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FOR MORE THAN HALF A CENTURY, THE SCHOOL OF PUBLIC POLICY & ADMINISTRATION HAS TRANSLATED RESEARCH AND SCHOLARSHIP INTO PRACTICES AND POLICIES THAT ADDRESS THE CRITICAL NEEDS OF COMMUNITIES, FROM NEIGHBORHOODS TO NATIONS.

Economic Value of Nature and Ecosystems IN THE DELAWARE RIVER BASIN

GERALD J. KAUFFMAN

Water and air were once thought to be free, but in the growing discipline of ecological economics, these natural systems are found to provide significant economic value to society. The dilemma inherent in defining the economic value of water goes back to the 1776 Wealth of Nations when Adam Smith described the “diamond-water paradox:” if water is more valuable to society than a precious gem, then why is drinking water sold for a penny per 100 gallons, or not valued at all as an ecological resource in the river?

Natural systems have substantial economic value in terms of ecosystems goods and services. For instance, a 1997 study estimated the annual value of global natural resources exceeds \$125 trillion. The University of Maryland reported in 1988 that the Chesapeake Bay was worth \$678 billion, and in 1990 economists Latham and Stapleford from the University of Delaware estimated the Delaware Estuary within Delaware accounted for 10,500 jobs with \$222 million in annual wages.

For over four centuries, the Delaware River has been sought after for economic gain—ever since Henry Hudson discovered the bay off Cape May in August 1609 during an unsuccessful quest for the Dutch East India Company to find an inner trade route to Asia. When William Penn founded Philadelphia in 1682 (seeking refuge from religious persecution in Europe), he also found a safe harbor between the Delaware and the Schuylkill rivers in a colony rich with lumber, fertile land, beaver pelts, and, in later centuries, coal and oil.

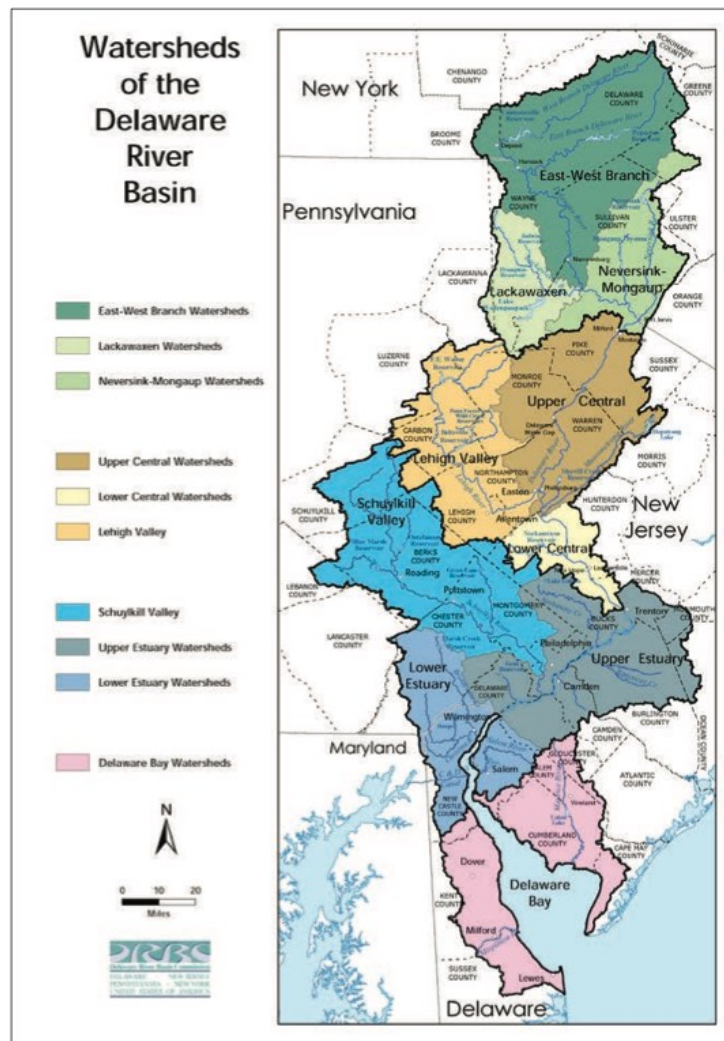
During the American Revolution, Philadelphia was the largest city in the colonies and the third largest port in the British Empire after London and Liverpool. In 1790, Ben Franklin was so concerned about pollution that he willed funds to build the first municipal

water system in the U.S. for the City of Brotherly Love.

In 1802, the du Pont family searched up and down the Atlantic Seaboard and established gunpowder mills along the Brandywine River falls above Wilmington as one of the first industries in the Delaware Valley. By the end of the 19th century, the Delaware River supported the largest commercial

American shad and sturgeon fishery along the Atlantic coast during an annual spring rite that fascinated artists like Thomas Eakins and the poet Walt Whitman. The sturgeon was such a lucrative fish that boom town Caviar near Greenwich, New Jersey processed the roe for worldwide export.

By the First World War, the Delaware was known as the “Clyde of America”



with ship building that rivaled its Scottish cousin. In 1912, Philadelphia manufactured 5 percent of all goods in the United States and exported coal, iron, cotton, leather, grain, lumber, tobacco, and gunpowder. By 1914, the Panama Canal opened access from the East Coast to the Hawaiian sugar cane fields and Philadelphia refined 1/6 of all the sugar in the United States. The Delaware River ship port economy boomed during World War II as the Philadelphia Navy Yard employed 40,000 workers who built 53 ships and repaired over 500 vessels. After the war, the "Arsenal of America" manufacturing base declined due to waning demand for Pennsylvania coal and Lehigh Valley steel.


By 2010, the Delaware River Basin in Delaware, New Jersey, New York, and Pennsylvania grew to be a valuable ecological and economic resource that supplies drinking water to 5 percent of the United States. This includes the nation's first (New York City) and seventh (Philadelphia) largest metropolitan economies. The Delaware River Basin also supports the largest freshwater port in the world while sustaining a recovering anadromous shad and striped bass fishery.

In the first economic study of its kind in 25 years, researchers at the University of Delaware School of Public Policy & Administration have published an article in the *Journal of Contemporary Water Research and Education* that estimates that the annual economic value of the Delaware River Basin is at least \$22 billion based on estimates of economic activity, ecosystem services, and jobs and wages related to the waters of the watershed.

The Delaware Basin contributes over \$22 billion in annual economic activity from potential Marcellus Shale gas extraction (\$425 million), recreation (\$1.2 billion), fish/wildlife (\$1.5 billion), public parks (\$1.8 billion), water quality (\$2.5 billion), navigation (\$2.6 billion), agriculture (\$3.4 billion), water supply (\$3.8 billion), and forest (\$5.1 billion) benefits. The value of natural goods and services from ecosystems in the Delaware Basin is \$21 billion (\$2010) including provisions by Delaware (\$2.5 billion), New Jersey (\$6.6 billion), New York (\$3.5 billion), and Pennsylvania (\$8.6 billion). The Delaware River Basin is a jobs engine that supports 600,000 direct/indirect jobs with \$10 billion in annual wages in the coastal, farm,

ecotourism, water/wastewater, ports, and recreation industries.

This research indicates the natural resources of the Delaware River Basin provide real and significant economic benefits to the four-state region and are worthy of investment to keep them healthy and productive. This economic research by the University of Delaware was cited by legislation sponsored by then-Congressman John Carney of Delaware in 2016 when, in one of the last acts of his administration, President Barack Obama signed the Delaware River Basin Conservation Act (DRBCA) that authorized the U.S. Fish and Wildlife Service to allocate \$5 million annually for the restoration of this great river system.

The Delaware River Basin drains 13,000 square miles in Delaware, New Jersey, New York, and Pennsylvania. (DRBC 2013) 

Kauffman, G. J., 2016. Economic Value of Nature and Ecosystems in the Delaware River Basin. *Journal of Contemporary Water Research and Education (JCWRE)*. Universities Council on Water Resources (UCOWR). 158:98-119.

IPA Hosts Annual CUPSO Conference

CHRIS KELLEY

The Institute for Public Administration (IPA) welcomed 55 professionals from 27 leading universities across the country as it played host to the Consortium of University Public Service Organizations (CUPSO) 2017 Annual Conference this spring. As part of the three-day symposium, policy professionals heard from some of the biggest names in Delaware, including Gov. John Carney, Sen. Tom Carper, and University of Delaware President Dennis Assanis.

Sen. Carper, Dan Rich, director of the university's Community Engagement

Initiative, and Cathy McLaughlin, executive director of the new Biden Institute, opened the conference with a discussion of the importance of community engagement, its impact on public service, and how centers like IPA work to connect the two. The conference's welcome dinner featured keynote addresses from both Gov. Carney and Dick Carter of the Delaware Heritage Commission detailing the state's rich history. UD President Assanis closed out the conference emphasizing the value of universities in supporting public service and celebrating the work of CUPSO organizations in supporting their states.

"Not often do we get to hear from a governor, a senator, and a university president at one meeting," said CUPSO Director Linda Hoke. "In addition to a great program, we all felt welcome due to the staff's warm hospitality."

First organized in 1979, CUPSO supports university-based public service institutes in their efforts to assist state and local governments on a multitude of contemporary issues and challenges. Member organizations span the country from Portland State University in the northwest, Michigan State University in

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