

A letter of testimony to Vermont Legislature in support of HB 31

My name is Dr. Cynthia Moulton and as a professor at Castleton University I have taught ecology and ecotoxicology for over 25 years. Prior to coming to Vermont, I worked as a Biologist in the Ecological Effects Branch, in the Office of Pesticides at the U.S. EPA where I both authored ecological risk assessments for new pesticide registrations as well as validated toxicological studies that were conducted in support of pesticide registrations and reregistrations. I am qualified to speak on the subject of pesticide use in Vermont both as a toxicologist and an ecologist.

I am fully in support of HB 31 because I believe the current process of managing toxicological risk to both humans and ecosystems is flawed. In my opinion, there have been egregious missteps by the DEC in terms of permitting the excessive use of pesticides in our lakes and ponds. In addition, I believe the current regulations and statutes that govern their use is outdated and does not adequately protect Vermonters or the aquatic habitats in our state. I believe that invasive plant species should be managed, and I believe that herbicides should and can be one tool in our tool box to do so, but it should be a last resort. It should be demonstrated that all other options have been deficient and ineffective. Pesticides should never be considered a quick and easy solution because as history has shown us, once they are applied, they are continuously applied. This makes the situation a chronic problem.

This section pertains mostly to the Aquatic Nuisance Control Permit requested by the Lake Bomoseen Association but it is relevant on a much broader scale. It serves to demonstrate the lack of consideration in managing risk in our state.

1. Eurasian Water Milfoil (EWM) is considered an aquatic invasive species by the State of Vermont. However, it is not a new invasive species, having been a resident of Vermont for almost 60 years. EWM appeared in Lake Bomoseen in the 1980's, and for at least the last 20 years populations have been stable, not growing, not declining, in Lake Bomoseen. My colleague at CU, Ivy Marr, has done substantial research into the matter of plant surveys in Lake Bomoseen. She and other scientists, consider EWM now a well-established part of the diverse plant community in Lake Bomoseen. That is not to say that EWM should not be monitored or managed. I think precisely because of effective management it has become less an ecological menace and more of an inconvenience to people. Yes, people should manually clear their dock areas, boats should continue to be washed and rinsed so not to spread it to other milfoil-free lakes, and procedures like DASH should be utilized to clear specific problem areas. However, chemical applications

to public (and private) water bodies should be considered an option of last resort, not the first response as suggested by a small group of lake house owners.

2. The acute toxic impact of this chemical to aquatic animal life is much lower than other available herbicides. However, that does not mean that the ecological impact is negligible or even acceptable. In fact, because of the broad spectrum of impact on **all** aquatic plant species, the adverse impact from ProcellaCOR is quite severe. Fish cannot survive and thrive in a lake devoid of plant cover or without a prey base. The profound and catastrophic impacts, ***as identified in the U.S. EPA Ecological Effects and Environmental Fate Risk Assessment***, will have cascading detrimental effects on all lake organisms from native plants to benthic invertebrates to largemouth bass and perch. The adverse impacts to aquatic plant species have been shown in studies from the Midwest and predicted in the EPA's Ecological Risk Assessment. The mode of action of ProcellaCOR, which mimics plant auxins, means that all plants will be impacted, because all plants are regulated by auxins. Even the herbicide label from SePRO cautions users about this. High toxicity to all plants is expected but it may take longer for the effects to be seen in some more broad-leafed species while thin leafed species such as milfoil seem to show withering within days of exposure. If this were a question of public health, such as treating a lake to kill a toxic algae that could harm pets and people, it might be worth the ecological risks. But this a weed, and you might agree that taking a "scorched earth" approach for a terrestrial weed like dandelions or even buckthorn would never be allowed in a city green space or state park. Dead and dying vegetation, and the resulting absence of squirrels, birds, butterflies, etc. in large swaths of fields would cause great alarm. Most people would be upset and some would be outraged. Applying this to a lake hides the truth of the impact because the lake will still look blue after using this herbicide. But some of us can see and feel these impacts, like the many Vermont Anglers who oppose herbicide applications in lakes. They, I and many other environmentally minded people believe that using ProcellaCOR to kill EWM is not worth the cost of the reducing the overall diversity of aquatic plant communities and destroying a thriving, recreational fisheries.
3. The *long-term impacts* on people, plants, and aquatic organism are virtually **unknown** for ProcellaCOR. Consider that every pesticide that has ever been removed from the market had initially been registered by the U.S. EPA. Pesticides such as DDT, Chlordane, Dieldrin and others had been used ubiquitously in the United States until we realized that they were causing long term detrimental impacts to both the environment and humans. These chemicals also had a low acute toxicity and were thought to be "harmless" when they were used. It was within a short period of time that scientists began to see the harmful effects but, in all cases, it took over 20 years to remove these chemicals from the market. The recovery from that damage took well over another 20 years to achieve, and unfortunately for some species recovery has never occurred. My former student, Anna Ploof, has investigated the chronic effects of ProcellaCOR in studies published since its registration in 2017.

In every study, the results reveal the red flags associated with chronic, low dose exposure and portend the potential for long-term endocrine disruption and reproductive decline in animals. The risk assessment that the EPA conducts cannot account for the long-term effects of low concentrations of chemical exposures. Or, from the multitude of exposures that humans are subjected to on a daily basis. The minute quantities of chemical that wreak havoc with the communication systems in our human bodies is undeniably affected by environmental chemicals. This is why risk management is so important. We should be minimizing our exposure to toxic chemicals whenever possible. The culture within the DEC is that if it doesn't kill stuff, it must be ok.

4. The process for allowing the addition of toxic chemicals in Vermont lakes and rivers is utterly flawed. There are criteria listed on the permit application and it is clear to anyone who reads them that ProcellaCOR has not satisfied the conditions for use in Vermont (I would be happy to elaborate on this if the committee wishes). The U.S. EPA entrusts the states to do due diligence when allowing such products in the waterways within their states' jurisdiction and yet it appears that Vermont sees the very presence of a "registration" as an "approval." It appears that instead of carefully reading and analyzing the reports put forth upon registration by the EPA on human, economic, and ecological effects, the VT DEC seems to rely on a sort of "Cliff Note" summary put forth by the makers of these chemicals. The VT DEC has taken the position that because of the low toxicity of ProcellaCOR to mammals, fish and birds the ecological impacts will be minimal. However, the EPA Ecological Effects and Environmental Fate Risk Assessment clearly identifies that the persistence of ProcellaCOR is quite variable and chronic exposures result in degradation of benthic invertebrates (which as you know, are the prey base in lake systems).
5. And, lastly and to clarify my previous point: Pesticides are registered by the EPA because they are poisons. The EPA pesticide registration process is not an approval process like the Food and Drug administration. Drugs are tested for safety. FIFRA does not require pesticides to be "safe", which would actually be ludicrous because they are intended to kill stuff. All pesticides, herbicides, fungicides, etc come with risk, but that risk needs to be evaluated against the benefits that using them will provide. Risk management is not happening at the DEC using the current laws.

Sincerely,

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