Wakeboard Boats Believed to Damage Lakes; VT May Regulate
By Bruce Durgin, FOVLAP Auxiliary

Interest in wake boarding has increased over the past decade to the consternation of environmentalists concerned about its impact on the health of lakes. Wakeboard boats are designed to create bigger wakes for boarders and surfers by placing the engine backwards to make the rear heavier. Either inboard or outboard, the boats have multiple ballast tanks that further add to the weight, and hence the magnitude of the wake.

States throughout this country, as well as Quebec Province, are currently studying the impact of these tremendous waves on shorelines. In general, the studies to date indicate that forceful waves from these boats are negatively impacting the shoreline environment in various ways: they stir up sediment, releasing phosphorus and causing turbidity; impact the ecosystem by destroying fish eggs; and erode the shoreline while breaking up Aquatic Invasive Plants (AIS) and causing them to spread. Moreover, improperly drained ballast water and tanks that are not properly decontaminated between water bodies can also lead to the spread of AIS. Vermont will be considering legislation presented in Senate Bill 69 to "restrict or prohibit the use of wake boats in certain public waters." (continued on page 2)

Lake Seminar Set for June 7 in Fairlee
By Jackie Sprague, FOVLAP Auxiliary

We are so excited for the 2019 Lake Seminar to be held at Lake Morey Resort in Fairlee with the theme, “Issues to Actions: Practicing State-of-the-Art Lake Management.” Our morning keynote speaker will be Vermont Audubon Society’s executive director, David Mears, who will discuss bird-friendly shorelands. His talk will be followed by a session on lake management celebrations to highlight 40 years of lay monitoring and (continued on page 2)

Cyanobacteria in northern Lake Champlain. Photo by Angela Shambaugh, co-leader of a national cyanobacteria project. Story page 4.
Wakeboard Boats (continued from page 1)

In Washington, The Spokesman-Review reported three years ago that property owners complained about losing land to the huge waves of these specialty boats. It quoted Lt. Stu Miller, of the Kootenai County Sheriff’s Marine Division, as saying his deputies have always fielded complaints about pleasure boaters and personal watercraft violating no-wake zones. They reportedly often have to resolve what has become a property dispute between million-dollar home owners, who live on the water and use their own boats, and nonresidents who don’t have the same sensitivity for day outings.

“Their biggest concern is that they are losing property every time someone throws a wake at it,” Miller reportedly said. “We do what we can to catch those folks who violate and are causing damage from their wake, but it’s a task. You usually have to be sitting there and watching it happen.”

In Vermont, Bill S. 69 was introduced by Sen. Rodgers (Orleans County) on February 8 and referred to the Senate Committee on Natural Resources and Energy. Here are the specifics of the proposed law:

Restriction of use based on: the size and flow of the public waters; the predominant use of adjacent lands; the depth of the public water; the predominant use of the public waters prior to regulation; the uses for which the public water is adaptable; the availability of fishing, boating, and bathing facilities; the scenic beauty; or the recreational uses of the public water and surrounding area.

Operating Standards: a wake boat operating on a public water shall operate at a speed of less than five miles per hour within 200 feet of a shoreline so as not to create a wake. A person operating a wake boat shall not engage in plowing on an inland lake or pond, a river, or a stream.

Fines: subject to a civil penalty of up to $500.00 for each violation.

Advisory Committee: comprised of (1) the Commissioner of Fish and Wildlife or designee; (2) the Commissioner of Public Safety or designee; (3) an owner of property on a lake smaller than 1,000 acres (4) an owner of property on a lake larger than 1,000 acres; (5) an owner of property on a river where operation of a wake boat is feasible; (6) a Vermont resident that owns and operates a wake boat; and (7) a representative of a local lake association.

Effective: July 1, 2019 if passed by both houses and signed by the governor.

FOVLAP will continue to follow this issue as it speaks directly to our core values and mission statement: “promoting and maintaining the quality of the environment, and the pleasure of living near and using, Vermont's lakes and ponds.”

Lake Seminar (continued from page 1)

other milestones, and then we will review the Vermont Lake Scorecard, offering technical guidance and reviewing successful case studies related to each of the four score card quadrants: nutrient trend, shoreland and lake habitat, aquatic invasive species, and atmospheric (mercury) pollution. Afternoon workshops will cover those four topics. Lake associations should bring other members for attendance at concurrent sessions, for a reduced rate.

Just before lunch, Peter Tobiessen, will tell us why he wrote “The Secret Life of a Lake,” and informal discussions can continue over food. At day’s end, DEC staff will lead a guided paddle on Lake Morey and discuss aspects of limnology, lake formation, aquatic plant habitats and more! For more information and descriptions of workshops, check the FOVLAP website www.vermontlakes.org.
Message from the President
By Don Weaver, FOVLAP President

The Spring Equinox came March 20 at 5:58 P.M. and spring arrived. With the sun now in the northern hemisphere, days are becoming longer than nights in a phenomenon welcomed by Vermonters. As normal, FOVLAP’s monthly planning meetings started in January with a very energetic Board of Directors. The Legislative Committee developed a nine question survey sent to all lake association members for input and direction on their important issues needing attention. The Events Committee, working with Department of Environmental Conservation, developed an outstanding Lake Seminar program June 7.

Lake Seminar 2019 - The FOVLAP / DEC Lakes Seminar will be held on Friday June 7, 2019 at Lake Morey Resort. The theme this year, "From Issues to Actions: Practicing State of the Art Lake Management." The seminar will run from 9:00-4:00 with registration and light breakfast starting at 8:30. Please mark your calendar and plan to attend; check our web site, vermontlakes.org/about-us/lake-seminar/ for more information.

The Annual Meeting 2019 - The Annual Meeting will be July 22, 2019 at the Steak House on the Barre – Montpelier Road. Please check our web site, vermontlakes.org/about-us/annual-meetings/ for information.


Treatment for the invasive aquatic plant, Eurasian watermilfoil

There has been, and still is, concern of using herbicides for the control of invasive aquatic plants like Eurasian watermilfoil. Since 2000 and 2006 respectively, the herbicide products, Sonar and Renovate, have been permitted for use by the Agency of Natural Resources (VTANR) on a number of Vermont lakes and ponds for the management of Eurasian watermilfoil. In 2018, ProcellaCOR was approved for use by the USEPA, and is registered for use with the Vermont Agency of Agriculture, and the Vermont Department of Health and the Vermont Pesticide Advisory Council have reviewed ProcellaCOR and have not voiced concerns about its use related to human health. VTANR’s Lakes and Ponds Program is currently reviewing six permit applications for ProcellaCOR’s use in 2019.

The active ingredients are different in each of these three products and each product differs in its mode of action, impact on target and non-target plants, and treatment method scenario. I understand VTANR will no longer permit the use of Sonar in state waters. Furthermore, any use of any herbicide targeting the majority of a lake or pond’s littoral zone (the zone where light penetrates) is discouraged as VTANR believes it constitutes an undue, adverse effect to the non-target plants and animals in that waterbody. If your lake association is considering any kind of treatment for invasive aquatic plants, please contact Perry Thomas (perry.thomas@vermont.gov) or Misha Cetner (misha.cetner@vermont.gov) for additional information, and specifics on these new “policies.”
Vermont DEC Scientist Co-Leads National Cyanobacteria Project

Angela Shambaugh, a senior environmental scientist in the Vermont Lakes and Ponds Program, is one of two leaders of a national team focused on the prevention and management of cyanobacteria blooms, also known as blue-green algae, which can pose serious health risks. Supporting this effort is the Interstate Technology and Regulatory Council (ITRC), a state-led coalition focused on making information about innovative environmental technologies available to state and local managers. The Environmental Protection Agency (EPA) reports that exposure to cyanobacteria can lead to skin rashes, serious illnesses, or even death.

Ethnobotanist Paul Alan Cox, PhD, is researching the possible effects of cyanobacteria on ALS, Parkinson’s, and Alzheimer’s. He heads the Institute for Ethnomedicine in Jackson Hole, Wyoming and most recently was written up in FORTUNE magazine.

Angela says there are many in-lake tools marketed for cyanobacteria control, but not a lot of information about their effectiveness. Though the team is just now beginning their work, they plan to develop a web portal to serve as an up-to-date resource summarizing these tools for state and local lake managers, outlining bloom prevention strategies such as nutrient management, and providing communication guidance around health concerns associated with exposure to blooms. The team currently has more than 125 members from across the country, representing everyone from state management and local stakeholders to private industry. Working with Angela as the other team leader is Ben Holcomb, with the Utah Division of Water Quality. For more information, visit the team webpage.

Separately, Roger Crouse, a FOVLAP Auxiliary, recommends seeing the film, “Toxic Puzzle, Hunt for the Hidden Killer.” In it, Paul Cox, argues toxins and especially cyanobacteria, may have a link to neurodegenerative illness. TIME magazine in 1997 named Cox one of 11 “Heroes of Medicine” for his work in ethnobotanical drug discovery. The film is available from Amazon Prime at $2.99 for three days or $7.99 to buy. A viewing for members and friends of the Lewis Creek Association was arranged this winter in Charlotte. Roger encourages other associations to view this 82-minute film, either at a board meeting or for the general public, and reserve time at the end for discussion. Go to Amazon.com/prime video/toxic puzzle for more information.

Lake Carmi Cyanobacteria Featured in National Lake Management News

Lake Carmi is one of several lakes featured in the 2018 winter issue of LakeLine, published last month by the North American Lake Management Society. The title of the article is “Intense Cyanobacteria Blooms Spur New Approach to an Established Plan,” authored by DEC scientists with the Lakes and Ponds Program. The theme of the issue is “persistence in lake management”—an apt description of the unwavering dedication of multiple local, regional, and state partners to address Lake Carmi’s water quality. Particularly intense cyanobacteria blooms during the summer of 2017 curtailed lake recreation, worried community members, and grabbed media headlines. Heavy late spring rains carried nutrients into Carmi, fueling robust early summer blooms. Decaying cyanobacteria caused a steep decline in lake oxygen levels, which led to fish kills downstream from the lake. The unusually warm fall that followed allowed the blooms to continue through October; the intensity and persistence of these blooms triggered growing concerns about the impact of cyanotoxins on human health. (continued on page 5)
Lake Carmi is one of several Vermont waterbodies with an EPA-approved Phosphorus Total Maximum Daily Load (TMDL). The TMDL emphasizes actions across the watershed as long-term solutions to water quality improvement; however, the public health concerns associated with Lake Carmi have spurred expedited work across the watershed, as well as plans for whole-lake aeration. Scoping and modeling of the whole-lake aeration system has been completed and finalized plans for design and installation of the system will be announced in the coming months. Contact Emily Porter-Goff, coordinator of the Franklin Watershed Committee (emily.franklinwatershed@gmail.com), or Karen Bates, basin planner with the Watershed Management Division (karen.bates@vermont.gov).

Vermont Clean Water Network Hosts Policy Forum

By Barry Lampke, Lake Stewardship Manager of ECHO

More than 80 people attended the Vermont Clean Water Network’s annual Clean Water Policy Forum at the Capitol Plaza in Montpelier January 28. The Forum centered on clean water issues under consideration in the current legislative session, and how key stakeholders can learn about and engage in the legislative process. A panel on “The Business Case for Clean Water” kicked off the forum with the discussion moderated by WCAX’s environment reporter, Alexandra Montgomery. The panelists included: Wendy Knight, Commissioner, Department of Tourism and Marketing; Michael Snyder, Commissioner, Department of Forests, Parks and Recreation; Nancy Lynch, Vermont Association of Realtors; Dan Barlow, Vermont Businesses for Social Responsibility; and Kathy Urffer, Connecticut River Conservancy. WCAX livestreamed the panel discussion here. To keep abreast of key legislative issues, the Network will connect with the Water Caucus throughout the session and share information and action steps.

ECHO, Leahy Center for Lake Champlain, is a non-profit organization that aims to educate families about scientific discovery, nature, and Lake Champlain. Below are selected resources to help get you up-to-speed on these issues:

- VTDigger: Scott administration eyes estate tax for clean water funding
- VT ANR 2019 Clean Water Funding Documents
- VT ANR Clean Water Fund Web page
- Water Caucus Statement on Governor’s Budget Address
- Water Caucus Clean Water Funding Principles
**Vermont Lake Wise Practices: Property Owners and Lakes Benefit**
by Amy Picotte, Vermont Lakeshore Manager

The DEC Lake Wise Program provides technical assistance to all types of shoreland owners for managing stormwater and protecting water quality, property, and wildlife habitat. Shorelands are very important areas for protecting clean water and wildlife habitat, yet have been developed into the highest residential density in Vermont. The goal of the Lake Wise Program is to restore natural shorelands and their multiple benefits to ensure healthy lakes and property protection. Last year more than 100 Lake Wise assessments were completed on 25 lakes statewide and more than 30 Best Management Practices (BMPs) were installed to improve shoreland conditions. Highlighted below are a few of the shoreland restoration projects completed in 2018.

**Lake Raponda, Wilmington Town Beach Erosion Control**

The Lake Raponda community collaborated for a second year with the Lake Wise Program to complete the next phase of an erosion control project designed to protect the town beach and lake. An upland vegetative swale added to the sloped lawn area of the town beach area intercepts, slows, and treats stormwater before it enters the lake. The swale also prevents erosive upland runoff from uprooting the newly planted native species along the shoreline, which were added in 2017 to stabilize the shore and protect the beach sand from washing into the lake.

**Lake Raponda Road Stabilization**

The Lake Wise Program oversaw a 215-foot stretch of shoreland stabilization work while partnering with the town of Wilmington, the Vermont Youth Conservation Corps, the Vermont Agency of Transportation, and GEI Consultants Inc. from Michigan. Encapsulated soil lifts were installed along Lake Raponda Road to reestablish a gently sloped shore, protecting both the road and water quality.

The road had been badly eroding into the lake and a vertical bank had formed with visible undercutts present. The best bioengineering fix for this problem required an Encroachment Permit from the Lakes and Ponds Permitting Program as building two tiers of soil lifts would extend below the mean water level. The lifts use biodegradable products and native plants to stabilize and restore the benefits of...
a naturally sloping shore. Native plants grip the bank and help protect against erosion from wind, wave and ice push, as well as filter road runoff to keep the lake clean.

**Lake Elmore, Elmore and Fairfield Pond, Fairfield**

In collaboration with the Fairfield Lake Association and employing the Vermont Youth Conservation Corps, the Lake Wise Program worked with shoreland owners to implement several BMPs for lake protection. About 40 miles southeast of Fairfield Pond, at Lake Elmore, similar events occurred. Projects at both lakes were identified through Lake Wise Assessments.

More than 130 native shrubs and herbaceous plants were planted on the shores of Lake Elmore and Fairfield Pond. These native plants will help stabilize the bank, filter the stormwater and jumpstart the succession to a natural shore as homeowners minimize their lawns and mow less. Lawns offer no benefit to water quality, property protection, or wildlife. Along shorelands, lawns actually degrade water quality and shallow water habitat.

Additionally, eight structural BMPs were installed, including open-top culverts, infiltration trenches, and stone check dams. These BMPs were designed to fix erosion problems at each individual property. For example, stone check dams were installed to stabilize a road drainage ditch that was eroding into Lake Elmore, while a gravel topcoat and open-top culverts were added to a long, steep, dirt driveway on Fairfield Pond to prevent erosion.

Native vegetation planted along this shoreland stretch of Lake Elmore protects the property from storm damages, stabilizes the bank, filters stormwater, and enhances wildlife habitat for song birds, pollinator species, fish, and other wildlife.

Stone check dams slow runoff while stabilizing drainage ditches. These rock ‘U’s slow and trap sediment runoff, cleaning the water before it enters the lake.

This driveway was regraded, crowned, and top coated with crushed stone. Afterwards, open-top culverts were installed to intercept and convey water to a side treatment area to protect the driveway and lake from erosive runoff.
Dolloff Pond, Sutton

The Northwoods Stewardship Center restored a half-acre of shoreland at Dolloff Pond in Sutton. Before the restoration work took place, two side-by-side vehicle access areas led straight from the road down to the pond. The vehicles had badly eroded both accesses and sediment and phosphorus were flowing untreated into the pond. We closed one of the access points, and installed several BMPs, including a berm, and natural plantings to restore the shore and fix the erosion of the remaining open access area.

Waterbury Reservoir, Waterbury

Heavy foot traffic at a popular backcountry camping site had trampled and eroded a steep bank along the Waterbury Reservoir. The irregular water fluctuations at the reservoir also contribute to shoreland erosion, especially as native plants and their system of roots often can’t survive through the draughts and floods caused by the changes in water levels. Considering these circumstances and wanting to keep the backcountry sites as natural as possible, the decision was made to use a Live Crib Wall stabilization design. Live Crib Walls rely on a combination of structural and vegetative support for stabilizing eroding slopes and seemed best suited for the Reservoir shoreland conditions.

The Lake Wise Program partnered with the Department of Forest and Parks to employ a Vermont Youth Conservation Corps Crew to install the Live Crib Wall. All materials had to be boated across to the site as were the crew! This project will be watched closely to learn how well it holds up against reservoir conditions.

A Live Crib Wall was built to stabilize this eroding shore along Waterbury Reservoir State Park. Live Crib Walls are built from natural materials, like these untreated hemlock timbers and native plants.
Maidstone Lake, Maidstone

Late in the fall, the Essex County Natural Resources Conservation District worked with the Northwoods Stewardship Crew to install five open-top culverts and a set of infiltration stairs on three Maidstone Lake properties. And, in partnership with Nectar Landscape Design, a bioengineering project was installed, using fiber coir rolls, to stabilize a shore that had been damaged in 2016 from winter ice push.

The crew re-sloped the bank, installed a rock toe, and planted many shrubs and herbaceous plugs which will grow and create a natural vegetated buffer zone, helping to prevent ice push in the future.

Grass lawns do little to protect a shore from ice, wave or wind damages. The shallow roots don’t grip and hold a bank and the grass doesn’t filter runoff or provide any wildlife benefits, like shade for the aquatic community. Native plant roots grow thick and deep to stabilize a bank and native plants are essential for healthy shoreland and lake ecosystems. Stabilizing shores with native plants is a win-win for property protection and water quality, as well as being the most affordable option for bank maintenance.

Ice push is a natural phenomenon for lakes as a way for a lake to create its own retaining wall for managing stormwater. However, once shores are cleared of their natural vegetation and planted with lawns, banks are vulnerable to severe ice push damage and erosion. Revegetating the shore with bioengineering methods builds back resiliency along the shore.

To learn more visit the Vermont Lakes and Ponds Program website at: https://dec.vermont.gov/watershed/lakes-ponds/lakeshores-lake-wise or, contact Amy Picotte at: Amy.Picotte@vermont.gov
Environmental Compliance Director Answers Questions on Enforcement of Vermont’s Shoreland Protection Law
Prepared by Peggy Barter and Ann Bove, FOVLAP Auxiliaries

The Director of the Environmental Compliance Division (ECD), Kim Greenwood, met with the FOVLAP Board of Directors to discuss enforcement of Vermont’s Shoreland Protection Act which regulates activities within 250 feet of the mean water level of lakes more than 10 acres in size. The act intends to allow reasonable development along the shorelands of lakes and ponds while protecting aquatic habitat, water quality, and maintaining the natural stability of shorelines.

Kim said she gives equal emphasis to assistance and enforcement actions. “If you only do one, there’s less of the other,” she told the directors at their November Board meeting. In addition to shoreland violations, the ECD deals with a myriad of environmental issues, from roadside dumping, hazardous waste, erosion, discharges into water to open burning.

Kim’s answers are below each of the following questions that were posed to her in advance of her presentation:

1. When an Environmental Enforcement Officer (EEO) receives an anonymous complaint or notice from an identified person of a possible infraction, how do they triage (prioritize) the complaints given there is such limited staff? Which types of reports will cause you to visit quickly? EEOs have extensive investigative training. When a complaint is received, an EEO always visits the complaint site (or observes from offsite) to collect evidence (usually photographic). If a violation has occurred – most of the time one has not - the EEO works to gain voluntary compliance. They may find and interview witnesses or interview respondents onsite. Compliance is mandatory, and represents both assistance and enforcement, which Kim referred to as the “carrot and stick method.” EEOs use “The Prime 9” or the top tier enforcement priorities in triaging each case. While this list is non-binding, it provides general guidance:
   • Potential or actual impact on public health and safety
   • Potential or actual impact on the environment
   • Violation of a permit
   • Repeat violation
   • Failure to remediate or cooperate with remediation
   • Continuous or ongoing nature of the violation
   • Large quantity, or potential large quantity, of toxic release
   • Potential of large magnitude, duration or frequency of violation
   • Misinformation provided

2. What can citizens provide you to help EEOs understand the infraction? (only one photo is allowed online) Are reports from multiple interested parties helpful? Multiple reports from one observer are useful if new information is provided. Multiple reports from a variety of witnesses are also useful if new information is provided. Kim prefers her EEO’s receive too many reports rather than too few. If you suspect an environmental violation at your lake or elsewhere in Vermont, the best way to report it is at this link: https://dec.vermont.gov/enforcement/reporting

3. What happens if an EEO visits a property and the homeowner demands he or she leave? What authority does an EEO staff have? EEOs have the legal obligation to investigate alleged violations in order to protect the environment and to observe reported alleged violation sites. EEOs attempt to gain
the cooperation of the responsible party so that they will want to help with environmental protection. If necessary, law enforcement can be engaged and EEOs have legal tools if access is denied. EEOs never enter private property without permission.

4. What are the consequences for activities such as: removing shoreland vegetation? Building beyond the current footprint? Disturbing the lake shore without using erosion control methods? Placing boulders and rip-rap in the lake? Using heavy equipment to remove large quantities of soil on a steep slope within 250 feet of the shore? Each case is unique. ECD policy is to always obtain compliance and as much remediation as possible for the damage caused, including the issuance of penalties after compliance is gained.

5. How do you coordinate with other departments such as permitting and solid waste/septic? How can we better inform the general public and lake or watershed associations about the inconsistencies among these programs? Kim re-emphasized “The Prime 9” priorities for triaging a case (described in question 1 above). ECD collaborates regularly with other State departments; areas of conflict are identified and plans are made to resolve those conflicts.

6. What ideas do you have for lake associations which want to prevent infractions on their shores? (This is the key. If we could get ahead of actions which compromise the lake shore that would be best of all.)
   - Promote Lake Wise.
   - If not already a current practice, request that your town’s listers take photos of each property as it comes up for sale. When an alleged violation is reported, it can be tricky to determine if a violation has occurred. Before and after photos are helpful when a suspected violation is reported.
   - Conduct education campaigns regarding the Shoreland Protection Law and other laws as well as the consequences of non-compliance.

7. If you could have more staff, what roles would they take and how many could adequately serve the needs of our state? If ECD had two more staff, Kim would use one position to create a database to more efficiently handle and publicize violation reports and their outcome so that the public is aware of the outcomes of their complaints. With a second position, ECD would add an additional EEO to lower the case load on existing officers. Currently seven officers are responsible for seven state districts.

8. How is follow up done once you have visited a property? From start to finish, describe the typical communication with a homeowner. When an alleged violation is reported the EEO:
   - Checks to see if relevant permits are in place
   - Reports to lake shore owner whether or not they are in compliance with the permit and specifies what actions are needed
   - Alerts other experts such as Waste Management, etc. for additional input
   - Checks back to observe whether the lake shore owner has achieved compliance
   - Depending on the circumstances of the violation, once compliance is obtained, or if compliance is not obtained, EEO refers the incident for legal action. Note that penalty assessment is independent of a return to compliance, which is always required. (In other words, doing what you should have done doesn’t necessarily avoid penalties if the violation is egregious enough).
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Dedicated to the conservation, promotion and development of environmental quality standards for Vermont lakes and ponds