

New report focuses on potential risks, remedies for Mystic River Watershed

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A new report looks at risks and vulnerabilities to the Mystic River Watershed from flooding, extreme heat and drought, and it offers some potential solutions to address these climate-driven liabilities.

Project officials recently presented key takeaways from the Mystic River Watershed Vulnerability Assessment prepared for the Alliance for the Mystic River Watershed.

The nonprofit organization brings together the four towns and two tribal nations in the watershed — Groton, Ledyard, North Stonington, Stonington, the Mashantucket Pequot Tribal Nation and the Eastern Pequot Tribal Nation — to care for the waterways and communities that rely upon them, said Maggie Favretti, the alliance's co-founder and co-leadership board chair.

The full report by consultants from Fuss & O'Neill, along with Resilient Land & Water, and funded by a \$115,000 grant from the Long Island Sound Resilience Planning Support Program, is expected to be released in the coming weeks. Donations to the alliance helped support community engagement for the project.

Favretti said the alliance undertook the project to assess the community's risks and vulnerabilities, as well as its strengths, in the face of climate change.

"It's really giving us the information we need so we can address the challenges from a position of our strengths," said Favretti.

The Mystic River Watershed, which drains into Long Island Sound, ranges from the highly developed area of the Interstate 95 intersection in Old Mystic to the more rural, agricultural, forested and suburban areas to the north, Beth Kirmmse, senior resilience planner and landscape architect with Fuss & O'Neill, said during a presentation last week.

She explained that the report assesses vulnerability by not only considering a "desktop analysis" of risks, but also taking into account people's lived experiences. People remember the flood of 2010 and the drought and heat waves of 2022, and growing attention is being paid to flooding and extreme heat days in the watershed.

New England is experiencing overall dramatic increases in intense precipitation and flooding, said Ian Concannon, environmental planner with Fuss & O'Neill.

The Connecticut Institute for Resilience & Climate Adaptation has emphasized that communities throughout coastal Connecticut should plan for up to 20 inches of sea level rise by

2050.

The assessment looks at the transportation system and Old Mystic as priorities for addressing flooding.

He said Old Mystic is physically exposed to flooding, as multiple sources of flooding begin to meet in the southern watershed. It is also — relatively speaking — densely built and has historic resources that elevate flood vulnerability.

Concannon said potential solutions include policies for development, land use and infrastructure in densely developed areas vulnerable to flooding.

Kirmmse said Shewville and Lantern Hill roads are at risk for flooding. Flooding on Lantern Hill Road cuts off residents of the Eastern Pequot Tribal Reservation as well as pockets of Ledyard and Stonington residents.

Flooding on Shewville Road cuts off residents from the surrounding community — though not to as high a degree as along Lantern Hill — and there is a high vulnerability to private wells for residents along Shewville Road.

Kirmmse said agricultural lands, private wells and ponds, lakes and wetlands are most vulnerable to extreme drought.

To protect ponds, lakes and wetlands, communities could implement “green infrastructure” that helps recharge water and create conditions that allow soil to retain water and slowly release them into wetlands, lakes and ponds to keep water levels higher during drought, she said. Communities also could create buffer planting zones to reduce an influx of sedimentation into the water, so they retain a certain depth that protects them during periods of extreme heat and less rainfall.

Potential solutions to protect agricultural lands include growing appropriate crops, managing soil and capturing and reusing rainwater on crops.

Chelsea Zakas, environmental planner with Fuss & O’Neill, said areas most vulnerable to extreme heat include Ledyard High School, cold water fish habitats, Olde Mistick Village and the Eastern Pequot Tribal Nation.

She explained that exposure to heat didn’t play the biggest role in determining vulnerability, as assets serving vulnerable populations, such as schools or nursing homes, have a higher sensitivity to extreme heat.

Pointing to Olde Mistick Village as an example, she said the major commercial area off of Interstate 95 has a lot of area covered with parking and buildings, which creates a very hot spot.

Zakas said potential solutions to mitigate heat include reducing pavement, adding more trees and vegetation to provide shade, and installing “cool materials or infrastructure,” such as alternative pavement that is cooler than hot, dark asphalt.

Zakas also highlighted that the Eastern Pequot Tribal Nation is an example of how it’s important to take into account people’s lived experiences. She said the area shows up on the

map as having little to no exposure to extreme heat due to the amount of trees and reduced amount of impervious surfaces. But, in fact, extreme heat across the watershed has a cascading impact on resources impacting the tribal nation. For example, cultural traditions are being impacted as extreme heat increases water temperature, reduces water quality and impacts fish populations and other biodiversity — overall affecting the ability to fish in waters that have been relied upon for centuries.

Potential solutions, she said, could be seeking pathways for funding and a community cooling center.

Lynn Rae, senior environmental scientist with Fuss & O'Neill, said climate change is intensifying existing water quality stressors.

Private wells, already impaired or stressed waterbodies, such as Williams Brook and Long Pond, and the estuary system are most vulnerable to water quality risks, Rae said.

Potential solutions to help protect wells include expanding well testing and public awareness, increasing funding for treatment and upgrades, protecting groundwater recharge areas, and planning for backup water options in higher-risk areas.

Solutions for stressed waterbodies include restoring buffers, improving stormwater controls in developed areas, managing water levels, and improving septic systems in more sensitive areas, she explained.

To protect the estuary, solutions could be to reduce nutrients from septic and stormwater sources, upgrade septic systems, restore wetlands and buffers, and coordinate management of the watershed.

Kirmmse said overall the Mystic River Watershed is currently relatively resilient to climate risk, as it is largely covered in impervious conditions and has a good deal of forest. Much of the watershed is also outside of flood zones. She said the study shows those systems need to be protected to weather an increase in climate-driven impacts.

She said the study also points out that as exposure to climate hazards increase — with flooding, extreme heat, and drought all on the rise — the natural systems that provide resilience in the watershed will eventually be overwhelmed. Unless they are strengthened, they will have diminishing capacity to help manage the effects of climate risk, and many watershed assets will experience increased vulnerability.

Those vulnerabilities would then cause cascading effects resulting in an increased vulnerability to drought, wildfire, and a higher frequency of invasive species, harmful insect infestations, and health issues for people, she added.

The next step after the assessment will be more community engagement, planning and looking at the recommendations to create a Watershed Regeneration Action Plan, a comprehensive watershed care plan with holistic community solutions, said Favretti. That initiative is partially funded by a Long Island Sound Futures Fund grant, but the alliance is fundraising for community, multi-generational engagement and learning.