



The challenge

Adriatic mariculture provides highly valued fish products for both local and distant markets. This sector can further develop thanks to new available technologies and stronger information for consumers. The sector can offer high qualification job opportunities and boost local economy.

The team

Within **AdriAquaNet** project, **4 industries, 1 consortium** and **6 research laboratories** from both **Italy** and **Croatia** are teaming up to develop and apply technologies for fish farming and marketing. This is the first ever initiative for improving the quality of fish farming and marketing by cooperation between both sides of the Adriatic Sea.

Lead Partner

UNIVERSITY OF UDINE

Department Of Agricultural, Food, Environmental and Animal Sciences

120 professors and researchers, over 200 research collaborators,
60 technical and administrative staff

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THE TEAM

- A** **Marco Galeotti**, Full professor, Diplomate of European College of Aquatic Animal Health, *Project Manager*
- B** **Chiara Bulfon**, Biologist, PhD, *Team Member*
- C** **Donatella Volpati**, Senior Researcher, *Team Member*
- D** **Emilio Tibaldi**, Full professor, *Team Member*
- E** **Gloriana Cardinaletti**, Senior Researcher, *Team Member*
- F** **Francesco Da Borso**, Associate professor, *Team Member*

EXPERTISE

- Fish histopathology, diagnostics of viral and bacterial diseases, fish immunology, vaccine development
- Fish immunology, microbiology and cell biology
- Fish immunology, microbiology and cell biology
- Aquaculture and fish nutrition
- Aquaculture and fish nutrition
- Agricultural and aquacultural engineering, waste management and treatment, anaerobic digestion



A



B



C



D



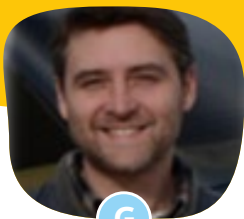
E



F

THE TEAM

- G** **Alessandro Chiumenti**, Senior Researcher, PhD,
Team Member
- H** **Giuseppe Comi**, Full professor,
Team Member
- I** **Iacumin Lucilla**, Associate professor,
Team Member
- J** **Marinella D'Antoni**, Financial Manager,
Financial Manager



G



H



I



J

EXPERTISE

- Agricultural and aquacultural engineering, waste management and treatment, anaerobic digestion
- Food chemical, biological and microbiological analyses, determination of food quality indices, development of new processed products, probiotic and bioprotective microorganisms and new molecular methods
- Food chemical, biological and microbiological analyses, determination of food quality indices, development of new processed products, probiotic and bioprotective microorganisms and new molecular methods
- European Project management at the University of Udine Department of Agricultural, Food, Environmental and Animal Sciences

Roles in AdriAquaNet

In collaboration with other project partners:

LP

Lead Partner

Lead WP 1

Project, Financial and Administrative Management

Lead WP3

Improving of environmental sustainability of fish farming: new sustainable feeds and feeding protocols, waste management, emission reduction and energy saving

Lead WP 4.2

Therapeutic substances/ probiotics/ marine natural products

Lead WP 5.2

Improvement of safety, sensory and quality of fresh and new fish product

Unit 1 – Fish Pathology

Leader: Marco Galeotti

The Unit is equipped with histological, immunological, microbiological, parasitological and biomolecular labs with tissue processor and microtome for histology, biological cabinets, incubators for cell and bacterial culture, automatic plate reader for the assessment of humoral and cellular immune parameters, apparatus for gene expression analysis of immune-related markers, optical microscope, stereo-microscope, inverted microscope, digital system for histological pictures and vet facilities for performing fish vaccination and infection, accredited by the Italian Ministry. A new refrigerated centrifuge and a cell incubator have been purchased thanks to the AdriAquaNet project funds.

Unit 2 – Aquaculture

Leader: Emilio Tibaldi

The Unit is well equipped with certified pilot scale fish farming facilities, biochemical and molecular labs, for testing the response of fish (sea bream) to new feed formulations developed in the framework of the AdriAquaNet project. The definition and implementation of a bio-mathematical model for predicting fish growth and waste load from fish cages is also developed thanks to the project funds.

Unit 3 - Environmental Engineering

Leader: Francesco Da Borso

The Unit is equipped with laboratory scale bioreactors for determination of biomethane potential of fish farm effluents, gas measuring apparatus and methane gas monitor. A new pilot scale bioreactor simulator equipment for long term semi-continuous tests has been purchased for AdriAquaNet project.

Unit 4 - Food Microbiology

Leader: Giuseppe Comi

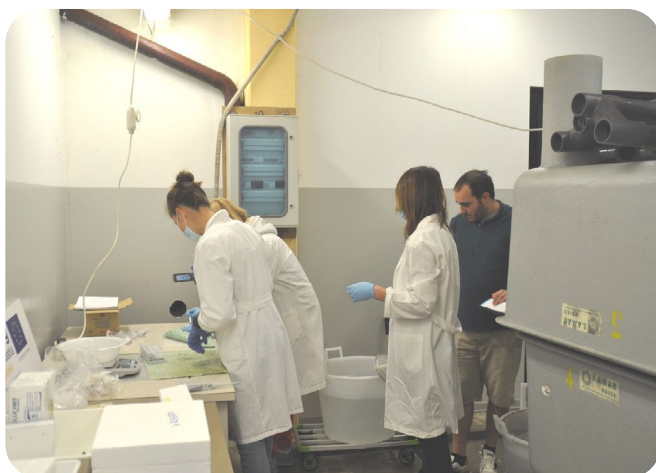
The Unit is well equipped with apparatuses to analyse, check, produce and treat fresh fish and new fish products such as smoked sea bass and hamburgers, in addition new system of packaging to prolong fish shelf-life. The microbial ecology of the spoilage during shelf life is the object of the study using traditional microbiological methods coupled with NGS techniques, in order to find solution to improve the safety of the products and extend the shelf-life. In this context the use of bioprotective starters against the growth of *L. monocytogenes* will be also investigated.



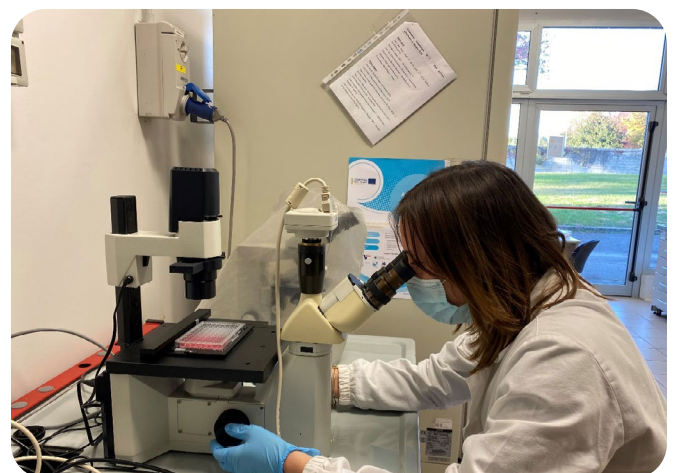
LP pilot scale fish farming facilities at Udine University for performing feeding trials with new diets in sea bream within WP 3.1.



Example of sea bream submitted to the feeding trials with new diets formulated by LP within 3.1.



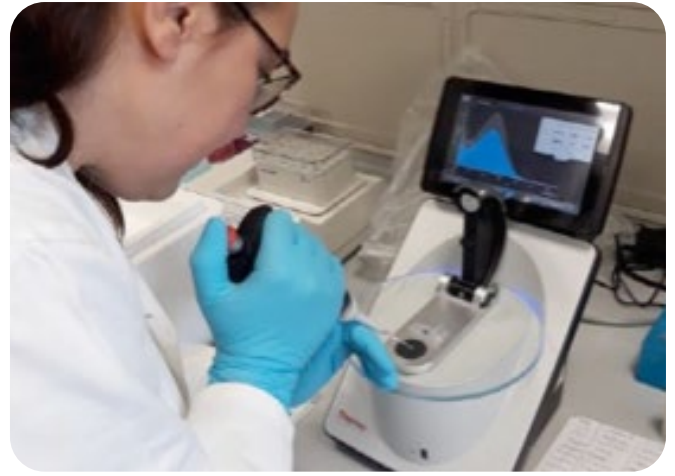
LP technical staff involved in sea bass and sea bream sampling for biometric and biochemical surveys at Udine University facility within WP 3.1, 4.2 and 4.3.



Optical microscope evaluations at Udine University laboratories for studying the potential immunostimulant properties of marine natural products (MNPs) on sea bass head kidney leukocytes within WP 4.2.



Immunological analyses at Udine University laboratories for studying the potential immunostimulant properties of marine natural products (MNPs) on sea bass head kidney leukocytes within WP 4.2.



Biomolecular analyses at Udine University laboratories for studying the effects of new diets on sea bream gut physiology within WP 3.1.



The automatic methane potential test system (AMPTS, by Bioprocesscontrol) used by LP at Udine University laboratories for lab-scale biochemical methane potential (BMP) determination within WP 3.2.



The bioreactor simulator system (BRS, by Bioprocesscontrol) used by LP at Udine University laboratories for pilot-scale tests on anaerobic digestion of fish sludges within WP 3.2.



Under vacuum sea bass packaging produced by LP at Udine University laboratories for studying the microbial quality of fresh fish within WP 5.1 and 5.2.



Plating of sea bass and sea bream sample dilutions at Udine University laboratories for studying the quality of fresh and smoked fish within WP 5.1 and 5.2.