

Cermaq Canada brings innovative, new technology to BC waters

Campbell River – Cermaq Canada will be trialing a new, innovative farm system at its operations on the west coast of Vancouver Island this fall. The new farming system is a semi-closed containment system (SCCS), which has been trialed from sea water entry to one kilogram in Norway with promising results. The system components arrived in Canada earlier this month, and assembly is now underway in Port Alberni. Once the SCCS structure is complete, it will be taken by barge to Cermaq’s Millar Channel farm site in Clayoquot Sound.

“After years of planning and coordination, and in cooperation with the Ahousaht Nation leadership and Cermaq Global, we are excited to have commenced assembly. This is the first step leading up to the planned stocking of the SCCS at our Millar Channel farm site, off the west coast of Vancouver Island in Clayoquot Sound, in the traditional territory of the Ahousaht First Nation, later this fall,” says David Kiemele, Managing Director for Cermaq Canada. “This first of its kind system outside of Norway, uses a patented material to form a fully enclosed lining, or bag, to encompass the SCCS structure. Water is pumped into the system through four screened sea water intakes, and exits the bag through 12 deep-level screened ports. The bag remains pressurized through continuous and positive water flow. This will essentially eliminate lateral contact between wild and farmed salmon, which has benefits to both populations. The system also allows for greater precision in farming by providing increased oversight of the environment inside the system by controlling water temperature, dissolved oxygen and preventing sea lice and algae from entering the system.”

Naturally occurring algae, some species of which can be harmful to fish, and sea lice are usually found in the top layers of the water column. The new system will allow Cermaq Canada to set the sea water intakes below this depth, which will intentionally limit the introduction of these two organisms into the farm system.

“These sea water intakes are able to be set at site specific depths which provides many benefits. We will investigate setting the intakes at deeper depths, to limit introducing sea lice and algae and to stabilize the environment in the system. This evaluation is a key component as we assess the technology for future use in British Columbia,” says Linda Sams, Sustainable Development Director for Cermaq Canada.”

The SCCS may be a companion to existing systems and farming techniques. It will be Cermaq Canada’s first step towards an “on-farm application” of this exciting and innovative technology.

“We are just finishing our second trial producing one kilogram salmon, in a semi-closed cage in Norway, similar to the one being deployed in Canada, and we are very excited by the results. During both trials, a control system was anchored adjacent to the new SCCS. The fish within the SCCS showed consistently better growth, overall improved performance and almost no occurrence of sea lice within the SCCS. We are looking forward to testing this technology under Canadian conditions, which we know are quite different than those seen in Norway,” added Kiemele.

The system was designed and built by FiiZK in Norway and shipped in components to Canada. After reviewing several proposals, Cermaq Canada selected Canadian Maritime Engineering (CME) to oversee and manage the assembly.

“We will be using local labour, including pipe fitters, safety and security for the duration of the assembly which is expected to take approximately eight to 10 weeks,” says Jim Drummond, Lead Project Manager for CME. “All assembly will be located within the CME Canal Beach location in downtown Port Alberni and we look forward to working with representatives from FiiZK and Cermaq on this new system.”

Applying our knowledge and technology across regions is priority in Cermaq. Trialing the SCCS in BC will test the system against other challenges and risk than seen in Norway, and give knowledge about the potential for the SCCS in BC. Upon completion of this project, Cermaq will develop a roadmap for potential SCCS implementation in parts of our operations, including the description of required technology improvements and potential of suitable sites for this type of system.

Semi-closed containment system timeline and quick facts:

- Assembly of the system will take approximately eight to 10 weeks, and is scheduled for completion in late summer. Once completed, the system will be taken by barge to Cermaq’s Millar Channel farm site in Clayoquot Sound, in Ahousaht Territory, for anchoring, and further completion. The system is scheduled to be stocked in November 2020, with harvest expected in the late spring or summer of 2022.
- The SCCS can be located at existing salmon farm sites, and uses a large, water-pressurized bag system which is made of a flexible polymer material that sits outside of the traditional netting system – creating an impenetrable barrier between the open ocean and the inside of the pen.
- Water is pumped into the salmon pen through four sea water intakes that are capable of pumping 300 cubic metres of water per minute, which allows for the creation of constant water circulation through the 12 deep-level ports.
- As the lining maintains constant water pressure and movement thanks to the intake pumps and the lower level ports, there is no risk of the bag “deflating”.
- The system can be customized to specific sites, based on depth, dissolved oxygen levels, and water temperatures.
- The system will be the first of its kind in Canada, but has shown promising results in Cermaq Norway where two trials of salmon, reaching up to one kilogram, have been conducted.
- Once pumped into the system through the screened intakes, water exchanges within the system in approximately 50 minutes.
- The tensile strength of the system is strong – at 1300/1300 daN/5cm – and can easily withstand storm activity and predator attacks.

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