



Figure 1: A ghost dam in a ravine, Central New York. This dam at an old summer camp no longer serves a purpose, but manages to retain sediment behind the remaining standing wall. Photo: Roy Widrig.

A ghost dam is a small, often forgotten or undocumented dam that is not in any state or federal dam inventory. These dams are typically found in the headwaters of small streams, often on private land. They were likely built many decades ago for farming, milling, or irrigation and have long since outlived their original purpose. Ghost dams are rarely inspected for safety and typically fall into disrepair, yet they continue to affect stream ecosystems and water quality while increasing flood risk.

Common examples of where ghost dams can be found include small mill ponds, farm ponds, and narrow stream valley impoundments. In some cases, ghost dams persist on the landscape for centuries, blocking streamflow and altering habitats. Natural obstructions like large woody debris (LWD) and ice jams may cause some similar disruption to the functioning of streams, but their time on the landscape is much shorter, succumbing to erosion or destruction during large rainfall events.

All dams in New York State are regulated, whether they are inventoried or not (Environmental Conservation Law 15-0507.) Dam owners must operate and maintain their dam, and all appurtenant works, in a safe manner at all times.

Ghost Dam Impacts

Even though ghost dams are small, they can have big impacts.

- **Stream Hydrology:** Natural stream processes are dynamic. Dams alter natural stream processes by slowing water and trapping sediment, leading to long-term stream degradation.
- **Water Quality:** Slower-moving water warms more easily, which can reduce dissolved oxygen, promote weed growth, and increase the accumulation of pollutants.
- **Ecosystem Connectivity:** Ghost dams often block fish and wildlife movement. In a recent study, some ghost dams in New York measured over 4.5 meters in height — tall enough to stop most aquatic species from moving upstream¹.

- **Flood Risk:** Many ghost dams are over 2 meters tall, lack proper spillways, and were not designed for today's larger, more frequent storms. Their risk of failure during extreme weather is significantly greater than that of large dams^{1,2}, and can lead to flash flooding downstream.
- **Legal Liability:** As unregistered and unmaintained structures, ghost dams can present a legal liability to their owners. In the event of failure, downstream damage of property, habitat, or infrastructure can occur, as well as the increased possibility of recreational accidents.

Black River Watershed Case Study

Recent studies by the New York State Water Resources Institute (WRI) at Cornell University and New York Sea Grant have shown that many ghost dams exist across New York State. For example, studies in the Black River and Hudson River Watersheds suggest that there are 50 to 94% more dams than there are represented by existing dam inventories³. This striking disparity highlights the scale of the issue and the need for better monitoring and management.

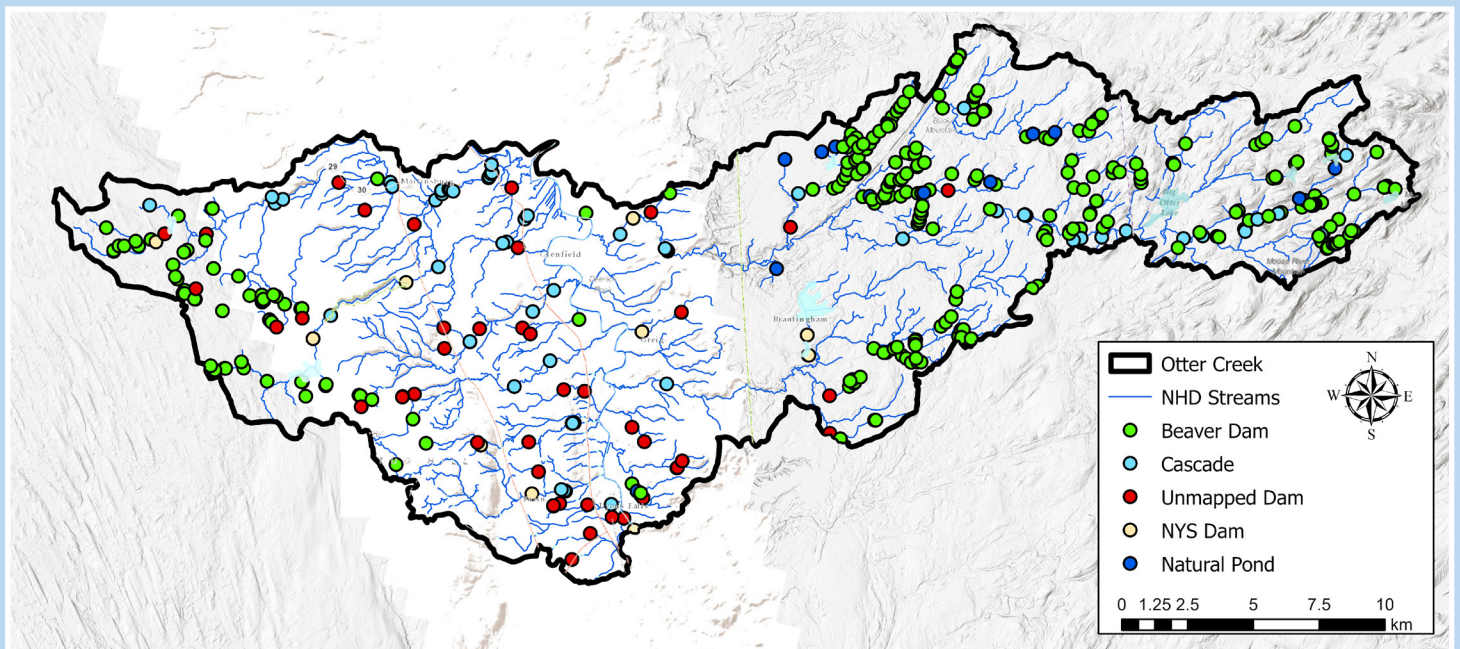


Figure 2: An analysis of dams within the Otter Creek subwatershed of the Black River in New York. Red dots represent previously unmapped dams. Image: Brian Buchanan, New York State Water Resources Institute at Cornell.

Ghost dams are generally found within small stream channels. They do not impound large bodies of water, but this does not make them exempt from hazards.

- **Dam Failures** – Ghost dams often lack safety inspections and routine maintenance, leading to long-term loss of stability and an increased risk of dam failure.
- **Flooding** – Without water control structures, ghost dams are incapable of regulating water flow during times of heavy precipitation and runoff. Potential for overtopping and failure is enhanced during extreme storm events.
- **Legal Issues** – Negligence and lack of maintenance can lead to dam failure, creating a liability for the owners of the dams.



Figure 3: An abandoned beaver dam (estimated to be 2-3 years old) on a small creek. Beaver dams gradually deteriorate and become a part of the landscape. Ghost dams however, can obstruct streams over a hundred years after their original construction and need human intervention to be completely removed from the landscape. Photo: Roy Widrig.

Options for Ghost Dam Owners

If you've discovered a ghost dam on your property, there are management options available.

1. Maintain It

- Keep the structure in place with regular inspections and upkeep.
- Highlighted Resource: **NYSDEC – Information for Dam Owners** (bit.ly/NYSDECInfoDamOwners)

2. Remove It

- Removal can restore stream health and reduce liability.
- Highlighted Resource: **American Rivers - Removing Small Dams** (bit.ly/ARRemoveSmallDams)

3. Do Nothing

- While it may seem easiest, unmaintained ghost dams pose growing safety and legal risks.
- Highlighted Resource: **Low-head Dams: Status and Legal issues** (bit.ly/LowHeadDamIssues)

Resources for Dam Owners

These options represent a large range of both financial and physical effort, but resources are available to dam owners in New York State.

Dam Safety - NYSDEC

bit.ly/NYSDamSafety

Low Head Dam Safety - American Rivers

bit.ly/lowheaddamsafety

Living with Dams: Know Your Risks

bit.ly/LWDKnowYourRisks

For all of the information in this document, resources and case studies on Dam Safety, please visit the **Dam Safety in the Northeast and Great Lakes StoryMap** at bit.ly/NEandGLDamSafety or use the QR code below.



¹The New York State Dam Inventory is located on the New York State Department of Environmental Conservation DECinfo Locator at bit.ly/GLDamSafety

²National Research Council, 2012. Dam and levee Safety and Community Resilience: A Vision for Future Practice. bit.ly/DamLeveeSafety2012

³Dam Safety in New York, New York Sea Grant & Water Resources Institute, 2024. bit.ly/2024DamSafetyNY

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