GREEN MOUNTAIN

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Section D

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Photos by **RYAN MERCER**, *Free Press*

Thad Bronson of the Lake Champlain Restoration Association uses his harvester to collect Eurasian watermilfoil on Lake Champlain. Much of the harvested weed is composted by local gardeners and farmers. This year, some of it will be included in a "cow-power" electrical generator, to assess the plant's viability as an alternative

QUEST FOR CURRENT

Can burning invasive species turn on your lights?

BRIDPORT — Electricity just might be wrung from these otherwise discarded weeds.

Elegant in theory, the experiment in its early stages is loud and ugly.

The bright-orange harvester looks out of place in Lake Champlain. Part riding mower, part paddlewheeler and front-end loader, the graceless watercraft the length of three mid-sized sedans that tops out (in reverse) at 3½ mph. It's even slower when it travels forward, cutting through underwater thickets of Eurasian watermilfoil that choke the lake's shallows near Bridport.

Joel Banner Baird

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But the harvester belongs. The milfoil, an aggressive newcomer, doesn't.

While no one believes the weed will ever be eradicated, a handful of visionaries believe in its potential to generate electricity.

These weeds, as they spread across the lake, keep reminding us that they are renewable. But are they a resource?

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What's wrong with a little watermilfoil

SHORT ANSWER: It multiplies.
Very quickly, it can:

- Interfere with swimming (and wading).
- Tangle boat propellers.
- Choke out native vegetation (which, unlike water milfoil, provides a safe, edible habitat for native animal species).
- Speeds the depletion of oxygen (and biodiversity) in lakes.

What's right with a little creativity

ADDISON COUNTY-BASED Lake Champlain Restoration Association, using a $10,000 grant from Central Vermont Public Service, will begin a pilot program to convert the lake nuisance into power at Blue Spruce Farm's generator, which already produces electricity with manure-fermented methane.

"MORE AND MORE, WE'RE LOOKING AT THIS PART OF THE LAKE LIKE FIELDS. WE SHOULD MAKE USE OF THIS STUFF AS A RENEWABLE RESOURCE."

CHIP MORGAN,
Lake Champlain Restoration Association

COVER STORY

RYAN MERCER, *Free Press*

Eurasian watermilfoil rolls off the harvester's conveyor belt and into a storage bin. The Lake Champlain Restoration Association will attempt to use the invasive species to create electricity.

Group's vision is for energy

From Page 1D

Eurasian watermilfoil has few admirers on this continent. Apparently, only aquarium hobbyists treasure its hardy, pernicious nature. Experts and amateurs agree: Like so many other invasive species, Eurasian watermilfoil can lower the quality of life in Vermont's lakes all too quickly.

It doesn't provide attractive food or shelter for native animals. It spreads quickly from fragments created by waves, wind and boat traffic. It robs the shallows of light and oxygen. It

"IT'S LIKE MOWING YOUR LAWN: IT COMES BACK, BUT IT'S UNDER CONTROL."

Chip Morgan

lency similar to that of the manure, to allow for easier movement of the anaerobic (methane-producing) bacteria."

Finding sustainable

he said. It's a labor of love — and only one part of the association's mission to protect and restore the lake.

In its bylaws, the group

bales of hay, into the rear of the boat. Bronson said he typically fills the hold in 90 minutes.

It's a slow boat he pilots back and forth, lawn-mower style, on the lakefront. He's limited to calm, clear days. Choppy water limits visibility; wind causes the harvester to drift off course.

Bronson remains philosophical about solutions — if any — to the perennial milfoil problem.

"I'll pull weeds up when I'm ice-fishing," he said. "They still look pretty sturdy. They're alive."

tangles in swimmers' legs and boats' propellers.

Since the early 1960s, when the invasive first appeared in Lake Champlain, professional and amateur ecologists have worked with some success in slowing its advance, spending hundreds of thousands of dollars every year.

State programs likewise have targeted other nuisance species.

Ten years ago, volunteers from the Addison County-based Lake Champlain Restoration Association joined the cause. Their grass-roots work has spread in unexpected ways.

Next month, energy experts will determine if they can coax electricity from the nuisance weed by incorporating it into "cow-power" generators.

Not far inland from where their orange harvester plies its front-end cutters (a rig built, fittingly enough, in Weedsville, N.Y.), the dairy operation at a farm near Bridport is preparing to receive southern Lake Champlain's slimy payload.

Slurry power

Blue Spruce Farm already generates grid-bound electricity in a generator fired with manure-fermented methane. A $10,000 grant from Central Vermont Public Service will underwrite the association's trucking of lake-grown ingredients into the recipe.

It's a pilot project, said Dave Dunn, who manages renewable project development for CVPS.

"This technology is in the early stages of development," he said last week. "We need to somehow get the weeds into a consis-

and diverse alternatives to Vermont's nuclear power plant is an ongoing mission of CVPS, Dunn added. To that purpose, the utility has borrowed an industrial-grade "tub-grinder" to emulsify the weeds into a thick soup.

"It's really designed to shred tree stumps and wood pallets," Dunn said. "We'll see."

Dunn said it was too early to speculate whether results of the experiment will warrant another year of tinkering, or if it will be a one-time effort. But he hopes the project will ignite subsequent research.

Lawn service

Electricity was not on the minds of the volunteers who formed the Restoration Association.

"The only reason we got into it was because of boat-props getting fouled," said the association's president, Chip Morgan of Bridport. "We help eliminate fragments caused by boat propellers. It's like mowing your lawn: It comes back, but it's under control."

Association members with weed-clotted swimming and boat docks can apply for periodic mowing using an online request form. The going rate: $197 for a 90-minute session. Typically, a member signs on for three mowings per season (only members qualify for the service).

The association barely breaks even, Morgan said, because the cost of harvesting is high, even with volunteer labor and a token $12 yearly boat lease from the Agency of Natural Resources. Fuel, maintenance, insurance and repair costs add up,

stresses education and prevention as the primary ways it members hope to go about "restoring the lake to its former status as the 'Jewel of Western New England.'"

Five years ago, the group built a shallow-draft plywood harvester. They hooked up a winch-operated boom, and a cable with which they yanked (and still yank) shallow-growing watermilfoil. Its operators drag loads to the shore, then slice them free from the cable using butcher knives.

But the association needed something that would operate further from shore; watermilfoil can take root 20 feet below the surface.

Tough customers

The last time Thad Bronson operated heavy machinery, he was a teenager. After a stint in the military, he piloted a marina business near Bridport for about 30 years.

His retirement years were shaken into activism by some association members.

"Three years ago they had some problems with the little boat, and they asked me to fix it. Then they said, 'Why don't you run it?' I've been working every summer since," he said.

Bronson now captains the big boat's six-foot-wide cutting and conveyer arm with calm competence. The blades reach seven feet beneath the surface — a depth sufficiently low in light to retard the weed's regeneration.

Amid the clatter of a large diesel engine, a chain conveyer belt raises the harvest and curls it, like round

Life-cycling

As luck would have it, Eurasian watermilfoil plants can't survive long out of water. Stowed above the lake's high-water line, they dry and die. They can lend fertility to the soil of farmers and gardeners who have the means to transport tons the stuff.

Bronson counts himself among them: He composts watermilfoil with excellent results. So does Charles Barry, an LCRA member who pilots the smaller, older boat.

"You want to let it dry out because it gets a lot lighter," Barry said. "I hauled about a ton of it away on a 6-by-10 trailer. Rototilled it right into the garden with wood ashes.

"There are lot of things you could do with this," he added. "But we're all volunteers, and we're busy with other things."

Morgan said he had just enough time for short fantasies about a lake-weed industry in the Champlain Valley.

"I see these New York barges coming up here, harvesting weeds in onboard factories that can dry and compress it into bales," he said, looking into the open lake's middle distance. "More and more, we're looking at this part of the lake like fields. We should make use of this stuff as a renewable resource."

Would a public utility consider transforming Eurasian watermilfoil into dry pellets, for use in stoves?

From his Cow Power office in Rutland, Dunn said he would put that idea on the back burner.

"Maybe that's the next step," he said. "Maybe next year."

COVER STORY

Crews take on water chestnuts

By JOEL BANNER BAIRD, Free Press Staff Writer

On Thursday, a flotilla comprised of two mechanical harvesters and dozens of canoes and kayaks embarked on a weed-harvest expedition, about four miles south of Benson Landing.

The target: more than 1,000 acres of lake-choking water chestnut, an invasive species that reproduces nearly as fast as contracted crews can remove it.

Environmental scientist Ann Bove, who coordinates aquatic plant control for the Vermont Department of Environmental Conservation, said concerted efforts have made a difference over the past several decades.

"Recently, the amount of water chestnuts has been significantly reduced," she said. "But if we were to walk away tomorrow, the population would rebound, and we'd lose ground."

Consistent funding is critical to invasive control programs, she continued, because regular, preventative maintenance is cheaper than playing catch-up — particularly in a state that banks on recreational use of its natural resources.

Either way, plant removal carries a hefty price tag.

According to department records, Vermont has spent almost $8 million since 1982 to keep water chestnut in check; hundreds of thousands each year to date on controlling Eurasian watermilfoil — and thousands of volunteer hours have been spent on controlling invasive species.

Free Press file

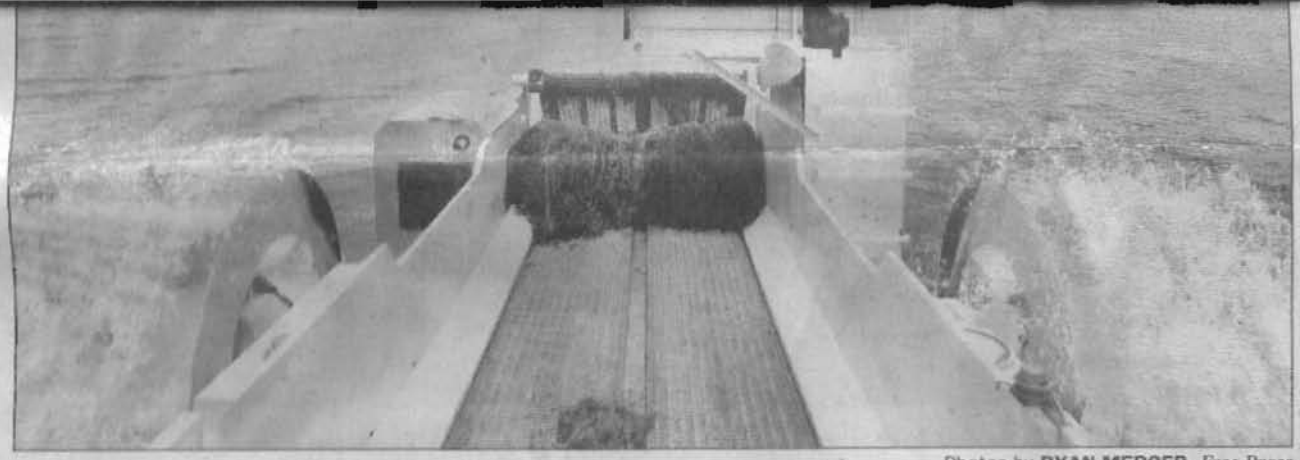
Water chestnuts are another invasive species in Lake Champlain. The Department of Environmental Conservation has spent almost $8 million since 1982 to remove water chestnuts from the lake.

Unlike the nascent collaboration to transform Eurasian watermilfoil into electricity, Vermont harvesters so far have not considered water chestnuts possible fodder for power-generating methane digesters, said Tim Hunt, an ecologist with the department.

But, Hunt added, the state composts nearly 100 percent of its harvest.

Do water chestnuts have a future as a cash crop?

"We don't want to promote it — and we really don't want people to grow it," he said. "You have to be careful about creating a market."



Photos by **RYAN MERCER**, *Free Press*

The harvester operated by Lake Champlain Restoration Association cruises at 3½ mph, in reverse.

VIPs versus invaders from another watershed

Vermont Invasive Patrollers and a volunteer program launched three years ago by the Vermont Department of Environmental Conservation help track and prevent the spread of invasive species in lakes and ponds.

Got invasives? Be certain: Attend a hands-on workshop for prospective Vermont Invasive Patrollers (VIPs), sponsored by the Department of Environmental Conservation. Participants learn how to search for and identify exotic aquatic species.

Upcoming training sessions: 1-5 p.m. Friday, Lake Dunmore, Salisbury; July 24, Northwoods Stewardship Center, East Charleston.

Putting in? Boaters needn't be put off by volunteer greeters at an increasing number of public access areas; they're only trying to prevent the spread of invasive animal and plant species. With permission, a greeter helps inspect boats and equipment for unwanted, exotic hitchhikers.

Jump in: To register for a workshop, which is required, or to request a training session in your watershed, contact Leslie Matthews at the Department of Environmental Conservation, Water Quality Division: leslie.matthews@state.vt.us, or 241-3798.

Thad Bronson of the Lake Champlain Restoration Association commands the harvester during a collection of Eurasian watermilfoil.

Web-surf the lake's worst invasives

- Lake Champlain Restoration Association: http://bit.ly/LakeMowers
- Department of Environmental Conservation, Water Quality Division: http://bit.ly/VtLakeInvasives
- Vermont Invasive Patrollers: http://bit.ly/InvasivePatrol
- Lake Champlain Basin Program: http://bit.ly/Basin-Nuisance

Got your permit?

If you plan to mechanically cut or uproot invasive species, you'll need a permit from the Department of Environmental Quality. You don't, however, if you restrict your harvest to hand-pulling.

Be sure you pile your pickings above the lake's high-water line; otherwise you risk spreading — rather than reducing — the problem.

Secondary benefits of harvest: Well-composted Eurasian watermilfoil and water chestnuts (among Lake Champlain's most aggressive invasive plant species) make excellent garden and farm compost.

Stop the spread

Eurasian watermilfoil spreads from lake to lake primarily as a hitchhiker, with human help.

Preventative measures include:

- Be sure your craft and trailer are clear of plant debris, inside and out.
- Discard plant fragments where they won't wash back into a body of water.
- Thoroughly rinse boat with tap water and/or allow to sun-dry for at least five days.
- Never dispose of unwanted aquarium plants and animals into lakes or streams.

SOURCE: Department of Environmental Conservation

WATCH AN AUDIO SLIDE SHOW NARRATED BY JOEL BANNER BAIRD ABOUT HIS EXPERIENCE ON LAKE CHAMPLAIN. GO TO WWW.BURLINGTONFREEPRESS.COM/GREENMOUNTAIN