



# AQUAMONITOR

SENSORS FOR WATER QUALITY  
MONITORING IN INTENSIVE  
AQUACULTURE



**INESCTEC**  
TECHNOLOGY & SCIENCE

CO<sub>2</sub>  
O<sub>2</sub>  
pH

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## SENSORS FOR WATER QUALITY MONITORING IN INTENSIVE AQUACULTURE

INESC TEC is leading a consortium – which includes CIMAR – Centro Interdisciplinar de Investigação Marinha e Ambiental –, the CIQ FCUP – Centro de Investigação em Química at the University of Porto, and the University of Pécs in Hungary – created to develop new sensors for real time water quality monitoring in hyper intensive aquaculture systems. In systems of stackable shallow raceway tanks with water recirculation there are more fish present in less water. Therefore, it is necessary to accurately and constantly monitor parameters, including dissolved CO<sub>2</sub> and O<sub>2</sub>, pH, nitrates and phosphates.

Currently used tools do not respond to the industry's needs. However, these types of tools are critical to reducing the investment risk and to increasing fish production and welfare. In order to make these tools capable of responding to these needs, they should be equipped with more effective optical sensors. New optical sensors are being developed by the consortium for this purpose.

In this project, optical fibre interferometric platforms are being combined with sensitive polymeric membranes to enable the detection of different analyte concentrations with the same instruments. The target analyte in the project is dissolved CO<sub>2</sub> but the technology will evolve towards the detection of multiple parameters to determine water quality.

Developed in 2 years (2011-2012)

### MAIN FEATURES

- Electromagnetic immunity
- Based on standard telecom optoelectronics
- Miniaturisation and versatility
- Multipoint multiparameter detection
- High sensitivity
- Real time remote operation
- Adaptable for different applications

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QUADRO  
DE REFERÊNCIA  
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