WARREN COUNTY SOIL & WATER CONSERVATION DISTRICT

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Lake George Basin Reservoir and Sediment Basin Cleanout Program

2007

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Introduction

Sediment being transported through streams is a natural process. However, development such as housing, infrastructure, logging and other such activities can have an influence on the amount of sediment and erosion that occur in a watershed. Various efforts have been and are currently underway through the various management partners to address these land use issues. However, as this sediment continues to be carried through the tributaries, it eventually settles out at the outlets of these streams creating numerous large deltas in Lake George. Deltas can impede fish migration, and act as bedding areas for nuisance aquatic species, hinder recreational activities, and negatively affect lakefront homeowners and their docks.

The Lake George Reservoir and Sediment Basin Cleanout Program addresses suspended sediment by the concept of slowing the stream velocity to a point where sediment will drop out of suspension and be captured in a basin within the stream, prior to it reaching Lake George. Once this material has settled to the bottom of the channel it can be removed on a regular basis with excavation equipment and proper dewatering techniques. These efforts are largely undertaken on private property, with the full consent and involvement of the landowner, the NYS Department of Environmental Conservation (DEC), the US Army Corps of Engineers, and the local municipalities.

This program is viewed as a cost-effective means to keep in-stream sediment from reaching Lake George and adding to the delta problem. These efforts go hand-in-hand with upland protection efforts, and are not meant to supplant these important upland restoration and protection initiatives.

This report provides a brief narrative of each reservoir and sediment pond cleaned out in 2007. A Geographic Information System (GIS) map showing the location of each basin and the amount of sediment removed in 2007 is attached to this summary.

Program Funding

This reservoir and sediment pond maintenance program is cost-shared as 50% state funding and 50% local funding. State funding for this is provided by the Lake George Watershed Conference, utilizing funds from the NYS Department of State. Local funds are provided through force account labor and machinery provided by the highway departments of the Town of Lake George, the Village of Lake George, the Town of Bolton, the Town of Hague, and the Warren County Soil and Water Conservation District.

Hubble Reservoir

Hubble Reservoir, located on a tributary of English Brook off of Big Hollow Road in the Town of Lake George is a man-made reservoir with both a concrete and stone/mortar dam and concrete sidewalls. The land that the reservoir is on is owned by New York State, but the dam structure and water rights are owned by the Village of Lake George.

This reservoir was last maintained in 2001and has effectively captured sediment that would otherwise have accumulated in Lake George. Because of the geographic location this reservoir is difficult to dewater. Therefore Town of Lake George installed a temporary piping system to route the stream around the reservoir during excavation. Following dewatering activities, the sediment was then excavated and removed.

Hubble Reservoir, Town of Lake George - English Brook

This was a cooperative effort between the Warren County SWCD and the Town of Lake George, and funded through the Lake George Watershed Conference. By excavating as much sediment and material as possible from this basin (approximately 1400 cubic yards), it once again had the capability of slowing flow and collecting in-stream sediment.

Ore Bed Reservoir, Town of Lake George - West Brook

Ore Bed Reservoir

Ore Bed Reservoir is located within the West Brook watershed above the location of the Lake George transfer station, and is owned by the Village of Lake George. Ore Bed is dewatered with the use of an off-line ditch adjacent to the reservoir. This ditch is lined with stabilization fabric or plastic liner in order to support the stream flow, which is then blocked and diverted into this ditch; eventually outleting back into West Brook below the reservoir.

Once the stream is diverted, the water in the reservoir is either pumped out or released with the sluice gate at the bottom of the dam.

Following dewatering, a long-reach excavator excavated the material directly into trucks which haul the material away. As the reservoir is adjacent to the landfill and transfer station, the excavated material was deposited there. Approximately 200 cubic yards sediment was removed from this basin in 2007.

Gage Brook Reservoir

Gage Brook Reservoir is an old water supply reservoir on West Brook, located off of Prospect Mountain Highway in the Town of Lake George. Like Hubble Reservoir, the land upon which Gage Brook Reservoir sits is owned by the State of New York, but the dam and water rights are owned by the Village of Lake George.

Gage Brook Reservoir, Town of Lake George
- West Brook

This reservoir is located on West Brook at the confluence of West Brook and Gage Brook, just upstream of the Northway. It is located approximately three quarters of a mile downstream of Ore Bed Reservoir, on the same stream. Even with this large reservoir upstream, Gage Brook Reservoir still captures a significant amount of sediment and debris on an annual basis. This reservoir has been the most consistently maintained under this sediment basin program, due to the speed at which it fills with sediment and the relative ease of cleaning it out. This year alone approximately 450 cubic yards of sediment that would have made its way to Lake George were removed.

Artist Falls Sediment Basin

Artist Falls reservoir/sediment pond is on Finkle Brook in the Town of Bolton, located just off Valley Woods Road. Like most of the other major tributaries to the lake, a large delta exists as evidence of a large sedimentation problem associated with Finkle Brook.

For this cleanout, the stream is routed around the basin back into the old stream channel during excavation. This minimizes impacts to the stream from turbidity and potential erosion during cleanout activities.

The in-stream sediment basin collected approximately 100 cubic yards of sediment since its last cleanout in 2005.

Artist Falls Reservoir 2007, Town of Bolton
- Finkle Brook

Woodshire Sediment Pond

This pond is located on a small tributary to Finkle Brook on private property known as Woodshire Estates, just upstream of its confluence with Finkle Brook (approximately ½ mile upstream of Artist Falls).

Woodshire Estates Sediment Pond 2007, Town of Bolton - Finkle Brook

The water flowing into the basin was diverted with a large capacity pump supplied by the town and by passed through a small rock-lined settling basin. The culvert pipes were also secured with filter fabric to filter any excess water and sediment that was remaining before it reentered the stream.

Approximately 50 cubic yards of sediment was excavated from this basin in 2007. The last cleanout of this pond was in 2005.

Due to landowner issues, it is unlikely that this sediment pond will be cleaned out again in the near future.

Jenkin's Brook Sediment Basin 2007, Town of Hague

Jenkins Brook Sediment Pond

The Jenkins Brook Basin, located on property owned by the Cape Cod Village Association, was constructed in 2004 and maintained in 2005 and again in 2007.

The total volume of the basin is approximately 400 cubic yards, of which approximately 200 cubic yards of sediment was excavated in 2007. After excavation was completed the entire area was hydroseeded by the Warren County SWCD.

This basin has been shown to be tremendously effective in reducing the amount of sediment that reaches Lake George via Jenkins Brook, thereby reducing the growth of the delta at the mouth of the Brook. This, in turn, will greatly reduce the necessity of in-lake dredging and the relatively high costs associated with these efforts.

West Hague Road Basin (Hague Brook)

This in-stream sediment pond was constructed in 2006, adjacent to West Hague Brook Road along Hague Brook.

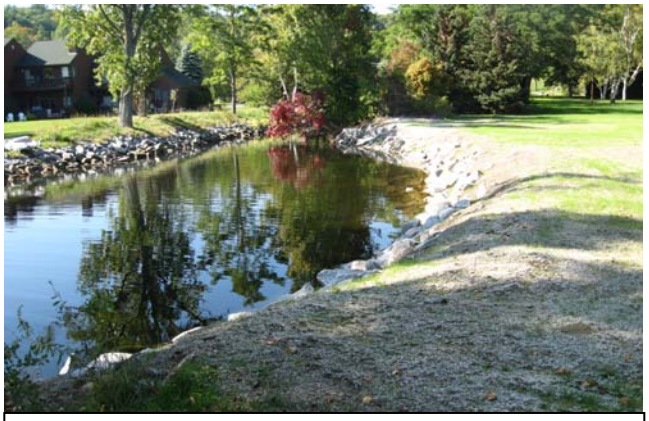
Much like the Artist Falls design, this basin is designed "off line", meaning that the basin is located next to the original stream channel and flow is routed into it. The streamflow is split between the original channel and the new channel, capturing approximately 50% of the flow. During dewatering the stream is diverted back into its original channel through the use of temporary dewatering devices that were installed when the basin was created. After the water was diverted the Town utilized two large pumps to draw down the remainder of the water until the basin was dry.

West Hague Road Sediment Basin 2007, Hague Brook Town of Hague

A 60-foot long reach excavator was utilized to dig the channel when the basin after the water was drawn down. When completed the channel was rerouted back to continue capturing the sediment again. Approximately 100 cubic yards of sediment were removed from this basin in 2007.

Land Conservancy Basin (Hague Brook)

Given the volume of sediment carried within Hague Brook, a new sediment pond was designed and installed adjacent to the outlet of the Brook into Lake George on LG Land Conservancy property. Land Conservancy permitted use of their land to build this 100' x 50' approximately 7-foot deep sediment basin. The basin was designed and overseen by Warren County SWCD, constructed by the Town of Hague highway department, and funded jointly by the Lake George Association and the LG Watershed Conference. It has the capacity to capture and store about 400 cubic yards of sediment that would otherwise reach the Lake. The cost of designing and constructing this new basin was approximately $15,000.

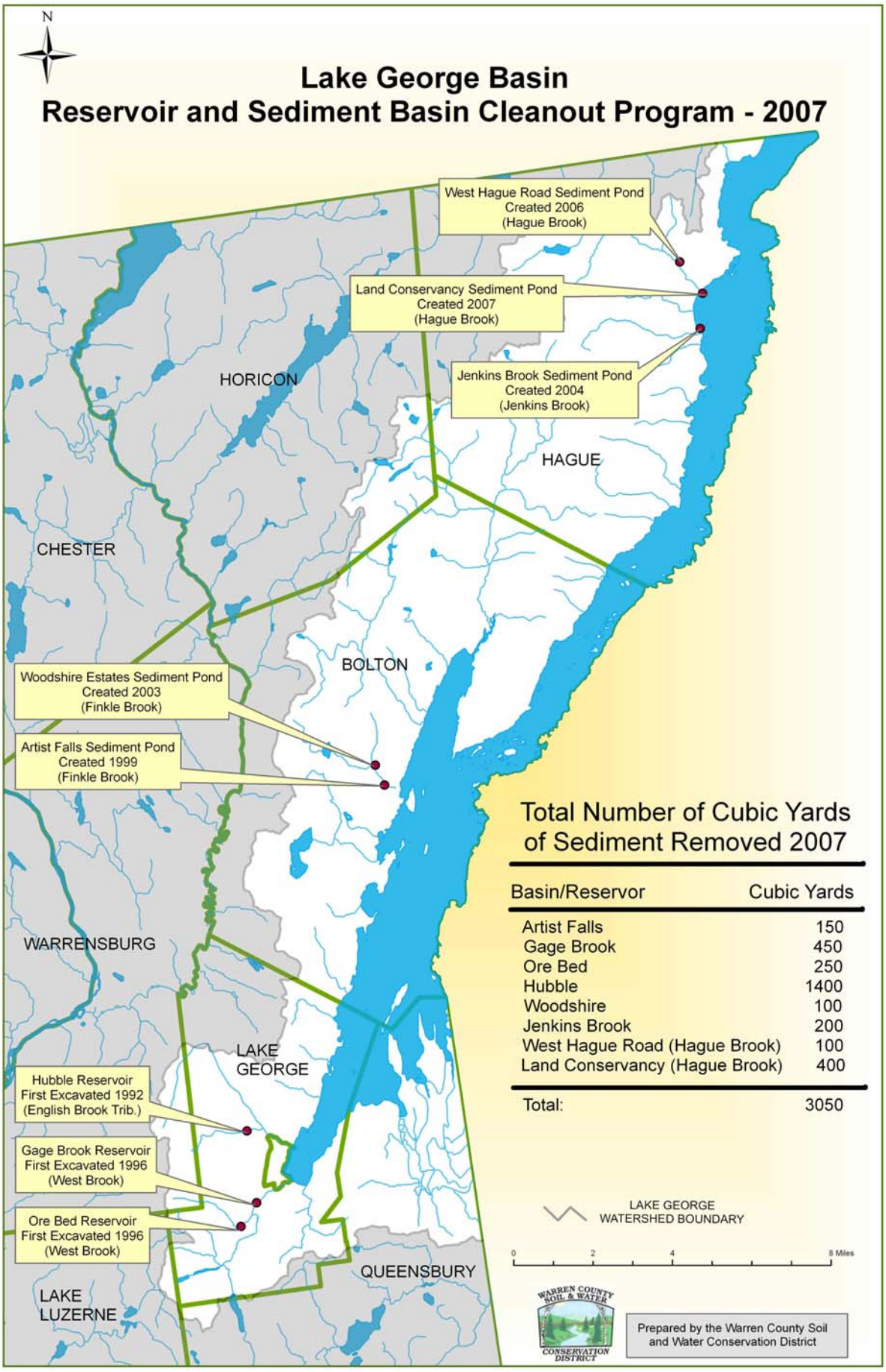


Land Conservancy Sediment Basin 2007, Hague Brook, Town of Hague

Conclusion

Through the cooperative efforts of the agencies, organizations and municipalities around Lake George, the Reservoir and Sediment Basin Program has been successful in capturing and removing many thousands of tons of sediment before it reaches the lake. In year 2007 alone, just over 3000 cubic yard of sediment were captured and effectively removed through this program.

Coupled with upland measures of protection this program has proven to be a proactive and cost effective way to slow the growth of deltas in Lake George. With continued maintenance these sediment basins and reservoir retention basins can keep excess sediment from reaching Lake George, protecting water quality, habitat, and recreational uses.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Lake George Basin
Reservoir and Sediment Basin Cleanout Program - 2007
West Hague Road Sediment Pond
Created 2006
(Hague Brook)
Land Conservancy Sediment Pond
Created 2007
(Hague Brook)
Jenkins Brook Sediment Pond
Created 2004
(Jenkins Brook)
HORICON
HAGUE
CHESTER
BOLTON
Woodshire Estates Sediment Pond
Created 2003
(Finkle Brook)
Artist Falls Sediment Pond
Created 1999
(Finkle Brook)
WARRENSBURG
LAKE
GEORGE
Hubble Reservoir
First Excavated 1992
(English Brook Trib.)
Gage Brook Reservoir
First Excavated 1996
(West Brook)
Ore Bed Reservoir
First Excavated 1996
(West Brook)
QUEENSBURY
LAKE
LUZERNE
Total Number of Cubic Yards
of Sediment Removed 2007
Basin/Reservor Cubic Yards
Artist Falls 150
Gage Brook 450
Ore Bed 250
Hubble 1400
Woodshire 100
Jenkins Brook 200
West Hague Road (Hague Brook) 100
Land Conservancy (Hague Brook) 400
Total: 3050
LAKE GEORGE
WATERSHED BOUNDARY
0 2 4 8 Miles
WARREN COUNTY SOIL & WATER CONSERVATION DISTRICT
Prepared by the Warren County Soil
and Water Conservation District