

- Scale up collagen extraction
- Scale up production of enzymatic hydrolysis of lumpfish
- Yogurt provider to collaborate with
- New regulation within Novel Food framework

Blue BIO COFUND

InEVal

Increasing echinoderm value chains

https://www.awi.de/en/science/special-groups/aquaculture/aquaculture-research/projects/ineval.html

Portfolio of Outputs and Commercialisation Needs

Project consortium includes 2 SMEs:

Outputs

Sea cucumber technology

TRL 6

Sea cucumber aquaculture production system for fish farm site remediation.

Sea urchin technology

TRL 7

Land-based systems to ripen sea urchins on land and bespoke live urchin transport systems.

Sea star harvesting technology

TRL 8

Highly selective sea star harvesting systems for mussel farms and non-dredge/mop areas.

Sea star based shrimp feed

TRL 7

Optimised shrimp feeds incorporating low-cost sea star meal.

Commercialisation Needs

Linking biomass providers with users/processors

Moving to commercial scale

Blue BIO COFUND

BIORAS SHRIMP

Improvement and innovation of a BIO-secure Recirculating Aquaculture System for SHRIMP and additional biomass circular production

www.bioras-shrimp.eu

Portfolio of Outputs and Commercialisation Needs

Project consortium includes 4 SMEs:

Outputs

Clear water RAS

TRL 6

Recirculating aquaculture system for shrimp rearing with improved technology and husbandry efficiency.

Hybrid RAS-BFT farming system

TRL 5

Recirculating aquaculture system for shrimp rearing using biofloc as a protein rich feed source.

Effluent Treatment

TRL 7

State-of-the-art stream treatment technology for management and reuse of waste solids and dissolved substances.

AI-based water quality monitoring system

TRL 4

Optimised system design using Artificial Intelligence (AI), real time sensors, and Internet of Things (IoT) to facilitate daily operations.

Algae Culture and Aquaponics

TRL 3

Integrated systems to valorise nutrients from shrimp effluent and biomass production for expression of valuable bioactive molecules.

Commercialisation Needs

- **Scale up of closed aquaculture systems (RAS & RAS-BFT)**
- **Facilities for fertiliser production from effluent waste**
- **Scale up of 'green' extraction methods**
- **New product development from plant and microalgal extracts**
- **Market analysis for side products valorisation**

Blue BIO COFUND

ImPrESsiVE

Improved processing to enhance seafood sidestream valorisation and exploration

https://bluebioeconomy.eu/improved-processing-to-enhance-seafood-sidestream-valorization-and-exploration/

Portfolio of Outputs and Commercialisation Needs

Project consortium includes 2 Medium Enterprises:

Outputs

Optimised extraction solutions

TRL 6

Technological solutions for improved extraction of bioactive proteins, fish oil and chitosan.

Bioactive Protein Ingredient

TRL 6

Extracted from underutilised fishery and crustacean sidestreams.

Fish Oil

TRL 7

Extracted from underutilised fishery sidestreams.

Chitosan

TRL 6

Extracted from crustacean sidestreams.

Commercialisation Needs

- **Uspcaling**
- **Market Analysis**
- **Stakeholder Engagement**