

**From:** [ANR - WSMD Lakes](#)  
**To:** [Jensen, Kimberly](#)  
**Subject:** FW: Act 57 ANC Study Committee  
**Date:** Thursday, November 9, 2023 4:35:11 PM  
**Attachments:** [Root Cause Analysis - Final for Act 57 WG.pptx](#)  
[\[REDACTED\] recommendations for word and definition modifications - Final for ACT 57 WG.docx](#)  
[\[REDACTED\] Response to VT ANR-DEC Decision 3642-ANC-C - Final - Final Draft \(2\).docx](#)

---

Thank you,

Kelcie Bean (she/her)

*You may now submit permit applications, compliance reports and fee payments through our online form to expedite its receipt and review: [ANR Online Intake Form](#)*



---

**Kelcie Bean (she/her)**, Environmental Technician  
Vermont Agency of Natural Resources | Department of Environmental Conservation  
Watershed Management Division | Business & Operation Support Services (BOSS)  
1 National Life Drive, Davis 3 | Montpelier, VT 05620-3522  
802-490-6195 (o/c) | [Kelcie.bean@vermont.gov](mailto:Kelcie.bean@vermont.gov)  
<http://dec.vermont.gov/watershed>

*The Agency of Natural Resources supports telework, and I work primarily remotely. I am available to connect by phone and email.*

*Public Records Statement: Written communications to and from state officials regarding state business are considered public records and may be subject to public scrutiny.*

---

**From:** [REDACTED]  
**Sent:** Thursday, November 9, 2023 1:46 PM  
**To:** ANR - WSMD Lakes <[ANR.WSMDLakes@vermont.gov](mailto:ANR.WSMDLakes@vermont.gov)>  
**Cc:** Lindsey Waterhouse <[waterhouselindsey@gmail.com](mailto:waterhouselindsey@gmail.com)>  
**Subject:** Act 57 ANC Study Committee

You don't often get email from [REDACTED]. [Learn why this is important](#)

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

Greetings Act 57 Working Group Members -

I am submitting three documents today for the Working Group's consideration. One of these Documents, "Getting to "Yes"; Response to Denial of Lake Bomoseen Permit Application to Control Aquatic Invasive Species was previously provided to Dr. Bress.

Please know I am a fervent supporter of the Vermont Agency of Natural Resources existing Permitting Aquatic Herbicide Projects Process and the associated legislation.. I believe it, and the associated October 2022 document containing the same name, clearly demonstrates the wonderful work accomplished by the DEC to help minimize the potential risks and ensure the safe use of ProcellaCOR EC to help control AIS/Eurasian Watermilfoil, while protecting both the VT public health and minimizing its impact on a lakes non-target species.

I am retired, but have had much previous work and experience in protecting both the occupational and natural environments. I know I am only one voice amongst a cacophony of other voices, but hope you will accept my work for what it is, and add it to your decision making process and your groups final recommendations on this very important matter.

Thank you for the work you are accomplishing, and in considering my thoughts and recommendations to the group.

My attachments include:

1. A Root Cause and Cause and Effect Analysis, PPT
2. **Review of Definitions and the existing legislation being considered by the Act 57 Working Group**
3. **Getting to "Yes"**

Respectfully Submitted,

A solid black rectangular box used to redact the sender's name and signature.



# A ROOT CAUSE AND CAUSE AND EFFECT ANALYSIS

The Basis for ACT 57 Legislation potentially banning or restricting the Selective, Permitted Application of ProcellaCOR to Control Eurasian Watermilfoil (EWM) in Vermont Lakes, and the possible impacts and outcomes dependent on that decision.

For the State of Vermont Act 57 Working Group

# Factors (WHY?)

*The Basis for ACT 57 Legislation banning or restricting the Selective, Permitted Application of ProcettaCOR to Control Eurasian Watermilfoil (EWM) in Vermont Lakes*

Reason 5 -  
Inadequate  
funding or  
support

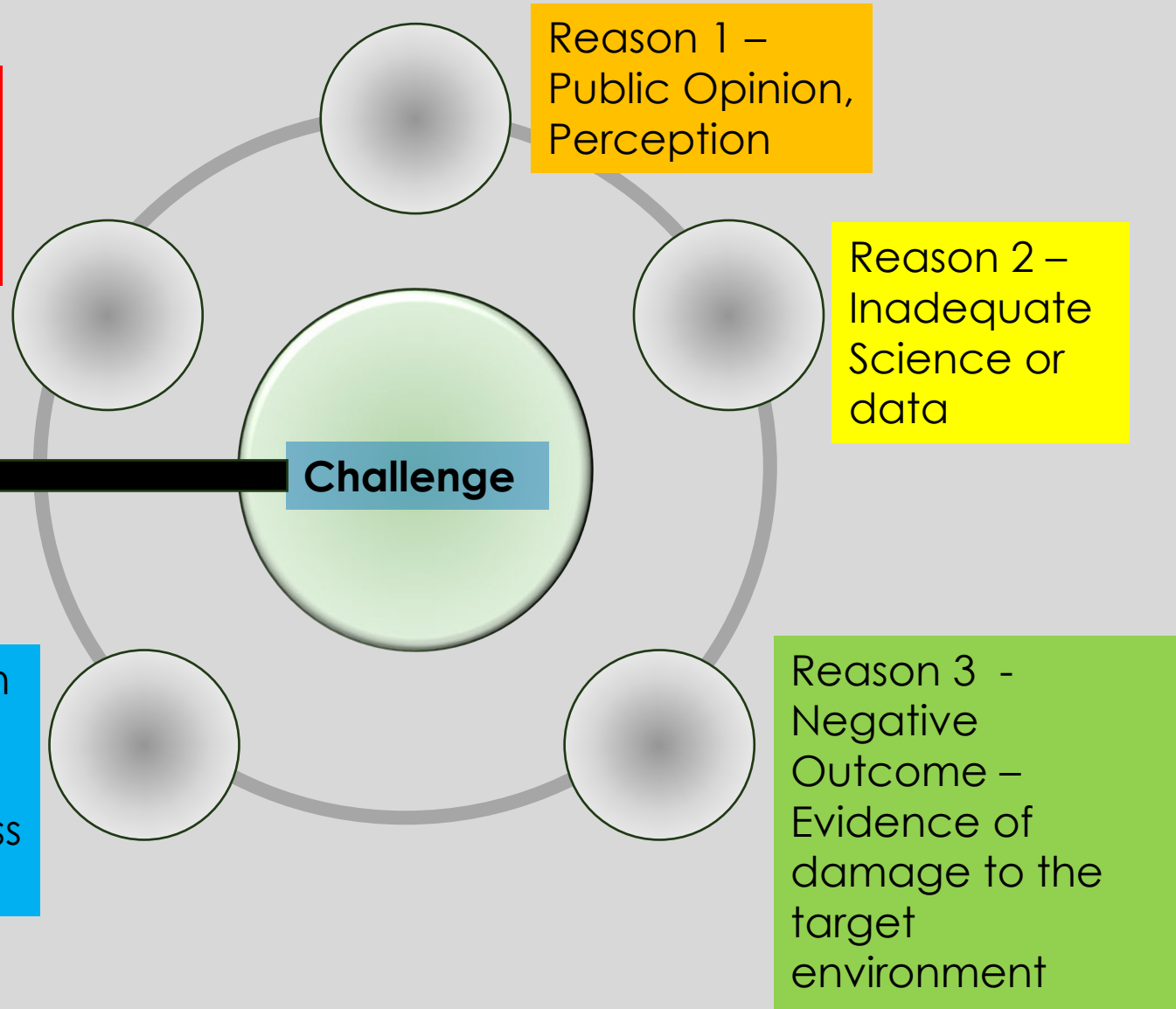
Reason 1 -  
Public Opinion,  
Perception

Reason 2 -  
Inadequate  
Science or  
data

Challenge

Reason 4 - An  
impaired or  
inadequate  
permit process  
or approach

Reason 3 -  
Negative  
Outcome -  
Evidence of  
damage to the  
target  
environment



# Analysis By Element (WHY)



## REASON 1 – PUBLIC OPINION, PERCEPTION

1. POPULATIONS SURROUNDING PROCELLACOR PERMITTED LAKES SUPPORT RE-PERMITTING DUE TO COST-EFFECTIVE CONTROL.
2. ANY PERSON OR ORGANIZATION, PUBLIC OR PRIVATE CAN FILE A PERMIT APPLICATION.
3. DOMINANT OPPOSITION FROM A RUTLAND GROUP CALLED KEEP LAKE BOMOSEEN HERBICIDE FREE.
4. FOCUS ON THE LAKE BOMOSEEN PC PERMIT APPLICATION
5. EX VT LOBBYIST & LEGISLATOR HELPED WRITE AND SUPPORT H.31 LEGISLATION LEADING TO ACT 57 DEVELOPMENT
6. PUBLIC COMMENT PERIOD ALLOWED AFTER PERMIT APPROVAL OR DENIAL.



## REASON 2 – INADEQUATE SCIENCE OR DATA

1. PROCELLACOR IS EPA AND VT AAFM APPROVED FOR EWM CONTROL IN SURFACE WATERS.
2. APPROVED FOR USE BY THE VT DFW (40% MAX TO LAKE LITTORAL ZONES)\*\*
3. APPROVED BY THE VT DPH FOR SAFE USE WITH MINIMAL IMPACT TO GROUND WATER\*\*
4. VERMONT DEC STUDY\*\* AND DATA SUPPORTING MINIMAL IMPACT TO THE NON-TARGET ENVIRONMENTS IN TREATED LAKES,
5. APPROVED AND USED IN MORE THAN 30 U.S STATES TO INCLUDE NY AND NH WITH SIMILAR DOCUMENTED POSITIVE OUTCOMES.
6. NEWER, MORE SELECTIVE AGENT.



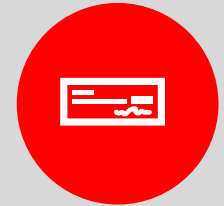
## REASON 3 - NEGATIVE OUTCOME – EVIDENCE OF DAMAGE TO THE TARGET ENVIRONMENT

1. A 6-YEAR DEC STUDY OF THE 11 LAKES USING PROCELLACOR FOUND NO IMPACT ON THE TARGET ENVIRONMENT(S)\*\*
2. RARE AND NATIVE PLANT SPECIES HAVE REBOUNDED FOLLOWING APPLICATIONS, NO IMPACT ON FISH OR OTHER INVERTEBRATES.
3. NO NEGATIVE IMPACTS REPORTED BY AFFECTED LAKES.
4. LAKES TREATED HAVE SEEN ONLY POSITIVE PUBLIC RESPONSE.
5. MANDATORY MONITORING REQUIREMENTS ARE REQUIRED TO VALIDATE NO NEGATIVE IMPACTS.
5. EWM REDUCTION SUPPORTS CLIMATE CHANGE IMPACTS, REDUCING LAKE TIPPING POINTS



## REASON 4 – AN IMPAIRED OR INADEQUATE PERMIT PROCESS OR APPROACH

1. THE CURRENT DEC AIS/EWM PERMITTING PROCESS HAS BEEN IN PLACE FOR OVER 10 YEARS
2. HERBICIDE PERMITTING HAS BEEN PART OF THE PROCESS FOR THE SAME PERIOD.
3. OF THE 13 APPLICANTS IN THE LAST 6 YEARS ONLY 1 RECEIVED A DENIAL\* A (92% SUCCESS RATE.
4. ESTABLISHED CONTROLS IDENTIFIED INEFFECTIVE EARLY HERBICIDES APPLICATION ATTEMPTS, SUSPENDING THEIR USE.
5. RISK BASED APPROACH, RIDGID CONTROLS AND OVERSIGHT ARE IN PLACE.



## REASON 5 - INADEQUATE FUNDING OR SUPPORT

1. FUNDING IS NOT PROVIDED BY THE STATE OF VERMONT
2. ALL FUNDING AND SUPPORT FOR EWM CONTROL IS PROVIDED BY PUBLIC NOT FOR PROFIT ORGANIZATIONS (PRIMARILY PRIVATE LAKE ASSOCIATIONS)
3. OF THE APPROXIMATELY 100 LAKES IMPAIRED BY AIS/EWM, ONLY THOSE SUPPORTED BY PRIVATE NFP RECEIVE FOCUS AND TREATMENT.
4. THERE IS NO COST IMPACT TO THE STATE OF VERMONT
5. PHYSICAL CONTROL METHODS ALONE ARE COST RESTRICTIVE AND INEFFECTIVE.

# Outcomes (Cause and Effect)

**Loss of the selective, permitted use of ProcellaCOR on Vermont Lakes to Control EWM**

**Impact 5 - Inadequate Funding and Support**

**Impact 4 - Limitation to only Physical Controls**

**Impact 1 - Impact to the target environment**

**Impact 2 - Economic Impacts**

**Impact 3 - Public Opinion, Perception, and Use**

**Outcomes**

# Possible Outcomes (Cause and Effect)



## OUTCOME 1 – IMPACT TO THE TARGET ENVIRONMENT

1. INCREASES THE RISK FACTOR AND IMPACT ATTRIBUTABLE TO AIS/EWM ON VT LAKE HEALTH. INCREASED EWM MASS AND DOMINANCE
2. REDUCTION IN NATIVE AQUATIC PLANT SPECIES AND COLD-WATER AQUATIC ANIMAL SPECIES
3. REDUCED LIGHT TRANSMISSION, INCREASED HEAT ABSORPTION AND IN-TURN DISSOLVED OXYGEN REDUCTION, IN LAKE LITTORAL ZONES.
4. INCREASED AIS/EWM TRANSMISSION TO THE THE REMAINING APPROX. 780 LAKES UNCONTAMINATED LALES AND PONDS
5. REDUCED RECREATIONAL OPPORTUNITIES SPECIFICALLY FOR SWIMMING, PADDLING, AND WATER SPORTS
6. CONTRIBUTES TO LAKE TIPPING POINTS, ANAEROBIC CONDITIONS, ALGAL BLOOMS, CYANOBACTERIA DEVELOPMENT.



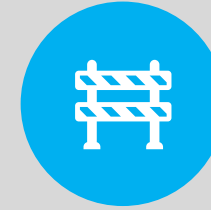
## OUTCOME 2 – ECONOMIC IMPACT

1. POSSIBLE IMPACT TO STATE TOURISM AND PERCEPTION OF VT AS A “GREEN” STATE.
2. IMPACT TO LAKE FRONT PROPERTY OWNERS, REDUCED PROPERTY VALUES, LOST TAX REVENUES IN MUNICIPALITIES WITH IMPACTED WATERS
3. IMPACT TO STATE WATERSPORTS EQUIPMENT PURVEYORS
4. LOSS OF LAKE ASSOCIATION CONTRIBUTIONS AND SUPPORT TO CONTROL AIS/ EWM.
5. COSTS OF PHYSICAL CONTROL METHODOLOGIES ARE MUCH MORE EXPENSIVE AND LESS EFFECTIVE, ESPECIALLY FOR ESTABLISHED EWM COMMUNITIES
7. CLOSURE OF BEACHES AND STATE PARKS DUE TO HABS



## OUTCOME 3 - PUBLIC OPINION, PERCEPTION AND USE

1. SUPPORTS A ZERO RISK/DO NOTHING MENTALITY THAT ANYTHING INVOLVING A CHEMICAL IS BAD.
2. REINFORCES THE MISPERCEPTION OF OPPONENTS THAT CHEMICAL USE AND APPLICATION “POISONS” VT WATERS.
3. SUPPORTS A MIS-INFORMATION ANTI SCIENCE AND CHEMICAL USE AGENDA.
3. SUPPORTS STATE FISHERMAN ABOVE OTHER RECREATIONAL ACTIVITIES AS EWM IS JUST ANOTHER WEED AND ITS LOSS WILL IMPACT THE BASS FISHERIES.
4. REDUCES THE STATE ANR/DEC'S ABILITY TO BE THE ULTIMATE ARBITER, RISK ASSESSOR, AND PERMIT ADJUDICATOR.
5. CREATES A POTENTIAL FUTURE BACKLASH DUE TO FUTURE IMPACTS ATTRIBUTABLE TO LACK OF EWM CHEMICAL CONTROLS.



## OUTCOME 4 – LIMITATION TO ONLY PHYSICAL CONTROLS

1. THIS WOULD BE A REVERSAL OF OPINION ON BEST MANAGEMENT PRACTICES TO CONTROL EWM.
2. VT WOULD BE ONE OF THE FEW STATES IN THE COUNTRY TO NOT PERMIT HERBICIDE APPLICATION TO CONTROL EWM.
3. NOT EFFECTIVE IN CONTROLLING LONG ESTABLISHED EWM WEED BEDS AND INFESTATIONS DUE TO ROOT MASS DEVELOPMENT.
3. WEED PULLING AND DASH HAVE BEEN PROVEN EFFECTIVE BUT ONLY IN NEW OR LIGHT DENSITY INFESTATIONS
4. LOSS OF SUPPORT FROM LAKE ASSOCIATIONS WHO HAVE LONG TERM EXPERIENCE WITH THE CHALLENGES ASSOCIATED WITH EWM CONTROL.



## IMPACT 5 - STATE AND REGULATORY IMPACT

1. REDUCED HERBICIDE PERMITTING, AND LOSS OF LAKE ASSOCIATION SUPPORT WILL PLACE MORE BURDEN ON THE STATE FOR ACTION
2. REDUCTION IN THE NUMBER OF LAKES CONSIDERED FOR B2, A2, AND A1 STATUS
3. INCREASED NUMBER OF LAKES BEING ADDED TO THE LIST OF VERMONT IMPAIRED WATERS (303(D)), PART E, SURFACE WATERS ALTERED BY AQUATIC INVASIVE SPECIES THROUGH BOATER TRANSMISSION.
4. REDUCED COMPLIANCE WITH THE FEDERAL CLEAN WATER ACT.

# In Summary

## A. Root Cause Analysis

1. The initial Root Cause Analysis indicates that public perception is the primary or root cause of Act 57 being enacted.
2. The RCA would also indicate this should be the primary focus area of the study group(public perception). How does the State get out ahead of the public's perception, or the impact of how a small focused opinion group under savvy leadership contributes to the ANR/DEC's regulatory/permitting approach without impairing good science and great works accomplished to date? What is wrong with focusing public comment on the permit decision process after a decision is made based upon the State's Risk Assessment? This appears to have worked well to date and is still the process used for Act 250 permitting.
3. Four of the five elements used in this test indicates except for public opinion/perception, the permitting process was/is effective and supported by the best technical information and science available.
4. Should it be the permittee's responsibility to try to address public perception or opinion, or should it be the ANR/DEC as they are the risk assessor, arbiter, and ultimate decision maker? Observation would hope the Work Group would ask whether a volunteer, 501 (c) organization, dependent on State grants and memberships to support Lake Health issues have the time, knowledge, and funding to support a campaign against an organized dis or mis-interest campaign?

## B. Outcomes/Cause and Effects

1. As provided in the five elements used in this case, to define the impacts of a loss of the herbicide permitting process, it appears there is far more to be lost than gained by ending, suspending, or adding complexity to the permitting process at least it applies to the applicant.
2. It may be prudent for the Working Group/the State ANR to look at the elements and definitions contained in the current five element risk assessment is conducted, and whether terms using reasonable, acceptable and negligible should be reduced in their application and interpretation by adding instead complexity to the risk assessment process to better define why or how the decision to approve or deny was determined. Examples of this approach are contained in numerous Risk Assessment texts and implemented in the EPA's Ecological Risk Assessment Process.



# References

1. [Permitting Aquatic Herbicide Projects.pdf \(vermont.gov\)](#); Agency of Natural Resources, October 2022 \*\*
2. DEC Letter from Misha Cetner to Cynthia Moulton, Ph.D, 9 June 2022
3. Letter from ANR Secretary Julie Moore to Mr. Bob Stannard, 20 March 2023, Subject H.31
4. “The Public Good, in 10 V.S.A §1086.” – Though not clearly defined in the permitting statute, a definition in 10 V.S.A §1086 indicates, “Public good is defined as “...the greatest benefit of the people of the State.” Among the criteria to consider for water-related projects are the project’s effects on “...scenic and recreational values; fish and wildlife;...existing uses of the waters by the public for boating, fishing, swimming, and other recreational uses; the creation of any hazard to navigation, fishing, swimming, or other public uses; the creation of any public benefits; attainment of the Vermont water quality standards...”
5. Risk Assessment, basics and benchmarks, Bruce W. Main, PE, CSP, 2007, ISBN 0-9741248-1-8.
6. State of Vermont Department of Environmental Conservation, Surface Water Management Strategy - [Vermont Surface Water Management Strategy | Department of Environmental Conservation](#)
7. Lake Bomoseen/LBPT Aquatic Control Permit Application Denial, 3642-2-ANC-C  
[https://www.google.com/url?q=https://anrweb.vt.gov/Pubdocs/DEC/ENB/SHORE/15880-3642-ANC-C\\_DraftDenial.pdf&sa=U&ved=2ahUKEwiOzq6czpaAAxU5FFkFHdAyAlsQFnoECAMQAg&usg=AOvVaw29ujFWIXq0MITbwE58ZDHW](https://www.google.com/url?q=https://anrweb.vt.gov/Pubdocs/DEC/ENB/SHORE/15880-3642-ANC-C_DraftDenial.pdf&sa=U&ved=2ahUKEwiOzq6czpaAAxU5FFkFHdAyAlsQFnoECAMQAg&usg=AOvVaw29ujFWIXq0MITbwE58ZDHW).
8. Vermont priority Waters List - [PriorityWatersList\\_PartE\\_2022.pdf \(vermont.gov\)](#)
9. Vermont State Statutes, 10 V.S.A Section 1455 -[Vermont Laws](#)
10. Purdue University, Tipping Points: What Are They and Why Are They Important? [FNR-602-W.pdf \(purdue.edu\)](#)
11. Past Global Changes - [Identifying and anticipating tipping points in lake ecosystems | PAGES \(pastglobalchanges.org\)](#)
12. United States EPA and Ecological Risk Assessments - <https://www.epa.gov/risk/ecological-risk-assessment>
13. The effect of an aquatic invasive species (Eurasian watermilfoil) on lakefront property values - <https://www.researchgate.net/publication/227414480>.
14. Lindsey Waterhouse – Getting to Yes, Response to Denial of Lake Bomoseen Permit Application To Control Aquatic Invasive Species, 4 July 2023
15. Lindsey Waterhouse - Review of Definitions and the existing legislation being considered by the Act 57 Working Group, 7 Nov. 2023

## **Review of Definitions and the existing legislation being considered by the Act 57 Working Group.**

Review and comments by [REDACTED] – My comments are provided in two sections. Section 1 are my own thoughts, observations and considerations used to establish Section 2 which are intended for consideration by the Act 57 Working Group. Please feel free to contact me for questions or clarifications.

**Section 1 - Personal Observations** - in my review to address definitions and terms creating conflict or terms that do not support the current legislation and permitting process I looked at the Act 57 WG's slides and their review of definitions and re-read and tried to interpret the statute. Here are my take aways:

1. The current legislation as written, the intent is to establish the framework for a risk assessment to define and obtain approval of permits intended to help control, mitigate, or eradicate the harmful effects of VT aquatic invasive species using the best available physical, chemical, and biological means.
2. A permittee is required to complete an application containing a proposal and support their proposal with adequate information enabling the ANR/DEC to make a determination that the level of risk posed by the process is “acceptable and reasonable, with negligible impact” to public health and the native non-target species, while enhancing the public good, or providing a public benefit improving lake health, usability and recreation.
3. In this situation the state is the permit adjudicator and regulator, and in coordination with other appropriate state agencies acts as the risk assessor.
  - a. Assumptions – acceptable, reasonable, and negligible are all synonyms typically used in the risk assessment process.
  - b. A zero risk or no risk outcome is not achievable.
  - c. The State is the sole entity with adequate expertise, knowledge, and experience to draw a conclusion that the level of risk, given its established risk assessment methodology is or is not “acceptable”.
    - i. This is not the permittee, not the local municipality, and not the public at large.
  - d. The elements contained in the risk assessment are limited to:
    - i. Is there an existing alternative physical or biological means of control and what is the permittee's experience in using those control methods?
      1. There is no definition or information that the physical or biological control be a BMP, or Best Management Practice.
      2. There is no discussion or consideration of the feasibility, cost, or effectiveness of the physical or biological controls.

- ii. The Impact or risk of the proposed treatment method to the non-target environment/species.
  - 1. The non-target environment or species is a complex term, not currently defined to the permittee, but is assumed to be clear to the State or risk assessor. It is assumed to be the naturally occurring plants, vertebrates, and invertebrates present in the targeted lake ecosystem.
- iii. The impact or risk of the proposed treatment method to the public health of those exposed to the treated waters given the physical treatment method or proposed chemical or biological agent.
  - 1. All commercial hazardous materials and chemicals, specifically pesticides, are reviewed for their environmental impact by both the US EPA and the State of Vermont Dept of Agriculture, Food and Markets
  - 2. The State DAFM has a protocol when unapproved potentially hazardous materials are posed for use in emergency circumstances.
    - a. ProcellaCOR is approved and proven based upon performance demonstrated over the past six years and the 12 lakes that have successfully treated and met all permit requirements.
- iv. The permittee has developed a long-range management plan which incorporates a schedule to minimize pesticide application.
  - 1. This is assumed to be referring to an integrated Pest Management Plan (IPM) as defined by the VT DAFM; not, a comprehensive lake health management plan as described in the “VT Surface Water Strategy” or based upon a comprehensive ecological lake risk assessment.
    - a. This requires clarification. I would suggest the definition of an IPM be added.
- v. Permits proposed for pesticide application must demonstrate the application will result in a public benefit or contribute to the public good.
  - 1. This element does not define how this would be achieved or demonstrated. It is assumed this element focuses on “benefit and good” in terms of improving lake health.
    - a. enhancing water quality,
    - b. improving natural species survival,

- c. improving lake access and use for public recreation,
  - d. improving lakes to help support reclassification.
  - e. Removal from the list of Vermont Impaired Waters (303(d)), Part E, Surface Waters Altered by Aquatic Invasive Species
- e. Currently, this method or “risk assessment” establishes five elements to help determine the overall risk posed in the permittee’s application. There is no formal rating system, methodology or matrix to quantitatively define each applicants’ lakes level of risk by the ANR/DEC that quantitatively supports the States adjudication process determining permit approval or denial. Examples of Risk Assessments are contained in the following references – Risk Assessment: basics and benchmarks, Bruce W. Maine, PE, CSP; Design Safety Engineering, Ann Arbor Michigan, 2004/2007 and the USEPA, Ecological Risk Assessment web page, July 2023.
- f. Public opinion, conflicting arguments or positions from individuals and other private and public entities are voiced through a formal response process, established by the ANR based upon permit approval or denial. Any party may take further actions using the established process through the VT Court system.
  - i. This process has long been effective in the State of Vermont as demonstrated by the Act 250 Process and the outcomes of numerous cases.
- g. The section below (10 VSA 1455 (l)) appears in conflict with ANR oversight of chemical application to surface waters and the Department of Agriculture, Food and Markets pesticide permitting process. As provided below, the application of a larvicide or pupacide could also impact the non-target species of a surface water as addressed for ANR chemical permits to control AIS. As the intent of AIS control is the same concept, of pest control using pesticides, whether mosquito control, lamprey control, EWM control, golf course weed control, or control of non-aquatic invasive plants. It might be better to include all pest management permitting to be aligned under the Agency of Agriculture incorporating the IPM concept and process as defined in 1455 (d) (4) above as the basis for appropriate AIS control and permitting rather than have two agencies with overlapping jurisdictions and controls.
  - i. (l) No permit shall be required under this section for mosquito control activities that are regulated by the Agency of Agriculture, Food and Markets, provided that:
  - ii. (1) Prior to authorizing the use of larvicides or pupacides in waters of the State, the Secretary of Agriculture, Food and Markets shall

designate acceptable control products and methods for their use and issue permits pursuant to 6 V.S.A. § 1083(a)(5); and

\*\*\*\*\*

## Section 2 – Recommendations for Consideration

1. Re-write the current legislation to be more direct and concise using active voice and clear examples or references.
  - a. Example: (10 VSA 1455) The use of chemical, physical and biological controls to contain or eradicate Aquatic Nuisance Species, in any form, is illegal in the state of Vermont unless a “Person” (an individual, public or private organization, or State entity) is issued a permit by the Secretary. Examples of control methods may include:
    1. Pesticides as defined by the State of VT
    2. Biological controls such as weevils
    3. Physical activities or barriers such as:
      - a. Bottom barriers
      - b. Structural barriers
      - c. Powered mechanical harvesters and rotary cutters
      - d. Diver assisted suction harvesting (DASH)
    4. Persons and organizations seeking permits to control or eradicate any aquatic nuisance species shall apply using the form (define or link) provided by the secretary.
2. Consider removing the use of the words acceptable, reasonable, and negligible, by instead adding complexity to the risk assessment process to better define and solidify why or how the decision to approve or deny was determined. Solidify the current RA process to be more definitive and quantitative rather than using subjective terms open for interpretation, or depending on definition.
3. Consider changing the currently provided five risk elements to the following eight:
  - a. There is no effective nonchemical alternative based upon current science and currently established best management practices.
  - b. Added - The pesticide proposed for use was reviewed and approved by the State of Vermont.
  - c. The proposed application and use, after review by the state of Vermont, was determined to pose an acceptable risk to the nontarget environment.
  - d. There is no recognized risk to public health.
  - e. Clarify and Add - An Integrated Pest Management Program\*\* (IPM) was developed and provided by the permittee that incorporates a schedule of pesticide minimization.
  - f. There is a public benefit to be achieved from the pesticide application to help control (note - not eradicate) the targeted nuisance species.
    - i. Establish specific criteria that can be used as guidance by the permittee.

- g. The waterbody in question is identified by the State as “altered” as defined in the “VT LIST OF PRIORITY SURFACE WATERS, PART E. SURFACE WATERS ALTERED BY AQUATIC INVASIVE SPECIES.”
    - i. Consider adding the term altered as a basis to help support public benefit and;
    - ii. To help support VT actions to abate environmental insults as defined in the Clean Water Act, Category 4c of EPA’s Consolidated Assessment Listing Methodology. This would support removal from the listing.
  - h. Consider expanding economic impact and comparative cost considerations helping to justify and support the basis for herbicide permitting and application.
4. Consider adding the definition of an “altered lake” Reference waters appearing in Part E that are assessed as “altered.” They represent situations to be given priority for management where aquatic habitat and/or other designated uses are impaired due to the presence of invasive aquatic species. This definition will help ascertain and support a basis for public benefit.
  5. Consider adding the definition of a pesticide approved for use by the State of Vermont, by the Agency of Agriculture, Food and Markets to this part of the legislation.
  6. Clearly spell out and use the term Integrated Pest Management Plan (IPM) as defined by the State of Vermont Agency of Agriculture, Food and Marketing.
    - a. **Section 20 031 012 - VERMONT REGULATIONS FOR CONTROL OF PESTICIDES - 1.39 Integrated Pest Management** means an ecosystem-based strategy that focuses on long- term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.
  7. Proposed Change - The current five element criteria (Risk Assessment Elements) contained in 10 VSA 1455 (d) for an Aquatic Nuisance Control Permit should be considered for update (see 3. Above). There is no formal rating system, methodology or matrix to quantitatively define each respective applicants’ lakes level of risk clarifying the States justification for permit approval or denial. Consider the following references – “Risk Assessment: basics and benchmarks, Bruce W. Maine, PE, CSP; Design Safety Engineering, Ann Arbor Michigan, 2004/2007” and the “USEPA, Ecological Risk Assessment (ERA) web page, July 2023.

- a. Definition as defined by the US EPA – An **ecological risk assessment** is the process for evaluating how likely it is that the environment might be impacted as a result of exposure to one or more environmental stressors, such as chemicals, land-use change, disease, and invasive species. It is composed of four elements: planning, problem formulation, analysis, risk characterization.
8. Reference 10 VSA 1455 (i)(3) – Clearly define the State’s Role. Is it intended as support to the permittee or only as an adjudicator for permit approval or denial after review? Should the Vt ANR/DEC provide assistance to help a permittee to be successful? As currently defined in the Statute – “contain additional conditions, requirements, and restrictions as the Secretary deems necessary to preserve and protect the quality of the receiving waters, to protect the public health, and to minimize the impact on the nontarget environment. Such conditions may include requirements concerning recording, reporting, and monitoring,”
  9. Maintain the current post permit decision public review and comment process.
    - a. Public opinion, conflicting arguments or positions from individuals and other private and public entities are currently voiced through a formal response process, established by the ANR based upon permit approval or denial. Any party may take further actions using the established process through the VT Court system.
    - b. This process has long been effective in the State of Vermont as demonstrated by the Act 250 Process and the outcomes of numerous cases.
    - c. Nearly all nonpoint source contaminant controls to improve VT lakes surface water quality, including control of aquatic invasive species is accomplished by independent, not for profit, all volunteer lake associations. They are not able to support large scale public relations programs to address mis or disinformation programs challenging the people’s rights to engage the ANR’s AIS controls permitting process.

After completing this review and reading the information contained in the ANR/DEC’s working Group Chair, Mr. Oliver Pierson’s response to comments from Mr. Grove of the Vermont Natural Resources Council. I believe the current legislation as offered needs revision and update. It is unfortunate that the ANR/DEC working group was not allowed to finish their work. I believe the outcome would have completed most of the actions intended to be addressed under Act 57.

My recommendations to add a more robust risk assessment process is not intended to add complexity to the permitting process, but rather to add elements that anchor the decision-making process making it more consistent and defensible for both the ANR and the permittee.

I ask that tis document and the recommendations contained in section 2 of this document be considered by the Act 57 Working Group.

Respectfully submitted,

[Redacted signature block]





# Getting to “YES”: Response to Denial of Lake Bomoseen Permit Application to Control Aquatic Invasive Species

# CONTROL OF AQUATIC INVASIVE SPECIES AND SPECIFICALLY EURASIAN WATERMILFOIL IN VERMONT

The Vermont Department of Environmental Conservation retains sole responsibility under the authority of the Secretary for the Agency of Natural Resources to permit the selective and approved methods to control Aquatic Invasive Species (AIS) within the waters of the State of Vermont as defined in 10 V.S.A. Section 1455(a). As stated in the law and in the Individual Permit Application format, no person may use pesticides, chemicals, other than pesticides, biological controls, bottom barriers, structural barriers, structural controls or powered mechanical devices to control nuisance aquatic plants, insects, or other aquatic nuisances, including lamprey, unless that person has been issued a permit by the Secretary of the Vermont State Agency of Natural Resources.

The Lake Bomoseen Association (A private 501(c)3 corporation), in collaboration with the Lake Bomoseen Preservation Trust (LBPT) applied in good faith to the VT DEC on 1 February 2022 in accordance with 10 V.S.A. Section 1455(d) with the intent to obtain a permit to treat the nationally and state recognized AIS, Eurasian Watermilfoil (EWM). The LBA and LBPT's decision was based upon the following:

- 1) Of the 823 lakes in the State of Vermont over 20 acres in size, Lake Bomoseen is one of only 80 lakes where EWM is acknowledged by the Vermont DEC to be present, impacting lake health, degrading the natural lake habitat, and impacting the public use of these State waters.
- 2) The LBA/LBPT have a long record (formed in the 1950s) of supporting actions to maintain or improve lake health and the diverse recreational uses of the State's largest inland lake:
  - a) As referenced in the DEC's Permit Application Denial, the LBA/LBPT have four approved and active permits for Bottom Barriers (2204-ANC and 3256-ANC B) and Powered Mechanical Devices (2015-H01 and 2015-H02).
  - b) As part of its mission to support lake health the LBA is a primary sponsor of a part-time Greeter Program, to minimize transfer and spread of existing AIS to other AIS free Vermont and adjoining State lakes, as well as prevention of new AIS species from entering the lake due to the high volume of transient, non-resident boats routinely accessing the lake. Although intended to prevent and contain the transmission of AIS/EWM, the Greeter Program effectiveness is very limited due to the time it is active on the lake. In the last year (2022 to 2023), the States reduction in available matching funds was significantly reduced making its long-term viability questionable. Additionally, the Greeter Program has no enforcement capability and inspection for AIS is based upon boat owner concurrence to participate in the assessment process, making its primary value that of awareness and education.
- 3) In the last six years the LBA has spent \$201,000 in support of lake health issues. The LBA's cost for mechanical harvesting activities alone totaled \$113,801, with an average cost of \$40,000/yr. over the last two years. As observed by all State-wide Lake Associations (Reference, Federation of Vermont Lakes and Ponds or FOVLAP) costs to help contain EWM through mechanical and physical means alone have continued to rise with little evidence of long-term control or containment. It is acknowledged that eradication is unlikely, yet the selective application of herbicide combined with physical control methods has proved a viable option for effective containment while helping to mitigate costs. The goal, contain the spread, reduce high densities within the lake littoral zone allowing DASH and physical pulling for long term maintenance and control.
- 4) Historically the LBA has supported and attempted other mechanisms in support of EWM control. These efforts were mostly unsuccessful but help establish their intent to control AIS/EWM. These have included:
  - a) Lowering the lake water levels, application of water weevils, and actual purchase/utilization of three mechanical harvesters, over the last ten years.

- b) In 2023, a ten-day boat-wash trial program will be offered to boaters at the Kehoe boat launch location and was included as part of the Greeter program permitting process.
- 5) Until the development of ProcettaCOR EC, LBA actions to utilize an aquatic herbicide to control EWM was not considered appropriate based upon previous DEC permitted projects utilizing SONAR AS, Renovate 3, and Renovate OTF. Those permits and resulting projects were mostly unsuccessful in aiding the long-term control of EWM. Examples of neighboring lakes receiving those permits/trials included Lakes St Catherine and Hortonia.
- 6) It should be noted and understood, as defined in the Vermont DEC's October 2022 document: Permitting Aquatic Herbicide Projects in Vermont that:
- a) "Aquatic invasive species are considered one of the ten major stressors on Vermont's surface waters and are identified for control as part of *Vermont's Surface Water Management Strategy*."
  - b) "Anyone may submit an ANC application to the DEC as there are no restrictions on who may apply."
  - c) "The DEC does NOT apply for or carry out any permitted ANC Individual Permit Projects, except in "emergency situations", to control new invasive species of significant concern." There have been little or no emergency actions involving AIS.
  - d) *Added here* – the VT DEC or ANR do not have current, internal, or active programs to control surface waters impacted by AIS, and DO NOT offer grants or funding assistance to control AIS, specifically EWM, except for the part time VT Greeters Program. This places sole emphasis and responsibility of AIS control on public and private entities to fund and establish AIS/EWM control activities.
  - e) "Vermont's lakes and ponds are a public trust resource managed for the benefit of ALL Vermonter's. They are NOT owned by the State or any other regulatory, municipal, or private entity."
  - f) "The Agency is the Trustee of Vermont's surface waters; the Agency alone is explicitly charged with implementing a permitting program that oversees pesticide projects proposing to control aquatic nuisances; authority over aquatic nuisance control permitting cannot be delegated to any other entity, including municipalities."
  - g) *Added here* – This "charge" is based to a large degree with the scientific knowledge and practice unique to the DEC and ANR, and their access to other State agencies having specific oversight of public health and environment. Organizations like the LBA, a Vermont Selectboard, a private fishing organization, or independent entity do not have All Vermont Peoples interest in mind or the technical expertise when determining permit approval or denial. In this capacity, the VT DEC becomes a resource to partner with those individuals, municipalities, or private public interest groups, assisting and supporting them, in good faith through the permitting process, whether pro or con, to individual group beliefs or circumstances.
    - i) It should be noted that few private entities or municipalities supporting Lake Health issues have Environmental Scientists, Water Quality Engineers, Aquatic Toxicologists, or Wetlands or Aquatic biologists on their staff, placing sole dependence on the permit development, approval, and denial process on the DEC for that expertise and guidance. Without that oversight and support, an herbicide permitting process would be ludicrous. It should also be noted, that the LBA Board of Directors is fortunate to have two doctors, three engineers (two of them Environmental Engineers), and an Attorney. A family physician was the drafter and developer of the original permit application.
    - ii) It should also be noted here that the recently signed VT Bill H-31, now Act 57, is in direct conflict with this charter and Act 138 (in the absence of adequate controls or procedures created in the transfer of oversight from the Water Resources Panel to the ANR, a formal petition should be initiated to develop a separate

board/panel to establish appropriate modifications or new requirements) giving the ANR control of the decision making process, enabling a politically developed “Study Group” to define future application of herbicides in the control of AIS.

- h) In its 22 October 2022 document, *Permitting Aquatic Herbicide Projects in Vermont*, the VT DEC compiled a comprehensive report, summarizing the basis for its support for use of the selective herbicide, ProcellaCOR EC as a viable method to help all public and private entities help contain and control EWM in Vermont surface waters. Permits issued, projects implemented, effects studied, and outcomes documented since 2019 in 10 Vermont Lakes have clearly demonstrated the success and positive impacts of these applications and demonstrated that there is “little to no risk to the non-target environment.” To Quote: “To date (October 2022), ProcellaCOR treatments have occurred in the following waterbodies: Lake Hortonia, Lake St. Catherine (including Lily Pond and Little Lake), Burr Pond, Lake Beebe, Lake Dunmore, Sunrise Lake (Benson), Lake Pinneo, Lake Morey, Lake Iroquois, and Lake Fairlee (see Section V. Answer I I for more details on this point).” It should be noted that the same permit format, template, guidelines, and limited herbicide application approach contained in the permits for all of these lakes such as Lake St. Catherine, Lake Beebe, and Dunmore were followed in the Lake Bomoseen Permit application. Any variance in application strategies and area of treatment are primarily due to lake size and the level of risk posed by the biological pollutant (AIS/EWM) to the lake to be treated.
- i) The DEC currently does not utilize any specific risk model (1, an Ecological Risk Assessment) or scoring methodology (2) to assist in its process to prioritize lakes for herbicides or chemical control in its permitting process. And, although it references the VT DEC Statewide Surface Water Management Strategy, the alluded to ecological integrity of the waterbody determination does not consider the synergistic factors such as; a Lake Pressure Index (level of human activity), An accurate Lake Health Status Index (morphology, trophic state\*\*, water quality\*\*), and a Response Index (Ability to prevent, respond, mitigate, prevent change, define economic impacts) in their permit acceptance or denial process. Instead, the DEC uses an open, subjective interpretation composed of five elements:
- i) No reasonable nonchemical alternative available
  - ii) Acceptable risk to the non-target environment
  - iii) Negligible risk to the public health
  - iv) A long-range management plan incorporating pesticide minimization (added – this alludes to a requirement for an Integrated Pest Management like plan)
  - v) There is a public benefit to be achieved, with no adverse effect on the public good.
- j) In All of the ten issued existing permits using ProcellaCOR, and as clearly defined in the DEC’s October 2022, document, *Permitting Aquatic Herbicide Projects in Vermont*, these criteria were met or exceeded, and five years of oversight and data demonstrated: “An acceptable risk to the target environment”, “Negligible or no-risk to the public health,” and there were clear and validated benefits being achieved by the lakes treated, and the public accessing those waters. This is supported in all situations by required post application impact assessment data and user and lake property owner testimony.

\*\* The State of Vermont Score Card focuses on the three elements contained in the CTSI or Carlson’s Trophic State Index. Data obtained from the very limited State Lay-monitoring program is used to try to define a trophic index for each lake participating in this program. Again, although State supported, the DEC depends upon the assistance of Lake Associations and private citizens to conduct the assessments. The CTSI is composed of three factors; 1. Secchi disc measurement (water clarity), 2. Chlorophyl-a (biomass predictor), Total Phosphorous (nutrient impact or loading). Using Lake Bomoseen as an example: The VT DEC classification indicates it is a

cold-water, mesotrophic, B2 lake, and identified in the State's ([PriorityWatersList\\_PartE\\_2022.pdf \(vermont.gov\)](#)) as:

- PART E. SURFACE WATERS ALTERED BY AQUATIC INVASIVE SPECIES
- Waters appearing in Part E are assessed as “altered.” They represent situations to be given priority for management where aquatic habitat and/or other designated uses are not supported due to the presence of invasive aquatic species.
- This process results in the following outcomes:
  - As required under the National Clean Water Act, it enables compliance with Category 4c of EPA’s Consolidated Assessment Listing Methodology. The intent is to recognize all lakes requiring surface water quality improvement based upon the presence of AIS alone, recognizing AIS as a biological pollutant, impairing lake health and the natural lake’s habitat.
  - Enables a cookie-cutter methodology to categorize and classify Vermont lakes limiting costs to the State and time spent by the ANR/DEC. Again, the State depends upon volunteers from Lake Associations, municipalities, etc. for support to accomplish much of this work.
  - Misjudges or misrepresents the severity of environmental impact; and, like Lake Bomoseen, underplays the long-term impact of AIS by attempting to dilute the actual synergisms of anthropogenic stressors and their long-term effects on Lake health. Examples:
    - The Lay-monitoring Program focuses on a very limited number of sampling events, collected in the most centralized part of the lake.
    - Sampling only focuses on the three elements of the CTSI (Secchi disc, Chlorophyll-a, and total phosphorous). There are no tests accomplished to look at temperature change over time, variation in dissolved oxygen concentrations, seasonal variation, non-point source contaminant sources, or assessment for AIS impact and change over time and the potential for a lake to be approaching a Tipping Point (3) creating a change in morphology classification, predict the likelihood of algal bloom, cyanobacteria development, and anoxic conditions in critical high impact lakes/lake locations.
    - This simplified approach, enables mismanagement and prioritization of a Lake such as Bomoseen, contaminated by multiple forms of AIS, falsely indicating the waters are improving by constantly increasing clarity as Secchi disc scores increase, and biomass decreases or remains constant due to lower Chlorophyll-a scores, when in fact, these are attributes of a troubled water due to a constantly increasing, Lake wide population of Zebra mussels and Asian clams for which the State has not recognized for additional consideration or corrective action, or considered other assessment strategies that would demonstrate its tip towards warm water lake status and a morphology closer to eutrophic or hyper-eutrophic rather than mesotrophic. (4) Reference – U.S Fish and Wildlife Service, March 2020, revised April 2020, Zebra Mussel, Ecological Risk Screening Summary; Impacts of Introductions; Benson et al. (2020).
      - Although the author here has no specific reference, a true Biomass indicator looking at the estimated total biomass of AIS in any impacted lake as designated in Vermont’s Priority Waters List, Part E, (reference EPA’s Category 4(C)) contains Surface Waters Altered by Aquatic Invasive Species.

## REGARDING THE LAW AND REGULATION

The following applicable laws and regulations are offered in relevance to the LBA's permit application #3642-ANC-C

1. Articles 4 and 7 of the Vermont State Constitution
2. The Clean Water Act of 1972 – Founded the nationwide approach to improving the quality of our nation's lakes, rivers streams and water bodies.
3. Biological Pollutants Control – National Invasive Species Control Act of 1996; Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990
  - a. Invasive Species cause irreparable harm because they spread rapidly, threaten native species, and are almost impossible to eliminate.
4. Northwest Environmental Advocates v. United States Environmental Protection Agency
  - a. "To fully comply with the CWA and NPDES, the EPA must develop a regulatory scheme for recreational boats that will educate boaters about invasive species and punish those who do not take necessary steps to prevent invasive species from spreading."
5. State Water Quality Standards under the CWA are required and shall be:
  - a. Risk based.
    - i. Numeric Standards or Narrative Standards, (AIS is a narrative standard)
    - ii. Define protection of designated uses
    - iii. Provide an anti-degradation Policy.
    - iv. Maintain designated uses.
    - v. EPA defined criteria for biological pollutant impairment as defined in 303 (D) – Water bodies not meeting standards. (Lake Bomoseen is identified as an impaired water - [PriorityWatersList\\_PartE\\_2022.pdf \(vermont.gov\)](#))
    - vi. Establish standards using either:
      - a. TMDL development
      - b. Non-point source management (applies to AIS)
6. Ref – Vermont Act 67, Aquatic Nuisance Control Act and VT Aquatic Nuisance Control Program – 10 VSA Section 1453 and 1454 – A person transporting the nuisance in violation of section 1454 of this title may be subject to a penalty of up to \$1000.00. To date there has been little to no enforcement regarding AIS spread.
7. VT Act 250 (10 VSA, Chapter 151)
  - a. Vermont's land use and development law, enacted in 1970
8. In May 2012, Act 138 was passed transferring authority from the Water Resources Panel under Act 250 to the Agency of Natural Resources
  - a. All of these rules will be administered and applied by the Watershed Management Division in its water related permits program.
  - b. Intended to provide enhanced protections for significant wetlands and waters.
  - c. Ref – Laws, Regulations and Rules Pertaining to Water Quality
  - d. Until all laws and modifications are achieved by the agency, changes or proposed changes will follow 10 VSA Section 6025
  - e. Persons may petition the agency can follow the established "Rules of Procedures."
9. H.31(Act 57) An act relating to aquatic nuisance control has established a "Study Group", rather than the Agency of Natural Resources to decide whether chemicals of any type can be used to assist in AIS control:
  - a. This act established the Aquatic Nuisance Control Study Committee to assess the environmental and public health effects of the use of pesticides, chemicals other than pesticides, and biological controls for aquatic nuisance control in State waters. The Aquatic Nuisance Control Study Committee shall submit to the Vermont General Assembly recommendations regarding whether and when pesticides, chemicals other than pesticides, or biological controls should be used to control aquatic nuisances in Vermont.

Observations:

1. Vermont's standards mirror the EPA's rules and regulations.
2. Failure to follow the Vermont regulations poses a violation of both State and National standards, placing lakes and streams at high risk of continued impairment.
3. Biological pollutants are recognized as a contaminant in VT waters, clearly regulated to prevent transport and further contamination.
4. A TMDL is not applicable as the federal and state governments have elected to utilize the designation as an impaired water:
  - a. Reference the State 2022 "Priority Waters" List or identified surface waters having specific impairments and warranting specific actions. Six Classifications, Parts A thru F
  - b. Part E, (reference EPA's Category 4(C)) contains Surface Waters Altered by Aquatic Invasive Species.
  - c. As defined by federal and state regulations, BMPs would apply to Biological Pollutants, and;
  - d. This would require the application of best available technologies using the best-established science for control and containment.
5. Vermont has placed control of Biological Pollutants (AIS) on public and private organizations to act as the agent(s) to receive funding for the purpose of prevention and control.
  - a. Primary controls of AIS are done by private Lake Associations.
  - b. The permitting process established these controls are the outcome of Act 138, transferring this process to the VT ANR.
  - c. This process, following the same approach as was established under Act 250, is based upon an individual or corporate/public entity to be able to file for a permit allowing environmental aspects to be addressed as part of Vermont's environmental protection processes.
6. As defined in Act 138, in the absence of adequate controls or procedures created in the transfer of oversight from the Water Resources Panel to the ANR, a formal petition should be initiated to develop a separate board/panel to establish appropriate modifications or new requirements.
  - a. This would be addressed by the ANR/DEC Watershed Management Division, or;
  - b. Follow the rules as defined by Title 10 V.S.A. Section 6025(a), Rules of Procedure
  - c. In the recent proposed VT House Bill H.31, now Act 57, this process was not referenced, contained in the hearing's referenced documents, offered as an alternative, or considered as an action instead of Act 57, appearing to place these two Acts in conflict with each other.
7. Regarding H.31(Act 57) An act relating to aquatic nuisance control:
  - a. H.31, as developed, appears to be in direct conflict with established Vermont law and environmental procedures.
    - i. Procedurally it is attempting to stop the same approach used by Act 250, allowing any individual, private, or public group to apply for a permit to address the control of human environmental pollutants/stressors.
    - ii. It places the State in regulatory jeopardy with the EPA and Federal CWA requirements.
    - iii. If the current procedural aspects of laws created by the ANR are considered deficient or inadequate, this should not be addressed by the VT Legislature through a "Study Group" but rather either by the VT ANR or by petition following Title 10 V.S.A. Section 6025(a), Rules of Procedure.
    - iv. Reduces the priority of treatment and control established by federal and state law to control recognized biological pollutants (AIS).
    - v. H.31, and the actions currently proposed by both the VT House and Senate, would potentially negate the use of the Best Management Practices as defined by the currently established Best Science accepted nationally and internationally available for the control of AIS and more specifically EWM in Vermont.
    - vi. H.31/Act 57, was specifically written and intended to prevent and obstruct the Lake Bomoseen Association's request for Permit #3642-ANC-C. The act as originally posed to

implement a moratorium on all chemical applications was defeated in preference to an established study group only looking at chemical application to control aquatic nuisances. Despite no changes in the current Vermont State Laws allowing the permitting and approval of herbicides/ProcellaCOR EC, the political impact of those hearings and comments by the DEC in follow-up meetings with the LBA President, it is obvious that the denial of LBA permit #3642-ANC-C was based upon the pending impacts of H.31 and not on the basis of scientific merit and need, nor glaring errors in the permit as offered. Examples offered in evidence include:

1. Attorneys for the DEC indicated to both Mr. Misha Cetner and Oliver Pierson no proposed changes or modifications be offered to the LBA that would enable permit approval.
2. Director Oliver Pierson, though previously sending a letter acknowledging the support and appreciation of their assistance and defense of the DEC and its permitting process during the H.31 hearing process, implied during a meeting to review the permit denial with the LBA President of being responsible for the impairment of the DEC's herbicide permitting process.
3. Formal letters from both Misha Cetner of the DEC and Secretary Julie Moore were sent to two persons primarily responsible for the disinformation campaign lead by a group calling themselves, "Don't Poison Lake Bomoseen" reprimanding and pointing out the inaccuracy of their information and the disservice to the work being accomplished by the DEC to help combat and contain AIS in Vermont surface waters. Misha Cetner's letter of 9 June 2022, to Cynthia Moulton, Ph.D., provides information using the Lake Bomoseen permit application to address the inaccuracies of their information and support of LBA efforts.

8. In conclusion:

- a. Control of AIS in Vermont is intended to follow actions required of States to ensure compliance with the Clean Water Act, Public Law: 92:500.
- b. AIS in the United States and Vermont are considered biological pollutants.
- c. Although there is no established measurable concentration standard enabling the development of a TMDL for impairment, the designation by the State of Vermont as required by the CWA, and placement of Lake Bomoseen and the other VT AIS impacted lakes on Part E, of the State 2022 "Priority Waters" List (EPA's Category 4(C)), Surface Waters Altered by Aquatic Invasive Species, is a narrative standard tantamount to exceeding a chemical TMDL.
- d. Act 57 is in direct conflict with the previously established Act 138, giving sole authority to the ANC Commissioner and the DEC Watershed Management Division.
- e. The current permitting process established by the ANR/DEC provides sole authority and control to the DEC for technical oversight and approval while placing full responsibility for permit development, corrective action plan development, and project funding on the permittee. When there is conflict between the Permittee and the public or any persons in opposition, this creates direct conflict in the good faith and partnership established between the permittee and the DEC as illustrated in the outcome of H-31/Act 57, and the disapproval of permit #3642-ANC-C. This is unfair to the LBA and any permittee where public opposition is established, and the appearance of a DEC that can pick and choose based upon local opposition, rather than its mission of protecting waters of the State.



## THE PERMITTING PROCESS – GETTING TO “YES”

If in your enthusiasm to get to your designated location, you are stopped by a Vermont State Trooper due to your excessive velocity, he or she will provide you with a ticket. It is intended as a penalty for exceeding the posted state speed limit. It is not a “Permit”, there is no collaboration involved, you know the rules, you have a driver’s license, hopefully. There is no collaboration intended here. The complexity is limited, a speed is posted, you have a license to operate a vehicle, you violated the standard, you pay the penalty, and recurrence results in the loss of driving privileges.

That is not the case involving a permit such as to construct a house, apply pesticides commercially, or allow a beginning driver to successfully drive a car or begin to fly an aircraft. A permit, as it implies, is intended to “permit” a person or group to formulate a plan to obtain an ability to do something with oversight of experts to successfully achieve that goal, end point or outcome. That goal is intended to be achievable as monies are expended, criteria are met, supporting surveys or assessments are conducted, with a general understanding that if one follows the guidelines and required actions, they will obtain the expected end point. This is a collaboration, this is done in good faith, and the expert or overseer due to the level of complexity has the responsibility to help guide the permittee in a reasonable way through the process. To not obtain that end point is a failure of the process, primarily by the issuer or overseer or the expert. The whole focus of the permit or process is to obtain a needed goal or outcome with benefit to the individual, the organization, or the public. The goal here, is intended to get to, YES, not NO. It should also be noted that a Permit is not a Project or Construction Plan. It is a guidance document, hopefully establishing a critical path to success and project accomplishment.

That is the role here of the Vermont Agency of Natural Resources and Department of Environmental Conservation. They are the overseer, they are the expert, they in good faith offer a permit to use herbicides or pesticides to add to help in the control of AIS. Their permit process should be working towards YES, not NO. If as stated, they have sole authority, they should do everything in their power to assist and organization like the LBA to get to yes, through collaboration, partnership, advice, and direction. That was the intent of the LBA’s permit application #3642-ANC-C, to participate in good faith with the DEC in the offered permitting process.

That was the same intent and agreement established for the other 10 lakes with an approved permit to selectively apply ProcellaCOR EC to assist in the respective lake association actions to contain and help control EWM. The LBA could not help but recognize the precedent being set and the success achieved in the DEC’s support and collaboration with the other successful organizations, especially as cost was increasing and the viability of EWM was exceeding the established physical controls impacting lake health, impairing recreational use of the lake, and reduce the value of lake properties, especially in heavily impacted locations.

### Conclusions:

- a. Questions that need to be asked as to why the LBA was denied it’s permit.
  - a. Why was guidance and correction offered in the other lake association’s approved permits, not also availed to the LBA?
  - b. Why was an once collaborative, and supported activity of the DEC working in concert with the LBA suddenly changed to a denial, without guidance availed for permit modification or correction?
  - c. Why, in all the permits offered, the DEC made no comment regarding public comments and feedback in their considered approval process but added it to their denial of the LBA’s permit?
    - i. The terms used and provided by the DEC to quantify opposition were “Considerable” and “Significant”, yet no data was offered as to the actual number, and no comparison was made regarding letters of support especially in testimonies by other Lake Associations and their representatives in opposition to H.31/Act 57.
  - d. Why, was the LBA’s permit singled out for denial following the series of successful and productive permits issued to 10 other Lakes and Lake Associations?

- b. Why was the information contained in the ANR’s document, Permitting Aquatic Herbicide Projects in Vermont not used in support of the LBA’s permit, using this five-year summary to help support appropriate use of ProcellaCOR application in Lake Bomoseen? This document, due to its timing should have been used to help substantiate the safe use of ProcellaCOR and its minimal impact on the non-target species.
- c. The failure of the DEC permit process, clearly supported and lauded by supporters such as the LBA, the LBPT and FOVLAP, resulting in this decision, getting to NO rather than YES, in this instance clearly lies with the ANR/DEC and not the honest and in good faith efforts made by the LBA and LBPT.
- d. The DEC has demonstrated in this instance it has failed in the permitting process and in its previous record of placing science and fact over focus group and political pressure. Unlike Act 57, solely targeting the use of herbicides to control aquatic AIS, a study group, led by the ANR Secretary should focus on a better path to ensure resolution and compromise in the face of select opposition allowing permits based upon merit to move forward to the public hearing part of the permit process, rather than include their interpretations resulting in the basis of their denial. As demonstrated in the LBA application, this part of the permitting process is broken.

## ADDRESSING PERMIT #3642-ANC-C CRITICAL ELEMENTS RESULTING IN GETTING TO “NO”

The denial of Permit #3642-ANC-C, as contained in decision Number 3642-ANC-C was based upon the following:

- I. “The Secretary was unable to affirmatively find that there is **an acceptable risk** to the non-target environment,”
  - a. “Aquatic plants and animals within the waterbody proposed for treatment and waters up to one mile downstream of the waterbody.”
    - i. **Response:**
      - 1. All of the 10 previously submitted and approved permits allowing the limited treatment of ProcellaCOR established this milestone, all of the permitted lakes were able to successfully accomplish/meet this requirement.
      - 2. To quote the DEC (these are only a few of the existing justifications for the use of ProcellaCOR EC, contained in the October 2022 ANR document, *Permitting Aquatic Herbicide Projects in Vermont*.
        - a. “Negative impacts on beneficial native aquatic plants are anticipated to be minimal to none (i.e., an acceptable risk) while it’s anticipated that there will be an overall benefit for the native aquatic plant community. To evaluate this determination using data collected in Vermont, DEC’s Lakes and Ponds Program conducted a [pre- and post-treatment statistical analysis of the aquatic plant survey data](#) from Vermont waterbodies treated with ProcellaCOR, which is available on our [ANC webpage](#). In summary, the analysis showed that after a ProcellaCOR treatment, there was a statistically significant decrease of the lake-wide frequency of occurrence for Eurasian watermilfoil (target aquatic invasive species) and coontail (non-target native species) as well as there being a statistically significant increase of the lake-wide frequency of occurrence for the beneficial native species Illinois pondweed and American eelgrass. The impact on coontail was anticipated as that is a species that is listed as being controlled on the [ProcellaCOR product label](#). However, this impact has been determined to be an acceptable risk for several reasons”
        - b. And: “Regarding the statistically significant increase in several beneficial native aquatic plant species and the remainder of native aquatic plant species having no observable impact, this is viewed as a positive impact on the overall biological integrity of native aquatic plant community. These results demonstrate that

targeted Eurasian watermilfoil control projects are not resulting in the suppression of all aquatic plant species lake wide, that native plant species can reestablish in areas once dominated by Eurasian watermilfoil, and that the benefits of the structural habitat provided by aquatic plants remain.”

3. To quote from the DEC’s denial – “A control activity for Eurasian watermilfoil will have an impact on the ecological integrity of the waterbody as the non-target environment **cannot be avoided completely.**
  - a. This statement and assessment criteria are unobtainable, as it implies **zero risk**, not an **acceptable risk** as already established by the DEC in other permit approvals and follow-on assessments. By the very nature of all Vermont lakes and the presence of similar yet variable non-target species, this would be a disqualifying condition for all proposed and existing permits and should be disqualified, or indicate all use of ProcellaCOR is unacceptable, as there will always be some risk of impact.
  
- b. “Wetlands within the waterbody proposed for treatment and wetlands within the outlet waters up to one mile downstream of the waterbody.”
  - i. **Response:**
    1. The term wetlands and naturally occurring lakes are synonymous, and to the best of the author’s knowledge are present in all Vermont lakes and ponds. Their care and treatment are clearly a concern in any and all permit applications for any proposed treatment whether physical or chemical. As stated in the LBA’s permit application and the DEC’s review, the wetlands area North of Grady bridge were clearly identified and limited application was proposed in that area and excluded altogether the upper, most sensitive 253 acres.
    2. The wetland areas, North of the bridge are already permitted for physical mechanical harvesting by the Town of Hubbardton. This is done primarily to maintain an open channel to enable access; otherwise, the density of aquatic plants would restrict access by all but specialized craft, impeding nearly all recreational uses of this area. This cutting is purposeful, but would impact and impair all plant species, natural, endangered or threatened and AIS.
    3. Review of the LBA’s permit by Zapata Courage with Misha Cetner recommended establishing restrictions for treated areas North of Float bridge, to include the possible need for a wetland permit for consideration by the LBA. He was also clear in stating, “Approval of treatment areas South of Float Bridge Road can be considered as an Allowed Use under the Wetlands Rules.”
    4. This same concern and resulting accommodations are contained in the Lake St Catherine Permit Number: 2770-ANC-C. As stated, “A map of the locations of wetlands as identified by the ANR Atlas or as defined by a dominance (>50% surface area coverage) of rooted woody, emergent, or floating leaved vegetation. Examples of vegetation include willow and alder shrubs, cattails, emergent bur-reed, emergent arrowhead/Sagittaria, and watershield/white water lily pads/spatterdock/floating leaved pondweeds. ***If determined necessary, a Wetlands Permit or Approval, per 10 V.S.A. § 914, shall be obtained prior to commencement or continuance of the control activity.***” This clearly indicates the DEC’s role of working in collaboration to support ProcellaCOR application and permit approval. This same process and option were not afforded the LBA.

5. Regarding littoral zone coverage and determination when considering application areas and herbicide application:
    - a. The DEC, working in coordination with the DFW established an agreed upon percentage of littoral zone treatment to minimize the possible and yet to be demonstrated impacts when using ProcellaCOR on the non-target environment to 40%. The DEC has written extensively about how this guideline was established and DFW agrees with this criterion. This is clear guidance and to some degree, a standard, provided to the LBA and any lake organization or contractor involved in herbicide control of EWM.
    - b. Lake Bomoseen is known to contain EWM in all areas throughout the lake. The permit required comprehensive assessment completed by the LBA's contractor, SePro, clearly defined these areas and their various EWM densities intended to meet and not exceed this 40% standard. Changes to the guidance or modifications to the permit plan is the role of the DEC. See the previous section, "Getting to Yes."
    - c. As an example, this is validated and contained in the Lake St. Catherine approved permit:
    - d. Annual Treatment Area. The total treatment area authorized by this permit and any additional authorizations shall not exceed 40% of the littoral zone of Lake St. Catherine over the course of one calendar year, unless approved in writing by the Secretary. The same treatment location shall not be targeted with the same authorized pesticide for more than two consecutive years.
  6. The remaining DEC review comments contained in section 5. of the permit are confusing as the majority of the information provides reasons supporting and justifying why the permit should have been approved rather than denied.
- c. "Human use of waters treated with the pesticide. This includes, hydroponic farming, greenhouse and nursery plants, and all locations irrigated with waters treated with ProcellaCOR® EC."
- i. **Response:**
    1. In Micha Cetner's letter dated 9 June 2022 to Professor Cynthia Moulton he provides the following: quote: "In addition to the review DEC conducted with the DFW, the DEC relies on the Vermont Department of Health to determine whether there's a negligible risk to public health. For reference, I've attached the review that the Department of Health made on the Bomoseen ProcellaCOR application as well as the review done by a DEC aquatic toxicologist. The conclusions of these reviews performed by state experts were that:
      - a. *Department of Health review, March 21, 2022: "The EPA label for ProcellaCOR does not include any restrictions on use of the treated water for domestic (including drinking and cooking) or recreational use. The proposed treatments at Lake Bomoseen would result in a maximum florpyrauxifen-benzyl concentration of 5.79 ppb, or ~3 PDUs. The EPA label allows use of up to 25 PDUs, which corresponds to roughly 50 ppb. While EPA identified no adverse impacts in animals across the required toxicology studies, Health selected a point of departure of 300 mg/kg/day and derived a chronic oral reference dose of 3 mg/kg/day. Use of this chronic oral reference dose in Health's standard drinking water equations, assuming daily exposure to a 0–1-year-old, gives a drinking water health advisory of 3,429 ppb. **The drinking water health advisory for florpyrauxifen-benzyl is over 590 times higher than the highest proposed concentration in the treated areas, and over 60 times higher than the highest use amount allowed on the EPA label.***

- i. *“Based on a review of the confidential statement of formulation, it is reasonable to conclude that human exposure to the inert compounds contained in ProcellaCOR at the concentrations that would result under the conditions proposed by the applicants, is not likely to result in an increase in the level of concern for public health. Thus, the proposed treatment of Lake Bomoseen with ProcellaCOR is expected to result in negligible risk to public health, from both the active and inert compounds in ProcellaCOR.”*
  - ii. *ProcellaCOR EC Aquatic Toxicity Review, March 16, 2022: “No data gaps have been identified for the basic environmental profile of ProcellaCOR EC, including environmental fate, product chemistry, toxicology and ecotoxicology, and field studies required by EPA for pesticide registration.*
  - iii. *Based on this review, the potential for acute and chronic risks to fish, aquatic invertebrates, amphibians and other aquatic animals is considered low. Any potential chronic toxicity of concern would be short lived due to dissipation in the environment. Acute and chronic risks are further limited by the functional solubility of the product. These findings support the conclusion that the proposed use of ProcellaCOR EC under ANCP applications at application rates of 3 – 5 PDUs / per acre-foot pose an acceptable risk to the non-target aquatic biota and environment.”*
- 2. *Ibid, Permitting Aquatic Herbicide Projects in Vermont; “VDH has on multiple occasions provided a more favorable review of ProcellaCOR compared to other older herbicides that have previously been approved. [This latest review](#) that was performed by VDH’s State Toxicologist in March 2022 in specific response to the Lake Bomoseen Association’s Permit Application for ProcellaCOR, which includes the following statement:”*
  - a. *Based on a review of the confidential statement of formulation, it is reasonable to conclude that human exposure to the inert compounds contained in ProcellaCOR at the concentrations that would result under the conditions proposed by the applicants, is not likely to result in an increase in the level of concern for public health. Thus, the proposed treatment of Lake Bomoseen with ProcellaCOR is expected to result in negligible risk to public health, from both the active and inert compounds in ProcellaCOR.*
  - b. *The DEC’s Drinking Water & Groundwater Protection Division (DWGWPD) acknowledges the presence of public and private drinking water systems that draw waters treated with ProcellaCOR as well as groundwater drinking water systems that may be adjacent to a treated. DWGWPD does not have concerns with the use of ProcellaCOR provided the conclusions from VDH have not changed and that treatment concentrations do not exceed 5 PDUs.*
- 3. *If the State of Vermont and the DEC are still concerned that the impacts of ProcellaCOR EC when used as prescribed to help control EWM, present a level of risk warranting permit denial as defined; then, the existing risks, posed from agricultural runoff from atrazine, glyphosate, and other recognized broad spectrum herbicides to Vermont lakes and rivers as referenced by Mr. Nat Shambaugh, in his January 26, 2017 presentation to the Lake Champlain Basin Program pose an immediate health hazard to all Vermonters, requiring immediate actions be taken to establish a TMDL for all herbicides, implementation of a State dedicated sampling program, and a formal program to define and post all non-point source locations presenting risks to all water users and their potential users.*

- d. “The ecological integrity of the waterbody, which is the culmination of how the biological, chemical, and physical integrity of the waterbody interact.” The concept of ecological integrity is identified in the [Vermont Department of Environmental Conservation Watershed Management Division’s Statewide Surface Water Management Strategy.](#)”
- i. **Response:**
1. Reference the previous section, “The Permitting Process and Getting to Yes.
  2. The referenced document above is a concept document and long-term strategy, intended as guidance to the DEC and specifically, the Watershed Management Division. To quote, “The Strategy presents the Division’s goals, objectives and approaches for the protection and management of Vermont’s surface waters and will help to guide the Department’s future decision-making to ensure efficient, predictable, consistent and coordinated management actions.”
  3. The LBA fully supports this approach and has structured all future goals and activities around this concept, and, also discussed and referenced in this document, in the section “Regarding the Law and Regulations.”
  4. This strategy is intended as an integrated approach, looking at the combined effects and impacts of anthropogenic stressors on the three primary tenants Biological, Physical, and Chemical Integrity. The LBA in its past and current actions support this philosophy and approach as demonstrated by our long-term permit actions and applied physical EWM controls; the LBA Greeter Program, SePro aquatic AIS/EWM survey to define areas of impact by EWM, and the permit application proposing the use of ProcellaCOR to aid in EWM control. All of these efforts are aimed at the return of biological integrity due to the long term impact of the biological pollutant EWM; and most recently, obtaining a grant funding implementation of a Lake Watershed Assessment Plan (LWAP) in 2024 to help define and assist the Lake in its pursuit to evaluate and define anthropogenic stressors addressing the Physical and Chemical integrity of the lake.
  5. As defined earlier in this document, if this “strategy” is to be globally applied in the sense of this and other permits, the ANR/DEC need to adopt a much more rigorous, Ecological Risk Assessment approach, such as defined by the US EPA and as conducted in several large-scale environmental studies completed to quantify the dominant chemical, physical, and biological stressors, prioritizing them for corrective action. The focused permitting process defined and required by the DEC using the five criteria defined in 10 VSA 1455(d) will not help the LBA, or other organizations get to YES without the DEC’s partnership and technical guidance in the permitting process.
  6. In summary, this is a DEC document requiring a high level of professional skill and dedicated full time resources to enable ANR and the DEC to help support and guide the LBA and other similar organization’s efforts to support Statewide surface water goals. The LBA proposed permit is one element of that strategy, and failure to assist and guide this permit and its focus to address the biological pollutant EWM, creates a lose-lose situation for the DEC, the LBA, Lake Bomoseen, and the peoples of Vermont. Clearly, the integrated effects referenced in this case, though totally appropriate, should not be utilized by the DEC as a tool to try to define some negligence or gap in the LBA permit supporting a NO outcome and permit denial.
- e. “There is a long-range management plan which incorporates a schedule of pesticide minimization,” [Long-range Management Plan – 10 V.S.A. 1455\(d\)\(4\)](#). Aquatic invasive species are considered stressors on Vermont’s surface waters. Eurasian watermilfoil, an aquatic invasive species, has spread throughout Lake Bomoseen, is well-established, and eradication is a highly unlikely outcome from control efforts. Eurasian watermilfoil is and will continue to be a part of the aquatic environment of Lake Bomoseen for the

foreseeable future. As such and as required by this finding, any long-range management of this species must include pesticide minimization measures.”

i. **Response:**

1. The concepts of a strategy, permit, plan, and project have different purposes and take on specific requirements to be understood or properly defined. This terminology appears to be used interchangeably in the context of this permit application and DEC expectations. Ibid, see, *The Permitting Process and Getting to Yes*. As written and designed, all the approved permits to date as referenced for Lakes St. Catherine, Hortonia, and Beebe, have used the permitting process and document as the basis for the proposed scope, actions, and specific requirements for the treatment plan/project. The final or approved permit, developed by the DEC, typically contains specific actions necessary to be accomplished by the permittee and their contractor following permit approval, impacting the scope of treatment and actions to be taken to ensure proper and compliant project implementation. The approved permit defines those requirements. Again, reference is made to the final, DEC approved Lake St Catherine Permit Number: 2770-ANC-C.
2. In the context of this requirement (a long-range management plan), this appears to allude to the need for what is typically defined as an Integrated Pest Management Plan or IPM. The intent of an IPM is to address possible alternatives in the control process, specifically to reduce pesticide applications by actions such as minimizing food harborage, use of enhanced natural species predation for garden pest reduction, or the use of chemical alternatives such as beta thuringiensis (BT) instead of carbaryl/Sevin. An IPM is typically only required where recurring pesticide applications are required for long term continued control applications and is defined as such by the VT Agency of Agriculture Food and Markets. A five-year application duration is often the trigger to this requirement and plans have been developed for review every five years for such things as mosquito reduction adjacent to rivers, streams, and some lakes, and pest control in schools. In the case of 10 V.S.A. 1455(d)(4), this requirement is not defined, and no such plan was defined or requested at the time of the LBA’s permit application, as in reality, an IPM would depend on the criteria allowed or defined in the final approved permit. The LBA permit application clearly limited the application to one limited area each year over a three-year period. No more/no less unless defined or modified after the DEC’s review. As an example, please reference the Lake St. Catherine permit – “Annual Treatment Area. The total treatment area authorized by this permit and any additional authorizations shall not exceed 40% of the littoral zone of Lake St. Catherine over the course of one calendar year, unless approved in writing by the Secretary. The same treatment location shall not be targeted with the same authorized pesticide for more than two consecutive years.”
3. The goal of this permit is control of EWM, and the LBA like most VT lake associations recognize that total eradication is unlikely. This thesis and the permit application contain multiple references to integrated long term control strategies, yet the DEC’s statement that a plan for long term control, assuming this implies action beyond the three-year treatment plan is conjecture and clearly regulated to the duration eventually approved by permit and the DEC.
4. Additionally, the LBA proposed permit and the DEC’s permit format constitutes an IPM in that it:
  - a. Accomplishes a risk assessment defining the impact of the proposed herbicide, and limits it specifically to the application of ProcellaCOR; it focuses on a maximum duration of application and the allowed areal extent of the application;

defines the needs for additional permits such as was discussed regarding wetlands, and mandates requirements of the permittee and their contractor to post and warn all potentially impacted persons on the days of application, requires the conduct of monitoring to validate aqueous concentrations of the herbicide do not exceed established concentration requirements, requires physical assessments of the area of application to ensure limited or no impact on the non-target species; and, as discussed earlier, limits a maximum total application to only 40% of the targeted lake littoral zone over a three year period. An area mutually agreed upon by both the DEC and the DFW.

5. In summary, an additional plan as alleged as a reason for permit disapproval should have been clearly defined and requested by the DEC at the time of application or requested as an additional requirement following the DEC's review for approval.
- f. "Or that there is a public benefit to be achieved from the application of a pesticide as described in permit application #3642-ANC-C." Public Benefit – 10 V.S.A. 1455(d)(5). In the context of the Secretary's review of an Aquatic Nuisance Control permit application, public benefit means that the proposed control activity is anticipated to have **net** positive effects on the public good in a manner that outweighs the potential negative effects on the public good from the control activity or the potential negative effects on the public good from not controlling the targeted aquatic nuisance.

**i. Response:**

1. Under section 7. of the permit denial it references the idea of a "sliding scale," such that as the potential adverse impacts of a proposed control activity increase, the burden on the applicant to demonstrate that the control activity provides a public benefit also increase.
2. There is no indication in the permit application or in State statute that such a sliding scale exists or how a permit applicant might judge, gauge, or address this undefined measure or requirement. As used in this denial this appears unjust, arbitrary, and capricious inhibiting the LBA in this case from understanding the requirements to be successful in the permitting process.
3. All of the elements contained in Section 7. of the permit denial, assessing Benefit to the Public, with exception of two elements (potential for anoxia due to EWM death, and an added section not contained as a concern in any previous permit actions indicating a question of public interest in support of the action, clearly support from the readers perspective a basis for permit approval rather than denial. To wit:
  - a. "If the project were to occur, tangible short-term benefits to public good uses are likely to be associated with the temporary decrease in the frequency of occurrence and biomass of Eurasian watermilfoil. This temporary decrease is anticipated to benefit boating and swimming within the treatment locations. It remains undetermined as to whether the control activity would produce a tangible short or long-term benefit to fishing."
  - b. "Generally, Eurasian watermilfoil has been identified as providing poor fish and wildlife habitat compared with native aquatic vegetation. However, Eurasian watermilfoil may provide beneficial structural habitat in the absence of other aquatic vegetation."
  - c. "If the project were not to occur, it would be anticipated that where dense beds of Eurasian watermilfoil are located, there would continue to be negative impacts on swimming and boating."
    - i. The outcome here is recognized to be EWM control, not eradication.



- ii. What does “short term control mean? This has been sufficient for 10 other lakes in Vermont, yet here is defined as inadequate for lake Bomoseen.
  - iii. It appears, the potential “undetermined” impact to fishing is being given precedent to boating and swimming.
  - iv. The assessment totally ignores and does not consider or address the other known and recognized impacts of EWM, an AIS, and its impact in suppressing native vegetation and protected species, the increased temperature and decreased oxygen levels attributable to increased solar absorption, while restricting sunlight necessary for native and protected species to survive and thrive.
4. As demonstrated in the 10 lakes where herbicides were approved:
- a. There were clear public benefits obtained in all the lakes where ProcellaCOR was applied.
  - b. There were no conditions identified where anoxia occurred impairing the existing aquatic habitat.
  - c. Protected and rare vegetative species increased with little to no impact on existing native species.
  - d. There was little to no impact on fishing with the exception that some cold-water species have increased as illustrated in the case of small mouth bass versus largemouth bass in Lake St. Catherine.
  - e. The selective use and application of ProcellaCOR combined with other physical controls such as DASH have demonstrated the long-term ability to control despite the inability to eradicate EWM.
  - f. A clear quantitative, ecological risk assessment is lacking in this assessment to help an AIS impaired lake such as Bomoseen support and justify permit approval. Critical elements not being addressed or recognized include:
    - i. Lake Bomoseen is considered at risk and compromised by multiple forms of AIS/biological pollutants and is identified by the State DEC and the EPA – Lake Bomoseen is contained on the [PriorityWatersList\\_PartE\\_2022.pdf \(vermont.gov\)](#) as a Surface Water Altered By Aquatic Invasive species. “Waters appearing in Part E are assessed as “altered.” They represent situations to be given priority for management where aquatic habitat and/or other designated uses are not supported due to the presence of invasive aquatic species.” Essentially this is a narrative standard requiring corrective action as if a TMDL has been exceeded. Identified Impairments include - (ALS) Aquatic biota and wildlife that may utilize or are present in the waters; (AH) Aquatic habitat to support aquatic biota, wildlife, or plant life; (CR) The use of waters for swimming and other primary contact recreation; (RB) The use of waters for boating and related recreational uses; (AES) The use of waters for the enjoyment of aesthetic condition.
    - ii. There is no consideration of the economic impact posed on lake-side property owners or the impact on the value of their homes due to the EWM impairment of lake access and water quality. Reference, The effects of an aquatic invasive species (Eurasian Watermilfoil) on lake front property values; Congwen Zang, and Kevin J. Boyle, December 2010, Department of Agriculture and Applied Economics, Virginia tech, USA.

- iii. The DEC or the ANR Secretary offer no statistics or basis for the alleged public opposition and the focus of that opposition, which appears solely to be based on a “potential” impact on the fishery, yet there are no risks considered for the declining smelt and brown trout fisheries requiring the DFW to establish a smelt stocking program to buoy up these two dependent populations.
- iv. There is no integrated approach to the public benefit as advocated in the permit denial and as referenced in the Statewide Surface Management Strategy.
  1. What will the impact of no further actions taken by the LBA to contain and control EWM? Currently, the LBA is the only organization on Lake Bomoseen funding and supporting lake health initiatives.
  2. As EWM growth increases and overtakes the littoral zone of the lake, adding to the stored vegetative biomass, the increasing biomass of zebra Mussels and Asian Clams, increased temperatures in the littoral zone and in-turn oxygen reduction, localized areas of anoxia, anaerobic conditions, conversion from plant based habitat to algae based habitat, algal blooms, and Cyanobacteria development resulting in conversion from a mesotrophic, cold water lake, to a eutrophic or hyper-eutrophic lake, particularly in the North and South areas of the lake containing the highest EWM densities and the shallowest waters? The history and experience of environmental protection has proven far more effective using a long-term preventative approach rather than waiting for an emergent or catastrophic occurrence such as experienced by lakes such as Lakes Morie, Memphremagog and Champlain. Reference – Identifying and anticipating tipping points in lake ecosystems, Peter G. Langdon, JA Dearing, J.G Dyke, and R. Wang, Past Global Changes, August 2016; Tipping Points: What Are They and Why Are They Important? Nah E. Kim, Kristen Bellasario, Kimberly Robinson, Bryan C. Pijanowski; Department of Forestry and Natural Resources, Purdue University, May 2020.

g. Referencing permit section 7.B.V. of the permit denial.

**i. Response:**

1. To date, comments regarding public opposition to a permit application are not typically included as a supporting element in permit denial. Words used such as “considerable public interest” and “Significant public response” are not quantitative, lack a technical or scientific basis of concern, and do not address whether these comments are a State-wide phenomenon or a special interest or lobby group. To date, herbicide application permit approval or denial have been based upon their scientific merit and the experience of successful or unsuccessful projects. As mentioned earlier, most of the information contained in this denial appears to be a basis for approval given DEC publications and previous permit experiences involving ProcellaCOR use and impact. An understanding of the State of Vermont permit approval process would indicate that typically, a public hearing would be offered allowing public concern and comment after

initial permit approval. That would appear to be how the process is intended to function, rather than during the permit review or denial process.

- a. Note – Using this criterion as a basis for denial also appears to extend the need for permittees to also be responsible for a public relations campaign as well as defending the scientific merits and justifications for the permit. Something the LBA and other lake organizations are incapable of supporting. Without DEC/ANR support and protections an organization like “Don’t Poison Lake Bomoseen”, headed by a known Vermont lobbyist and ex-Legislator with a dis-information campaign supported by a part time professor from a local Vermont State College was easily able to create a focused campaign against the LBA and their permit, as well as inflicting their select beliefs on the statewide permitting process. This now impacts all existing and future work within the State to help contain EWM. This was recognized by both the DEC’s Lake & Shoreland Permit Analyst in his letter of 9 June 2022 to Professor Cynthis Moulton, and in a letter to Mr. Bob Stannard from the ANR Secretary Julie Moore, PE, dated 20 March 2023. Use of this approach for a basis of permit denial appears unjust and capricious.
2. Regarding feedback and letters from adjoining towns provided to the Secretary:
  - a. The Town of Fair Haven has no direct oversight of Lake Bomoseen or its tax-paying citizens. The Castleton and Poultney Rivers are open to significant point and non-point sources of contamination well beyond the outfall of lake Bomoseen prior to reaching the town of Fair Haven. This is clearly documented by the DEC and PMNRCD. The decision to send a letter to the Secretary was done independently by the Select Board, a public meeting on the topic was never made public or properly warned. The LBA was not asked to provide comment or participate in the discussion, and the VT DEC was not asked for consultation or support to the selectboard, and none of the select board has technical expertise in toxicology, environmental engineering, or water quality. Additionally, the Selectboard Chairman is a close friend of an advocate and Vermont Lobbyist supporting the “Don’t Poison Lake Bomoseen” special interest group. His actions were identified to the Town Manager as a conflict of interest.
  - b. The Town of Hubbardton, though an original co-applicant on the LBA permit withdrew as a permit participant, and indicated the basis of their withdrawal were due to concerns expressed by those supporting the “Don’t Poison” special interest group. It should be clearly noted and understood, that two lakes, contained within the Town of Hubbardton (Lake Beebe, and Lake Hortonia) have previously applied for and been granted approval to use ProcellaCOR EC to help control their EWM biological pollution problem. All members of the two lakes and their surrounding communities (Hubbardton), have nothing but praise for the improved public benefits offered by herbicide application.
  - c. The Town of Castleton contains the majority of jurisdiction over the approximately 964 houses and camps surrounding Lake Bomoseen and the local community. The Castleton Selectboard did not request assistance from the DEC to help address the pros and cons of the LBA’s permit application allowing an informed, scientific decision; instead, at the Castleton Selectboards meeting to discuss the permit, a Castleton University Professor, representing the Don’t Poison Lake Bomoseen special interest group was allowed to provide a

presentation aimed at disinformation to the attending public. Please reference the DEC 9 June 2022 letter to Professor Cynthia Moulton.

- d. Until the LBA's decision to apply for an Herbicide application permit and the development of the "Don't Poison Lake Bomoseen" special interest group there have been nothing but praise and support for LBA activities, and to date, it has been the only action group or entity providing monies and physical support for Lake Bomoseen lake health activities. Additionally, the primary concerns creating conflict are primarily attributable to an unfounded our unjustifiable impact of ProcellaCOR on the large mouth bass fishery, yet as referenced in section 5. (Acceptable risk to the non-target environment) of the LBA permit denial it clearly states, "Lake Bomoseen, the largest inland lake in Vermont, is no different with a diverse aquatic macrophyte community that supports several important sportfish populations, including largemouth bass, bluegill, pumpkinseed sunfish, black crappie, yellow perch, and northern pike." And "the presence of aquatic vegetation is required for fish and wildlife habitat. Eurasian watermilfoil has been identified as providing poor fish and wildlife habitat compared with native aquatic vegetation. The removal of Eurasian watermilfoil promotes native plant biodiversity, which improves the biological integrity of the lake over time."
3. It should also be noted that an independent survey developed by the LBPT querying Lake Bomoseen Property owners determined the following (total surveys sent N = 887, total responses received N = 409. A 46% response):
  - a. The majority of the lake use activities conducted by property owners would be impaired if no actions are taken to control milfoil. Based on the survey, fishing only represented 8% of the major lake recreational activities identified by Lake Bomoseen property owners.
  - b. The majority (70%) considered milfoil to be a moderate or significant problem that interferes with their use of the lake.
  - c. The majority of property owners (90%) support some form of milfoil control.
  - d. Only 56 (11%) felt doing nothing to control milfoil was the best action.
4. In summary, this basis for DEC permit denial seems in direct contrast and conflict with the current ProcellaCOR permit approval history seen by other lakes. Is in direct conflict with the Statewide Surface Water Management Strategy, in conflict with the DEC's position and guidance document, Permitting Aquatic Herbicides Projects in Vermont, and the Agency of Natural Resources responsibility as the Trustee of Vermont's surface waters designating Lake Bomoseen on its [PriorityWatersList\\_PartE\\_2022.pdf \(vermont.gov\)](#). Surface waters altered by aquatic invasive species, and not supporting this permit as a critical element of a long term strategy to help contain AIS/EWM in one of Vermont's largest lakes.

## **OBSERVATIONS AND RECOMMENDATIONS FOR FURTHER ACTION**

1. The Lake Bomoseen Association should seek an appeal as defined in Decision Number 3642-ANC-C, Reference 10 V.S.A. Chapter 220.
2. Due to the apparent unjust actions and bias shown to this permit application by the ANR/DEC following the unfortunate approval of Act 57, consideration should be given to appealing this to the Vermont Supreme Court, rather than the appeal process offered above, as this issue appears to be a local and lake specific bias impacting the

- rights of all peoples in Vermont to equal environmental justice and surface water quality protections under the existing law.
3. This permit denial and the future impacts and controversies associated with the adoption of Act 57 were not the fault or actions taken by the LBA to legally apply for an aquatic herbicide permit, but rather an impairment of the DEC's permitting process and failure in helping the LBA in getting to YES.
  4. By not following the established permitting process and its own credible scientific information and authority, completing the permitting process through the open public comment period and assisting the LBA in modification of the permit terms to ensure a consensed but win-win outcome for all parties, it has instead created conflict between itself, the LBA, and with those opposed to the permitting of herbicide to control AIS. This demonstrates a clear need for ANR and DEC internal review and process modification.
  5. The current subjective five element criteria for an Aquatic Nuisance Control Permit needs to be changed to establish an integrated ecological risk-based assessment model with established quantitative assessment elements addressing the combined chemical, physical and biological integrity of a lake, to include a Lake Pressure Index (human activity), a Lake Health Status Index, and a Response Index (Prevent, respond, mitigate, prevent change).
  6. The DEC needs to assess and modify its current Lake Score Card and its dependence on the Carlson Trophic State Index (CTSI) to better define lake morphology.
  7. The DEC should ensure that all existing and future permit applications for Aquatic Nuisance Control focus on getting to YES. The DEC's highly competent and capable staff need to act as a consultant to help organizations seeking to support the Statewide Surface Water Management Strategy.
  8. If the Town of Castleton, in its capacity to help protect and provide infrastructure supporting the needs of lake front property owners does not support LBA actions and initiatives to protect lake health and control AIS/EWM in Lake Bomoseen, especially those with homes and camps in high density milfoil locations, impacting public benefit and property value, they should seek tax relief and compensation from the Town to facilitate personal EWM control activities. Please reference the article and methodology used for this action at:  
<https://www.researchgate.net/publication/227414480>.
  9. If the information contained in the permit denial is correct and the DEC has changed its position to one of no acceptable risk, Reference - "A control activity for Eurasian watermilfoil will have an impact on the ecological integrity of the waterbody as the non-target environment cannot be avoided completely." And, "Given the unique and ecologically important nature of this wetland complex in relation to the overall biological integrity of Lake Bomoseen and to specific aquatic plant and animal species that primarily occur within this area that could be significantly negatively impacted by ProcellaCOR® EC treatments (either directly or indirectly through alteration of habitat), the Secretary determined that ProcellaCOR® EC treatments in this area pose an unacceptable risk to the non-target environment." As nearly all Vermont lakes contain wetlands and the potential to contain threatened or protected plant species, this indicates a change in philosophy and the use of ProcellaCOR, not only impacting Lake Bomoseen, but all existing approved permits, as well as any proposed or future permit applications. In essence the DEC guidance document, Permitting Aquatic Herbicide Projects in Vermont would need to be retracted. Hopefully this interpretation is in error but requires immediate clarification.
  10. The ANR by denying Permit #3642-ANC-C has created an appearance that this was based upon the recent approval of H.31/Act 57, even though the moratorium part of the Bill/Act was removed, suspending all permits and applications of herbicides to control EWM. Additionally act 57 will focus only on herbicide applications, rather than the broad application of chemicals to aid in AIS control. The DEC's concern and emphasis of restricting chemical/pesticide/herbicide application to minimize any impact on the non-target environment is in direct conflict with the allowed application of TFM, a true pesticide used to control/kill Lamprey in Lake Champlain, which has resulted in one case resulting in the recorded death of more than 500 mudpuppies in the Lamoille River in 2009, after lampricide treatment. This practice implies impropriety in the permitting process.

11. This paper points out the impact and need for extensive environmental protection programs and the funding needs for a small State like Vermont, and the limited scope of the DEC to proactively respond to, fund, and implement corrective action projects to control AIS. It's total dependency on private/municipal organizations to fund these projects places the impacts, both good and bad in the lap of those organizations, whether a permit is approved or denied. This creates conflict with any group in opposition, as well as possible conflict with the DEC. This is unfair and defeats the ability to get to YES. The model used by other States such as New York, Washington State, and Minnesota places their DEC equivalent in a funded position of not only permit oversight, but also funded to be able to directly respond and implement corrective actions on their own. In this example, the VT DEC would target lakes such as Lake Bomoseen, as it is one of 80 lakes identified on Part E, of the Vermont Priority Waters List. In the event of conflict with the public, that conflict would be resolved by the DEC having both responsibility and authority for corrective action. The last recommendation in this paper would support the ANR/DEC revisit this model and consider using State funds and grants to support the full scope of this work, or at least consider a hybrid, where large scale projects are overseen by the DEC and smaller projects are supported in collaboration with private organizations like the LBA.
12. Lastly, the Vermont Agency for Natural Resources and the current Secretary, Ms. Julie Moore, are asked to please carefully re-consider its denial of Permit Application #3642-ANC-C, and regain its science based high ground in the permitting aquatic herbicides in Vermont, helping the LBA and all Vermonters in getting to "Yes" and the safe and effective control of AIS and specifically EWM.

## REFERENCES

1. [Permitting Aquatic Herbicide Projects.pdf \(vermont.gov\)](#); Agency of Natural Resources, October 2022
2. DEC Letter from Misha Cetner to Cynthia Moulton, Ph.D, 9 June 2022
3. Letter from ANR Secretary Julie Moore to Mr. Bob Stannard, 20 March 2023, Subject H.31
4. "The Public Good, in 10 V.S.A §1086." – Though not clearly defined in the permitting statute, a definition in 10 V.S.A §1086 indicates, "Public good is defined as "...the greatest benefit of the people of the State." Among the criteria to consider for water-related projects are the project's effects on "...scenic and recreational values; fish and wildlife;...existing uses of the waters by the public for boating, fishing, swimming, and other recreational uses; the creation of any hazard to navigation, fishing, swimming, or other public uses; the creation of any public benefits; attainment of the Vermont water quality standards..." Neither social media statistics, protests, nor selectboard votes are mentioned."
5. Journal of Hydrology: Regional Studies, Volume 46, April 2023; Assessing lake health in China: Challenges due to multiple coexisting standards; Yifan Su, et.al.; [Assessing lake health in China: Challenges due to multiple coexisting standards - ScienceDirect](#)
6. Risk Assessment, basics and benchmarks, Bruce W. Main, PE, CSP, 2007, ISBN 0-9741248-1-8.
7. Nat Shambaugh, Presentation, Lake Champlain Basin Program, January 2021 - [PowerPoint Presentation \(lcbp.org\)](#)
8. State of Vermont Department of Environmental Conservation, Surface Water Management Strategy - [Vermont Surface Water Management Strategy | Department of Environmental Conservation](#)
9. Lake Bomoseen/LBPT Aquatic Control Permit Application Denial, 3642-2-ANC-  
[https://www.google.com/url?q=https://anrweb.vt.gov/Pubdocs/DEC/ENB/SHORE/15880-3642-ANC-C\\_DraftDenial.pdf&sa=U&ved=2ahUKEwiOzq6czpaAAxU5FFkFHdAyAIsQFnoECAMQAg&usg=AOvVaw29ujFWIXq0MITbwE58ZDHW](https://www.google.com/url?q=https://anrweb.vt.gov/Pubdocs/DEC/ENB/SHORE/15880-3642-ANC-C_DraftDenial.pdf&sa=U&ved=2ahUKEwiOzq6czpaAAxU5FFkFHdAyAIsQFnoECAMQAg&usg=AOvVaw29ujFWIXq0MITbwE58ZDHW).
10. Zebra Mussels, Ecological Risk Screening Summary, US Fish and Wildlife Service, March 2020 - [Ecological Risk Screening Summary - Zebra Mussel \(Dreissena polymorpha\) - High Risk | FWS.gov](#)
11. Conservationists rap state plans to treat the Lamoille River with lampricide – Vt Digger, October 2020  
[Conservationists rap state plans to treat the Lamoille River with lampricide - VTDigger](#)

12. A Trophic State Index For Lakes, Robert E. Carlson, University of Minnesota, March 1977-  
[nrc.gov/docs/ML0427/ML042790430.pdf](http://nrc.gov/docs/ML0427/ML042790430.pdf)
13. Vermont priority Waters List - [PriorityWatersList\\_PartE\\_2022.pdf \(vermont.gov\)](#)
14. Vermont State Statutes, 10 V.S.A Section 1455 -[Vermont Laws](#)
15. Purdue University, Tipping Points: What Are They and Why Are They Important? [FNR-602-W.pdf \(purdue.edu\)](#)
16. Past Global Changes - [Identifying and anticipating tipping points in lake ecosystems | PAGES \(pastglobalchanges.org\)](#)
17. United States EPA and Ecological Risk Assessments - <https://www.epa.gov/risk/ecological-risk-assessment>
18. Lake St Catherine Aquatic Nuisance Control Permit Number: 2770-ANC - [2574-2770-ANC-C\\_DraftPermit.pdf \(vt.gov\)](#)
19. Lake Bomoseen Association and lake Bomoseen Preservation Trust Permit # 3642-2-ANC-C Application [anrweb.vt.gov/Pubdocs/DEC/ENB/SHORE/15880-3642-ANC\\_Application\\_Admin\\_Complete.pdf](http://anrweb.vt.gov/Pubdocs/DEC/ENB/SHORE/15880-3642-ANC_Application_Admin_Complete.pdf)
20. The effect of an aquatic invasive species (Eurasian watermilfoil) on lakefront property values <https://www.researchgate.net/publication/227414480>.