

Dam Buster

*Restoration of Anadromous Fish to the
White Clay Creek National Wild and Scenic River*

April 27, 2015

Earth, Equity, Environment Speaker Series
DENIN - UDISLL

Gerald J. Kauffman, Director
University of Delaware
Water Resources Center
Newark, Del.



Water Supply: The History of Newark's Life Source

by **Gerald J. Kauffman**

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University of Delaware**

**UNIVERSITY OF
DELAWARE**

Delaware River Basin



Christina River Basin



The University of Delaware is fortuitously situated on campuses ideally suited by hydrology and geography to study water resources.

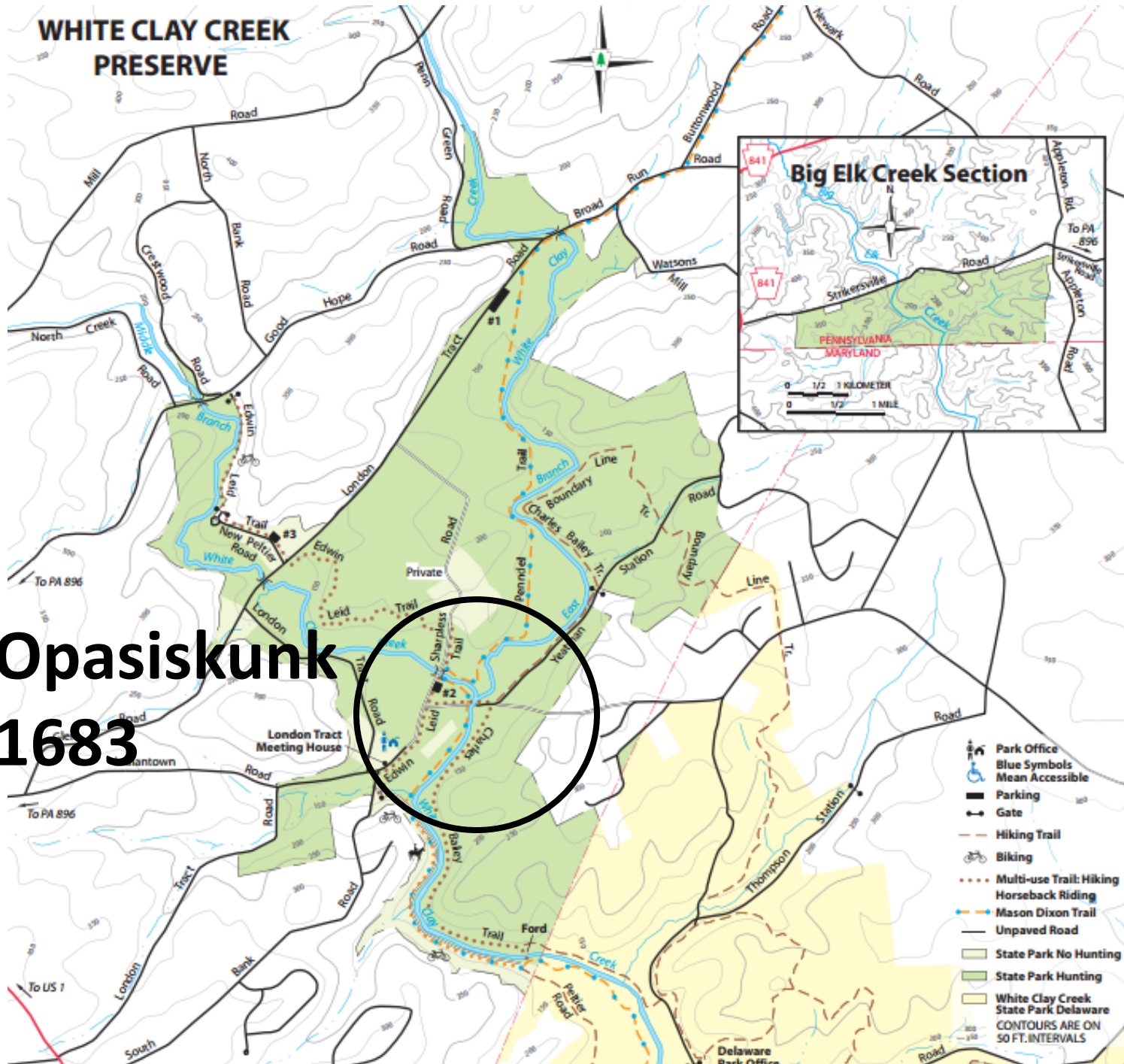


Figure 1. Map of Newark and environs (source: Water Resources Agency, Institute for Public Administration, University of Delaware*, 2008)

New Sweden 1638

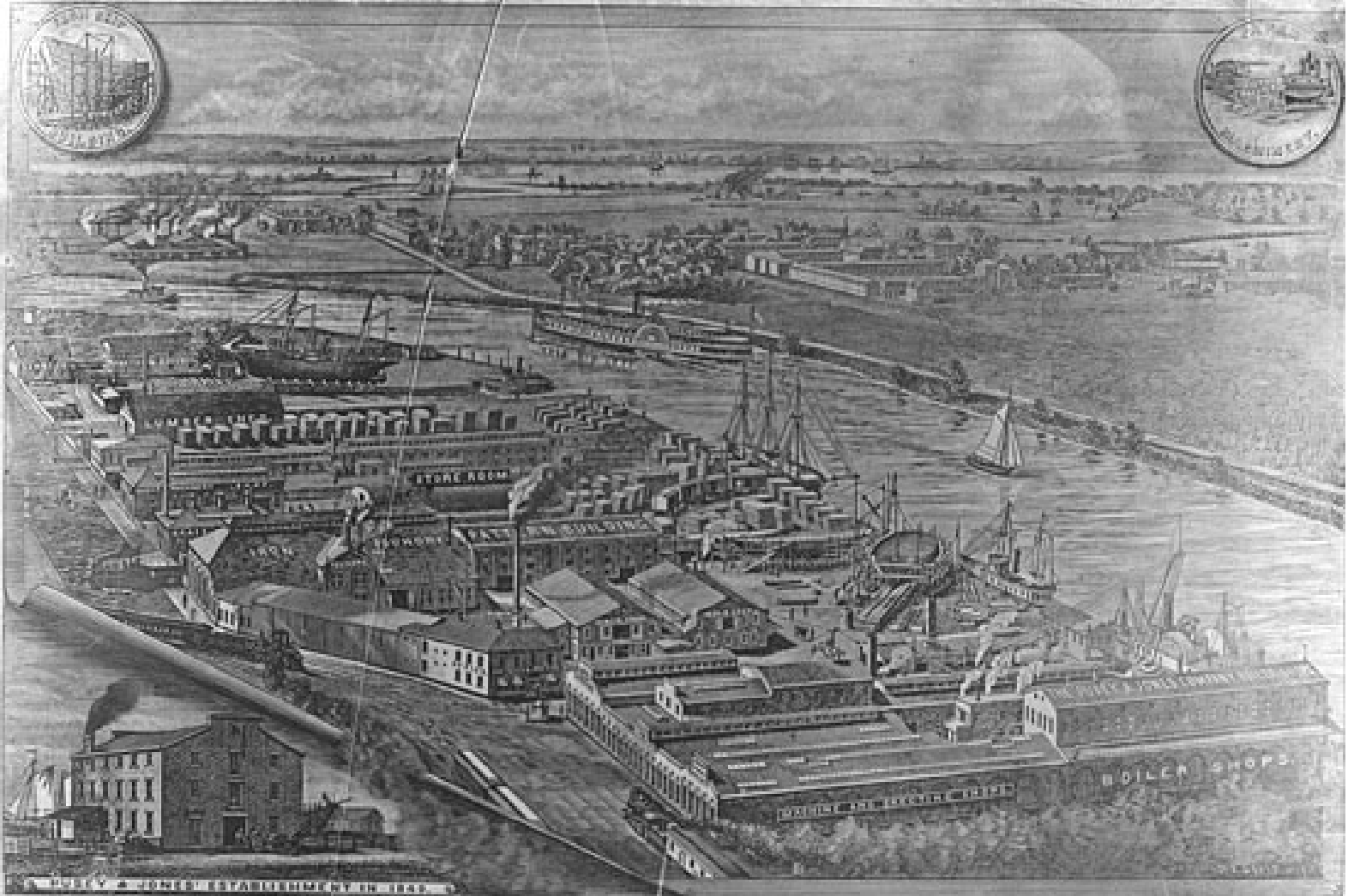


WHITE CLAY CREEK PRESERVE



Opasiskunk
1683

Pusey and Jones Shipyard 1887



View of the Works of
THE PUSEY & JONES COMPANY,
WILMINGTON, DELAWARE.

Christiana River Tunnel

1931



"It's quittin' time!"



CHRISTIANA RIVER TUNNEL
2nd SHIFT COMING OFF SEPT. 9-1931

Newark Reservoir

1960

6

Water Supply: The History of Newark's Life Source



Figure 3. Schematic of proposed Newark Reservoir and Christiana Reservoir (source: U.S. Army Corps of Engineers, 1960)

JFK signs DRBC Compact Nov 1961



Newark Reservoir

1967

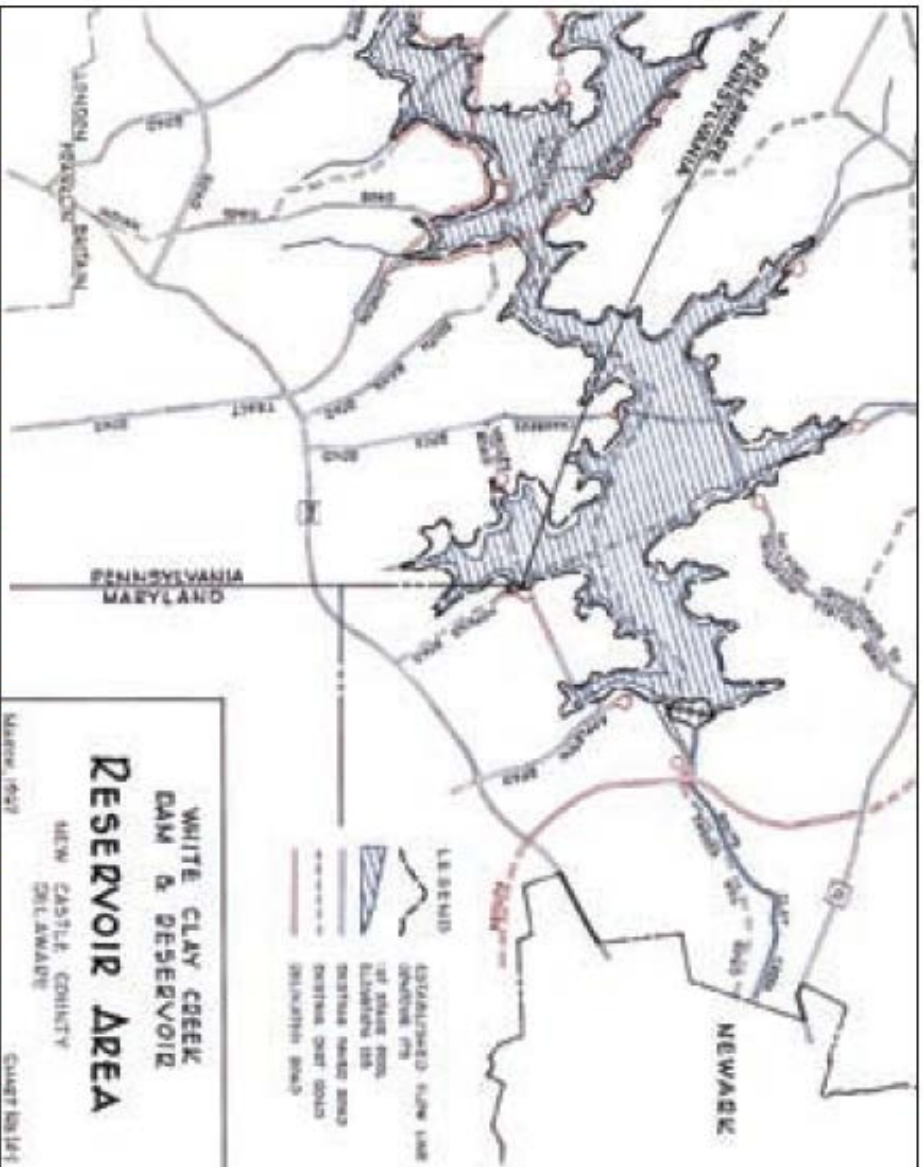


Figure 4. White Clay Creek main stream reservoir (source: Whitman, Regardt, 1967)

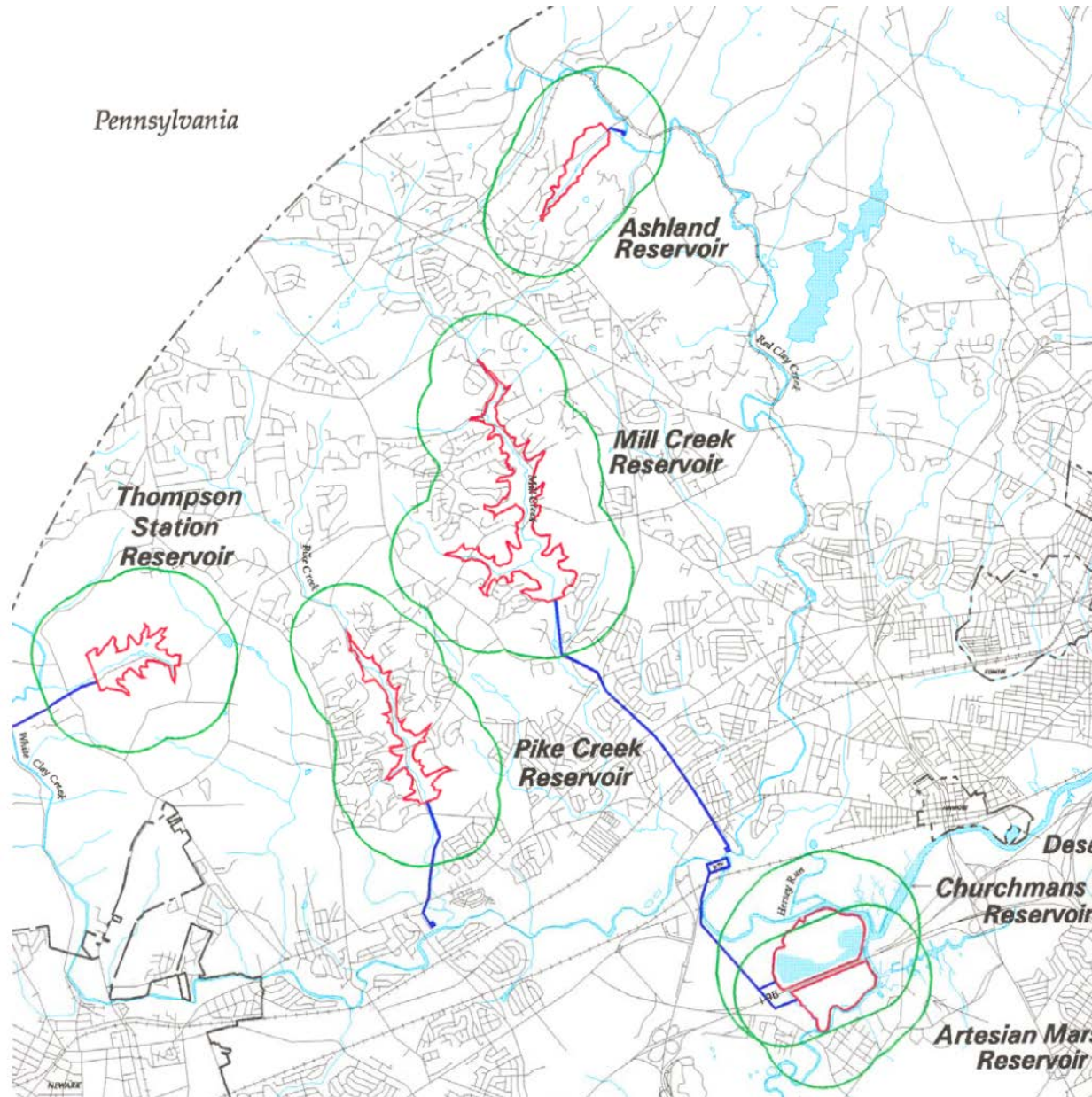
Delaware Coastal Zone Act 1971



Clean Water Act 1972



Drought of 1995



1997



Fig. 8. Habitat evaluation of the Thompson Station Reservoir site north of Newark during the winter of 1997. Coalition for Natural Stream Valleys member Dorothy Miller (far right) monitors the work by Federal scientists and the project consultant. (source: M. W. Wollaston)

1999

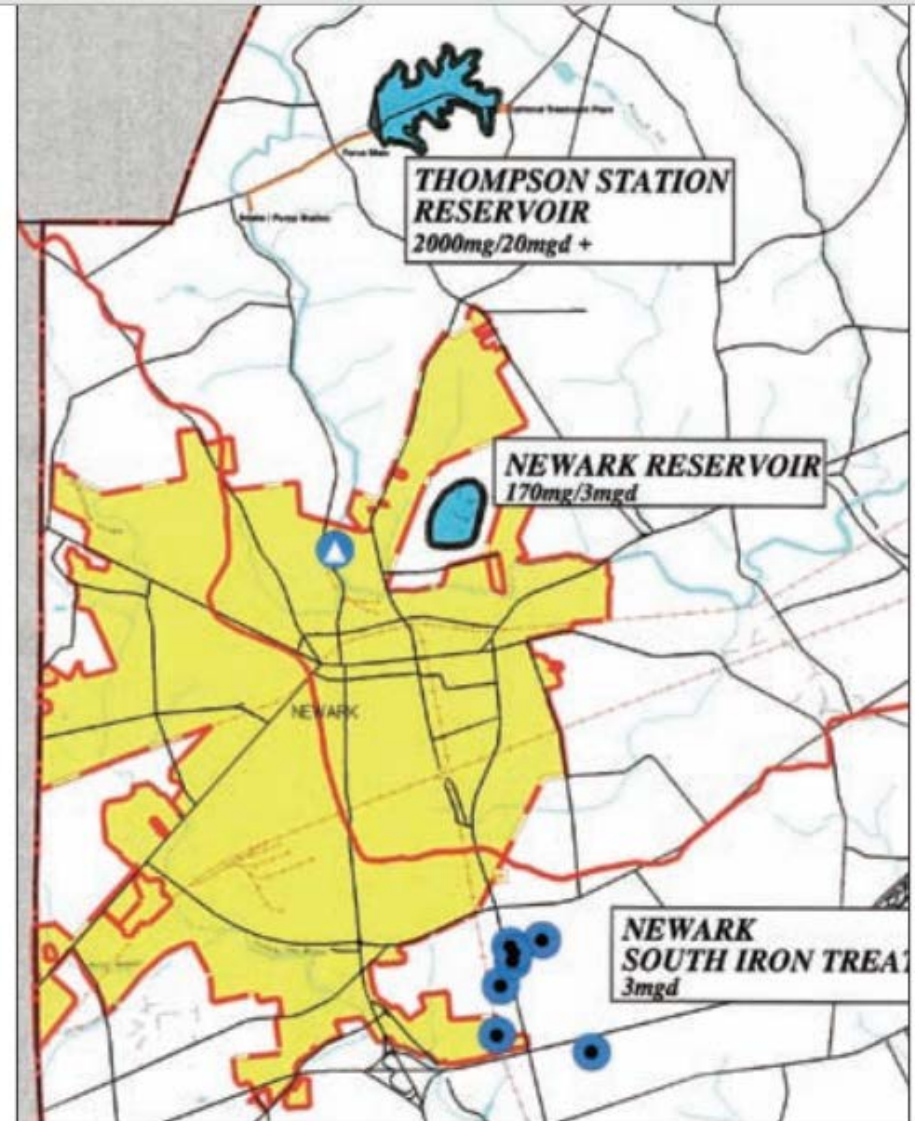
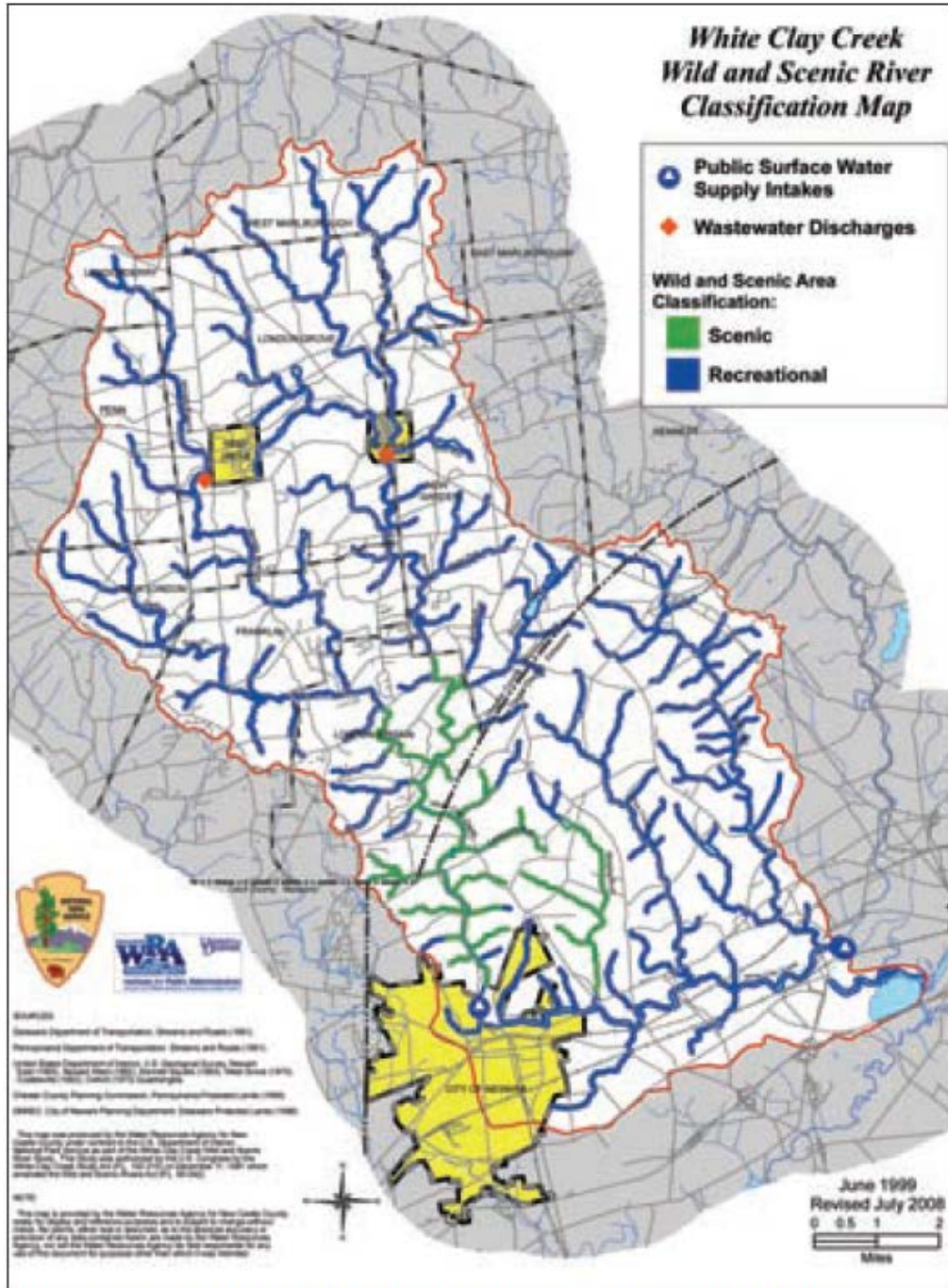


Figure 9. Map depicting the proposed Thompson Station Reservoir, Newark Reservoir, and Newark South Wellfield Iron Treatment Plant (source: WRA, 1999)



Senator Joe Biden
sponsors bill and
Bill Clinton designates
White Clay Creek
National Wild and Scenic River
2000

Figure 5. White Clay Creek Wild and Scenic River watershed (source: WRA, 2004)

Proposed Newark Reservoir at Koelig Farm 2002



Figure 12. Koelig Farm barn before construction of Newark Reservoir in April 2002. In the foreground is lifelong Newark resident Martin Wollaston of the Water Resources Agency. (source: G. J. Kauffman, 2002)

Groundbreaking for Newark Reservoir 2002



Figure 17. Groundbreaking for the Newark Reservoir on May 14, 2002, included Mayor Hal Godwin (reading proclamation), Delaware Division of Water Resources Director Kevin Donnelly (to the Mayor's right), City Manager Carl Luft (with shovel), and City Water Director Joe Dombrowski (to Luft's left). The Koelig farmhouse is on top of the hill. (source: M. W. Wollaston, 2002)



Figure 14. Artist rendering of Newark Reservoir drafted in 2002 (source: URS, 2002)

Newark Reservoir under construction 2004



Newark Reservoir under construction 2005



Figure 20. Newark Reservoir under construction in June 2005 (source: Eric Crossan, 2005)

Newark Reservoir Dedication 2006



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 Reservoir

2007



Figure 27. Koelig Farm east of the Newark water-treatment plant, aerial photograph 2002 (source: WRA)

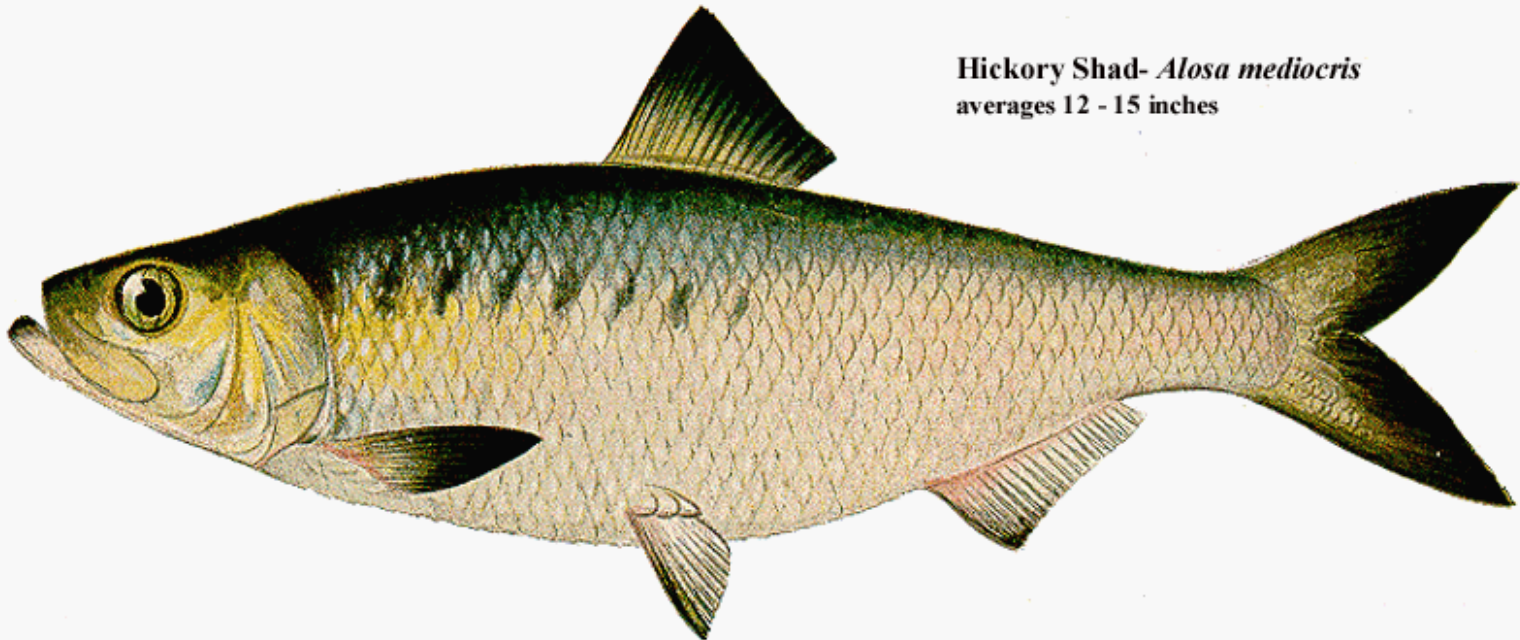


Figure 28. Newark Reservoir, east of the Newark water-treatment plant, aerial photograph 2007 (source: WRA)

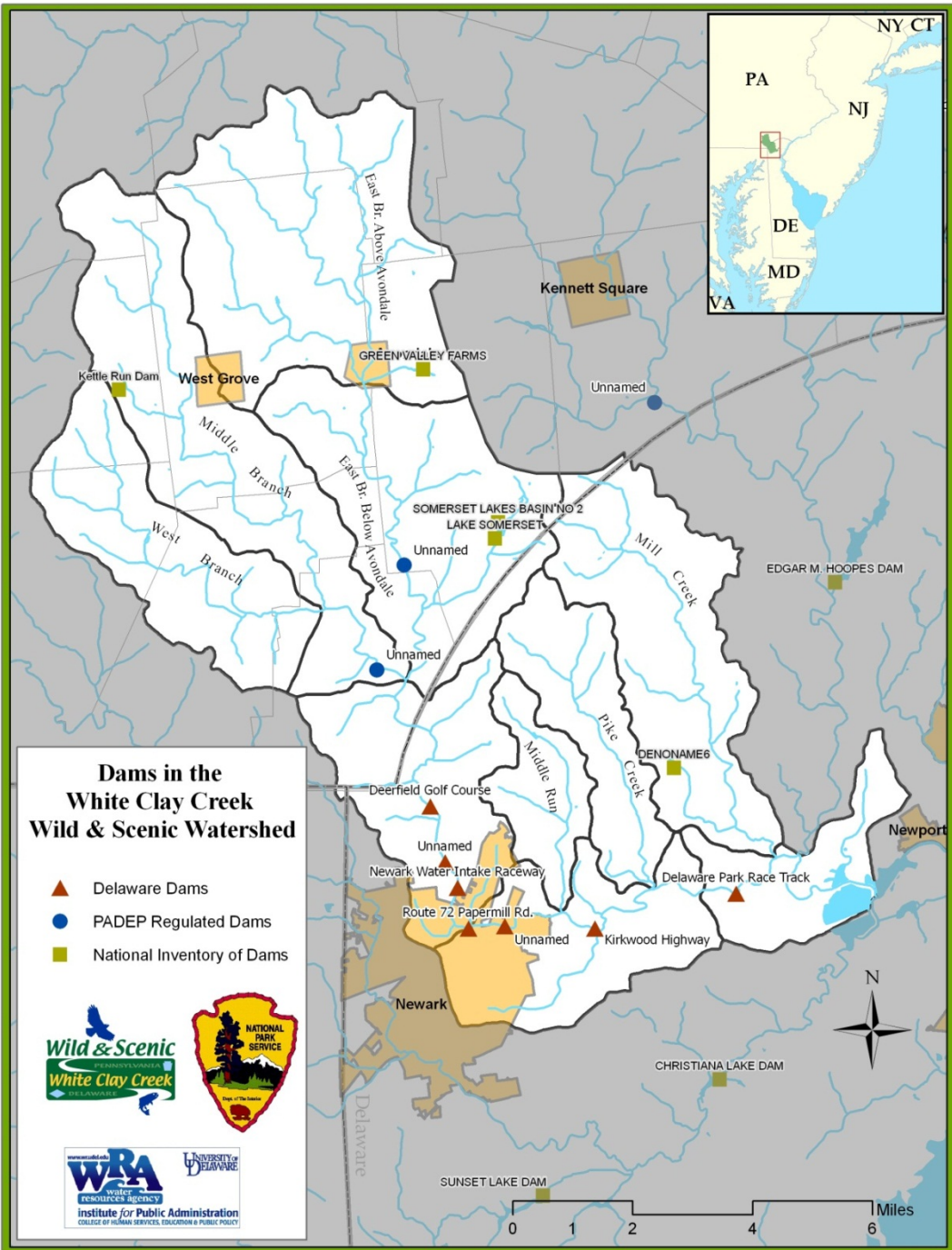


American shad - *Alosa sapidissima*
averages 14-29 inches

America's Founding Fish



Hickory Shad- *Alosa mediocris*
averages 12 - 15 inches



**Dams in the
White Clay Creek
Wild & Scenic Watershed**

- ▲ Delaware Dams
- PADEP Regulated Dams
- National Inventory of Dams



DE AWRA President Narvaez receives NFWF Grant 2009





Newark Business Directory.

Hotels.
 Jss. Meeanley... Proprietor of Washington Hotel.
 Philip Marvil... Proprietor of Delaware House.

Merchants.
 J. F. Williamson... Dealer in Dry Goods, Groceries, Hardware, Glassware, Hats, Caps, Boots, Shoes, &c.

Springer & Russell... D.
 Shoes, Hardware,
 Geo. Evans... Dealer in
 Benj. Caulk... Dealer in
 nishes, Window C
 A. Lowber, Jr... D-aler
 nishes, Dye-Stuff
 J. W. Evans... Grain Me
 Chas. F. Lippincott... Dealer in Stoves, Tin and Sheet Iron
 Ware, Zinc, Roofing and Spouting.

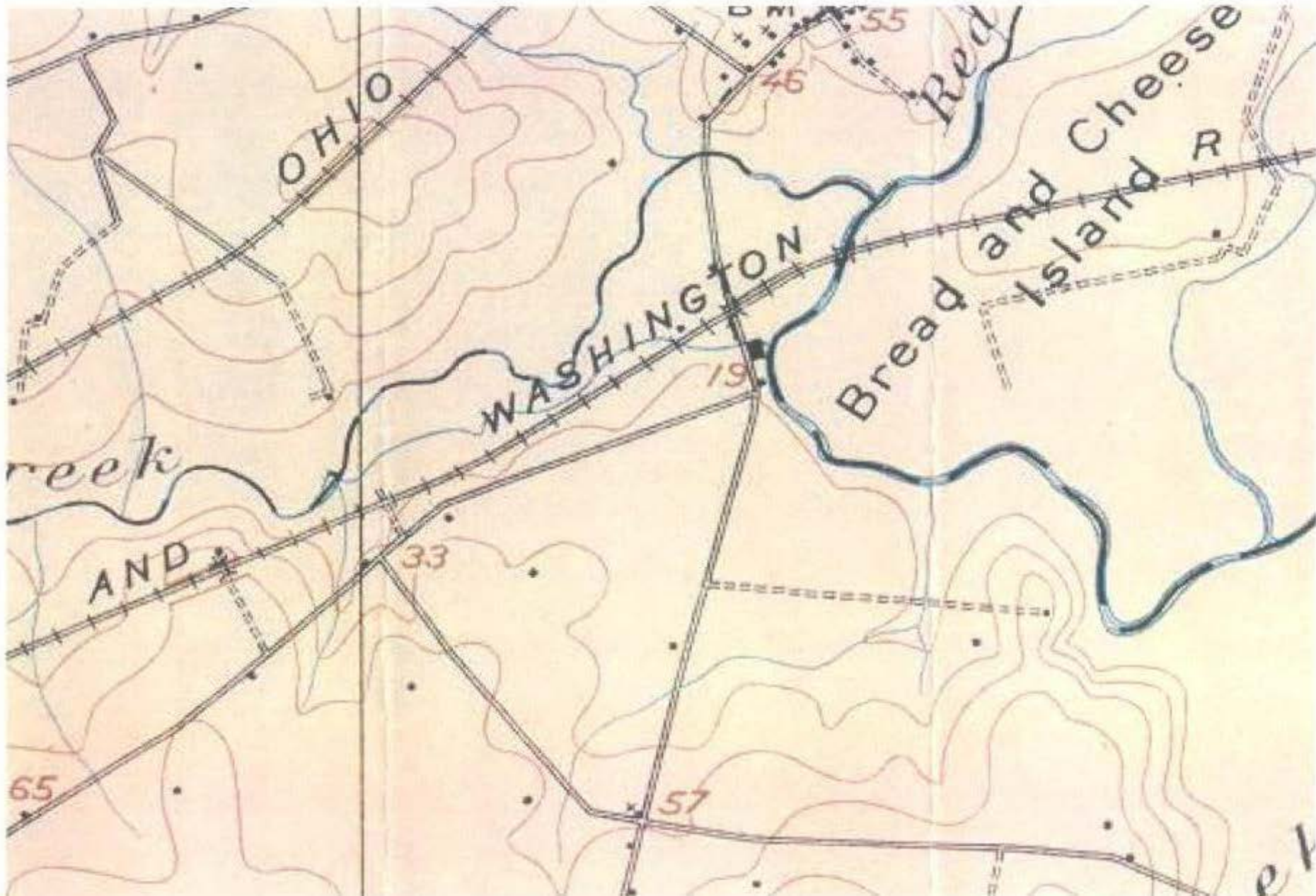
cial Teeth, and solid on continuous Gums.
 Charles Blandy... Cashier of National Bank, Newark.
 A. Lowber, Sr... Physician and Surgeon.

WHITE CLAY CREEK

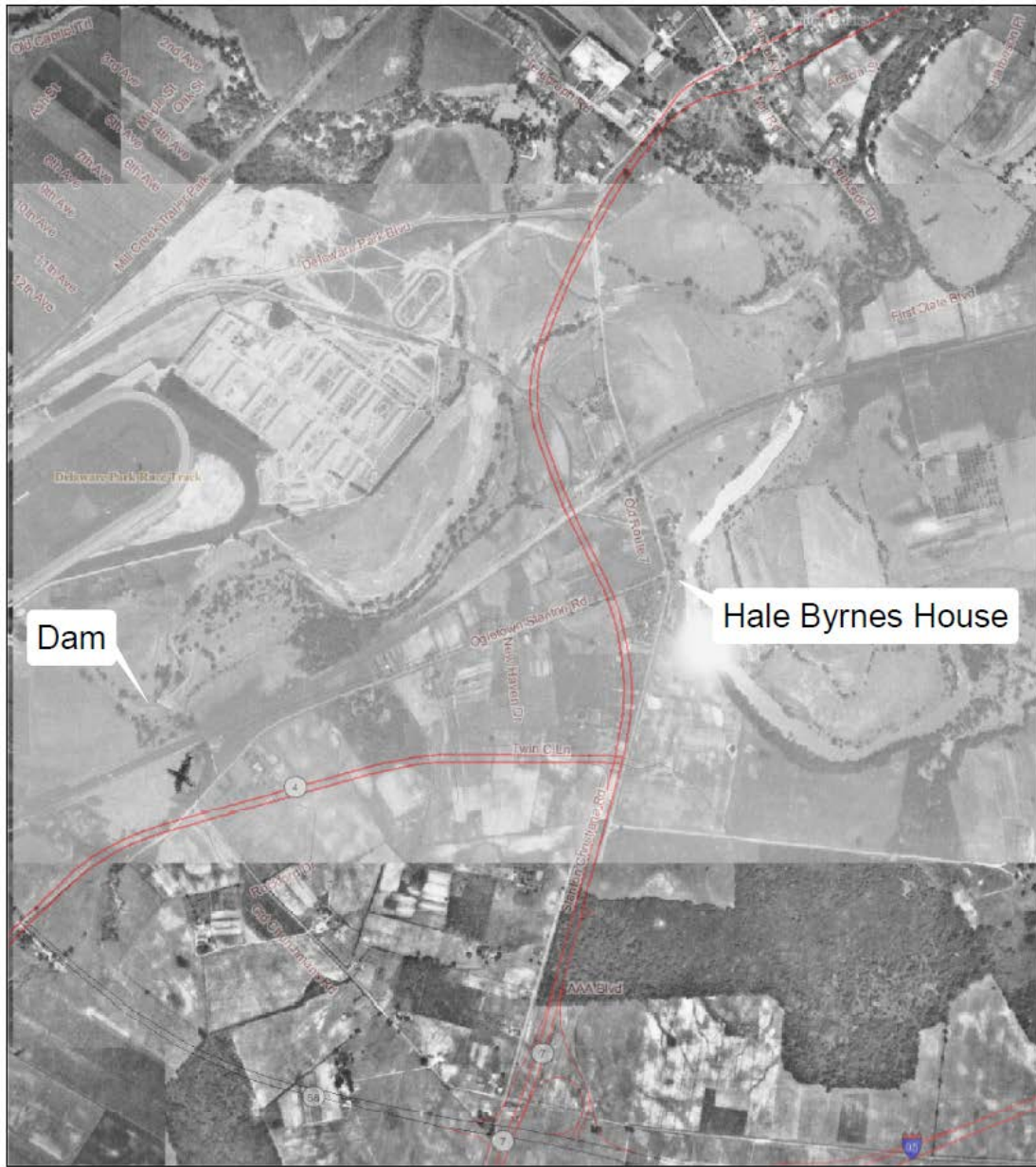
New Castle Co. Del.

Scale 1 1/2 inches to the incl.





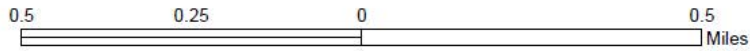
USGS Topo Map 1906



Dam

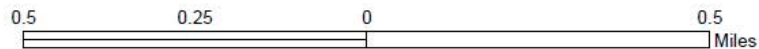
Hale Byrnes House

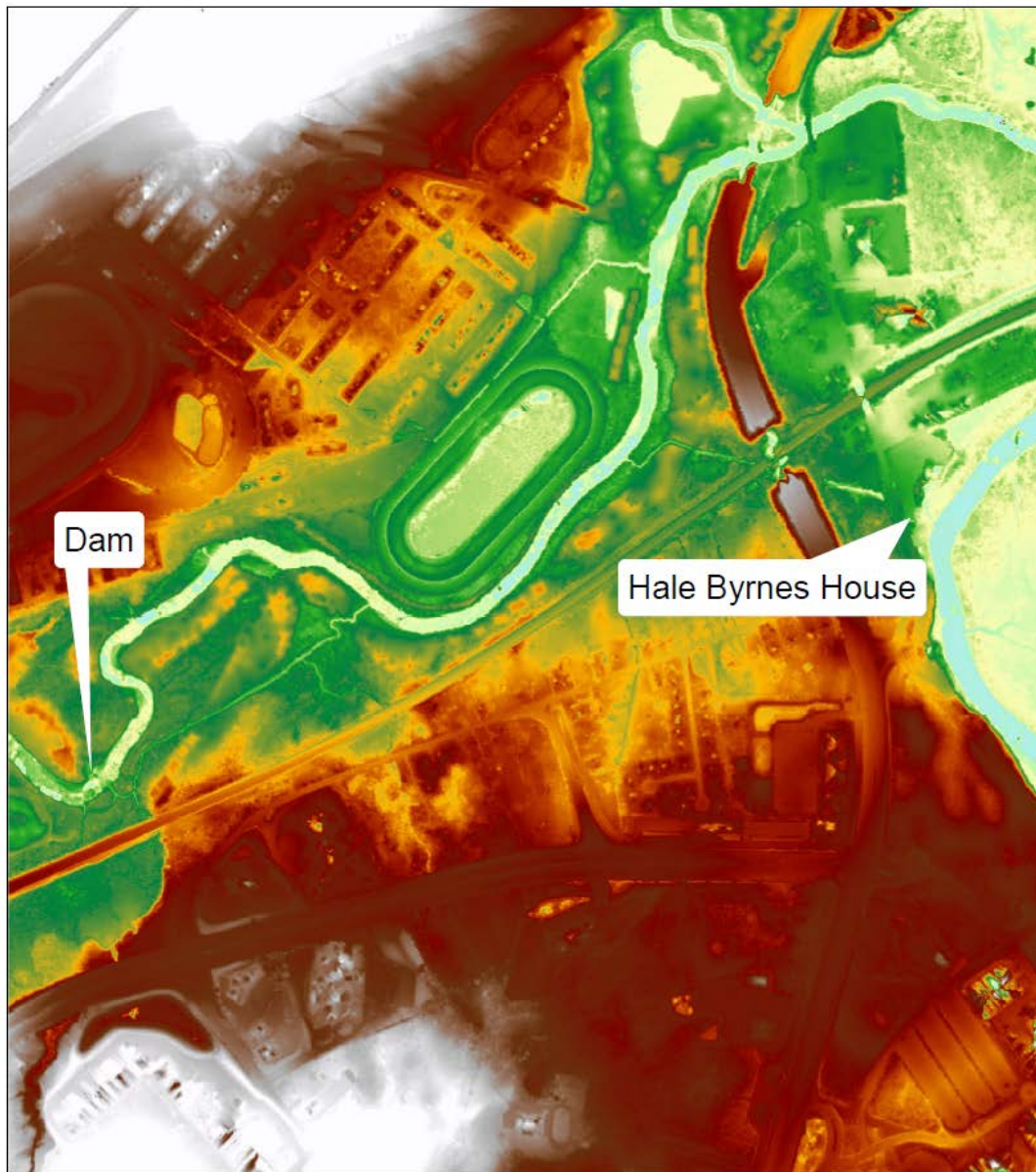
Delaware Park Dam to Hale Byrnes House
1937



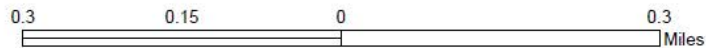


Delaware Park Dam to Hale Byrnes House
2007





Delaware Park Dam to Hale Byrnes House
2007 LIDAR



May 2010



May 2010



May 2010



May 2011



May 2011



Aug 2012



May 2013



Apr 2014



May 2013



UD AWRA Pres. Asia Dowtin surveys WCC Dam No. 1 2013





N06670_White Clay Creek Dam One_008



N06670_White Clay Creek Dam One_010

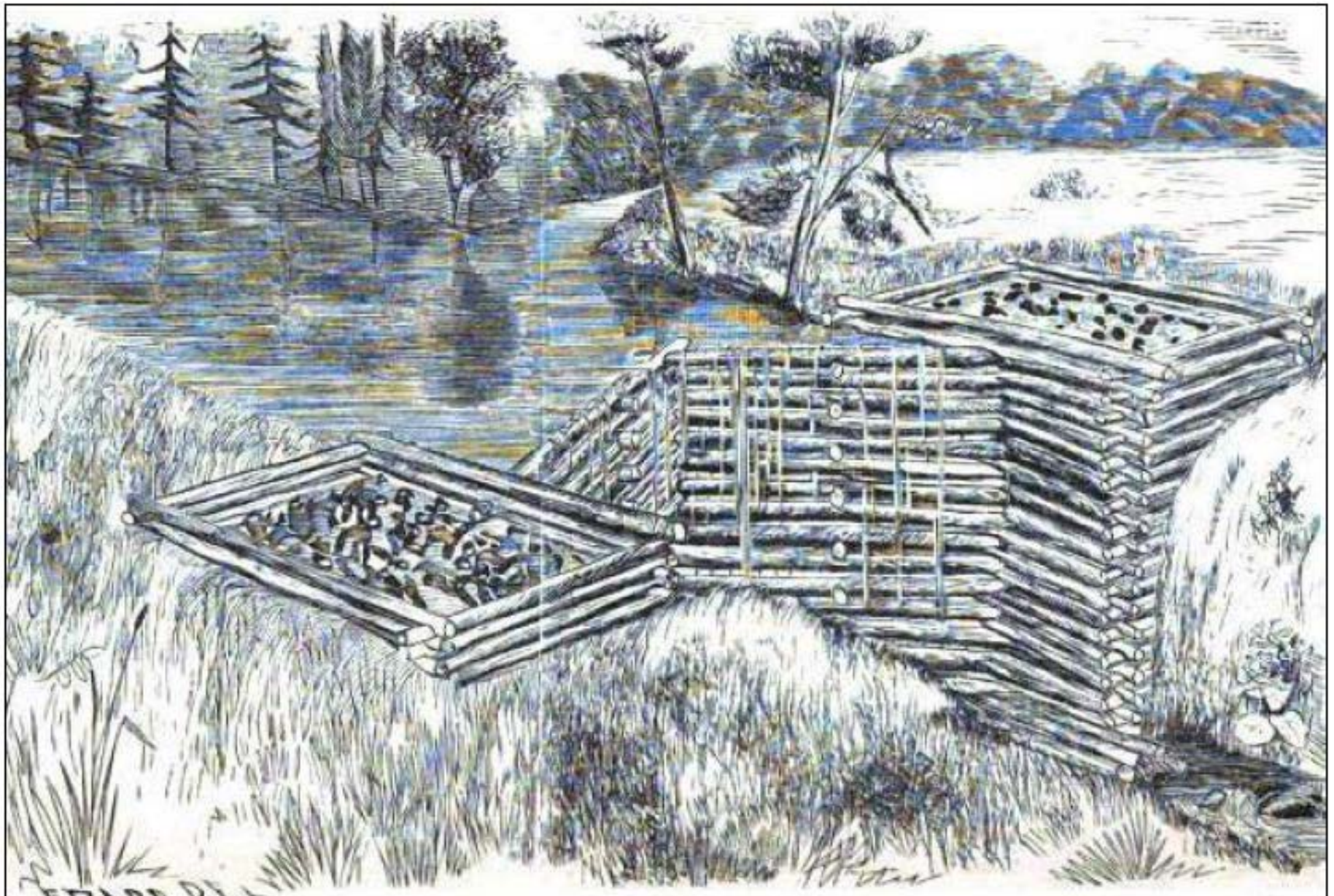
UD CHAD



N06670_White Clay Creek Dam One_021

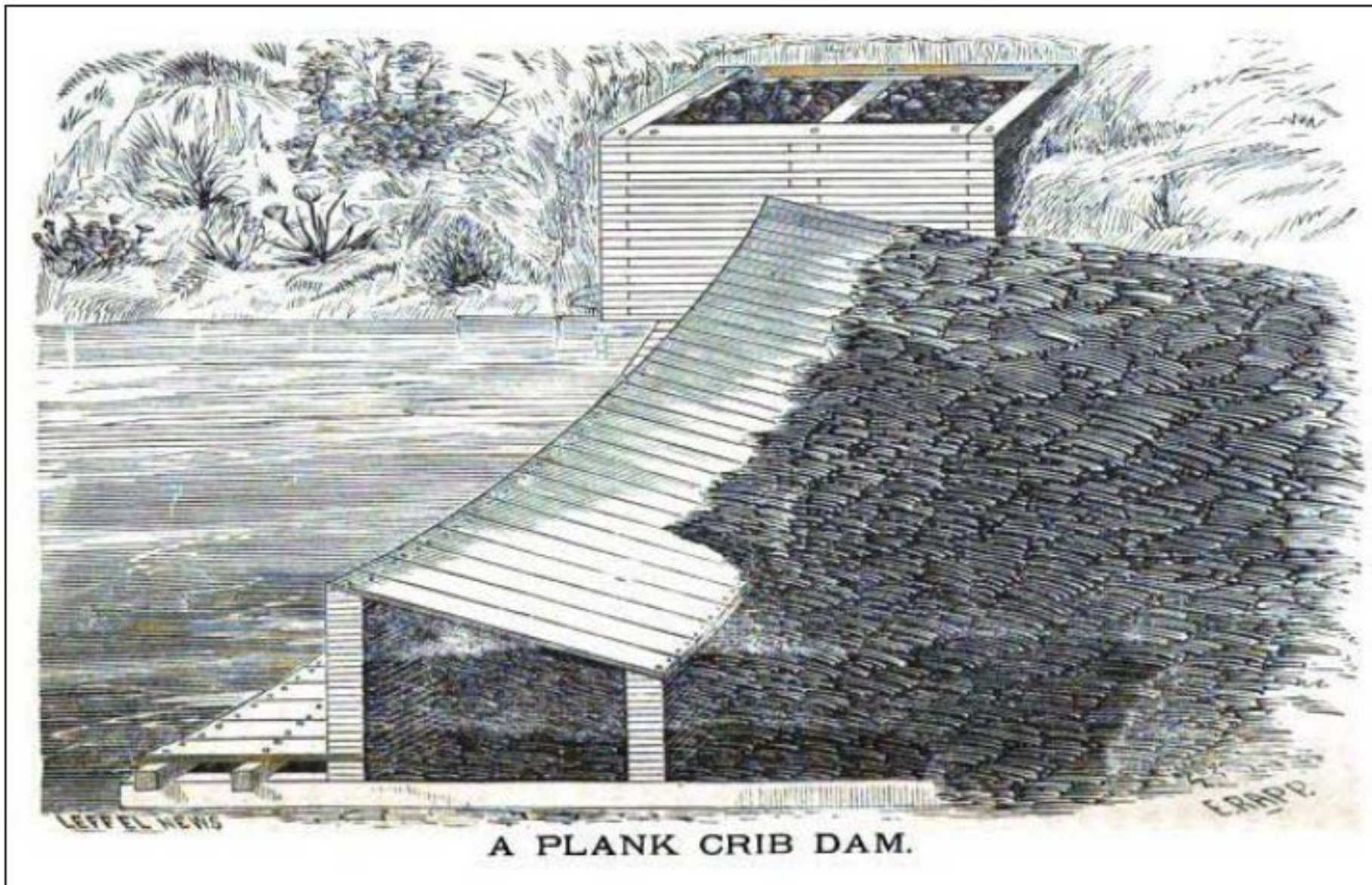


N06670_White Clay Creek Dam One_028



A CRIB DAM.

UD CHAD



A PLANK CRIB DAM.

UD CHAD



Jul 2012



Dec 2014



Dec 2014



Dec 2014



Dec 2014



Dec 2014



Dec 2014



Dec 2014



Dec 2014



Dec 2014





FOR IMMEDIATE RELEASE: Saturday, December 13, 2014
CONTACT: Ian Koski at 202-224-5042

Congress passes Coons-Pitts bill to widen protected area of White Clay Creek

Bipartisan legislation adds sections of the watershed in Delaware and Pennsylvania to Wild and Scenic Rivers designation with no additional cost to taxpayers

WASHINGTON – The Senate on Friday passed legislation introduced by U.S. Senator Chris Coons (D-Del.) and U.S. Rep. Joe Pitts (R-Pa.-16) to add approximately nine miles of White Clay Creek and its tributaries to the existing Wild and Scenic Rivers designation for the waterway. The measure was passed by the House of Representatives last week and now heads to President Obama for his signature. Senators Tom Carper (D-Del.) and Bob Casey (D-Pa.), as well as Rep. John Carney (D-Del.-AL), are cosponsors of the *White Clay Creek Wild and Scenic River Expansion Act*, which comes at no cost to taxpayers.

“White Clay Creek is a gem that shines brightly in Delaware’s diverse ecosystem, and we have worked tirelessly to protect its beauty for future generations,” **Senator Coons** said. “When I was a child growing up in New Castle, I used to spend considerable time in the White Clay Creek watershed, and I know what a great outdoor experience is for children and families. I thank my colleagues in the House and Senate for coming together in a bipartisan way to pass this piece of legislation to conserve our shared waterways and wildlife.”

“I’ve worked for many years to protect the White Clay Creek and its tributaries and I’m glad to see this bill on its way to becoming law,” **Rep. Pitts** said. “I’d also like to thank Sen. Chris Coons (D-DE) for working in the Senate to push the bill forward. The creek runs through both our states and is an important part of our shared natural heritage.”

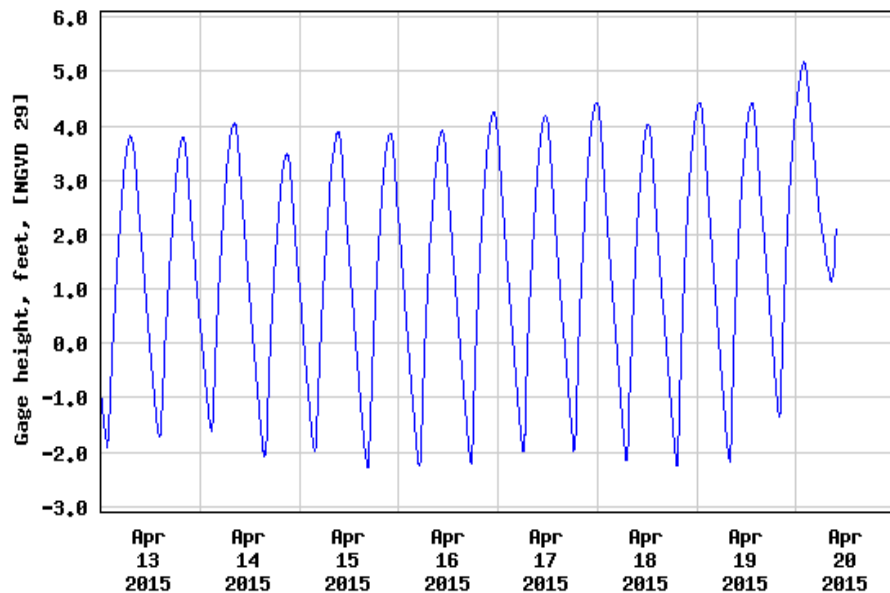
At no cost to federal taxpayers, this bill will expand the original designation to include approximately 9 miles of two small stream sections that were omitted from the original Wild and Scenic Rivers designation, including a 1.6-mile stretch of Lamborn Run in Delaware that was originally omitted due to its consideration as an option for

Serviceberry (Shadbush) UD Rain Garden

April 20, 2015

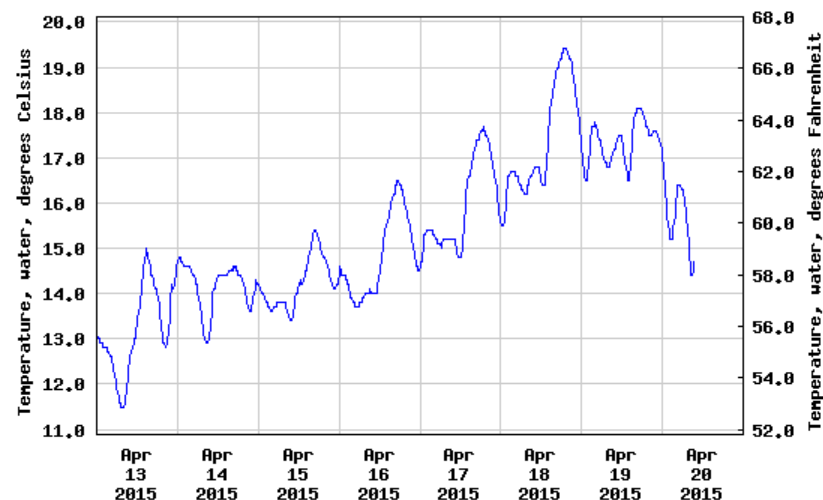


USGS 01480065 CHRISTINA RIVER AT NEWPORT, DE



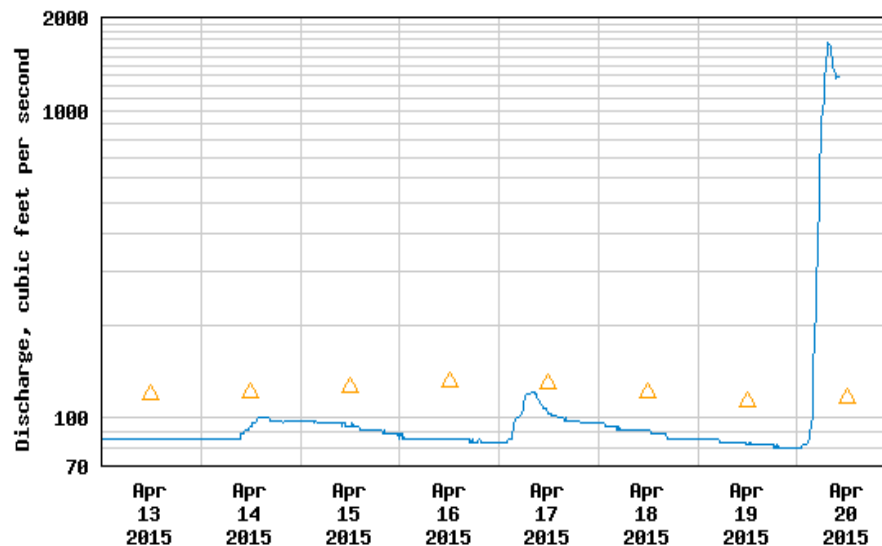
---- Provisional Data Subject to Revision ----

USGS 01480065 CHRISTINA RIVER AT NEWPORT, DE



---- Provisional Data Subject to Revision ----

USGS 01479000 WHITE CLAY CREEK NEAR NEWARK, DE



---- Provisional Data Subject to Revision ----

△ Median daily statistic (74 years) — Discharge

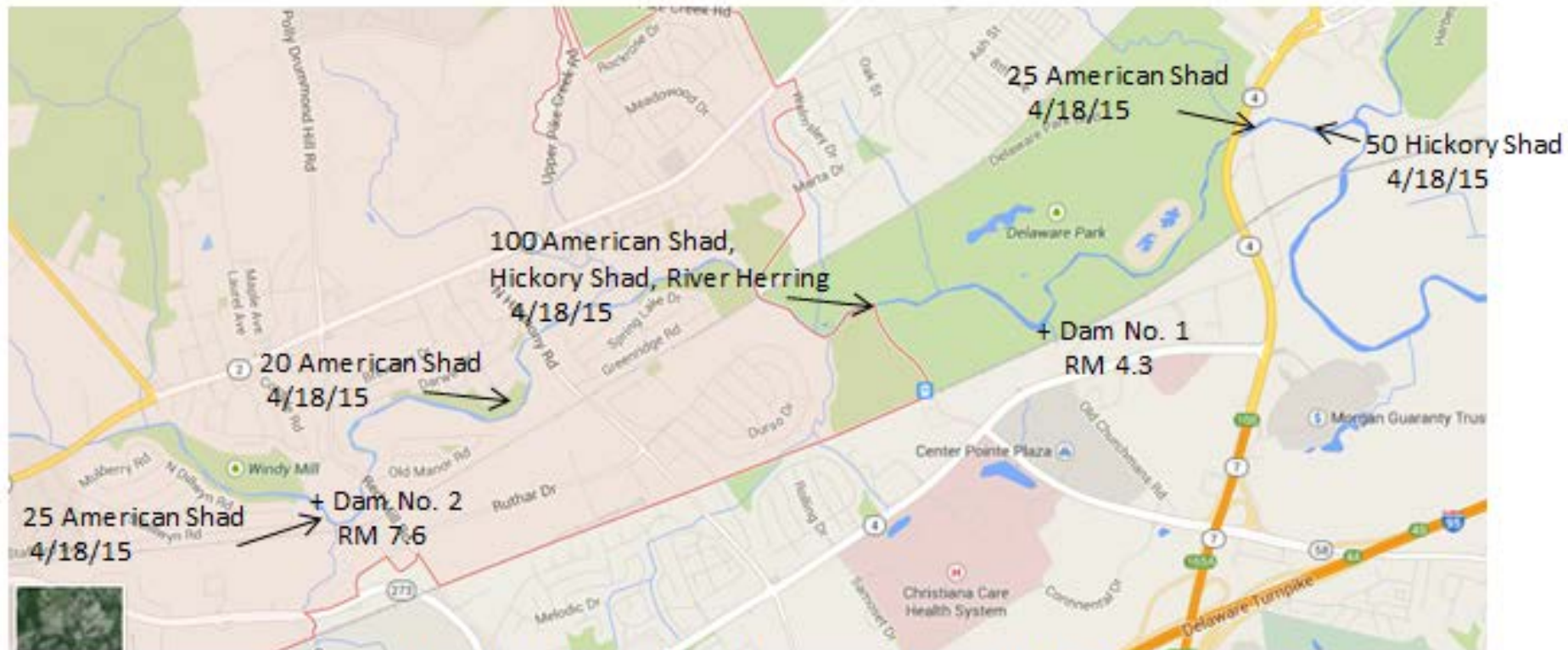


Figure 10. Shad along White Clay Creek on April 18, 2015



Figure 11. Shad along White Clay Creek on April 18, 2015



Figure 12. Shad along White Clay Creek on April 18, 2015



Figure 13. Shad along White Clay Creek on April 18, 2015







First State National Monument Summer 2014

