DSAocean

How do you Design Marine Fish Farm Systems That Are Practical, Cost-Effective, and Compliant with Regulation?

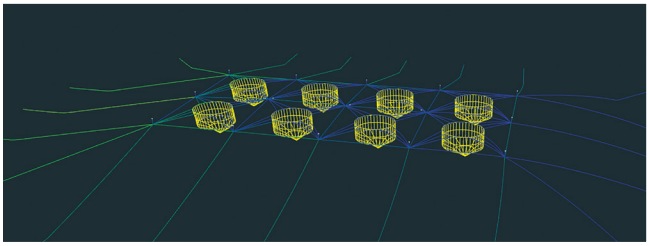
THE CHALLENGE

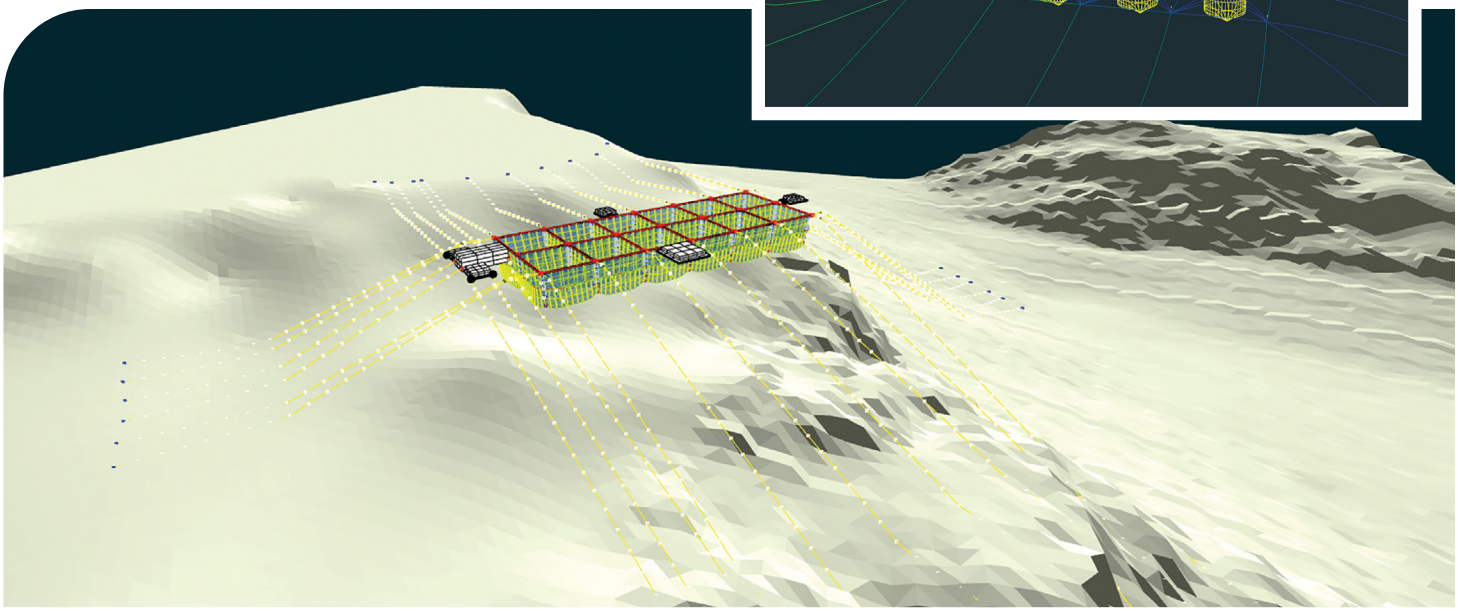
Fish farm infrastructure—including anchors, moorings, floating collars, steel cages, nets, predator protection systems, and feed barges—must operate reliably in harsh marine environments. Wind, waves, tides, currents, bathymetry, service vessels, and more all influence how these systems behave once deployed.

At the same time, aquaculture sites are becoming more complex and capital-intensive. Many farms now include larger net pens (e.g. 200m circumference), high-value feed and compressor barges, deeper nets, predator net systems, and tarpaulins or closed systems.

These developments increase both the engineering complexity and financial risk associated with farm installations. At the same time, regulation requires operators to demonstrate that their aquaculture infrastructure is designed using site-specific environmental conditions and defensible engineering methods.

As a result, both equipment suppliers and farm operators increasingly require robust environmental characterization, engineering analysis, and clear technical documentation to ensure that systems are reliable, efficient, and compliant.





DSA OCEAN'S INNOVATIVE SOLUTION: INTEGRATING ENVIRONMENTAL DATA WITH ENGINEERING DESIGN

At DSA Ocean, we tightly integrate wind, wave, and current measurements and studies with mooring analysis and engineering-ready construction deliverables, giving aquaculture systems a clear path from environmental data to confident, compliant deployment—whether for new sites or upgrades to existing infrastructure.

By carrying projects from site-specific data collection through detailed mooring design, load assessment, and practical deployment guidance, we help producers and suppliers turn complex environmental information into decisions that reduce risk and improve performance. With a deep understanding of each site's conditions, we ensure designs are neither overly conservative nor based on unrealistic assumptions about load combinations.

Our work commonly supports:

- Aquaculture site development and expansion
- Mooring system design and engineering verification
- Independent third-party review of supplier infrastructure designs
- Feed barge and floating infrastructure analysis
- Evaluation of new cage systems and farm layouts
- Infrastructure condition inspection
- Load-cell measurement

Deliverables typically include:

- Mooring layout drawings
- Environmental condition assessment reports
- Mooring analysis reports
- Procurement support / Bills of materials
- Construction-ready engineering documentation
- Marine warranty reports

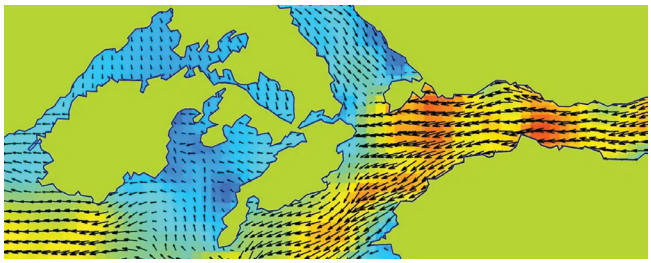
DSA OCEAN'S ADVANCED SIMULATION TECHNOLOGY

DSA Ocean is also the developer of ProteusDS, advanced marine dynamic analysis software used worldwide to simulate floating marine systems. ProteusDS models how fish farm infrastructure responds to real environmental forces including waves, currents, and wind. This allows engineers to evaluate system performance before equipment is deployed in the field. More information on ProteusDS licensing and applications can be found at **proteusds.com**.

Alongside ProteusDS, DSA Ocean applies advanced simulation platforms—selected based on project needs and customer preferences—such as AquaSim, OrcaFlex, and StarCCM+ to analyze:

- Floating cage motions and system behaviour
- Mooring line tensions and anchor loads
- Hydrodynamic effects of deeper nets and lice skirts
- Performance of feed barges and floating infrastructure
- System behaviour under extreme environmental conditions
- Internal flow characteristics in tanks and floating containment structures

These tools allow operators and suppliers to validate designs, optimize infrastructure, and reduce uncertainty before installation.



TRUSTED BY GLOBAL FISH FARMING LEADERS

Mowi Canada West | Haugland Gruppen AS | Creative Salmon | Cermaq | Grieg Canada | Cooke Aquaculture Scotland
Kelly Cove Salmon | Ocean Trout Canada | Barramundi Asia | Fiizk | Tassal | Ngai Tahu Seafood

HOW CAN YOU WORK WITH DSA OCEAN TO DELIVER LOWER-RISK, COST-EFFECTIVE FARM SYSTEM DESIGNS?

Successful aquaculture engineering projects rely on effective collaboration between farmers, equipment suppliers, marine contractors, and engineering and environmental specialists who understand both international aquaculture design standards and the local marine conditions where farms operate. Insurers, regulation, and industry guidelines require that aquaculture infrastructure be designed using site-specific environmental conditions and defensible engineering methods.

DSA Ocean supports aquaculture projects by providing specialized metocean and marine systems engineering capabilities that complement the work of farmers, suppliers, and engineering teams involved in farm development and operation. Depending on the market and project structure, DSA Ocean may work directly with aquaculture producers or collaborate with regional engineering firms, aquaculture service companies, and equipment suppliers. Regardless of the arrangement, DSA Ocean contributes specialized technical services that support design verification, analysis, and engineering decision-making which deliver reliable, cost-effective designs with reduced risk.

DSA Ocean can contribute expertise in areas such as:

- Independent engineering verification of aquaculture infrastructure designs
- Site-specific metocean characterization and development of environmental design criteria
- Mooring system analysis for cages, grids, and floating infrastructure
- Marine dynamic analysis to evaluate loads, motions, and system performance
- Engineering support for new site development or upgrades to existing farms

ABOUT DSA OCEAN

DSA Ocean is a Canadian ocean engineering consulting and software product company specializing in metocean analysis, marine dynamics, ship motions, buoy systems, and mooring system engineering.

The company combines consulting expertise with advanced simulation technology to support aquaculture, ocean technology, naval architecture and marine infrastructure projects worldwide.

Headquartered in British Columbia, DSA Ocean is an ISO 9001-certified Canadian company committed to responsible ocean development and environmental stewardship.

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