AQUACULTURE ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY DEPEND ON TECHNOLOGIES

From underwater drones to IoT, from farming plants designed by means of simulation tools to applied artificial intelligence, an overview of the most innovative solutions and technologies at the Sixth Edition of AquaFarm, in Pordenone on 15 and 16 February 2023.

Pordenone, 9 January 2023. The excitement for the sixth edition of AquaFarm, the major event in the aquaculture, shellfish farming and sustainable fishing for Mediterranean and Southern Europe, organized by Pordenone Fiere in collaboration with API and AMA is on the rise.

In the conferences schedule it could not be left out the attention for the technologies, one of the cornerstone of aquaculture environmental, economic and social sustainability.

As in many different sectors, even aquaculture relies more and more on drones, technically known as ROUV (remotely operated underwater vehicle) that support divers in underwater works typical of marine aquaculture but also in fish farming and shellfish farming. The most recent developments concern the complete replacement of human intervention in some activities, such as inspections and fish counting, thanks to increasingly dependable sensors. More radical developments are pushing in the same direction, making it possible to dispense with the cable connection with the command station, both through the use of different types of wireless connections (optical, ultrasonic, radiofrequency) and by equipping the vehicles with a degree of autonomy and intelligence.

The application of distinct types of artificial intelligence to aquaculture does not stop there. A particularly interesting field is the counting of fish contained in an offshore cage, currently taking place with empirical methods, that joins together sensors with an AI algorithm. In this way it is possible to improve the resource planning by eliminating, for example, waste of feed, which today represents about half of the farming costs. Always combining sensors with AI, today it is possible to keep the water conditions in farms under control or to work on them. How? For example, by checking oxygenation, murkiness, the presence of harmful compounds, so that the purification, disinfection and aeration systems may always operate at their best.

The field of sensors for aquaculture sees a huge development and the quantity and pervasiveness of the data collected allows us to go beyond the monitoring and control of the breeding environment up to the creation of real digital twins of the same, which allows us to carry out simulations to understand in advance how certain interventions may develop in reality. These technologies also allow you to design farms in the best possible way, both at sea and on land, taking into account the environmental conditions in which you are going to operate and devising solutions for better animal welfare, improved work functionality and ergonomics for the workers. Also including the possibility of precisely sizing the water purification and recycling systems with corresponding reduction to a minimum of their impact on the local environment.

For the complete programme of conferences and to participate in AquaFarm 2023, please check the website [www.aquafarm.show](http://www.aquafarm.show)

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