

**Outcome of Phase 2a of Strategic Salmon Health Initiative:**  
**Successful Development and Assessment of the BioMark™ Research Platform**

Phase 2a of the Strategic Salmon Health Initiative (SSHI) is now complete, with the outcome being the successful development and assessment of the Fluidigm BioMark™ technology.

The Fluidigm BioMark™ HD System is an innovative research platform that will be used to analyse over 30,000 salmon tissue samples for the presence of microbes that could be impacting salmon health. The technology offers the potential to assess up to four dozen salmon microbes at once, a scale never before achieved for any species.

Given that this technology will provide the most in depth survey of salmon pathogens ever undertaken – including infectious agents that can cause reportable diseases – it was imperative the equipment work to extremely high standards to ensure the information created is credible and repeatable.

Following requirements set out by Fisheries and Oceans Canada, the platform evaluation underwent a formal peer review process through the National Canadian Science Advisory Secretariat (CSAS), which involved over 20 international expert reviewers. The stated purpose of the review was to determine if the platform was fit for research purpose to characterize the presence and load of salmon microbes.

The evaluation entailed the analysis of 335,808 individual assays to evaluate the simultaneous performance of 46 microbe assays, the largest assessment of its kind. By all measures, the assays applied on the platform performed to high standards, demonstrating a high degree of sensitivity, specificity, and repeatability, all at a much reduced cost and with huge time savings. Given these results, the CSAS review declared the technology as “fit for application”, meaning it will be used in subsequent phases of the SSHI.

**The Strategic Salmon Health Initiative**

The Strategic Salmon Health Initiative was initiated by the Pacific Salmon Foundation, Genome BC and Fisheries and Oceans Canada to investigate issues related to the survival of juvenile salmon during their ocean migration.

The overall goal of SSHI is to discover the microbes present in BC's Pacific salmon that may reduce the productivity and performance of our wild Pacific salmon. As part of that, it will try to clarify the debate about the presence of microbes in wild, hatchery, and aquaculture fish and the potential interactions of open net-pen salmon farming and migrating Pacific salmon.

Phase 1 of the SSHI established a foundational tissue library of both cultured and wild salmon. With the successful outcome of Phase 2a, those samples will now undergo analysis in Phase 2b using the Fluidigm BioMark™ research platform. A portion of the collected tissue samples will also undergo:

- histopathological analysis and gene expression profiling to identify microbes most likely to associate with disease; and
- epidemiology analyses to identify distributional patterns of microbes in wild, hatchery and aquaculture salmon.

Phase 2b is expected to take from 24-36 months, with results reported throughout that time.

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**STRATEGIC SALMON HEALTH INITIATIVE PHASE 2a SUMMARY**

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