

AT A GLANCE

TITLE:
High-Precision Detection Technologies for Water Quality in Aquaculture

CONSORTIUM:
3 partners

COORDINATOR:
AquaBioTech Group (Malta)
China Agricultural University (China)

DURATION:
December 2020- November 2022

**MALTESE
TOTAL BUDGET:**
€ 233,216.00

NATIONAL FUNDING:
€ 174,912.00

**CHINESE
TOTAL BUDGET:**
1,840,000 RMB

NATIONAL FUNDING:
1,340,000 RMB



High-Precision Detection Technologies for Water Quality in Aquaculture

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Our Partners



AQUADETECTOR

AquaDetector is a two year Science and Technology Cooperation Sino-Malta Fund Project between Maltese partner AquaBioTech Group and Chinese partners China Agricultural University and MingBo Aquatic, under the thematic priority Maritime & Aquaculture. Malta and China have a history of collaborative research going back to 2002 and in 2018 Malta and China signed the Belt and Road Initiative (formerly known as the 'One Belt One Road') agreement to further support collaborative trading, cultural and research activities between the two countries.

The AquaDetector project aims to develop precise detection technologies to visualise water quality distribution, classify fish stress behaviours, and analyse the combined impact of environmental factors on juvenile grouper and trout as reference fish. Histology, biochemistry, and growth will be the three main factors analysed, reflecting fish quality, animal welfare, and production respectively. The coupling correlation model developed will be integrated into a monitoring system in order to achieve smart high-precision detection in RAS.

These innovations will help to further progress Aquaculture in both China and in Malta and promote research collaboration between researchers in the two countries.

Objectives of AquaDetector

- Using juvenile grouper and trout as reference fish, identify knowledge gaps in RAS fish quality, animal welfare and production and develop an integrated smart detection system to address these gaps.
- Develop precise detection technologies to visualize the water quality distribution and classify fish stress behaviour integrated into a monitoring system to provide for the future development of automated RAS production.
- Intensify scientific collaboration between Chinese and Maltese entities to strengthen R&D activities, technology transfer and to carry out comprehensive, steady, and long-term cooperation.

AT A GLANCE

TYPE:

Research SME

LOCATION:

Mosta, MALTA G. C.

CAPABILITIES:

R&D / Consultancy / Engineering

EXPERTISE:

Aquaculture / Marine Research
Blue Growth / Aquatic Environment



Who We Are

AquaBioTech Group is an international consulting, engineering and R&D company with over 20 years of experience in aquaculture, fisheries and other aquatic sciences. Located in the center of the Mediterranean on the island of Malta, although operating globally with clients and projects in over fifty-five countries.

The vast majority of the organisation's work is related to the marine or aquatic environment, encompassing aquaculture developments, market research/intelligence through project feasibility assessments, finance acquisition, project management, technology sourcing, technical support and training.



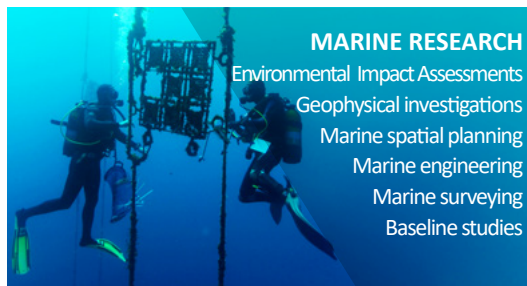
Our Role in the AquaDetector Project

- Assess how stress caused by temperature, varying concentration of dissolved oxygen and CO2, and flow rate, affects the growth, biomass, feeding, oxygen consumption, and physical characteristics of juvenile trout in RAS.
- Validate CFD models of temperature, dissolved oxygen and CO2 in our facility and develop image detection technologies to visualize the water quality distribution.
- Classify fish stress behaviour using video image analysis under varying production parameters, and support the integration of data into a monitoring system to further automate RAS production.
- Disseminate the project results to European stakeholders.
- Identify future collaboration between Chinese and Maltese entities to strengthen R&D activities and technology transfer.

Our Research Activities



AQUACULTURE R&D
 Fish & shellfish hatchery technology
 Health & disease prevention
 Nutraceutical development
 new species development
 Aquatic nutrition research
 Production techniques



MARINE RESEARCH
 Environmental Impact Assessments
 Geophysical investigations
 Marine spatial planning
 Marine engineering
 Marine surveying
 Baseline studies



WATER TECHNOLOGIES R&D
 Recirculation Aquaculture Systems
 Aquaponics
 Wastewater treatment
 Energy efficiency
 Sustainability
 Innovation

AquaBioTech Group

Contact

- +356 2258 4100
- info@aquabt.com
- www.aquabt.com
- AquabioTech Group

Central Complex
Naggar Street
Targa Gap, Mosta
MST 1761
Malta G.C