1988



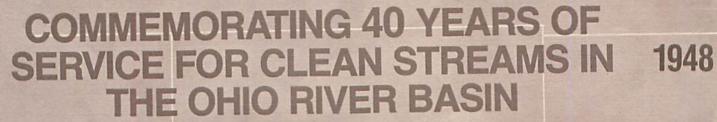
ORSANCO

OHIO RIVER VALLEY WATER SANITATION COMMISSION

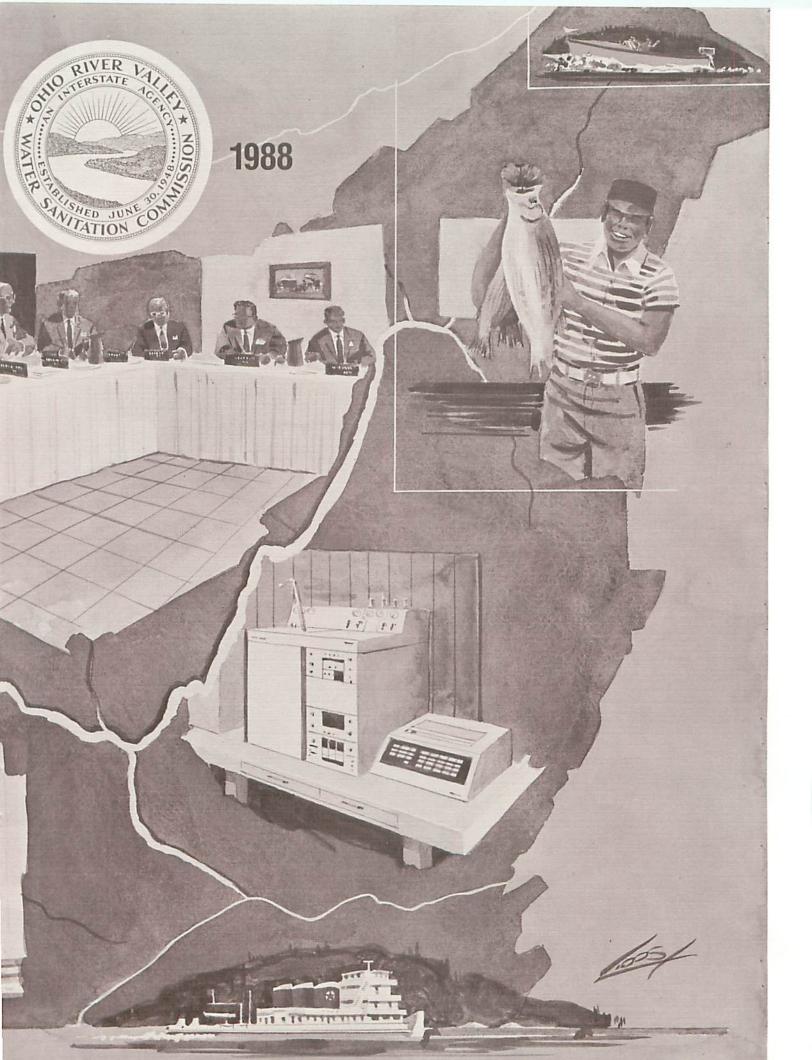
MEMBERS REPRESENTING:

ILLINOIS INDIANA KENTUCKY NEW YORK

OHIO PENNSYLVANIA VIRGINIA WEST VIRGINIA and the UNITED STATES







Members Of The Commission

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Alan H. Vicory, Jr., Executive Director and Chief Engineer

LEGAL COUNSEL:

Thomas D. Heekin, Taft, Stettinius & Hollister

TO:

THE HONORABLE JAMES R. THOMPSON Governor of Illinois
THE HONORABLE EVAN BAYH Governor of Indiana
THE HONORABLE WALLACE G. WILKINSON Governor of Kentucky
THE HONORABLE MARIO M. CUOMO Governor of New York
THE HONORABLE RICHARD F. CELESTE Governor of Ohio
THE HONORABLE ROBERT P. CASEY Governor of Pennsylvania
THE HONORABLE GERALD L. BALILES Governor of Virginia
THE HONORABLE W. GASTON CAPERTON III Governor of West Virginia

AND

THE HONORABLE GEORGE H.W. BUSH President of the United States

The Commissioners of the Ohio River Valley Water Sanitation Commission (ORSANCO) -- an interstate compact water pollution control commission created jointly in 1948 by the State of Illinois, the State of Indiana, the Commonwealth of Kentucky, the State of New York, the State of Ohio, the Commonwealth of Pennsylvania, the Commonwealth of Virginia, and the State of West Virginia, with the approval of the Congress of the United States --respectfully submit a review of the Commission's activities in 1988.



CHAIRMAN'S MESSAGE

Sharing The Stewardship

In this year, 1988, the Ohio River Valley Water Sanitation Commission marks its 40th year of effort to improve the health and vitality of the streams in the Ohio River Valley. Although an anniversary should be cause to pause and reflect back on accomplishments and to visualize the future, the Commission's activities in 1988, and in particular its efforts to respond to two key events, provided little opportunity to do so.

The first event happened just two days into 1988, when an oil spill occurred on the Monongahela River at a point 24 miles upstream from the City of Pittsburgh. This spill disrupted the water supply for over three million people and injured wildlife in and along the Monongahela and Ohio Rivers. ORSANCO's response to this crisis, as the agency designated to provide interstate communication and coordinate water



quality monitoring and as the means by which environmental agencies concerned with the river are coordinating environmental impact studies, required a diversion of resources from normal activities for the months of January and February.

The summer months brought drought conditions in the Valley statistically expected only once every 50 years. Again, resources were redirected to provide state and federal agencies and local utilities water quality information important to efforts to protect the varied uses of the Ohio River and its tributaries.

While responding to these transient events, the Commission did not abandon important ongoing programs. We continued to make progress in the areas of toxic substances control, water quality monitoring, and control of wastewater discharges. In addition, actions were taken to improve the effectiveness of the Commission's triannual meetings and to revitalize the Commission committee structure, where much of the pollution control groundwork takes place.

In its 40 years of operation, the Commission has remained viable due in large measure to its ability to adapt to meet changing demands and concerns, while at the same time



Patrick L. Standing, Chairman

providing stable and effective water pollution control programs through its eight state members.

The events of 1988, as in perhaps no other year, served to demonstrate the viability of ORSANCO as the means by which all converge to share in the stewardship of the Ohio River Valley's streams. In the coming years, this Commission will face perhaps its greatest challenges in achieving reduction in the presence of pollution from toxic substances, contaminated groundwater and land runoff. To effectively address these problems, a commitment of state and federal agencies as well as citizens of the Ohio River Valley to work together is absolutely crucial.

ORSANCO began 40 years ago as a result of Ohio River Basin residents and agencies working together. This same spirit exists today and will allow us to meet the challenges we face into the 21st century.

Patuch 2 Standing

1948 Ohio River Valley Water Sanitation Compact signed in Cincinnati

1949 Wastewater treatment standard adopted for the Cincinnati Pool

1950 First comprehensive Commission sampling program for the Ohio River

1951 Bacterial quality objectives for the Ohio River established....

Study initiated to assess potential health hazards of trace constituents in industrial and other wastes

1952 Water Users Committee organized and Water Users Monitoring Network established

1954 Municipal wastewater treatment standards established for the Ohio River

1955 Basic industrial waste discharge requirements adopted

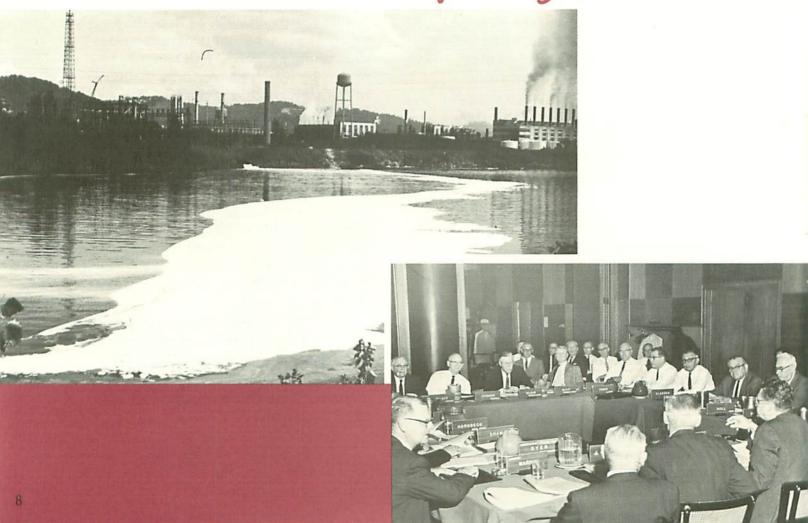
1957 First application of enforcement powers: resolution requesting compliance schedule from the City of Gallipolis....

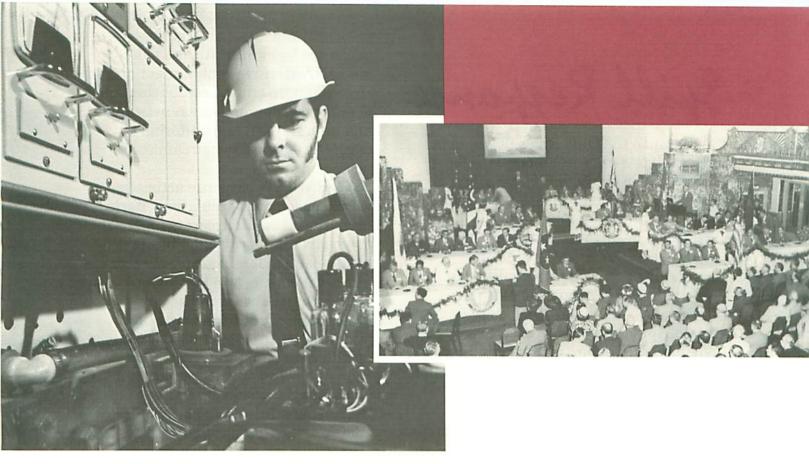
First Commission-sponsored inventory of aquatic life resources in the Ohio River

1959 Resolution adopted placing upon industries the responsibility for reporting spills and accidental discharges to state agencies

1960 First electronic water quality monitors placed in operation

Milestones Of Progress





1963 Eight compact states awarded the Outstanding Civil Engineering Achievement Award of 1963 for "the most effective large-scale water pollution abatement program ever undertaken in the western hemisphere"

1966 Recommended stream quality criteria adopted by the Commission

1968 Commission awarded The Wildlife Society's Group Achievement Award "for leadership in a cooperative approach to pollution-abatement programs by municipalities, industry, state and federal governments"

1970 Adoption of revised Pollution Control Standards establishing secondary treatment as minimum requirement for wastewater treatment plants and equivalent requirements for industries

1974 Monitoring strategy reassessed and Commission monthly sampling program established to meet state and federal needs 1978 Organics Detection System (ODS) inaugurated....

Ohio River Interstate Spill Notification Plan adopted

1982 Forty percent increase in diversity of fish in the upper Ohio River observed based upon 13 years of fish population surveys at Ohio River locks and dams

1983 Adoption of a Toxic Substances Control Strategy for the Ohio River Valley

1986 Electronic Water Quality Monitoring System revised in response to substantially improved conditions

Initiation of Toxics Control Program for the Ohio River

1988 Commission successfully coordinates multi-agency efforts to track major oil spill and protect downstream water supplies...

Registry of Distinguished Operators inaugurated

Spill Response

Because the Ohio River flows through or serves as a boundary for six states in the Ohio River Valley, the Commission has been assigned a vital coordinating role in spill response by facilitating interstate communication and coordinating necessary water quality monitoring efforts. The importance of this role was demonstrated in 1988, as two major spills occurred which significantly impacted the Ohio River.

Ashland Oil Spill

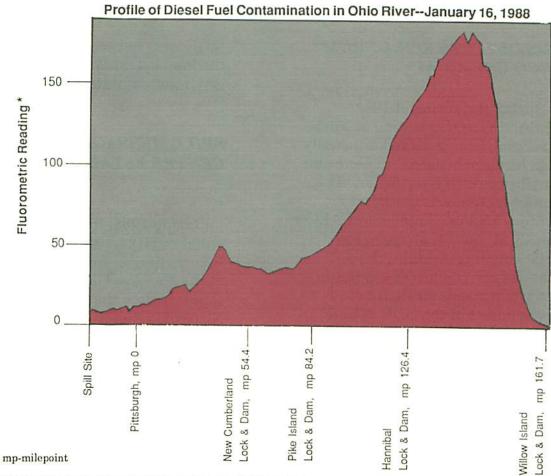
In January 1988, an oil spill to the Monongahela and Ohio Rivers of unprecedented magnitude occurred when a 3.8 million gallon storage tank at the Ashland Oil Company's Floreffe, Pa., terminal collapsed. The result was an estimated release of 705,000 gallons of diesel fuel to the Monongahela River at a point 24 miles upstream of the City of Pittsburgh. Response to this spill

involved immediate emergency measures by local, state and federal officials, extensive containment and river clean-up efforts, establishment of multiple communication networks and interstate river monitoring to track the spill's downstream movement.

ORSANCO's response activities were focused on coordinating efforts to track the oil spill's progress down-river and providing information to state and federal agencies, water users, the media, and the general public. Under the Commission's direction, local utilities, state and federal agencies cooperated to conduct mobile river sampling on over 800 river miles and at water treatment plants from Pittsburgh, Pa., to Cairo, Ill., during a five-week period. In addition, the Commission's Organics Detection System (ODS) provided a fingerprint of the fuel oil in the river and helped water plants successfully monitor the arrival and passage of the spill and determine effective treatment measures.

ORSANCO also served as the central clearinghouse for spill information. Updates concerning spill locations, river conditions and water





*Fluorometer is used to measure the presence of oil in water

sample test results were posted on the Commission's Electronic Bulletin Board and provided to interested parties.

After the oil spill had dissipated and was no longer a threat to water supplies along the river, the Commission coordinated efforts to assess the long-term impacts of the spill on river water quality, water supplies, fish and waterfowl. A review of above ground storage tank regulations was conducted to identify needed safeguards for the future.

January 7, 1988--Oil sheen on the Monongahela River where it joins the Allegheny in Pittsburgh



ODS DETECTS SPILL FROM ARCO CHEMICAL

During the spring of 1988, ORSANCO's ODS station at East Liverpool, Ohio detected unusually high levels of benzene, toluene and ethylbenzene in river water. The contamination was traced to malfunctioning equipment at ARCO Chemical, Inc., in Monaca, Pa. Following this incident, the Commission conducted studies to determine needs for further development of the ODS. Those studies identified the upper Ohio River as the area of highest priority for expansion of the system. In 1989, the Commission intends to establish an additional ODS station below the ARCO facility. Funds for this station were made possible by a negotiated

settlement between the company and the Pennsylvania Department of Environmental Resources.

SPILL MESSAGE CENTER ESTABLISHED

During 1988, the Commission enhanced its capability to disseminate information on spills by establishing a Spills Message Center. The message center houses the Commission's Electronic Bulletin Board, established in 1986, and a telephone message service. The message center provides information on the type and amount, location and estimated time of arrival of the spilled substance at downstream locations along the Ohio River.

Organics Detection System

In 1978, the Commission established the Organics Detection System (ODS) to detect unreported spills and provide advance warning to downstream water users.

The system consists of 13 stations operated cooperatively by 11 water utilities and two industries along the Ohio River and three major tributaries. Each station performs daily testing by gas chromatography for selected organic compounds in river water. The results are then transmitted to Commission headquarters for analysis.

In addition to detecting unreported spills, the ODS serves as an important source of data on the levels of volatile organics in the Ohio River and its tributaries.

STATION LOCATIONS

	MILEPOINT	
South Pittsburgh	7.4*	
Pittsburgh	4.5**	
West View	4.5	
East Liverpool	40.2	
Wheeling	86.8	
Parkersburg) povit	190.3	
St. Albans	38.3***	
Huntington	306.9	
Portsmouth	350.1	
Cincinnati	462.8	
Louisville	600.6	
Evansville	791.5	
Paducah	935.5	
* Allegheny River		

- * Allegheny River
- ** Monongahela River
- *** Kanawha River



Control of Toxic Substances

Efforts to identify sources to reduce concentrations of toxic substances in the Ohio River continued to receive high priority in 1988 with additional progress achieved in the Commission's Toxic Substances Control Program. Under this program, initiated in 1986, the Ohio River has been divided into seven segments for detailed investigation. Each investigation includes rigorous analysis of available water quality data, collection of information on all potential sources and intensive field surveys. The successful implementation of this program relies on support and participation of state and federal agencies.

In 1988, a total of 367 river miles were the subject of investigations including segments extending from Pittsburgh, Pa., to Wheeling, W. V., Wheeling to Parkersburg, W. V., and Cincinnati, Ohio to Louisville, Ky. In addition to continued implementation of the Toxics Control Program, in 1988 the Commission initiated supplemental studies to:

- Determine and understand the relationship and contribution of contaminated groundwater to pollution levels in the Ohio River,
- Evaluate the effectiveness of pretreatment of industrial waste discharges to municipal wastewater treatment plants in reducing levels of toxic substances in effluents from municipal plants to the Ohio River, and
- Determine the impact of existing levels of toxic substances in the Ohio River on the ability of water treatment plants to achieve safe drinking water standards.

River Water Quality

Every two years, the Commission prepares a comprehensive report on Ohio River water quality conditions. In 1988, the Commission published its assessment for the 1986-87 period. That assessment found that problems associated with conventional water pollutants such as solids, oxygen depletion, and bacteria were rare. However, several concerns were identified regarding toxic pollutants including certain metals which exceeded criteria established to protect aquatic life, the presence of certain organic chemicals and concentrations of chlordane and PCBs in fish which exceeded guidelines established by the U.S. Food and Drug Administration.

Figure 1 shows the degree to which water quality conditions supported the designated uses of the Ohio River. The entire Ohio River was assessed as partially supporting the designated uses of public water supply and warm water aquatic habitat. Contact

recreation was supported in 819 of the 981 river miles.

The evaluation of use support considers stream criteria adopted by the Commission in 1987 which were more stringent than those previously in effect. Therefore, although water quality conditions were comparable, the degree of use support shown is lower than was reported for 1984-85.

DROUGHT CONDITIONS

Several consecutive months of below normal precipitation and high temperatures in the Ohio River Valley contributed to severe drought conditions during the 1988 summer.

The last major drought in the Valley occurred in the mid-1960's. At that time, wastewater treatment capabilities were considerably less than today. Dissolved oxygen (DO) problems were widespread with levels of 0.0 milligrams per liter (mg/l) recorded on the Kanawha River and

Barges stall on lower river near Cairo during drought



concentrations of 2.0 mg/l or less were common on the Ohio. The Commission's DO objective of 5.0 mg/l was rarely met in late summer months.

Although similar water temperatures and low flows occurred in the Ohio River in 1988, the lowest DO levels observed were only slightly below 5.0 mg/l. The results of improved wastewater treatment clearly were evident. For example, Figure 2 displays comparative DO levels in the river below Louisville for the three month critical period in 1965 and 1988. In spite of generally adequate DO levels in the Ohio River in 1988, several isolated fish kills did occur.

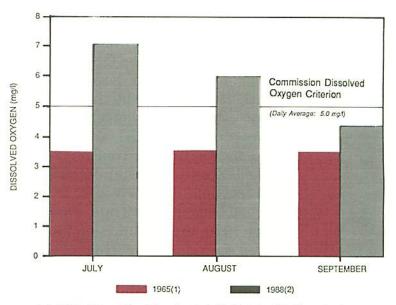
The Commission worked closely with the U.S. Corps of Engineers to provide water quality data required for effective operation of dams and reservoirs. During the drought, the Corps established water supply and water quality as priorities in its operations. While some disruption to navigation occurred in the lower river area, established flows for water quality objectives were maintained throughout the period.

Among other water quality problems resulting from the drought were taste and odor at several Ohio River water supplies and elevated levels of mineral constituents. The

Figure 2

Comparison of Monthly Average Dissolved Oxygen Levels Below

Louisville* During 1965 and 1988 Droughts

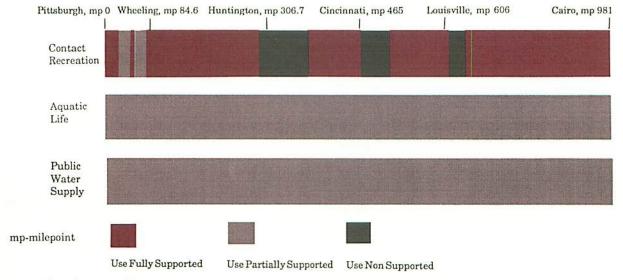


- 1) 1965 data from station at Cane Run; Louisville, Kentucky. Ohio River mile point 616.2
- 2) 1988 data from station at West Point, Kentucky. Ohio River mile point 625.9

taste and odor problems, which occurred in September, were attributed to algae or bacteria. While utilities were able to produce safe drinking water, the taste and odor could not be completely removed. Mineral levels, which include sodium and chloride, reached record highs in October and November resulting in the issuance of advisories by several local health departments for persons on low sodium diets.

Figure 1

Support of Ohio River Uses 1986-1987



Wastewater Treatment

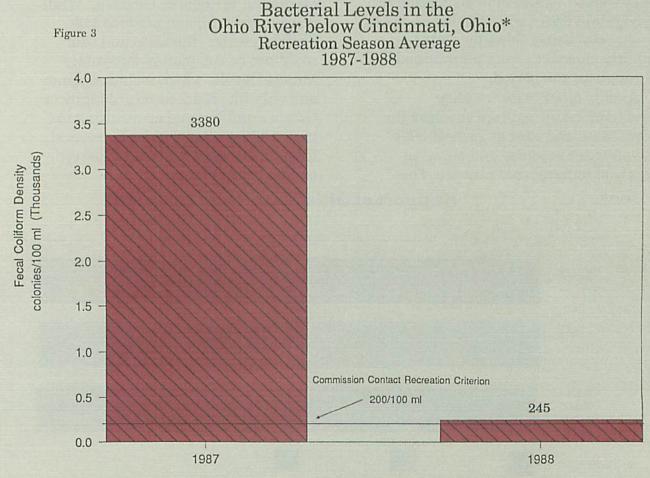
When the Commission was established in 1948, less than one percent of the sewage or industrial wastes discharged to the Ohio River received any treatment. Exercising the authority provided by the Compact, the Commission embarked on a program to establish and implement wastewater treatment standards. Treatment standards for specific sections of the river were developed between 1949 and 1953.

Since 1970, the Commission has required secondary level treatment for municipalities discharging to the Ohio and its equivalent for industries. Progress along the Ohio River to meet the requirements of the Commission, state and federal agencies has been impressive. As of July 1, 1988, the date which national policy specifies

adequate municipal treatment must be achieved, 123 of the 136 communities discharging to the Ohio River had constructed secondary treatment facilities.

Among the dischargers achieving compliance in 1988 was the City of Cincinnati-Mill Creek Sewage Treatment Plant. As shown in Figure 3, initiation of secondary treatment at this major facility resulted in significant improvements in downstream water quality.

As the municipalities providing secondary level of treatment represent almost 99 percent of the total volume of municipal wastewater discharges to the Ohio River, an important milestone in clean streams has been reached.





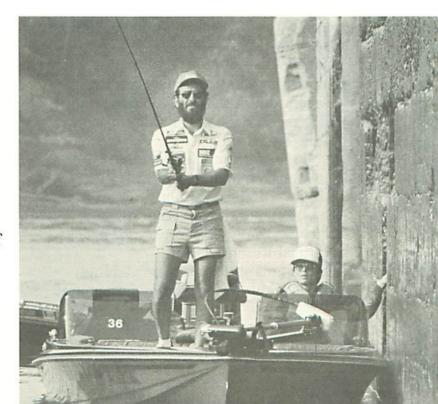
Above, fish sampling at Markland Lock and Dam Below, testing skills in BassMasters Tournament, copyright Louisville Courier-Journal

Fish Sampling

Since 1968, the Commission, serving as a coordinating and participating agency, has worked cooperatively with state and federal fisheries and water pollution control agencies in fish sampling at selected lockchambers along the Ohio River. Results from these studies provide valuable information concerning the relative abundance and diversity of fish in the Ohio and the presence of certain pesticides, polychlorinated biphenyls (PCBs), trace metals and organic chemicals in fillets.

The 1988 fish sampling program was conducted at 19 lockchambers with the participation of 15 cooperating agencies. An initial assessment of the populations retrieved in the 1988 study indicates that the Ohio continues to support a diverse community of fish species. Results of laboratory analyses of selected fish fillets for the presence of contaminants are expected in early 1989.

In addition to coordinating multi-agency fish population and tissue studies each year, the Commission was requested in 1988 to coordinate development of procedures to assess the suitability of Ohio River fish for human consumption. This action was taken because results of laboratory analyses of fish fillets indicate exceedances of guidelines established by the U.S. Food and Drug Administration for the regulation of contaminants in food.



Richard Shank, Ohio Commissioner and Director of the Ohio EPA, left, talks with Ohio Lt. Governor Paul Leonard and a government aide prior to January Commission meeting



The Year In Review

The Commission observed its 40th year in January 1988. At that time, Michael D. Justice, Springfield, Ohio, was recognized as the first nominee elected by the Commission to its Registry of Distinguished Operators. The Registry was established in 1987 to acknowledge outstanding operators of water and wastewater treament plants in the Compact District.

Commission officers elected for the period July 1, 1988 to June 30, 1989 were Patrick L. Standing of Virginia, Chairman; Pasquale V. Scarpino, of Ohio, Vice Chairman; Gordon R. Garner of Kentucky, Secretary; and Richard L. Herd of the Commission staff, Treasurer.

Gubernatorial appointments to the Commission included Bernard P. Killian, Director, Illinois Environmental Protection Agency; Carl H. Bradley, Secretary, Kentucky Natural Resources and Environmental Protection Cabinet; and Douglas M. Anderson, Director of Finance, City of Jamestown, N.Y.
Presidential appointments were
Valdas V. Adamkus, Regional
Administrator, U.S. Environmental
Protection Agency, Region V; and
Kathleen E. Burgoon, Senior
Instructor in Geography, Miami
University, Oxford, Ohio.

The Commission is made up of three representatives from each of the member states, who are appointed by their respective governors, and three representatives of the federal government who are appointed by the President. Commissioners participate as a public service and receive only reimbursement for their expenses in performance of Commission-related duties.

During 1988, resolutions were passed by the Commission to recognize the contributions of Commissioners whose service ended. They were Richard J. Carlson (Illinois) and Mary Helen Miller (Kentucky).



Riverboats line Cincinnati's riverfront for the city's Tall Stacks celebration

 $Former\ Chairman\ Thomas\ Storch\ presents\ plaque\ to\ Michael\ Justice$ who was the first nominee elected to the Commission's Registry of Distinguished Operators







At left, the Commission's POTW committee sponsored a symposium on sludge management. At right, Clarence Klassen, Charter Commissioner from Illinois speaks at the Commission 40th anniversary banquet

ADVISORY COMMITTEES

The Commission receives advice and counsel from a wide range of viewpoints through its advisory committees, each of which represents a particular river-based interest. The Water Users Advisory Committee consists of public and private utilities which use the Ohio River as a source of water supply. Industry advisory committees, such as those representing the chemical and power industries, bring together companies which use the river for industrial purposes. The Public Interest Advisory Committee is comprised of private citizens from the member states. The Publicly Owned

Treatment Works (POTW) Advisory Committee represents wastewater treatment departments or districts in the Ohio Valley. All advisory committee members serve on a voluntary basis.

Among the highlights of advisory committee activities in 1988 was a symposium on sludge management sponsored by the POTW Advisory Committee. The symposium, which featured presentations on successful applications of various sludge handling approaches, was attended by over 120 persons from throughout the Valley.

Also during 1988, the Water Users Committee published an Emergency Procedures Guide for water utilities.

Publications

Publications are developed to provide information regarding the Commission's water pollution control programs. Charges for publications are levied to cover production and mailing costs. These charges are waived when requests are from government agencies or non-profit organizations. In 1988, the following publications were produced:

ORSANCO - 1987

Annual Report of activities during 1987 (20 pages, no charge)

QUALITY MONITORS

Quarterly publications of data summaries from the Manual Sampling Program, Water Users System and the Organics Detection System, (January-March, April-June, July-September, October-December) (no charge)

EMERGENCY RESPONSE DIRECTORY

A compilation of instructions concerning the appropriate agencies to notify when a spill or accidental discharge occurs on the Ohio River or a tributary (8 pages, no charge)

THE ORSANCO OUTLOOK

A newsletter published periodically with general information on water quality conditions and the status of Commission programs (no charge)

ASSESSMENT OF WATER QUALITY CONDITIONS, OHIO RIVER 1986-87

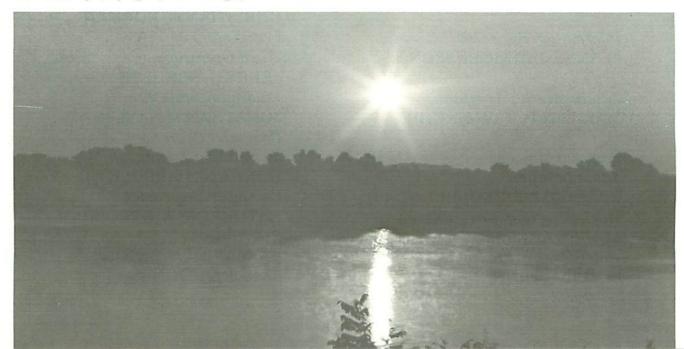
An in-depth report of main stem water quality data (99 pages, plus appendix, \$6.00)

1987 STATUS OF WASTEWATER FACILITIES

The results of a 1987 update of a survey of municipal and industrial wastewater treatment plants in the Ohio River Basin (21 pages, plus appendix, \$3.00)

1988 OHIO RIVER WATER QUALITY FACT BOOK

A resource manual of technical information for use in water quality analysis of the Ohio River (157 pages, plus appendix, \$7.50)





Staff

Executive Director and Chief Engineer ALAN H. VICORY, JR.

Information Specialist JEANNE JAHNIGEN ISON

Administrative Assistant MARILYN P. KAVANAUGH

Program Managers:
Administration
RICHARD L. HERD, JR.
Monitoring and Surveillance
LOUISE AHLES-KEDZIORA
Water Quality Programs
PETER A. TENNANT

Environmental Analyst PAUL R. McCONOCHA Environmental Engineer CHRISTIAN G. NORMAN Coordinator of Field Operations JERRY G. SCHULTE Environmental Chemist JONATHAN McSAYLES Computer Operator / Accounting Technician DONNA M. CARROLL Computer Programer KATHERINE A. DREGER Secretaries BARBARA A. HORTON SANDRA L. JONES

The following financial information was extracted from the Annual Audit Report of Hall & Associates

Certified Public Accountants
for the year ending June 30, 1988.

STATEMENT OF ACCRUED REVENUES AND EXPENSES YEAR ENDING JUNE 30, 1988

TEAT ENDING CONT	200, 1000	
Revenues:		
Signatory States State of Illinois	¢ 24 5 10	
State of Indiana	\$34,510	
	128,710	
Commonwealth of Kentucky State of New York	147,900	
	7,180	
State of Ohio	174,950	
Commonwealth of Pennsylvania	96,200	
Commonwealth of Virginia State of West Virginia	24,920 75,780	
	10,100	¢ 600 150
Total-Signatory States U.S. Environmental Protection Agency:		\$ 690,150
Water Pollution Control Grant		250 501
Other Revenues		359,501
Total Revenues		7,496
		1,057,147
Expenses Excess of Revenues over Expenses		1,045,873 \$ 11,274
Excess of Revenues over Expenses		9 11,214
STATEMENT OF RE	SOURCES	
AT JUNE 30,	1900	
Clash		¢ 00.050
Cash Deposits and Advances		\$ 92,659
Deposits and Advances		2,021
Accounts Receivable	# CO OCO	
U.S. Environmental Protection Agency Signatory States	\$ 68,862 24,389	
Reimbursement of Meeting Expenses	_ 583	
Total Accounts Receivable		\$ 93,834
Subtotal		\$ 188,514
Less:		φ 100,014
Accounts Payable	\$114,357	
Spills Emergency and Compliance Reserve	37,274	
Resources Available June 30, 1988	01,414	\$ 36,883
Resources Available - Beginning of Year	\$ 25,609	Φ-00,000
Excess Revenues over Expenses	11,274	
Resources Available - End of Year	11,274	\$ 36,883
Resources rivariable - 12nd of Tear		00,000

The following information was extracted from the Annual Actuarial Report of Mercer-Meidinger-Hanson, Inc. for the Year Ending September 30, 1988

STATEMENT OF RESOURCES AND ANNUAL DISBURSEMENTS EMPLOYEES' PENSION TRUST FUND*

Pension Trust Fund ValueOctober 1, 1987	\$896,689
Contributions in Accordance with Actuary's Report	-0-
Disbursements for Year Ending September 30, 1988	\$ 55,689
Pension Trust Fund ValueSeptember 30, 1988	\$970,625

^{*}Directed by a Pension Trust Fund Committee of the Commission and Administered by the Central Trust Company, Cincinnati, Ohio

ILLINOIS

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Department of Environmental Management 105 S. Meridian Street Indianapolis, Indiana 46225

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WEST VIRGINIA

Division of Water Resources Department of Natural Resources 1201 Greenbrier Street Charleston, West Virginia 25311

Regulatory Agencies Of The Signatory States

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COMMISSION

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