DHI MARKET AREA

AQUACULTURE AND AGRICULTURE

Supporting the expansion of sustainable food production on land and in water

Food production, water and the environment are very closely interlinked. Agricultural food production utilises 38% of the world's total land mass, putting ecosystems and ecosystem services under severe pressure. Landscaping and drainage systems are changing the hydrological balances and runoff patterns. Consumption of huge quantities of water for irrigation can further (through the drainage of nutrients and pesticides) threaten environmental quality.

At the same time, aquaculture food production utilises substantial areas in lakes and coastal zones. Aquaculture is also a potential source of nutrients and toxic substances as well as a source of invasive species and diseases carriers. All these factors can threaten water environments.

Contemporary food production puts a substantial pressure on water resources and ecosystem services. With an estimated 2.7 billion additional mouths to feed in 2050, there will be an increasing need for managerial and technological solutions to push food production further towards sustainability.

THE CHALLENGES

- Meeting the increasing need for more efficient and secure food production
- Increasing environmental sustainability, alleviating threats to water resources and ecosystem services
- Optimising the management and use of water and land

OUR APPROACH

At DHI, we believe that environmental sustainability is key to ensuring food security. We plan and execute holistic and sustainable management strategies and policies. This way, we pave the way to an economically feasible and environmentally sustainable cultivation of terrestrial and aquatic resources.

OUR SOLUTIONS

We provide knowledge and advanced technology that empower you to make decisions that are both feasible and sustainable. We provide services to ensure environmental clearances and licences. We also help ensure optimised and secured production with:

- state-of-the-art assessments
- forecasting and early-warning systems
- production optimisation
- risk control services

THE ULTIMATE GOAL

OPTIMISED PRODUCTION — FEASIBLE AND SUSTAINABLE

In 2050, we will need to feed 2.7 billion people more than today – with no concomitant increase in water sources. Sustainability is not a desire. It's a necessity.

AQUACULTURE

To sustain the development of the world's fastest growing food industry, we provide support for:

FISH FEED AND ADDITIVES

- Fish meal and fish oil replacement (bio-production)
- Live feed for first feeding/behavior
- Probiotic development (production and bioremediation)

PRODUCTION

- Site selection
- Farm design optimisation
- Decision Support Systems (DSS) for offshore automated production units
- Operational water forecast
- Recirculated aquaculture systems

ECOLOGY AND ENVIRONMENT

- Environmental Impact Assessment (EIA)
- Carrying capacity models
- Environmental clearances and licences

AGRICULTURE

To meet the need for increased agricultural production while sustaining environmental resources, we offer services for:

ENVIRONMENTAL ASSESSMENT AND REGULATION

- Integrated nutrient assessment and evaluation
- Pesticide assessment and evaluation
- Strategic environmental assessment of farming activities

PRODUCTION

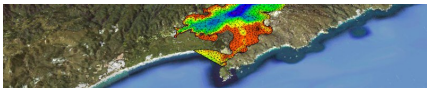
- Irrigation management optimisation
- Remote sensing for precision farming systems

LAND AND WATER

- Erosion management — assessing erosion risks and evaluating present and future scenarios in the context of climate variations and change
- Flood warning systems for more resilient lowland and floodplain farming systems

CASE STORIES

To meet the growing regional and global demand, trout farmers in Storebælt (Great Belt, Denmark) needed to increase their production in two existing marine cage fish farms. We helped them ensure environmental sustainability of their project and obtain legal clearances. To do so, we documented the environmental impacts of their existing production and forecasted the impacts of the projected augmented farming.



In the context of the expansion of aquaculture in Macquarie Harbour (Tasmania), we were called in to conduct a diligence study and lead discussions with the involved stakeholders.

Our thorough study enabled us to identify a scenario, meeting both the needs for increased fish production and environmental preservation. The result: approval of a 64% increase in leasable water space expansion.

The Murrumbidgee river in New South Wales, Australia, is a major source of water for surrounding wetlands, irrigators and other consumers in the Riverina region.

With increasing pressure on the river system, it is crucial to optimise its operational efficiency. We are supporting the river operator in developing and implementing the Murrumbidgee Computer Aided River Management System (CARM).

Contact us: info@dhigroup.com
For more information visit: www.dhigroup.com