



DHI MARKET AREA: AQUACULTURE AND AGRICULTURE

# AQUACULTURE

## Ensuring the global growth of aquaculture production

A human being needs to drink 3 to 4 litres of water a day, but it takes 2,000 to 5,000 litres of water to produce 1 kg of food on land. In 2050, the world will have 2.7 billion people more to feed than today – with no additional water sources. Aquaculture food production doesn't need watering. However, it's dependent on the condition of water environments (such as water quality and Metocean conditions) and can potentially impact them too. With increased production and the growing need for other ecosystem services, sustainability in aquaculture production is not a desire – it's a necessity.

The shift from hunters and gatherers to farmers has been delayed in aquatic environments, compared to terrestrial environments. But it's happening now. With an annual growth of more than 10%, the aquaculture sector is one of the fastest growing industries in the world. To be sustainable, this growth must be pursued in an environmentally friendly way. The impact of aquaculture on marine or freshwater ecosystem services needs to be mitigated. This can only be done with an in-depth understanding of the ecosystems and by using advanced technology.

- THE CHALLENGES**
- Ensuring environmental sustainability
  - Optimising and securing production
  - Sourcing fish feed and additives

**OUR APPROACH** With 50 years of accumulated knowledge in water environments, we have the requisite understanding of aquatic ecosystems to help the aquaculture industry overcome its challenges. We also have the most advanced technology needed to optimise aquaculture production and ensure its sustainability.

- OUR SOLUTIONS**
- Environmental clearance and licence
  - Site selection and farm design optimisation
  - Production optimisation, including cost-efficiency
  - Toxicology and disease control
  - Feed and culture Research and Development
  - Plankton culture optimisation
  - Optimisation of larval rearing
  - Protection of aquatic resources
  - Accredited laboratories

**THE ULTIMATE GOAL** OPTIMISED AND SUSTAINABLE AQUACULTURE PRODUCTION

In 2010, **more than 50%** of all seafood products were obtained from cultures

## OUR TOOLS AND SERVICES

We can help you optimise your aquaculture production and minimise its impact on the environment. Our tools and services include:

- Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) for production zones
- site selection, farm design optimisation (going offshore, farming density and stocking optimisation)
- water forecasting
- disease control and forecasting techniques
- toxicological and biological expertise with respect to legislation and documentation
- cultivation and feeding protocols (optimised plankton cultivation systems and reduced culture crashes)
- third party verification for technology development
- culture research and live feed development
- efficient larval rearing protocols (increased survival and improved quality of larvae, diversification of raised species)
- advanced bio-filtering for recycled aquaculture
- protection of aquatic resources (restocking programs, use of aquacultured species for the aquarium trade)
- hydrodynamic models with our MIKE Powered by DHI software suite
- ecological modelling with MIKE ECO Lab
- water quality modelling
- connectivity models — Agent Based Modelling (ABM)
- capacity building and training by THE ACADEMY by DHI

Contact us: [info@dhigroup.com](mailto:info@dhigroup.com)  
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