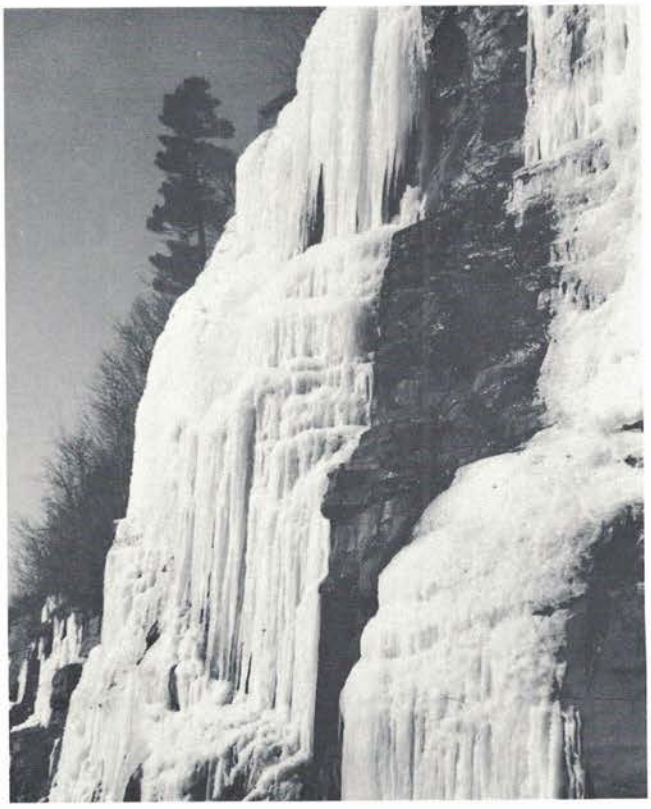
DELAWARE RIVER BASIN COMMISSION
1961 • ANNUAL REPORT • 1981

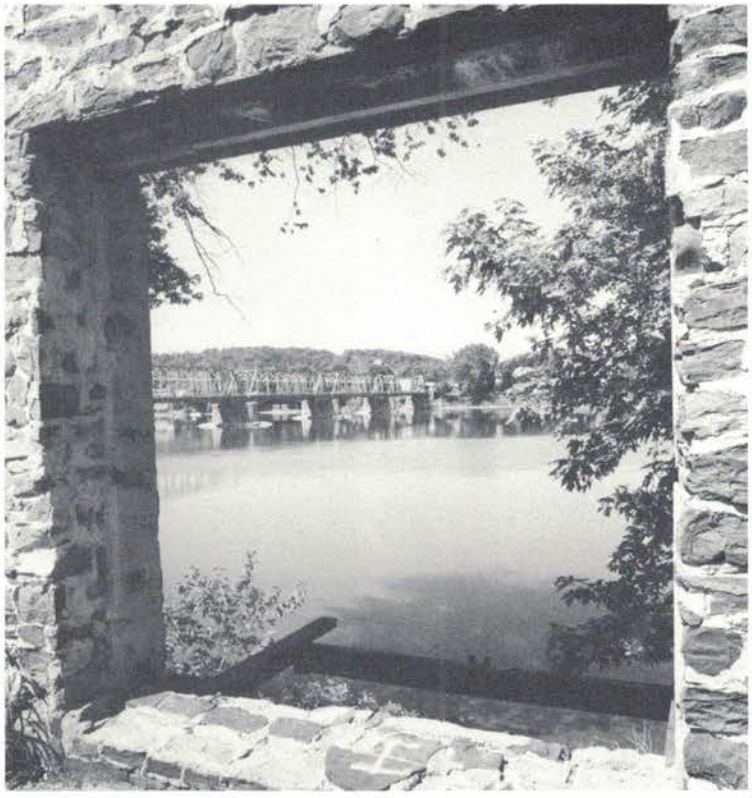


Contents

Photographs on these pages show ice formation on rocks near Upper Black Eddy, in Bucks County, Pa., where cliffs and Delaware River are separated by picturesque Delaware Canal and Route 32 (River Road), and a scene of the river looking from Lambertville, N.J., to New Hope, Pa., through opening in wall of burned out building.

COVER — Hunterdon County's scenic shoreline cliffs, with exposed red shale formation, are viewed across the Delaware from Pennsylvania. Location is short distance upstream from Frenchtown, N.J. Color photograph by James M. Staples.

Report designed by Odette P. Taft, DRBC graphic artist/illustrator.



Introduction

This 1981 annual report observes the twentieth anniversary of the Delaware River Basin Compact, the formal interstate commitment, joined by the federal government, to restore water comity to the basin region. It relates how the five equal-partner signatories repeatedly have turned to the Compact for successful resolution of water problems that cross interstate borders.

Many beneficial results have flowed from the region's use of the multi-state Compact over the years. They include the widely recognized estuary pollution cleanup; expansion and pooling of the region's water supplies; activities that have improved recreational use of the river and conditions for fisheries; programs to help relieve problems of flood losses and hazardous wastes; and, most recently, leadership in getting the region through yet another serious drought.

Further, again under the auspices of the Compact, the region appears to be on the verge of making permanent agreements on interstate allocation of supplies during water shortages to avert more court battles of the kind that gave rise to the Compact in the first place.

The mechanism of the signatories for carrying out the authority and mandates of their Compact is the Delaware River Basin Commission. It is a small agency of fewer than 50 persons, mostly resource specialists, that is brought in to deal with water issues of the basin that are primarily interstate in character.

This account of DRBC's activities for the year is respectfully presented to the people of the four-state basin and their representatives in the legislatures of the States of New York, Delaware and New Jersey, the Commonwealth of Pennsylvania and Congress of the United States.

The Compact After 20 Years

It is now 20 years since the four basin states and the federal government shared their sovereign powers in water resources through the Delaware River Basin Compact. And, the Compact appears still to contain the necessary authority to address water problems of the 1980s—even following major evolution in state and federal environmental philosophy and policies.

The Compact's intent was to establish the legal framework and mechanism for an interstate-federal partnership to promote comity and manage the water resources throughout the 13,000 square miles drained by the single river system irrespective of its internal boundaries separating four states.

Besides being an experiment in federalism, it pioneered the concept of putting responsibility for all types of management functions under one agency — whether controlling floods, supplying water, or cleaning up pollution. Also, this enabled each signatory state to react to its Delaware basin water management concerns through the focus of its governor or his designated commissioner. This provided sharp contrast to the earlier pattern of state water functions being segmented among several state agencies, such as conservation, health, agriculture, pollution control, or whatever.

The new approach was viewed with such favor that it overcame much skepticism and some hard opposition to gain approval in record speed in the five capitals of Albany, Dover, Harrisburg, Trenton and Washington. It took but a few months for the Compact to be voted through the signatories' 10 legislative chambers and be signed by four governors and the President.

The past two decades have produced a new environmental consciousness throughout the nation. The movement representing it is highly and skillfully organized and it has given rise to a generation of sympathetic public office holders, both elected and appointed.

There is a new public outlook toward virtually everything of an environmental nature — air and water quality, dams, toxic wastes, wildlife, oceans, natural resources development and so on. However, within the past few years, public interest has increased in the direction of the need for a balance of economic utilization and environmental considerations.

Changed attitudes notwithstanding, it is generally held in resource management circles that the Compact authors back in the late 1950s created a document, still unchanged, that can respond effectively to water problems regardless of changing times. Aside from the current need to amend the Compact to provide for increasing the long-obsolete maximum interest rate that the DRBC may pay on any bonded indebtedness, no serious legislative efforts have developed to change the charter.

The Compact has supplied the authority and responsibilities, and the Commission has provided the implementing policies and overview to deal with the region's water problems. A significant element in this Commission's successes under the Compact has been implementation of Section 1.5: "... the Commission is authorized and directed to utilize and employ such offices and agencies for the purpose of this Compact to the fullest extent it finds feasible and advantageous." The signatory agencies carry out many important water management functions in the basin that complement, not duplicate, DRBC activities. In fact, day-to-day regulatory programs are generally carried out by state and federal agencies, with interstate or major unresolvable intrastate water issues addressed by the Commission.

Under the Compact, DRBC must accommodate water demands that go along with growth as well as protect the basin's resources. This often has meant mediating a middle course in the public interest between the wants of high-rate development advocates on one side and the environmental preservationists on the other — with DRBC actions often fully pleasing neither. Legality of several policies and follow-up decisions has been challenged, but the courts have declared Commission actions to be in compliance with the Compact and other laws.

Successes under the Compact

The Commission's policies and activities have produced tangible solutions to some of the region's most serious water

Steve Mervish, Trentonian

Executive Director Hansler and Chairman pro tem Eichler mark 20th anniversary of Compact's October 27, 1961 enactment.

problems, some of them critical and virtually all interstate in character.

DRBC adopted standards for cleaning up the Delaware's tidal estuary in 1967, and the river is now living down its old reputation as perhaps the nation's dirtiest. Tangible evidence that the river is cleaner is the dramatic voluminous return to the Delaware of the American shad, whose historic spawning migrations up-river had been blocked for many years by lack of oxygen in the estuary.

By underwriting part of the cost of federal multi-purpose reservoir projects, the Commission continues to add to the basin's water supplies. This benefits cities, industries and other users without regard to political boundaries; prevents salinity intrusion that threatens normal water uses in the Philadelphia-Camden area during droughts; and protects in-stream supplies for recreation and fish and wildlife.

In the region's two worst droughts, DRBC brought together the four states and New York City, the biggest user of Delaware water, to negotiate water-saving measures that got the area through the shortages successfully. Here, too, DRBC's actions were authorized by the Compact.

The "good faith" interstate management talks and the recently completed Delaware River Comprehensive (Level B) Study to produce agreements on permanent new criteria and policies, dealing both with droughts and longer-range management needs, were initiated and sanctioned by DRBC.

Some of DRBC's numerous other attainments over the years include protecting the valley's rich — but threatened — ground water supplies; guarding against oil pipeline spills; helping scores of communities qualify for federal flood insurance; enhancing upper basin streams for fish and recreation; producing criteria for siting of hazardous waste treatment facilities; distributing 35,000 sets of its canoe-recreation maps of the Delaware; and conducting thousands of project reviews to avert possible harm to the basin's waters — assuring equal consideration again across political boundaries and providing interstate checks and balances.

Organization

Governor duPont of Delaware assumed DRBC's 1981-82 chairmanship, succeeding ex-Governor Byrne of New Jersey. Governor Thornburgh of Pennsylvania took over as vice chairman.

New Jersey's new team on DRBC will be Governor Thomas H. Kean and Environmental Protection Commissioner Robert E. Hughey as member and alternate, respectively, in 1982. Dirk C. Hofman is to serve as alternate in Mr. Hughey's absence, as he did in 1981 after Steven J. Picco left state service.

George J. Kanuck Jr. of Bethlehem is to be the United States alternate to Interior Secretary James G. Watt, giving up his seat in the Pennsylvania House of Representatives to assume the post. The federal alternate position became vacant in February 1981 with the resignation of Sherman W. Tribbitt, former governor of Delaware, following the change of national administrations. When Colonel James G. Ton retired from the Army Corps of Engineers, Lieutenant Colonel Roger L. Baldwin assumed his post of Philadelphia district engineer, which includes serving as advisor to DRBC's federal member.

The post of advisor to the New York State member changed hands when Joseph T. McGough, Jr. became New York City's environmental protection commissioner. He succeeded Francis X. McArdle.

Whitall and Howlett retiring

Two of the Commission's most valued senior officials enter retirement in mid-1982. They are W. Brinton (Buzz) Whitall, secretary, and Herbert A. Howlett, chief engineer. Mr. Whitall's work on Delaware water problems spanned more than a quarter-century, beginning in 1955 as a planner with the pre-DRBC Delaware River Basin Advisory Committee. Mr. Howlett came to the Commission in 1962 from the Department of Water Resources in his native California, for which he was southern district engineer based in Los Angeles.

Governor Kean

Mr. Hughey

Mr. Kanuck

Mr. Whitall

Mr. Howlett

Executive Director's Report

GAO Views on River Basin Commissions

By Gerald M. Hansler

The General Accounting Office (GAO) is the United States Congress' watchdog over the effectiveness of federal legislation — from both the standpoints of the written law and its successful implementation.

Mr. Elmer B. Staats, former Comptroller General of the United States, personally called for a review as to the effectiveness of river basin commissions shortly before his retirement. Two types of river basin agencies were considered. One review concerned progress of the Title II river basin units authorized by the Water Resources Planning Act of 1965, and the second an analysis of the two major compact commissions — the Delaware River Basin Commission and its sister on the Susquehanna.

The GAO report, "River Basin Commissions Have Been Helpful, but Changes are Needed," covered the Title II agencies and was released on May 28, 1981. That report concluded: "Title II of the Water Resources Planning Act has been relatively ineffective in optimizing expenditures of federal funds for the development and use of water resources."

Support for that conclusion can be determined by comparing the purpose of the 1965 legislation and the results achieved. The legislation's framers desired, subject to other existing or future interstate agency arrangements, that Title II river basin commissions would:

1. coordinate the water planning of member states and cognizant federal agencies;
2. develop a comprehensive, coordinated joint plan; and
3. identify a schedule of priorities for use by the Water Resources Council.

First, federal agencies were not committed by the 1965 legislation or otherwise to use commission planning efforts. In fact, membership to a Title II commission was voluntary — be it a state government or specific federal agency with interest in regional water resources planning. Also, the federal or state member actually sitting on the Title II commission was often in no position to speak for some other organizational component of his or her government. So, where there may have been "coordination" insofar as exchange of data between a Title II commission and particular state or federal agencies, the latter were not committed by a state or federal member to implement agreements made during commission deliberations.

Mr. Hansler

The GAO report concluded that the Title II commissions did not develop useful comprehensive, coordinated joint plans (CCJP's). Conceptually, the CCJP was poorly defined and federal and state members gave limited support because they questioned the need for such a document. States involved in Title II commissions did not view the commissions as the primary coordinators of water resource plans or the primary coordinators of federal agency activities. In essence, there was a "we" (the states) and "they" (the Title II agency) attitude.

The third basic purpose of the Title II commissions was to establish regional priorities which could fit into a national priority scheme for programs and projects. Priority lists which ranked projects and studies were established by Title II agencies; but the 1965 act did not specify the form or recipient of that effort. Often the priority-ranking processes of Title II agencies were not compatible with the federal funding process and lacked influence upon national decision-making. Again, the priority process was not really successful because federal and state agencies had no binding *commitment* to conform to Title II commission priorities.

Another obvious feature of Title II commissions which mitigated against full state support was that the chairmen were appointed by the President — not elected by commission members, and commission staff members were federal employees.

Finally, the GAO report on Title II river basin commissions listed four options relative to the future of such agencies. One of those four options was to terminate — and that's just what Congress did in 1981.

Compact Commissions

The GAO's companion report on compact river basin commissions, dated February 20, 1981, had an entirely different tone. Even the title was more upbeat, "Federal-Interstate Compact Commissions: Useful Mechanism for Planning and Managing River Basin Operations."

That report recognized the Delaware River Basin Commission as the principal coordinating body for water resource planning and management within the four-state region. But, unlike the Title II river basin commissions' "coordinating" role, the DRBC actions have the full force and effect

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1980-1981 Drought

The four-state region has survived another critical water shortage by hammering out its own compromise agreements without turning to the courts.

As in the basinwide drought of the mid-1960s, the mechanism for achieving the regional cooperation and successful water deficit-sharing in 1980-81 was the Delaware River Basin Compact, the Commission's 20-year-old enabling law.

In fact, the interstate drought management effort of 1980-81 worked much better than in the longer and deeper shortage of the 1960s. Little had been achieved yet in the mid-1960s in the way of sophisticated technical preparation for assessing and declaring a drought, much less developing policies for guiding the region through one. These elements evolved on largely an ad hoc basis as the then-new Commission struggled through its first crisis, attempting to transform regional feuding into regional accord.

In both droughts, accommodations had to be worked out by temporarily suspending terms of a 1954 decree of the U.S. Supreme Court that allows New York City and Northeastern New Jersey to divert limited quantities of water from the Delaware basin.

The decree also obligates New York City, through operation of its three large reservoirs on upper Delaware tributaries, to guarantee a specific minimum flow down the Delaware to protect the water interests of the downstream in-basin areas of Pennsylvania, New Jersey and Delaware. The downstream flows are needed primarily to hold off the ocean's influence up the tidal Delaware to prevent salt from contaminating deep public water supply wells, recharged by the Delaware River, that serve tens of thousands of residents in Camden, Gloucester and Burlington Counties in New Jersey, opposite Philadelphia. Excessive river salinity also endagers water-using industries and Delaware Bay oyster beds, and impairs water quality. The guaranteed flows are also important to good recreational use of the river, and to fish and wildlife protection, including trout in the upper basin.

Mid-1960s drought

By January 1965, New York City storage upstream gradually dipped to one-quarter of capacity, as it was to do again 16 years later.

The city discontinued its court-mandated downstream releases in June 1965, then defied an order by the court's river master to cease its out-of-Delaware diversions. Downstream states cried "piracy," complaining that the Camden-Philadelphia area's water environmental would become contaminated. New Jersey threatened to reopen the old court fight, and the region's water peace was strained anew.

At a crossroad, the region faced a decision between going back to the Supreme Court to renew the water rights battle or trying to work out of the crisis cooperatively through its new Commission. DRBC did have extensive powers, including those of declaring a water supply emergency and applying various implementing remedies, but it was still untested. Among other things, the Compact allows DRBC to temporarily suspend the terms of the court's water-sharing decree in water supply emergencies if the decree parties agree. The parties are the four basin states and New York City.

Those favoring the Commission approach over renewed litigation eventually prevailed. The various parties, and DRBC's staff, as directed, offered numerous alternatives to cut back the regional allowances in hope of preserving enough water in storage to avoid going dry. DRBC's emergency declaration of July 1965 and the compromised reductions in the allowances, along with other relief actions similar to some taken in 1981, succeeded in getting all parties through the shortage on less water.

The 1960s drought offered sharp contrasts, both hydrologically and institutionally, to that of the 1980s. The earlier shortage, still the basin's worst ever, developed slower and lasted longer — from 1963 to 1967. It provoked a hostile atmosphere that challenged the new Commission to achieve regional harmony on a tough issue. But this time a conciliatory mood prevailed from the start.

1980 supplies dwindle

Storage buildup in New York City's reservoirs was good early in 1980 despite an irregular precipitation pattern, but a combination of summer drawdowns and lagging rainfall pushed supplies down toward the 40 percent drought warning storage line as fall began.

When full, the three New York City impoundments hold 271 billion gallons (bg) of Delaware basin water, needed to supply up to 800 million gallons daily to New York City and to meet the downstream flow obligation. There are no other comparable-size water supply reservoirs in the Delaware valley. Because the three reservoirs are so crucial to both a healthy Delaware flow downstream and to the city's supplies, their storage volume is the Delaware basin's principal drought status criterion.

The Commission and the parties to the Supreme Court decree saw trouble ahead,

and quickly began negotiating interstate water allotment cutbacks around the DRBC conference table. Besides being in a cooperative mood and better prepared institutionally, the region — New York City, the states and DRBC — was now experienced. It knew from the 1960s that the high court's water crop assumptions were too generous to meet the diversion and flow allowances in another serious drought. So even before the shortage, work already had begun, through DRBC's Level B study and the "good faith" process (Resolution 78-20), on establishing new criteria.

From May 1980, when the drought began, through 1981, the precipitation deficit was 13 inches, or about 18 percent of the approximately 74 inches that is normal in the upper basin for the 20-month period.

Storage pierced the drought warning line and the first cutbacks in diversions to New York City and North Jersey and in downstream flow guarantees were quickly approved — on October 17, 1980. The hope was that recovery would come with the December start of the new wet season, but the storage nosedive only worsened as precipitation still lagged, dropping deeper into drought warning conditions and into a full-fledged drought at 33 percent of capacity one week into 1981. The dry spell was mirrored also by lowered ground water tables in many areas, particularly in Southeastern Pennsylvania counties where well-water problems are chronic anyway.

Governors declare emergency

Governor Byrne of New Jersey, then DRBC chairman, summoned the Commission into special session at Trenton on January 15, 1981. The four basin governors were joined by Mayors Koch of New York and Green of Philadelphia and formally declared the emergency. The declaration was accompanied by actions further reducing regional allowances to Delaware water; exercising DRBC jurisidiction over reservoirs owned by the federal government, Commonwealth of Pennsylvania and two electric utility companies to help maintain flows in the river; and recommending the imposition of bans on non-essential water uses. Mandatory bans were quickly ordered by New Jersey and Pennsylvania and the cities of New York and Philadelphia, while Delaware called for a voluntary user conservation program, with substantial success reported in many areas.

But storage continued to plunge to 25 percent of capacity in the New York reservoirs before a dramatic precipitation upturn early in February 1981 added 100 bg to the lakes, sending supplies above the drought warning line for the first time in more than four months. Storage remained above warning levels all through 1981, although only marginally and not enough to justify calling the drought off. The improvement was good enough, however, to allow full restoration of the New York City and North Jersey diversion allowances and downstream flow guarantee in May 1981. Also, in mid-drought, DRBC renewed the augmented conservation release operations at the New York reservoirs to the pleasure of upper basin anglers and recreationists.

The biggest direct effect of the DRBC drought management actions was the saving of more than 60 bg in upstream storage that would have been expended had it not been for seven months of cutbacks for New York City and the states downstream. Without this saving, storage would have remained below drought warning throughout 1981. The recovery

DRBC drought emergency declaration meeting of January 15, 1981, at auditorium of New Jersey State Museum in Trenton brought together governors of New Jersey, Pennsylvania, New York and Delaware and mayors of New York City and Philadelphia.

Cannonsville reservoir on October 10.

was thus the result of the dual effects of return to good precipitation and the region's water conservation — including the good efforts of New York City.

Probably the greatest indirect blessing of the management program was that it obviated the need for DRBC to curtail industrial operations in the basin, which was authorized by the members on a contingency basis. The measure empowered the Commission to order self-supplied industries to reduce their consumptive water withdrawals if things continued to get worse — but they did not. A preparatory canvas of industries indicated that substantial wage and business losses could have been the economic effect of only a 10-to-25 percent consumptive water use cutback. This also would have meant the loss of significant state and federal tax revenues.

Only because of the relatively quick recovery in the recent drought could the basin have operated with full diversions and downstream releases, but none of the parties was willing to chance that. Without the big water savings that were effected, the upstream storage would have dropped another 10 percent to 15 percent of capacity in February 1981.

The reservoirs in which DRBC arranged for extra water to be kept available to help keep up downstream flows included Lake Wallenpaupack of Pennsylvania Power and Light Company in the Pocono Mountains; the Mongaup River reservoirs of Orange & Rockland Utilities, Inc. in Sullivan County, N.Y.; the Commonwealth of Pennsylvania's Lake Nockamixon in Bucks County; and four Army Corps of Engineers' facilities in Pennsylvania — Blue Marsh in Berks County, Beltzville in Carbon County, Prompton in Wayne County and Francis E. Walter on the county boundary of Luzerne and Carbon. Without the cooperation of the owners of these facilities, the well-balanced flow augmentation program would not have succeeded.

Information, save-water programs

DRBC furnished to water utility managers nearly 6000 copies of a technical handbook on designing and maintaining local conservation plans. DRBC arranged for reprinting of the informative 100-page book, "When the Well Goes Dry," for quick four-state distribution of the readily available material that had been published earlier by the U.S. Geological Survey and the now-defunct New England River Basins Commission.

Rondout reservoir on March 4

The Commission's public information program also included widespread distribution of drought status summaries throughout the shortage, talks before organizations and government panels and regular interviews for television and radio broadcasts and other media. This supplemented concerted and effective drives conducted by the signatory parties and the cities of Philadelphia and New

Neversink reservoir on March 4.

York and other purveyors promoting conservation by communities, businesses and citizens.

In November, voters in both New Jersey and Pennsylvania approved large bond issues that should help relieve future droughts. New Jersey's program will implement its new water supply master plan by adding storage capacity and upgrading transfer connections, while Pennsylvania's will improve community water supply systems and also rehabilitate flood control facilities.

By the end of 1981, the parties to the court's decree appeared to be nearing agreement on adopting permanent formal drought management criteria to replace the court's provisions during future shortages. (See pages 10-11.)

Highlights

Upper Delaware water quality

The Commission's annual summer limnological program examined the water quality of the 75-mile upper Delaware and found it to be in good to excellent condition based upon tests of its water chemistry, microbiology and biology. The stream's sanitary quality proved to be especially good. This upstream-most stretch of the Delaware, part of the New York-Pennsylvania boundary, is a feature of the national system of wild, scenic and recreational rivers. National Park Service planners and local residents have been concerned that the increased use by recreation seekers could be impairing its quality. Signs of some biological stress were found in the river at Lordville, a hamlet in Delaware County, N.Y., but were not believed to be caused by any pollutant discharge. This will be investigated further in 1982.

Power plant siting

The 10 electric utility companies that operate in the four-state Delaware Basin updated their master study for power plant siting again in 1981, but the report, unlike the earlier 15-year projections, contained no big surprises. In fact, the companies foresaw no increase at all over their 1978 forecast of the region's energy demands. They plan to boost their total in- and out-of-basin capacity only to 58,300 megawatts (mw) through 1995, the same as previously forecast in 1992.

Pre-1978 reports had predicted demands of up to 72,000 mw by as early as 1986. Reflecting the scaledown, only one new facility, a fossil-fueled station of Atlantic Electric Co. in Cumberland County, N.J., is scheduled, and that as an alternative to two fossil-fueled units formerly planned at Deepwater that were dropped this year. Already, the operating target for the Cumberland facility has been delayed from 1988 to 1991. Also dropped from the schedule through 1995 was an expanded fossil-fueled plant of Philadelphia Electric Co. at Chester. Further, of the seven planned facilities carried over from the 1978 report, four have been assigned later completion dates by up to four years and two carry no dates at all. After publication of the new siting study, Public Service Electric and Gas Company announced abandonment of its Hope Creek No. 2 nuclear plant in Salem County, N.J. Hope Creek No. 1 is under construction, scheduled for 1986 operation.

DRBC needs this periodically updated information as an aid to advance planning because steam-electric power plants use large volumes of water.

Salinity studies

A major contributor to important DRBC activities, including reservoir operations during the recent drought and formulation of future policies through the Level B study and "good faith" discussions, has been the Commission's computerized salinity-intrusion model of the Delaware estuary. Containing mathematical equations representing various combinations of tidal action, ocean salinity and streamflows regulated by reservoirs, the model has produced much essential knowledge about salinity movement to help determine the volumes of reservoir storage and flow augmentation releases needed to achieve an acceptable balance of fresh and salt water in the estuary.

DRBC recently has acquired its own computer for making the model runs. The model also has been used by the Army Corps of Engineers in its congressionally authorized study to ascertain the problems caused for industries and other tidal river users from salinity intrusion, which results in higher cost for water treatment, demineralization and corrosion control. The Corps' study indicated that such user expenses in dry years reach about $30 million, or about double those in wet years. Salinity effects can be offset by increasing fresh water flows from storage during dry periods.

DRBC upheld on diversion actions

The Commission's handling of environmental reviews and permitting procedures for the hotly contested Point Pleasant (Pa.) pumping station to serve Bucks-Montgomery water supply needs and the Limerick generating station has won federal court approval. Project foes challenged the Commission's February 1981 permit issuance and asked for another environmental investigation (four had been prepared previously). The diversion of Delaware River water would augment community supplies in the two Pennsylvania counties and provide a dry-period alternative water source for the Limerick plant, which has been under construction for several years.

Hydropower

The Commission, jointly with Pennsylvania's Department of Environmental Resources, embarked in 1981 on studies to assess the feasibility of generating hydroelectric power at two Corps of Engineers reservoirs that are components of DRBC's comprehensive plan. They are Blue Marsh in Berks County and Prompton in Wayne County. Under preliminary permits issued by the Federal Energy Regulatory Commission (FERC),

the studies commenced in November 1981 for scheduled completion in mid-1982. They are to determine environmental as well as economic viability of producing electrical energy at the existing projects. The Blue Marsh investigation funding is from a U.S. Department of Energy loan and the Commonwealth, which is principally financing the Prompton study. DRBC is contributing work services on both.

Hazardous waste study

The final report of the joint New Jersey-DRBC program for siting new hazardous waste treatment and disposal facilities is in preparation and will be released soon. It will update the Commission's earlier work on determining volumes of industrial waste generated in the large study area and discuss treatment and disposal technologies. Estimates of the size and type of facilities and generalized locations are to be included.

Additional work is under way to directly assist the states of New Jersey and Delaware. Efforts have continued with New Jersey's Department of Environmental Protection to develop the facilities siting criteria that would be put out for public response prior to adoption by the state. The criteria will be useful to the New Jersey Hazardous Waste Siting Commission in carrying out its new mandated functions. For future planning purposes in Delaware, a statewide mapping program is under way to designate the more suitable broad areas for locating facilities.

Basin states, during the DRBC hazardous wastes study effort, decided to implement toxic waste treatment and disposal programs themselves rather than through the Commission on a regional basis.

Schuylkill River recreation maps

A cooperative effort involving Pennsylvania's Bureau of Parks and the Delaware River Basin Commission resulted in near completion of a set of eight recreation maps for the Schuylkill River from above the forks at Port Clinton, Schuylkill County, to Philadelphia's Fairmount dam. At year's end, the remaining task before printing was completion of necessary field analyses to classify the upstream rapids according to international standards. The map series, patterned after DRBC's popular maps on the mainstem Delaware, will be ready in late spring of 1982, and will be distributed to the public at cost by the two agencies. Covering a total of 102 stream miles, including portions of the West Branch and Little Schuylkill Rivers, the maps provide the first user guide for recreationists on the first river designated as part of the Commonwealth's Scenic Rivers Act.

Return of the shad

Persistence is paying off for the only shad haul seining operation still functioning on the Delaware River. Each spring at Lambertville, N.J., Fred Lewis and his friends seine the Delaware for shad migrating upstream from the ocean to spawn. It is a family tradition that dates to Lewis' late father's boyhood in the 1880s. In those days, nets full of shad were pulled in yearly, but increasing pollution of the lower river drastically thinned out the runs over recent decades, and in some lean years during the 1950s and 1960s the Lewis operation failed to net a single shad. But he stuck it out through good and bad years, apparently long enough to see the trends come full circle.

Through the late-1970s the Lewis group watched the gradual comeback of the popular sporting and eating fish, and in 1981 pulled in 6,392 of them in what Lewis' records show was at least the biggest haul since 1896. DRBC's lower river reclamation program that began in the mid-1960s has resulted in increased oxygen levels in the water by mandating reduced pollution discharges, and Lewis attributes the return of the shad directly to the water quality improvement.

Upper Delaware Scenic and Recreational River

The intergovernmental effort to develop a management plan for the 75-mile Upper Delaware National Scenic and Recreational River continued through 1981 with completion scheduled for late-1982. The 1978 law which designated the Upper Delaware specifies development of the plan by the National Park Service in full cooperation with the DRBC, the directly affected states, their concerned political subdivisions and a citizens advisory council, to provide for a broad range of land and water uses plus scenic and recreational activities. With many of the technical planning studies and data gathering efforts completed in 1981, the intergovernmental planning team moved toward preparation of preliminary drafts of the actual plan in 1982. One of the key issues is determination of the type of management structure to be recommended to best represent the required multi-governmental and citizen involvements.

Level B Report

A sweeping reevaluation of the Delaware valley's water resource picture has produced a suggested program aimed primarily at keeping pace with water supply demands into the next century.

The main recommendation by the Delaware River Basin Comprehensive Study, also called Level B, is a construction program of new and enlarged reservoirs to provide adequate minimum streamflows to control salinity intrusion in the river's tidal estuary and to compensate for projected increases in water losses and to enhance recreational uses of the river.

The program offered by the study is intended to improve water supply conditions of the valley during both normal hydrologic periods and droughts like the one just experienced in the region. Existing water storage facilities have proven inadequate to get the region through drought conditions under normal water use patterns.

The 1981 final report's suggested plan climaxed the three-year investigation, conducted by DRBC with federal funds and state work contributions, and is now under consideration for updating the Commission's comprehensive plan for the four-state region.

The broad-context water supply analysis and suggestions would accommodate both quantity and quality needs of the river — meaning providing adequate flows not just for salinity control but also such instream uses as fish, oyster and biota protection and recreational use of the river.

High concentrations of salinity, with its sodium content, must be kept downstream of the tri-county New Jersey area opposite Philadelphia to prevent contamination of public water supply wells, which, during drought, are largely recharged from the river and are the primary source of potable water for the area's 300,000 residents. High salinity counts cause problems also for water-using industries and the oyster beds of Delaware Bay during critical times of the year.

The report concluded that the reservoir expansion program is necessary to assure adequate minimum flows in the river at Trenton during droughts by adding up to 750 cubic feet per second (cfs) of flow capability by the year 2000. The study evaluated a range of flow targets to meet revised salt water control standards to prevent infiltration of the wells in the tri-county Camden-Burlington-Gloucester area and thus prevent taste and public health problems.

The suggested new salinity standard in the Camden-Philadelphia area represents a relaxation of the existing criterion, but the results of a recent study using a mathematical model of salt movement in the river indicate this is acceptable. The model study showed that the suggested streamflow and salt control standards could be compatible with industrial water uses along the estuary from Trenton to below Wilmington.

Enlargement was suggested for three existing reservoirs. Two are Francis E. Walter in the Lehigh valley and Prompton in the Lackawaxen valley, both Army Corps of Engineers flood control facilities in Pennsylvania. Congress already has started funding design work on the Walter expansion. The third is Cannonsville, located on the west branch of the

(continued on page 12)

Background

Through the late 1970s, it became incre Delaware River Basin's complicated wate future needs of the region were to be me

The needed reassessment has been cond related processes begun several years ago into a single package of long-range water tation to the public and the Commission

At the root of the dilemma was knowled get the region through another 1960s-lev reservoir plan big enough to solve this pr

For these and other reasons, DRBC's com basin's water demands had become outm ways found to solve old problems of wa improvement and so forth.

The first endeavor was the Commission's (Level B) Study, authorized and funded by work contributions by DRBC and federal made an extensive analysis of the basin's was concluded in 1981 with publication and proposals for modernizing DRBC's co

The second effort has been the special ne Supreme Court's decree on interstate sha parties to the decree — the four basin stat minimum streamflows for in-basin needs to New York City and Northeastern New diversion and minimum flow targets can b showed there to be times when there court's dictates.

In 1978, a concerned DRBC formally inv "good faith" discussions toward producing ments. The four governors and Mayor Ko Along the way, all pertinent technical find the negotiators. In fact, much of the work the DRBC management decisions that got drought, which caused delays in completi

The findings of the Level B study actually the interstate negotiations, and the ultima into a single recommended program, whi notice-public hearing process.

r Management

asingly evident that reassessment of the resources picture would be imperative if t.

ucted through two separate but strongly The final results of both are to be funneled management recommendations for presen- in mid-1982.

e that there would not be enough water to el drought and that Tocks Island, the one oblem, could be permanently dead.

prehensive plan for staying on top of the oded. In short, there would have to be new ter supply, flood control, water quality

own Delaware River Basin Comprehensive the U.S. Water Resources Council with and state agencies. This special program needs with broad public participation and nd Commission acceptance of the report mprehensive plan.

gotiations on possible changes in the U.S. ing of the basin's waters between the five es and New York City. The decree mandates and allows large exports of Delaware water Jersey. In normal wet years the court's e met, but the record drought of the 1960s ust is not enough water to meet the

ed the five decree parties to enter into new interstate water management arrange- ch accepted, and the talks commenced. ings from Level B were turned over to help of both endeavors provided the basis for the region successfully through the 1980s ng both Level B and "good faith."

ave provided the stepping-off point for te results of both activities are to be united ch, again, will go through DRBC's public

"Good Faith"

The "good faith" negotiations process among the four Delaware Basin states and New York City approached its conclusion this year and is expected to produce a series of suggested standards, criteria, policies and facilities to update the region's interstate water management blueprint, DRBC's comprehensive plan.

The negotiators, representing the states of New Jersey, Pennsylvania, New York and Delaware and the City of New York, will present their agreements and recommendations for Commission consideration in accordance with DRBC Resolution No. 78-20.

The objective is agreement on an interstate formula that will equitably divide the available water in droughts. Also, there is serious need for a long-term objective of adequate minimum streamflows on the mainstem to control salinity intrusion up the river's tidal estuary and provide for the myriad of instream uses on the main river.

Early phases of the discussions resulted in tentative conceptual agreements on drought management. Conveniently, these were thus available to help produce operating decisions by DRBC and state water management agencies during the recent drought which, in turn, contributed beneficial realistic experience to the negotiators. Technical studies by special DRBC and signatory party task forces on reservoir yields and other hydrological factors supplied still more valuable information. And the recently ended Level B study has helped delineate the available "good faith" alternatives and their consequences, especially on flow-diversion-storage-salinity balances.

Specific "good faith" proposals are expected for protecting water users in the Wilmington-to-Philadelphia reach of the estuary from excessive salinity. Considerations include development of new reservoir storage upstream and additional flow augmentation capacity, water conservation actions, a permanent standby drought management plan, and regulation of new or expanded depletive, or evaporative, water losses.

Following is a discussion of the principal issues that the negotiators have had under consideration and to which they are expected to respond with detailed recommendations:

Management standards and criteria

The salt water intrusion problem, in part a public health matter because of the sodium content in brackish water, calls for a set of interim and long-term salinity objectives. This means setting specific limits on chloride and sodium content at a specific Camden-Philadelphia area location in the river. As additional storage capacity is added upstream, the salinity objective might then be revised until attainment of a turn-of-the-century goal. The salinity objectives also would take into consideration water treatment costs and allied problems caused by salt water for industries and other water users in the estuary. The balance of fresh and salt water also is a factor in preserving a healthy oyster crop in the lower Delaware.

Need is seen for a basinwide criterion as the basis for assessing and planning a dependable water supply during a dry spell. The likely selection is the basin's worst drought of record, that of 1961-67. This would enable water managers to provide and protect reliable supplies for essential uses during a drought of that severity.

(continued on page 13)

Level B

(continued from page 10)

Delaware, the largest of New York City's three large water supply impoundments located in the western Catskill Mountains.

One of the new facilities endorsed is Merrill Creek reservoir, proposed by an electric utility group for construction in Harmony Township, Warren County, N.J., to make up for evaporative water losses at power plants during droughts. The utility group seeks permission to build the reservoir from DRBC, which in 1981 was preparing an environmental impact statement. The report also suggested that New Jersey proceed with its long-planned Hackettstown reservoir on the Musconetcong River, but the state has since abandoned this site due to poor subsurface foundation and a search is under way for some alternative to this prospective supply.

Any amendments to DRBC's comprehensive plan, whether involving facilities, policies or standards, must first be the subject of public hearing procedures.

Six long-planned reservoir proposals should be retained in DRBC's comprehensive plan for future consideration, the report said. These are Tocks Island on the mainstem above the Delaware Water Gap; Trexler in Lehigh County, Pa.; Evansburg in Montgomery County, Pa.; Aquashicola in Carbon County, Pa.; Icedale on West Branch of Brandywine Creek in Chester County, Pa.; and Newark on White Clay Creek in New Castle County, Del. Newark and Evansburg would be state-built projects; a sponsor has not been established for Icedale. The others, including the controversial Tocks Island lake plan, would be federal.

Maiden Creek, a federally proposed impoundment in Berks County, Pa., should be dropped from the comprehensive plan, the report concluded. In all, 25 possible site locations were reviewed by the study.

The report said that conservation should be the cornerstone of future water activity in the Delaware. It called for a reduction of 15 percent in evaporative and other depletive losses by water users in the basin during water shortages to save 180 million gallons a day during dry spells and thus avert the need for still another future reservoir.

The recommendations were drawn primarily from the middle-of-road "mixed objective" alternative that was presented in the study's draft report of 1979. The other two alternative plans discussed were an "environmental quality" approach calling for no reservoir construction, and a "national economic development" plan urging more reservoirs, including Tocks Island.

The report reviewed studies to reconsider the water quality standards in the historically depressed Philadelphia-to-Wilmington reach of the estuary. The estuary reclamation program that began in the 1960s has been producing a cleaner river, with a particularly big gain in 1980 when the upgraded southwest sewage treatment plant of Philadelphia went on line.

It presented sections also on other resource issues including hazardous wastes, ground and surface water supply, flood-loss reduction, fish and wildlife, recreation and energy.

"Good Faith"

(continued from page 11)

Diversions, releases and reservoir management

During the recent drought, DRBC adopted a specific schedule of phased reductions in out-of-basin diversions, releases and flow objectives to conserve as much water as possible in storage and to insure adequate salinity control in the estuary. Adoption of rights and obligations on a prearranged basis to be put in effect automatically during drought warning and drought, based on combined storage levels in New York City's three upper basin reservoirs, would avert the necessity for haggling over such arrangements as each new drought develops.

During the 1980-81 drought, the Commission instituted a system of coordinated operation of other existing reservoirs in the basin, both publicly and privately owned, to maintain reliable supplies for essential uses, to conserve water and control salinity. Permanent establishment of such an arrangement would complement downstream releases from the New York City reservoirs.

Water storage and supply and flow augmentation

Development of water storage, supply and flow augmentation projects to avoid future salinity risks and to keep pace with the region's growth through year 2000 has been a prime consideration of the "good faith" group. Discussions have centered primarily around the same impoundments that were suggested for construction, enlargement and standby status in the final Level B report (see Level B section), along with a development timetable. One exception is that an alternative would have to be found for New Jersey's recently abandoned Hackettstown reservoir plan. The New Jersey discussions also entail prospective solutions to overpumping and other problems with the Raritan-Magothy aquifer, the primary source of ground water that supplies the Camden metropolitan area.

Also a consideration as a standby prospect is pumping from underground sources in upper basin areas to supplement flow augmentation capacity during drought. This possibility is also being explored in DRBC's basinwide ground water resources study scheduled for completion by mid-1982.

Conservation during water shortages to cut down on depletive uses and the desirability of thus imposing mandatory percentage curtailments during a declared drought emergency have been another area of concern among the negotiators.

The "good faith" group also has indicated interest in having each basin state prepare contingency plans for promoting and mandating conservation measures by individual users of large and small quantities of water during drought emergencies.

Depletive water use budget

In the absence of additional storage capability, new depletive uses added to present water losses would reduce the ability of existing reservoirs to maintain streamflows needed to retard salinity intrusion. This raises the policy issue whether the Commission should establish a basinwide depletive water use budget for each staged change in the salinity standard. Limits could be imposed on new depletive uses to the extent that they could worsen the salinity problem if corresponding new storage is not provided. This might be achieved through denial of permits for new or expanded water withdrawals where they would add to evaporative losses.

Protecting upper basin streams

Since 1977, a trial program has succeeded in enhancing the upper Delaware's major streams for fishing and recreation by altering conservation release operations at New York City's three large reservoirs. To the delight of the upper basin community, flows have been increased and made more uniform in the river's three principal tributaries in New York State and on the main Delaware along the New York-Pennsylvania border above Port Jervis. And this has been done without infringing on the interstate diversion and release formula set up by court decree. There is considerable support for making the augmented release schedules permanent and placing them under the direction of New York State, which first promoted the program.

The Delaware River Basin

The Commission • 1981


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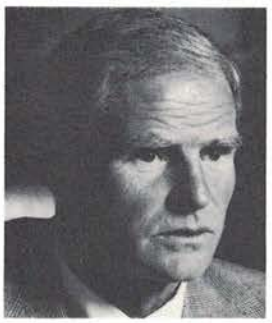
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*Mr. Tribbitt resigned in February, leaving post vacant for remainder of year

DELAWARE RIVER BASIN COMMISSION
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Estuary Upgraded

A new DRBC report traces the gradual improvement of the Delaware River's water quality from its probably worst pollution condition during World War II through 1981, by which time 80 percent of the river's 330-mile mainstem from Hancock, N.Y., to the mouth of the Delaware Bay was in good-to-excellent condition and meeting the federal "swimmable" goal. The report ("Cleaning Up the River: A Status and Progress Report"), like the water quality improvement programs, concentrates on the river's 85-mile estuary, historically the worst polluted section of the river and bay system.

Forty years ago, things were pretty bad on the estuary. Philadelphia area waterfront workers and sailors were frequent nausea victims from river gases during warm weather. Corrosion and paint damage to ship hulls were common. Manufactured goods on assembly lines in plants along the river corroded before being completed. Incoming airmen were alerted that the foul odor over Philadelphia was from the river and not some airplane misfunction. Visually, the water condition was no better, a predictable state of affairs given the then-common practice of dumping raw sewage and other wastes into the estuary in prodigious volumes from cities and industries in Pennsylvania, New Jersey and Delaware.

It was the work of the then-young Interstate Commission on the Delaware River Basin, in cooperation with its four state members, that brought about the initial reversal of the putrid, oxygen-depleting water pollution problems beginning immediately after World War II. The water quality of Incodel, as the four-state advisory agency was known, became the foundation of the initial pollution control activity of the Delaware River Basin Commission after it was created in 1961 with broader regulatory and water management authority.

By the late 1950s the Incodel program was considered successfully completed. From the work of the 1940s and 1950s, improvement resulted not only on the estuary, with quality as poor as any American river, but on the nontidal river above Trenton and on the major tributaries including the Schuylkill and Lehigh Rivers. By that time, the number of Delaware River Basin communities using what was then considered to be "adequate" facilities rose from 20 percent to 75 percent. More importantly, all the major cities had built and begun operating wastewater facilities, which in those years mostly amounted to primary treatment, or the removal of settleable solids. Industries, too, began marginal treatment of their wastewaters, but then, as now, the biggest problems were caused by the cities with their greater waste volumes.

The estuary in the Philadelphia area no longer had noxious odors indicative of septic conditions and floating wastes. Nonetheless, this was just the beginning.

The newly created DRBC inherited the staff, programs and water quality cleanup standards of Incodel in 1963. By that time the U.S. Public Health Service had begun studying the causes and effects of Delaware River pollution problems using a computerized model of the river, at that time an innovative tool in water quality management. It was this federal investigation, begun in 1961 and concluded six years later, that apprised the region just just how contaminated the river was, and

and just how much the wasteloads from cities and industries would have to be reduced to attain various cleanup targets.

The federal study's results soon became the basis for the Commission's 1967 adoption of water quality standards, which were far more stringent than Incodel's and which, with some refinements, are still in effect. Wasteload limitations based on the DRBC standards were assigned a year later to the more than 90 dischargers of organic wastes to the 85-mile estuary from Trenton, which is head of tide, to below Wilmington. The new treatment requirements mandated biological and other advanced techniques at levels generally considered to be high secondary treatment.

The second generation of the Delaware estuary reclamation effort thus went into full swing. Required by DRBC actions, the effort was a cooperative one with the four basin states and the federal government providing significant assistance including financing.

Like the early programs of Incodel, the primary focus of the water quality work of DRBC over the past two decades has been on the estuary. This is where the degradation was worst, this is where the biggest advances have been made, and this is also where the most work remains before the river reaches a level of acceptable quality. Once the quality of the river reaches that level, the responsibility of regulatory agencies and wastewater dischargers will be to keep it there, at least until any further upgrading of the standards.

The pollution loadings to the tidal reaches of the river have been reduced by more than 50 percent from what they were in 1958. Actually, the wasteload reduction is even greater than the indicated 50 percent, considering that many of the large city treatment systems now collect and treat wastes from suburban towns and factories that formerly lacked sewers or treatment facilities. Thus severe local pollution problems in many outlying areas have been eliminated.

Good progress in the development of regional and subregional sewerage facilities in the estuary region has been made. Such systems now serve Delaware, Bucks and Montgomery Counties in Pennsylvania, Gloucester County in New Jersey, and New Castle County in Delaware. This trend continues, where necessary, in other areas such as Camden County, N.J.

Still, the goal of cutting the total wasteload to the tidal river down to allowable limits is far from a reality. This is principally because completion of current work to upgrade facilities to bring the Philadelphia and Camden systems into compliance is still several years off. Trenton also is sub-par, but only until sewerage construction work there is finished late in 1982.

The 85-mile tidal estuary is divided into four pollution control zones, numbered two through five, each with permissible organic pollution discharge goals for its public (municipal) sewerage systems and its industries. (Located outside the estuary are Zone 1, covering the nontidal river upstream of Trenton, and Zone 6, encompassing the bay. Both enjoy good to excellent water quality.) Although improved treatment practices have been effected up and down the estuary, only in one of its four zones has the total zone wasteload goal been met by both municipalities and industries.

The cleanup record of the region's manufacturers is generally good, with most industries having met their individual discharge allocations before 1980. In three of the four estuary zones, industries have bettered their wasteload goals. Progress by municipalities and sewerage authorities, however, has been considerably spottier, although with some notable exceptions. The lag by public systems, which meet the target in only one zone, generally reflected local financial pressures in combination with shortfall of expected federal and state grant funds, as well as delays caused by overly-complicated federal grant procedures.

Zone 2

In the Trenton-to-North Philadelphia zone, the farthest upstream, the total load assigned to industry is being met, and the total load from its municipal dischargers is only slightly over the desired load. This is due to improvements in public treatment plants on both the New Jersey and Pennsylvania sides of the river. Completion of the Trenton system's modernization is the most significant action not yet completed.

Zone 3

The biggest problem estuary zone is that which flows along most of the Philadelphia shoreline and along Camden County on the New Jersey side. Here the total 1981 municipal discharge loads actually slightly exceeded what they were 23 years earlier and must be slashed by more than two-thirds before the desired total wasteload to be discharged from all municipal plants can be met. (The zone's 1981 discharge total results from a larger total wasteload prior to treatment, and not from lowered treatment practices.) The required wasteload reduc-

tions will be accomplished by the three biggest sewage plant upgradings that are underway — two in Philadelphia and one in Camden. Overall, industries have cut their cumulative wasteloads here by more than a third since the 1950s and further substantial reductions will occur shortly.

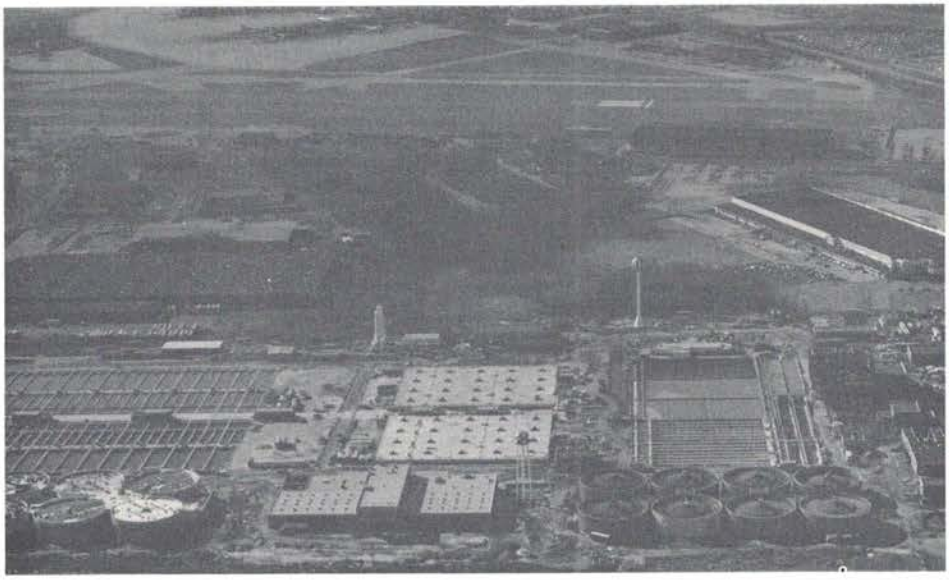
Zone 4

The lower middle zone, from the Philadelphia International Airport vicinity downstream to the Delaware-Pennsylvania state boundary, has shown good progress because of the recent completion of Philadelphia's overhauled Southwest treatment plant. It is in this zone that the most dramatic wasteload reductions to the river have occurred since 1958. The recent progress at the Philadelphia plant now leaves only about a one-third additional reduction to go to meet the total of the wasteload limits assigned to all municipal discharges. The many refineries and other factories in this zone have reduced their total gross organic wasteloads by over 90 percent since 1958, bringing them well within the zone's limit for all industries combined.

Zone 5

The zone in which both industries and municipalities, as collective discharger groups, have attained their allowable wasteload limits is at the downstream end of the estuary where the river passes between New Castle County, Del., and Salem County, N.J. The principal reason this is the only estuary zone where the total of all municipal wasteload limits is being met is the effective operation of the Wilmington wastewater treatment plant, serving most of northern New Castle County and the City of Newark in addition to the City of Wilmington.

Aerial photograph shows recently modernized Philadelphia Southwest Water Pollution Control Plant. Since completion of the upgraded facility, dramatic improvement has been recorded in the Delaware estuary zone located immediately downstream. Part of Philadelphia International Airport is visible in background.



Upper River Ice Jam

Scenes indicate the magnitude of the ice gorge and flood of February 12, 1981, in the tri-state area of the upper Delaware River and the extent of the devastation suffered at Port Jervis, N.Y., and Matamoras and Westfall, Pa. Serious drought conditions had prevailed in the Delaware basin region from the previous summer, but heavy rains of February 10 and 11 swelled the river, breaking up the winter's thick ice buildup and sending giant chunks downstream, where they jammed up at the narrows at Matamoras, in effect damming up the unfrozen rain waters. Means of averting recurrence are under study. Photographs courtesy of Pike County Dispatch and The Port Jervis Union-Gazette.

Financial Summary*

Budgetary

REVENUES

	Budgeted	Received
Delaware	$ 130,400	$ 130,500
New Jersey	346,600	346,600
New York	270,000	270,000
Pennsylvania	400,200	400,200
United States	269,000	266,000
Total from Signatories	1,416,200	1,413,300
EPA Grant	220,000	220,000
Project Review Fees	0	27,489
Contractual Services	16,000	14,137
Interest Income	0	156,980
All Other	25,900	27,104
TOTAL	$1,678,100	$1,859,010

EXPENDITURES

	Budgeted	Expended
Personal Services	$ 947,100	$ 877,365
Special and Contractual Services	243,900	243,661
Other Services	17,100	16,969
Supplies and Materials	36,400	36,160
Space	155,500	155,059
Communications	49,000	48,616
Travel	16,200	15,667
Maintenance and Acquisitions	16,100	15,764
Equipment Rental and Lease	21,600	21,339
Fringe Benefits and Other	175,200	174,845
TOTAL	$1,678,100	$1,605,445

Non-Budgetary**

Special Programs and Projects	Fund Balances July 1, 1980	Revenues	Transfers	Expenditures	Fund Balances June 30, 1981
Tocks Island Region Environmental Study	$ 3,146	$ 0	$ 0	$ 0	$ 3,146
Tocks Island Reservoir — Fluctuation — Research	320	0	0	0	320
Thermal Study	4,393	0	0	0	4,393
New Jersey Personnel Contract	33	0	0	0	33
New Jersey Coastal Zone	1,612	0	0	0	1,612
Flood Plain Contract Fund — Pennsylvania No. 3	3,001	86,073	0	83,594	5,480
Point Pleasant	25,800	0	(25,800)	0	0
Study of Exotic Wastes — Phase II	12,426	146,300	0	71,315	87,411
Waste Load Allocation	51,559	16,400	0	1,458	66,501
Ground Water	700,164	280,000	0	330,867	649,297
Study of Salinity Intrusion in the Delaware Estuary	89	0	0	0	89
Level B Study	70,957	0	(41,400)	3,964	25,593
Merrill Creek	45,899	18,748	(34,400)	17,657	12,590
Model — Documentation	11,104	0	0	188	10,916
Model — Recalibration	15,552	0	0	3,226	12,326
Recreational — Scenic Rivers	0	33,500	0	26,643	6,857
Water Re-Use	0	24,945	0	6,915	18,030
Ground Water — Pennsylvania Protected Area	0	44,637	0	44,637	0
Flood Plain Contract Fund No. 1	0	39,164	0	0	39,164
Environmental — Point Pleasant	0	0	51,885	51,885	0
Environmental — Level B	0	0	41,700	41,670	30
Environmental — Merrill Creek	0	0	8,015	7,305	710
Ground Water — Withdrawal Fees	0	250	0	0	250
	$946,055	$690,017	$ 0	$691,324	$944,748

*For Fiscal Year ended June 30, 1981.
**Revenues from sources outside current expense budget.

The records of the Commission are independently audited each year as required by the Compact.

Executive Director's Report

(continued from page 4)

of law. Once the Commission has adopted an effluent standard, water quality standard, wetland policy, or any other element of its comprehensive plan or water code, the parties by law are committed to act in accordance with such rules, regulations or policy. However, a signatory party agency may impose more protective requirements in their particular jurisdiction.

A classic example of implementation of compact commission requirements is the pollution abatement program on the Delaware estuary. In this case, wasteload allocations were given to municipalities and industries without regard to political boundary — as called for in the Delaware River Basin Compact. In the case of every municipality and many industries, the DRBC waste effluent reductions were more stringent than the United States Environmental Protection Agency's national standards.

So, where Title II commissions exhibited a major failure — lack of follow-up on strategies devised — the compact commissions have been successful.

A second major shortcoming of Title II agencies which has not afflicted the compact commissions is in the area of comprehensive, coordinated joint plan development. The DRBC comprehensive plan has been "on the books" since 1962; has undergone considerable revision to reflect changing times; but still serves as the yardstick for water resource decisions in the basin. All significant projects, public or private, are reviewed and acted upon as measured by the comprehensive plan. The DRBC is committed by the Compact to assure that projects are in conformance with the comprehensive plan.

The GAO report recognized the complex and difficult decisions affecting the future of the basin. But, these decisions are more fairly made and binding upon the parties because of the step-by-step approach to comprehensive plan amendment through an open public notice-public hearing process required by the Compact. An updated salinity standard for the estuary; sufficient storage to sustain legitimate water uses through periods of drought; fair and equitable apportionment of diversions and releases; and comparable but effective water conservation practices among the basin states are all important but difficult tasks to finally place on the books. The DRBC Compact does not loosely suggest the development and adherence to a coordinated, comprehensive joint plan. It states:

> "The commission *shall* develop and adopt, and may from time to time review and revise, a comprehensive plan for the immediate and long-range development and use of the water resources of the basin." (Italics supplied.)

The third major area where Title II agencies and the compact commissions vary is in the establishment and implementation of priority projects. Decision-makers did not use the priority reports prepared by the Title II commissions, as adjudged in the GAO report. However, when the four governors or their alternates on the DRBC, with the vote of the federal commissioner, have resolved to embark upon a needed study, program or project, Congress and state legislatures have generally been very supportive. The U.S. Army Corps of Engineers' flood control and salinity studies; the U.S. Environmental Protection Agency's support of DRBC water quality efforts; construction of Beltzville and Blue Marsh reservoir projects to include DRBC water supply storage; and progress toward the modification of the Francis E. Walter project are prime examples of the parties' commitment to DRBC policies, programs and projects.

An important factor in the DRBC members being *committed* to this agency's actions is that each member has an equal vote. The chairmanship is not by presidential appointment, but rotates annually. The executive staff is responsible to a majority vote of all the members, and not remunerated by the federal government as were employees of the Title II agencies. Compact commissions are driven by the concept of shared sovereignty, where all parties pass identical legislation and are committed — not where a general federal law suggests that parties get together and plan and coordinate.

However, the GAO report on compact agencies is not all peaches and cream. It highlighted that care should be taken to assure that all five members to the DRBC adequately and fairly support its missions — be financially committed. As the chicken and the pig strolled by a country market and gazed into the meat and poultry cooler, the chicken remarked, "Look at that pile of fresh eggs; that's commitment." The pig then replied, "Look at that side of bacon; that's total commitment."

Fortunately, the small size of the compact agency programs would not cause a dent in, even a chip from, the signatory party treasuries. So total commitment is not a problem. But fair and sufficient financial commitment from all the members to carry out the complex and often controversial programs for their shared river basin is vital. The alternative of handling interstate water problems through the federal courts in an adversary fashion is much more costly as well as time-consuming.

Delaware River Basin Commission
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