

flooding of some nearby commercial streets and buildings. Once the new tide gates were installed, they were turned over to the city.

For Gaboury Benoit, Yale professor of environmental chemistry, the return of tidal flows into the West River marshes provided an ideal laboratory for documenting the value of restoration projects to the environment. Funded by Sea Grant, he is now researching how heavy-metal contaminants are captured in sediments of tributaries flowing into the Sound, keeping them out of the estuary.

“I’m looking at the hydrology and the chemistry of it,” he said, while he and a graduate assistant collected water and sediment samples for the project one day last summer. “It’s possible that now this system is acting as a trap, so it’s providing ecosystem services.”

The restored marsh areas are also providing spawning habitat for migratory herring, shad and alewives. The old tide gates, installed a century ago in a misguided attempt at flood and mosquito control, prevented fish passage.

“We’re observing fish all the way up to Konolds Pond in Woodbridge,” said Gwen MacDonald, director of Green Projects for CFE/Save the Sound. “There’s a diverse wetland community there that didn’t exist before.”

The 2015 removal of a dam in another section of the West River, on a preserve owned by the New Haven Land Trust, has further improved water quality.

For retired coastal ecologist Ron Rozsa, seeing the condition of the West River and its marshes today compared to 30 years ago validates the many years of work he and others did to call attention to the need to restore coastal habitats for the health of Long Island Sound. Rozsa, who worked for the state Department of Energy and Environmental Protection, identified the West River and 14 other degraded tidal areas as restoration priorities in the early 1980s.

“We set up a series of restoration policies for coastal wetlands, tidal flats and tidal wetland restoration,” he said.

Today, Robert Granfield, a commercial fisherman who raises clams and oysters in beds in New Haven and Milford harbors, is among the beneficiaries of these multiple efforts. The progress he’s seen over the last 30 years he’s been making a living on the water has allowed him to keep doing what he loves.

“Over the years the water quality has really improved,” he said. “There are a lot more fish in the Sound, and the shellfish areas are very, very productive. Of course there are still things that need to be watched carefully.”



The 26-acre Cranberry Meadow Farm in East Lyme is within the Niantic River watershed. Owners Tom and Nancy Kalal are local advocates for sustainable land use within the watershed.

It takes a watershed to save a bay

From its headwaters to the beach, Niantic Bay needs everyone’s effort to safeguard it into the future

Story and photos by Judy Preston

Tom and Nancy Kalal live in the Niantic River watershed, in the town of East Lyme. Their driveway winds through fenced-in pasture, past rows of brightly painted beehive boxes. Surrounded by outbuildings, the house is nestled among flower and vegetable gardens and signs for local honey and beef, the products of Cranberry Meadow Farm.

Tom Kalal graduated from UConn with a degree in ornamental horticulture, while his wife grew up on a dairy farm just down the road. It’s clear that they love their farm, but he said that it wasn’t until he took the UConn Master Gardening program, and then the advanced Master Gardener Coastal Certificate program, that his thinking began to really change. In 2011, he sold his lawn-care business in Waterford, and the two of them have become advocates for sustainable land use within the watershed – be that farm, residential backyard or municipal property.

“I don’t think people in the watershed are aware of the bay, except the people who can see it,” Tom Kalal said, seated at their kitchen table.

Their awareness of what it means to live in a watershed has



McCook Point, overlooking Niantic Bay and Long Island Sound, is at the southern end of the Niantic River watershed.

grown over time. Cranberry Brook leaves their land and runs into Latimer Brook, one of the two primary tributaries that join the Niantic River on the way to Niantic Bay and Long Island Sound.

There was a time when focusing on a river's entire watershed as a means to protect water quality was new, but that is not the case today. That doesn't mean that it's gotten any easier. In 2006, a state-initiated Niantic River Watershed Protection Plan, covering all the areas of East Lyme, Waterford, Salem and Montville that drain into the river, was adopted. Following that, the Niantic River Watershed Protection Committee convened in 2008.

"It's one of the best-studied watersheds in the state," according to Judy Rondeau, watershed coordinator for the Eastern Connecticut Conservation District. "Our board of directors [of the protection committee] is so dynamic and committed. It's made up of shellfish and harbor management commissioners, environmental professionals, land use board members, teachers and professors and business professionals."

But she agrees that "our greatest challenge is up the watershed."

"So much of the focus is on the tidal areas," said Stephen Gephard, fisheries biologist with the state Department of Energy and Environmental Protection. "Watershed is still a tough concept."

It means getting the residents of Montville, for example, to appreciate that development there can impact the Golden Spur – a village at the head of the river 20 miles to the south – as well as the waters further downstream, he said.

Latimer Brook hosts important diadromous fish runs that include alewife, American eel and sea-run brown trout. One of the state's oldest fishways is operated by the DEEP at an old milldam a half mile east of Flanders Four Corners, one of two commercial centers in East Lyme.

Good water quality and the protection of habitat along these waterways are important to protecting these fishery resources, according to Gephard. Migratory fish are useful examples of the ecological connections between the inland portions of a river's



Good water quality and the protection of habitat are important to protecting our fishery resources.

– Steve Gephard



One of a pair of oxen used by Nancy and Tom Kalal on Cranberry Meadow Farm.



The 450-acre Oswegatchie Hills Nature Preserve provides hiking opportunities through lush vegetated slopes and past impressive stone ledges. While the property is protected, another 238 acres adjacent to it are vulnerable to development.

watershed and the estuarine resources of Long Island Sound. They could be poster children for the importance of protecting all of the watershed landscape, not just what's within view of the bay. Gephard believes that the main cause of the decline of migratory fish in Latimer Brook is mortality in the ocean. But that makes access to good-quality inland spawning sites that much more important.

Fred Grimsey has lived along the Niantic River for 53 years, and worked to protect the Oswegatchie Hills – 650 acres of rugged upland abutting Niantic Bay – for the past 13 years. While more than 400 acres are now a Nature Preserve, an adjacent area of 238 acres is threatened with development. There aren't many other large forested tracts left along the bay. Early on, Grimsey and several others got involved with water quality, working with the Ledge Light Health District.

"After a rainfall, we'd get readings and take samples from five spots on the river and I'd drive to New London with the samples to have them tested," he recalled.

Some of those readings ended up being five to seven times over the bacterial limit that triggers the closure of the town beach.

Today some of the biggest threats to the Niantic River and its water quality are coming from development of the land surrounding the headwaters. In 2015, 35,000 solar panels were erected on agricultural land near the Kalal farm in East Lyme. A second proposal by the same company on nearly 100 acres will involve clearing forestland. The Kalals and others are concerned that sediment-laden runoff from the property flows into the streams that feed the Niantic River.

Nancy Kalal, who along with others in the area mobilized in an effort to prevent the initial solar farm, recalled the words of another local farmer who warned: "You dig a shovel in there and you're going to know downstream."

While sediment is a long-standing threat to aquatic life in watersheds, it's what is attached to those sediment particles – especially excess nutrients such as nitrogen – that cause the greatest cumulative impacts downstream. And while polluted runoff has been identified in the Watershed Plan as the greatest water quality challenge to the Niantic River, the



plan also states: “It is the most manageable of all the potential sources of pollution to the river.”

According to one fisherman on the river, Niantic Bay scallops were once “available on menus as far away as Europe” and fabled for their sweetness. But water quality variables – including excessive nitrogen, increased water temperatures and disease – have taken their toll on the river’s ecology. As the eelgrass beds central to healthy scallop populations declined, so too went this once important fishery.

Many of the residential areas of the lower watershed along the bay have been hooked up to sewers, but septic systems elsewhere in the watershed likely still contribute to the total nitrogen load that is impacting the bay.

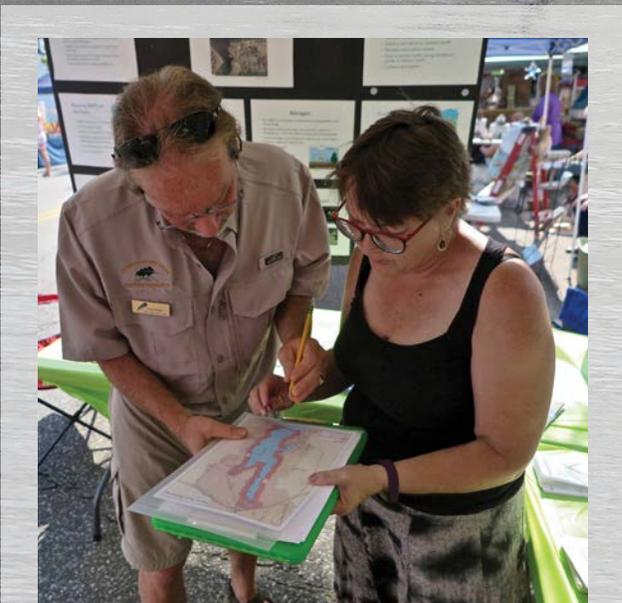
Downstream in neighborhoods with a view of the bay, Robert Burg and a small group of volunteers have been going door-to-door in East Lyme and Waterford. They are asking residents if they would be willing to adopt river-friendly lawn care practices to protect Niantic Bay.

Of the 96 people they have talked with, 68 agreed to put a sticker on their trash or recycling bin, declaring their support for and adoption of lawn care practices that can make a difference for water quality. That kind of success rate is unusually good. Burg, communications coordinator with the Long Island Sound Study, is pleased.

“People really care about a healthy and safe lawn in their community that also protects Niantic Bay,” he said.

It’s been twelve years since the Niantic River Watershed Protection Plan came out. Rondeau, the watershed coordinator, will be working this spring with the many partners from the four towns with land that drains into the bay to revisit the plan, evaluate what has and hasn’t been done, and how to move forward. The 2006 plan cites the “incremental and cumulative changes in land use that contribute to nonpoint pollution” as one of the greatest challenges that the watershed faces. It will take the efforts of the entire watershed to realize the goal of a clean river, bay and Sound.

But Rondeau is optimistic. When asked what the best part of her job is, she replies, “I love getting out and talking to people. I’ll say, I’m part of the Niantic River Watershed Committee, have you heard of us? And more and more, the answer is, yes.”



Niantic River and Bay are popular spots for sailors and fishermen. Above, Judy Rondeau, Niantic River watershed coordinator, talks with Greg Decker, president of the Oswegatchie Hills Nature Preserve, at the Celebrate East Lyme day festival in July, where information about watershed protection efforts is shared with the public.

