

New production chains, strengths and weaknesses concerning fish health

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Deloitte – Team and Competence



Challenges in the fish farm industry



Fish health in production systems



Discussion



Conclusion

Deloitte has built a strong Nordic seafood team, serving the value chain end-to-end with resources with deep industry knowledge in various areas of expertise



16

Resources



5

Offices

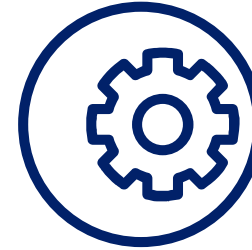


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Areas of
expertise



Global
projects



Serves the
value chain
end-to-end

Deloitte can assist with operational and industry expertise, analysis, capacity planning and research



Operational and industry expertise



Analysis and modeling competence



Research experience



Project management and capacity planning

Deloitte's resources has experience from global projects and has served customers in areas such as analysis, strategic planning & distribution and operational challenges



Cost analysis for a large fish farmer. Deloitte's team discussed findings in the cost analysis relative to biological and operational management.



Several fish farmers in Norway experienced unusually high PD-mortality and some groups had unusually high proportion of maturation. Deloitte was engaged to help the clients to find possible causations and suggested actions.



Deloitte assisted a fish farmer with strategic planning to optimize production volumes and select measurement systems to achieve operational improvement and financial reporting.



Deloitte was engaged to analyze production capability, and facilitate the distribution of updated information for management control.



Deloitte performed various financial calculations on the duty system for fisheries for the Ministry of Fisheries and Aquaculture.

The salmon farming industry is facing known challenges due to diseases, mortality, escapes, smolt quality and sea lice

Escapes



Sea lice



Environment

- Copper
- Feces



Fish health / Mortality

- Smolt quality
- Diseases
- Operations



Life cycle	Fresh Water				Sea Water	
Traditional Fish Farming	Eggs	Fry	Parr	Smolt	Adult	
	Land				Open cages	Fjords and Ocean

Life cycle	Fresh Water				Sea Water		
Traditional Fish Farming	Eggs	Fry	Parr	Smolt	Adult		
	Land				Open cages	Fjords and Ocean	
New Production Methods	Land				Semi-closed	Fjords	
					Closed	Fjords	Flexible structure
					Closed	Fjords	Solid structure
					Semi-closed	Ocean	
					Closed	Ocean	Flexible structure
					Closed	Ocean	Solid structure
					Submersible	Exposed	Flexible structure
					Submersible	Exposed	Solid structure
					Open	Exposed	
					Semi-closed	Exposed	
					Land based		
Combinations							

Life cycle	Fresh Water				Sea Water			Challenges			
Traditional Fish Farming	Eggs	Fry	Parr	Smolt	Adult			Escape	Environment		Lice
									Copper	Feces	
	Land				Open cages	Fjords and Ocean					
New Production Methods	Land				Semi-closed	Fjords		●	●	●	●
					Closed	Fjords	Flexible structure	●	●	●	●
					Closed	Fjords	Solid structure	●	●	●	●
					Semi-closed	Ocean		●	●	●	●
					Closed	Ocean	Flexible structure	●	●	●	●
					Closed	Ocean	Solid structure	●	●	●	●
					Submersible	Exposed	Flexible structure	●	●	●	●
					Submersible	Exposed	Solid structure	●	●	●	●
					Open	Exposed		●	●	●	●
					Semi-closed	Exposed		●	●	●	●
					Land based			●	●	●	●
					Combinations			●	●	●	●

Life cycle	Fresh Water				Sea Water			Challenges			Fish health		
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The fish farming industry is faced with various challenges, however new production methods can make the industry more resilient



With the new production methods some of the known challenges are addressed, while fish health is not equally taken into consideration

Currently mortality is too high with the traditional production methods

What if we had used the same amount of time and resources addressing today's mortality challenges...



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