

Dear Members of the Senate Committee on Natural Resources and Energy,

I know that you've been hearing last-minute testimony about H31. I wanted to reach out with some concerns that I have about the herbicide permitting process.

I've been involved with the Lake Bomoseen issue for over a year. For context, the Lake Bomoseen Association (in conjunction with the Lake Bomoseen Preservation trust—an organization with no general membership and a 5-member board, which includes a member of the LBA board) applied for a permit to use ProcellaCOR EC in January 2022. The LBA board submitted the application without notifying or polling their dues-paying membership. When the public found out about the LBA's plan to use ProcellaCOR EC to treat nearly the entire littoral zone of Lake Bomoseen, there was a large uproar. The LBA/LBPT chose to disengage from the community and continue to pursue the herbicide permit.

The LBA's herbicide permit application is publicly available, and it includes the full aquatic vegetation survey conducted in 2021 by SOLitude Lake Management. This survey lists the latitude and longitude of each point they surveyed, along with data on the amount of milfoil and other species present at each point.

I love GIS (I teach it part-time at Castleton University), so I decided to map the data and see how bad the milfoil problem actually is. I'm not a lakefront homeowner, and I don't fish or have a boat, so I don't have a sense of the problem. Though I personally worry about the use of chemicals in our waterways for a variety of reasons, there are some emergency situations that might warrant herbicides and chemical remediation (such as harmful algal blooms, which can affect public health). Is the milfoil in Lake Bomoseen an emergency situation like this?

According to my analysis and interpretation, no. The survey also raised some distressing points:

--Surveys of lake vegetation are inherently imperfect. A surveyor tosses a rake off the side of a boat and records the identity and density of what they pull up. They then drive the boat 100 meters, toss the rake again, and record the density and type of vegetation again. Smaller vegetation that don't get entangled in a rake easily are potentially undercounted. If milfoil is found, the entire space between data points is considered to contain milfoil. More than an acre falls between the data points! We know nothing about what's going on between the points. (This methodology can only overestimate milfoil.)

--Slight differences in where the rake is thrown from year-to-year can vastly change the perceived acreage, frequency of occurrence, and density of both milfoil and native plants.

--This is the approved survey methodology; presumably the argument is that it's difficult and costly to survey a lake otherwise. However, decisions about chemical treatment and "proof" of its effects should not be based on rake-toss surveys alone.

--Despite the imperfection of the survey, Bomoseen's 2021 survey shows that most areas do NOT have dense milfoil, and that native plants are doing well, even at points where milfoil

grows. This goes against the narrative that milfoil crowds out native plants and is damaging to biodiversity. What is the explanation for this disconnect? I haven't heard a biologist weigh in yet.

(See [keeplakebomoseenherbicidefree.org/vegetationsurvey](https://www.keeplakebomoseenherbicidefree.org/vegetationsurvey) for the maps I made based on the survey data. I presented this at a Castleton Selectboard meeting held to discuss the permit application.)

--Further, I don't think Lake Bomoseen has ever had a comprehensive bottom-survey done by or commissioned by the state. I would think that the lake should be studied to understand its depths and flow before it is treated.

I started reading everything I could find about ProcellaCOR EC's use in lakes in Vermont and elsewhere. I was concerned by other points as well:

--At the levels that we use in Vermont, ProcellaCOR EC does kill coontail (a non-target native species). The DEC has found this in Vermont, as they reported in an April 2022 statistical analysis of pre- and post-treatment data. Unfortunately, they conflated the data from 11 very different lakes, so it's hard to draw further conclusions from the analysis.

--Lakes in the Midwest (and possibly in Vermont) have found reductions in milfoil in areas far outside of the ProcellaCOR EC treatment area, implying that the herbicide may diffuse or flow across lakes at levels high enough to do damage elsewhere. This is great for lake associations who want more "bang for their buck," but not great for preserving the required percentage of the littoral zone.

--Some lakes (such as Bomoseen) have been removing milfoil through harvesting. Removing milfoil removes phosphorus from the lake since milfoil takes up phosphorus as it grows. What happens if we kill off large swaths of milfoil, but it stays in the lake to decompose? How will that affect phosphorus levels? Will this lead to cyanobacteria blooms?

--In December, the EPA announced the removal of 12 chemicals identified to be PFAS from the list of approved inert ingredients allowed in pesticides. This means that prior to December, PFAS were potentially being used in herbicides that we put in our lakes. (We don't know, as the inert ingredients are proprietary.) This list could be added to as more PFAS are identified. (PFAS are poorly understood.) Further, some pesticide storage containers have leached PFAS into the pesticide. The EPA "allowed" this, because PFAS is an evolving science. The state agencies rely on the EPA risk assessments to determine the safety of the pesticide, but the EPA's knowledge is inherently incomplete as chemicals are constantly being engineered and used with little long-term data.

<https://www.epa.gov/pesticides/pfas-packaging>

<https://www.epa.gov/pesticides/epa-stops-use-12-pfas-pesticide-products?fbclid=IwAR1a9SiLqojix0oeCYJcsd9DAXXmSkwV1ggtRilG0ADp8p8y3AjbORnG9YI>

--The DEC (and the statute) says that the goal is to move away from chemical treatment. However, several lake associations who testified before the House essentially stated that if they

stop chemical treatment now, all will be lost. (This is one of the reasons why the moratorium was removed from the bill--representatives were worried about disrupting the progress already made.) How is this moving away from chemicals? This seems like dependence. ProcettaCOR EC's own label states that plants can become resistant to the chemical.

--My understanding is that the DEC can impose specific stipulations such as the need for pre- and post-treatment surveys. However, I don't think that there is any requirement that the lake associations show that they have the funds (or a fundraising plan) for carrying out the treatment plan as approved by the DEC. For example, the Bomoseen permit application anticipates it will cost nearly \$1 million to carry out their plan. An annual weed survey alone costs at least \$10,000. The LBA/LBPT have not explained to the public how they will get this money. Are they planning to use a private donor to fund this unpopular project on Vermont's largest lake? Should they be allowed to do that? What happens if the money runs out before they can complete the project or do the required surveys to monitor success? Will the lake potentially be left worse than it was before? What happens if the lake is accidentally destroyed? Is someone liable?

There are too many unanswered questions about the safety of the chemicals, their effects on the ecosystem, and the true relationship that milfoil has with the native species. There's inequity and vagueness in the pesticide permitting process in terms of who can apply for a permit to treat a public body of water, what steps they need to take, and what they need to prove.

We need to study how the statute can be clarified and improved upon (and ideally pause the approval of new permits while this happens). Once our lakes are treated, the damage is done.

Thank you for considering these points and for all the work you've done for Vermont.

Respectfully,

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(I'm writing this as a private citizen and do not represent my place of employment)