

# Delaware River Basin Commission

— ANNUAL REPORT 2000 —

Kids... *GO* Figure  
(PAGE 20)





## Come Fly With Me

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**COVER PHOTO:** Two eaglets perch on a nest along the upper Delaware River in New York State, an encouraging sign that this magnificent bird of prey is reclaiming its niche in nature's realm. Hundreds of bald eagles used to winter along the river. By the 1960s, however, a single sighting was rare. Large numbers of the birds were killed indiscriminately prior to federal protection under the Bald Eagle Act of 1940. Loss of habitat and heavy use of pesticides, especially DDT, also took their toll.

The manufacturing of DDT in the United States was banned in 1972. Recent programs by the Delaware River Basin Commission and other agencies and organizations to keep the river clean, the fish abundant, and the habitat undisturbed also have been a big help in the recovery of the eagle population. In new York State, the year 2000 was a record breaker as 145 eagles were counted along the main stem of the upper Delaware River, compared to 77 in 1999.

The New York State Department of Environmental Conservation, the National Park Service, and the Pennsylvania Game Commission are engaged in ongoing eagle restoration or "hacking" programs. Hopefully, they will result in even greater numbers of this living symbol of America's freedom and spirit.

*(Photo by Peter Nye, New York State Department of Environmental Conservation)*

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This report covers calendar year 2000, and in some cases events that carried over into 2001. It was compiled and edited by Christopher Roberts, the commission's public information officer. Material for the report was generated by commission staff and by other partnering agencies and organizations.

Free copies are available by contacting the commission at P.O. Box 7360, West Trenton, N.J. 08628. (Phone 609-883-9500, ext. 240; e-mail: [croberts@drbc.state.nj.us](mailto:croberts@drbc.state.nj.us)). The report also will be posted on the commission's web site: [www.drbc.net](http://www.drbc.net)





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## Executive Director's Report

BY CAROL R. COLLIER

# Water Resource Management —It Involves Everyone

The availability and use of water is not just an issue for the arid western states. We know that fact in the Delaware River Basin. Even though our region receives approximately 42 inches of precipitation a year, in some parts of the basin there is not adequate water to support anticipated uses. We are not in dire straits, it is not a water crisis, but we do have an opportunity, right now, to shape the future of the region.

Why now? Because we have the will, the interest of the people, and the tools.

I just finished reading "Cadillac Desert" by Marc Reisner which describes the history of water development in the West. We are and can continue to do it better! We know that while building dams for water storage is important and may be required on some streams, it is not the only way to extend our water availability. Other methods that must be evaluated include conservation, conjunctive use, leak detection, reuse, and process change.

We know that water resource management involves in-stream flow needs and improvement of water quality. Often when you hear the term "water use" only human uses come to mind - potable water, electric generation, industrial processes. However, when accounting for water needs in the basin, we must include the volume of water in streams and rivers necessary to support aquatic communities and fisheries and to maintain water quality.

Water quality and water quantity go hand and hand.

Any water resource planning must be holistic, accounting for all aspects of the water cycle - water supply, waste water, storm water, ground water, surface water, wetlands, and be conducted on the basis of watershed boundaries, not political ones. Also, the process must account for our various levels of government and recognize the significant role of municipal government in land use control. Finally, the system must encourage input from the public and consider the socio-economic needs of the community.

In June of 2000, the DRBC and the Monroe County Conservation District received a Growing Greener Grant from the Commonwealth of Pennsylvania to conduct a "Goal-based Watershed Management" pilot study on Pocono Creek, a tributary of Brodhead Creek near Stroudsburg, Pennsylvania. The purpose of the



Daylilies - D. Andrew Hornberger



study is to test a new holistic way of watershed management that is based on setting environmental performance standards and developing management strategies that will ensure protection of the water resources, while accounting for the socio-economic needs and desires of the local municipalities.

The Pocono Creek was chosen because it is a waterway "on the edge." It is a high quality stream with special natural amenities such as the Tannersville Bog on Cranberry Creek, a Pocono Creek tributary. People have been attracted to the area because of its amenities. BUT...there are highways (Routes 80 and 611), shopping malls and outlet stores, new housing developments, an expanding ski area and water park, and encroachments that threaten the future quality of the watershed. NOW is the time to plan so that the creek and the watershed's natural amenities are not sacrificed as growth occurs.

Planning at this stage allows the municipalities to be in control of their fate.

How much land use change can the Pocono Creek system withstand? How can negative environmental impact be reduced by proper siting of land uses and the use of specific design requirements? Providing a dialogue on these questions will give the municipalities the tools they need to plot the future they desire.

One of the critical steps in this study is setting the environmental standards. Not just chemical parameters, but defining the desired biological or "critter" community, the necessary in-stream flows, and an index of the physical stability of the stream. The desired stream quality was based on public input and actual numerical targets established by the environmental agency members of the team. With collective water quality and quantity targets, the county and municipalities can evaluate different strategies that incorporate point source discharge, non-point runoff, storm water management, water allocation, stream corridor protection, and designated areas of growth.

The solutions can be cost effective and represent the concerns of the local community.

This type of study takes many partners. The DRBC is working with the Monroe County Conservation District, Monroe County Planning Commission, the Brodhead Watershed Association, Villanova University, U.S. Geological Survey, Pennsylvania DEP, Pennsylvania Fish and Boat Commission, the seven municipalities in the watershed, and the key landowners and stakeholders, including Camelback Ski Area.

In the past we have missed many cost effective solutions to water problems because we have looked at only one aspect at a time ( i.e. assessing waste water discharge separately from water conservation or storm water management). With the increased public knowledge of water issues and the increased number of watershed associations, there is the will and the tools to plan for the use and allocation of water. Water can be a very big asset to the region and will play a major role in our future.

Now is the time to ask the hard questions and develop water resource management plans that address all the water issues in a watershed.

If you would like more information about our Pocono Creek Goal-based Watershed Project, please see the chapter titled "Watershed Planning: the New Look" in this report and visit our web site at [www.drbc.net](http://www.drbc.net).



*Chicory - D. Andrew Hörnberger*



## The Commission (Year 2000)

# Signatory Members

### DELAWARE

Kevin C. Donnelly  
*Second Alternate*

Dr. Harry W. Otto  
*Third Alternate*



Gov. Thomas R. Carper  
*Chair*



Nicholas A. DiPasquale  
*Alternate*

### UNITED STATES

Lt. Col. Debra M. Lewis  
*Advisor*



Maj. Gen. Jerry L. Sinn  
*Vice Chair*



Col. George C. Clarke  
*Alternate*

### PENNSYLVANIA

William A. Gast  
*Second Alternate*

Richard E. Roy  
*Advisor*



Gov. Tom Ridge  
*Second Vice Chair*



Irene B. Brooks  
*Alternate*

## The Commission (Year 2000)

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Robert Tudor  
*Second Alternate*



Gov. Christine Todd  
Whitman  
*Member*



Robert C. Shinn, Jr.  
*Alternate*

### NEW YORK

Warren T. Lavery  
*Second Alternate*

Joel A. Miele, Sr.  
*Advisor*



Gov. George E. Pataki  
*Member*



N. G. Kaul  
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*Executive Director*



Dr. Jeffrey  
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*Deputy Executive Director*



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## New DRBC Chair Elected

# Governor-Elect Ruth Ann Minner Succeeds Carper

**D**elaware Governor Thomas R. Carper was elected in June 2000 to serve as DRBC chair for the year 2000-2001. Lieutenant Governor Ruth Ann Minner, who was elected governor of Delaware in November 2000, succeeded Carper as the DRBC chair in January 2001. Carper, who was prevented from running for a third term as governor, was elected to the U.S. Senate.

Prior to her stint as lieutenant governor, Governor Minner served as a state legislator. She is the first woman in Delaware's history to win its highest elective office.

The commissioners at their June 2000 meeting also elected federal government representative Major General Jerry L. Sinn and Pennsylvania Governor Tom Ridge to serve as vice chair and second vice chair, respectively, during the year 2000-2001, which ended June 30, 2001.

The Delaware River Basin Compact requires the annual election of the chair and vice chairs, which historically has been based upon rotation of the five commission parties.

New York Governor George E. Pataki served as chair during the year 1999-2000.



Governor Minner

## WHITMAN NOMINATED TO HEAD EPA

**C**hristine Todd Whitman, New Jersey's governor and DRBC member, was selected by President Bush in December 2000 to head the U.S. Environmental Protection Agency. New Jersey Senate President Donald T. DiFrancesco was slated to finish the remainder of her term. Under the Delaware River Basin Compact, he automatically became the new DRBC member from New Jersey.



Col. Bean

## NEW FEDERAL APPOINTMENTS

**C**olonel Gregory G. Bean was appointed as alternate to General Sinn and Lieutenant Colonel Timothy Brown was named the new federal advisor during the summer of 2000.

At the time, Col. Bean was Deputy Commander and Deputy Division Engineer of the U. S. Army Corps of Engineers' North Atlantic Division, which is headquartered at Fort Hamilton, N. Y. Lt. Col. Brown is commander of the Army Corps of Engineers' Philadelphia District.

Col. Bean replaced Col. George C. Clarke, who joined the Defense Threat Reduction Agency in Virginia. Lt. Col. Brown replaced Lt. Col. Debra M. Lewis, who was reassigned to the Office of the Joint Chiefs of Staff at the Pentagon.



Lt. Col. Brown



## We Miss You

### — DAVE GOLDBERG —

The commission is saddened by the passing of our trusted general counsel and friend, Dave Goldberg, on June 18, 2001. He was 70.

Dave was an attorney for more than 45 years and served as DRBC general counsel beginning in 1977. He had a distinguished legal and governmental career. From 1964 to 1966, he was counsel to New Jersey Governor Richard J. Hughes and was appointed by Gov. Hughes as the state's first Commissioner of Transportation. He served in that post from December 1966 to January 1970.

The DRBC was only one of many state, regional, and interstate commissions and authorities that benefitted from Dave's leadership and counsel. He served as chairman of the New Jersey Turnpike Authority from 1990 to 1994, and was chairman and a member of the Delaware River Joint Toll Bridge Commission, Delaware River Port Authority, Delaware Valley Regional Planning Commission, and the Tri-State Transportation Commission. He also was a member of the Bi-State Blue Ribbon Panel that reviewed the New York-New Jersey Port Authority.

He lectured on transportation and/or government at the University of Pennsylvania's Wharton Graduate School and Princeton University's Woodrow Wilson School of Politics. He also was a fellow at the Harvard University Institute of Politics.

Born in Chester, Pa., Dave lived in Lawrenceville, N.J., for 37 years. He graduated from Rutgers University and the University of Pennsylvania School of Law. He had retired from Drinker Biddle & Shanley, with law offices in Princeton and Philadelphia.

In an editorial in The (Trenton) Times on June 27, Dave was remembered as "one of those people who give public service a good name." To each job, he "brought wisdom, wit, toughness, pragmatism, and dedication. He left a deep and positive imprint on his community, city and state."

### — GREGG DUSECINA —

Gregg Dusecina, the commission's support services clerk, passed away suddenly on May 20, 2000, at the age of 61.

His title did not do justice in describing all that he did - flying the flag, handling assorted mail-related duties and all of those logistical headaches associated with mass mailings, reproducing reports, making sure the copier machines were up and running, watching over our heavily used vehicles, running errands ... and much more.

With what seemed to be an ever-present coffee cup in hand, no last-minute press release that "had to be mailed out today" was an impossible task for Gregg. The true worth of the myriad tasks he performed became sorely evident once he was gone.

Born in Trenton, N.J., Gregg was a lifelong Bordentown and Trenton-area resident. He served in the U.S. Army and first joined the DRBC staff as a part-time employee in August 1967.

The golf clubs he leaned against the back wall of his office were a reminder that he was quite a standout on the links in his younger years before an injury that cut short his playing days. He also had his pilot's license.



Mr. Dusecina



## We Miss You



Mr. Robin

### JOHN ROBIN: HELPED FRAME THE COMPACT

John P. Robin, whose imagination and energy proved to be indispensable to the success of Delaware River Basin Compact negotiations, died on May 7, 2000, in Pittsburgh, Pa. at the age of 87.

Mr. Robin chaired the Delaware Basin Advisory Committee which helped meld the aspirations of the four basin states and the cities of New York and Philadelphia to form a regional body to manage the basin's waters. He was both the campaign's forceful leader and its link to the Commonwealth of Pennsylvania.

Brinton "Buzz" Whitall, former secretary to the commission, recently reflected on the role Mr. Robin played in the compact's adoption.

Jack was very much involved in creating the commission. He played a leading part from the early days of initial studies in the late 1950s, up through the negotiations over the actual legislation and its final approval by the state legislatures and the Congress. He was a very quick and bright person of diverse background and experience, and was very savvy about how government and politics work. Most importantly, perhaps, he was a close confidant of then [Pennsylvania] Governor Dave Lawrence, a man of no small influence. Among those involved in getting the compact approved...and there were many...I would rank Jack among the top two or three persons. We were lucky that he was part of the scene at that time.

### RETIREMENTS

Richard C. Albert, the commission's Basin Planner, after almost 30 years in the field of water resource management.

Paul J. Webber, Supervising Engineer who served two stints with the commission, the first from 1967 to 1983, returning in the 1990s.

Thank you both for the excellent work. Your contributions are missed, as is your extra dry wit.

Chief Counsel Goldberg refers to notes during a commission meeting in West Trenton, N.J. Seated next to him is Anne Zamonski, the commission's acting secretary. Dr. Harry Otto, representing the state of Delaware, and Irene Brooks, Pennsylvania's representative, look on.



(Photo by Clarke Rupert)



## Marine Environmental Issues

### FISHERIES MANAGER NAMED

**D**r. Jonathan Jed Brown, who has worked on federal legislation and policy matters involving marine environmental issues, has been named to coordinate the work of the Delaware River Basin Fish and Wildlife Management Cooperative.

Dr. Brown recently was involved in developing natural resource restoration plans for coastal and riparian habitats along the Atlantic and Gulf coasts for the National Marine Fisheries Service. Prior to that, he worked at the U.S. Environmental Protection Agency's research laboratory at the University of Arizona on the development of sustainable aquaculture systems. He also worked on Capitol Hill as a legislative assistant to Congressman Frank Pallone Jr.

Dr. Brown holds a bachelor's degree in biology from the University of California (at Davis), a master's in marine environmental science from the State University of New York (at Stony Brook), and a doctorate in wildlife and fisheries science from the University of Arizona.

The Delaware River Basin Fish and Wildlife Management Cooperative guides interstate fisheries management and restoration efforts for the Fisheries Service and the state fisheries agencies in Delaware, Pennsylvania, New York, and New Jersey. The cooperative was established in 1972.

### Welcome Aboard

#### These employees recently joined the commission:

**Robert A. Tudor, Deputy Executive Director**

**Dennis Herbert, Support Services Technician**

**John Yagecic, Water Resources Engineer/Modeler**

**Anthony Bonasera, Geologist/Hydrologist**

**Donna Gushue, Secretary**

**Daniel Liao, Water Resources Engineer/Modeler**

**Martha-Maxwell Doyle, Estuary Program Assistant**

**Denise McHugh, Secretary**

**Lance Miller, Acting Branch Head,**

**Planning and Implementation**

**David Sayers, Environmental Technician**

**Geoffrey Smith, Field Technician**

**Donna Woolf, Secretary**

**Jonathan Zangwill, Water Resources Planner**



## The Delaware River Basin Commission

# A Unique Partnership

**Y**ears before there was a U.S. Environmental Protection Agency, or a federal Clean Water Act, or even an environmental movement, a little government agency was hard at work restoring life to one of America's most polluted rivers.

A pioneer in environmental protection, the Delaware River Basin Commission (DRBC) got its start on October 27, 1961, the day the Delaware River Basin Compact became law. The compact's signing by President Kennedy and four governors marked the first time since the nation's birth that the federal government and a group of states joined as equal partners in a river basin planning, development, and regulatory agency.

The clean-up of the Delaware and numerous other DRBC accomplishments are rooted in the compact's chief canon - that the waters and related resources of the Delaware River Basin are regional assets vested with local, state, and national interests for which there is a joint responsibility.

Almost 40 years after the compact was signed, Secretary of State Madeline Albright perhaps unwittingly acknowledged the foresight of its authors. In an Earth Day speech on August 12, 2000, she stated:

*“Experts tell us that water management is best done on a watershed or basinwide basis. This requires all who have a stake, whether in or outside government, to join in developing approaches tailored to regional needs.”*

The commission is unique in that the federal government and the four basin states (New York, Pennsylvania, New Jersey and Delaware) are equal partners. They have the collective power to enter into binding agreements on all water-related issues in the basin, located in the most densely populated and intensively industrialized region of the United States. Interstate disputes are settled by a vote of the members, an act that has the force of law without further state or congressional action.

Another unique feature is that the commission, with some 45 employees, has the authority to set water quality standards and allocate surface and ground water within the basin without regard to political boundaries. Such large federal agencies as the E.P.A. and the U.S. Army Corps of Engineers lack such authority. And the four basin states lack the territorial jurisdiction to address problems that transcend state borders. The commission has that power.

Since its inception, the commission has been the successful arbiter in enforcing provisions of a 1954 U.S. Supreme Court decree (and subsequent “Good Faith” agreement) that apportioned the waters of the Delaware - splitting allocations between New York City and down basin users in Pennsylvania, New Jersey, and Delaware.



STEWARD L. UDALL,  
appointed by  
President Kennedy  
as the commission's  
first federal member.

*(Photo from the early 1960s)*





President Kennedy and basin state governors sign ceremonial compact documents at a White House press event held November 2, 1961. Seated, from left, Gov. Robert Meyner of New Jersey; Gov. Elbert Carvel of Delaware; and Pennsylvania Gov. David Lawrence. New York Gov. Nelson Rockefeller was unable to attend. Background, from left, Frank Barry of the U.S. Interior Department; W. Brinton Whitall, the commission's first secretary; Gen. Norman Lack (leaning towards table), alternate commissioner from Delaware; Philadelphia Mayor Richardson Dilworth; Harold Wilm, representing New York State; Dr. Maurice Goddard, secretary of the Pennsylvania Department of Forests and Waters; Vincent Terenzio, New York City Water Board; and Arthur Ford, the water board's chairman.

(Wide World Photos)

On numerous occasions the commission has brought together the decree parties (the three down basin states, plus New York State and the city) to hammer out solutions to water allocation disputes.

The commission's formation changed the Delaware Valley from an arena of conflict to a model of federal-state cooperation - unlike other parts of the country where across-the-border water squabbles continue to run up huge litigation costs. The financial savings in legal fees to all five commission members have far exceeded DRBC's operating costs.

Blazing a new trail in water pollution abatement, the DRBC in 1967 adopted the most comprehensive water quality standards of any interstate river basin in the nation. The standards, which focused on dissolved oxygen levels, were tied to an innovative wasteload allocation program that factored in the waste assimilative capacity of the tidal Delaware River. Interior Secretary Stewart Udall declared at the time:

*“Only the Delaware among the nation's river basins is moving into high gear in its program to combat water pollution.”*

A year later, the DRBC adopted regulations for implementing and enforcing the standards, prompting the Federal Water Pollution Control Administration to observe:

*“This is the only place in the country where such a procedure is being followed. Hopefully, it will provide a model for other regulatory agencies.”*

In years since, the commission has added to its regulatory package, including adoption of standards to protect the high water quality in the upper Delaware River which supports a world class trout fishery.



## The Delaware River Basin Commission

And using the same concept it did in the 1960s, the DRBC has established standards for toxic pollutants found in the river's tidal reach, which serves as the common border for Pennsylvania, New Jersey, and Delaware. Numerous substances are covered under the rules, including PCBs and DDT.

This program highlights the merits of ignoring political boundaries when managing a resource like water. Initially the states had independently developed water quality criteria for the toxic substances to meet requirements of the federal Clean Water Act. Problems inherent in this splintered approach, however, soon became apparent and the states turned to the commission for help. The solution was the formation of a DRBC Toxics Management Program to address the collective needs and goals of the four states and the federal government. After all, it was the health of a river they were concerned with, no matter where the water traveled.

And that was exactly what Congress had in mind when it voted to create the commission back in 1961. As it stated then:

*“The establishment of a single agency to coordinate federal interests in the Delaware River Basin is of as much importance as the joining together of the four states and the resultant coordination of the various state activities. In brief, there is one river, one basin, all water resources are functionally inter-related, and each one is dependent upon the other. Therefore, one comprehensive plan and one coordinating and integrating agency is essential for efficient development and operation.”*

In addition to water quality issues, the commission has programs that address water supply allocation, regulatory review of large water resource projects like waste treatment plants, water conservation, watershed planning, drought management, flood control, and recreation.

The commission's water conservation programs got underway before the concept gained popularity with other agencies. It recognized early on that it was necessary to cut back on the demand side of water supply since a strong environmental voice and a shortage of federal cash had pushed structural solutions (like new reservoirs) pretty much off the table.

The commission estimates savings of some 80 million gallons a day of water by the year 2020 through just one of its water saving initiatives - the mandatory use of low flow plumbing fixtures and fittings. This reduction should save or defer from \$250 million to \$450 million in additional capital costs for in-basin water supply and wastewater treatment plants.

The commission's drought management plan also is designed to save water while augmenting natural river flows through reservoir releases to help protect wildlife and meet the needs of millions of people living downstream. The additional fresh water also helps repel the migration of salty water from the



## The Delaware River Basin Commission

Delaware Bay which can threaten upstream water supplies, cause corrosion problems for industries that use Delaware River water, and increase costs for water treatment.

DRBC members are the four basin state governors and a federal representative appointed by the President of the United States. The members appoint alternate commissioners, the governors traditionally selecting high ranking officials in their respective state environmental agencies.

The fact that five separate governmental bodies with their own sovereign powers can successfully work together on an equal footing in managing a common resource has caught the eye of other river managers. Countries like Slovakia and Australia have used the Delaware River Basin Compact as a model for creating their own river basin commissions. So have the states. Two examples are the recent formations of the Alabama-Coosa-Tallapoosa and the Apalachicola-Chattahoochee-Flint commissions. Both, with the federal government as a partner, were built on the same institutional foundation that has proven so successful in managing the waters of the Delaware River Basin.

Commission representatives have been invited to foreign countries to tell the DRBC story and to offer help in developing new water supply and pollution abatement programs. And delegations from around the globe have visited the commission offices in West Trenton, N.J., to learn about the DRBC's unique governing powers.

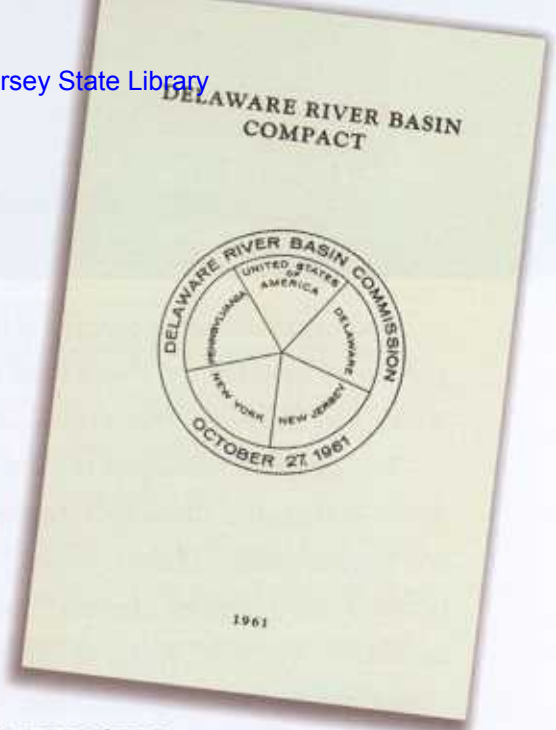
The commission's approach to watershed management places great emphasis on outreach and public involvement. It uses numerous advisory committees to provide input to help shape policy and craft new regulations. Committee members represent a cross cut of basin interests - agriculture, government, academia, business, industry, environmental advocacy.

On the commission's 25th Anniversary, Marilyn Reeves, a director of the League of Women Voters of the United States, touched on the importance of constituent input:

*“In the years ahead the problems of water will be defined and solved through the same imperfect process - a mix of science, uncertainty, value judgments, public perception, and political compromises. Public participation is the only way to ensure that all the elements of that mix are fairly considered.”*

Interior Secretary Udall, appointed by President Kennedy as the commission's first federal member, was the keynote speaker at the 1986 event that recognized a quarter century of hard earned achievements. He spoke of the commission's charge to care for the gift of water for the next generation.

*“The best things in life are free,” he said. “Natural beauty, clean air, clean water. You have to earn them in a way, but they are free. And they must be preserved.”*





## The Delaware

# Steeped in History, Diverse in Nature

**T**he Delaware is the longest un-dammed river east of the Mississippi.

But it's not big as rivers go. The Nile, the Amazon, the Yangtze - each stretch for some 4,000 miles.

The Delaware River and the bay it flows into are but 330 miles long. Size, however, doesn't speak for their might.

Roughly half of New York City's water comes from Delaware River headwater reservoirs. The Delaware and its tributaries serve up water to Philadelphia and a cluster of other nearby riverbank cities, which collectively comprise the world's largest freshwater port.

In all, over 17 million people, or 6.4 percent of the U.S. population, rely on the river, its feeder streams, and its reservoirs for their water.

The Delaware is a river of diverse demands and moods. Fed by the runoff from four states, it tumbles out of New York State's Catskill Mountains, trips over the rocks at the head of tide at Trenton, then glides towards the Delaware Bay.

Giant cargo ships and barges cross the bay or enter it through the Chesapeake and Delaware Canal to off-load at piers along the river's tidal reach, the products supporting a sprawl of heavy industry and one of the nation's largest oil refining-petrochemical centers. Upstream, bald eagles hunt for prey along the river's main stem and feeder streams that support a world class trout fishery. Canoeists and tubers seek out riffles and rapids.

The Delaware is abundant with natural wonders, its waters beckoning those yearning for a true river adventure.

And like the land it dissects, it is steeped in history.

It winds through Pennsylvania's Lehigh Valley, birthplace of America's Industrial Revolution.



On Christmas night, 1776, George Washington crossed the Delaware River with 2,400 men and 18 pieces of artillery and won a devastating victory over a Hessian garrison at Trenton, N.J., early the next day.  
*(The American Revolution, John Grafton)*



## The Delaware



Ice coats the Delaware River at Philadelphia during the winter of 1856.

(Courtesy of Harry Shaw Newman, The Old Print Shop)

George Washington and his Continental Army crossed the Delaware on Christmas night, 1776, ambushing a party of Hessian troops in Trenton. It was a turning point in the Revolutionary War. Forty-four war ships rot in watery graves on the river's bottom, scuttled during that war to keep them out of enemy hands. During the Civil War, 12,000 Confederate soldiers were imprisoned on Pea Patch Island, downstream of New Castle, Del., a riverbank settlement colonized by the Dutch in 1651.

William Penn signed a treaty with the Lenape Indians on the Delaware's banks.

The river empties into the bay, which washes by old whaling towns. Upstream it flows beneath the Delaware Aqueduct, built by engineer John Roebling who designed the fabled Brooklyn Bridge. Facing the aqueduct, said to be the oldest existing wire suspension bridge in the United States, is the house where Zane Grey lived before heading West. He left a New York City dental practice behind, plus a lot of lore.

Grey and others wrote about the river.

Walt Whitman discovered poetry in its commerce, describing the steam tugs that plied it as "saucy little bullpups of the current."



William Penn was 38 years old and a Quaker when he first came to America. He was the son of an admiral and, in his youth, served briefly in a military capacity in Ireland, at which time this picture was made.

(Watson's "Annals of Philadelphia")



Rudyard Kipling wrote about war:

*The snow lies thick on Valley Forge,  
The ice on the Delaware,  
But the poor dead soldiers of King George  
They neither know nor care.*

Thomas Eakins painted sailboats skipping over the bay's white-capped waves and sculls racing on the Schuylkill, the Delaware's largest tributary.

As a result of a remarkable comeback in water quality and a growing appreciation of her myriad attractions, much of the Delaware River and numerous feeder streams today are part of the National Wild and Scenic Rivers System - a designation most often reserved for bucolic trout streams out West. And the tidal reach of the Delaware, along with the Delaware Bay, are part of the National Estuary Program, a project set up in 1988 to protect estuarine systems of national significance.

"... the future of the Delaware River ... is vital to the economy of the regions surrounding this important waterway," noted President Clinton after signing a bill designating a reach of the lower Delaware as part of the scenic system. "By allowing local municipalities to sustain and protect the Delaware River as one of our nation's national treasures, this law will help to ensure the vitality of these communities and the quality of life of their citizens."



A canal boat crosses the Delaware River via the Delaware Aqueduct. The last passage by boat occurred in 1898.

(Courtesy of Mrs. Louise K. Flora)

## A REMARKABLE RECOVERY

**B**lazing a new trail in water pollution abatement, the Delaware River Basin Commission in 1967 adopted the most comprehensive water quality standards of any interstate watershed in the nation. The standards were tied to an innovative waste load allocation program which factored in the waste assimilative capacity of the tidal Delaware River. A year later, the commission adopted regulations for implementing and enforcing the standards, prompting the Federal Water Pollution Control Administration to observe: "This is the only place in the country where such a procedure is being



## The Delaware

followed. Hopefully, it will provide a model for other regulatory agencies."

Today, the Delaware River supports year-round fish populations, offering excellent trout, bass, walleye, herring, and shad fisheries. A telltale year in the river's comeback was 1981 when Fred Lewis, operator of the only commercial shad fishery on the non-tidal Delaware, netted 6,392 shad. It was the biggest catch since 1896 when his father was running the business.

"... the cleanup of the Delaware has been heralded as one of the world's top water quality success stories," remarked Delaware Governor Thomas R. Carper at a riverbank ceremony in 1996.

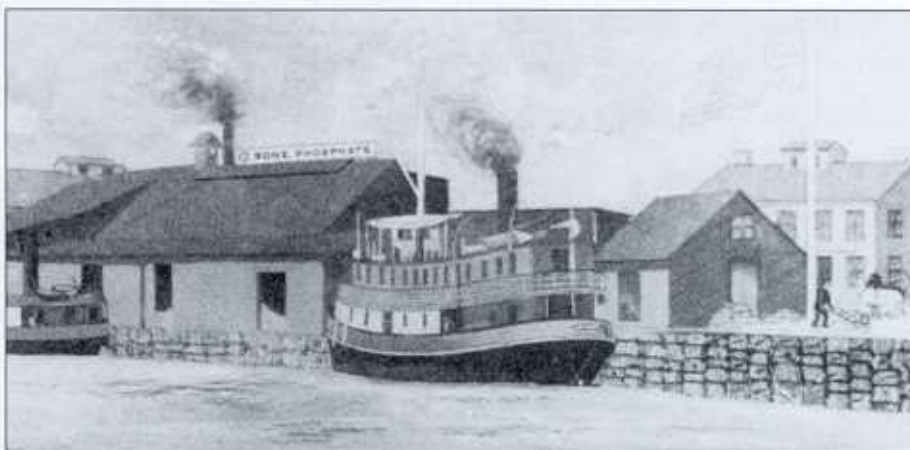
Perhaps Charles Kuralt had the Delaware in mind when he mused: "I started out thinking of America as highways and state lines. As I got to know it better I began to think of it as rivers. America is a great story, and there is a river on every page of it."

But it was U.S. Supreme Court Justice Oliver Wendell who perhaps best captured a feel for the river's true worth. In a 1931 decision involving the sharing of the Delaware's waters he wrote, "A river is more than an amenity, it is a treasure."



A Delaware River rafting crew. The captain is on the extreme left.

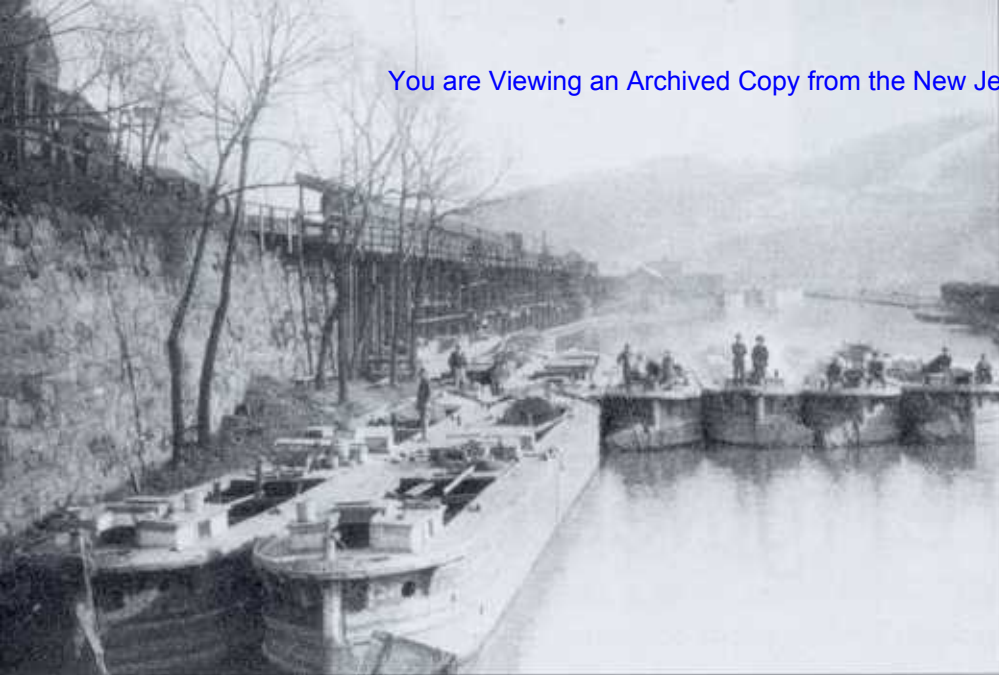
*(Courtesy of Mrs. Walter J. Hankins)*



The town of Smyrna on the Smyrna River in Delaware exported peaches and phosphate. J. E. Tygert & Co. owned this steamboat which, beginning in 1875, carried produce and passengers to Philadelphia.

*("Encyclopedia of Delaware")*





Port Delaware, (near Phillipsburg, N.J.) was the location where coal barges from the Lehigh River crossed the Delaware and entered the Morris Canal on their way across New Jersey to Newark.

*(Courtesy of William Augustine)*



## The Delaware River Basin

The Delaware River Basin extends 330 miles from its headwaters at the Catskill Mountain town of Hancock, N.Y., to the mouth of the Delaware Bay. The basin contains 13,539 square miles, draining parts of Pennsylvania (6,422 square miles, or 50.3% of the basin's total land area); New Jersey (2,969 square miles, or 23.3%); New York (2,362 square miles, 18.5%); and Delaware (1,002 square miles, 7.9%).

From Hancock, the river flows for 282 miles before emptying into the Delaware Bay at Liston Point, Del. The mouth of the bay (where the bay empties into the Atlantic Ocean) is marked by an imaginary line connecting Cape Henlopen in Delaware and Cape May in New Jersey. The bay itself is 48 miles long (from Liston Point to its mouth).



## Kids ... Go Figure!

# They Have, and What They're Learning is Pretty Neat!

**V**ast imaginations and burning curiosity feed the minds of children. Their verbalized thoughts can be deeply insightful, often spontaneous, refreshing, funny, with an innocence not found in old age.

"As I watch the water of the Delaware Bay ruffle, I can't help but think to myself the importance of the bay to the animal society. The bay is a wonderland of living creatures. As the life cycle goes on, the bay stays the same in its inner beauty. I personally love the bay. I like to fish and walk along the sparkling shores of the bay. The bay is also very fragile in its workings. If the cycle is disturbed by too much industry, the animals will perish in mankind's greedy hunt for money. The fish and other organisms are the owners of the bay."



Clifford Fair II, a tenth grader at Philadelphia's Northeast High School, depicts, in an award-winning drawing, the obstacles anglers can encounter when fishing in polluted waterways. Winning drawings are displayed on the city's SEPTA buses and subway cars as part of a pollution prevention advertising campaign. Other posters are found throughout this chapter.

Grayson Hooper, an elementary school student in New Jersey's Maurice River Township, wrote these words a few years ago as part of an Earth Day celebration. The students were asked to put on paper what it means to grow up along the Maurice River, a tributary of the Delaware Bay and part of the National Wild and Scenic Rivers System. From the responses, it's clear they've figured out how important it is to protect the fragile environment around them.





Nora Langan, a fifth grader at Springside School.

"I like to see funny looking crabs try to hurry across the sandy road. I like to count the different sounds and shadows."

"I like the way the waves sound when they brush against a big rock and I imagine the clouds as animals."



"As the water from the Maurice River splashes up on my face, where I fell off water skiing, I wonder: What would I do without all of this? Without the beautiful flowers and the awesome bald eagle flying above us. Without the best tasting fish, without the cool refreshing water, without the crabs biting my toes, what would I do? Probably sit home and watch TV and become fat." – RONNIE RIGGINS

The DRBC has been a faithful exhibitor at Bay Day over the years and at other events that stress the importance of getting youth involved in environmental issues so they can carry the message and mission into adulthood. It's pretty clear that they're learning their lessons well.



## Kids ... Go Figure!

### RIVERS: CLASSROOMS FOR CREATIVE EXPRESSION

**I**n May 2000, the commission's executive director, Carol Collier, was the keynote speaker at the Delaware Watershed Education Student Leadership Summit, another annual event consisting of a non-competitive forum for 7th through 12th grade students held at a riverside retreat center downstream of the Delaware Water Gap. The summit featured research on local watersheds while focusing on problem-solving skills and stewardship for the environment.

"I strongly believe that a watershed is the correct unit for environmental management, whether it is a large watershed like the whole Delaware River Basin, or a smaller one like Bushkill Creek," noted Ms. Collier.

"While the DRBC needs to look at the big picture, most improvements will be made at the local watershed level. Watershed decisions - quality goals, water use, and processes to address these issues - are best made and implemented by watershed partnerships with significant input from local interests. That is why providing a forum for students to share information and ideas about their own local watersheds is so important."

There were presentations by two other DRBC employees at the summit: Warren Huff, head of the Informational Services Branch, spoke on using Geographic Information Systems (GIS) to explore the Delaware River, and Clarke Rupert, the DRBC's assistant public information officer, sketched the commission's unique history.

The event, organized by the Pennsylvania Bureau of State Parks and co-sponsored by Easton Area High School, Wildlands Conservancy, and the commission is living testament that rivers throughout the basin are becoming classrooms for student research and creative expression.



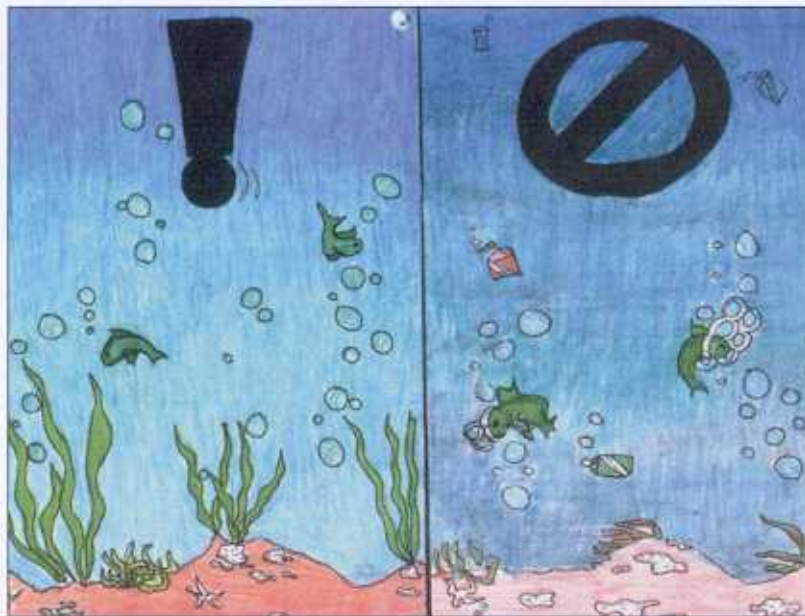
Shirley Lu, a member of the kindergarten class at Solis Cohen School.

### KIDS AND CLEAN WATER

**C**reativity has been the common ingredient in poster contests designed to teach public and parochial school students in Philadelphia ways to prevent pollution from storm water runoff. The drawings end up in calendars titled "Clean Water Begins and Ends With You."



Images on the calendar panels depict such things as litter pick-ups, recycling of motor oil, empty potato chip bags riding a crest of water towards a storm inlet, a dog with a smile of approval over its master's proper disposal of trash, fish skeletons swimming in polluted water, fish entangled in



Clara-Lynne Bah, an eighth grader at Francis de Sales School.

plastic six-pack wrappers, and a bewildered young fisherman hooking a toilet seat in a litter-strewn stream.

Contest sponsors include the Philadelphia Water Department, the Partnership for the Delaware Estuary, Inc., and Pennsylvania Coastal Zone Management Program. DRBC staffers have served as contest judges and participated in the awards ceremony. Funds have been provided through "Growing Greener" grants from the Pennsylvania Department of Environmental Protection.

Winning posters are displayed on the city's SEPTA buses and subway cars as part of a pollution prevention advertising campaign.



## DRBC STAFF HELPS TEACHERS DEVELOP CLASSROOM TOPICS

Two New Jersey high school science teachers spent much of the summer of 2000 with the DRBC participating in the 21st Century Science Teacher Skills Project.

Kirsten Conover of Moorestown High School and Phil Levy of Lacey Township High School presented the results of their practical experience project, "Biological and Chemical Monitoring of the Lower Delaware River and Its Tributaries," at a September 2000 symposium hosted by Monmouth University in West Long Branch, N.J. This event also featured presentations by 10 additional teachers who participated in five other projects during the summer.

The two teachers helped DRBC staff members gather biological samples at a number of Delaware River tributaries in New Jersey for later assessment, as well as record physical data and field observations. They also assisted in the continued chemical monitoring of water quality along the lower Delaware River and its feeder streams.

Kirsten and Phil used what they learned to develop a number of classroom activities. One is a short course in limnology, or the study of inland water bodies, that can be incorporated into the ecology section of a biology curriculum.



## Kids ... Go Figure!

Monmouth University piloted this summer program in an effort to improve high school mathematics and science teachers' understanding of how the disciplines they teach are used in society. The primary objective of the program was to enrich classroom teaching by giving teachers practical experience to solve current problems in science and technology.

Congressman Rush Holt (D-N.J.) sponsored the 21st Century Science Teacher Skills Project through a grant from the Fund for the Improvement of Post-Secondary Education.

### EDUCATORS ENCOURAGED TO SHARE INFORMATION

"Ed. Web," an on-line resource to help teachers and students of all ages learn about the Delaware River Basin and general water issues, continues to grow in popularity. During its first eight months of existence during the year 2000 it was accessed over 1,600 times; the number was climbing at year's end.

The Internet site, created by the Delaware River Watershed Education Task Force and hosted by the commission, can be found at [www.drbc.net](http://www.drbc.net) (choose "Ed. Web").

"Ed. Web" visitors can access maps, general information about the Delaware River Watershed, educational resources and lesson plans, environmental field trip ideas, a student showcase, and upcoming educational opportunities throughout the basin.

Educators are invited to share information, such as lesson plans about a watershed, a favorite web

site, or a recommended field trip location. Those interested in contributing to "Ed. Web" should contact DRBC Assistant Public Information Officer Clarke Rupert at (609) 883-9500, ext. 260, or by e-mail ([crupert@drbc.state.nj.us](mailto:crupert@drbc.state.nj.us)).

Original members comprising the Delaware River Watershed Education Task Force include representatives from Alliance for a Sustainable Future, DRBC, Heritage Conservancy, National Park Service, New Jersey Department of Environmental Protection, Partnership for the Delaware Estuary, Inc., Pennsylvania Department of Conservation and Natural Resources, Pocono Environmental Education Center, Princeton University, and Stroud Water Research Center.

People interested in joining the task force should contact Russ Johnson, Heritage Conservancy, at (215) 345-7020, ext. 107. ([rjohnson@heritageconservancy.org](mailto:rjohnson@heritageconservancy.org)).



**Attention Teachers & Students of All Ages!**  
Did you know there is an Internet resource to help you learn about the Delaware River Watershed and general water issues?

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## Ed. Web!

This web site, hosted by the Delaware River Basin Commission (DRBC), can be found at:

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Visitors to "Ed. Web" will find:

 Maps	 Environmental field trip ideas
 Educational resources & lesson plans	 General information about the Delaware River Watershed
 Upcoming educational opportunities	 Numerous links to great web sites

"Ed. Web" is a work in progress and educators are invited to share information, such as lesson plans about their watershed, a favorite web site, or a recommended field trip location. Persons interested in contributing should contact Clarke Rupert at (609) 883-9500 ext. 260 or by e-mail at [crupert@drbc.state.nj.us](mailto:crupert@drbc.state.nj.us)

"Ed. Web" is a project of the Delaware River Watershed Education Task Force, an informal group including representatives from Alliance for a Sustainable Future, DRBC, Heritage Conservancy, National Park Service, New Jersey Department of Environmental Protection, Partnership for the Delaware Estuary, Pennsylvania Department of Conservation and Natural Resources, Pocono Environmental Education Center, Princeton University, and Stroud Water Research Center.





## DRBC HELPS FUND YOUTH WATERSHED CONFERENCE

Over 600 seventh graders attended Water Festival 2000 at Wesley College in Dover, Del., on June 1, 2000 to focus on protecting the state's watersheds.

It was a fun-filled, one-day event featuring interactive presentations and hands-on exhibits staffed by experts from public and private organizations, corporations, and state and federal agencies. The DRBC helped fund and sponsor the event and was among the scores of exhibitors.

Kevin Donnelly, director of the Division of Water Resources in Delaware's Department of Natural Resources and Environmental Control (DNREC) and an alternate commissioner on the DRBC, hosted the opening ceremony.

All the students who attended the festival had been through a seventh grade science program that includes a new and innovative Delaware Watershed Curriculum. Development of the Watershed Unit resulted from an intensive two-year effort involving seventh grade science teachers, watershed scientists, other environmental educators, personnel from DNREC and the Delaware Department of Education.

The unit features a variety of activities and equipment applicable to lab, classroom, and field settings. At last count, more than 27 teachers in 20 of Delaware's middle schools were taking advantage of the new curriculum.

## SNAPSHOT: A MASSIVE COMMITMENT TO CLEAN WATER

The 5th annual Water Snapshot was held April 14-30, 2000, to cast attention on Earth Day and provide an opportunity for the young and old, experienced and first-timers, to collect information about the water quality of their favorite water body in the Delaware River Watershed.

Some participants conducted a visual assessment while others used simple test kits or the hi-tech instruments of seasoned scientists to collect data. The results were recorded on summary sheets provided to participants by the DRBC.

"The results do not reflect exact science, but instead create an awareness of local watersheds and the crucial role they play in all of our lives," notes Carol Collier, the commission's executive director.

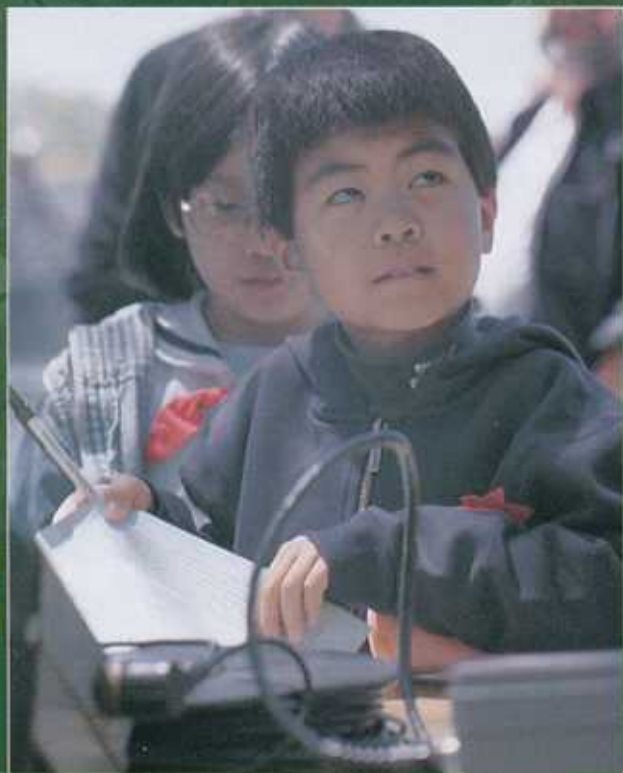
A donation from the William Penn Foundation enabled the DRBC to offer a limited number of free test kits to interested schools, organizations, and individuals on a first-come, first-served basis. In addition to being distributed within the basin, kits were dispatched to an eighth-grader in Woodbridge, Va., and an 11th grade class in Deltona, Fla., after word of the offer spread via the commission's web site.

As a result of the DRBC's active participation in Water Snapshot since its inception in 1995, the commission received the "First Annual Excellence in the Estuary Award for Citizen Monitoring" from the Partnership for the Delaware Estuary, Inc. The partnership recognized the commission for its leadership role in "Snapshot 2000, which united and educated diverse audiences to build stewardship for the region's waterways."

Training for participants of Snapshot 2000 was provided by the Delaware Riverkeeper Network, Pennsylvania Department of Conservation and Natural Resources (DCNR).







Steven Yang, 8, of West Windsor, N.J., awaits further instructions from DRBC staff as he samples the quality of Delaware River water during the annual Shad Fest held in Lambertville, N.J. The celebration heralds the return each spring of this migratory fish species which has made a remarkable resurgence in numbers as a result of improved water quality in the river. The Shad Fest is one of the stops for DRBC staff who take to the waterways each year to participate in both Snapshot and Earth Day celebrations.

*(Photo by Chris Roberts)*

Delaware Department of Natural Resources and Environmental Control (DNREC), and the Delaware Nature Society.

In addition to the DRBC, the Water Snapshot 2000 Steering Committee included representatives from DNREC, DCNR, the Riverkeeper, National Park Service, New Jersey Department of Environmental Protection, New York State Department of Environmental Conservation, Pennsylvania Department of Environmental Protection, Pennsylvania Environmental Council, Pocono Environmental Education Center, Upper Delaware Council, U.S. Environmental Protection Agency, and the U.S. Geological Survey.

A brochure prepared by the DRBC titled "Snapshot: A Report Card on the Health of Delaware River Basin Waterways" is available to the public. It details the event's history, describes some of the past participants (governors, little kids, playful dogs) and explains the common water quality components (like dissolved oxygen) used in monitoring programs. The brochure can be obtained free of charge by contacting the commission. It also can be downloaded from the DRBC's web site.

## THE ULTIMATE CLASSROOM: THE RIVER

The Bucks County Audubon Society and the society's Pennsylvania Chapter presented a five-day workshop July 17-21, 2000, for local teachers that focused on the Delaware River Basin's cultural and natural history.

The course emphasized relationships between local watersheds and the greater Delaware River bioregion, helping the teachers to better utilize regional resources in their classroom instruction. One day was spent in the ultimate classroom - the river itself - as the teachers canoed from Raubs Island to Upper Black Eddy.

David Pollison, at the time head of the commission's Planning and Implementation Branch, and Chris Roberts and Clarke Rupert from the commission's Public Information Office, were among the guest speakers at the event.



## National Wild & Scenic Rivers

# Lower Delaware Designated Wild & Scenic

## WHITE CLAY CREEK ALSO ADDED TO NATIONAL SYSTEM

**T**he United States Congress gave its final approval to two bills in October 2000 that added a section of the lower Delaware River and the White Clay Creek to the National Wild and Scenic Rivers System. Both bills were signed into law by President Clinton.

Over three-quarters of the non-tidal Delaware River main stem are now included in the national system. In a congratulatory letter to U.S. Rep. Rush Holt (D-N.J.), President Clinton wrote:

*“As you know, the future of the Delaware River, the longest free-flowing river in the eastern United States, is vital to the economy of the regions surrounding this important waterway. Wild and Scenic River designation will encourage natural and historic resource preservation and protect precious open space. By allowing local municipalities to sustain and protect the Delaware River as one of our nation's national treasures, this law will help to ensure the vitality of these communities and the quality of life of their citizens.”*



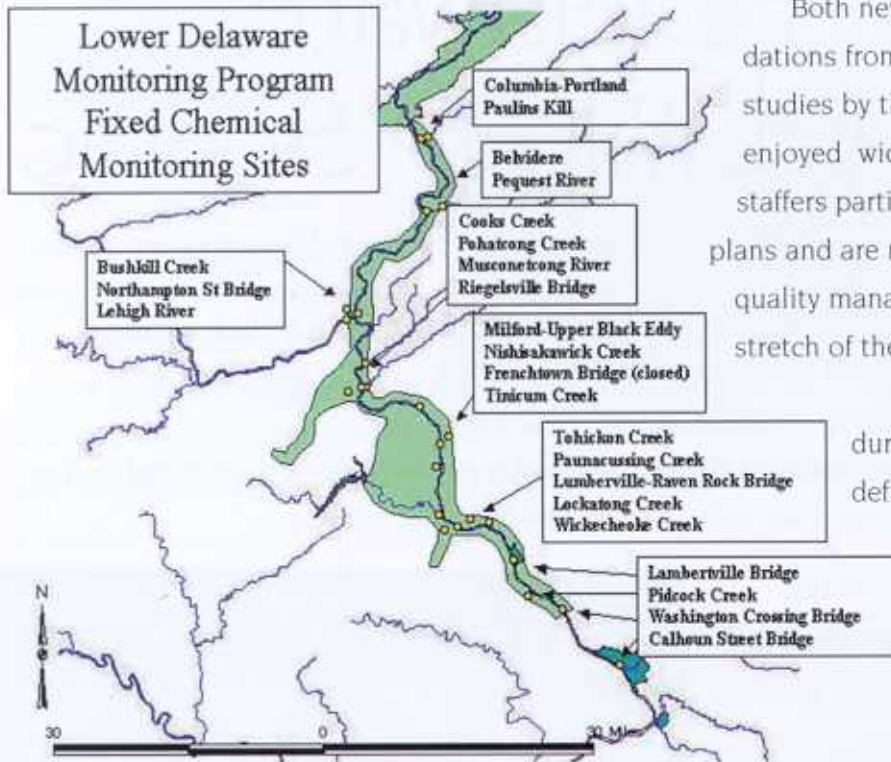
The Scenic Delaware

The Lower Delaware Wild and Scenic Rivers Act adds about 65 miles of the Delaware and selected tributaries to the national system, linking the Delaware Water Gap and Washington Crossing, Pa., just upstream of Trenton, N.J.

The White Clay Creek Wild and Scenic Rivers System Act designates approximately 190 miles of segments and tributaries of the White Clay Creek as components of the national system. The creek flows from southeastern Pennsylvania to northwestern Delaware and eventually joins the Christina River, a tributary to the Delaware River. It is the first wild and scenic river designation in the state of Delaware.



## National Wild & Scenic Rivers



Both new laws implement recommendations from earlier, congressionally mandated studies by the National Park Service, which enjoyed widespread local support. DRBC staffers participated in the development of both plans and are now engaged in developing a water quality management strategy for the designated stretch of the Lower Delaware River corridor.

Forty-two sites were monitored during the year 2000 to statistically define existing water quality. The monitoring data will be used to establish an anti-degradation program aimed at safeguarding public health and safety.

The sampling consists of two components: routine baseline

monitoring, including chemical and physical parameters; and biological monitoring.

According to the National Park Service, when Congress created the National Wild and Scenic Rivers System in 1968 it envisioned a cooperative system that would rely on the combined efforts of state, local, and federal government agencies along with individual citizens and non-governmental organizations. The system was intended to be flexible enough to provide a means for communities to protect their rivers in a way that is sensitive to the needs and concerns of the people who live, work, and recreate along the rivers.

The Lower Delaware bill was introduced by Sen. Frank Lautenberg (D-N.J.)<sup>\*</sup> and co-sponsored by Senators Rick Santorum (R-Pa.), Robert Torricelli (D-N.J.), and Arlen Specter (R-Pa.). Similar legislation was introduced and co-sponsored by U.S. Reps. Jim Greenwood (R-Pa.), Rush Holt, Marge Roukema (R-N.J.), Patrick Toomey (R-Pa.), Rob Andrews (D-N.J.), and Chaka Fattah (D-Pa.).

The White Clay Creek bill was introduced by Sen. Joseph Biden (D-Del.) and co-sponsored by Sen. William Roth (R-Del.)<sup>\*</sup> Similar legislation was introduced and co-sponsored by U.S. Reps. Joseph Pitts (R-Pa.), Michael Castle (R-Del.), and Rob Andrews.

Two reaches of the Delaware River totaling just over 100 miles were added to the national system in 1978. One section extends 73 miles from the confluence of the river's East and West branches at Hancock, N.Y. downstream to Milrift, Pa.; the second covers about 40 miles from just south of Port Jervis, N.Y. downstream to the Delaware Water Gap near Stroudsburg, Pa. Combined, these two river corridors take in approximately 125,000 acres.



## A Romantic Catch

A telltale chapter in the Delaware River's water quality success story occurred in 1981 when Fred Lewis, operator of the only commercial shad fishery on the non-tidal river, netted 6,392 shad. It was the biggest catch since 1896 when his farther was running the business. These photos, taken on or near Lewis Island at Lambertville, N.J., where Shad Fest activities are held each year, show boatmen setting the net and cooks grilling shad fillets. The wood carving of a shad, displayed in the window of an antique shop, is emblematic of the local romance with a fish that once was a mainstay in the economy of this riverside town.

*(Photos by Robert J. Salgado, New Hope, Pa.)*

In addition, the Maurice River and several tributaries, including Menantico and Muskee Creeks and the Manumuskin River, were added to the National Wild and Scenic Rivers System in 1993. The Maurice, located in New Jersey, is a Delaware Bay tributary.

*\* The terms for Senators Lautenberg and Roth expired in January 2001.*





## Floods:



Nancy Johnson, 19, and Linda Christensen, 11, survived the floodwaters of August 18, 1955, which destroyed Camp Davis, a Pocono Mountain retreat operated by a retired Baptist minister. A few hours before this photo was taken, Linda's father identified the bodies of his wife, son (Linda's brother), his sister, and his sister-in-law. "I'm just thankful my little girl is safe," he said. "Now I have someone left."

# The Damage Can Be Immense, the Suffering Irreparable

## IMPROVEMENTS PLANNED FOR FLOOD WARNING SYSTEM

**P**lans are underway to upgrade the flood warning system for the Delaware River and some of its feeder streams, a move aimed at reducing flood losses in future years.

The U.S. Geological Survey (USGS) and National Weather Service (NWS) have obtained funding to add much needed monitoring and communications equipment to the Delaware River Basin's flood alert system during the coming year. The move is partly in response to serious flooding in the basin caused on September 16, 1999 by the remnants of a nasty hurricane named Floyd. Damage was estimated at \$140 million.

Proposed additions and upgrades to the warning system include:

- A new stream-gauge for the Schuylkill River at Norristown, Pa.
- Re-installation and modernization of a stream gauge at Tocks Island, N.J., in the Delaware Water Gap National Recreation Area.
- Improved hydrologic data for stream gauges at four locations, the Lehigh River at Lehigh, Pa., the Schuylkill River at Berne, Pa., the Brodhead Creek at Minisink Hills, Pa., and the Perkiomen Creek at Graterford, Pa.
- Improved monitoring at the stream gauge on the Brodhead Creek at Minisink Hills.



- Modernization of the NOAA (National Oceanic and Atmospheric Administration) Weather Radio system in Philadelphia to improve coverage.
- Addition of two new NOAA Weather Radio transmitters in Sussex County, N.J., and in Sudlersville, Md. These combine with existing transmitters to extend weather radio coverage throughout the entire Delaware River Basin.

In addition to these improvements, the DRBC staff, with technical support from the commission's Flood Advisory Committee, has developed its own set of recommendations to upgrade flood warning equipment and modernize flood warning technology. A primary objective is expansion of the National Weather Service's Advanced Hydrologic Prediction Services (AHPS) system within the basin.

AHPS delivers long-range hydrologic products, including flood and drought predictions and water supply guidance. The products include information about forecast uncertainties as well as the probability that certain weather scenarios will occur.

The DRBC staff recommendations have been endorsed by Congress' Delaware River Basin Task Force, created to advance interstate watershed management within the basin. Funding for implementation is being sought.

The task force is co-chaired by Sherwood Boehlert of New York, Robert Borski of Pennsylvania, Michael Castle of Delaware, and Rush Holt of New Jersey.

The overall goal of flood preparedness is to reduce loss of life and property damage. There



High waters from the May 1942 flood inundate Bethlehem, Pa.



It is estimated that flood damage in the United States amounts to some \$4.5 billion a year - \$35 million in the Delaware River Basin. And flooding often disrupts government at high levels where officials must turn their attention away from other high priority issues to deal with it. Following the record flood of 1955 President Eisenhower (seated second from right) left the White House to meet with governors of flood-stricken eastern states at Windsor Locks, Conn. after flying over the stricken area.



## Sending the Right Signal

The creek's rising, top heavy with flood waters. Will we be okay?

Stay tuned ... to a NOAA weather radio.

These devices, along with standard radio channels, television, and emergency communications networks, are used to broadcast flood forecasts to local emergency managers in the Delaware River Basin.

The NOAA radios often can provide you the lead time necessary to escape the ravishes of a flood. The battery operated receivers can be purchased at many electronics stores at a relatively low cost (usually under \$35). The National Weather Service, the U.S. Geological Survey, and the commission urge anyone living along a waterway to purchase such a radio, which often is capable of automatically sounding an alarm when an emergency signal is transmitted.

The cost of these radios with their early alert systems is minuscule considering their potential to reduce economic losses due to flooding - estimated annually at \$4.5 billion nationally and \$35 million within the basin.

And they just might save your life.

are many activities, in addition to flood warning and response programs, which support this aim: flood plain regulations, property buyouts, storm water management, flood-proofing, and structural flood controls like dams and levees. These are particularly important to prevent new flood damage in developing areas and encourage wise flood plain use.

The commission's Flood Advisory Committee, established in March of 2000, is part of an effort to boost public awareness of flooding potential and improve coordination among various agencies. The committee is designed to promote efficient use of technical and financial resources for the benefit of the basin community. It will forward any recommendations to the commission for submission to organizations with flood preparedness and flood loss reduction responsibilities.

The committee held its first meeting on September 7, 2000. Its members include representatives from 18 organizations within the basin with responsibilities in flood loss reduction. Solomon Summers, director of the NWS's Eastern Regional Office, was elected chair; Clarke Gilman, who directs flood plain management at New Jersey's Department of Environmental Protection, vice chair.



The Assunpink Creek in Trenton, N.J., spilled over its banks in July of 1975 causing serious flooding throughout the area.



## Stream Quality Objectives

# DRBC Takes Action to Control Delaware River Toxics

The commission has taken action to ensure that stream quality objectives for certain toxic pollutants in the tidal Delaware River are met as part of a continuing program to protect human health and aquatic life.

"The move is aimed at protecting the health of some two million people living in southern New Jersey, Delaware, and southeastern Pennsylvania who rely on the Delaware River for drinking water," noted Carol R. Collier, the commission's executive director. She added that the move also is intended to safeguard aquatic life, noting that thousands of people eat fish caught in the river.

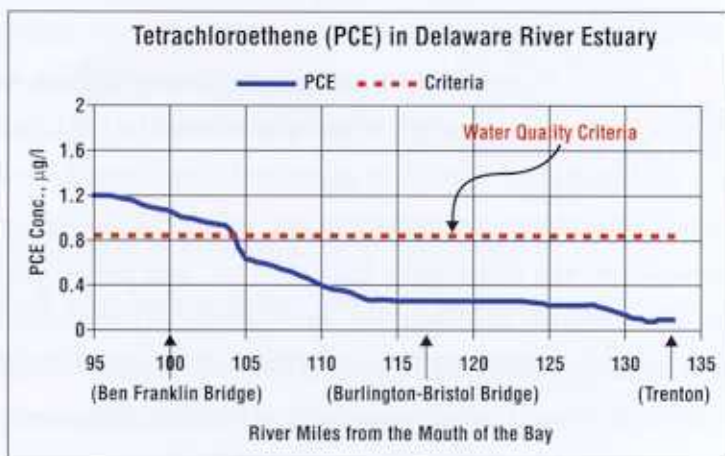
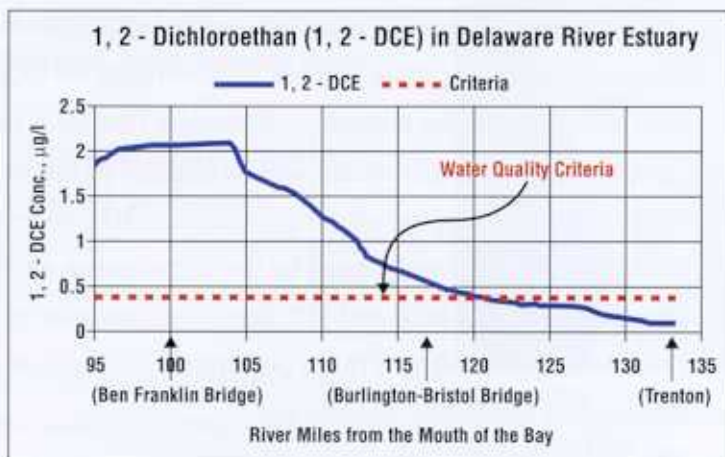
By a 5-0 vote, the commission ruled on January 26, 2000 that allocations of waste assimilative capacity are necessary to maintain the stream quality objectives for two substances, 1,2 dichloroethane (DCE) and tetrachloroethene (PCE), in a 38-mile reach of the Delaware from Trenton, N.J., downstream to just above Philadelphia International Airport.

Both pollutants have been identified by the U.S. Environmental Protection Agency as "probable human carcinogens." Both are solvents used in the manufacture of chemicals and in the dry cleaning business.

The commission also determined that allocations of waste assimilative capacity are necessary for acute and chronic toxicity in certain individual discharges in a 85-mile stretch of the river from Trenton downstream to the head of the Delaware Bay, near Liston Point, Del.

Acute and chronic toxicity indicate the combined effect of multiple pollutants on aquatic life.

Assimilative capacity is the ability of a water body to dilute or break down a pollutant to a point where it does not exceed a stream quality objective.





## Stream Quality Objectives

Commission staff will provide a numerical value for the assimilative capacity for DCE and PCE which can be used by New Jersey, Delaware, and Pennsylvania in establishing total maximum daily loads (TMDLs) as appropriate under the federal Clean Water Act.

A TMDL is the total amount of a pollutant or pollutants that can be discharged on a daily basis into a river or stream without exceeding that water body's assimilative capacity.

Staff also was directed to establish wasteload allocations (limits on pollutants contained in a discharger's effluent) or other effluent requirements for DCE and PCE. Acute and chronic toxicity load allocations will be set for individual discharges that have been shown to cause an exceedence of the stream quality objectives. The allocations will be referred to the environmental regulatory agencies in the three states for use in developing effluent limitations, schedules of compliance, and other permit requirements.

Under the resolution adopted by the commission on January 26, Executive Director Collier shall require dischargers of DCE and PCE to collect one year of effluent (discharge) data to measure the magnitude and variability of these pollutants. This will be accomplished before wasteload allocations are established for individual discharges.

The actions taken by the commission are intended to ensure compliance with stream quality objectives, or water quality criteria, adopted by the commission in 1996.

Technical issues relating to the commission actions were debated by members of the commission's Toxics Advisory Committee which was created in 1994. Committee members include representatives from the environmental regulatory agencies in the three down basin states, as well as New York State, the regulated community (municipal and industrial dischargers), the environmental community, academia, agriculture, fish and wildlife management, and public health.

After lengthy deliberations, the committee concluded by two separate votes of 8 to 2 (with municipal and industrial members opposed) that "based upon simple mass balances and complex mathematical modeling, the assimilative capacity of the tidal Delaware River has been exceeded for DCE and PCE in Zones 2 and 3 (between Trenton and Philadelphia) under design conditions."

It also concluded, by unanimous vote, that "localized exceedences of the assimilative capacity of the tidal Delaware River for acute and chronic toxicity have been identified for some individual discharges." Commission staff will continue to work with the advisory committee in studying the potential for cumulative impacts of toxicity.

Fish tissue contamination by other toxic pollutants such as polychlorinated biphenyls (PCBs) in the Delaware River has been highlighted in recent years by the issuance of fish consumption advisories. Anglers have been warned either not to eat or reduce consumption of such species as recreational-sized striped bass, catfish, white perch, and American eel.

These other pollutants are being studied by commission staff for future actions that may be necessary to ensure that stream quality objectives for these pollutants also are achieved.



## Watershed Planning:

# The New Look

The DRBC and Monroe County Conservation District received a Growing Greener Initiative grant in the year 2000 from the Pennsylvania Department of Environmental Protection (DEP) to study a new and much needed approach to watershed management. The Pocono Creek Watershed in Northeast Pennsylvania was selected as the study site.

Regulations now on the books typically force a piecemeal approach to watershed management. Elements like land use, water quality and quantity, and the important connection between surface and ground water, often are treated separately at the expense of cost-effective and innovative solutions.

The new approach, goal-based watershed management, lumps these important elements together into a cohesive plan which is based on active community participation. It starts with local communities setting both water resource and socioeconomic goals for their watershed.

The water resource goals address water quality, water quantity, fish species, habitat, and streambank erosion. The socioeconomic goals address future conditions needed to support the local economy and the desired quality of life for residents.

Once the goals are established, management strategies are developed to meet them. These strategies are evaluated in terms of their costs and other socioeconomic impacts. The communities then select and implement the preferred approach.

Other partners in the study include the Monroe County Planning Commission, Brodhead Watershed Association, Pennsylvania Fish and Boat Commission, DEP, Pennsylvania Department of Transportation, U.S. Geological Survey, and Villanova University. The seven municipalities within the watershed - Hamilton, Jackson, Pocono, Stroud, Tobyhanna, and Tunkhannock Townships as well as Stroudsburg Borough - are actively involved.



Cranberry Bog, which feeds Cranberry Creek in the Pocono Creek Watershed (Photo by Robert Limbeck)



## Watershed Planning:

### POCONO CREEK

Pocono Creek is a tributary to McMichael Creek in the Brodhead Watershed. Land use is mainly residential and includes Big Pocono State Park, Camelback Ski Area, the Nature Conservancy's Tannersville Cranberry Bog, and state game lands. Interstate 80 and State Route 611 bisect the watershed.

Pocono Creek is designated as a High Quality-Cold Water Fishery under Pennsylvania's water quality regulations.

The 46 square-mile watershed is an excellent area for the pilot study because of its high quality water coupled with tremendous growth. It has a tourist- and recreation-based economy that relies on the preservation of its natural resources.

Just as every watershed is different, so too should each watershed plan be unique. Goal-based watershed management is performance-based, rather than prescriptive. The objective is to set environmental goals and standards that must be met and provide support to local governments in achieving them.

Different goals can be set in different parts of the watershed. Existing state and federal regulations will determine the minimum environmental standards necessary to protect the existing quality and uses of Pocono Creek. The local communities may want more stringent water resource goals in all or parts of the watershed. Once the goals are set, the partners will develop possible management scenarios, which will most likely be different in different areas of the watershed. The partners will then evaluate the net costs and other socioeconomic issues for each management scenario.

The "what" (environmental goals and standards) is set by the local community and the regulatory agencies; the "how" (ways to meet the goals and standards) is entirely a local decision.

There can be a host of solutions. Some may be nonstructural, such as educating the community about lawn care and stream stability, and controlling runoff with vegetation. Others may be based on better integrating water resource protection in land use planning, or may stress the relationship between storm water control, ground water recharge, stream quality, and land use. Finally, some solutions may involve more traditional approaches of point source regulations and structural controls.

The most important aspect is that the local stakeholders within the Pocono Creek Watershed will have a voice in shaping their watershed's future by developing and implementing management approaches that will ensure a sustainable quality of life, environment, and economy.

Fowler's Toad - Michael A. Hogan  
([www.hoganphoto.com](http://www.hoganphoto.com))





## The Sojourn:

# A River Adventure

**D**elaware River Sojourn 2000, an event to highlight the historical, environmental, and recreational significance of the longest un-dammed river east of the Mississippi, was held the third week of June.

The sojourn is an annual affair combining canoeing, camping, and educational programs. For the first time in its six-year history, participants paddled in all four states within the Delaware River Basin - Pennsylvania, New Jersey, New York, and Delaware.

On June 23 the sojourners took part in OpSail 2000, a parade of tall ships that docked in Philadelphia and Camden before journeying to



The Kathryn B, a 105-foot topsail schooner from Port Rockland Harbor, Maine, participates in OpSail 2000, the next to last leg for many of the participants in the sojourn. (Photo by Clarke Rupert)



An American flag juts from one of the red sails of the Jolly Rover, which serves as a "learn the ropes" classroom for Philadelphia area inner city kids willing to put up with discipline for river adventure. The youngsters, under adult supervision, do everything from piloting the 60-foot vessel to rigging sails and charting nautical courses. Based in Philadelphia, the Jolly Rover was among the tall ships taking part in OpSail 2000. (Photo by Chris Roberts)

New York City for July 4th celebrations.

The eight-day canoe trip covered more than 100 miles, beginning at Hancock, N.Y. The paddlers wound up their journey with a picnic in Delaware. Along the way, sojourn participants and well-wishers signed a wooden canoe paddle, a symbol of the collective spirit and camaraderie that is such a big part of the event.

The passing of the paddle downstream to the estuary also was a gesture to emphasize that the non-tidal reach of the river traveled by the canoeists is simply an extension of the tidal portion plied by the tall ships.



## Passing the Paddle

A ceremonial paddle made its way through all 50 states between April 1 and October 7, 2000, to promote the importance of the nation's more than 3.2 million river miles and their watersheds.

State and national officials, along with boaters from across the country, passed the paddle from one state to another, using rivers that form state boundaries or flow from state to state. The 25,000-mile odyssey included 1,000 miles by water, 8,000 by air, and 16,000 by land.

The passage of the paddle from Pennsylvania to New York took place August 25 mid-way across Roebling's Delaware Aqueduct after a symbolic dip in the Upper Delaware Scenic and Recreational River.

Carol Collier, the commission's executive director, joined officials from both states, the Upper Delaware Council, and the National Park Service to offer remarks in a public ceremony on the Pennsylvania side of the river in Lackawaxen.

After several other ceremonial stops in the Delaware River Basin, including the Hamilton/ Trenton Marsh, the paddle sailed across the Delaware Bay on the A.J. Meerwald, New Jersey's official tall ship, from its home port along the Maurice River in New Jersey to the state of Delaware. On October 1, the paddle passed from the Meerwald's crew to Delaware Governor and DRBC Chair Thomas Carper at "Coast Day" on the University of Delaware's Graduate Studies of Marine Science campus in Lewes.

The nationwide "Pass the Paddle" event was organized by the River Management Society, with help from a large and diverse coalition of non-profit organizations, government agencies, local communities, and businesses.

"It is one river system," noted Carol Collier, the DRBC's executive director. "What happens upstream impacts the river downstream. As such, it must be managed as one water body."

On each day of the journey "high admirals" were selected to recognize their dedication to protecting the river system. Among them were Jeanne M. Fox, regional administrator of the U.S. Environmental Protection Agency, Region II; and Robert C. Shinn, Jr., commissioner of the New Jersey Department of Environmental Protection.

Sojourn sponsors included the DRBC, PPL Corporation, Public Service Electric & Gas (PSEG), PECO Energy, and Rohm and Haas.

Event organizers included the American Canoe Association, the DRBC, the Delaware River Greenway Partnership, the Heritage Conservancy, Kittatinny Canoes, Inc., the National Canoe Safety Patrol, the National Park Service, the Partnership for the Delaware Estuary, Inc., the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Department of Environmental Protection, the Pocono Environmental Education Center, the Pocono Mountains Vacation Bureau, and the Upper Delaware Council, Inc.



Delaware Governor and DRBC Chair Thomas Carper accepts the Rivers 2000 paddle from Meghan Wren and the crew of the A. J. Meerwald, in Lewes, Del. Looking on from the dock are, left to right, Kevin Donnelly, director of the Division of Water Resources of the Delaware Department of Natural Resources and Environmental Control (DNREC); Nicholas DiPasquale, DNREC's secretary, and Pearl Burbage, an environmental scientist with the agency. Both Mr. DiPasquale and Mr. Donnelly represent Gov. Carper on the commission.

*(Photo by Chris Roberts)*



## Delaware River Basin Task Force

# Congressional Task Force Formed

A congressional Delaware River Basin Task Force has been created in Washington, D. C., to provide a stronger link among congressional offices, federal and state agencies, and the commission.

The task force will seek to secure appropriations, authorizing legislation, and the administrative actions needed to advance important interstate watershed projects and programs.

The House Delaware River Basin Task Force is co-chaired by U.S. Reps. Sherwood Boehlert (R-N.Y.), Robert Borski (D-Pa.), Michael Castle (R-Del.), and Rush Holt (D-N.J.). Seventeen other members of Congress have signed on. The House task force is hopeful a similar body will be established in the U.S. Senate.

The task force is an offshoot of the River Basin Washington Project (RBWP), created by the Northeast-Midwest Institute to help advance interstate watershed management within the Delaware, Susquehanna, and Potomac river basins. In particular, the project seeks to educate members of Congress about river basin issues and increase their legislative profile.

The RBWP works closely with the DRBC, the Susquehanna River Basin Commission, and the Interstate Commission on the Potomac River Basin. House task forces also have been formed for the Susquehanna and Potomac commissions.

The RBWP has organized briefings on Capitol Hill and is compiling a database of basin-related projects and priorities. It will organize efforts to promote and acquire funding for these projects in Congress.

The Northeast-Midwest Institute, a Washington, D.C.-based, nonprofit and nonpartisan research organization formed in the mid-1970s, is dedicated to economic vitality, environmental quality, and regional equity for Northeast and Midwest states. It fulfills its mission by conducting research and analysis, developing and advancing innovative policy, providing evaluation of key federal programs, disseminating information, and highlighting sound economic and environmental technologies and practices.

Delaware River Basin Task Force co-chairs have hosted several briefings on issues of importance to the basin, including sessions on the effects of severe droughts, pollutant loadings to interstate water bodies, and the devastating financial impacts of floods. The task force currently is hosting a series of briefings at which federal agency personnel describe programs and projects important to the Delaware River Basin.

In addition to the co-chairs, the following members of Congress have joined the Delaware River Basin Task Force: Robert E. Andrews (D-N.J.), Frank A. LoBiondo (R-N.J.), Marge Roukema (R-N.J.), Jim Saxton (R-N.J.), Christopher Smith (R-N.J.), Robert A. Brady (D-Pa.), Chaka Fattah (D-Pa.), George W. Gekas (R-Pa.), James C. Greenwood (R-Pa.), Joseph M. Hoeffel (D-Pa.), Tim Holden (D-Pa.), Paul E. Kanjorski (D-Pa.), Don Sherwood (R-Pa.), Curt Weldon (R-Pa.), Benjamin A. Gilman (R-N.Y.), Maurice Hinchey (D-N.Y.), and John E. Sweeney (R-N.Y.).



## Delaware River Basin Task Force

### VALUABLE INPUT

The commission established three additional advisory committees during the year 2000 in an effort to generate expert input on some priority topics.

They are the Information Management Advisory Committee, the Flood Advisory Committee, and the Monitoring Advisory Committee. The committees report to the commission, often sending along recommendations for action on various subjects.

The Information Management Advisory Committee is charged with developing a unified system of in-basin watershed information as envisioned in the *Comprehensive Conservation Management Plan for the Delaware Estuary* (1996) and the *Flowing Toward the Future: 21st Century Visions and Directions for the Delaware River and its Watersheds* (1999). It also is responsible for identifying basin-wide GIS coverages and making the information available at state GIS clearinghouses.

Members represent the basin states of Delaware, Pennsylvania, New Jersey, and New York, the U.S. Environmental Protection Agency, and academia.

The Flood Advisory Committee was formed to provide a forum for coordination of flood loss reduction and promote efficient use of technical and financial resources for the benefit of the basin community.

Members represent various agencies with flood related duties in the four basin states as well as the Federal Emergency Management Agency, the U.S. Geological Survey, the National Weather Service, the U. S. Army Corps of Engineers, the National Park Service, the Delaware River Joint Toll Bridge Commission, county water resources agencies, hydroelectric and reservoir interests, New York City's Department of Environmental Protection, and the regulated community.

The Monitoring Advisory Committee is charged with reviewing monitoring activities related to water resources management, developing

recommendations for improved monitoring, enhancing coordination among monitoring parties, and assisting in the implementation of a comprehensive monitoring plan for the basin.

As with the other two committees, members include representatives from the four basin states, as well as staffers from EPA, the Corps, USGS, the National Oceanic and Atmospheric Administration, the Park Service, agriculture, academia, the Delaware River Basin Fish & Wildlife Cooperative, the Delaware Riverkeeper Network, the Delaware Valley Regional Planning Commission, and the regulated community.

The commission's other advisory committees are the Flow Management Technical Advisory Committee, the Toxics Advisory Committee, the Water Management Advisory Committee, and the Water Quality Advisory Committee.

### FOOD FOR THOUGHT

The commission hosted three "brown bag" lunches during the year 2000 in an effort to get out the word on important issues involving watershed management.

The sessions were held at the commission's offices in West Trenton and included the following presenters and topics:

TEXAS SENATE BILL I: An Experiment in Regional Integrated Water Resources Planning - Mike Personett, a consultant from Texas.

STORMWATER STRATEGIES: Community Responses to Runoff Pollution - George Aponte Clarke of the Natural Resources Defense Council

And on a more introspective note, Dave Goldberg, the commission's late chief council, and Dick Albert, then basin planner and local history buff, presented a fascinating look at a very unique government agency in a talk titled *The Delaware River Basin Commission - A Retrospective*.



## General Fund

## Financial Summary

## STATEMENT OF REVENUES AND EXPENDITURES - GENERAL FUND

Year Ended June 30, 2000

Budget

Actual

**REVENUES**

Signatory Parties:

Delaware

\$392,000

\$392,000

New Jersey

784,000

784,000

New York

481,500

481,500

Pennsylvania

784,000

784,000

Water Quality Pollution Control Grant

395,735

395,735

Sale of Publications

5,102

5,102

Project Review Fees

415,390

415,390

Reimbursement of Overhead-Agency Fund

80,000

80,000

Investment Income

230,551

230,551

Fines, Assessments and Other Income

2,629

2,629

**TOTAL REVENUES****\$3,570,907****\$3,570,907****EXPENDITURES**

Personnel Services

\$2,121,127

\$2,121,127

Special and Contractual Services

380,422

380,422

Other Services

130,272

130,272

Supplies and Materials

118,774

118,774

Building Operations

181,400

181,400

Communications

45,432

45,432

Travel

69,000

69,000

Maintenance, Replacements and Acquisitions

107,418

107,418

Fringe Benefits

509,384

509,384

**TOTAL EXPENDITURES****\$3,663,229****\$3,663,229**

Excess of expenditures over revenues

(\$92,322)

(\$92,322)

Other financing sources:

Operating transfers in

\$0

\$699,011

Operating transfers out

—

(122,131)

Net transfers in

\$0

\$576,880

**Excess of expenditures over revenues****and other financing sources:****(\$92,322)****\$484,558**

The Energy and Water Appropriations Bill (P.L. 104-206) eliminated federal funding for the Delaware River Basin Commission for the federal fiscal year 1997 (October 1, 1996 through September 30, 1997). The impact of this action amounted to a \$427,000 decrease in federal funding. The fiscal year 1997 budget was amended to reflect this action and the fiscal year 1998 and 1999 budgets were adopted on June 25, 1997 and February 18, 1998 respectively. These budgets were adopted without a federal contribution. The Fiscal year 2000 budget was adopted on December 9, 1998 with a federal contribution of \$627,250. Federal funding was not received and the budget was subsequently adjusted to reflect this event. Efforts have been undertaken for the restoration of federal funding.

Comprehensive audited financial statements are available for inspection at the Commission's headquarters.



## Financial Summary

## Schedule of Changes in Special Projects

## ADVANCE/(RECEIVABLE) BALANCE-BY PROJECT

	Cash Balances at July 1, 1999	Receipts (A)	Transfers	Expenditures (B)	Balances at June 30, 2000
<b>PROJECT</b>					
<b>ADVANCES:</b>					
USGS Monitors	\$29,791	\$138,966	\$54,880	\$(179,662)	\$43,975
Groundwater - PA Protected Area	136,178	265,000	(116,460)	(135,017)	149,701
Upper Delaware Ice Jam	167,900	16,498	(121,573)	(3,841)	58,984
Groundwater Flow Model	—	75,000	(63)	(138)	74,799
Prototype Integrated Resources Plan	—	75,000	—	—	75,000
Lehigh River Flow Study	—	50,000	(189)	(428)	49,383
PCB Trackdown Study	—	22,000	(48)	(121)	21,831
William Penn Foundation	—	23,000	—	(2,079)	20,921
Maurice River Study	3,424	—	—	—	3,424
<b>Subtotal Advances</b>	<b>\$337,293</b>	<b>\$665,464</b>	<b>\$(183,453)</b>	<b>\$(321,286)</b>	<b>\$498,018</b>
<b>ACCOUNTS RECEIVABLE:</b>					
Delaware Water Gap	\$ —	\$ —	\$ —	\$(5,000)	\$(5,000)
Delaware Estuary - EPA	(28,433)	154,848	43,175	(208,249)	(38,659)
Delaware Estuary (RIMS) EPA	(8,229)	52,983	30,384	(85,205)	(10,067)
High Flow Management Objectives	(20,348)	22,541	(10,492)	(18,929)	(27,228)
Christina River Basin Study	(36,754)	55,133	—	(61,541)	(43,162)
Pocono Creek	—	—	9,312	(9,775)	(463)
Water Quality Models	(6,748)	40,821	27,060	(65,870)	(4,737)
Musconetcong Watershed	—	4,223	(1,189)	(3,622)	(588)
William Penn Foundation	—	—	—	(6,000)	(6,000)
Nutrient Analysis	—	3,314	(1,439)	(7,357)	(5,482)
TMDLs - Brandywine/Christina	(10,540)	15,000	2,146	(10,586)	(3,980)
<b>Subtotal Accounts Receivable</b>	<b>\$(111,052)</b>	<b>\$348,863</b>	<b>\$98,957</b>	<b>\$(482,134)</b>	<b>\$(145,366)</b>
<b>TOTALS</b>	<b>\$226,241</b>	<b>\$1,014,327</b>	<b>\$(84,496)</b>	<b>\$(803,420)</b>	<b>\$352,652</b>

(A) Cash receipts were derived from:

United States Government	\$266,966
Commonwealth of Pennsylvania	523,755
State of New Jersey	26,764
State of Delaware	18,378
Interest	1,498
Third party fees for services	176,966

**TOTAL****\$1,014,327**

(B) Expenditures were primarily for payroll costs and contractual services.

The records of the Commission are audited annually as required by the Compact.



## Financial Summary

# Statement of Revenues, Expenses & Retained Earnings

### WATER SUPPLY STORAGE FACILITIES

#### PROPRIETARY FUND TYPE

Year Ended June 30, 2000

#### OPERATING REVENUES

Water Charges	\$2,300,959
<b>Total Operating Revenue</b>	<b>\$2,300,959</b>

#### OPERATING EXPENSES

Personnel Services	\$81,498
Special and Contractual Services	305,750
Supplies and Materials	108
Travel	873
Amortization and Depreciation	423,275
Fringe Benefits and Other Contributions	21,700
<b>Total Operating Expenses</b>	<b>\$833,204</b>
<b>Operating Income</b>	<b>\$1,467,755</b>

#### NONOPERATING REVENUE (EXPENSES)

Investment Income	\$494,999
Interest Expense	(558,846)
<b>Total Nonoperating Revenue</b>	<b>\$(63,847)</b>
Income Before Operating Transfers	\$1,403,908
Operating Transfers Out	\$(695,492)
<b>Net Income</b>	<b>\$708,416</b>
Retained Earnings-Beginning of Year	\$4,551,315
Retained Earnings-End of Year	\$5,259,731



## Financial Summary

### DRBC FY 2000 REVENUES

ALL OTHER REVENUE • 2%

INVESTMENT INCOME • 6%

PROJECT REVIEW FEES • 12%

WATER QUALITY GRANT • 11%

SIGNATORY PARTIES • 69%



### DRBC FY 2000 EXPENSES

FRINGE BENEFITS • 14%

MAINTENANCE  
AND ACQUISITIONS • 3%

TRAVEL • 2%

COMMUNICATIONS • 1%

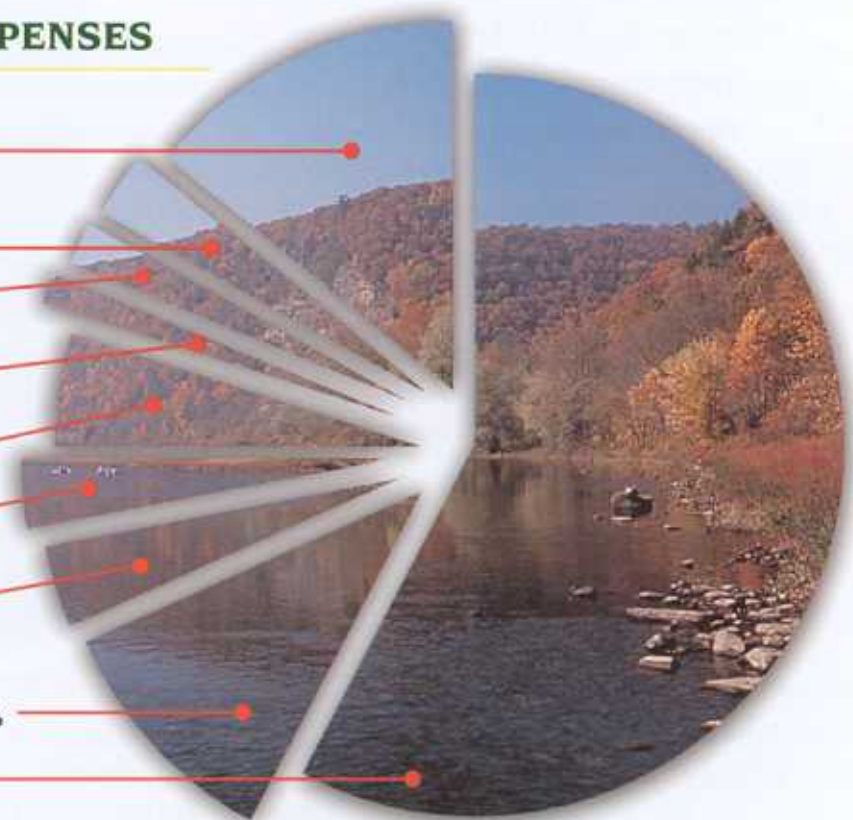
BUILDING OPERATIONS • 5%

SUPPLIES AND  
MATERIALS • 3%

OTHER SERVICES • 4%

SPECIAL AND  
CONTRACTUAL SERVICES • 10%

PERSONNEL SERVICES • 58%







## Reservoir Water Released to Benefit Fishery

Despite the year 2000 being mostly a wet one, unscheduled releases were made from New York City's three in-basin water supply reservoirs to benefit the Delaware's headwaters fishery.

Near the end of the summer a decision was made by the commission, New York City, and the New York State Department of Environmental Conservation to use the remaining quantity of water in the reservoirs' "thermal stress bank" to bolster flows along the West Branch of the Delaware. The water was released into the stream despite water temperatures that remained below 75 degrees Fahrenheit.

Under the commission's drought operating plan, the 75-degree reading is the threshold for tapping the bank of chilly reservoir water, which when released into the river system benefits a world class trout fishery. But because of the ample amounts of rain that fell during the spring and summer, only minimal amounts of non-banked water, or "directed releases," were needed to meet a downstream flow target at Montague, N. J. of 1,750 cubic feet per second (cfs), another component of the operating plan.

With less water coming out of the impoundments, flows in the West Branch were greatly reduced putting the cold water fishery at risk. The thermal stress bank releases ended on October 31, 2000.

The year 2000 bore out the old bromide that normal weather is simply the average of extremes.

Heavy snowpack surrounding the reservoirs, located in New York's Catskill Mountains, began to thaw in late February and by early March storage levels were above normal. By late April, the reservoirs were full, holding 271 billion gallons (bg) of useable water. Abundant rainfall kept the reservoirs at or close to their full capacity until July 1.

Below normal precipitation occurred during the fall, however, with some October readings at near record lows. Streamflows continued to drop off until mid-December when a storm dumped up to four inches of rain in some portions of the basin. Streamflows rebounded with readings at Montague and Trenton at their highest levels since September 1999 when Hurricane Floyd battered the basin.





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