

The Upper Delaware

The quarterly newsletter about the environment and people of the Upper Delaware River

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Winter 1996/1997

It's that time again!
The UDC's Awards Dinner
is April 6th and the "official"
Reservation Form is in this
issue. Plan now to attend!
See page 7...

In This Issue...

Flows Issues on the Delaware River are shaping up as THE hot topic for 1997. From local governments and river-front landowners, to boaters, anglers, and other river users, the events of the past twelve months have opened everyone's eyes to the need for reviewing what is in place and what may be needed. UDC Representative Phil Chase gives his views, and Dave Soete, UDC Senior Resource Specialist, explains the issues. On a lighter note, the Minisink Valley Historical Society is spotlighted, and River Valley trivia looks at how and when the canoe industry on the Upper Delaware got its start. Don't forget to send in your reservation for the UDC's Awards Dinner, and, if you know of a deserving person, organization, or agency, send along your nominations for award recipients, too. Call the UDC office for more info on nominations today!

*"Highways are handy,
but if you are in search of
authentic America, seek out a river."*

Charles Kuralt

Do we have your ZIP+4?
Please check your address
label. If it does not include
your ZIP+4 zipcode, please
send it to us using the
form on page 7. Thanks.

Flow Management Concerns Growing

UDC provides critical input, maintains high profile on issues affecting valley residents and river users.

Despite what you see when you look at our largely unspoiled, rural, and pristine river valley, the Delaware is a highly-managed resource controlled by a sophisticated set of guidelines. Every drop of water that comes over the dams, runs off the banks, or falls from the sky and reaches the main stem has an effect on people living downstream. This year's unusually wet weather, beginning with the disastrous floods last January, have focused attention on river flows and flow management issues, many of which are highly-technical in nature, but vitally important to all of us living, working, and playing in our river valley. David Soete, UDC Sr. Resource Specialist, explains these issues and points out major concerns that the UDC, the DRBC, and other agencies will be grappling with in 1997 and into the 21st Century.

The flow of water in the Delaware River is influenced by a very complex system of dammed and un-dammed tributaries, land uses in the watershed, and how much precipitation. Mother Nature is willing to provide us with throughout the year. The releases from the reservoirs associated with the dams are most easily manipulated, but how this system is managed has been, and will continue to be, open to much debate and legal precedence.

Background

The Pepacton Reservoir, operational in 1955, and the Cannonsville Reservoir, operational in 1967, which were built by New York City on the East and West Branches, respectively, for drinking water supplies, most greatly influence the water quantity and quality in the Upper Delaware River. Their number one priority is drinking water supply, but other interests are also impacted. Water releases from these reservoirs have created a world-renowned cold water fishery downstream as far as Callicoon. However, it was at the expense of the warm water fishery. The New York State Department of Environmental Conservation (NYS DEC) has agreements

with New York City for conservation releases to help protect trout habitat by increasing flows and lowering temperatures during the summer months. Recreational uses, such as rafting and canoeing, have generally benefited from increased and more consistent flows, but some want even higher flows to cover rocks and enhance the ride. Others complain that the water is too cold for swimming and would like to see lower flows. Flows affect where flooding will, or will not, occur, which is a major concern for those in low-lying areas. Flows also determine how much treated effluent from sewage treatment plants can be discharged to the River.

Flow Levels Established in 1954

New York City's other reservoir in the Delaware watershed, the Neversink, operational in 1953, indirectly affects the Upper Delaware River by influencing what releases are made from the two other reservoirs to maintain required flows under a 1954 U.S. Supreme Court Decree that contains specific diversion allowances and release requirements. The Decree allowed New York City to divert up to 800 million gallons per day (mgd) from the Cannonsville, Pepacton, and Neversink Reservoirs and required that a minimum flow of 1,750 cubic feet per second (cfs) be maintained at the gauging station at Montague, NJ. How these flows are maintained, and from which reservoir releases are made, are not specified. If, for example, more water was released from the Neversink Reservoir for whatever reason, less water might be released from the Cannonsville or Pepacton Reservoirs as long as minimum flow requirements are met. Meeting the flow requirements is both an art and a science and depends much on weather forecasts.

It is interesting to note that the Neversink low-flow, before the reservoir was built, was recorded as "practically no flow" on July 31, 1911. That illustrates that a reference to the Delaware flows at Port Jervis

— Flows, continues on p.5—

Most land along the Upper Delaware River is privately owned. Please be considerate and don't litter or trespass. Thanks!

---The View from Here ---

Phil Chase is the UDC Representative from the Town of Deerpark NY, a former columnist for the Times Herald Record, and a retired school teacher. For more than two decades he has been involved with flows issues on the Upper Delaware River, and regularly attends DRBC meetings on behalf of the UDC.

The New York City reservoirs of Neversink and Pepacton completed in the mid-1950's, and Cannonsville, completed in the late 1960s, divert a daily average of 800 million gallons per day (mgd) out of the Delaware watershed to New York City in the Hudson watershed. In 1931, when the Supreme Court permitted NYC's tapping the Delaware watershed, it was the first time that water diversion out of a basin was allowed in the East.

For the last 40 years, the Supreme Court has mandated a standard flow for the Delaware River of 1750 cubic feet per second (cfs) at the monitoring station located at Montague (NJ). This base number, that William Harkness, Deputy Delaware River Master, describes as "good," decreases in times of drought warnings, as does the NYC 800 mgd diversion previously mentioned. At the time of the Port Jervis flood in February, 1981, the river flow was down to 1350 cfs due to drought conditions in the region. The river froze solidly, and the flooding was caused by heavy rains and back-water from massive ice jams.

The Upper Delaware Council tries to keep informed about storage and release information relative to the NYC reservoirs. After last January's flooding of the Delaware, the UDC asked the Delaware River Basin Commission (DRBC) to draw up models to see if these reservoirs could help alleviate or decrease flooding. The reservoirs actually represent 75% of the water storage potential for the entire Delaware drainage basin. So the concern was not only for the upper Delaware region, but also for areas down river to the State of Delaware.

The January 1996 flood was unique in that a very large snowpack melted within a few days due to warm rains coupled with chinook-type winds that are usually hot and dry and are often called "snow eaters." Fortunately the City reservoirs were at 60% capacity and picked up 60 billion gallons of runoff. Damage above the reservoirs on the tributaries was major. Below the reservoirs, some areas were evacuated, such as part of Port Jervis where the Delaware came within inches of overflowing its banks. The request by the UDC to the DRBC was handled by flood models produced by the National Weather Service. With full reservoirs, the model

showed variations at the start of the event ranging from .2 to 2.6 feet, depending on the location of the monitoring station. Locations farther down river showed a larger flooding effect.

Examples:

	Reservoirs	
	Down 60 bil gal.	Full
Hale Eddy	10.2 ft. crest	10.8 ft. crest
Harvard	12.1	13.6
Callicoon	16.3	16.5
Barryville	22.0	24.6
Port Jervis	18.4	18.7
Trenton	22.2	23.4

Review of snowpack and reservoir storage data shows that on five occasions during 28 years, NYC reservoirs could have been lowered by 10 billion gallons (4% of capacity) or more below the full reservoir condition.

The study concluded that, "Although there may be potential for significant flood damage reduction from such a plan, the estimated frequency of realizing such benefits is low." As the UDC has emphasized, "It's the one year in five or ten or even 20 that is of great concern."

Additional complexities are found by drawing down reservoirs if the river is iced up. No one, especially NYC, wants the legal responsibility of releasing water with the possibility of moving ice downstream to where it might jam and dam up. Furthermore, engineers claim these reservoirs (in the Upper Delaware watershed) were not constructed so that they can release water quickly as can reservoirs built for flood control. The DRBC calls for additional studies to assess potential benefits of a flood operation plan.

Another model the UDC called for was if the reservoirs were unusually full during the hurricane season (such as in 1996). NYC claimed that statistics show that even if reservoirs were filled to capacity, there would be less than a 95% chance of refill by June 1st. Also, due to the speed at which hurricanes move, very little benefit could be achieved by two or three day releases. Only about a third of an inch of runoff upstream could be stored. The study concludes; "We would not recommend such a program during the hurricane season."

But what about storage of direct rainfall in the NYC reservoirs during unusual years? This year is certainly an example. Historically, the reservoirs may be down to 60-70% of capacity in late fall and early winter. This year, in early November, billions of gallons spilled (overflowed) from Pepacton and Cannonsville. Then, in the first week of December, over 17 billion gallons spilled from Pepacton (a record

View, continues on p.6---

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The Upper Delaware

Paddling into the Past

by Richard Albert

Today we take Delaware River canoeing for granted. Easy access to the river from modern highways allows automobiles with colored canoes to find launching areas with ease. River-based canoe liveries advertise on television and radio, and their brochures are widely distributed. Billboards point to their headquarters. Some offer canoes and equipment for sale, in addition to campgrounds for the weary, specialized trips, and other services. Books and river maps can be purchased by the "canoe-it-yourselfer" and free information is readily available from a variety of information sources. Today canoeing the Delaware River is extremely easy...

...In 1891, more than one hundred years ago, recreational canoeing was seen in a different light. The sport in the United States was only about 15 years old and participants were generally urban middle-class males. Along with bicycling, canoeing was one of the few sports that promised adventure and freedom of movement in the pre-automobile 19th Century.

Interest in canoeing for sport was sparked by John MacGregor, a wealthy London attorney. In 1859, MacGregor traveled to northern Canada where he observed Eskimos and their kayaks. Upon returning home, he designed a wooden, kayak-like canoe dubbed the "Rob Roy." He then set out on a long canoe trip through Europe. The trip culminated in the 1866 publication of a book, "A Thousand Miles in the Rob Roy Canoe on Twenty Rivers and Lakes of Europe." This and subsequent books by MacGregor and other English canoeists were best-sellers on both sides of the Atlantic.

The first recreational canoe trips down the Delaware River appear to have begun in 1876. In that year Philadelphia hosted the Centennial Exposition to celebrate the United States' 100th anniversary. The expo attracted visitors from all over the world including several parties of canoeists that traveled to Philadelphia via the Delaware River. At the exposition, the public could find the products of several canoe-builders on display.

The early trips down the Delaware marked the beginning of what can be considered the "Golden Age of Canoe Tripping on the Delaware River"—the period from roughly 1875 to 1900. What attracted the canoeists to the Delaware then are the same things that attract canoeists today: its semi-wild setting, rapids and rifts, clear and clean water, and accessibility (via railroads and canals in the 19th Century) from major U.S. population centers.

The First Delaware River Sojourn?

In September 1891, five canoeists left Trenton NJ by train, bound for Hancock NY. In the week preceding their departure, their canoes had been carefully shipped by freight train to the Erie Railroad's Hancock depot. The canoeists were heading for a vacation adventure—a 200-mile trip down the Delaware to their Trenton homes.

They set out from the shores of the Delaware's East Branch at Hancock. The

party consisted of J. Wallace Hoff, a Trenton fire official; William M. Carter, a commercial printer; Harry Allen, a bank official; Frederick Donnelly, a clothing store owner; and Clark Cooper, who had just returned from bicycling through Europe.

Three canoes used were typical of the canoes of the day. These were beautifully-built wooden solo models with enclosed wooden decks. Propelled with long double-bladed paddles, they reflected their kayak and Rob Roy ancestry.

The other two canoes appear to have been Canadian, open style craft. This type of canoe, the direct ancestor of the aluminum and plastic canoes of today, would rapidly supplant the Rob Roy style canoe in the U.S. during the 1890s.

Hoff eventually published a book detailing the highlights of the 1891 trip. "Two Hundred Miles on the Delaware River" describes a river that had sights and sounds vastly different from those experienced by canoeists who travel the same route today.

Let's flip through the pages as we travel downstream:

"At the conjunction of the streams, we found a large raft stranded." Most 19th Century canoeists remarked about seeing lumber rafts on the Delaware even though the heyday of log rafting was about over. The raft was stranded because of the low flows between Hancock and Port Jervis NY that often prevented canoeing in this reach of the river. The construction of reservoirs in the 20th century has largely eliminated this problem.

"Some distance above Long Eddy, we came to a lumber slide built down the mountain side from the plateau above." The slide was built to get hardwoods to the Long Eddy wood chemical plant (or acid factories, as they were often called). Wood chemicals, lumbering, farming, and bluestone quarrying were the largest industries in the upper Delaware region during the 19th Century.

"We...held a council close by a ferry boat...used to connect the shore ends of the main highways in New York and Pennsylvania. These ferry boats we met all along the river." Cable ferry boats of several designs were once commonplace on the Delaware, used for river-crossings before bridges replaced them.

At Long Eddy, the canoeists were given a tour of the wood chemical plant. "The

stench that pervaded the place was awful." Today, Long Eddy is a sleepy village that smells great!

"Visitors in the shape of cattle invaded camp and sniffed half timidly, half resentfully, at our usurping their domain." Most 19th Century canoeists remarked on the many farms along the Delaware. They often bought milk, eggs, and other perishables at the local farm houses.

After having portaged around a logboom constructed illegally in the river, the canoeists could hear Cochection Falls, the first really bad spot on the river." Today Cochection Falls is known as Skinners Falls, a major recreation spot during the summer.

In Narrowsburg NY, the canoeists ate a meal that admitted for no disparaging comments at the Arlington Hotel. The hotel building now houses the National Park Service's Upper Delaware Scenic and Recreational River visitor center and bookstore, along with the Delaware Valley Arts Alliance. After eating at the hotel, the canoeists camped at a site near today's PA Fish and Boat Commission Access Area just off PA Route 652 near the PA/NY bridge. This bridge, which recently underwent a facelift and painting, was a wooden covered bridge in 1891.

"Lackawaxen (PA) is a great summer resort and the country round-about contains many points of interest." At Lackawaxen, the canoeists shot the dam that once stood upstream of the Roebing Aqueduct and successfully avoided crashing into the structure. In the 1880s, the leader of a party of Jersey City canoeists drowned while shooting the 16-foot dam. Today, the recently restored Roebing Aqueduct, is the most famous point of interest in Lackawaxen.

Opposite, on a heavy grade, ran the tracks of the Erie Railroad. We could hear the engines puff and the wheels slip, and see the reflected glow from the fires as the furnace doors were thrown back." Hoff describes the locomotive firemen shoveling coal into the steam locomotives that are working hard upgrade towards Hancock. Steam locomotives on the Erie (now Conrail) Railroad line disappeared in the early 1950s, but freight trains powered by diesel-electric engines still rumble along the rails.

"From Lackawaxen to Port Jervis we were accompanied by the Delaware and

— Paddling, continues on p.8—

The Minisink Valley Historical Society...

One hundred and eight years of collecting, preserving, and interpreting local history

by Peter Osborne, Executive Director

Minisink Valley Historical Society

In January, 1889, a group of concerned citizens in Port Jervis met and decided to "test the feeling of our citizens regarding the organization of a Society for the purpose of collecting and preserving local history."

As they looked around them, much of the landscape had been and was being radically altered by the rush of urbanization. While the construction of the Delaware and Hudson Canal, in the 1820s, altered the landscape little, it had brought with it a link to the New York metropolitan area and had become a major transportation route.

Consequently, the development of the railroad in the latter half of the 19th Century brought major changes to the landscape. What had once been the far reaches of Lt. Martinus Decker's farm was now a major railroad center, and included the yards and shops of the New York and Lake Erie Railroad. Where the Erie Depot now stood had been a blackberry field and the air pollution generated by the steam engines affected the city of Port Jervis and surrounding areas in many ways, not the least of which was grey laundry!

To accommodate this new system of transportation and the industries that it brought with them, farms had disappeared overnight and buildings that had stood for almost 175 years were torn down to make way for the new.

With these changes occurring so rapidly, this small group of community leaders ensued an urgency in their mission.

Postcards were sent to a number of prominent men requesting their presence at an organizational meeting on February 8th, 1889. The group met in the office of Dr. Solomon Van Etten in Port Jervis and, on a suggestion made by Thomas Bunnell of Newton, NJ, the name of the new organization, "The Minisink Valley Historical Society," (MVHS) was chosen. The first annual meeting was held on February 22, 1889, again at Dr. Van Etten's office. Many of the members of this new organization were either direct descendants of early settlers of the valley, or had married descendants of these settlers. Membership was exclusively male until 1923.

From the very beginning, MVHS's annual meeting has been used to conduct not only the business of the Society, but also for the presentation of scholarly papers delivered by local, regional, and state his-

torians and scholars. For more than a century, it has been the largest regular gathering of local historians in western Orange County.

Ever mindful of its mission and goals, the Society has long been interested in the preservation of the region's history through the saving of important archeological and architectural sites. One of the first sites the Society undertook to preserve was the Battle of Minisink site at Minisink Ford, NY. The battle took place in July, 1779. Many ancestors of the Society's early members either fought in the battle or were directly impacted by Joseph Brant's raids into the region. Much information about the battle remained sketchy well into the 19th century, including the exact location of the battle. In 1910 the Society acquired the piece of ground determined to be the battlefield, and from that point forward actively promoted public commemorative events at the site. In 1955, the property was turned over to Sullivan County (NY), which now maintains it as a park that includes a self-guided walking tour of the battlefield.

In the 1890s, the Society decided to preserve Fort Decker. This structure was originally built as a blockhouse in 1760 by Frederick Hayne. It was used as a military trading post and a trading store. On July 20, 1779, the blockhouse, along with a number of other structures in the area, was attacked and destroyed by Joseph Brant and his Indian raiders.

The ruins of the building sat until after the Revolutionary War when Martinus Decker supervised the rebuilding of the structure in 1793, using many of the stones that were used to construct the earlier blockhouse.

Over the years, the stone house served as a hotel for D & H Canal engineers, a tavern, and, until 1965, as a private residence. The Society took possession of the building in 1970, and in 1974 it was placed on the National Registry of Historic Places. The Fort now serves as the Society's museum and houses a wonderful collection of interpretive exhibits.

Another important preservation project was undertaken in 1983 at Forestburgh NY where an early log cabin was in danger of being destroyed. Through the combined efforts of many public and private organizations, it was moved and later restored at the town hall site.

From its founding, the Society has been collecting objects relating to the history of the region. Members and non-members

alike have been generous and far-sighted in donating items of unique historical value. Among the Society's collection is an advertising plate distributed by the company that built the 1903 bridge linking Port Jervis and Matamoras, and a plate that was presented to George Washington by the Marquis de Lafayette. Another interesting item was the Bond Book from Prince William County, Virginia. This book was brought north by a Union soldier as a souvenir during the War Between the States. It was donated to the Society in the 1930s, and was finally returned to the Virginia State Library in Richmond in 1981.

The scope of the Society's collection is broad and includes ten thousand books, seven thousand photographs, plus artifacts, documents, letters, pamphlets, and maps. The books and photos, along with the genealogical research library and document collections, are housed at the Port Jervis Free Library, while most of the artifacts and exhibit collections are located at Fort Decker, which serves as the Society's museum, and the Kleinstuber House, an 1892 Queen Anne-styled dwelling which sits directly behind the Fort.

The Society is actively involved with a number of projects in and around the region, including the very successful renovation and reactivation of the railroad turntable at Port Jervis, the Korean-Vietnam Memorial, the Historical Tree Grove at Fort Decker, and the Rose Garden project.

Looking forward to the 21st Century, the Society's role in the future will be as important as it has been for the last 108 years, focusing on preserving the region's heritage by continuing to use the latest technologies while continuing to collect and preserve objects and buildings that date from the 17th, 18th, and 19th centuries. In addition, the legacy of this century must now begin to be included, as the Society turns its sights towards the next one hundred years. P.O.

The Minisink Valley Historical Society is headquartered at the Fort Decker compound, located at 125-133 West Main Street in Port Jervis, NY. For more information about the Society and its many programs and resources, or to find out about membership in the Society, contact Peter Osborne at the Minisink Valley Historical Society, PO Box 659, Port Jervis, NY 12771. Phone (914) 856-2375.

--- Flows, continued from p.1---

is a pretty good indication of what low-flows at Montague were before that gauging station was established in February, 1940. The reservoirs have provided more stabilized and constant flows

The lowest recorded flow on the main stem of the Delaware River at Port Jervis is 175 cfs. Just imagine today what river users would say if the Delaware flows dropped to that level. They would probably be able to paddle a canoe only in the pools, and portage everything else. Waste assimilation capacity for point sources would be vastly reduced.

Many other reservoirs, such as Lake Wallenpaupack and Rio Reservoir which have power generating capability, also directly and indirectly influence flows. The use of electric generators at one reservoir to meet peak energy needs may result in less water being released somewhere else to meet required flow requirements.

The Delaware River Basin Commission

In 1961, the Delaware River Basin Compact was enacted by the watershed states and the federal government. The Compact created the Delaware River Basin Commission (DRBC) and held that the DRBC could revise diversion and release requirements of the 1954 Decree, under the doctrine of equitable appointment, but only with the consent of the parties to the Decree. However, in declared emergencies, the DRBC could alter diversions and release requirements with unanimous consent of the Members of the DRBC. Practically speaking, the New York State Member would give great consideration to New York City's desires because of the vast number of New York State residents served by the Delaware system.

Drought of Record

Initially, the DRBC had a Comprehensive Plan that included many proposed water storage projects. The keystone for water supply and salinity repulsion was Tocks Island Dam, which would have dammed the main stem of the Delaware and provided an additional 1,800 cfs at Trenton. A new drought of record occurred in the 1960's and the Tocks Island plans were shelved in the late 1970's, causing the DRBC to reconsider their Comprehensive Plan in a process known as the Level B Study.

In November 1982, the parties to the 1954 U.S. Supreme Court Decree agreed to a series of interstate water management recommendations intended to create a management strategy capable of providing reliable water supplies for essential uses during a drought equal in severity to the 1960s drought of record. This agreement became known as the "Good Faith Agreement."

Recommendation number three of that

agreement sets forth an interstate operating formula for the reductions in diversions, releases, and flow objectives during drought periods. Triggers for the formula are based on the normal drought warning and drought conditions as defined by the combined storage levels of the three New York City reservoirs in the system: Cannonsville, Neversink, and Pepacton.

Under normal conditions, the allowable diversions to New York City is a maximum running average of 800 million gallons per day (mgd). The New Jersey diversion through the Delaware and Raritan Canal is 100 mgd. The Montague flow objective under normal conditions is 1,750 cfs, and the Trenton flow objective is 3,000 cfs.

When storage levels in the three New York City reservoirs cross the drought warning line, allowable diversions to the city are reduced, as are flow objectives. As a drought worsens, water is further cut back.

Delaware River Master Maintains Flows

To ensure that the required flow requirements are maintained, the 1954 Supreme Court Decree also created the position of Delaware River Master. The Decree authorized diversions of water from the Delaware River Basin and requires compensating releases to be made from certain reservoirs by New York City under the supervision and direction of the River Master. Ironically, in times of drought, the flows in the Delaware River increase because more releases are called for from the New York City reservoirs to meet minimum flow requirements.

Note that the DRBC is a non-voting member of the Upper Delaware Council (UDC). One of the responsibilities of the DRBC under the Upper Delaware Scenic and Recreational River Management Plan is to keep the UDC informed of all matters relating to flow management of the river and reservoir releases.

In November of 1989, the UDC sponsored a three-day conference on flows titled "The Delaware River: Flowing to the Future." Many of the same issues from that conference are still being discussed today, but it seems that as time goes on, more and more people have a stake in how the water is managed.

UDC Pushes For Flood Control

With the January 1996 flooding still fresh in everyone's minds, the UDC sent a May 2, 1996 letter to the four state governor's and federal representative representing the DRBC requesting that they consider possibly utilizing upper watershed reservoirs for flood control purposes during the winter months when a major rain event is forecast and the snowpack is deep enough to refill the reservoirs.

The January 1996 flood resulted from heavy rains and the melting of a large

snowpack over a couple of days. Fortunately, the New York City reservoirs were at about 60 percent capacity and held back an estimated 45 billion gallons of the initial runoff. Damage along the tributaries above the reservoirs was major. Below the reservoirs, some areas were evacuated. In parts of Port Jervis, the Delaware River came within inches of overflowing its banks. The UDC is concerned what might have happened if the reservoirs had been full, or near capacity, when the storm hit.

As precipitation continued much above normal throughout the year, the UDC sent a similar letter, dated August 16, 1996, to the DRBC asking that flood control measures also be considered during the typical "hurricane season" months of August and September, in the event one of these major storms is expected to reach our region and the reservoirs are at or near capacity. The UDC realizes that New York City's drinking water supply storage is much more critical during the summer and fall months, but if the reservoirs are at or near capacity, as they were in 1996, we believe it warrants a closer look.

Issues Discussed

These and other flow issues continue to be discussed by the DRBC's newly created Flow Management Technical Advisory Committee (FMTAC). UDC Executive Director Bill Douglass and Phil Chase, Town of Deerpark Representative to the UDC, have been participating at the FMTAC meetings. Steven P. Nieswand, FMTAC Chairman, in a November 8, 1996 letter to the DRBC, responded to the UDC's flood control concerns.

Mr. Nieswand states that while the draw-down of the reservoirs could provide flood control storage, the probability that the reservoirs will refill by June 1 would be a major concern of New York City in any decision to reduce water supply storage. The New York City Department of Environmental Protection (NYC DEP) - Bureau of Water Supply has indicated its concern about lowering reservoir storage for flood control unless there is a near certain chance of refill by June 1, or some way of replacing any loss resulting from such lowering. Even though these reservoirs provide substantial flood control benefits, they were not designed as flood control reservoirs.

Hurricanes Too Unpredictable

In regard to the "hurricane season" scenario, Mr. Nieswand states that the NYC DEP frequently updates statistics concerning probability of refill for each of its reservoirs and has provided the DRBC staff with the results of a recent analysis. The analysis shows that even if the reservoirs were filled to capacity during the period

--- Flows, continues on p.6---

—View, continued from p.2—

spillage) and over 19 billion gallons spilled from Cannonsville. Could releases be used after this spilling stops when releases go to their normal 25-30 mgd to prevent down-river ice buildup? At the DRBC meeting held in Trenton in early December, Bill Harkness pointed out that this year the tributaries are flowing high and should flush out ice. Harkness has a good point, but a month from now if sub-zero temperatures occur and tributary

—Flows, continued from p.5—

August 1 through October 1, they would have less than a 95-percent chance of refill by the following June 1. Conversely, there is a greater than five-percent chance that the reservoirs would not refill. This is because of the substantial amount of time between the hurricane season (August-September) and June 1 of the next year and the potential that a dry fall and winter period could lower reservoir levels.

Although hurricane detection and monitoring has improved greatly in recent years, the forecasting of hurricane tracks is still very uncertain. A difference of 50 to 100 miles in a storm track causes vastly different amounts of rainfall. Because of this lack of precision in hurricane forecasting, efforts to lower water supply storage in advance of a hurricane would waste water more often than not and have little impact, if any, on floods. For example, just this September, the National Hurricane Center, on a 24-hour notice, predicted a 50-percent chance that Hurricane Edouard would hit the Carolinas and a 50-percent chance that it would make landfall to the North of Cape Hatteras. The storm then veered to the northeast, and the east coast from Long Island south received practically no rain from Edouard. If New York City reservoirs started drawdowns two or even three days prior to a probable event, a maximum of about five-billion gallons (7,740 cfs-days), could be safely released in a three-day period. Reductions of this magnitude would only store about a third of an inch of runoff upstream of the reservoirs while the quantity to be paid back to New York City would be equivalent to 130-percent of a 6,000 cfs-days thermal stress bank or a reduction of 100 cfs in directed releases for nearly 80-days.

Snowpack Flood Control May Be Possible

Mr. Nieswand states that full storage during the late winter and early spring when there is substantial snowpack is a different situation. Then, there is a much greater potential for lowering reservoirs below capacity and still being assured of refill. Reservoir storage rarely declines during the March through May period. The FMTAC is still considering the UDC's request for a winter/spring flood operation

flows decrease, perhaps releases could prevent ice buildup before it occurs.

There are so many factors and possibilities that someone must start making a few tough decisions rather than following NYC's claim that the reservoirs were only built for water supply.

After more than a quarter century, it seems plausible that flood control could be included in the management of New York City's Delaware watershed dams.

plan. Additional model runs have been requested by the FMTAC. The NYC DEP has referred the concept of such a plan to its lawyers. Such releases could also prevent ice build-up and ice jams on the Delaware River.

Conservation Releases

The NYS DEC has an agreement with New York City for conservation releases from Cannonsville and Pepacton Reservoirs to maintain flows and water temperatures, primarily during the summer months, for the cold water fishery. Even though the flow requirements mandated by the 1954 U.S. Supreme Court Decree may be met at Montague and Trenton, it is possible little or no releases are being made, or called for, from these reservoirs by the City. In which case, the NYS DEC can call for conservation releases from a certain amount of water which is banked each year for this purpose. This "thermal stress bank" is approximately 6,000 cfs-days in size.

Recently, there has been discussion that perhaps conservation releases may be just as critical in the winter months when ice build-up can also adversely affect the fish. Negotiations continue on the size of the water reserve and when releases should be made.

Cannonsville Valves Installed

The long awaited Cannonsville valve, actually two valves, which was installed last Fall, will allow some fine-tuning to the existing flows in the West Branch and main stem of the Delaware River. With the valve, releases between 45 cfs and 325 cfs are now possible. Previously, for example, if a release of 200 cfs was necessary to meet minimum flow requirements, a 325 cfs release had to be made, resulting in an excess flow and wasted water.

Depending on one's viewpoint, these more precise flows may be either beneficial or harmful. New York City will be able to conserve more of its drinking water supply. Canoe liveries may be dismayed with lower flows now that excess releases are not made, making rocks more exposed and boating more difficult.

With the new valve, the NYS DEC's conservation releases can be more wisely

Historically, the reservoirs are full by June 1st, draw down in the summer, fall, and early winter, and refill in late winter and spring. Flood control management is not considered. One of these years, the reservoirs will be filled and spilling, and at that one time there will be either extreme rains or extreme snow melt, or both. Do we have to wait for a catastrophe to occur before a new policy is formulated to prevent flooding on the Delaware? ***

used, perhaps saving more water for when it is really needed. But, overall, the flows may actually be less for the fishery. New York City has indicated that they have rights to any water saved and that they should be compensated for its use. The NYS DEC will be conducting an experimental releases program using the Cannonsville Valves. Again, negotiations on releases are continuing.

Mongaup 2-Turbine Releases

The UDC, and others, have gone on record as being opposed to scheduled two-turbine releases at the Mongaup River on weekends primarily for safety reasons, but it is also very much a flows issue. As part of the re-licensing of Orange and Rockland (O & R) Utilities's hydropower facility at the Rio Reservoir on the Mongaup River in the Town of Deerpark (Orange County) and the Town of Lumberland (Sullivan County) in New York, the Federal Energy Regulatory Commission (FERC) required O & R to provide scheduled one-turbine releases on alternating weekends throughout the summer. O & R was also required by FERC to release a flow of 100 cfs to a previously dried-up section of the Mongaup River below the Rio Dam. Several New York City based kayaking groups are now requesting that FERC require that two-turbine releases be made for whitewater boating. Each turbine produces a flow of 425 cfs. O & R typically generates electricity at unscheduled intervals during the week as energy usage dictates.

A two-turbine flow of 850 cfs coupled with the additional 100 cfs to the Mongaup River adds up to 950 cfs and could comprise a significant amount of the water needed to meet the minimum flow requirement of 1,750 cfs at Montigue. More water being released from the Mongaup River could mean that less water is released from Pepacton or Cannonsville Reservoirs, adversely affecting uses on the Upper Delaware, upstream of the confluence with the Mongaup. Scheduled releases may mean that water will not be available when it is really needed. Recreational use of Rio Reservoir and other water bodies in the O & R system could also suffer if water levels,

—Flows, continues on p.8—



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Chicken Beef Fish

Chicken Beef Fish

Chicken Beef Fish

Chicken Beef Fish

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--Paddling, continued from p.3--

Hudson Canal, with ever-attendant noise of horns and shoutings, together with the choice vocabulary of captains and mule drivers." The D & H Canal would be abandoned in seven years. Today's canoeists can easily find remnants of the canal. Nineteenth Century canoeists passed six active canals between Lackawaxen and Trenton.

"The place at which we stopped was the upper landing where a side wheel steamer lay." The canoeists observed one of the two steamboats that were then serving visitors to the long-gone Delaware Water Gap resort hotels. This particular boat landing was in the general vicinity of the Interstate 80 bridge between NJ and PA.

-- Flows, continued from p.6--

drop from the releases.

The DRBC would like to adjust their drought declaration curves so that fewer droughts are declared to avoid the "cry wolf" syndrome. Recent model runs performed by the DRBC have shown that several lowered flow schemes have had little impact on drought frequency. In addition, new information provided by the U.S. Geological Survey (USGS) has questioned the justification to maintain existing Delaware River flow targets to protect chloride levels in Camden NJ area wells. The 1954 Supreme Court Decree was influenced largely by the belief that a minimum flow of 1,750 cfs at Montigue was necessary to keep the salt front below Camden.

Further, although the lowering of drought warning and drought declaration curves was shown by previous modeling to be an effective way to reduce drought frequency in the Delaware River Basin, the NYC DEP is not willing to lower the curves without the provision of additional storage in the lower basin. Accordingly, the FMTAC members recognize the need to investigate all criteria for flow targets and then look at target schemes that would lower drought frequency.

From here the canoeists continued their journey down river past the industrial city of Easton PA where "...the water was not as clean, being fouled with coal and sewage," past sleepy little county hotels and hamlets, through the narrow chute at Scudders Falls and home to Trenton. "As we journeyed on, our old friend the moon came up full and grand from the peaceful hillside, making for us a bright pathway as we drifted down to Park Island, the home of the Trenton canoeists." Early Trenton canoeing clubs declined with the change in canoeing that occurred around 1900 and eventually disappeared.

As with these clubs, the five men who canoed the Delaware in 1891 are no

As mentioned previously, different water users have different concepts of what flows should be. New information casts doubt on the basis on which existing flows were determined. The big question is what is the optimum flow necessary to keep everyone happy and maintain the natural balance of the Delaware River?

The FMTAC plans to look at the Good Faith and Level B studies to establish valid reasons for flow maintenance for the Delaware River. Based on this, a list of priorities could be established and provide a basis for additional study. There must be a consensus of what the optimum flows for the Delaware River should be, and how they will be carried out. Perhaps a new or revised U.S. Supreme Court Decree will be required.

The FMTAC is considering items such as recreation, fisheries protection, water use designation, heat dissipation, and water quality as valid reasons for flow maintenance. As a preliminary step in developing flow criteria the FMTAC is conducting in-house research to develop a list of issues and priorities concerning Delaware River flows. The state representatives of the FMTAC will contact their agencies about critical flow rates. In addi-

tion, the DRBC staff will review the Good Faith and Level B studies in search of criteria other than salinity that may establish other flow needs.

longer with us. If they returned today, would they be surprised to find horseless carriages (canoe livery vans) pulling trailers filled with canoes made of metal and plastic to a river shared by tens of thousands of people each year? And what would they think about all the other changes that have occurred on the Delaware in the past 100+ years? R.A.

Richard Albert, a supervising engineer with the Delaware River Basin Commission, has written several books. This article is derived from information he is obtaining for a book-in-progress, "Paddling into the Past."

These flow issues will continue to be discussed in the coming years. Anyone that has any strong recommendations on how they think flows could be improved for the Delaware River is encouraged to put them in writing to the UDC and we will direct them to the appropriate agencies. D.S.

Food for thought...

The Struggle to Trust by Angus Ross, NPS

Throughout our lives, most of us are haunted by the question of who can we really trust. It is hard to put much faith in strangers, yet most of us who have flown on a commercial aircraft put all of our trust in the stranger at the controls. That pilot must put his faith in the unknown folks who made or maintain the plane.

Modern conveniences, such as television, tend to saturate our minds with the bad in our fellow human beings. We have been mentally conditioned to never fully trust politicians, the police, lawyers, or anyone who has some real or perceived ultimate power over our lives. *The very best way to create and keep trust is to question what appears to be wrong. What is very difficult, but vital to human loyalty, is for all of us to not form an opinion until the full truth of the issue is known.* A.R.

The UDC meets on the first Thursday of every month at 7:30 p.m. in the Tusten Town Hall, Narrowsburg, NY. Committees meet on the third and fourth Tuesdays of every month at the UDC Office, 211 Bridge Street, across from the Town Hall. Call (914) 252-3022 for details.

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