Brandywine Christina: America’s Most Historic Small Watershed

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Clean Water
A Bi-State Solution
May 3, 2018 | Mendenhall, PA
**Table 1.** Economic value of agricultural operations in Chester County, Pennsylvania. (Chester County Agricultural Development Council, USDA National Agricultural Statistics Service)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Economic Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy farming</td>
<td>$73 million</td>
<td>6th in PA</td>
</tr>
<tr>
<td>Horse farming</td>
<td>$5.2 million</td>
<td>22nd in U.S.</td>
</tr>
<tr>
<td>Nursery, greenhouse, floriculture</td>
<td>$79 million</td>
<td>1st in U.S.</td>
</tr>
<tr>
<td>Row crops</td>
<td>$8.7 million</td>
<td>7th in PA</td>
</tr>
<tr>
<td>Mushroom farming</td>
<td>$412 million</td>
<td>1st in U.S.</td>
</tr>
</tbody>
</table>
Glaciers melt
16,000 BC
Sea levels rise
10000 BC
Alluviating Streams
8000 BC
Vikings visit North America, Lief Erikson 1000 AD
New Sweden, first permanent European settlement in Delaware and Delaware Valley
1638 AD
Swedes settle at mouth of Christinakill 1638 AD
Opasiskunk
1683 AD
Brandy Wine flows into Christian Creek and the Delaware River 1687 AD
3 Lower Counties of Pennsylvania 1749 AD
Great Conestoga Wagon Road
1751 AD
“Nation Makers”
H. Pyle
Battle of the Brandywine
1777 AD
Villages
Tavernes
Batailles &
Skirmishes

New Yersey

Operations
Hessians at Unicorn Tavern

How the old Unicorn Inn might have appeared when the British and Hessian troops prepared to march to Chadds Ford for the Battle of the Brandywine. The Inn was the headquarters of Baron Wilhelm von Knyphausen when the Hessians camped in Kennett Square. (Oil on gesso painting entitled “Early Morning at Kennett Square, September 11, 1977,” by Barclay Rubincam and owned by Southeast National Bank.)
Greenbank Mill
Red Clay Creek
1790 AD
DuPont Mills
1802 AD

Lee, Mass. Nov. 3 - 1905

These blow up occasionally and then?

Powder Mill on Brandywine near Wilmington, Del.

Brandywine Falls are higher than Niagara Falls
Underground Railroad on the Christina River at Wilmington, Harriet Tubman 1830-1865 AD
Wilmington
1874 AD
Pusey and Jones Shipyard
1887 AD
Frederick Law Olmsted designed Central Park in NYC and Brandywine Park in Wilmington, Del. during the 19th century.
Brandywine Plant
1929 AD
Hoopes Reservoir
1931 AD
Christiana River Tunnel
1931 AD
Brandywine Conservancy conserves King Ranch 1984 AD
Brandywine Creek
1940 AD
Brandywine Valley Association, America’s first small watershed association, est. 1945 AD
Figure 3. Schematic of proposed Newark Reservoir and Christiana Reservoir (source: U.S. Army Corps of Engineers, 1960)
JFK signs DRBC Compact
1961 AD
Gov. Peterson signs Delaware Coastal Zone Act 1971
UD Water Conservation Campaign
1980s AD
Ten years of the program’s accomplishments accompanied by changes in anticipated usage of the creek led to requests for inclusion of these areas. Expanding stream designation within White Clay will extend and help safeguard historical, recreational, and natural resources in addition to protecting the river as a source of drinking water for future generations.

The legislation that designated the White Clay Creek and its tributaries in Delaware and Pennsylvania into the National Wild and Scenic Rivers System was introduced in 2000 Congress by Congressmen Michael Castle (DE) and Joseph Pitts (PA), and by Senators Joseph Biden (DE), William Roth (DE), Rick Santorum (PA), and Arlen Specter (PA). This legislation, P.L. 106-357, was passed by both houses of Congress and signed into law by President William Clinton on October 24, 2000.

Edward (Ned) W. Cooch Jr. provides a historical account of the Battle of Cooch’s bridge.
Newark Reservoir
2004 AD
Figure 23. Dedication of the newly opened Newark Reservoir on May 24, 2006, including (left to right) Assistant City Manager Carol Houck, Councilman Kevin Vonck, Councilman Jerry Grant, Councilman Karl Kalbacher, Former Mayor Ron Gardner, State Senator Joe Miro, Councilman David Athey (behind Miro), Mayor Vance Funk (back row, partially obscured), Councilman Frank Osborne, State Senator Liane Sorenson, Councilman Jerry Clifton, Lt. Gov. John Carney (third from the right), and City Manager Carl Luft (far right). (source: M. W. Wollaston, 2006)
Newark chartered in 1758 by King George II
250th Anniversary Parade
2008 AD
EPA Environmental News

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Report Shows Progress Exceeding Plans in Christina River Basin

(Philadelphia, February 5, 2009) – The U.S. Environmental Protection Agency announced today that the Christina River Basin Clean Water Partnership in Pennsylvania and Delaware has made significant progress in reducing pollution from stormwater runoff to the Christina River basin.

A recent report by the University of Delaware and the Delaware River Basin Commission shows that, throughout the past four years, the Partnership, with the assistance of a $1 million EPA grant, has implemented numerous projects to reduce the harmful effects of stormwater runoff pollution on drinking water supplies, recreation, fisheries, and wildlife.

For every federal dollar invested in the project, the Partnership leveraged more than two dollars, allowing them to exceed the original goals, some by more than 50 percent.

Table 15. Christina Basin Targeted Watershed Grant implementation project deliverables

<table>
<thead>
<tr>
<th>Task</th>
<th>Action</th>
<th>Original Deliverable</th>
<th>Final Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1C</td>
<td>PA Soil Conservation Practices</td>
<td>500 acres</td>
<td>&gt;725 acres</td>
</tr>
<tr>
<td>3.1D</td>
<td>PA Waterway Diversions</td>
<td>2,000 feet</td>
<td>2,250 feet</td>
</tr>
<tr>
<td>3.1E</td>
<td>PA Water Control Structures</td>
<td>4 structures</td>
<td>6 structures</td>
</tr>
<tr>
<td>3.1F</td>
<td>PA Stream Fencing</td>
<td>1,000 feet</td>
<td>8,025 feet</td>
</tr>
<tr>
<td>3.1G</td>
<td>PA Stream Reforestation</td>
<td>6,000 feet</td>
<td>9,148 feet</td>
</tr>
<tr>
<td>3.2</td>
<td>DE Streams, Rain Barrels</td>
<td>150 rain barrels</td>
<td>204 rain barrels</td>
</tr>
<tr>
<td>4.1</td>
<td>DE Stream Restoration/Reforestation</td>
<td>5,000 feet</td>
<td>8,920 feet</td>
</tr>
</tbody>
</table>
Wilmington’s Matt Miller receives BVA award 2011 AD
Woodlawn Trustees provide land for First State National Monument along Brandywine River, 2013 AD
Delaware Gets Its First National Monument

The National Park System finally reaches all 50 states.

2013 AD

By Brad Scriber, National Geographic News
PUBLISHED MARCH 27, 2013

Shortly after noon on Monday, with a declaration from President Obama designating the First State National Monument, the National Park Service welcomed Delaware into its fold for the first time. (Related: "Obama Declares Monuments to Preserve Pieces of U.S. Heritage.")

President Obama created the monument along with four other national monuments in an Oval Office ceremony alongside Vice President Joe Biden and Secretary of the Interior Ken Salazar, using powers designated under the Antiquities Act of 1906 to recognize historically significant
First State National Monument
2014 AD
Martha Narvaez Voted President-Elect of American Water Resources Association 2015 AD
America's Founding Fish

American shad - *Alosa sapidissima*
- Averages 14-29 inches

Hickory Shad - *Alosa mediocris*
- Averages 12 - 15 inches
"Sixteen Delicious, Buzzy
Craft Beers..."
Feb. 16, 2011
William Penn Foundation unveils Delaware River Watershed Initiative 2013 AD
Questions?