Ministry of Food, Agriculture and Aquaculture
Borgartún 26
105 Reykjavík
Iceland

Date:
November 4, 2023

Structure and framework for aquaculture - Strategy to 2040 - Case no. 182/2023

Aker Solutions is a Norwegian company with about 11 000 employees that delivers integrated solutions, products and services to the global energy industry. Exposed and offshore aquaculture is selected as one of our priorities in the transition to new industries. We have been working with aquaculture projects since 2016 and have been involved in several designs and projects in operation. Our ambition is to design and deliver complete fish farming facilities for exposed and offshore fish farmers.

We find the process for the new aquaculture legislation in Iceland very interesting and we are grateful for the opportunity to give input we believe can be of interest to the Icelandic government.

The idea of using the taxation system to motivate farmers to use farming methods with less impact on the environment seems both refreshing and sound. Both post-smolt and closed/semi-closed farming systems as proposed are good candidates to reduce environmental impact, but we would encourage the Icelandic government to also consider submersible farming systems and multi-barrier net systems in this context. Submersible farming systems that submerge the fish below the sea lice zone and the high energy wave zone show good results in Norway with reduced pressure from sea lice and consequently less treatment of fish. Double barrier net systems, where the nets can be handled independently and are sufficiently spaced apart can give a significant reduction in probability of fish escaping as two individual incidents are generally required to break both barriers.

Offshore Fish Farming

We are very pleased to see offshore fish farming on the table. In our experience, offshore fish farming should be a good fit for Iceland and create value in the local communities related to installation and completion of the farms, operation of the farms, supply bases, vessels and other parts of the value chain. It also seems apparent that offshore fish farming, especially in the area south of Reykjanes can have great synergies with the land-based salmon farming industry. As land-based salmon farms are located nearby the potential offshore fish farming area; infrastructure and value chain can be shared for supply of feed, smolt/post-smolt, slaughterhouses, value added processing and logistics for exporting. Further there can be sharing of competency for veterinarians, technicians, farm operators etc.

We believe that offshore fish farming will benefit from applying the same principles as now proposed for coastal farms (“one fjord, one farmer”). With offshore fish farming this can be facilitated from day one as “one area, one farmer” by separating a larger area for offshore fish farming into sub-areas where each sub-area will be operated and managed by one farmer. The sub-areas should then be selected based on biosecurity and governing sea currents to minimize the influence between sub-areas and prevent spreading of diseases and sea lice. Each sub-areas can contain several farming units, that have the same fallowing periods.

As a potential supplier for the Icelandic offshore farming industry, we see that predictability is key for realizing such large and complex projects. Several large investments are required, not only in the fish farming facilities, but also in other parts of the value chain. In our understanding, a “critical mass” with several facilities is required to have an economically sustainable industry, but that it is a sound risk reduction measure to gain experience from operating “pilot units” before scaling up. Hence, we applaud the proposal for granting development licenses for offshore fish farming but recommend that farmers installing and operating “pilot units” under development licenses have a first right to further develop a sub-area up to a critical mass if they show they can operate the facilities according to the government’s expectations. The possibilities for development of an Icelandic supply industry for offshore fish farming will increase with predictability in scaling up and make investments in infrastructure easier.

An offshore fish farming unit require large investments that have a long depreciation period, and the design lifetime of a unit is typically 20-30 years. Predictability in the regulatory framework, including taxes, is likely required to fund such large investments in a new industry. By predictability, we do not mean that the government shall be prevented to regulate the industry as you see required, but that triggers for such changes to regulations are understood in advance.

Offshore Wind

Aker Solutions has been involved in several studies related to offshore wind and offshore fish farming and see that there is potential for synergies by collocating offshore wind and offshore fish farming, either in the same area or in neighboring areas. Wind turbines are spaced in an area to limit turbulence effects from one turbine to the next turbine, and fish farming facilities are spaced to increase biosecurity. Locating fish farming units between turbines or turbines between fish farming units will give a better utilization of an area with a total lower conflict towards other users of the ocean space (e.g. fisheries and shipping). Further, the wind turbines can provide power and telecommunication to the fish farm facilities and the export cable from the turbines can be used to transfer electricity to the farm in periods with low wind. Also, there can be sharing of infrastructure such as supply bases, people transfer vessels and service vessels in the operational phase and sharing of infrastructure for completion and installation of units in the development phase.

We would recommend that inclusion of offshore wind is considered in the assessments of areas for offshore fish farming (and vice versa) to enable such colocation.

We are happy to further discuss and elaborate on these topics if this is of interest.

Yours sincerely
for and on behalf of Aker Solutions AS

Kristoffer Kjellså Jakobsen
Head of Technology, Aquaculture
Aker Solutions

+47 67513228 | +47 97712970
kristoffer.jakobsen@akersolutions.com | www.akersolutions.com