



Frequently Asked Questions (FAQ) – ProcellaCOR FX at Christina Lake

Process, Engagement, and Governance

Q. What is the estimated cost of this project?

At this stage, cost estimates and funding decisions are not finalized, as the project is still in the consultation phase. Costs would be determined and influenced by the treatment plan that would be developed if a Pesticide Use Permit process was pursued.

Q. How is the BC provincial government involved?

If the community and RDKB decide to pursue the use of ProcellaCOR FX, the RDKB will begin the process of acquiring a Pesticide Use Permit (PUP). This application is regulated by the BC provincial government, and once the permit application process has begun, the BC provincial government will be involved with screening the permit application, providing feedback on the treatment plan, and ensuring continued community and First Nation engagement throughout the application process. Ultimately, the Provincial Government would decide whether ProcellaCOR FX would be authorized for use in Christina Lake.

Q. Who is responsible for Christina Lake: the federal government, the province, or RDKB?

Christina Lake is located in the unincorporated area of the RDKB called Area C/Christina Lake. The lake itself is considered a public waterbody which is therefore under Provincial jurisdiction (i.e. BC Government). The Federal Government also has some regulatory oversight and becomes involved in some circumstances (e.g. Department of Fisheries and Oceans).

The RDKB provides the milfoil control service through an establishment bylaw, which provides a description of the service and the methodology/limits in generating revenue (e.g. taxation). The Province authorizes activities that the RDKB can perform under the service. The hand removal of milfoil by the dive crew as well as the floating benthic mat pilot is authorized by the Province.

Even if residents of Christina Lake fully support the use of ProcellaCOR FX as a milfoil control option, the Province ultimately makes the final decision on whether the product would be authorized for use.

Q. Will there be a community vote on whether this project proceeds?

It has not been determined whether a community vote will be conducted. At this time, the focus is to engage with the community in a robust manner to hear and collect feedback from as many as possible. Engagement activities are also ongoing with First Nations. The results from the current engagement process will be reviewed by the RDKB and will influence future work.

Q. Who submitted the application for ProcellaCOR FX?

SePRO is the company that developed ProcellaCOR FX and applied for its approval in Canada.

Q. Has independent third-party research been conducted?

Yes, ProcellaCOR FX has been the subject of many rigorous, peer-reviewed studies. As part of the approval process, over 100 independent, peer-reviewed studies were submitted to the Canadian Pest Management and Regulatory Agency. Additional peer reviewed research is publicly available online.

Q. What is the timeline for the project?

1. Deadline for survey: *October 1, 2025*
2. Future engagement sessions: *An online public engagement session will be held **August 14th 2025, at 6:00 pm** on Microsoft Teams. The meeting link can be found [here](#), and will also be available on the RDKB's "Join the Conversation" page.*
3. Keefer Ecological Services compiles community feedback into a report: *October 1, 2025 – November 1st, 2025. When finished, the report will be posted on the RDKB's "Join the Conversation" page.*
4. Should a Pesticide Use Permit (PUP) be applied for: *The application for a PUP is a lengthy process, and makes it unlikely that ProcellaCOR FX could be used in 2026. It is likely that the earliest an application of ProcellaCOR FX could happen would be in 2027. The PUP process has multiple steps, including additional engagement. The process is outlined below:*
 1. **Intake phase**
 - i. *RDKB submits application and pays application fee*
 - ii. *Ministry screens application*
 2. **Application phase**
 - i. *RDKB and ministry meet to discuss next steps, the requirements for a treatment plan, engagement, and project advertising*
 - ii. *RDKB develops a treatment plan and submits a draft treatment plan*
 - iii. *RDKB conducts both public and First Nation engagement*
 3. **Review and Decision Phase**
 - i. *RDKB submits public and First Nations consultation reports, final treatment plan, and any additional application records*
 - ii. *Ministry reviews application package*
 - iii. *If approved, Ministry prepares a draft permit and sends it to the RDKB*

- iv. *RDKB reviews permit and provides comments*
- v. *Ministry makes a permitting decision and notifies the applicant. If approved, the ministry provides public notification instructions.*

ProcellaCOR FX and Its Behaviour in the Environment

Q. What is the half-life of ProcellaCOR FX in water?

1-6 days, with an average of 2.6 days.

Q. What does ProcellaCOR FX break down into?

ProcellaCOR FX breaks down into several degradates, including XDE-848 acid, its primary metabolite, which then further degrades to XDE-848 benzyl hydroxy and XDE-848 hydroxy acid. These metabolites degrade more slowly than the parent compound, with half-lives of 6.3-18 days for the acid, 6-14 days for the benzyl hydroxy, and 53-121 days for the hydroxy acid. These degradates are structurally similar to the parent compound and US Environmental Protection Agency (EPA) concluded they are expected to have the same or lesser toxicity and similar hazard to florpyrauxifen-benzyl. The US EPA has also concluded that the presence of these degradates in food and water would not be expected to cause any adverse health effects. Also, the EPA noted that the metabolites of florpyrauxifen-benzyl (i.e., XDE-848 acid, XDE-848 benzyl hydroxy and XDE-848 hydroxy acid) are much lower in toxicity to aquatic animals than the parent compound.

Q. What happens to ProcellaCOR FX in the water?

After application, ProcellaCOR FX travels through the water to reach the target plant and undergoes substantial dilution due to water movement. Once it reaches Eurasian watermilfoil, it is rapidly uptaken by the leaves of the plant and transported to the stem and roots. The ProcellaCOR FX that remains in the water column breaks down quickly when exposed to sunlight. Studies have found ProcellaCOR FX to be undetectable in the water column after 48 hours.

Q. How are factors like depth, pH, and timing expected to affect what remains in the water column after treatment?

ProcellaCOR FX breaks down in water via exposure to sunlight (called hydrolysis). Areas of higher pH can also accelerate breakdown. It breaks down more slowly in deep water, as it has less exposure to sunlight; however, ProcellaCOR FX will not be applied to areas of deep water, as Eurasian watermilfoil only grows in shallow water where light penetrates.

Q. How does the herbicide affect aquatic invertebrates?

ProcellaCOR FX's active ingredient, florpyrauxifen-benzyl, has not been found to be acutely toxic to aquatic invertebrates up to its maximum solubility in water (approximately 25-660 ppb of active ingredient). Acutely toxic means that the substance causes significant negative health impacts from immediate or short term exposures. All tested degradation products were not found to be acutely toxic to freshwater invertebrates up to the maximum application rate.

One study tested the toxicity of florpyrauxifen-benzyl on aquatic midges, using growth as the measure of toxicity. Using this metric, florpyrauxifen-benzyl would be deemed toxic if it negatively impacted midge growth. The study found that midge growth was impacted at all concentrations of florpyrauxifen-benzyl,

meaning that the active ingredient was found to be toxic at concentrations of 4.3 ppb and below. Overall organism survival was not impacted at concentrations up to 34.6 ppb.

Research conducted by the Massachusetts Department of Agricultural Resources indicates that in order to get a concentration in sediment pore water equivalent to the concentrations tested in this study, the application concentration of ProcellaCOR FX to the water column would have to be 232 ppb. This concentration is over 4.5 times greater than the maximum label rate. Additionally, when considering the rapid degradation and dilution from spot application techniques, the actual bioavailability of this herbicide to benthic invertebrates is likely to be much less than that simulated by these toxicity studies.

Q. How does the decomposition of large amounts of plant material affect lake water quality?

It can deoxygenate the water immediately surrounding the area of decomposing organic matter. This is due to bacteria and microorganisms in the water using oxygen as they break down the dead plant material. This process happens each fall when milfoil dies back and is also expected following the treatment of milfoil with ProcellaCOR FX, though it is likely that die-offs from the herbicide will be staggered over a period of 2-4 weeks.

Q. Does the Eurasian watermilfoil float or sink after it dies?

Milfoil can either float or sink after it dies, depending on the characteristics of the plant. In many cases, it sinks to the bottom. However, if it is cut or fragmented, these pieces will float temporarily and can be transported throughout the lake.

Q. Would a water quality monitoring program be implemented after treatment?

The possibility of implementing a water treatment program can be discussed if the community and the RDKB decide to pursue the use of ProcellaCOR FX.

Q. Is there a risk that PFAS (forever chemicals) are present or released?

It is currently being debated whether or not the active ingredient in ProcellaCOR FX (florpyrauxifen-benzyl) should be considered a PFAS or forever chemical. It is not currently defined as a forever chemical by the US EPA but is considered one by the Minnesota Department of Agriculture.

Canada uses the definition set out by the 2021 Organisation for Economic Co-operation and Development which defines forever chemicals as “fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), that is, with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF₃) or a perfluorinated methylene group (–CF₂–) is a PFAS.” This definition does not classify florpyrauxifen-benzyl as a forever chemical.

Human, Wildlife, and Plant Health Concerns

Q. Why is it safe to drink the water but not use it for watering gardens?

ProcellaCOR FX targets a growth hormone system in plants that humans and other animals do not possess. Water treated with ProcellaCOR FX is considered safe to drink because it poses extremely low toxicity to humans. However, temporary restrictions on watering gardens can be put in place because some sensitive garden plants may be injured or killed by the herbicide, since they possess the growth hormone system. These restrictions are to prevent plants from dying, not because there is any health

risk associated with humans eating food that has been irrigated by ProcellaCOR FX-treated water. These restrictions are precautionary and only last 5 days.

Q. Has the herbicide been tested for effects on pregnant women?

There have not been any studies done on pregnant women. However, lab studies have found that flrpyrauxifen-benzyl did not cause birth defects or any other fetal effects in laboratory mammals and did not interfere with reproduction for lab mammals.

Q. Will there be any impacts for people using lake water downstream from the treatment area?

It is unlikely that ProcellaCOR FX will spread beyond Christina Lake due to its quick breakdown time. However, if the RDKB moves forward with applying for a Pesticide Use Permit (PUP) for ProcellaCOR FX, they will investigate the possibility of it impacting individuals downstream of Christina Lake. All people impacted by the potential use of ProcellaCOR FX will be informed of any application and the associated water restrictions.

Q. What plants could be impacted, and might this affect habitat for native species like painted turtles?

Native dicot plants may be impacted if they are close to application sites. Native dicot plants in Christina Lake include:

- Common bladderwort
- Water marigold
- Northern milfoil and whorled milfoil
- Common mare's tail
- White water buttercup and yellow water buttercup
- Water starwort
- Watershield
- Coontail

Of these plants, two are included on ProcellaCOR FX's label as plants that will be controlled by application:

- Watershield
- Coontail

The application of ProcellaCOR FX can be tailored to avoid areas of painted turtle habitat. If ProcellaCOR FX is pursued, the application plan can be strategically designed to leave a large buffer between application sites and turtle habitat areas.

Q. There is a lot of lily growth on the south end of the lake. Would ProcellaCOR FX control that?

This question is still under investigation. At this time, it is thought possible that ProcellaCOR FX may be able to control invasive lily growth, but more tests are required to confirm its effectiveness.

Q. Are there concerns about impacts to aquatic organisms more broadly?

There is currently low concern about the impact of ProcellaCOR FX on aquatic organisms when it is used according to label guidelines. The US EPA has determined that the herbicide poses low toxicity risks to aquatic species, as well as birds, mammals, and reptiles that may be found around the lake. Temporary bioaccumulation in aquatic species can occur at high concentrations, but studies have shown that the compound is rapidly metabolized or excreted within 1 to 3 days. The rates that caused this temporary bioaccumulation are much higher than permitted application rates, and, at permitted application rates, ProcellaCOR FX has not been found to bioaccumulate. Because the herbicide specifically targets plant growth, ProcellaCOR FX may impact non-target aquatic plants. There is also ongoing discussion about whether flurpyrauxifen-benzyl, the active ingredient in ProcellaCOR FX, should be classified as a "forever chemical" or PFAS (per- and polyfluoroalkyl substances). Forever chemicals do not easily break down and can persist in the environment for long periods of time.

Application and Monitoring

Q. How far can the herbicide spread beyond the application zone? Is there a buffer?

Herbicide spread is dependent on the hydrology of the specific application site. There will not be a physical buffer containing the herbicide around application sites. However, when designing the application plan, a set distance buffer can be used to ensure there are no application sites close to sensitive areas in the lake, such as habitat for species at risk.

Q. How will you determine how far downstream to notify residents about water use restrictions?

If the use of ProcellaCOR FX is pursued, the RDKB will seek expert opinion to determine how far the herbicide is likely to spread. All individuals who will be impacted by water use restrictions will be informed well in advance of application to ensure adequate notice.

Q. What is the re-entry interval for treated areas? Is there a way to monitor or enforce this?

The re-entry interval for ProcellaCOR FX is 12 hours. If the use of ProcellaCOR FX is pursued, monitoring plans to prevent re-entry will be created.

Q. How many times have other lakes had to reapply ProcellaCOR FX?

The reapplication rate depends on the severity of the milfoil infestation. It can range between yearly to every 3-5 years. ProcellaCOR FX can be reapplied multiple times per growing season, as long as there is a minimum of 14-days between applications, but may only be applied a maximum of three times a year.

Q. Is this expected to be a one-time application, or could multiple applications be needed?

ProcellaCOR FX can be used as part of an integrated management strategy going forward, where the herbicide is used to control large or very dense patches of milfoil that are not viable for hand picking or benthic mat control. Once these patches are minimized, hand pulling and benthic mats could be utilized. It is likely that multiple applications would be needed over a period of years and could be completed in a phased approach.

Q. What is the range of effectiveness for ProcellaCOR FX in different studies?

ProcellaCOR FX has been found to be highly effective in all the lakes it has been tested in. Peer-reviewed research has confirmed that it is effective in controlling both Eurasian watermilfoil and hybrid milfoils that are created when Eurasian milfoil hybridizes with other milfoils in the lake.

Q. What are the limiting factors for its effectiveness?

1. Water flow: Eurasian milfoil needs to be exposed to ProcellaCOR FX for several hours in order for it to be effective. Areas with high water flow or strong currents can limit the exposure time.
2. Time of year for application: Application may be more effective in spring or early summer, when plants are still growing and readily uptake ProcellaCOR FX.
3. Stage of plant growth: More mature and resilient plants may be less susceptible to application and may require higher dosage.
4. Resistance: Invasive weeds can contain or develop resistance to herbicides if the herbicide is used regularly in the same area. ProcellaCOR FX should not be used for more than two consecutive years in the same area to reduce the chance of resistance development.

Q. What kind of filtration removes ProcellaCOR FX?

Activated charcoal filtration can remove ProcellaCOR FX from water.

Comparison with Other Lakes and Use Cases

Q. How does Christina Lake compare to other lakes where ProcellaCOR FX has been used?

In general, Christina Lake is deeper and has more water flow than other lakes where ProcellaCOR FX has been used.

Q. Of the five lakes treated in Canada, how many are sources of drinking water?

The only lake in Canada with publicly available data is Farlain Lake, which is not used as a source of drinking water.

Q. Since Christina Lake has a high replenishment rate, would that mean higher application rates or repeated treatments are needed?

If application is pursued, the specific treatment plan will be created in conjunction with the province and a qualified applicator. The treatment plan will take into account the replenishment rates, milfoil density in the treatment area, and any native species nearby. It is likely that slightly higher rates may be used in areas with more water movement but rates will never exceed the maximum approved rate.

Q. Have long-term studies been conducted on lakes with similar turnover rates to Christina Lake?

No, there is a notable lack of long-term data available, as the herbicide was only approved for use in Canada in 2023 and in the USA in 2018.

Q. Are there examples of lakes with water sources located as close to treatment zones as at Christina Lake?

No examples are readily available. However, ProcellaCOR FX has been found to be safe in drinking by both the USA EPA and Health Canada. There are no restrictions on drinking water following the application of ProcellaCOR FX.

Non-Chemical Control Methods and Alternatives

Q. Are there examples of using weevils to control Eurasian watermilfoil effectively?

It depends on the definition of “control.” There are no examples of weevils eradicating milfoil. However, weevils do feed on the plants and can cause damage. Studies have found that the overall biomass of Eurasian milfoil following weevil grazing is relatively unchanged, although the weevils do injure stems, leaves, and roots and can cause the plant to lose buoyancy and fall out of the water column. Many factors can limit weevil effectiveness, including fish predation, water depth, winter temperatures, and plant nutrient content.

Q. Do weevils kill the plant or just reduce its density?

Weevils feed on the plant but do not typically eliminate it entirely. There have been mixed results on whether they reduce Eurasian milfoil density.

Q. Could larger weevil populations lead to better control?

Possibly. The Minnesota Aquatic Invasive Species Research Centre has predicted that densities of 100-200 weevils per square meter (or approximately 0.5-2 weevils per stem) may be able to effectively control Eurasian watermilfoil. In this context, effective control of Eurasian milfoil would decrease plant abundance and limit the formation of surface mats of milfoil, but would not eliminate the plant from the lake.