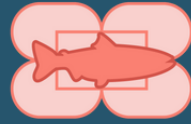




CS4



Iceland  
Land-based aquaculture.  
Salmons.



Industry partner: Samherji fiskeldi



Research partner: Matis

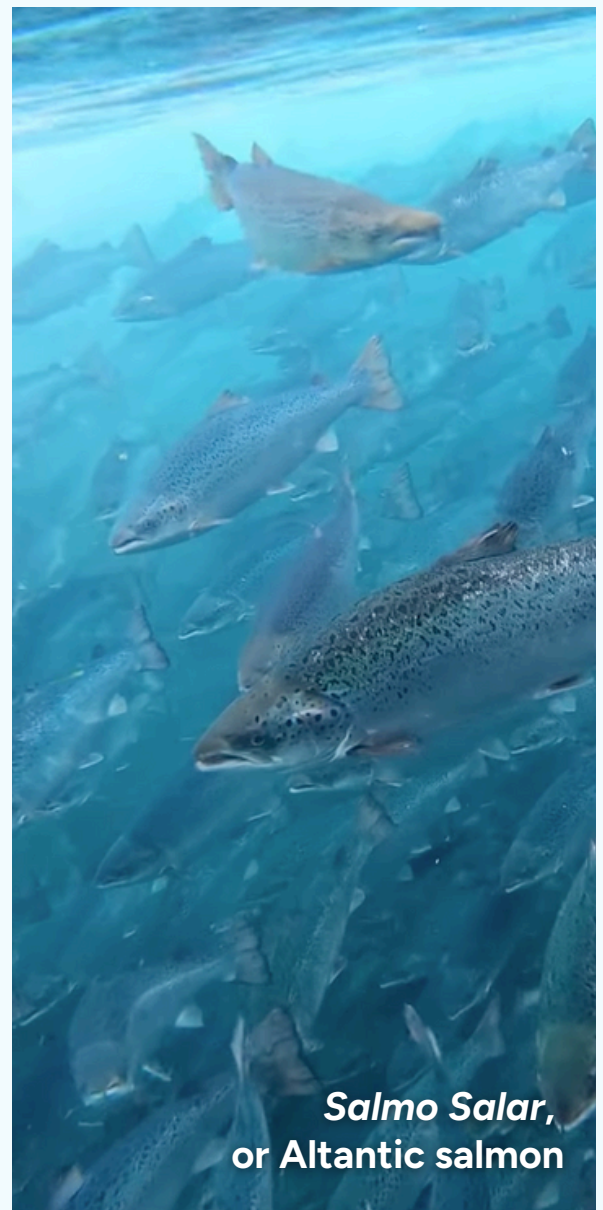


Stakeholder: Salmon farming industry

## Challenge

Land-based farming of salmon is increasing as growth in marine aquaculture is constrained by regulatory, biological, and environmental challenges. In land-based systems, fish is more protected from disease and environmental extremes, **improving fish welfare and biomass security**. Moreover, substantial amount of **sludge** composed of faeces and unconsumed feed can be collected and utilized.

Current disposal practices, such as in landfill or discarded into the sea, are **neither environmentally friendly nor sustainable in the long term**. With planned production in Iceland alone, 300,000 tonnes of sludge is expected to be created annually. Therefore there is an urgent need to valorize this material in a circular and responsible way.



*Salmo Salar,*  
or Atlantic salmon

# Proposed solution

## S4: Pyrolysis process for aquaculture sludge

🐟 **Biochar** is produced with pyrolysis process, where raw material is heated at high temperatures (300-900°C) under anaerobic conditions.

The aim is to develop a pyrolysis process for aquaculture sludge to turn it into **biochar** and prove its usability as a **soil improver and fertilizer**. This approach both **sequesters carbon** from the sludge biomass and **reduces the need for imported fertilizers** by improving soil health and performance.

🐟 **Biochar production will be validated in an operational environment** to assure quality, efficacy, and added benefits for farmers, the environment, and the economy.



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