



# Musconetcong River News

**Special Edition**

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Asbury, New Jersey

## Removing Dams on the Musconetcong - *A concise history of dams on the Musconetcong and the rationale for working toward a free-flowing river*

*By Bill Leavens*

All but two of the dams on the Musconetcong were built more than a century ago to provide cheap power that was not available from any other source. Before rural electrification there was a need to run large machinery for industrial and agricultural processes. Most of the dams powered machinery used in mills that turned raw materials - food grains and trees - into things that people needed - corn meal, flour and dimensional lumber.

At first waterwheels were used to drive shafts attached by elaborate systems of gears and more drive shafts and belts to spin mill stones that ground grain. Other belts drove bolters, sifters, bucket elevators and equipment to move in-process and finished material through the mill. As technology and metallurgy advanced, water powered turbines were introduced which

*The first notch was cut in the Gruendyke Mill dam on March 13, 2008. For the following three months, no work was done in compliance with a regulation that prohibits work from March 15 through June 15 in trout stocked waters.*



operated far more efficiently to power the large tools of commerce.

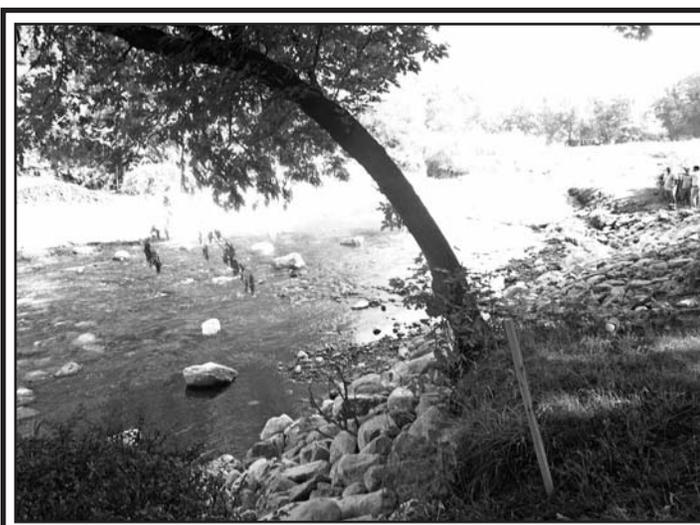
After the turn of the 20th century, electricity or gasoline powered engines adapted from automobiles were used to run the machines. The mills stayed

where they were next to the dams on the banks of the river because the mill buildings and equipment represented a substantial investment to the owner. But the dams became obsolete as electricity and Model T gasoline engines were incorporated to run mill processes.

With the exception of two Musconetcong dams used to generate electricity to run Riegler Paper (later Fibermark) operations in Warren Glen, the rest of the dams have been obsolete for six or more decades. We don't need them anymore.

Dams and the pools behind them still make a pretty scene to the casual observer with geese floating about amid lovely purple loosestrife flowers and the phragmites that look like feathered cattails. That lovely scene reveals a local environmental mess. When the dam was built it created an artificial

*Continued on page 2*



*In August, with the dam completely removed, the river begins to find its natural channel. There is still much restoration work to be done. See "Musconetcong River Restoration Efforts Continue" on page three.*

# Removing Dams

*Continued from page 1*

pool that changed the local landscape. Native plant, fish and bird species lost their natural home. The pool of standing water created by the dam replaced wetlands, river banks and marshes that could no longer support the flora and fauna that formerly thrived there. Removing the dam is the first step in restoring the natural environment.

The immediate problem with dam removal is that people who have grown up with a certain vista and soundscape don't like to see it change. We are sensitive to this if only because it seems to be the main reason behind public resistance to dam removal. We will have sufficient experience from removing the Gruendyke and Seber dams in Hackettstown that we believe we can present a burbling stream view that anyone will love. One way to envision how 'upstream' will appear when a dam is removed is to look 'downstream' at the rills and riffles of a natural ecosystem.

Fortunately for the MWA, there are many property owners that are quite happy to work with us to remove these obsolete dams. Many dam owners are eager to remove their dams and erase a potential liability in the event of a dam failure during a storm event which causes flooding down stream. That is what motivates dam owners. In at least two cases that we are handling now, the dam owner would like to put the land into preservation programs that will provide public access. These preservation programs will not accept the property with the dams in place - they don't want the liability either. The end product of these MWA assisted removals will be more public access to the Musconetcong River for fishing, paddling, hiking and birdwatching.

For our part, MWA is most concerned with maintaining and improving water quality. Removing the twenty or so obsolete dams on the Musconetcong is one way to achieve that. Water pooling behind a dam creates an unnatural ecosystem that attracts non-native plant life. The

pools also allow water to heat significantly and that discourages fish breeding and migration. Sediment that quickly fills the pools can contain industrial and agricultural toxins which would normally be flushed down river and diluted. The heating of standing river water in a pool also promotes the growth of algae and other biological processes that remove oxygen from the water.

At the end of our dam removal adventure, we will have a river that has the highest possible water quality. Kayakers and canoeists will enjoy safe passage with the elimination of portages and treacherous hydraulic holes below the dams. Fishermen will enjoy a greater variety of native fish to catch, possibly including shad. And the Musconetcong will be just as pretty and sound as tranquil as it does today. The Musconetcong qualified for Federal 'Wild and Scenic' designation just as it is now, with the dams intact. It will be even wilder and more scenic when it is allowed to flow freely. ☺

## MUSCONETCONG WATERSHED ASSOCIATION

**908-537-7060**

[www.musconetcong.org](http://www.musconetcong.org)

### *Trustee Officers*

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Vice President, Kim Hood  
Secretary, Bill Harclerode  
Treasurer, Peter Banta*

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*Printing: Good Impressions, Washington, NJ*



*For the most part, the consequences of damming our rivers are invisible. High temperature, concentrated pollutants and lower oxygen degrade aquatic habitat. But removal of the Gruendyke Dam revealed something very visible that we could not have imagined - hundreds of tires and a truck load of other debris. Here MWA Trustee Peter Banta and MWA member Loretta Gomez with shovels are assisted by Trout Unlimited members and other volunteers in an emergency clean up held in June.*

# “River Restoration: What Happens After Dam Removal”

by *Tim Dunne, NRCS*

Work on restoring the natural hydrology, vegetation, fish and wildlife of the Musconetcong River has continued on the Gruendyke Mill Dam throughout the summer of 2008. The dam, just above Route 46 and near the Pump House Restaurant in Hackettstown, came crumbling down in July. A small notch was cut in the dam in March 2008 by contractor John Harrington. Work was suspended during the trout stocking season. When work resumed, the contractors made quick work of the dam removal and new stream channel construction.

Two large rock weirs were installed under the watchful eye of project partners Princeton Hydro, the USDA Natural Resources Conservation Service (NRCS), the Musconetcong Watershed Association (MWA), the NJ Division of Fish & Wildlife, the US Fish & Wildlife Service (FWS) and Trout Unlimited (TU). Others contributing funds and assistance to the dam removal effort included Warren County Municipal Charitable Trust Fund, Morris County, the town of Hackettstown and the NJ Federation of Sportsman’s Clubs

The Gruendyke Dam removal is part of a comprehensive restoration effort underway throughout the watershed and was spearheaded by the dam’s owners Rodger and Eileen Cornell, MWA and engineering and environmental consultants Princeton Hydro of Ringoes, New Jersey. NRCS provided much of the funding for the project through the Wildlife Habitat Incentive Program. NRCS and other project partners have recently provided additional funds for restoration

efforts in several other locations along the river. Fish passage, ecological restoration, riparian corridor establishment, and water quality are the focus of the restoration efforts. American Rivers and National Oceanic and Atmospheric Administration (NOAA) have joined the effort with funds to study dam removal in the Lower Musconetcong near the confluence with the Delaware.

TU volunteers, conservation organizations and agencies were rallied for an enormous trash clean up when the Gruendyke Dam removal first revealed tons of tires and other debris that had accumulated behind the dam for decades. TU’s Brian Cowden led the cleanup effort that pleased dam owners. The Cornells own the Pump House restaurant located at the dam, they served up lunch for the volunteers.

With the water level behind the dam lowered, NRCS has surveyed the mud flats and sandy stream banks in preparation for a fall riparian tree/shrub planting project. The North Jersey Resource Conservation and Development Council, the FWS and TU are funding the riparian restoration effort. About 300 trees/shrubs will be planted on two acres this September. Some invasive exotic plants such as purple loosestrife and phragmites will be removed prior to planting. Native trees and shrubs such as American sycamore, river birch, silver maple, shrub dogwoods and more will be planted by volunteers from several schools and local organizations. Watch closely in coming years as you travel through Hackettstown to see the continued restoration of the Musconetcong River. ☺



## NRCS MEETING

*Musconetcong River Restoration Partner Meeting, June 23, 2008 - From center counter clockwise: Tim Dunne, USDA NRCS, Bethany Bearmore, NOAA Restoration Center, Linda Peterson USDA NRCS, Eric Schradin U.S. Fish and Wildlife Service, Bill Leavens MWA, Paul Kenney National Park Service, Fred Schoenagel, USDA NRCS, Darin Shaffer, NJ DEP Dam Safety, Brian Cowden, Trout Unlimited, Geoff Goll, Princeton Hydro, LLC, Jim Wick, USDA NRCS, Pat Hamilton, NJ Division of Fish and Wildlife, Greg Westfall, USDA NRCS.*

*Present but not in photo: Beth Styler Barry, MWA Christine Hall NRCS/RCD, Chris Smith, USDA NRCS.*

# Dam Removal on the Musconetcong: a TU Perspective

By: Brian Cowden

It has certainly been exciting to work with the MWA on the recent removal of the Gruendyke Mill Dam on the upper river! With the Seber Grove Dam next and the lower-most dam, Finesville, after that it seems that momentum for dam removal is alive and well in the Musky watershed. From the perspective of Trout Unlimited (TU), dam removal means several things. First, it allows for fish passage above and below the old dam structure. Currently, none of the Musky dams have fish passage devices installed so they remain a complete barrier to fish passage. That includes not just trout, but white suckers, river herring, shad and other bait species as well as American eels. Second, dam removals allow for the elimination of the upstream pond or lake which then cools the river back down, allowing for a healthier ecosystem. Trout require water temps below 70 degrees (F) to thrive and will die at temps in the upper 70s depending on the amount of dissolved oxygen and other factors that stress trout. The third aspect to dam removal is to allow sediment to move freely downstream. Dams prevent much of the sediment from moving naturally downstream, this sediment is essential to giving life to aquatic plants, insects and the entire life cycle in the river.

The Musky has nearly 20 dams of varying sizes and conditions on its mainstem and tributaries. Some of these dams are here to stay - Lake Hopatcong for example. Others are partially self-breached - the East Ave. Dam at the Hackettstown and Washington Twp. (Morris) border for example. TU is excited to build on our partnership with the MWA in reaching out to all of the various dam owners to gauge interest in removals. We have done some of this work

already and will intensify our efforts now that the Gruendyke dam is gone and we have a nice success story (with pictures!) to show off.

Dam removal is a part of Trout Unlimited's strategy to protect native and coldwater fish. The four pillars of the strategy are to 1) Protect the highest quality trout and salmon habitat, 2) Reconnect high quality habitats with restored areas downstream through dam removal and the augmentation of instream flows, 3) Restore degraded habitats so that they again support healthy trout and salmon, and 4) Sustain progress by educating and motivating a future generation of environmental stewards.

As a result of the MWA's hard work and effort to remove Gruendyke, TU is learning about other dams on other rivers where owners are now interested in working with us and the local watershed associations (where they exist) to remove additional old dams and restore the river. One of these is a large dam on the upper South Branch of the Raritan River. This would not have been possible without the high profile removal of Gruendyke on the Musky. To quote my friend and the MWA's own president, Bill Leavens, "Remove the dams and let the river flow free!"

*Note The author is Trout Unlimited's Musconetcong Home Rivers Coordinator. TU's Home Rivers projects are collaborative multi-year efforts that combine scientific and economic research, community outreach, on-the-ground restoration, and the development of long-term conservation and management strategies and tools. For more information on New Jersey Trout Unlimited including its many member websites, visit [www.njtu.org](http://www.njtu.org)*



The author Brian Cowden, third from the left, attends a meeting to discuss the Finesville Dam. There to discuss the "big picture" of river restoration on the Musconetcong were Geoff Goll, Princeton Hydro, LLC, Paul Kenney National Park Service, Stephanie D. Lindloff, Director, Restoring Rivers Initiative American Rivers, Beth Styler Barry, Executive Director MWA and MWA President Bill Leavens (not pictured).

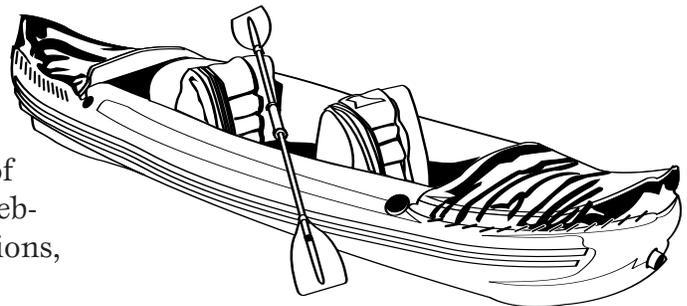
# SAVE THESE DATES!

**Sunday, September 28, 2008 1:00 p.m. - 4:00 p.m. 6th Annual MWA Wine Tasting** Enjoy an excellent selection of domestic and imported wines at this outdoor event held at the Musky Trout Hatchery at 279 Asbury-Bloomsbury Road (Route 632) in Asbury. Wine expertise is provided by Perryville Wine and Spirits, live music by Jam-bone, delicious finger foods prepared by Milford Market, and fall foliage and river views are provided by Mother Nature. Tickets are \$25.00 and can be purchased online or at the door. Please contact [beth@musconetcong.org](mailto:beth@musconetcong.org) or call (908) 537-7060. Non alcoholic beverages will also be available. Rain or shine, we'll be under a pavilion.

**Saturday October 4, 2008 10:00 a.m.- 1:00 p.m. Cold Water Paddling Class** "Paddling The Musconetcong River - Everything You Need To Know About Canoeing And Kayaking A National Treasure" The Musconetcong Watershed Association invites you to participate in an interactive short-course designed for both novice and experienced paddlers who would like to know where and when to paddle the "Musky", what to seek out, and what to avoid altogether. Join river advocate, avid paddler and former MWA Executive Director John Brunner for a virtual tour down the Musconetcong River as he shares his nearly two decades of studying, photographing, writing about and of course, canoeing his favorite waterway. Brunner is the Chair of the Delaware Valley Division of the American Canoe Association and serves on the American Canoe Association's National Board of Directors.

**Saturday October 11, 2008  
10:00 a.m. - 3:00 p.m. Paddling Trip**

Join the MWA as we take advantage of good paddling conditions of the 5-foot draw down of Lake Hopatcong details to be announced on the website. We are working out the details for locations, check [www.musconetcong.org](http://www.musconetcong.org) soon.



**Saturday October 18, 2008 10:00 a.m. - 3:00 p.m. Paddling Trip** See above.

**Sunday October 19, 2008 10:00 a.m. - 3:00 p.m. Paddling Trip** See above.

**Saturday October 25, 2008 10:00 a.m. - 3:00 p.m. Paddling Trip** See above.

**Note:** If you are not receiving e-mail reminders for these events it means that we do not have a current e-mail address. If you'd like to receive reminders and occasional "Musky News Briefs" please contact [beth@musconetcong.org](mailto:beth@musconetcong.org).

Save These Dates

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Asbury, NJ 08802

PO Box 113



### The Musconetcong Watershed Association

The Musconetcong River Valley is rich in scenery, history, natural resources, and recreational opportunities. The river rises up in Lake Hopatcong - New Jersey's largest spring-fed lake - and shadowed by 1,000 foot Highland ridges, it slices through a deep limestone river valley, flowing swiftly to the Delaware River. Along the way the "Musky" passes by state and county parks, bustling towns and vital industries, historic villages, and some of the most productive farmland in the state.

The Musconetcong Watershed Association (MWA) is a non-profit organization formed in 1991 to protect and enhance the Musconetcong River and its related resources through advocacy and environmental education programs, scientific research and river restoration projects. The MWA scope spans the 158 square mile Musconetcong River Watershed, and includes portions of four counties, and all or portions of 25 municipalities.

MWA members are part of a network of individuals, families and organizations who care about the Musconetcong River and its watershed. They are kept informed about issues concerning the river and its related resources by receiving quarterly issues of the *Musconetcong River News*.

### MWA Membership Application

Please enroll me as a member of the Musconetcong Watershed Association in which I will receive membership benefits and publications. I have enclosed a check payable to **MWA** for the membership category listed below:

- \$20 Student
- \$30 Family
- \$50 Supporter
- \$100 Steward
- \$500 Champion
- \$1,000 + Life

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

*Mail to:*

**Musconetcong Watershed Association**

PO Box 113, Asbury, NJ 08802