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FOVLAP Officers and Board of Directors

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Lake Encroachment and Shoreland Permit Program
Oliver Pierson
Lakes and Ponds Management & Protection Program Manager

Will You Join Us?

FOVLAP seeks members interested in serving a term on the Board of Directors. The Board has the following openings:
- One-year term ending September 2024
- Two, three-year positions, September 2023-2026

Participating on FOVLAP’s Board of Directors is an opportunity to get more involved, and learn and work directly with a dynamic team of fellow lake and pond enthusiasts.

Director Responsibilities

- Support and promote the mission and work of FOVLAP.
- Be an individual member in good standing of FOVLAP.
- Commit to attend the board meetings, the annual meeting and the annual lake seminar.
- Serve on one or more board committees.
- Adhere to FOVLAP policies and procedures.
- Ensure the continued viability, integrity and accountability of FOVLAP.

Interested???

Contact FOVLAP President, Pat Suozzi at pasuozzi@gmail.com

The Federation of Vermont Lakes and Ponds

“To preserve and protect Vermont's lakes, ponds and their watersheds for the benefit of this and future generations.”

Articles and links in this newsletter are provided for informational purposes only. Information is not to be interpreted as instruction or regulation, and mention of trade names or commercial products does not constitute a FOVLAP endorsement or recommendation for use. Content may not reflect the views of FOVLAP.

got ideas???
The FOVLAP Newsletter Committee Seeks Contributions from Members

With help from the newsletter committee, FOVLAP produces a bi-annual newsletter, now available in electronic format only. The committee seeks member ideas on newsletter content and also welcomes article contributions. Have some? We want to hear from you!

Reach out if you can help! vtlakesandponds@gmail.com

cover photo: Seymour Lake, Morgan (Photo: C. Moot)
The ice is gone from most lakes, the loons are returning, the weather is warming, and then it snows! Welcome to spring in Vermont! Although winter is a quieter time around our lakes, it is a busy time in Montpelier with the state legislature in session.

This winter has been especially busy legislatively for us with several lake-related issues moving through the legislature. See page 4 for a list of the bills and other initiatives we have been working on. Representatives from several of our member organizations and I have testified on many of these issues at both the House Environment and Energy Committee and Senate Natural Resources Committee. We have also spoken at Clean Water Board Meetings and at the public hearing of the joint Senate and House Appropriations Committee. In addition, we have published commentaries on the aquatic invasive species (AIS) issue in VTDigger and written many letters to legislators.

The fruit of all this activity is an appropriation in the state budget of $500,000 for the ANC Grant-in-Aid Program and funding to restore two positions in Lakes and Ponds. The budget is approved by the legislature and has gone on to the governor. If the governor signs the budget, for the first time the Grant-in-Aid Program will have a base appropriation from the state rather than relying only on funding from the Motorboat Registration Fund.

We are also hard at work planning our annual Lake Seminar. This year’s seminar will be Friday, June 2. The topic is Compliance and Enforcement of Lake Rules – “Who You Gonna Call – Lake Busters!” The seminar will be virtual and is free and open to all, but registration is required to receive the link. The agenda and registration information is on the website: https://vermontlakes.org/event/2023-fovlap-lake-seminar/

We continue to add information to the FOVLAP website. Recently added are pages that include a detailed discussion of cyanobacteria (https://vermontlakes.org/cyanobacteria/) and an explanation of the 200-foot rule (https://vermontlakes.org/the-200-foot-rule/). Our goal is to be a central information source for our members.

Take a look at the site and let us know what other topics would be helpful for you and your members. You can send an email to us at vtlakesandponds@gmail.com. We also encourage you to expand your association’s profile information on the website. You can include a picture and your website address. Information on how to do this can be found on page 8. And don’t forget to urge all your association members to join our email list to keep up with events and the latest lakes and ponds news from around the state.

As summer approaches, it is time to think about getting together. Although we continue to hold events virtually to enable more people to attend, it is still great to meet in person. If you would like to have me or a member of the FOVLAP board attend one of your association meetings, please get in touch. I’d love to meet, see your lake, and talk – in person – about lake issues and how FOVLAP can help and support your work. Drop us an email at vtlakesandponds@gmail.com.

To end this message, I want to thank the hard-working members of the FOVLAP Board and Auxiliary Board. It may be a cliché but it truly does take a village. We have a great team and I invite you to join us. There are many options from joining a committee to work on a specific topic or issue, doing a presentation for one of our short-form webinars, joining the board, or writing for the website or the newsletter. If you are interested, send us an email and we can schedule some time to talk.

Thank you for your support of FOVLAP and for all you do to protect Vermont’s lakes and ponds.

Happy Spring!
On January 4th, The Vermont General Assembly convened for the 77th biennial session. They adjourned on May 12th. The FOVLAP Legislative Committee and Board of Directors tracked 11 lakes and ponds related bills, 10 introduced into House committees and 1 into the Senate Natural Resources and Energy Committee.

The following summaries represent bills that moved after being introduced:

H.51 – An act relating to establishing the Aquatic Nuisance Prevention Pass for use of State waters

In January, Representative Kari Dolan (Chittenden-22) introduced H.51, a bill to raise revenue for the Aquatic Nuisance Control (ANC) Grant-in-Aid Program, the program that supports statewide aquatic invasive species (AIS) management programs, including public access greeters. The Federation has long supported the need for more funding for the Grant-in-Aid Program and has supported the concept proposed in this bill. H.51 was referred to the House Committee on Environment and Energy but did not move out of committee.

However, there is good news. As a result of the groundswell of voices raised by our members and us over concerns about the 22% reduction in funding for the ANC Grant-in-Aid Program announced for 2023 and the potential further cut due to the Coast Guard’s decision to not allow the use of motorboat registration fees to fund such programs (see Oliver Pierson’s update on page 11), the House Committee on Environment and Energy recommended a direct appropriation in the state budget of $500,000 for the ANC Grant-in-Aid Program along with the restoration of two positions in the Lakes and Ponds Program: one for aquatic nuisance control and one for Lake Wise. As of this writing, that funding remains in the budget, has been approved by the House and Senate, and the Legislature’s Budget conference committee. The Senate removed the Lake Wise position but the conference committee restored it. The budget is now on the governor’s desk.

If the Governor approves and signs the budget, this will significantly change AIS management and control funding. It will be the first time that the Grant-in-Aid funding will be part of the state budget rather than relying on a portion of motorboat registration fees and the rest of the funding dependent on our volunteer member associations ability to raise the dollars needed to support greeter programs and AIS management and control efforts.

H.31 – An act relating to aquatic nuisance control

This bill, introduced by Rep. Seth Bongartz (Bennington-4) would place a moratorium on the use of any chemical treatments in all lakes in the state and create a legislative study committee to consider the use of chemicals in the state’s waters. The bill, however, exempted the use of lampricide from the moratorium. This bill raised considerable opposition as it would have prevented the ability of many lakes to manage AIS infestations and would also have prevented the possibility of other types of treatments, such as alum, to control the terrible cyanobacteria blooms that Lake Cami and Lake Morey have suffered. The House Environment and Energy Committee eventually removed the moratorium but left the study committee in. The Senate Natural Resources Committee held hearings on the bill during the last week of April and then voted to advance it to the full Senate with only the legislative study committee. H.31 passed with a study committee consisting of two legislators, two scientists from UVM and three state scientists - one each from the departments of Health, Environmental Conservation, and Fish and Wildlife.

S.146 – An act relating to the permitting of indirect discharges

S.146 would change 10 V.S.A. § 1259(d) to eliminate the 1,000 gallon per day limitation on septic systems in A1 watersheds. It was approved by the Senate Natural Resources Committee and the full Senate, then referred to the House Environment and Energy Committee at the end of April. This bill does not involve funding, but making this change would allow some of our most pristine lakes, such as Seymour, Caspian and Maidstone, to be reclassified to A1 status. Such a change would provide more and better protections for these lakes by requiring the state to act quickly if the nutrient levels rise above a certain threshold. Such a reclassification, however, applies not just to the waters, but to the entire watershed and there’s the rub.

(Continued on page 5)
a small septic limit could prevent communities within an A1 lake’s watershed from creating a more extensive community septic system, even if such a communal system would replace old or failing individual septic systems and would provide improved protection for water quality.

In conjunction with S.146, DEC has proposed a new, more stringent set of rules to govern septic system design and placement. These new rules are planned to go into effect with the passage of S.146. You can find rules at: https://dec.vermont.gov/water/indirect-discharge

Because S.146 reached the House Environment and Energy Committee late in the session, it is not expected to be taken up before the Legislature adjourns. We are hopeful that this bill will move forward in the next session.

As of this writing, the following bills were not addressed by the committees where they were introduced but may move forward next session:

H.373 – An act relating to use of expanded polystyrene foam in waters of the State
H.30 – An Act relating to the regulation of wetlands
H.345 – An act relating to lakes in crisis and requirements for designation
H.185 – An act relating to authorizing dredging for navigation of public waters
H.152 – An act relating to regulating products containing certain chemicals and chemical classes
H.140 – An act relating to requirements for State-funded grants
H.84 – An act relating to the permitting of indirect discharges

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**Clean Boats Clean Waters**

**Before Launching AND Before Leaving**

- **Clean** off any mud, plants, and animals from boats, trailers, and equipment.
- **Drain** your boat and equipment away from the water.
- **Dry** anything that comes into contact with the water.

**Never** release plants, fish or animals into a body of water unless they came out of that body of water

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**STOP AQUATIC HITCHHIKERS!**

Under Vermont Law, you may be fined up to $1000 for transporting any aquatic plant or plant fragment, zebra mussels or quagga mussels.

Please report suspected aquatic invasive species sightings to:

(802) 828-1535 www.vhwaterequality.org
Beginning in the summer of 2023, the Vermont Center for Ecostudies (VCE) is spearheading an effort to reduce the amount of lead in people’s tackle boxes and clean up discarded fishing gear. We are urging Vermont lake associations to join us in reducing the impact of fishing gear on Vermont’s loons.

Vermont’s loon population has experienced an incredible recovery over the past 20 years, mainly due to highly coordinated, multi-faceted conservation efforts across the northeastern U.S. However, although a 2007 Vermont law regulating the size of lead sinkers anglers can use, fishing gear remains a prominent threat to loons in the Green Mountain State. The 2007 law did reduce loon mortality from lead fishing gear, but we have found a substantial increase in loon mortality from lead tackle in recent years. From 1989 to 2022, lead tackle and discarded monofilament lines were responsible for nearly 50% of loon deaths in Vermont. In the 3 years from 2019 to 2021, at least 7 loons died from ingesting lead fishing gear—2 percent of the state’s total loon population. Monofilament mortalities have increased from 8 deaths before 2007 to 11 since 2008. With just over 350 loons in Vermont, 11 deaths is significant.

How does lead poisoning affect loons?
It only takes one lead sinker or jig to kill a loon. Once swallowed, lead weights dissolve in the loon’s gizzard and absorb into their bloodstream, causing lead poisoning. Affected loons can’t fly, may swim in uneven circles, and experience tremors. Loons that experience these symptoms cannot be cured and typically die in about two weeks.

How do loons ingest lead tackle?
Loons need to consume small stones to grind food in their gizzards. Loons mistake small lead sinkers for stones. Loons can also catch slower-moving fish that have been impaired by lead tackle and fishing line, and eat the fish that have lead tackle in them. Loons might also chase tackle when anglers are fishing nearby, swallow the lead tackle and hook, and become entangled in the monofilament line.

What are Vermont’s current lead fishing gear regulations?
As of January 2007, it is illegal to use and sell lead sinkers weighing 1/2 ounce or less to fish in Vermont. Larger lead sinkers of more than 1/2 ounce and lead jigs are still legal (10 V.S.A. § 4615).

How can lake associations help address fishing gear-related loon deaths?
- Take on a lead fishing gear and monofilament collection tube. If your lake has space at the lake access (such as a greeter hut, wash station site, or another place where anglers congregate), we would be interested in installing a collection tube. We plan to advertise collection tube locations beginning in the summer of 2023, so anglers know where to bring old lead tackle.

- Include lead fishing gear issues in greeter program education. Greeters could share information about lead fishing gear issues for wildlife, point people towards the lead fishing gear and monofilament collection tubes, and potentially assist with the new voucher program (Click here for information about Vermont public access greeter programs).

(Continued on page 7)
• **Provide outreach to the lake community.** VCE will provide participating lake associations with posters, pamphlets (e.g., the “Fish Lead Free Vermont” handout), and ready-to-use website materials. If you contact VCE to let them know about upcoming events, a staff member may be able to attend your event as a resource.

**Fish Lead-free**

Even legal lead tackle isn't safe for wildlife, so we always encourage using lead-free tackle. Thankfully, plenty of lead-free alternatives exist, allowing anglers to continue enjoying their fishing expeditions with minimal risk to wildlife. These alternate Lead Fishing Gear Reduction Programs are widely available made from non-toxic materials such as tin, bismuth, steel, tungsten, and ceramic. The price difference is minimal, often as little as 50 cents to a dollar.

These products are not only safer for wildlife, but they're also safer for humans. Current research, especially with regard to children, suggests that there is no safe level of exposure to lead. There is a reason lead is no longer found in paint, gasoline, and most other products. Limiting the lead around lakes and households is in the interest of all parties. Spring is a great time to clean out your tackle boxes!

For more information, visit the VCE Lead Reduction webpage or contact VCE loon biologists Eloise Girard and Eric Hanson at loon@vtecostudies.org.

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**EVENT sponsored by Minnesota Lakes and Rivers Advocates:**

**Wakes, waves and propeller wash:**
Research on the impacts of recreational boating on inland lakes

**May 31, 2023, 6:30-8:00PM**

with Jeff Marr MS PE, Associate Director of Engineering and Facilities, St. Anthony Falls Laboratory, University of Minnesota and Andy Riesgraf MS, Research Scientist

This presentation by Jeff Marr will summarize completed comparative research on the size, energy, and power of boat-generated wake waves produced by a number of recreational boats under various modes of operation and data-informed guidance on recommend operational distances for enhanced wake watercraft.

The presentation will also share an update of ongoing research focusing on characterizing the propeller wash created by recreational boats and potential implications of propeller wash on lake health.

Finally, Jeff will present our research plans for an upcoming research study, pending funding by the State of Minnesota, that will explore environmental impacts of boat-generated wave, propeller wash and wind driven waves.

The presentation will allow time for questions and discussion.

[Register Here](https://d2v1xobx8qu3lm.cloudfront.net/media/mageplaza/blog/post/ja/jack-van-tricht-izwepu8aqbc-unsplash.jpg)
The new website for the Federation of Vermont Lakes and Ponds launched in September of last year, and you can see it here: vermontlakes.org.

Since then, we’ve been adding content to the Protecting Lakes and Ponds section, upcoming lakes and ponds related events to our Events Calendar, recordings of FOVLAP seminars, and keeping you up-to-date with our blogs: Lakes and Ponds News, Wise About Water, and Legislative Updates. Please check it out!

We’d also like to invite our member lake associations to set up their profile on the new site. After logging into the website with your membership account, click on "Your Member Profile" under the “Member Community” menu. Once there, you can update the information about your lake association, including adding your logo, a photo of your lake, a description of your association, a link to your website or Facebook page, contact information, etc. You can also specify the contact information for the voting member of your lake association at FOVLAP’s Annual Meeting. See the image on the right for an example of completed Lake Association Membership Profile.

We’d also like to hear from you! What would you like to see on the website?

We have a number of pages being worked on to include in our Protecting Lakes and Ponds section. Topics you’ll see soon include: the Lake Wise Program, the Shoreland Protection Act, Clean Water Service Providers, zebra mussels and Who’s Who in Vermont’s Lakes and Ponds.

Let us know what you think of the new site!

SAVE THE DATE FOR THE 2023 VERMONT LAKE SEMINAR!

Vermont Lake Rules and Regulations - Compliance and Enforcement
“Who You Gonna Call? Lake Busters!”

Join us online for a virtual event on Friday June 2nd, 2023 (9am-3:30pm)
Registration and agenda to follow
What the Heck is a LWAP?
Alison Marchione, Lakes and Ponds Program

You may have heard colloquially, in conversation or at a lake association meeting, folks talking about something called LWAP, Lake Watershed Action Plan. A LWAP looks at the potential sources of nutrients and proposes solutions for keeping excess nutrients out of our waterways. More than a dozen lakes throughout Vermont have or are in the process of developing LWAPs. Lake Watershed Action Plans are assessment tools used to determine the sources and inputs of nutrients into water bodies. The Vermont Department of Environmental Conservation (DEC) has a water quality monitoring program that measures nutrient levels in lakes throughout the state. When these levels start to rise, we want to know why.

So, what is a LWAP?

A Lake Watershed Action Plan (LWAP) is an assessment and planning tool that identifies the greatest threats to the lake ecosystem. The LWAP process identifies the problems and solutions within a lake watershed to best protect water quality, wildlife habitat, and the lake’s ecosystem health. These plans help to answer the questions “What issues threaten the health of our lake the most?” and “What can we do about them?”

Why Conduct a LWAP?

LWAPs look at inputs of sediment and pollution into the watershed and the lake in three areas: shoreland, roads and streams. These areas can be significant sources of phosphorus and other undesirable chemical inputs into the water system.

SHORELAND

When a lake’s natural vegetation is removed and replaced by lawns and impervious surfaces, fish and wildlife habitat degrades, shores erode, and nutrient loading to the lake increases. These factors make the lake more vulnerable to water quality problems such as algae blooms. Cleared shores are also more susceptible to erosion during flood events.

ROADS

In addition to the threats from shoreland development, lakes receive stormwater runoff from other land uses in the watershed, including roadways. Each lake has its own set of public roads, private roads, and driveways; how these are managed will influence the lake’s condition. Through the LWAP process, the extent of the impact of road systems on lake water quality will be determined and highlight the stretches that most need improvement to reduce erosion and runoff.

STREAMS

Another source of potential pollutants into the lake is through tributary flow and the loading of phosphorus and sediment into a lake, which can fuel aquatic plant growth, negatively impact recreational use, and increases a lake’s nutrient levels, which in turn, can lead to algal blooms. A LWAP will determine the tributaries of concern and with greater understanding, planning can occur to mitigate any identified issues.

Ultimately, a LWAP provides clear guidance on the steps for protecting a lake and its watershed and maintaining or improving its current condition. When a lake’s ecosystem is healthy, then lake residents can enjoy and benefit from all the existing uses they are accustomed to in these water bodies, such as recreation, aquatic habitat, and aesthetic conditions.

What is the outcome of an LWAP?

LWAPs are designed to answer specific concerns about each lake, for example, what land uses within the watershed cause the most significant stress to a lake ecosystem. Each lake has different land use patterns, and understanding exactly which ones are causing degradation to the lake will help guide restoration and protection efforts. The LWAP assesses and compares the varying land uses and provides a ranking of the greatest threats to the lake with recommendations for fixing the problems. A LWAP com-
bines an assessment of a lake’s shoreland, tributaries, and hydrologically connected roads and leads to an individual planning guide that prioritizes restoration and protection actions for that lake. A LWAP can also help identify cumulative impacts on a lake ecosystem, thereby helping lake stakeholders “see the bigger picture” and identify situations where the combination of individual stressors may lead to declines in lake health.

The LWAP assessment process should be participatory with the lake association or similar local organizations, lake users, shoreland owners, the town, and other stakeholders or interested groups and people included.

**LWAP Reports**

A LWAP final report will include a list of prioritized problems and solutions and provide a table of projects. This prioritized list of projects and strategies addresses the sources of pollution and habitat degradation identified in the assessment. Some of these projects benefit from preliminary ecological and conceptual design work as part of the LWAP development process. The prioritized list of projects can feed into the DEC’s Watershed Projects database and be considered for funding under the Clean Water Initiative Program and other sources.

**So, who gets a LWAP?**

LWAPs have been funded through several different sources. Some were directly financed through DEC, such as the first-ever LWAPs in Vermont – the Lake Eden and Lake Elmore LWAPs. Others were self-funded by a lake association - Lake Dunmore and Fern Lake LWAP. Lakes within the Lake Champlain Basin received funding from the Lake Champlain Basin Program to produce a LWAP. All the LWAPs follow the same technical guidance set out by DEC.

**Where are LWAPs currently happening?**

There are 12 active LWAPs happening around the state: Maidstone Lake; Lake Fairlee; Lake Willoughby; Shadow Lake; Lake Morey; Caspian Lake; Keeler Bay, Lake Champlain; Lake Iroquois; Lake St. Catherine; and Fairfield Pond.

**What happens when a LWAP is complete?**

There are three completed LWAPs in Vermont: Lake Eden, Lake Elmore, and Lake Dunmore and Fern Lake. Each lake group or association created a prioritized list of projects to improve water quality. From there, it takes a champion to take some of those projects and move them forward to receive funding for design and implementation. In some cases, the projects have been moved forward by an NRCD, which is the case at Lakes Eden and Elmore. In both cases the Lamoille NRCD was involved with the LWAP process from the beginning, contracting with Fitzgerald Environmental to complete the assessment. Once the assessment was complete, the Lamoille NRCD has been working hard to take the prioritized projects and apply for block grant funding to bring those projects through the design and implementation phase. Several projects were completed on both lakes last year using block grant funding and utilizing a Vermont Youth Conservation Corps work crew. More projects are planned for this summer.

Lake Dunmore is another example of a completed LWAP. The Lake Dunmore and Fern Lake Association self-funded their LWAP, contracting directly with Fitzgerald Environmental to perform the assessment. The Lake Dunmore Fern Lake Association has continued to work with Fitzgerald and has secured funding for several projects from their LWAP that will begin implementation in 2023.

(Continued on page 11)
We hope as more LWAPs end we will see more projects getting implemented on these various lakes to curb erosion and stormwater and help keep our Vermont lakes clean!

More information about Lake Watershed Action Plans can be found on the DEC LWAP page.

VTDEC Lakes and Ponds Program Update

Oliver Pierson, Program Manager
oliver.pierson@vermont.gov or 802-490-6198

Greetings to our amazing and dedicated lakes volunteers in Vermont. It is always a pleasure to be in touch with those that make lake restoration, protection, and management happen at many lakes and ponds across the state. I hope you have all had a productive and fun winter, despite an unseasonably warm January and too much precipitation in the form of rain for my liking. Our lake management workloads have been unusually busy for this time of year. I'll try to give folks an idea of where we have been spending our time but can't cover everything, so don't hesitate to reach out with any questions, comments or concerns you may have. Thanks for your interest and I look forward to seeing you out on Vermont’s lakes and ponds this summer. Here are our priority topics for winter/spring 2023, in no particular order:

Staff Transitions: The Lakes and Ponds Program said goodbye to Pete Stangel in January 2023, as he retired after over 30 years of service to our Lake Champlain Monitoring Efforts and other tasks. To replace Pete, we welcomed Kelsey Colbert to the Lakes and Ponds Team, and she will now lead our Champlain Field Monitoring effort out of the Department of Environmental Conservation’s (DEC) Essex Office, working closely with Dr. Peter Isles. We also brought Olin Reed on to lead our Aquatic Nuisance Control (ANC) permitting efforts, taking over from Misha Cetner, and supporting Kim Jensen with other aquatic invasive species (AIS) prevention and management efforts. As part of this transition, Misha will continue to handle complex AIS permit applications for 2023, lead our ANC rulemaking effort (see below), and take over shoreland protection act permitting and lake encroachment permitting in central-east and south-east Vermont, along with Laura Woods and Laura Dlugolecki. For a complete list of our staff and regional permitting contacts, please see this staff directory and map.

ANC Internal Review Procedures: The Aquatic Nuisance Control Permit Application Internal Review Procedures have now been approved by the Commissioners of the Departments of Environmental Conservation, Fish and Wildlife and Health, and will be used to ensure interested parties in each of these three state departments can contribute to reviewing ANC permit applications in a meaningful way. These procedures have been used informally for a few years already, and have helped clarify what each respective department’s role is in permit application review.

Coast Guard Finding that Vermont’s Use of Motorboat Registration Funds is not compliant with Federal Law: On February 7th, the U.S. Coast Guard issued a letter to the Vermont State Police Marine Division stating that Vermont’s use of Motorboat Registration (MBR) Funds for aquatic nuisance control and mosquito control activities, as guided by Vermont statute (23 V.S.A. § 3319), is not in compliance with Federal Law (chapter 123 of Title 46 of the U.S. Code). The Coast Guard has asked for a corrective action plan within 30 days and has stated that failure to take such action could result in the forfeiture of a federal Recreational Boater Safety grant, which is provided to the State Police Marine Division at around $1 million dollars per year. DEC currently receives around $460,000 (Continued on page 12)
per year from the MBR Funds which is used for the Aquatic Nuisance Control Grant-in-Aid Program and internal DEC costs. DEC understands that, based on experience from other states, we have a few years to address this issue, and is studying how to come into compliance with federal requirements while still funding important AIS programs.

The Lakes and Ponds Program also received input from colleagues in Maine's Department of Inland Fisheries and Wildlife (MDIFW) regarding their approach to collect fees for motorboat registration and “Lakes and River Protection” in a manner that is compliant with federal statute and has the US Coast Guard’s approval. The key element of Maine’s approach is that while the two fees are both collected by the MDIFW, the “Lakes and River Protection” fee is a separate required fee and is not technically a condition of motorboat registration. Additionally, the motorboat registration revenue goes into one fund and the Lakes Protection Fund revenue goes to a separate fund, a process that is detailed in statute. Maine’s approach may be a model for Vermont as we work to comply with federal statute on this issue.

**DEC’s Position on House 31:** DEC Commissioner John Beling and staff from the Lakes and Ponds Program briefed the House Energy and Environment Committee on two occasions regarding DEC’s position on House 31, *An act relating to aquatic nuisance control*, as well as the current process DEC uses to issue aquatic nuisance control permits. DEC received questions regarding the potential impact of the bill on ongoing aquatic invasive species control efforts, our approach to collaborate with other State of Vermont entities on permit decision making, research about the impacts of certain herbicides on various flora and fauna, and our ongoing ANC rule-making effort (see below). DEC indicated that we do not support the bill, that a moratorium is not needed, and that the work of the Study Committee is already available or ongoing via our rulemaking effort, which has convened a stakeholder group with greater representation and qualifications than the envisioned study group without the associated costs. H.31 was amended to remove the moratorium and passed with a study committee consisting of two legislators, two scientists from UVM and three state scientists - one each from the departments of Health, Environmental Conservation, and Fish and Wildlife.

(Continued on page 13)
Aquatic Nuisance Control Pre-Rulemaking Focus Group:
The Lakes and Ponds Program has jurisdiction over the state’s statutory ANC permitting program, which issues permits pursuant to the requirements of 10 V.S.A. § 1455. Under the guidance of the Secretary of the Agency of Natural Resources, the DEC is launching a rulemaking process to support the implementation of the requirements of this statutory program and established a focus group to provide input into several identified rulemaking topics, including improving the definition of permit application requirements and statutory terms associated with permit review, such as “acceptable, reasonable, and negligible.” The focus group - consisting of representatives from environmental organizations, lake associations, angling groups, boating groups, municipalities, members of the legislature, lake management experts, aquatic invasive species experts, and state/federal agency representatives - convened in December 2022 and began pre-rulemaking work. At DEC’s recommendation, however, the group suspended its work pending the outcome of H.31.

Poultney & Hubbardton Rivers Lampricide Permit Application: As part of the regional Sea Lamprey Control Program, the US Fish and Wildlife Service has submitted an Aquatic Nuisance Control Permit Application to use lampricide to control sea lamprey larvae in the Poultney and Hubbardton Rivers. US Fish and Wildlife Service has simultaneously applied for an Endangered & Threatened (E&T) Species Takings permit from the Vermont Fish & Wildlife Department. Lakes and Ponds Program Staff will begin our review of this permit application and will invite feedback from other concerned State of Vermont entities as per our ANC Permit Application Internal Review Procedure.

Briefing to LCBP Citizens Advisory Committee (CAC): At the request of the LCBP CAC, staff from the Lakes and Ponds Program provided a briefing on March 13th regarding the status of ongoing aquatic invasive species prevention and management efforts, as well as available funding and DEC staffing to support this work. One outcome of this discussion was to see if Vermont stakeholders could reach out to the US Army Corps of Engineers and see if it would be possible to increase our annual aquatic plant control grant, currently at $500,000 per year, to offset the funding decrease we are currently experiencing in the Aquatic Nuisance Control Grant in Aid Fund. An additional topic discussed is whether advocacy efforts should be made to encourage the State of Vermont to reconsider a decision to prevent use of Clean Water Initiative Funds for Aquatic Invasive Species Prevention projects. This subject will be discussed by the clean water board at an upcoming meeting.

February 15th Wake Boat Public Meeting and Next Steps on Rulemaking: Over 250 people attended the February 15th public meeting on DEC’s draft wake boat rule, and 60 meeting participants provided feedback on the draft rule. Most public input advocated for the future wake boat rule to be more restrictive and use a larger distance from shore for waterbody eligibility determinations. Staff from the Lakes and Ponds Program are reviewing this feedback and will present a final rule rulemaking package to DEC/ANR leadership soon. A June 12th meeting with the Inter-Agency Committee on Administrative Rulemaking is planned, which launches the formal rulemaking process. When the rule is eventually passed, DEC will launch a comprehensive public outreach effort to help Vermonters and visitors understand and comply with this new rule.

Lake Champlain Long-Term Monitoring Meeting: Lakes and Ponds Program staff involved with Lake Champlain Long-Term Monitoring (LTM) met with their counterparts from New York and the Lake Champlain Basin Program on (Continued on page 14)
February 3rd, to discuss field monitoring plans for 2023, deployment of new high-frequency monitoring buoys into Lake Champlain, and harmonization of data analysis efforts. 2023 monitoring on tributaries, led by Kelsey Colbert, has already begun, and in-lake monitoring will begin in May. More info on the LTM project is [available here](#).

**Congressionally Directed Spending Allocation from Senator Sanders to Lake Iroquois:** The Lake Iroquois Association has secured $320,000 for a project that will construct stormwater management infrastructure on Beebe Lane, which is just adjacent to Lake Iroquois and is currently a source of sediment pollution into the lake. Watersheds United Vermont and the Lake Iroquois Association are also contributing $50,000 and $20,000 in matching funds for this project, for which construction should begin in the spring of 2023. Lakes and Ponds Staff reviewed the funding requests and supported the project, citing water quality benefits to the lake when completed. Great work LIA!

**Important Private Dam Restoration Progress:** The Lakes and Ponds Program works closely with DEC’s Dam Safety Program to try to resolve dam-related issues at our lakes and ponds. Recently, progress on restoring privately owned dams was made at two sites, that is worth sharing:

- The Preserve Amherst Lake Association (PAL-VT) announced that they will formally take ownership of the Amherst Lake Dam in January 2023 and seek to repair or replace the dam thereafter. The current dam owners indicated in early 2022 that they couldn’t meet the new Dam Safety Rule rehabilitation requirements for the dam and intended to either sell or remove the dam as soon as possible. Repairs to the dam are estimated to cost at least $400,000.
- In Calais, voters approved a $350,000 bond in March 2023 to help fund repairs of the failing dam at Curtis Pond. The Calais Selectboard also agreed to provide an additional $100,000 in federal funds to repair the dam. Renovation designs are under review by DEC and construction could start later in 2023.

**Potential Phosphorus Inactivation Treatments on Two Vermont Lakes:** In lakes with serious water quality challenges where internal phosphorus loading is a significant contributor to the lake’s overall phosphorus budget and where substantial efforts have been made to reduce external phosphorus loading from the watershed, a phosphorus inactivation or alum treatment is a potential option to help address these issues. DEC is now working with two lake communities, at lakes Morey and Carmi, to study, permit, and fund alum applications, with potential treatments taking place as early as 2024. A feasibility study has been completed for Lake Morey, with efforts beginning to obtain permits and funding for a treatment, and a feasibility study for an alum treatment in Lake Carmi will be conducted this summer with support from DEC Clean Water Funding. The Lake Carmi aeration system will also be modified this spring to increase the number of diffusers operating in the lake’s deepest areas and the UVM high-frequency monitoring platform will be deployed for a final season.

**Establishment of Biological Criteria for Aquatic Biota in the...**

(Continued on page 15)

Sunset, Lake Champlain, Burlington (Photo: O. Weiland)
Vermont Water Quality Standards: With support from DEC and the Lake Champlain Basin Program, the consulting firm Tetra Tech will use existing biological data, supplemented by additional sampling, to create three indices of biological integrity (IBIs) – for diatoms, macroinvertebrates, and macrophytes – that quantify the condition of inland lakes within the Lake Champlain Basin. These IBIs will be used to establish the first set of biological criteria for aquatic life in Vermont's lakes and ponds, that will enhance our ability to make lake restoration, protection, and other management decisions, such as impairment designations. This work will begin during the summer of 2023 and will require a significant level of effort from our inland lake assessment team (Kellie Merrell and Dr. Leslie Matthews).

Update on Lake Watershed Action Plans (LWAP): DEC is in the process of awarding contracts for a third round of DEC funded Lake Watershed Action Plans at the following lakes: Lake Seymour and Echo, Big Pond in Woodbury, and Halls Lake. These contracts will also include some support for lake wise work on Lake Rescue. These contracts build on ongoing LWAP development with DEC resources at five lakes and with LCBP resources at five other sites. Finally, DEC has been encouraged to see projects identified in the Dunmore, Elmore, and Eden LWAPs be considered for Act 76 funding for design and implementation and will continue to lend our support to this process. More info on LWAPs is available here or reach out to Alison Marchione with questions.

Staffing for Summer 2023: As usual the Lakes and Ponds Program will be hiring 7-8 seasonal technicians to support our field work in 2023, including for the AIS Program, the Lay Monitoring Program, the Lake Wise Program, and the Champlain Long-Term Monitoring Program. We are also hiring four UVM students through the Rubinstein Perennial Intern Program, and one Eco-AmeriCorps Service Member, to support our seasonal lake management efforts.

2023 Aquatic Invasive Species Grant-in-Aid Funding: The Lakes and Ponds Program advertised the 2023 Grant-in-Aid funding opportunity, and proposals were due on March 3, 2023. The total funding envelope is $350,000, which is a 22% decrease from previous years, driven by the depletion of a one-time funding surplus. These funds, which may be awarded on a competitive basis in 2023, will support greeter programs, some management projects, research, and education & outreach efforts. DEC and many other partners have raised the lack of funding issue with the Administration and the Legislature, and as a result of these efforts, the House Committee on Appropriations included three lake related items in the budget that they voted out of committee on March 27. These items - a direct appropriation in the state budget of $500,000 for the ANC Grant-in-Aid Program and the restoration of two Lakes positions lost since 2019, one for aquatic nuisance control and one for Lake Wise - have been approved by the House and Senate, and the Legislature’s Budget con-
The state fiscal year 2024 budget is now on the governor’s desk. The state fiscal year 2024 budget is now on the governor’s desk. The state fiscal year 2024 budget is now on the governor’s desk. The state fiscal year 2024 budget is now on the governor’s desk. The state fiscal year 2024 budget is now on the governor’s desk. The state fiscal year 2024 budget is now on the governor’s desk. The state fiscal year 2024 budget is now on the governor’s desk.

will make it into the final budget for state fiscal year 2024. The House Budget also included restoring two positions to the Lakes and Ponds Program that had been lost since 2019. Finally, DEC has secured a new decontamination unit (funded with Great Lakes Fisheries Commission Funds allocated to Vermont Fish and Wildlife) to use at one of the Access Areas on Lake Memphremagog, likely in collaboration with the Memphremagog Watershed Association and the Town of Newport.

New Use of Public Waters Rules
Signs at Access Areas and App: To increase awareness of applicable rules and reduce conflict, DEC and Fish & Wildlife worked together to identify access areas that did not have metal signs describing which public waters rules are in effect at a given waterbody. Over 100 signs have since been purchased and will be deployed during the spring and summer of 2023. Additionally, DEC has developed a new app that clearly lists the applicable rules by waterbody.

Lay Monitoring Program Method Change: The Vermont Lay Monitoring Program (LMP) trains and equips volunteers (or Lay Monitors) to conduct periodic lake water quality sampling from their boat using quality-assured methods. Since the program’s inception in 1979, the principal goals have remained the same: establish baseline water quality conditions in Vermont lakes during the summer recreation season; track long-term nutrient trends in Vermont lakes and assess monitoring data for compliance with Vermont Water Quality Standards; and educate lakeshore homeowners and lake users about lake ecology and stewardship. The current 5-year LMP Quality Assurance Project Plan is being revised in 2023 by changing the sampling methodology to biweekly surface water bottle grab sampling and optional deep water grab sampling after piloting it alongside traditional integrated-depth hose sampling in 2022 for 16 lakes. The pilot’s main finding is that TP (total phosphorus) and chlorophyll-a have the highest correlation with Secchi depth when using a Secchi disk view tube/scope and when sampled by bottle grab at the surface instead of by depth integrated hose at twice the Secchi depth. This correlation is likely because a deep hose sample can pick up additional TP from internal loading trapped in the anoxic hypolimnion* of certain lakes (10 out of 16 in the study), while surface samples and Secchi depth are typically not as influenced by internal TP loading during summer thermal stratification. Starting in 2023, in lakes with significant internal loading as well as other thermally stratified lakes of interest, a Van Dorn (horizontal) water sampler will be provided or recommended for purchase for Lay Monitors to collect deep water samples at 20 m or 1 m above the bottom, in addition to the surface water bottle grab samples at 0.5 m (see https://lamotte.com/horizontal-water-sampler-1087). These changes in sampling approach will allow DEC to monitor and assess epilimnetic* and hypolimnetic* conditions separately at consistent discrete depths. More info on these changes is available here or reach out to Mark Mitchell with questions.

Proposal from Lake Bomoseen Residents to harvest milfoil as a phosphorus removal approach: A small group of Lake Bomoseen residents has put forth a proposal to mechanically harvest milfoil in the lake as a phosphorus removal technique as well as contributing to TMDL (Total Maximum Daily Load) phosphorus removal targets. The Lakes and Ponds Program shared our concerns about this proposed approach with the Bomoseen Group as well as representatives from the Water Investment Division and the South Lake Champlain Clean Water Service Provider in a meeting in February. These concerns include:

• Under statute, Aquatic Nuisance Control permitting authority is limited to projects that remove aquatic nuisances from waters when that is found to be in the public good. A project focused on removing aquatic plants with the primary purpose of removing phospho-
rus from our waters is arguably not jurisdictional to the ANC permitting authority;

- Viewing plants as something to remove from waters to reduce phosphorus concentrations in those waters creates a precedent that could then lead to the belief that “removing plants is how we can meet our TMDL phosphorus reduction targets,” which could lead to unintended consequences, overharvesting, and negative ecological outcomes if pursued at a broader scale.
- Harvesting plants is not a cost-effective phosphorus reduction method and doesn’t address the root causes of P loading to our waters, meaning that it will need to be repeated annually;
- Removing large amounts of aquatic plants from our waters can lead to ecosystems flipping from plant-dominated to cyanobacteria-dominated waters, which is not a desirable outcome.

DUMP’s appeal of the NEWSVT Pretreatment Permit:
Don’t Undermine Memphremagog’s Purity (DUMP) filed an appeal of a DEC pretreatment permit that would authorize Casella Waste Management, the landfill operator, to establish a pilot water treatment plan in Coventry to pre-treat toxic PFAS—perfluoroalkyl and polyfluoroalkyl substances a class of synthetic chemicals widely used in coatings and foams that resist oil, heat and water - from the landfill’s leachate before it is transferred to a conventional wastewater management plant. The Notice of Appeal indicates the appeal is regarding the Leachate PFAS Treatment Pilot Study condition. Currently the leachate is trucked to Montpelier for treatment at a wastewater plant there, but this practice may end in July 2023, requiring the leachate to be trucked further afield to New York or New Hampshire. For more info on this subject, see this article about PFAS treatment and this article about the appeal.

Richard Simpson Service

A service honoring Richard “Dick” Simpson will be held July 29, 2023 at 11AM at the Westmore Community Church in Westmore.
Dick passed away December 15, 2022. Dick will be remembered for his leadership over Vermont’s waterways, and service through Willoughby’s lake association and FOVLAP for years to come.

Photo: B. Tanner
Wake Boats in a Nutshell
Tracey Shadday, FOVLAP Board Member

- Wake boats are motor boats built to create an enhanced wake using an inboard propulsion system. Many are equipped with wave enhancing devices. Recreators use the waves for wake sports - wakeboarding and wake surfing.

- An estimate of less than 5% of all motor boats currently registered in Vermont are wake boats although the sport is growing in popularity. There is no count available for the number of wake boats entering Vermont from out of state.

- The wake boats are built so that the propeller wash points downward. Ballast tanks are designed to make the boats heavier for more water displacement to help produce a bigger wave and contain water that cannot be fully drained when the boat leaves a lake.

- Major concerns with wake boats include:
  - **ENVIRONMENTAL EFFECTS**
    * Disturbance of lake bottom sediments and the release of nutrients, e.g., phosphorus, a contributor to algae growth
    * Spread of aquatic invasive species via residual water in ballast tanks
    * Threat to aquatic life, e.g., nesting loons, other wildlife
  - **SAFETY CONCERNS**
    * Safety concerns for fishermen, swimmers, paddlers and other watercraft
    * Dangerous conditions on shore and docks
    * Obscured vision forward as ballast weighs down the stern and causes the bow to rise
  - **ECONOMIC IMPACTS**
    * Damage to shorelines and property - docks, boats, boat lifts, etc.
    * Diminished property values
    * Conflicts with other lake uses when wake boats are active

- The Vermont Department of Environmental Conservation (DEC) has created a **draft rule** that would regulate wake boats on public waters under the following three conditions:
  1. Use on lakes, ponds and reservoirs with a minimum of 50 contiguous acres that are 500 feet from shore on all sides and 20 feet deep (the eligibility rule)
  2. Wake boats must operate 500 feet from shore when in wake surf mode, generating enhanced wakes (the operating rule)
  3. A wake boat must stay in one designated lake per calendar year unless the boat is decontaminated by a DEC approved facility entity (the home lake rule)

Under this draft rule, wake boats could engage in wake sports in 31 of the inland lakes in Vermont.

To learn more, visit:

https://anr.vermont.gov/content/vermont-dec-releases-draft-rule-wake-boat-regulation

Welcome Olin Reed! Olin joins the Lakes and Ponds Aquatic Invasive Species (AIS) Program in a full-time position dividing his time as an AIS aquatic biologist and the Aquatic Nuisance Control permit specialist.

Dear FOVLAP members,

As a 10th-generation Vermonter, I’ve been lucky to spend most of my life in this wondrous green state. I spent my childhood summers canoeing on Green River Reservoir, basking in the northern Vermont sun, trying my best to catch that elusive monster fish that I most definitely saw and listening to my dad tell fantastically exaggerated stories of the sunken “city” of Garfield that lay below the water.

My passion for conservation started in high school as I helped my father with his land surveying business, allowing me to scale mountains and wade across rivers in Lamoille County that I would have never come across otherwise. I spent two of my college summers as an attendant at Elmore State Park, putting me at the forefront of what land conservation really is. I graduated from Regis University in Denver in 2021 with my B.A. in Environmental Studies. I was introduced to invasive species management in Denver through a collaborative research project with the U.S. Fish and Wildlife Service at an urban national wildlife refuge, where I conducted plant surveys and implemented best management practices for invasive terrestrial grasses.

My tenure with the Department of Environmental Conservation began in 2022 as a technician for the Aquatic Invasive Species Program, assisting with managing the Public Access Greeter Program. I visited 247 boat launches throughout the state and 238 towns (I’m working on my 251-club membership). I’ve been to more lakes and ponds in the past year than I could have ever imagined. I was lucky enough to begin my new role as an aquatic biologist and permit specialist in January, where I will continue to oversee the Greeter Program, and the ANC permitting process. We hope to expand the Greeter Program to incorporate as many at-risk water bodies as possible. I will also be working on expanding our greeter dashboard to include more comprehensive public-facing data and maps.

The historic Elmore State Park beach house has a wooden door with the signatures of those who have spent their time shaping the park since its inception. Among those signatures is a quote, “Don’t take your life… or this magical place for granted! May the loons on the lake and the trees on the mountain remind you to love.” When I’m covered in mud from pulling water chestnut or exhausted after a long day of plant surveys, I think of this quote, and remind myself of how lucky I am to be a part of a conservation effort much bigger than myself.

Best,
Olin Reed

Olin can be reached at 802-490-6121 or Olin.Reed@vermont.gov

Meet Vermont Lakes and Ponds Staff Member Olin Reed

Vermont Public Access Greeter Program Resources

Program Manual

Vermont Public Access Water Craft Inspection Protocol video

Vermont Public Access Greeter Program AIS Overview

More resources are available here.
On April 27th, 2023, FOVLAP held a special event to discuss the Vermont DEC’s Greeter Program, “What It All Means – A Look into Vermont’s Public Access Greeter Program.”

During the event, Olin Reed, Vermont Lakes and ponds Program described the statewide Vermont Public Access Greeter Program and what can be learned from several years of greeter data about lake-to-lake boat traffic.

In recent years, the Aquatic Invasive Species (AIS) Program has seen a jump in the number of boat inspections, and with it, an increase in threats of invasions. The Greeter Program, supported primarily by local municipalities and associations, serves to protect one of Vermont’s most important assets, its native aquatic ecosystems.

While the focus of greeters at public access points is to prevent the spread of an invasion and educate the public, they also provide the AIS Program with important data to answer many questions, mainly: Where should we look next?

Olin discussed the answers that the Public Access Greeter Program provides to the state, how this data is shared with our partners, and how it is used to better protect our lakes and ponds.

A PDF of Olin’s presentation can be viewed here. The meeting was also recorded and can be viewed on YouTube.

Public Access Greeter Trainings Offered

Join the Vermont Lakes and Ponds Program staff at free workshops offered to train public access greeters in educating lake visitors about invasive species, providing watercraft inspections and STOPPING invasive species introductions. All training sessions satisfy the requirements necessary for operation as an approved aquatic nuisance inspection station as defined in Vermont statute 10 V.S.A. § 1454 (c).

**Online Returning Greeter or Coordinator Training Refresher**
- Tuesday, April 25th, 2023 | 1 PM – 4PM [link to workshop]
- Saturday, May 13th, 2023 | 9AM - 12PM [link to workshop]

**Online Training for New Greeters or Coordinators**
- Saturday, May 20th, 2023 | 9AM – 1PM [link to workshop] (hybrid training)
- Saturday, June 17th, 2023 | 9AM – 1PM [link to workshop]

**In-Person New or Returning Greeter Training**
- Friday, May 19th, 2023 | 9AM – 2PM
  Kilburn Room, 40 Jeff Williams Wy, Manchester, VT 05255
  *Hosted by the Windham County Natural Resource Conservation District
- Saturday, May 20th, 2023 | 9AM – 2PM (hybrid training)
  ANR Annex, 190 Junction Rd, Berlin, VT 05602
- Saturday, May 27th, 2023 | 9AM – 2PM
  North Country Career Center, 209 Veterans Ave, Newport, VT 05855
  *Hosted by the Memphremagog Watershed Association

All online trainings will be offered through Microsoft Teams; see links above.
Register for one training, either online or in-person. All trainings require pre-registration.
Please register here.
Email Olin Reed if you have any questions @ Olin.Reed@vermont.gov
If you perused FOVLAP’s last newsletter, Fall/Winter 2022/2023, you learned of a report from the Department of Environmental Conservation about the sighting of the aquatic plant, American lotus (Nelumbo lutea) in Brattleboro. This population of American lotus is the first confirmation of this species in Vermont.

The native range of American lotus is typically thought of as southeastern North America but this is frequently debated. Considered native to as far north as southern Ontario and as far west as Minnesota and Texas, sightings in New England – Massachusetts, Maine, Connecticut – are considered introduced.

Vermont Aquatic Invasive Species Program’s Kim Jensen shares, “We are collaborating with other state and federal partners to understand how American lotus should be designated in Vermont – native or introduced.”

Easy to identify, American lotus is a member of the water lily family. Known for its grandiose, up to six inches wide fragrant, pale-yellow flowers, it is an emergent perennial with circular leaves on long, stiff stalks that connect to the leaf at the center. Leaves float or stand above the water’s surface. Other aquatic plants with floating leaves, like Vermont’s native yellow cow lily or fragrant water lily have split leaves. The hard, flat-topped, cone-shaped fruits of American lotus contain many large brown seeds; the fruit are frequently sold at flower shops in flower arrangements.

American lotus prefers shallow, still, or slow-moving water of lakes and rivers, and may be found in water as deep as 6 feet (1.8 meters). Spread is vegetatively, from thick underground stems (tubers). American lotus prefers rich soil and full sun.

As you visit Vermont’s many waterways this summer, keep an eye out for sightings of American lotus and send reports of any sightings to Kim Jensen (kimberly.jensen@state.vt.us) Reports will help Kim and others understand whether
this species should be designated as native or not. In addition, any sightings of suspected invasive aquatic plants of concern, either known from our waters or knocking on our door should be reported to Kim. Better yet, become a Vermont Invasive Patroller! Click here to learn more.

Information for this article came from VTDEC and the following websites:
https://plants.ifas.ufl.edu/plant-directory/nelumbo-lutea/
https://mnfi.anr.msu.edu/species/description/14432/Nelumbo-lutea
https://gobotany.nativeplanttrust.org/species/nelumbo/lutea/
https://www.wildflower.org/plants/result.php?id_plant=nelu

Harveys Lake, Barnet sunset. (Photo: J. Sprague)
DEC’s bioengineering manual provides resources to successfully implement shoreland bioengineering practices to protect and restore Vermont’s shorelands. Available free on VTDEC’s website.

Click here to print your copy.