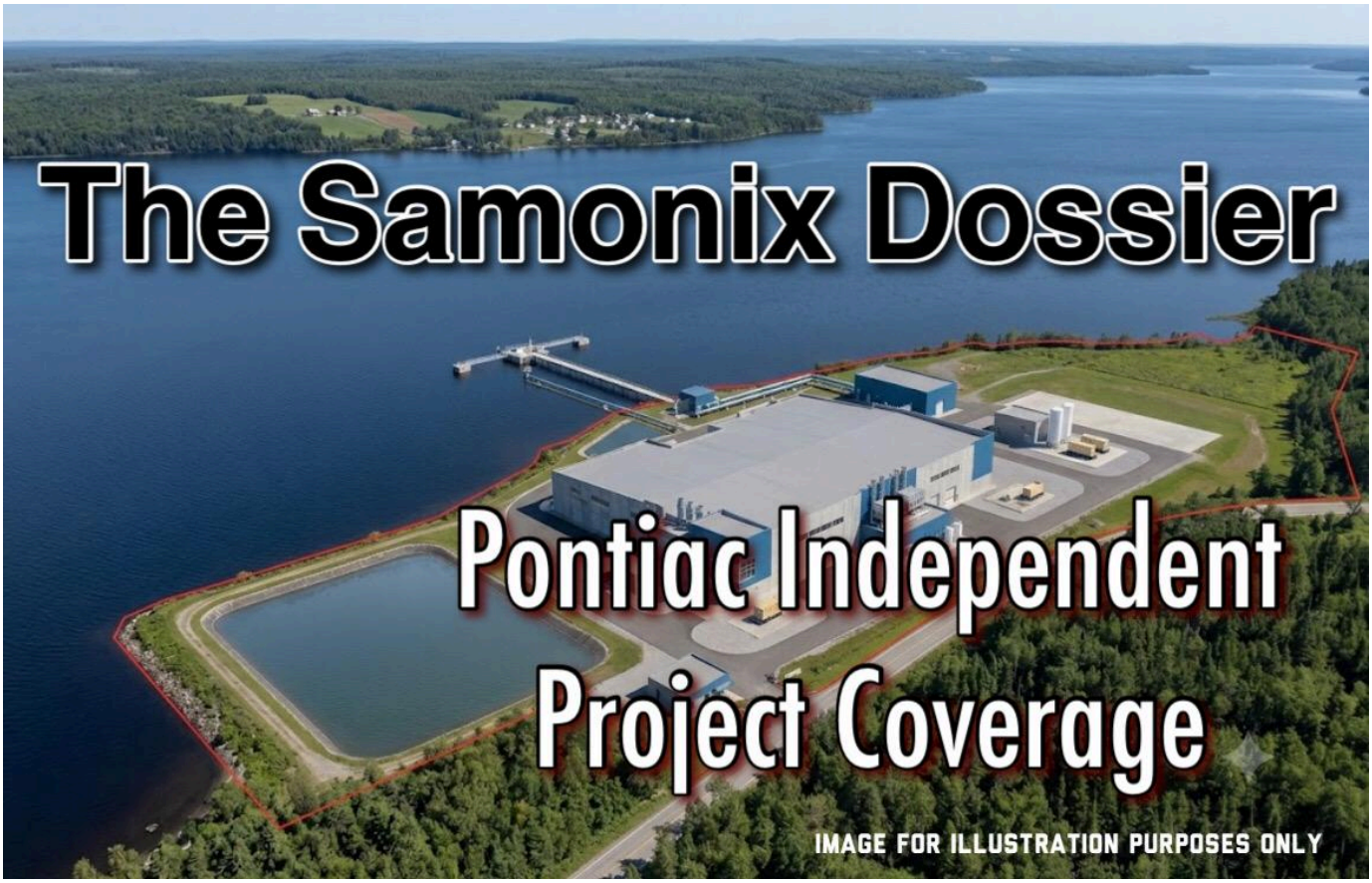

A Public Information Compilation on the Proposed Aquaculture Project

All articles published exclusively by **Pontiac Independent**

Pontiac Independent has provided ongoing coverage of the proposed Samonix land-based Atlantic salmon aquaculture facility in Litchfield, Quebec. The more than $300 million US project would produce an estimated 10,000 to 12,000 metric tonnes of salmon annually and withdraw and discharge millions of litres of water each day from the Ottawa River. Given its scale, we believe it is important that residents understand the proposed project and its potential implications in order to support informed public discussion and decision-making.

Contents

Acronyms: BAPE - Bureau d'audience publiques sur l'environnement

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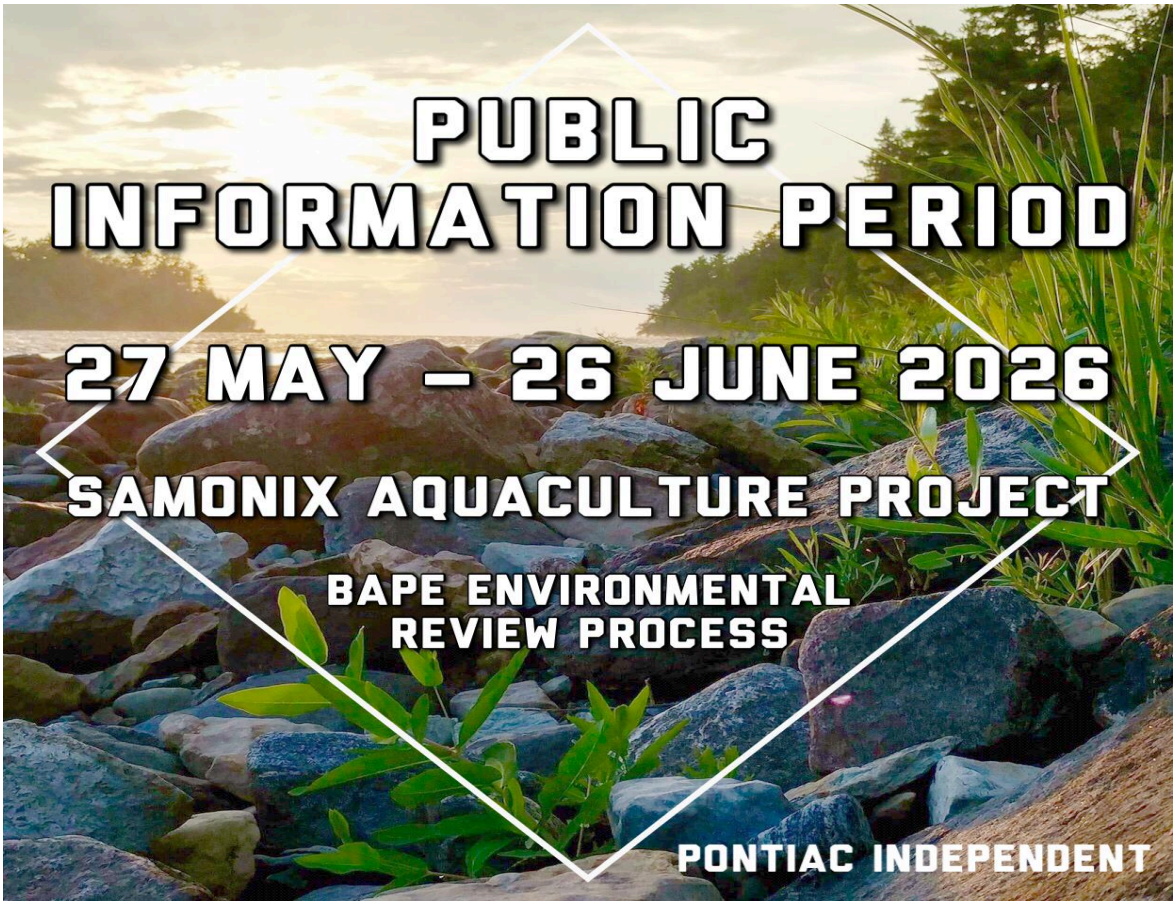


Residents Learn More About Proposed Samonix Salmon Farm During BAPE Information Session

Residents gathered in Campbell's Bay on June 4 to learn more about the proposed Samonix land-based salmon farm during a public information session organized by the Bureau d'audiences publiques sur l'environnement (BAPE).

The session, held at the Campbell's Bay Recreation Centre and streamed online, provided an opportunity for citizens to hear directly from project representatives and ask questions about the proposed intensive recirculating aquaculture facility planned for the Pontiac MRC.

During the meeting, Samonix Inc. presented information about the project, while representatives from the BAPE explained the environmental assessment process, public participation opportunities, and the role of the organization in reviewing projects subject to Quebec's environmental authorization process.

The information session marked an important step in the ongoing public information period, which runs from May 27 to June 26, 2026. Throughout this period, residents, municipalities, organizations, and community groups have the opportunity to review project documents, submit comments and concerns, and request further public review through the BAPE process.

Under Quebec's environmental assessment framework, a single admissible request can lead the Minister of the Environment to consider assigning the BAPE a mandate for a public hearing, targeted consultation, or mediation. Requests for public review must be submitted no later than June 26, 2026.

The session allowed community members to raise questions and seek clarification on various aspects of the proposal, including environmental impacts, water use, wastewater treatment, project operations, and the regulatory review process.

While Samonix representatives indicated that no additional public information sessions are currently planned for the summer, the public consultation period remains open, providing residents with an opportunity to continue reviewing project information and participating in the environmental assessment process.

Residents seeking additional information can access project documentation through the BAPE, as well as on the Ministry's website linked below.

BAPE bilingual Public Information Session June 4, 2026 video recording https://www.facebook.com/share/v/1Cf5DUWCMD/?mibextid=wwXIfr

BAPE bilingual Public Information Session June 4, 2026 PowerPoint presentation

https://www.facebook.com/share/p/1dapSK78fs/?mibextid=wwXIfr

Source documents: Samonix Project Documentation

https://www.ree.environnement.gouv.qc.ca/projet.asp?no_dossier=3211-15-021

https://www.facebook.com/share/p/16xXu3kGm6/?mibextid=wwXIfr

Understanding the BAPE Process: What It Is and How Residents Can Participate

As the proposed Samonix land-based salmon farming project moves through Quebec's environmental assessment process, many residents have heard references to the Bureau d'audiences publiques sur l'environnement (BAPE). However, there is often confusion about what the BAPE actually does, what authority it has, and how the public can participate.

The BAPE is an independent public body created by the Government of Quebec in 1978. Its role is to inform the public, conduct consultations, investigate issues related to projects under review, and provide recommendations to the Minister responsible for the environment. The BAPE does not approve or reject projects. Instead, it gathers information, hears from the public, analyzes the issues raised, and submits a report to the government. The final decision on whether a project is authorized remains with the Government of Quebec.

It is important to understand that the BAPE is only one stage of Quebec's broader environmental assessment process.

The process begins when a project proponent submits a project notice to the Ministry of the Environment, the Fight Against Climate Change, Wildlife and Parks. The Ministry then issues guidelines outlining what must be included in an environmental impact study. These studies typically examine topics such as project justification, alternative options, environmental conditions, potential impacts, mitigation measures, emergency response plans, and monitoring programs.

Once the impact study is completed, specialists from the Ministry and other government departments review the documentation and may request additional information or clarifications from the proponent. This review can continue through several rounds of questions and responses before the information is considered complete enough to be made public.

When the project documentation is deemed ready for public review, the Minister asks the BAPE to begin the public participation phase.

This stage is often the first opportunity for residents to become directly involved in the process. Project documents are made publicly available, and the BAPE organizes a public information session where citizens can learn about the project, hear presentations, ask questions, and obtain information about both the proposal and the environmental assessment process.

Following the information session, a public comment period remains open. During this period, individuals, organizations, municipalities, businesses, and community groups may submit comments, concerns, questions, or requests for additional public review.

Depending on the issues raised and the circumstances of the project, the Minister may mandate a more extensive BAPE process, such as a public hearing, targeted consultation, or mediation.

A public hearing is the most comprehensive form of BAPE review. It is generally conducted in two parts. During the first phase, citizens, organizations, experts, municipalities, and commissioners question the project proponent and government agencies to obtain information about the project and its potential impacts. During the second phase, members of the public may submit briefs, present opinions, and express support, concerns, or recommendations regarding the proposal.

At the conclusion of its mandate, the BAPE prepares a report summarizing the information gathered, the concerns raised, and the commission's analysis. The report may contain findings, observations, and recommendations, but it is advisory rather than binding. The report is submitted to the Minister and later made public.

The process does not end when the BAPE report is completed.

Following the BAPE stage, specialists from the Ministry and other government departments continue their technical analysis of the project. They examine environmental, social, economic, and technical considerations and evaluate whether the project is environmentally acceptable and whether additional conditions may be required.

The Minister then reviews both the BAPE report and the government's technical analyses before making recommendations to the Quebec government.

The Government of Quebec ultimately decides whether to authorize the project, authorize it with conditions or modifications, or reject it entirely. Even if a project receives approval, additional permits and authorizations may still be required before construction can begin.

Another common misconception is that the BAPE focuses exclusively on environmental issues. In practice, environmental assessments often examine a broad range of factors that may affect a community, including environmental impacts, social impacts, economic considerations, infrastructure requirements, housing availability, transportation impacts, public health concerns, and long-term sustainability questions. These issues are frequently interconnected and can influence how a project is evaluated.

If a project is ultimately approved, the review process does not end there either.

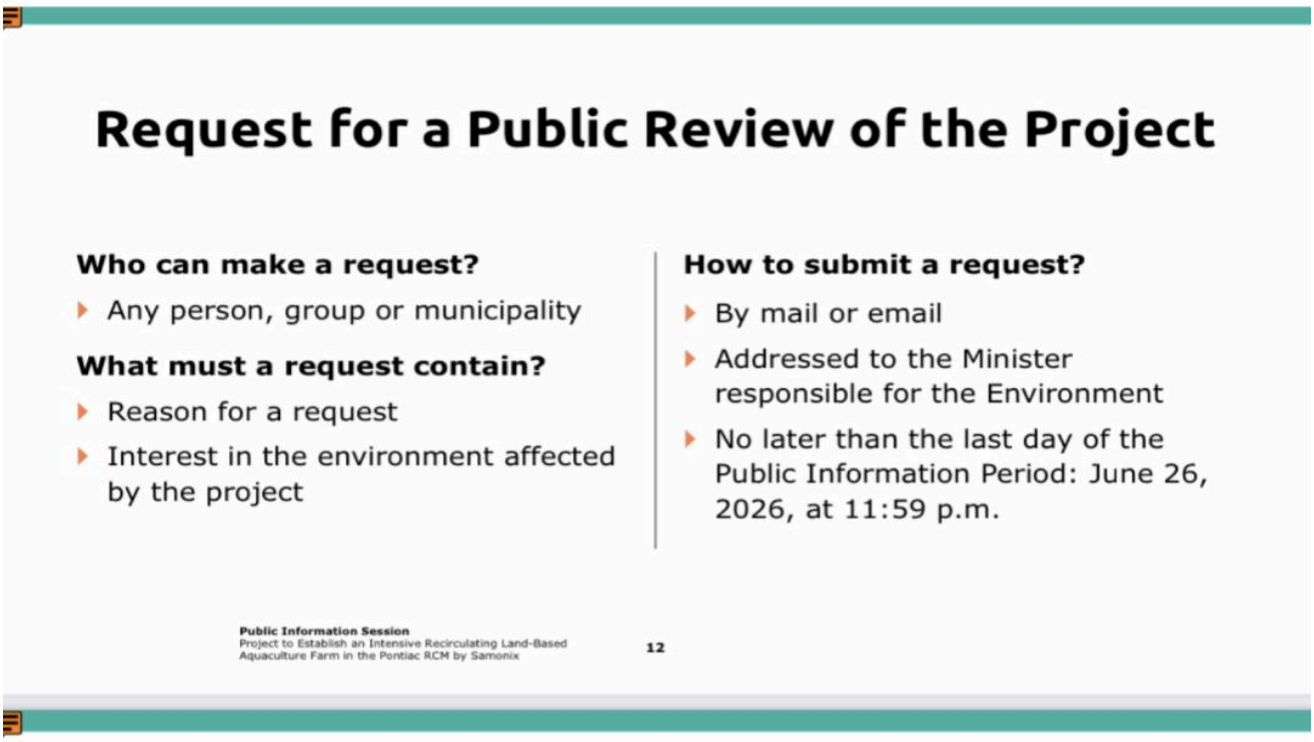
The proponent remains responsible for complying with all approval conditions, environmental monitoring requirements, mitigation measures, and follow-up programs. Government agencies continue to oversee the project throughout construction, operation, and, eventually, site closure or decommissioning. Monitoring programs are intended to verify whether predicted impacts are accurate and whether mitigation measures remain effective over time.

For residents interested in the proposed Samonix project, the public information session represents an opportunity to ask questions directly, clarify information contained in the project documentation, and better understand the potential environmental, social, and economic implications of the proposal. It also provides an opportunity to learn how to participate in future stages of the process should additional public consultation be requested.

In simple terms, the environmental assessment process can be viewed as six broad stages:

1. Project notice and government guidelines.
2. Preparation and review of the environmental impact study.
3. Public participation through the BAPE process.
4. Government technical analysis.
5. Government decision.
6. Monitoring, compliance, and follow-up.

Ultimately, the purpose of the BAPE process is not to advocate for or against a project, but to ensure that decision-makers have access to public input, expert analysis, and a thorough examination of the potential impacts before any final decision is made.



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Concerned About the Proposed Samonix Aquaculture Farm? Here's How to Request a Review

Deadline: 26 June 2026

During the 30-day public information period, any individual, group, organization, or municipality may submit a request to the Minister of the Environment asking that a project undergo a public review by the Bureau d'audiences publiques sur l'environnement (BAPE).

Only one admissible request is required for the Minister to consider assigning the BAPE a mandate, which may take the form of a public hearing, targeted consultation, or mediation.

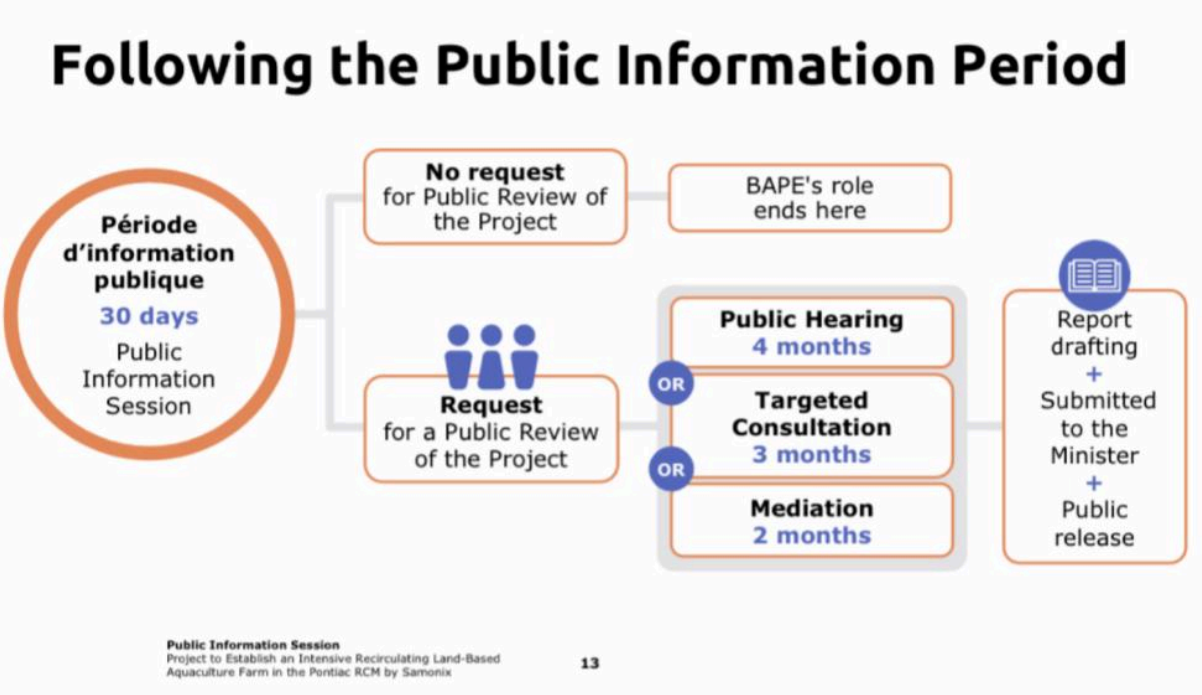
A request must identify the project, explain the reasons for seeking a public review, and describe the applicant's interest in the affected community or environment. For example, concerns about environmental, social, or economic impacts, or a personal connection to the area affected by the project, may form the basis of a request.

Requests must be submitted by letter or email to the Minister no later than the final day of the public information period and must include the applicant's full contact information, including a telephone number and email address.

Once the public information period ends, admissible requests are reviewed. Within 20 days, the Minister may ask the BAPE to recommend the most appropriate type of mandate.
The reasons provided by applicants and their connection to the affected area help determine the review process and assist the inquiry commission in understanding the issues raised by the project.

Contact information:

Cabinet du ministre
Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
Édifice Marie-Guyart
675, boul. René-Lévesque Est, 30e étage
Québec (Québec) G1R 5V7
Courriel: ministre@environnement.gouv.qc.ca
Subject: Projet de ferme d'aquaculture Samonix à MRC Pontiac (Translation: Samonix Aquaculture Farm Project in MRC Pontiac)



For those wishing to learn more about the proposed Samonix aquaculture facility, Pontiac Independent has published in-depth articles examining different aspects of the project, the document list and link, document translation files, and we will be uploading the bilingual June 4, 2026 public presentation file shortly. Readers are encouraged to review Pontiac Independent's full coverage of the project to gain a broader understanding and to make informed decisions about their participation in the BAPE process.

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Samonix — The Project

As the proposed Samonix land-based salmon farming project enters Québec's BAPE environmental review process, many Pontiac residents are trying to better understand what exactly Samonix is proposing to build, and how the proposed operation itself would function.

According to the project documentation, Samonix Inc. is proposing to construct a large-scale land-based Atlantic salmon farming facility within the Pontiac Regional Industrial Park in Litchfield, Québec. The company says the project aligns with Québec's biofood policy and is intended to supply locally produced Atlantic salmon to markets in Québec, Ontario, and the northeastern United States.

Unlike traditional ocean-based salmon farms that raise fish in open-water net pens, the proposed facility would operate entirely on land using a Recirculating Aquaculture System, or RAS. This is a highly controlled indoor fish farming method in which water is continuously filtered, treated, oxygenated, and reused rather than constantly replaced. Salmon would be raised inside large tanks housed in industrial buildings, with pumps, filters, sensors, oxygenation equipment, and biological treatment systems operating continuously to maintain stable water quality and growing conditions.

Samonix states that the project is designed to produce an average of 10,000 metric tonnes of Atlantic salmon per year, with a maximum production capacity of 12,000 metric tonnes annually, representing roughly 2.8 million fish. The overall project would also include the supporting facilities needed for processing operations, and the full facility footprint is expected to cover about 5.6 hectares.

The diagrams included in the project documentation show that the operation would be laid out as a series of connected production and treatment zones.

These would include the hatchery stage, where eggs would be received and incubated, followed by the early fish stages, including alevins, fry, and juvenile salmon, before the fish move into the adult grow-out or finishing tanks.

The schematic also shows separate handling areas for eggs, salt, and other inputs, along with an area for fish manipulation and a separate line for domestic water use.

The documentation also states that salmon production would occur in two separate water environments. Early life stages would be raised in freshwater, while later grow-out and finishing stages would take place in brackish water designed to more closely replicate natural salmon conditions.

To support that production cycle, the facility would require substantial infrastructure. The documentation indicates the presence of a river water intake, a river water treatment system, a main production building, an effluent treatment building, pumping equipment, oxygen generation systems, liquid oxygen storage tanks, a treated-water basin, and a sanitary water treatment system. The map also shows a sediment retention basin, access roads and parking areas, a work zone under construction, a guard post, and other support structures. The project would therefore operate as an integrated industrial facility with multiple interconnected systems.

Water management is one of the central features of the project. The diagrams show that water would be drawn from the Ottawa River, treated, and circulated through the aquaculture system. Inside the facility, water would pass through multiple treatment stages as fish move through each production phase. The system also includes a denitrification unit to reduce nitrogen compounds, as well as a treated-water basin prior to final discharge.

The water intake would be located approximately 160 metres from shore at a depth of roughly 10 metres. The intake pipeline would reportedly be installed primarily through directional drilling in order to reduce disturbance to the riverbed and surrounding aquatic habitat. The company also states that specially designed intake screens would be used to reduce the risk of fish entrainment or impingement at the intake structure.

Before entering the aquaculture system, river water would undergo several treatment stages, including coagulation, flocculation, sedimentation, filtration, and disinfection. This treatment process is intended largely to reduce organic matter naturally present in the Ottawa River.

Samonix says its RAS technology is designed to recycle approximately 99 percent of the water used in the facility, significantly reducing overall water consumption compared with conventional aquaculture systems. Even so, the operation would still require a continuous intake from the river to account for water losses, cleaning, sludge handling, and other operational needs. In that sense, the Ottawa River would remain an essential input source for the operation.

Because the facility is designed as a high-recirculation aquaculture system, most waste generated by the operation would be separated and managed through dedicated treatment streams rather than discharged directly into the environment.

Solid waste collected from the fish tanks, primarily fish feces and uneaten feed, would be filtered from the water and processed as sludge.

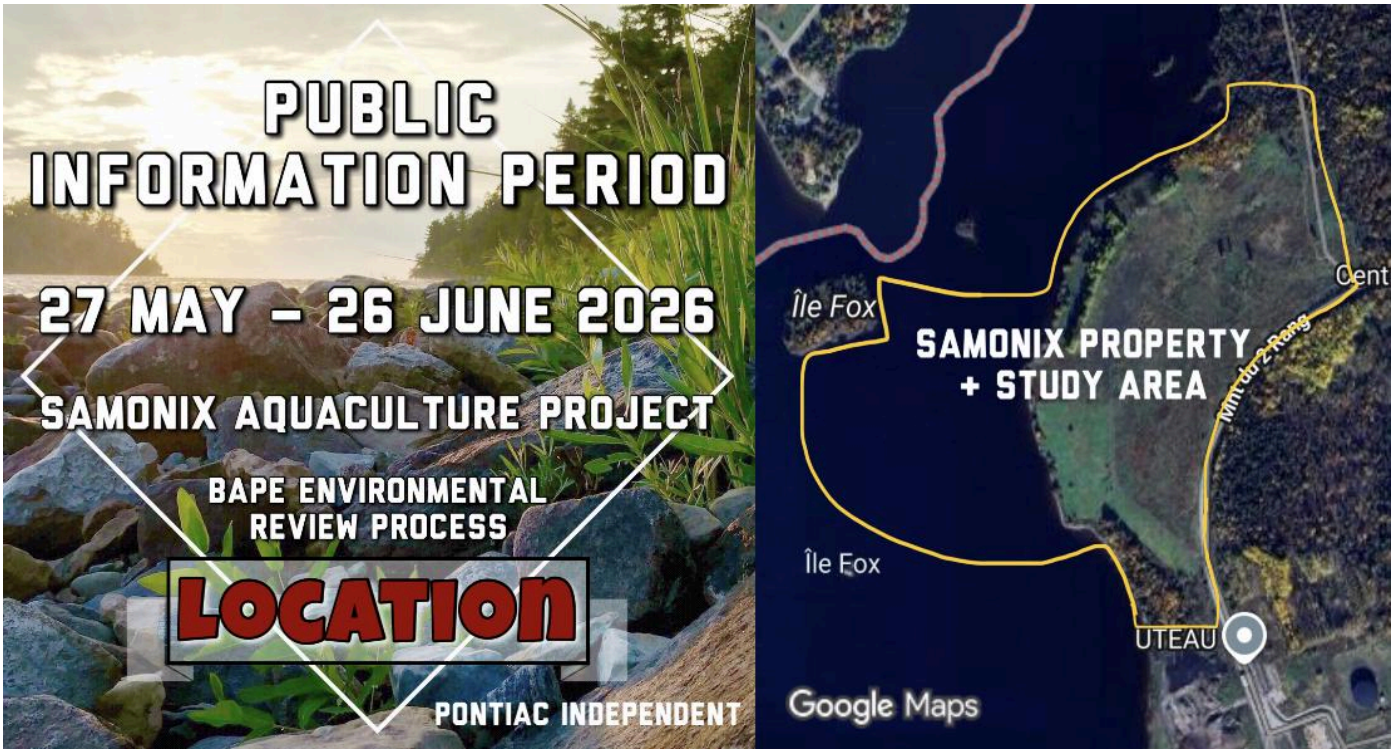
That sludge would then be compacted and dewatered before being transported in sealed containers to a specialized biomethanation facility in the Montérégie region of Québec. There, the organic waste would undergo anaerobic digestion to produce renewable natural gas and agricultural fertilizer products.

Once the salmon reach maturity, processing would also take place on-site. Some fish would be prepared as fillets, while others would be sold whole and gutted. Fish viscera would be treated through ensiling for off-site reuse, while fish mortalities would be stored in sealed containers before being transported off-site for further handling.

The remaining wastewater that cannot be continuously recirculated within the facility would undergo multiple treatment stages before being released back into the Ottawa River. Freshwater and brackish wastewater streams would initially be treated separately using nitrification, denitrification, flotation, and filtration systems before undergoing a final combined disinfection stage prior to discharge. The treatment process would include biological filtration systems designed to reduce ammonia and nitrogen compounds, phosphorus removal, pH adjustment, and sterilization systems intended to eliminate pathogens such as bacteria, viruses, and parasites. Following treatment, the effluent would be discharged through a submerged outfall pipeline equipped with a diffuser system designed to promote rapid dilution within the receiving waters.

Taken together, the proposed system is designed as a closed-containment production model in which water, waste, and energy flows are continuously managed through engineered treatment systems rather than direct environmental release. While the project documentation outlines multiple layers of filtration, recycling, and mitigation measures, many of these systems operate continuously and at industrial scale, relying on uninterrupted power, monitoring, and mechanical performance.

As the BAPE review process continues, understanding how the proposed system is designed is only one part of the broader picture. Equally important is where the project would be built, and how the site’s geography, industrial history, and proximity to the Ottawa River may influence both its operation and its impacts. The next article will examine the location of the proposed facility in Litchfield’s Pontiac Regional Industrial Park, including the surrounding land use, nearby communities, and the site’s historical development over time.



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Samonix — the Location

As the BAPE process continues, many Pontiac residents are seeking a clearer understanding of the site's geography, industrial history, and surrounding waterways.

The proposed development site is located along the banks of the Ottawa River within the Pontiac Regional Industrial Park in Litchfield, the largest privately owned park in the greater Ottawa area, spanning 1,800 acres.

The Samonix property spans approximately 495,000 square metres and is situated between Grand Calumet Island and the Chenaux hydroelectric generating station.

The site is located roughly four kilometres from Bryson and approximately five kilometres upstream from Portage-du-Fort. The nearest residence is located about two kilometres east of the proposed development area, while cottage properties across the river on the Île-du-Grand-Calumet peninsula sit roughly 500 metres from the future facilities.

The surrounding area also includes municipal infrastructure directly connected to the Ottawa River system. South of the study area is the Litchfield wastewater treatment facility, while the Portage-du-Fort municipal water intake is located approximately five kilometres downstream.

In addition to the river, a smaller tributary watercourse was identified within the southern portion of the study area, forming part of the broader aquatic environment surrounding the proposed project site.

The site itself has a long industrial history. Prior to the 1960s, the land was primarily used for agriculture before being assembled into a larger industrial property to support the construction of the former Smurfit-Stone pulp and paper mill.
From the mid-1960s until the mill's closure in 2010, the property largely functioned as a log storage and lumber handling yard connected to nearby paper production operations. Following the closure of the mill, the broader property changed ownership several times before eventually being subdivided and later acquired by Gestion Samonix in 2022.

Since then, the land has remained inactive while the proposed aquaculture project proceeds through planning and regulatory stages.

Project documents indicate that no flood zones are currently mapped within the study area, however a portion at the southern end of the property was included within Québec's 2019 special intervention zone established following the spring flooding events of 2017 and 2019. The MRC's floodplain mapping also remains incomplete and therefore the site is not currently listed in the region's flood zone.

While the neighbouring municipality of Bryson contains several recognized heritage sites, a 2025 study by Archéotec Inc., only identified one archaeological site within a five-kilometre radius of the study area.

River corridors such as the Ottawa River are generally recognized as areas with elevated archaeological potential due to centuries of Indigenous travel, seasonal use, settlement, and trade activity along the waterway. While the documentation does not acknowledge the historical or cultural significance of the Kichi Sibi, it does describe the Ottawa River as a scenic corridor of regional interest.

As public consultation continues through the BAPE process, understanding where the site is located and its history may help residents better evaluate both the opportunities and concerns associated with the proposed project.

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Samonix — the Environment

Building on the site description and history outlined in the previous article, this review focuses on the environmental conditions surrounding the proposed Samonix land-based salmon farming project as it continues through Québec's BAPE environmental review process.

This article summarizes the environmental studies prepared for the project, which outline the climate, water systems, soils, wildlife habitats, and ecological features that characterize this section of the Ottawa River.

The study area is located in Litchfield and, like the rest of the region, experiences a cold, humid continental climate. Winters are typically long and cold, with heavy snowfall and freezing temperatures common throughout January. However, climate studies included in the environmental review suggest the region is expected to warm significantly over the coming decades. By 2050, average temperatures in the region could rise by 2 to 3°C, while the number of extremely hot days above 30°C could increase substantially. Researchers also expect shorter winters, less snow, wetter spring conditions, hotter summers, and more intense storm events in the future. These projected changes are important because they may affect flooding patterns, water levels, wildlife habitats, and the long-term operation of industrial projects located near the river.

Project documents indicate that several alternative locations were evaluated before the Pontiac Regional Industrial Park was selected.

According to the studies, the site was chosen because of its existing industrial zoning, proximity to infrastructure, access to the Ottawa River as a water source, and what the company describes as a high level of social acceptability compared with other locations considered.

The project site itself is mostly flat, with much of the land sitting between 80 and 100 metres above sea level. A small eastern section contains slightly higher and more sloped terrain. Beneath the surface of the Ottawa River, the underwater landscape is more uneven, with shallow shoals, deeper pits, and abrupt changes in depth. Soil conditions across the property vary depending on location. Sandy soils, which are widespread, allow water to drain relatively easily, while clay-rich soils tend to retain moisture for longer periods. Wet soils made up of silty sand and clay-rich material are especially present in the southern portion of the study area.

Floodplain mapping within the MRC Pontiac has not yet been completed, making it difficult to definitively determine the extent of flood-prone areas within the property. However, the project documents note that part of the southern portion of the site was included within Québec's 2019 special intervention zone following the significant flooding events of 2017 and 2019, suggesting that at least portions of the area were considered susceptible to flooding.

Environmental site assessments conducted for the project found no evidence of contaminated land within the study area. A Phase I assessment completed in 2020 identified no known contaminated or historically impacted sites over the past fifty years, while Phase II testing confirmed compliance with applicable provincial standards for commercial and industrial land use.

Groundwater was also examined as part of the environmental review, with data reportedly collected through information requests to the Québec Ministry of the Environment, Fight Against Climate Change, Wildlife and Parks, local authorities, and the PACES-OUT program. Groundwater refers to water stored underground in soil, sand, and rock formations beneath the surface. Studies found that rainfall and snowmelt regularly replenish groundwater beneath the site each year. However, exploratory drilling showed that underground water moves relatively slowly beneath the property due to local soil and geological conditions. As a result, groundwater yields in the study area are low, meaning the site does not appear to produce large quantities of groundwater and suggesting it is not a significant source of water availability at the site.

Environmental testing reportedly found that groundwater quality within the study area is generally good and meets provincial environmental standards in nearly all cases. One monitoring well showed elevated copper levels, but no widespread contamination was identified. The studies also concluded that the local aquifer has relatively low vulnerability to contamination because clay deposits beneath portions of the site act as a natural barrier that slows the movement of contaminants into groundwater.

Surface water conditions were another major focus of the review because the Ottawa River occupies nearly half of the study area and is the dominant water feature of the site. Water sampling conducted in recent years found generally good water quality in the river near the property. Environmental information submitted as part of the project review also indicates that water quality in this section of the Ottawa River was generally considered good between 2018 and 2020.

Laboratory testing identified low levels of metals and nutrients, low turbidity, and little indication of significant pollution or immediate risk to aquatic life. An additional intermittent tributary stream was also identified within the southern portion of the property.

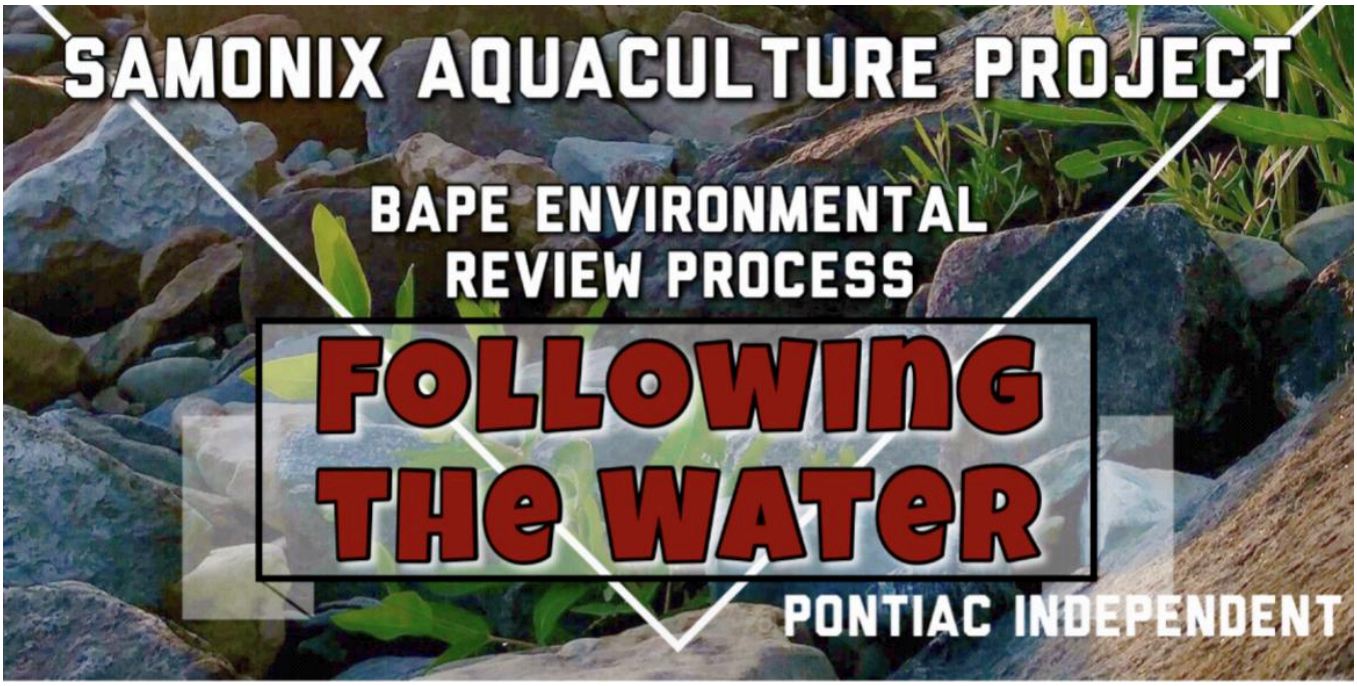
The environmental assessment also examined nearby drinking water infrastructure. The nearest municipal surface-water intake, serving Portage-du-Fort, is located approximately five kilometres downstream. According to the project documentation, modelling concluded that treated effluent would meet provincial discharge requirements and undergo significant dilution before reaching the intake location.

Environmental surveys also documented a wide variety of plant and animal species within the study area. Much of the land is covered by shrub vegetation containing species such as red raspberry, common milkweed, Canada goldenrod, and grasses. Several plant species considered vulnerable or sensitive in Québec were also identified, including black maple and butternut trees. At the same time, invasive plant species such as common reed and wild parsnip were found growing within the area.

The Ottawa River corridor supports significant wildlife diversity as well. Studies indicate the river system may contain more than 40 fish species and several freshwater mussel species, including species considered threatened or vulnerable. Surveys conducted during the environmental review confirmed the presence of species such as northern pike, channel catfish, and the round pigtoe mussel, a freshwater mussel species considered at risk in Canada. Amphibians and reptiles observed within the area included snapping turtles, northern map turtles, wood frogs, garter snakes, and milk snakes.

Bird surveys also identified high levels of avian diversity within the surrounding region. More than 170 bird species have been recorded nearby, including species of conservation concern such as the bald eagle, chimney swift, and bank swallow. Evidence of pileated woodpecker nesting and feeding activity was also documented within the southern portion of the property.

Overall, the environmental studies prepared for the Samonix project describe the site as an area with generally good water quality, relatively stable environmental conditions, and ecologically important aquatic and wildlife habitats. At the same time, the studies also identify several environmental considerations, including changing climate conditions, flood-related uncertainty, sensitive wildlife species, and the close connection between the project site and the Ottawa River ecosystem.



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Samonix — Following the Water

As the proposed Samonix land-based salmon farming project undergoes Québec's BAPE environmental review process, one of the most closely watched aspects of the proposal is water.

The Ottawa River is one of the Pontiac region's most important natural resources, serving as a source of drinking water, recreation, tourism, fishing, wildlife habitat, and cultural significance. Because the proposed facility would draw water from the river and discharge treated wastewater back into it, many residents have questions about how the system would operate and what impacts it could have on the river.

According to project documentation, the proposed aquaculture complex would produce up to 12,000 metric tonnes of Atlantic salmon annually using a recirculating aquaculture system (RAS), a technology designed to continuously treat and reuse water within the facility.

Unlike traditional fish farms that constantly exchange large volumes of water with the surrounding environment, the Samonix facility is designed to recirculate approximately 99 percent of the water used in the production process. Even so, a continuous supply of fresh water from the Ottawa River would still be required.

The project's water intake would be located approximately 150 to 160 metres offshore at a depth of roughly 7 to 10 metres. Water would be drawn through a screened intake designed to prevent fish, mussels, and other aquatic organisms from being pulled into the system. The intake velocity is proposed at approximately 0.035 metres per second, which is below commonly accepted thresholds intended to reduce the risk of entrainment of aquatic life.

According to project documents, daily water withdrawals would range between approximately 2,300 and 4,000 cubic metres per day. To put that into perspective, one cubic metre equals 1,000 litres, meaning the facility could withdraw between 2.3 million and 4 million litres of river water each day.

While that may sound substantial, the Ottawa River is an extremely large water body. The project's environmental assessment estimates the river's minimum average flow at approximately 402 cubic metres per second, equivalent to more than 34.7 million cubic metres of water moving downstream each day. Based on those figures, the project's water withdrawals would represent only a tiny fraction of the river's overall flow.

Before entering the fish production systems, river water would undergo extensive treatment. The proposed treatment process includes coagulation, flocculation, sedimentation, filtration, ozonation, and ultraviolet disinfection. These processes are commonly used in municipal water treatment facilities and are designed to remove suspended particles, organic matter, microorganisms, and other impurities. A portion of the treated water would be used for domestic purposes within the facility, while the remainder would be directed into the fish-rearing systems.

The facility would raise salmon through different stages of development. Young fish would be reared in freshwater, while older fish would be transferred to brackish water systems that more closely resemble the conditions salmon experience as they migrate toward the ocean. Salt would be added to create these brackish water environments.

As fish grow, they produce waste. Uneaten feed, fish feces, dissolved nutrients, and biological by-products accumulate in the water and must be removed to maintain fish health. This is where the recirculating aquaculture system becomes critical.

Within the facility, wastewater would undergo multiple stages of treatment. Solids would be removed through filtration and dissolved air flotation systems. Biological treatment systems would convert ammonia produced by fish waste into less harmful forms through nitrification and denitrification processes. Additional filtration, ultraviolet disinfection, and ozone treatment would further improve water quality before discharge or recirculation.

The project proposes separate treatment systems for freshwater and brackish water streams before they are combined and subjected to final treatment.

Even after treatment, some substances would remain in the discharged water. The environmental assessment focuses particularly on chlorides, nitrogen, phosphorus, and suspended solids.

Chlorides are salts dissolved in water. In the Samonix project, chloride concentrations originate primarily from the addition of salt used to create brackish water environments for salmon during later growth stages. Elevated chloride concentrations can affect freshwater organisms if present at sufficiently high levels for extended periods.

Nitrogen is a naturally occurring nutrient found in fish waste and organic material. In excessive concentrations, nitrogen can contribute to water quality problems and excessive plant or algae growth in some aquatic environments.

Phosphorus is another nutrient associated with fish waste and uneaten feed. Like nitrogen, elevated phosphorus concentrations can contribute to eutrophication, a process where excessive nutrient levels stimulate plant and algae growth, potentially affecting aquatic ecosystems.

Suspended solids are tiny particles of organic matter, sediment, or biological material that remain suspended in the water. High levels can reduce water clarity and affect aquatic habitats.

According to the project documents, wastewater treatment systems have been designed specifically to reduce these substances before discharge into the Ottawa River.

Once treated, effluent would be discharged through an outfall pipe located approximately 140 to 160 metres from shore at a depth of roughly 6 to 7 metres below low-water levels. The discharge system would use diffusers designed to promote rapid mixing and dilution within the river.

Project modelling indicates that chloride concentrations would decrease rapidly after leaving the diffuser. According to the environmental assessment, chloride levels are expected to fall below the Canadian Council of Ministers of the Environment's chronic toxicity threshold within a short distance of the discharge point and approach natural river concentrations further downstream. However, these predictions are based on modelling assumptions and would need to be confirmed through ongoing monitoring once the facility is operating.

A key part of the regulatory process involves Environmental Discharge Objectives, commonly referred to as OERs in Québec.

Environmental Discharge Objectives are site-specific performance targets established by Québec's Ministry of the Environment, the Fight Against Climate Change, Wildlife and Parks (MELCCFP). They are designed to ensure that wastewater discharges do not create unacceptable impacts on receiving water bodies. OERs establish concentration limits and performance targets for various substances based on the characteristics of both the discharge and the receiving environment.

The Samonix project would be required to meet these objectives before wastewater could be discharged into the Ottawa River. The company has stated that it will comply with current OER requirements as well as any future updates issued by the ministry.

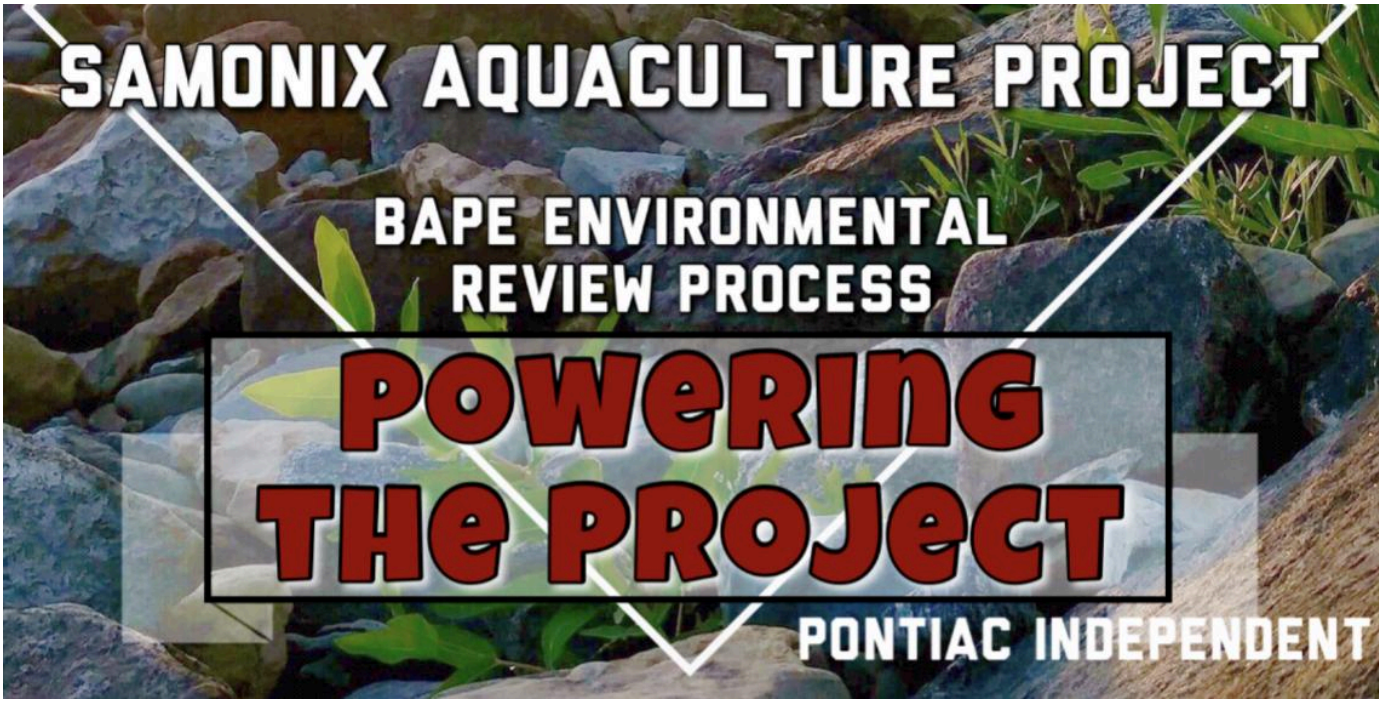
To verify compliance, the project proposes an extensive environmental monitoring program.

According to project documentation, wastewater would be monitored weekly for parameters including chlorides, pH, dissolved oxygen, nitrogen, phosphorus, and total suspended solids. Monthly acute toxicity testing and quarterly chronic toxicity monitoring would also be conducted. Additional inspections would evaluate treatment systems, stormwater infrastructure, and restoration of disturbed areas.

The company also proposes maintaining detailed records of chemicals, medications, and disinfectants used on-site. An Environmental Compliance Officer would oversee monitoring activities, ensure sampling protocols are followed, and validate reports submitted to regulators.

For many residents, the central question is not simply whether the facility can meet regulatory standards on paper, but whether those standards will continue to be met consistently over years and decades of operation. Supporters of the project point to the multiple treatment systems, extensive monitoring requirements, and the Ottawa River's substantial flow volume as evidence that impacts can be effectively managed. Critics, meanwhile, often argue that long-term environmental performance can only be fully assessed through continued oversight and real-world operating experience.

As the BAPE review continues, questions surrounding water withdrawal, wastewater treatment, river health, and environmental monitoring are likely to remain among the most closely examined aspects of the proposed project. Water is at the centre of how a land-based salmon farm operates, and understanding how that water moves through the facility may help residents better evaluate both the potential benefits and the potential risks associated with the proposal.



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Samonix — Powering the Project

Another aspect of the proposed Samonix land-based salmon farm is the amount of electricity required to operate the facility.

According to project documents, the proposed aquaculture complex would require a 12-megawatt (MW) electrical connection from Hydro-Québec. The company has indicated that electricity would power nearly every major component of the operation, including water circulation systems, pumps, filtration equipment, oxygenation systems, refrigeration units, processing equipment, environmental controls, lighting, laboratory operations, and other support infrastructure.

Unlike many industrial operations that can temporarily reduce production during downtime, a large land-based salmon farm must operate continuously. Water must be constantly circulated through the recirculating aquaculture system (RAS), oxygen levels must be maintained, temperatures carefully controlled, and filtration systems kept running twenty-four hours a day to ensure fish survival and water quality.

To understand the scale of the project's electricity demand, it helps to convert the proposed 12 MW load into annual energy consumption. If operating continuously throughout the year, a 12 MW facility would consume approximately 105.12 million kilowatt-hours (kWh) of electricity annually.

Based on estimates from the Hydro-Québec website, an electrically heated detached home with air conditioning and a pool may consume approximately 29,000 kWh per year, while a multi-unit dwelling without air conditioning may consume closer to 13,000 kWh annually.

Using the facility's estimated annual consumption of 105.12 million kWh, the project would consume electricity equivalent to approximately:

- **13,000 kWh/year → ~8,090 homes**
- **15,000 kWh/year → ~7,010 homes**
- **18,000 kWh/year → ~5,840 homes**
- **20,000 kWh/year → ~5,260 homes**
- **25,000 kWh/year → ~4,210 homes**
- **29,000 kWh/year → ~3,625 homes**

While electricity consumption and electrical capacity are not exactly the same thing, the comparison helps illustrate the scale of the proposed operation. Operating continuously throughout the year, the facility's electricity demand would be substantial by local standards. Depending on the household consumption benchmark used, its annual electricity consumption would be equivalent to that of approximately 3,625 to 8,090 homes. Considering that the MRC Pontiac contains 6.665 occupied private dwellings according to the 2021 Census data, that’s roughly 54% to 121% of the electricity used by all occupied dwellings in the MRC Pontiac combined.

The power requirement is large enough that it falls under Quebec's provincial review process for major electricity allocations. Since 2023, projects requiring more than 5 MW of electrical capacity must receive authorization from the Quebec government before being connected to Hydro-Québec's network.

Samonix reportedly submitted its application for a 12 MW allocation to Hydro-Québec and the provincial government, and the project later received support from the MRC Pontiac as part of that process.

Supporters of the project argue that Quebec offers one of the most attractive locations in the world for land-based aquaculture because of its relatively low-cost hydroelectric power and low-carbon electricity supply. Hydro-Québec produces the vast majority of its electricity from renewable hydroelectric generation, giving energy-intensive industries access to electricity with significantly lower greenhouse gas emissions than many competing jurisdictions.

In addition to its Hydro-Québec connection, Samonix has proposed installing approximately 7.5 MW of rooftop solar panels and five 1,600-kilowatt backup generators.

The solar installation could help offset a portion of the facility's electricity consumption during daylight hours. However, solar generation varies according to weather conditions, season, and time of day, while the fish farm's electricity requirements would remain constant. During winter, at night, and during periods of low sunlight, the facility would continue to rely primarily on Hydro-Québec's electrical grid.

The proposed backup power system highlights another important aspect of land-based aquaculture: fish farms cannot simply shut down when the power goes out. Water circulation, oxygenation, temperature control, filtration systems, monitoring equipment, and other life-support systems must continue operating around the clock to maintain water quality and fish health.

Project documents indicate that Samonix plans to install approximately 8 MW of backup generating capacity through five 1,600-kilowatt generators. While this is less than the facility's proposed 12 MW grid connection, emergency systems are generally designed to power critical infrastructure rather than maintain full production capacity. The proposed backup capacity nevertheless provides some indication of the scale of electricity required to sustain essential operations during an outage.

If all five generators operated continuously, their combined 8 MW output would represent approximately 70.08 million kWh of electricity annually. In practical terms, that amount of power alone would still be comparable to the annual electricity consumption of thousands of homes.

In large recirculating aquaculture facilities, even relatively short power interruptions can create operational challenges if backup systems fail. Without circulation and oxygenation, water quality can deteriorate rapidly, fish can become stressed, and losses can occur. In severe cases, prolonged outages combined with equipment failures have resulted in significant fish mortality at aquaculture facilities in various jurisdictions.

The project also proposes multiple layers of redundancy, including backup oxygen systems, liquid oxygen reserves, alarms, sensors, automated monitoring equipment, emergency generators, and contingency procedures designed to protect fish stocks during equipment failures or interruptions to the electrical supply.

The project's electricity demand has also prompted broader questions regarding the capacity and reliability of the region's existing electrical infrastructure.

Parts of the Pontiac have experienced repeated power outages in recent years due to storms, falling trees, equipment failures, and aging infrastructure. The facility's reliance on continuous electrical power has understandably led to questions about how critical operations would be maintained during extended outages affecting the region. For some residents, the prospect of adding such a demanding electricity consumer raises questions about whether local infrastructure can support both existing demand and future industrial growth.

Hydro-Québec has been planning transmission and substation upgrades within the Pontiac region aimed at improving reliability and increasing capacity for residential and commercial users. In principle, stronger transmission infrastructure can also help accommodate future industrial projects. However, a project of this size would still require detailed engineering studies to determine whether additional equipment, dedicated connections, or network upgrades would be necessary. Such evaluations typically examine peak demand, system reliability, voltage stability, and long-term capacity requirements.

Energy availability has become an increasingly important topic across Quebec as demand for electricity continues to grow due to the electrification of industries, transportation shifts toward electric vehicles, and new industrial projects seeking large power allocations. Recent government policies have placed greater scrutiny on projects requesting major electricity blocks because of increasing competition for future generating capacity.

For supporters, the project's large electricity requirement is viewed as a sign of significant industrial investment and economic development. They argue that access to Quebec's hydroelectric system provides a competitive advantage that could help establish new forms of food production in regions such as the Pontiac.

Critics, however, question whether long-term energy availability, infrastructure costs, future electricity rates, or regional grid reliability could eventually affect the project's viability or place additional pressure on public infrastructure.

As the environmental review process continues, the question is not simply how much electricity the proposed salmon farm would use, but whether the region's infrastructure can reliably support a large energy-intensive industry alongside the needs of existing residents, businesses, and future development.

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Samonix — The Economics

As the proposed Samonix land-based salmon farming project moves through Québec's Bureau d'audiences publiques sur l'environnement (BAPE) review process, residents are being asked to evaluate a project that could have significant economic implications for the Pontiac region. The proposal raises questions about employment, investment, housing, infrastructure, energy demand, municipal revenues, and the long-term viability of large-scale land-based aquaculture.

According to project documentation and public presentations, Samonix estimates that the project would create approximately 500 jobs during the construction phase and more than 100 permanent full-time positions once the facility becomes operational. The company has indicated that more than half of those permanent positions are expected to offer salaries above $65,000 annually. Samonix has described the proposal as a roughly $300 million investment intended to support Québec's food security objectives while contributing to regional economic development and domestic food production.

For a region that has experienced decades of industrial decline, population loss, and limited large-scale private investment following the closure of major forestry-related operations, the project would represent one of the largest private-sector investments proposed in the Pontiac in recent years.

The economic effects of construction would likely be felt across a wide range of sectors. Large industrial aquaculture facilities require extensive site preparation, building construction, utility installation, mechanical systems, water treatment infrastructure, electrical systems, and transportation infrastructure.

Construction activities typically involve electricians, pipefitters, welders, millwrights, concrete crews, heavy equipment operators, truck drivers, engineers, environmental consultants, project managers, and numerous support contractors.

As a result, businesses such as restaurants, fuel suppliers, equipment rental companies, accommodations, transportation providers, and retail suppliers could experience increased demand.

The long-term economic impact of the project depends largely on the permanent jobs created once construction is complete. Modern land-based salmon farming relies on recirculating aquaculture system (RAS) technology, which uses highly automated systems to maintain water quality, oxygen levels, filtration, temperature control, fish health, and environmental compliance. As a result, permanent employment opportunities are often more specialized than construction jobs.

Potential positions could include aquaculture technicians, biologists and fish health specialists, water treatment operators, electricians, industrial maintenance personnel, instrumentation and automation technicians, refrigeration and mechanical technicians, laboratory staff, food safety and quality assurance personnel, logistics and transportation workers, administrative employees, and processing and support staff.

Some of these positions may align well with skills already present within the Pontiac workforce, particularly among individuals with experience in trades, industrial maintenance, transportation, and equipment operation. Other roles may require specialized training or recruitment from outside the region. The extent to which local residents ultimately benefit from employment opportunities will depend on hiring practices and workforce availability.

Supporters also point to the potential multiplier effect, whereby wages earned by employees are spent locally on housing, goods, and services, generating additional economic activity throughout the region.

Supporters of the project argue that it could help diversify the Pontiac economy by introducing a new industry sector to a region historically dependent on forestry, agriculture, public services, and small businesses. In addition to direct employment, large industrial facilities often create indirect economic activity through ongoing purchases of goods and services. Potential beneficiaries could include local contractors, maintenance providers, trucking companies, fuel suppliers, environmental consultants, equipment suppliers, waste management companies, and professional service firms.

The extent of the project's economic impact will also depend on how much spending, procurement, employment, and investment remain within the local economy rather than flowing to suppliers, contractors, or investors outside the region.

Some supporters also suggest that new industrial development could encourage younger workers and families to remain in or relocate to the region, potentially supporting population growth and economic renewal.

If constructed, the facility would likely contribute additional municipal tax revenue through industrial property assessments and associated economic activity. Large industrial projects can also stimulate infrastructure investment. Improvements to roads, utilities, communications networks, and electrical infrastructure may provide broader benefits to residents and businesses if upgrades are required to support new development.

Hydro-Québec has previously announced plans to upgrade transmission and substation infrastructure within the Pontiac region to improve reliability and increase capacity for existing residential and commercial demand. While these upgrades are not being undertaken specifically for the Samonix project, improved electrical infrastructure could help accommodate future industrial growth. Any connection of a facility requiring approximately 12 megawatts (MW) of electrical capacity would still require separate technical studies to determine available capacity, identify any additional infrastructure requirements, and obtain approval from Hydro-Québec.

Housing availability is another economic consideration. In response to housing shortages and limited rental availability in recent years, the MRC Pontiac introduced a Host Family Program in 2024 to help accommodate newcomers while they search for permanent housing.

The arrival of construction workers, specialized technical staff, and new employees could increase demand for rental units, temporary accommodations, and housing purchases during both the construction and operational phases. Supporters may view additional population growth as beneficial to the local economy, while others may be concerned about further pressure on an already limited housing supply.

One factor that receives considerable attention in land-based aquaculture is electricity. According to project documentation, the proposed facility would require approximately 12 MW of electrical capacity. Operating continuously throughout the year, this represents more than 105 million kilowatt-hours (kWh) of electricity annually.

Land-based salmon farming is generally more energy-intensive than traditional ocean-based aquaculture because water must be continuously circulated, filtered, oxygenated, monitored, and maintained within controlled environmental conditions. Supporters argue that Québec's hydroelectric system provides a competitive advantage because electricity is relatively low-carbon and has historically been available at rates that are attractive to energy-intensive industries. Others note that long-term economic performance may be influenced by future electricity rates, energy availability, infrastructure requirements, and grid reliability.

You can find more information about the project's energy demands in Pontiac Independent's previous article, "Powering the Project."

While supporters point to the project's potential economic benefits, questions remain about the long-term financial sustainability of large-scale land-based salmon farming. Recirculating aquaculture systems requires substantial capital investment and ongoing operating expenses.

Electricity, feed, labour, maintenance, water treatment, environmental monitoring, equipment replacement, transportation, insurance, and regulatory compliance all represent continuing costs that can affect profitability over time.

Like any agricultural or food-production enterprise, the project's financial performance would also be influenced by market conditions. Salmon prices can fluctuate due to global supply and demand, while operating costs such as feed, electricity, labour, transportation, and financing can affect profitability. The long-term success of the facility would therefore depend not only on production performance but also on broader market conditions.

Land-based salmon farming remains a relatively young industry compared with traditional marine aquaculture. Although several facilities around the world have successfully produced salmon using RAS technology, other high-profile projects have experienced construction cost overruns, production challenges, technical difficulties, financing problems, restructuring, or bankruptcy. As a result, some industry analysts continue to view large-scale land-based salmon farming as a sector with both significant potential and significant financial risk.

Labour availability is another consideration. The project proposes more than 100 permanent jobs, many requiring specialized technical skills. The extent to which those positions can be filled locally may influence the project's economic benefits for the Pontiac and could affect recruitment, training, and housing needs within the region.

Infrastructure demands may also create both opportunities and challenges. Increased economic activity can benefit local businesses and generate additional municipal tax revenue, but large industrial projects can also increase demands on transportation networks, utilities, emergency services, housing, and other public infrastructure.

Potential challenges extend beyond market conditions and operating costs. Large industrial facilities also carry long-term environmental and financial obligations, including wastewater management, environmental monitoring, site maintenance, and eventual decommissioning. If a project were to experience significant financial difficulties or bankruptcy, responsibility for cleanup, remediation, and ongoing environmental obligations can become an important public concern. As a result, some residents have raised questions about what financial safeguards, regulatory requirements, or contingency plans would be in place to ensure that environmental responsibilities continue to be met throughout the life of the project and after closure.

Ultimately, the long-term economic impact of the project will depend not only on construction spending and job creation, but also on the facility's ability to operate successfully over decades while managing operating costs, maintaining environmental compliance, adapting to market conditions, and continuing to provide economic benefits to the region.

As the BAPE review process continues, residents will likely continue weighing both the potential benefits and potential challenges of the proposal.

Supporters see opportunities for investment, employment, economic diversification, and regional growth, while others question the long-term viability of large-scale land-based salmon farming and the potential demands it could place on housing, infrastructure, energy resources, and public services. Ultimately, these are among the economic questions that decision-makers, regulators, and residents will be asked to consider as the review process moves forward.

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Samonix - Risks and Impacts

This article summarizes key environmental, technical, and socioeconomic risks identified in project documentation and commonly associated with large land-based recirculating aquaculture systems (RAS). It does not assess likelihood or make determinations on acceptability, which are evaluated through the BAPE process.

The proposed Samonix land-based salmon farm is a large recirculating aquaculture system (RAS) facility planned for the Pontiac region of Quebec. According to project documentation, the facility would operate using a high-recirculation system designed to reuse approximately 99% of its water. While RAS technology is often presented as a lower-impact alternative to open-net pen aquaculture because it reduces direct interaction with wild ecosystems and improves containment of fish stocks, scientific literature and regulatory assessments consistently note that these systems still carry environmental, technical, and socioeconomic risks that must be evaluated on a site-specific basis through processes such as Quebec's Bureau d'audiences publiques sur l'environnement (BAPE).

Because the facility would be located directly on the banks of the Ottawa River and rely on continuous industrial-scale water treatment and life-support systems, the potential risks span multiple interconnected areas including water quality, aquatic ecosystems, groundwater, energy infrastructure, biodiversity, and long-term economic viability.

Project documentation includes hydrogeological characterization of the site, describing shallow unconsolidated sediments such as sand and glacial deposits overlying fractured bedrock. These geological conditions are relevant because fractured bedrock aquifers can create complex and less predictable groundwater flow pathways than more uniform soil systems.

In general terms, this means that environmental assessments must consider how potential spills, leaks, or accidental releases could move through groundwater and surface water systems, as well as how those systems may interact with the Ottawa River. While engineered containment systems are designed to prevent releases, hydrogeological uncertainty is a standard consideration for industrial developments located adjacent to major freshwater bodies.

One of the central environmental considerations is the management and discharge of treated wastewater. Although the proposed facility is designed to recirculate approximately 99% of its water internally, a portion of water must still be removed from the system and replaced to control nutrient accumulation and maintain water quality for fish production.

It is important to note that a 99% water reuse rate does not mean the facility produces no wastewater or that environmental impacts are eliminated. Rather, it means that most water is continuously treated and reused within the facility. However, even relatively small discharge percentages can represent a continuous industrial-scale effluent stream when applied to a large operation operating twenty-four hours a day, seven days a week.

Based on general aquaculture literature and project documentation, treated effluent may contain residual levels of nitrogen compounds, phosphorus, suspended solids, and dissolved organic matter. These parameters are commonly monitored because they can influence nutrient levels, oxygen dynamics, and overall water quality in receiving environments.

Project documentation indicates that wastewater would undergo multiple treatment stages before discharge, including mechanical filtration, biological treatment, disinfection systems, and sludge management processes. These technologies are intended to significantly reduce contaminants before water is released. However, wastewater treatment systems are generally designed to reduce pollutants rather than eliminate them entirely, particularly dissolved nutrients such as nitrogen and phosphorus.

As a result, environmental assessments typically examine the potential for localized nutrient enrichment, changes in water chemistry, cumulative effects associated with continuous discharge over long periods, and potential impacts on sensitive aquatic organisms. The scale of any impact depends on multiple factors including treatment performance, river flow conditions, seasonal variations, dilution, and long-term operational performance.

The Ottawa River supports a diverse aquatic ecosystem that includes species such as lake sturgeon, river redhorse, northern map turtle, snapping turtle, and freshwater mussels, including species at risk such as the round pigtoe mussel. Freshwater mussels and other bottom-dwelling organisms are often considered particularly sensitive to changes in water quality because they can be affected by nutrient enrichment, sedimentation, dissolved oxygen fluctuations, and changes in water chemistry.

Environmental assessments will therefore have to consider not only short-term effects, but also whether long-term continuous discharge could contribute to cumulative environmental changes over decades of operation.

In addition to water quality considerations, the facility would depend on the continuous operation of interconnected life-support systems, including water circulation pumps, oxygenation systems, biofilters, temperature controls, and automated monitoring systems. Unlike many industrial operations, aquaculture systems cannot simply be shut down during interruptions without potentially affecting fish health and survival.

Potential operational risks include power outages, mechanical failures, sensor malfunctions, control-system failures, and human error. The project proposes multiple layers of redundancy, including backup generators, oxygen reserves, alarms, and monitoring systems. While these measures are designed to reduce risk, no industrial system can completely eliminate the possibility of equipment failures or unforeseen events.

If critical systems were unable to operate for an extended period, potential consequences could include fish mortality events, increased waste-management requirements, temporary water-quality issues, or emergency response measures.

One of the primary advantages of RAS technology is improved biosecurity compared with open-net pen aquaculture. Because fish are physically separated from natural waterways, risks associated with fish escapes and certain marine parasites are significantly reduced. However, high-density fish production still carries disease risks, including disease outbreaks within the facility, rapid transmission among fish populations, and large-scale mortality events requiring disposal and management of biomass.

The proposed facility would also require approximately 12 megawatts of continuous electrical power, making energy demand one of the project's most significant infrastructure considerations. Operating continuously at full capacity, the facility could consume approximately 105 million kilowatt-hours of electricity annually.

Although the project proposes on-site solar generation, solar energy is intermittent and seasonal in Quebec. As a result, the facility would remain heavily dependent on Hydro-Québec's electrical grid and backup power systems. Key considerations include local grid capacity, system reliability, the need for potential infrastructure upgrades, and the facility's ability to maintain critical life-support systems during prolonged outages.

Construction of the facility would permanently alter portions of the project site, including existing vegetated areas and wildlife habitat. Project documentation identifies species and habitats that may be present within the broader area, including migratory birds, reptiles, fish, freshwater mussels, and other wildlife. While mitigation measures are proposed, habitat conversion is generally considered a permanent environmental impact.

Construction activities could also result in temporary impacts such as increased truck traffic, noise, dust, greenhouse-gas emissions from equipment, and increased demand for accommodations and local services.

The project may also create socioeconomic impacts. During construction and operation, additional demand for housing, accommodations, transportation, and local infrastructure could occur. At the same time, the project could generate employment opportunities, economic activity, and municipal tax revenues.

Long-term economic viability is another consideration. Land-based salmon farming remains a relatively young industry compared with traditional marine aquaculture. While some facilities have successfully operated using RAS technology, others have experienced construction cost overruns, technical challenges, financing difficulties, restructuring, or bankruptcy.

If a large industrial aquaculture facility were to cease operations, potential issues could include decommissioning costs, infrastructure removal, environmental remediation requirements, and ongoing site-management obligations. These risks are typically addressed through regulatory requirements and financial assurances, although the effectiveness of such measures depends on regulatory oversight and long-term compliance.

Taken together, the primary areas of potential risk and impact include treated effluent discharge into the Ottawa River, long-term water-quality considerations, effects on aquatic ecosystems, dependence on complex life-support systems, energy and infrastructure requirements, habitat loss, construction-related impacts, housing and infrastructure pressures, and long-term economic and environmental liability considerations.

At the same time, RAS technology is generally recognized as reducing some of the environmental risks associated with open-net pen aquaculture, particularly those related to fish escapes and direct interaction with marine ecosystems.

Ultimately, the purpose of an environmental assessment process is to evaluate whether proposed mitigation measures are sufficient and whether any remaining residual impacts are acceptable over the long term for the Ottawa River system and the surrounding region.

Beyond Dilution: Questions about what returns to the Ottawa River

A Pontiac Independent Editorial https://www.facebook.com/share/p/1CkD9YdXzP/?mibextid=wwXIfr

As the public review of the proposed Samonix land-based salmon farm continues, how much do we know about what exactly will be discharged back into the Ottawa River everyday?

The project documents describe an extensive water treatment system involving filtration, dissolved air flotation, biological treatment, ultraviolet disinfection, and ozonation. According to the company, wastewater will be treated before being released back into the river, and all discharges will be required to comply with environmental standards established by Quebec regulators.

On the surface, that sounds reassuring. However, several important questions remain.

The proposed facility would withdraw between 2.3 million and 4 million litres of water from the Ottawa River every day. The documents also indicate that an average of 2.3 million litres of treated effluent would be discharged back into the river daily. Supporters of the project point out that these volumes represent only a tiny fraction of the Ottawa River's flow, and mathematically they are correct.

However, environmental impacts are not measured solely by the volume of water entering or leaving a facility. What matters just as much is what is in that water.

The project documentation identifies several substances that may be present in the final discharge, including chlorides from added salt, phosphorus, nitrogen compounds, and suspended solids. These are expected by-products of raising fish in a recirculating aquaculture system. The project argues that the Ottawa River's size and flow will allow these substances to be diluted rapidly after discharge.

That may well be the case. However, projections are not the same as real-world results, and dilution does not mean a discharge is chemical-free. It also does not answer questions about potential long-term effects on the local aquatic environment.

While the documentation provides information about treatment processes, discharge limits, and monitoring requirements, there also does not appear to be a publicly available, comprehensive inventory identifying all chemicals expected to be used at the facility. The documents refer to coagulants, polymers, disinfectants, ozone treatment, and fish health products, but they do not clearly identify every substance that may be used, the quantities that may be required, or the concentrations that could ultimately be present in the final effluent.

That does not mean these substances pose a problem. Municipal water treatment plants, industrial facilities, and many other operations use treatment chemicals every day while operating safely and within regulatory requirements. Nevertheless, transparency matters.
For a project expected to operate for decades using one of the region's most important waterways, it’s reasonable to expect this information to be readily available.

Another question concerns what will be monitored over the long term. The proposed monitoring program includes regular testing of effluent for chlorides, phosphorus, nitrogen, suspended solids, pH, oxygen, and toxicity. These measurements are important. However, the documents place far less emphasis on long-term monitoring of the river itself. Will there be ongoing monitoring of fish habitat, freshwater mussels, aquatic vegetation, sediment conditions, or other ecological indicators near the discharge point? If so, what will that monitoring look like, and will the results be made public?

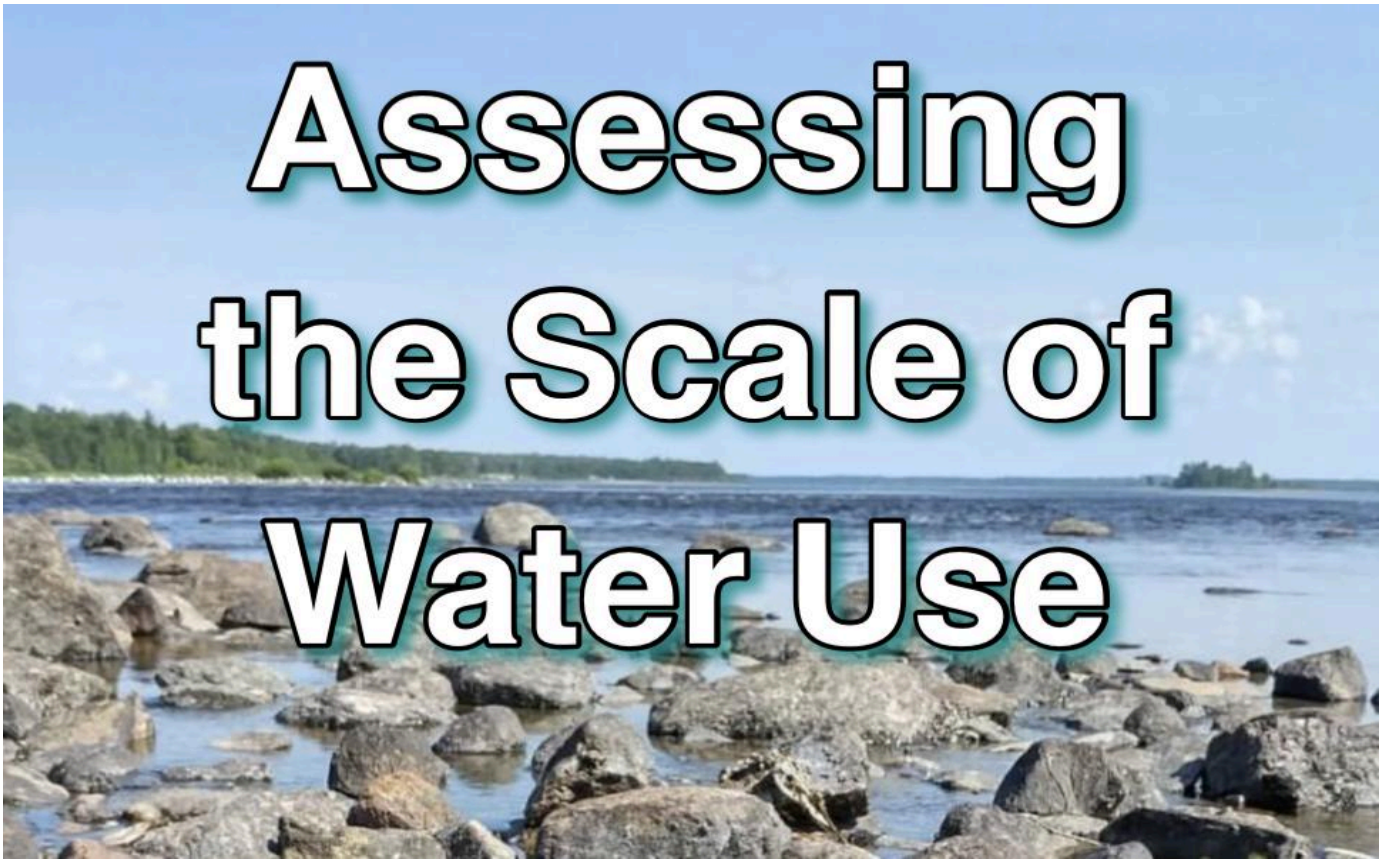
The Ottawa River is more than just a source of water. It has supported fish, wildlife, recreation, tourism, and drinking water supplies for communities downstream for generations. Project documents note that Portage-du-Fort's municipal water intake is located approximately five kilometres downstream from the proposed discharge point. The project concludes that dilution and dispersion within the river will prevent measurable impacts on drinking water supplies. But these are just projections. If that conclusion is correct, greater public disclosure of the modelling, testing, monitoring plans, and chemical inventory should be publicly available.

The purpose of the BAPE process is not to determine whether people support or oppose a project. It is to ensure that important questions are asked and answered before decisions are made.

One of the many questions that appear worth asking is simple: Can Samonix provide a complete inventory of all treatment chemicals, disinfectants, fish health products, cleaning agents, coagulants,

polymers, and other additives expected to be used on site, along with annual quantities, storage volumes, and expected concentrations in the final effluent discharged to the Ottawa River?

For a project of this scale, transparency is not an obstacle. It is an essential part of earning public trust. Before any long-term decision is made, residents deserve to know not only how much water will be taken and returned to the Ottawa River, but also as clearly as possible, what will be in it and how its effects will be monitored over time.



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Assessing the Scale of Water Use

The volume of water proposed for withdrawal by the project is substantial and can be difficult to visualize using litres or cubic metres alone. Based on project documents, projected water withdrawals could range from approximately 2,300 to 4,000 cubic metres per day, equivalent to 2.3 million to 4.0 million litres of water daily. Over the course of a year, this would amount to between approximately 839.5 million litres and 1.46 billion litres of water (839,500 to 1.46 million cubic metres).

At the upper end of that range, a withdrawal rate of 4 million litres per day would result in annual water use of approximately 1.46 billion litres, enough water to fill about 584 Olympic-sized swimming pools. Even at the lower end of the projected range, annual withdrawals of 839.5 million litres would be equivalent to roughly 336 Olympic-sized swimming pools.

Another figure referenced in project materials is a water withdrawal rate of 7,008 cubic metres per day. This volume is equivalent to approximately 7.0 million litres of water per day. Over a full year, that rate would amount to approximately 2.56 billion litres of water (2.56 million cubic metres), enough to fill more than 1,000 Olympic-sized swimming pools.

Comparisons to household water use also help illustrate the scale of these volumes. The average Canadian household uses approximately 220,000 litres of water annually. Based on that benchmark, annual withdrawals of 839.5 million litres would be equivalent to the annual water use of approximately 3,800 households, while 1.46 billion litres would be comparable to the annual water use of about 6,600 households.

At a withdrawal rate of 7,008 cubic metres per day, annual water use of approximately 2.56 billion litres would be equivalent to the yearly water consumption of roughly 11,600 Canadian households.

While these comparisons do not indicate whether the proposed withdrawals are environmentally sustainable, they provide a useful way to understand the scale of water volumes being discussed and the magnitude of the project's anticipated water requirements.

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Assessing the Risks of Aquaculture Farming in the MRC Pontiac

The proposed Samonix land-based salmon farm is a large recirculating aquaculture system (RAS) facility planned for the Municipality of Litchfield in the Pontiac MRC. According to project documentation, the facility would produce Atlantic salmon in a controlled indoor environment while recycling approximately 99% of its water through treatment and recirculation systems. Water would be withdrawn from the Ottawa River, treated for use within the facility, and a portion of treated wastewater would ultimately be returned to the river.

Recirculating aquaculture systems are often promoted as a lower-impact alternative to open-net pen aquaculture because they physically separate farmed fish from natural aquatic ecosystems, reduce the risk of fish escapes, and allow greater control over water quality and disease management. However, scientific literature and environmental assessment processes recognize that land-based aquaculture facilities still present environmental, technical, economic, and operational risks that must be evaluated on a site-specific basis.

Hydrogeology and Groundwater Considerations
The project documentation includes hydrogeological studies examining groundwater conditions, shallow overburden materials, fractured bedrock, groundwater flow patterns, and the interaction between groundwater and nearby surface waters.

Hydrogeological assessments are a standard component of industrial project reviews because groundwater can serve as a pathway through which contaminants may move in the event of accidental releases, spills, or infrastructure failures.

Fractured bedrock environments are often studied carefully because groundwater movement can be more complex and less predictable than in more uniform geological settings.

Although modern containment systems are designed to prevent releases, environmental assessments typically evaluate how accidental discharges could interact with groundwater resources and nearby water bodies, including the Ottawa River.

Water Use and Effluent Discharge

One of the central environmental questions associated with the project is the discharge of treated wastewater into the Ottawa River.

Although the facility is designed to recycle the vast majority of its water internally, a portion must be discharged to manage nutrient concentrations, maintain water quality within the system, cleaning and other purposes. Project documentation indicates that wastewater would undergo multiple treatment stages, including mechanical filtration, biological treatment, flotation, filtration, disinfection, and sludge management before discharge.

Scientific studies of land-based aquaculture facilities have found that treated effluent can still contain residual concentrations of nitrogen compounds, phosphorus, suspended solids, and dissolved organic matter.

A Canadian study of 14 land-based fish farms in Atlantic Canada found significant increases in total nitrogen, total phosphorus, and ammonia at discharge locations, with elevated concentrations remaining above background levels 100 metres downstream of some outfalls.

The key environmental question is therefore not whether nutrients will be present, but whether the remaining concentrations and discharge volumes could contribute to measurable ecological effects over time.

Research conducted by Environment and Climate Change Canada has shown that excess nitrogen and phosphorus can contribute to nutrient enrichment, changes in aquatic communities, reduced dissolved oxygen levels, and other ecosystem effects when loading exceeds the assimilative capacity of receiving waters.

Ottawa River Ecosystem Sensitivity

The Ottawa River supports a diverse aquatic ecosystem that includes numerous fish, reptile, bird, and freshwater mussel species.

Species of conservation concern documented within the Ottawa River watershed include Lake Sturgeon, River Redhorse, American Eel, Northern Map Turtle, Snapping Turtle, Round Pigtoe mussel, and Hickorynut mussel. Several migratory bird species of conservation concern have also been identified within the broader region.

Freshwater mussels and other benthic organisms are often considered particularly sensitive indicators of ecosystem health because they spend much of their lives in direct contact with bottom sediments and rely on stable water quality conditions.
Fisheries and Oceans Canada identifies habitat degradation, sedimentation, water-quality changes, and alterations to aquatic ecosystems as significant threats to many freshwater mussel species.

Because these organisms often have limited mobility and relatively long life spans, it's important that environmental assessments examine not only short-term impacts but also cumulative effects that may occur over the operational life of a project.

Treatment System Reliability and Operational Risk
Unlike many industrial operations, recirculating aquaculture facilities rely on continuous life-support systems to maintain suitable conditions for fish production. Water circulation, oxygen delivery, temperature regulation, filtration, monitoring equipment, and biological treatment systems must operate continuously. Interruptions can result in rapid changes in water quality and fish health.

Project documentation indicates that the facility would incorporate multiple layers of redundancy, including backup generators, emergency oxygen supplies, automated monitoring systems, alarms, and contingency procedures designed to reduce the likelihood of major failures.

Nevertheless, scientific literature on recirculating aquaculture systems recognizes that power outages, mechanical failures, equipment malfunctions, software errors, and human error remain potential operational risks. While redundancy significantly reduces risk, it does not eliminate it entirely.

Disease and Biosecurity
One of the primary advantages of recirculating aquaculture systems is improved biosecurity. Because fish are raised in a controlled environment separated from natural waterways, opportunities for interaction between farmed fish and wild fish populations are substantially reduced.

The project states that fish would be raised without antibiotics, growth hormones, or pesticides and that treatment systems are designed to reduce the presence of pathogens before water is discharged.

However, scientific literature indicates that all intensive aquaculture systems carry some level of disease risk.

High stocking densities can facilitate the spread of disease within production systems, and outbreaks may require enhanced management measures, increased monitoring, or mortality disposal procedures.

Compared with open-net pen aquaculture, the environmental transmission risk is generally considered lower, but no intensive fish production system can be considered entirely free of disease-related risk.

Energy Demand and Infrastructure
Power reliability and grid capacity are legitimate local concerns. The MRC Pontiac has experienced repeated and prolonged power outages. In 2025, Innergex submitted two proposed solar-energy projects in Pontiac to Hydro-Québec, but both were rejected because existing distribution lines could not accommodate the proposed generation. Although those projects would have added electricity to the grid rather than drawn from it, their rejection provides further relevant local context regarding the capacity of existing distribution infrastructure. Reporting by the Pontiac Journal stated that nine of Innergex’s ten projects submitted province-wide were refused for the same reason.

This requirement is significant because recirculating aquaculture systems (RAS) are among the most energy-intensive forms of food production. They depend on continuous pumping, filtration, oxygenation, water treatment, refrigeration, monitoring, and environmental-control systems. Studies of land-based salmon aquaculture also consistently identify electricity as one of the largest operating costs and a key factor in facility reliability.

Stable power supply is therefore a critical operational requirement for any large-scale RAS facility. These considerations do not establish that the Samonix project cannot be supplied with electricity. They do, however, raise legitimate questions about whether the regional grid has sufficient capacity and resilience to support a large facility that depends on uninterrupted electricity to maintain fish welfare, oxygenation, water circulation, wastewater treatment, monitoring systems, and environmental safeguards.

Greenhouse Gas Emissions
Although Quebec's electricity grid is predominantly powered by hydroelectric generation and is among the lowest-carbon grids in North America, greenhouse gas emissions remain a consideration throughout the life cycle of the project.

Environmental assessments commonly evaluate emissions associated with construction materials, transportation, equipment operation, waste management, backup power generation, feed production, and product distribution.

Lifecycle emissions are therefore broader than the facility's direct electricity consumption alone.

While documentation claims that a local facility would reduce GHG emissions, project documents did not seem to provide any scientific study verifying this claim.

Habitat Disturbance and Biodiversity
Project documentation identifies the site as previously disturbed industrial land. Nevertheless, construction activities will permanently alter land cover within the project footprint and may affect vegetation, wildlife habitat, and local ecological conditions.

Environmental studies considered in the project have examined wetlands, wildlife habitats, species at risk, and biodiversity values within and around the site. The company states that project design modifications were made to avoid sensitive environmental features where possible.

Even when mitigation measures are implemented, permanent habitat alteration remains a common concern and must be considered in the environmental assessment.

Construction Impacts
Construction activities have the potential to generate temporary environmental and community impacts, including increased truck traffic, noise, dust, fuel consumption, greenhouse gas emissions, and localized disturbance to nearby residents and wildlife. These impacts are generally temporary but may continue throughout multiple phases of construction and commissioning. The significance of these impacts depends on the duration of construction, traffic volumes, mitigation measures, and environmental conditions at the time work is undertaken.

Housing, Workforce, and Community Services
Large construction projects often increase demand for accommodations, rental housing, and community services.

Project documentation anticipates both construction and permanent employment opportunities associated with the facility. Depending on workforce availability within the region, many specialized positions may be recruited from outside the Pontiac area.

The extent to which this could affect local housing availability, accommodations, or municipal services would depend on the final workforce composition and regional housing conditions at the time of construction. Considering the numbers provided by the project documentation, the influx could be problematic in its current state.

Transportation and Infrastructure
The operation of a large aquaculture facility requires the continuous movement of employees, feed, equipment, maintenance materials, fish products, and waste streams. While traffic volumes would be substantially lower than those associated with major urban industrial operations, the project would represent a sustained increase in activity on local transportation infrastructure over the life of the facility.

Environmental assessments would need to examine truck volumes, routing, road safety, and transportation management measures to determine the significance of these impacts.

Waste Handling and Odour

Waste streams associated with land-based aquaculture facilities typically include sludge, fish-processing residues, mortalities, and other organic materials generated through filtration, treatment, and routine operations.

Project documentation identifies proposed waste-management and valorization pathways for these materials, including off-site transport to external processing facilities. However, several operational details remain unclear, including on-site storage capacity, maximum retention time for waste prior to removal, and contingency measures if off-site facilities are unavailable or at capacity.

Odour impacts are generally associated with waste handling, sludge storage, mortality management, and processing activities rather than routine fish production operations, however, modern facilities are typically designed to minimize these effects.

Human Safety and Emergency Scenarios

Like many industrial facilities, a large recirculating aquaculture operation contains potential workplace and emergency-response hazards associated with electrical systems, backup generators, compressed oxygen systems, fuels, chemicals, and mechanical equipment.

The Canadian Centre for Occupational Health and Safety notes that industrial oxygen systems, fuel storage systems, electrical infrastructure, and chemical handling operations require appropriate engineering controls, training, monitoring, and emergency preparedness measures to ensure worker and public safety.

Long-Term Economic and Environmental Liability

A final consideration is long-term project viability.

International experience with land-based aquaculture has shown that some facilities have encountered construction delays, cost overruns, technical challenges, financing difficulties, and operational setbacks. Other projects have successfully entered commercial production and continue to operate.

If a facility were to cease operations in the future, considerations could include decommissioning infrastructure, managing remaining equipment and waste materials, restoring affected areas where required, and ensuring that any environmental obligations are fulfilled.

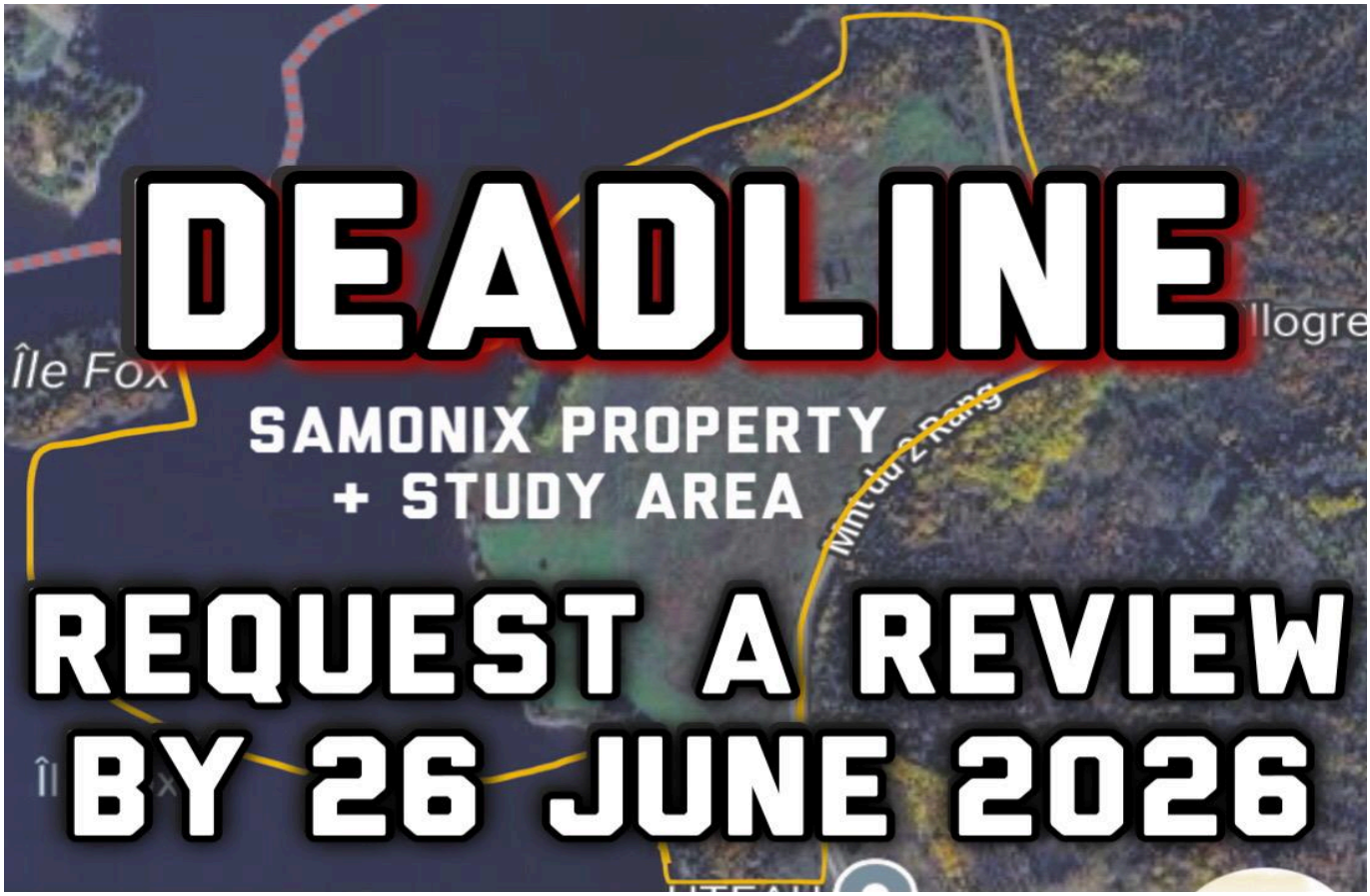
Environmental review processes and regulatory approvals often address these issues through monitoring requirements, permit conditions, financial assurances, and decommissioning obligations.

Conclusion

The Samonix proposal combines many features that are commonly promoted as advantages of recirculating aquaculture systems, including high water reuse rates, reduced interaction with wild fish populations, advanced wastewater treatment, and enhanced biosecurity controls.

At the same time, the project raises questions that are typical of large industrial aquaculture developments, including wastewater discharge, nutrient loading, ecosystem sensitivity, energy demand, infrastructure requirements, operational reliability, waste management, emergency preparedness, and long-term economic sustainability.

The purpose of the environmental assessment process is not to determine whether risks exist—every major industrial project involves some level of risk—but rather to determine whether those risks have been adequately identified and mitigated, whether future conditions will be monitored and managed, and whether any remaining impacts are acceptable in light of the project's anticipated benefits.



Deadline to Request a Review 26 June 2026

How do I request a public review of a project?

During the 30-day public information period, a person, group, organization or municipality may request the Minister responsible for the Environment to conduct a public review of the project by the BAPE.

A single request deemed admissible is sufficient to lead the Minister to entrust the BAPE with a mandate for a public hearing, targeted consultation or mediation.

What should a request contain?

The applicant must indicate the title of the project, the reasons for requesting a public examination and his interest in the affected community.

For example, in the case of a road widening project, one of the reasons could be the fear of the impacts resulting from an increase in traffic, the interest in the affected environment could be a property located near the road or more generally, its interest in sustainable mobility.

How to submit a request?

The request must be sent by letter or email to the Minister responsible for the Environment no later than the last day of the public information period.

Cabinet of the Minister

Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks

Marie-Guyart Building

675, boul. René-Lévesque East, 30th floor

Quebec (Quebec) G1R 5V7

Email: ministre@environnement.gouv.qc.ca

In order for the Department to be able to follow up, the application must contain the applicant's complete contact information, including his or her telephone number and email address.

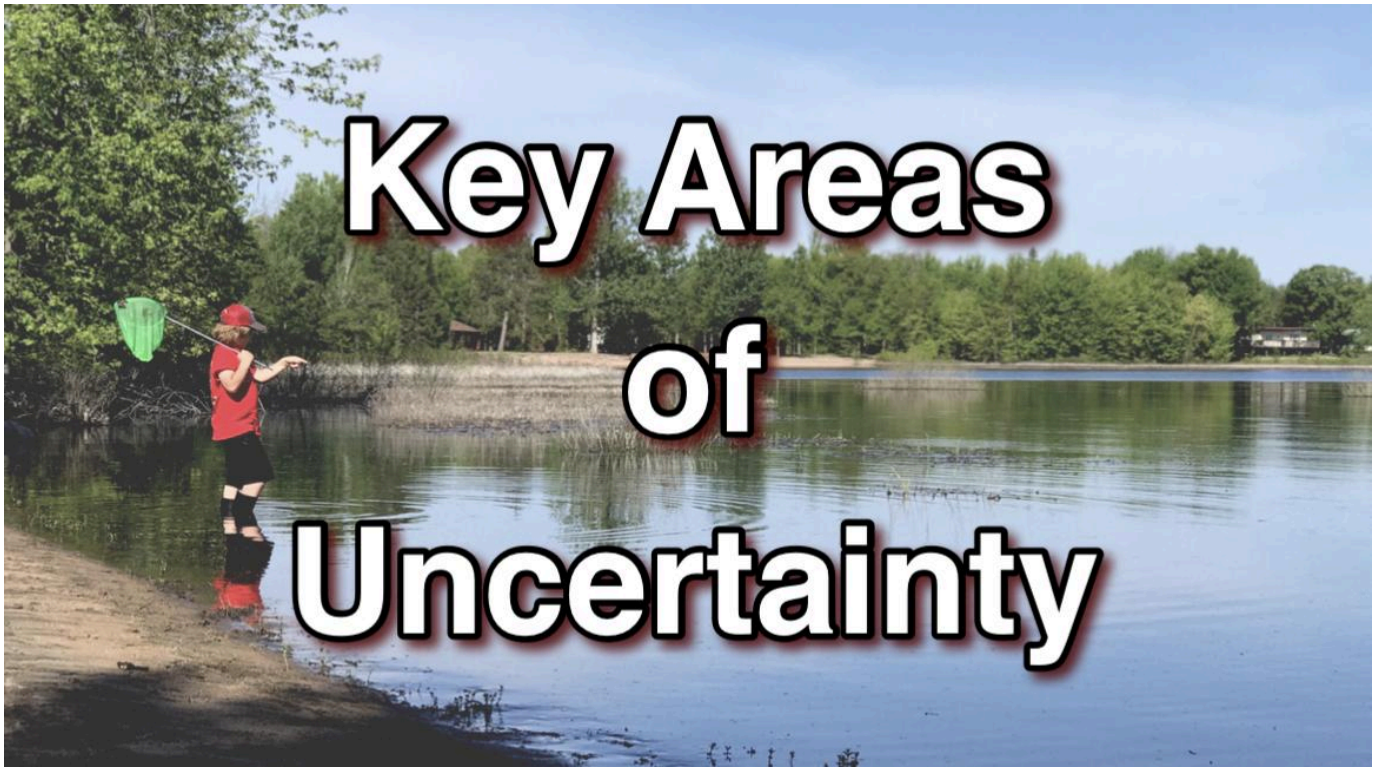
What is the path of an application?

When an application is deemed admissible, the Minister invites the BAPE to make a recommendation on the type of mandate to be preferred within 20 days of the end of the public information period.

The reasons for the application and the applicant's interest in the background affected by the project will help the BAEP to determine which type of file is the most appropriate. This information will also help the commission of inquiry to better understand the issues of the file.

Project Documents: https://www.ree.environnement.gouv.qc.ca/projet.asp?no_dossier=3211-15-021

Translation of this page:
https://www.bape.gouv.qc.ca/fr/participer/periode-information-publique/faq-comment-demander-la-tenue-d-un-examen-public-d-un-projet/



Key Areas of Uncertainty

The following questions focus on areas where the project documentation leaves important details unclear, relies heavily on modelling assumptions, or does not appear to provide long-term evidence.

Water Use and Discharge

- What is the total volume of water required by the RAS system when operating at minimum and full capacity?
- How were the projected water-withdrawal and effluent-discharge volumes calculated, including the 2,300 m³/day average discharge, the 4,000 m³/day withdrawal figure, and the 7,008 m³/day flow used for the OER assessment?
- What operating conditions, production stages, cleaning cycles, emergency events, or design contingencies correspond to each figure?
- Under what circumstances could water withdrawals or effluent discharge reach or exceed 2,300, 4,000, 7,008 m³/day projections?
- During droughts or periods of unusually low river flow, will water withdrawals be reduced?

Effluent Quality and Long-Term Effects

- Beyond the parameters assessed in the environmental study, will the company publish a complete list of substances expected in the final effluent, including projected annual loads, treatment-removal performance, detection limits, and monitoring frequency?
- How will the company determine whether long-term environmental changes are occurring, including potential cumulative effects over 10, 20, and 30 years of operation?

- What monitoring will be conducted to assess ecological conditions beyond effluent concentrations, including algae growth, aquatic plant growth, nutrient enrichment, and other indicators of ecosystem change?
- What monitoring will be conducted in river sediments around the discharge point, and for how long?
- How far downstream and across the river will environmental effects and effluent-related substances be monitored, and over what period of time?

Chemicals and Treatment Products

- Can Samonix provide a complete public inventory of all chemicals, treatment products, disinfectants, cleaning agents, coagulants, polymers, fish health products, and medications that may be used on site, including projected annual usage quantities?
- Which of these substances are expected to enter the wastewater stream, and at what concentrations are they expected to be present in the final effluent?
- What chemicals and treatment products will be used to clean tanks, piping, filtration systems, and processing facilities?
- Will antibiotics or other fish health treatments be used, and if so, how will their use, disposal, and potential release to the environment be managed?
- Have the potential cumulative or interactive effects of multiple chemicals in the discharge been assessed?
- What measures will be in place to prevent, detect, and respond to accidental chemical releases, spills, or treatment-system failures?

Dilution Modelling

- What field validation, if any, will be undertaken to confirm that in-river dilution and mixing-zone predictions remain accurate under winter conditions, low-flow periods, ice cover, diffuser degradation, partial port blockage, and changing river conditions?
- What contingency measures are planned if monitoring identifies unexpected ecological impacts?
- How will modelling predictions be verified once the facility is operating?
- If monitoring results differ from model predictions, will the company make corrective actions?

Aquatic Species and Habitat

- What post-relocation survival targets, monitoring duration, reporting requirements, and corrective measures will apply to relocated freshwater mussels, including species at risk?
- Will aquatic species and plants near the intake and diffuser be monitored after the facility begins operation, and for how long?
- Has the company evaluated the potential operational impacts of long-term noise, vibration, lighting, effluent discharge and other operational activity on aquatic wildlife?

Fish Health and Disease Management

- What types of fish diseases are considered most likely to occur at the facility, and what treatments or medications could be used during a disease outbreak?
- Can disease-related outbreaks be transferred from the facility to the river through wastewater?
- How would treatments affect wastewater quality?
- How would a large-scale fish mortality event be handled, and how would that affect wastewater?
- How will these situations be managed?

Drinking Water and Public Health

- Has any modelling been conducted to evaluate impacts on downstream drinking water intakes during equipment failures, treatment failures, or accidental releases?
- Will monitoring data be shared with municipalities that rely on the Ottawa River for drinking water?
- How would residents and municipalities be notified if a significant discharge event occurred?
- Has the potential impact of long-term chloride releases on downstream water quality been assessed?

Sludge and Waste Management

- Could sludge production exceed current estimates of approximately 35 m^3 of sludge per day?
- What contingency measures will be in place if biomethanization facilities are unable to receive the material, how much on-site sludge storage capacity will be available, and for how long could it be stored during transportation, processing, or facility disruptions?
- What is the likelihood and effects of sludge contamination in the river?
- How will potential environmental risks associated with handling, transport, and use be managed?

Energy Use and Climate Impacts

- Has Hydro-Québec confirmed, in writing, that existing or planned infrastructure can provide sufficient reliable capacity for full production, including peak demand, backup-system requirements, and future expansion?
- What infrastructure upgrades, if any, are required before operation?
- Is there an independently reviewed lifecycle assessment of greenhouse gas emissions comparing emissions of imported salmon with locally produced salmon when all facility operations are considered?

Emergency Preparedness

- What contingency plans are in place for earthquakes, flooding, severe weather, prolonged power outages, fires, and critical infrastructure failures?

- How long can critical life-support, water treatment, and monitoring systems operate on backup power, and what measures are in place if outages exceed backup capacity?
- What quantities of ammonia, oxygen, fuel, and other hazardous materials will be stored on site, and has a worst-case consequence analysis been conducted for accidental releases, fires, or other emergencies?
- What emergency response procedures and containment measures are in place for chemical releases, spills, fires, wastewater treatment failures, or other incidents that could affect workers, nearby residents, or the Ottawa River?
- How will fish stocks, wastewater, and sludge be managed during prolonged equipment failures, disease outbreaks, or emergency shutdowns?
- What monitoring, reporting, and public notification procedures will be triggered by equipment failures, permit exceedances, human error, or other environmental incidents?

Closure and Long-Term Responsibility

- Will financial assurances be provided to guarantee decommissioning and environmental remediation?
- What, if any, monitoring will continue after closure?
- How will intake and outfall infrastructure be removed or managed at the end of the project's life?

Transparency and Public Accountability

- Will effluent, environmental monitoring, compliance, and performance data be made publicly available in a timely and accessible manner?
- Will independent third-party audits of environmental performance and regulatory compliance be conducted, and will the results be publicly disclosed?
- Will inspections, permit exceedances, incidents, spills, complaints, enforcement actions, corrective measures, and significant operational changes be publicly reported, and how will affected communities be notified?
- Will a public advisory or community liaison committee be established to review monitoring results, project performance, and community concerns?

Sources:

Québec Ministry of the Environment – Project Documents
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Lalonde, Ernst & Garron (2015), *Chemical and Physical Characterisation of Effluents from Land-Based Fish Farms in Atlantic Canada*: https://science-ouverte.canada.ca/items/97bec687-7fe0-4f9f-a78b-63549755b7d7

FAO – Recirculating Aquaculture Systems: https://www.fao.org/3/i4626e/i4626e.pdf

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Disclaimer

This document is an independent compilation of articles, summaries, questions, and commentary concerning the proposed Samonix aquaculture project. It reflects the author's understanding of the project based on publicly available materials and is intended to help residents review and participate knowledgeably in the BAPE public-information process.

This document does not represent Samonix, its partners, government agencies, or the BAPE, and it is not a substitute for the original project documentation, including the official French-language documents filed by the proponent.

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