ORSANCO

ANNUAL REPORT 1998

Commissioners of the Ohio River Valley Water Sanitation Commission (ORSANCO), an interstate 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 approval of the Congress of the United States, respectfully submit the following report of the Commission's activities for 1998 to:

The Honorable George H. Ryan
Governor of Illinois

The Honorable Frank O'Bannon
Governor of Indiana

The Honorable Paul E. Patton
Governor of Kentucky

The Honorable George Pataki
Governor of New York

The Honorable Robert Taft
Governor of Ohio

The Honorable Thomas J. Ridge
Governor of Pennsylvania

The Honorable James S. Gilmore III
Governor of Virginia

The Honorable Cecil H. Underwood
Governor of West Virginia
and
The Honorable William J. Clinton
President of the United States

Ohio River Valley Water Sanitation Commission
5735 Kellogg Avenue, Cincinnati, Ohio 45228
(513)231-7719
World Wide Web http://www.orsanco.org/

In memory of Leonard A. Weakley, the Commission's first legal counsel, we dedicate this 50th Anniversary edition of the Annual Report. Mr. Weakley was involved in the negotiations which led to the formation of the Ohio River Valley Water Sanitation Compact and the Commission, and provided more than 50 years of commitment to the ideals and principles expressed in the Compact. Throughout his tenure as the Commission's legal counsel, he gave tirelessly of his time and expertise toward the achievement of Commission goals.

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Message from the Chairman

Chairman Phillip C. Morgan

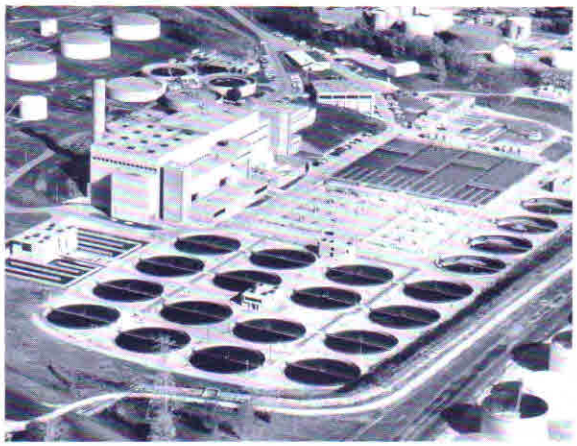
This year as ORSANCO celebrates its 50th Anniversary, we reflect on our many accomplishments and look ahead to new challenges within the framework of not only a regional, but a global network.

More than 50 years ago, a group of citizens in the Ohio River Valley united to investigate a regional approach for water pollution problems plaguing the Ohio River Valley. After nearly 10 years of negotiations, in 1948 the Governors of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia, and West Virginia met in Cincinnati, Ohio to sign an agreement binding these states in an interstate compact for the control and abatement of water pollution in the Valley. This compact formed the Ohio River Valley Water Sanitation Commission, an agency charged to address water quality issues in the Valley. ORSANCO, with the cooperation of state agencies and the federal government, industries, municipalities, utilities, and various organizations and individuals, has made exceptional strides to improve the quality of the Valley's waterways.

Several milestones in water pollution control and abatement have been accomplished since ORSANCO's inception. One major accomplishment of the Commission has been the promotion of sewage treatment for discharges to the River. In 1948, less than one percent of municipal and industrial waste water received treatment prior to being discharged to the Ohio River. Today, all Ohio River communities have reached compliance with the Commission's Pollution Control Standards requiring not only primary treatment, but also more advanced secondary treatment for their discharges.

More recent efforts by the Commission include adoption of requirements for the control of combined sewer overflows (CSOs). During 1998, water quality studies also included those for Source Water Assessment to protect public water supplies, and Evaluations of Nutrient Loads and Sources in the Ohio River Basin to reduce stream nutrient loads in the Basin, and ultimately, in the Mississippi River and the Gulf of Mexico. Wet Weather Impact Studies expanded to two additional areas—Louisville, KY and Wheeling, WV—for the assessment of point and nonpoint sources of pollution from rainfall and snow melt.

Increased attention to public awareness and stewardship of the waterways has met with great success. River Sweep, an award-winning riverbank cleanup, has been beneficial in promoting protection of the Ohio River. In 1998, more than 21,000 volunteers joined together to collect trash along the Ohio River and many of its tributaries.



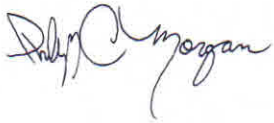
An initial goal of ORSANCO was to promote control of waste water discharges to the Ohio River

Throughout the years, the Commission has broadened its international reputation as a leader in pollution control. Advancements in communication technology have allowed world regions to approach ORSANCO for consultation on water resource issues. In November 1998, ORSANCO was invited to Lithuania and Latvia with representatives of U.S. EPA to participate in the formulation of the Great Lakes/Baltic Sea Partnership. A delegation from the Japanese-based Lake Biwa-Yodo River Water Quality Preservation Organization signed an international friendship agreement with ORSANCO in July, and greater international involvement is planned for 1999.

As you enjoy this annual report of activities for 1998 and the special section dedicated to the Commission's first 50 years, I invite you to reflect on the achievements in water pollution control and abatement. These remarkable accomplishments could not have been possible without support from the states, local governments, federal agencies, ORSANCO Commissioners and staff.

Photo by: Brenda Thurman, Evansville, IN

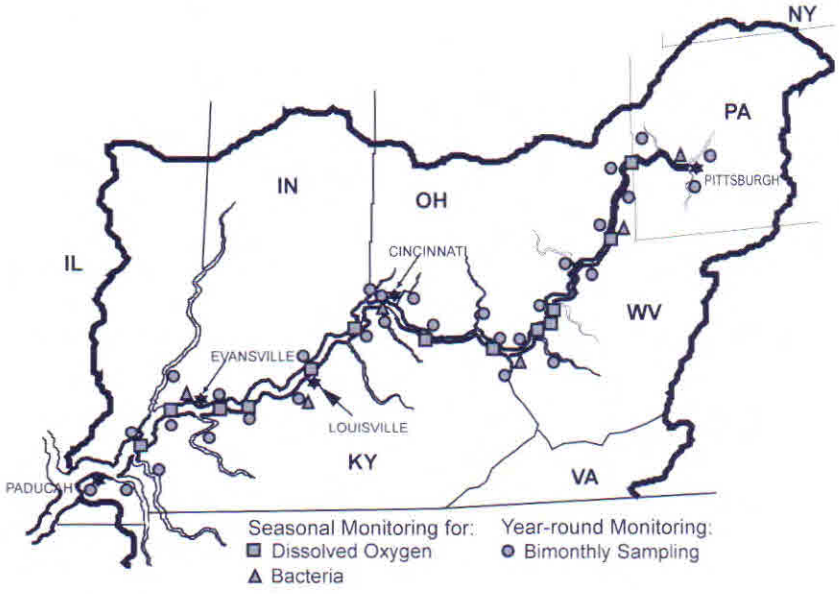
As the millennium approaches, ORSANCO continues its mission to provide cleaner streams in the Ohio River Valley, and looks ahead to forging new partnerships within our developing global network.



Water Quality Monitoring & Assessments

For 50 years, the Commission has strived to improve the quality of the waters in the Ohio River Valley. To assess the effectiveness of its efforts toward the achievement of this goal, ORSANCO operates water quality monitoring programs and conducts special studies and surveys of conditions in the Ohio River and lower reaches of several major tributaries. Ongoing monitoring programs include both year-round sampling and seasonal activities. These consist of year-round bimonthly sampling and annual biological assessments of fish and macroinvertebrates. Dissolved oxygen and bacteria monitoring are conducted during the recreation season (May through October).

ORSANCO Water Quality Monitoring Network



Year-round Bimonthly Sampling

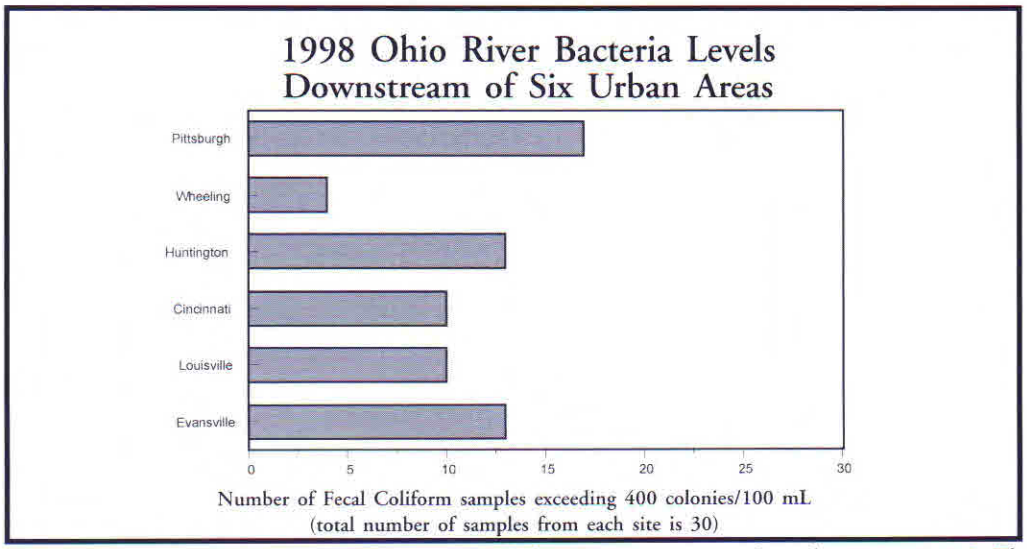
Year-round bimonthly sampling provides ORSANCO with measurements of conventional water quality parameters and metals. This sampling is conducted at 31 locations, 17 on the Ohio River and 14 on tributaries. Results from 1998 sampling suggest generally good water quality at most sites. However, at several sites, sampling results indicated exceedances of the Commission's aquatic life criteria for lead, cadmium, zinc, and copper. In addition, there was a violation of the human health criterion for phenol at one location.

Bacteria Monitoring

Water quality improvements over the past 50 years have provided a cleaner Ohio River for boating, swimming, and skiing. At most times, the water is safe for such recreational activities. However, at certain times, especially after a rainfall, elevated bacteria levels can be found within and immediately downstream of urban centers. These conditions can increase the risk of illness for those having contact with the water.

ORSANCO checks the Ohio River five times monthly for the presence of fecal coliform and *E. coli* bacteria at locations downstream of six large cities. The downstream locations generally represent the "worse-case scenario." This monitoring is conducted from May through October during the "recreation season." In addition to seasonal monitoring, water utilities at sites upstream of cities send their bacteria data to the Commission. During 1998, all six locations recorded exceedances of the Commission's criteria to protect human health.

To reduce the risk of becoming sick from bacteria, avoid having contact with the Ohio River immediately downstream from cities after it rains. Also, avoid swimming in areas near sewage discharges.

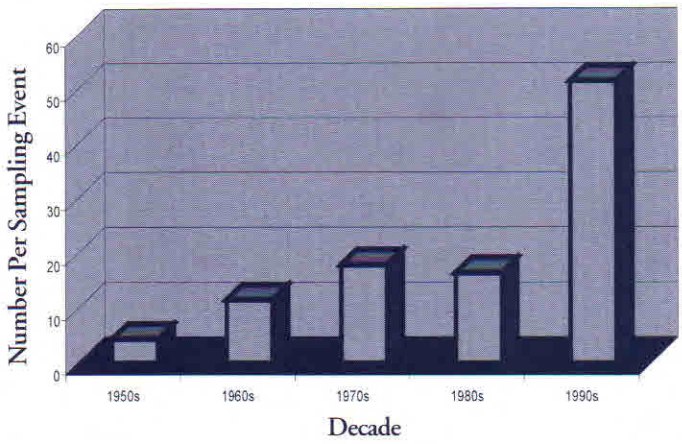


The stream criterion for the protection of human health for contact recreation is 400 colonies per 100 mL. The criterion is not to be exceeded in more than 10 percent of the samples.

Biological Assessments

Population Studies (Fish & Macroinvertebrate)

Average Number of Sauger
Per Lockchamber Sampling Event
By Decade



To better understand the Ohio River's biological community and to further examine the quality of the water, ORSANCO conducts population studies of fish and macroinvertebrates throughout the Ohio River. These surveys provide valuable information on Ohio River aquatic communities and their response to natural and man-made environmental and water quality conditions. The graph above shows improvements in the sauger population based on samples collected during lockchamber studies. Historically, lockchamber studies have been used to provide data for ORSANCO's biological programs.

Fish are collected for population studies by electrofishing—a method that allows easy collection of many fish. Fish are weighed, measured, classified by species, then returned to the water unharmed. In addition to fish population studies, macroinvertebrates, composed mainly of aquatic insects, are studied as indicators of water quality. These organisms, easily sampled in large numbers, are quick to react to environmental change.

During 1998, ORSANCO conducted macroinvertebrate sampling throughout the entire 981 miles of the Ohio River, collecting samples every five miles. This intensive study will assist in understanding how this segment of the aquatic community functions under different water quality conditions and habitat. In the future, the Commission will develop an index using macroinvertebrates to further define water quality conditions.

Biocriteria Development

The Commission continued development of biological criteria for the Ohio River. Efforts were focused on adopting an index to evaluate the River's fish communities.

In 1998, a prototype of the index was tested at selected mainstem sites to test its applicability to the Ohio River. Once the initial testing is complete, biocriteria can be utilized to assess the overall health of the Ohio River fish community. Results from these assessments will be used in documenting the success of pollution control programs on the River's aquatic life.

Fish Contaminant Studies

ORSANCO collects samples from selected species of fish which are analyzed for the presence of certain chemicals that can be harmful to humans when eaten. Results of these analyses are reported to environmental and health agencies of states bordering the Ohio River. Based on these data, states issue fish consumption advisories, which provide recommendations for the amount of fish that can be safely consumed. Advisories are reviewed yearly and revised, if necessary. ORSANCO works closely with the states to provide consistency on the advisories.

In 1998, ORSANCO collected eight species of fish from 18 locations along the Ohio River for contaminants analyses. Species studied included: sauger, white bass, hybrid striped bass, blue catfish, channel catfish, flathead catfish, freshwater drum, and carp. Five of the six states bordering the Ohio River issued consumption advisories in 1998. State agencies listed at the right are responsible for issuing these advisories.

Dissolved Oxygen Monitoring

Minimum levels of oxygen in the water must be maintained to support a healthy aquatic community. From May through October, the Commission monitors dissolved oxygen levels at Ohio River navigational dams. Data are transmitted from electronic monitors operated by the Army Corps of Engineers or hydropower plants. During 1998, the location with the most frequent low dissolved oxygen conditions was the Markland Dam station (between Cincinnati and Louisville), where average levels below 5 mg/L occurred on 31 days.

Photo by Julius R. Ricks
Cincinnati, OH

State Agencies Responsible for Issuing Fish Consumption Advisories

Pennsylvania
Division of Assessment and Standards
Bureau of Water Quality Management
PA Department of Environmental Protection
717-787-9637

Ohio
Ohio Department of Health
Bureau of Environmental Health and Toxicology
614-644-6447

West Virginia
West Virginia Department of Environmental Protection
304-759-0515

Kentucky
Natural Resources and Environmental Protection Cabinet
Division of Water
502-564-3410
Department for Health Services
502-564-7181
Fish and Wildlife Resources
502-564-3596

Indiana
State Department of Health
Environmental Epidemiology Section
317-233-7808

Illinois
No Ohio River Advisories

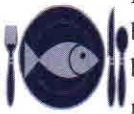
Biennial Assessment of Water Quality Conditions

Every two years, as required by the Compact, ORSANCO prepares a comprehensive report on Ohio River water quality conditions for the six states bordering the River—Illinois, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia. This report is sent to U.S. Environmental Protection Agency and is used as a component of a report to Congress on the state of the nation's waters.

The Commission has established water quality objectives for the Ohio River that reflect water conditions necessary to attain four "designated uses" for the River. These are the River's use as a safe public and industrial water supply after reasonable treatment, a home for a healthy and diverse aquatic community, fish consumption, and for recreational purposes. The water is then rated either ***fully supporting, partially supporting***, or ***nonsupporting*** based on how well it supports each individual use.

In 1998, the Commission completed its biennial assessment for the period from October 1995 through September 1997 and issued its report on Ohio River water quality conditions. Highlights of the report are as follows:

Drinking water—based on surveys of Ohio River water utilities, treated (finished) drinking water was within compliance of applicable standards. However, two segments of the Ohio River were classified as ***partially supporting*** due to the presence of dioxin and atrazine. This required utilities to provide additional treatment for 453.5 miles (46 percent) to meet drinking water standards. The presence of atrazine impaired public water supply use in the lower 374 miles of the Ohio River. Dioxin concentrations caused impairments in approximately 80 miles from Gallipolis, OH to Ashland, KY.



Fish Consumption—the entire River is listed as ***partially supporting*** due to consumption advisories issued by the states based on ORSANCO's fish tissue data. Causes for the advisories include polychlorinated biphenyls, or PCBs (entire River), chlordane (entire River, except first 40 miles in Pennsylvania), and mercury (along State of Ohio border). Advisories recommend limits of consumption for affected species.

Contact Recreation—in the six areas where ORSANCO conducts bacteria monitoring (downstream of large urban areas), those reaches were classified as ***nonsupporting***. This was due to violations of bacteria criteria to protect human health. The remaining portion of the River is listed as ***partially supporting*** based on water users' data and ORSANCO's evaluation of the quantity and distribution of combined sewer systems.

Aquatic Life—due to metals criteria violations at three locations (Wheeling, WV for copper, Cincinnati, OH, and Louisville, KY for lead), the River is classified as ***partially supporting*** in these segments. Additional biological data suggest that impairments in the area of Louisville may be a result of unsuitable habitat.

Spill Monitoring

Organics Detection System (ODS)

Since its inception in 1978, the Organic Detection System (ODS) has served as a mechanism for the Commission to monitor for the presence of certain chemicals in the Ohio River and its tributaries. ORSANCO's 15 ODS stations are located at municipal and industrial water intakes.

When a detection of an organic compound occurs, ORSANCO notifies the appropriate state agency and alerts downstream water users so appropriate actions, if necessary, can be taken.

ORSANCO strives to incorporate the most advanced technology into this system. In 1998, significant improvements were made in the collection, manipulation and transmission of data. New software was installed at nine ODS stations, increasing efficiency and improving transmittal of data to the Commission.

No major spills were detected in 1998 that threatened public water intakes. Reported spills and accidental discharges to the Ohio River continued to increase for the second year—this most likely reflects a change in the reporting system rather than an actual increase in the number of spills.

Frank Blaskovich, a Wheeling Water Department operator, uses the new gas chromatograph to check a sample of Ohio River water.

Special Projects & Studies

In addition to its ongoing water pollution control programs, ORSANCO conducts special projects and studies to further examine Ohio River water quality. Currently, these studies include a Watershed Pollutant Reduction Program and a Nutrients Program. During 1998, the Commission continued efforts to research and provide data for each program that will strengthen our understanding of the Ohio River.

Watershed Pollutant Reduction Program

The purpose of this program is to study the occurrence of pollutants on a watershed basis, identify all relevant sources, and develop control strategies. Public input assisted in the selection of the eight contaminants—atrazine, chlordane, copper, dioxin, lead, nitrogen, phosphorus, and polychlorinated biphenyls (PCBs)—targeted for study during this multi-year effort. ORSANCO's initial focus of this program was the study of dioxin, a substance found in Ohio River fish tissue that is extremely toxic to humans even at very low concentrations. The Commission is conducting background studies to determine the extent of these pollution sources.

In 1998, dioxin monitoring was conducted in the upper Ohio River in an area between Gallipolis, OH and Huntington, WV. To gain a better understanding of the extent to which dioxin is found in the Ohio River watershed, the Commission utilized an innovative method for detecting this contaminant in the water. (See side bar on high-volume sampling). In 1998, high-volume sampling was conducted at nine Ohio River sites from Pennsylvania to Huntington, WV, and at four Kanawha River locations.

Other efforts in 1998 include studying the Kanawha Basin to quantify source contributions of dioxin to the Ohio River. Water quality modeling was carried out to support development of a Total Maximum Daily Load (TMDL) for dioxin.

To date, data indicate Ohio River dioxin levels at most sites frequently exceed the human health criteria. Additionally, the Kanawha River appears to be a significant contributor of dioxin to the Ohio River main stem.

High-Volume Sampling

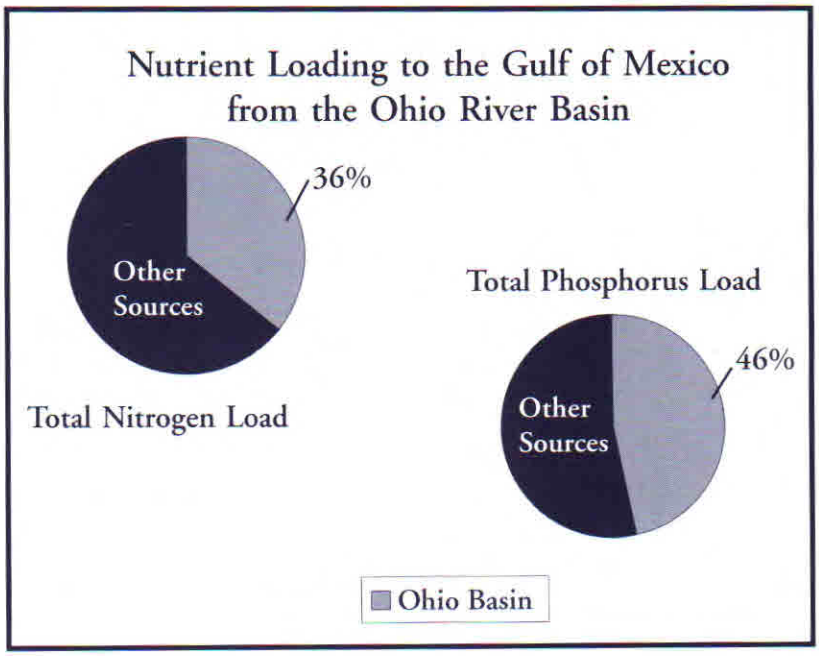
ORSANCO is currently using a technique called "high-volume sampling" to measure instream concentrations of dioxin in the Ohio and Kanawha Rivers. In the past, dioxin could not be detected below the established water quality criterion for this pollutant.

High-volume sampling allows the direct measurement of dioxin concentrations at extremely low levels in the water column. This technique involves filtering large quantities of river water over an eight-hour period. While this method and the resulting analysis is quite costly, the Commission has been able to gain a greater understanding of dioxin contamination in the Ohio River Basin.

Nutrients Program

To address an emerging concern in the Gulf of Mexico—an area of low dissolved oxygen (hypoxia), possibly caused by excessive nutrient levels—the Commission began an investigation of two nutrients, nitrogen and phosphorus, in the Ohio River Basin. The program's purpose is to identify Ohio River subbasins contributing large amounts of nutrient loads to the Mississippi River, and ultimately, the Gulf of Mexico. Additionally, estimates will be made of contributions by point and nonpoint sources within these basins.

During 1998, ORSANCO monitored 16 locations, four on the main stem and 12 on tributaries, in the lower Ohio River Basin. Results indicate that the Ohio River Basin contributes 36 percent of the total nitrogen load and 46 percent of the total phosphorus load to the Gulf of Mexico. Point sources contribute less than 20 percent of the total nitrogen load and approximately 40 percent of the phosphorus load in the Ohio River Basin. (See chart below.) Monitoring will continue in 1999.



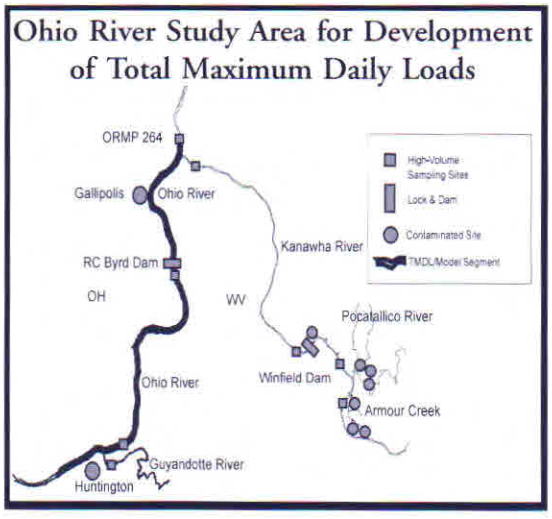
Special Initiatives

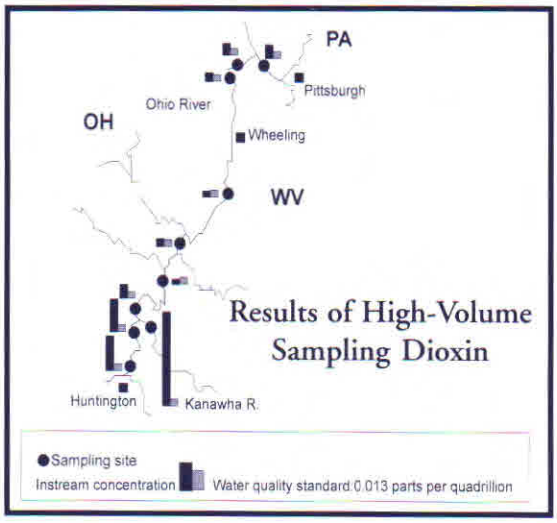
Source Water Assessments

Because the Ohio River is used as a source of drinking water for nearly three million people, it is important to address potential threats to the public water supply. The Federal Safe Drinking Water Act requires public water utilities to meet certain standards for finished drinking water. In 1997, amendments to the Act required states to have a program for assessing and protecting source water. The Commission will set forth a strategy to define the protection area, identify pollution sources, and conduct risk assessments for the Ohio River. Final plans are due to U.S. EPA by February 1999. ORSANCO's role is to coordinate development of the states' source water programs to insure they are consistent for all Ohio River drinking water intakes. In 1998, working with state water agencies, U.S. EPA, and the Commission's Water Users Advisory Committee, a strategy was developed for Ohio River assessments that promotes interstate consistency and communication.

TMDLs

The Federal Clean Water Act requires states or U.S. EPA to adopt Total Maximum Daily Loads (TMDLs) for waters that do not meet water quality standards. TMDLs are the maximum amount of a particular pollutant that a stream can assimilate daily without exceeding established water quality standards. Data developed under ORSANCO's Watershed Pollutant Reduction Program are being used by U.S. EPA to formulate a TMDL for dioxin for a portion of the Ohio River. ORSANCO will host public workshops on this effort in 1999. Due to river-wide presence of PCBs and chlordane in fish tissue samples, the states have directed ORSANCO to develop technical components of TMDLs for both pollutants in the Ohio River. The resulting report will be submitted to the six main stem states for incorporation into their TMDLs for the two pollutants.





50th Anniversary Celebration

1998—a golden year for the Commission

ORSANCO Chairman Phillip Morgan (center) with Commissioners William Kudaroski (left) and Melvin Hook, Chairman of the 50th Anniversary Steering Committee (right)

During 1998, the Commission celebrated 50 years of successful partnerships resulting in water quality improvements throughout the Valley. As part of the observance, a two-day conference, banquet, and special Commission Meeting were held in July.

The 50th Anniversary celebration was held at the Omni Netherland Hotel in Cincinnati, Ohio—the site of the signing of the Ohio River Valley Water Sanitation Compact in 1948.

Ohio River 2000 Conference, a focus on the Ohio River for the next 50 years, featured visioning sessions coordinated by seven groups. Each group represented a specific river-based interest: drinking water, transportation, municipal waste water, general industry, chemical manufacturers, power generators, and public/recreational users.

Brainstorming at the Drinking Water visioning session

Using Ohio River water provided by public water utilities from the main stem states, banquet participants toast the Commission and its first 50 years. This event took place in the Hall of Mirrors—the same room where the original Compact was signed.

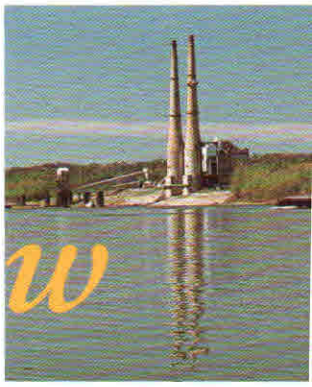
Because the Ohio River is a source of drinking water for nearly three million people, it was appropriate to toast with water from public utilities at the 50th Anniversary Banquet.

ORSANCO—reflecting on the past 50 years and looking ahead to the new millenium.

50 Years

1948: The governors of eight states meet at the Omni Netherland Hotel to sign the Compact.

Then & Now



THEN
1948: Less than one percent of the sewage or industrial wastes discharged to the Ohio River receives any treatment.

1948: Less than one-third of Ohio River industries are in compliance with the Commission's minimum treatment standards.

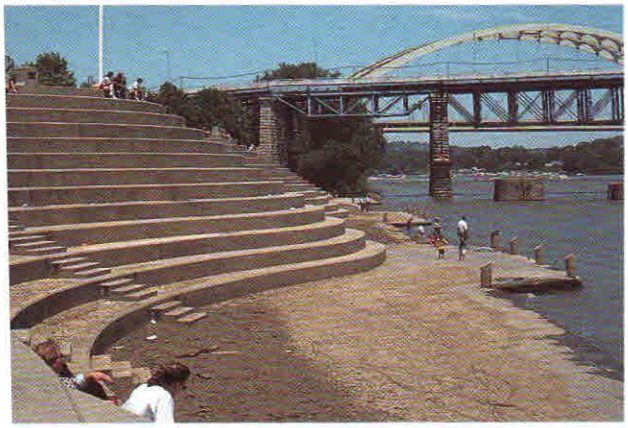
1989:1,000 volunteers participate in ORSANCO's first annual River Sweep, cleaning up nearly 150 miles of Ohio River shoreline.

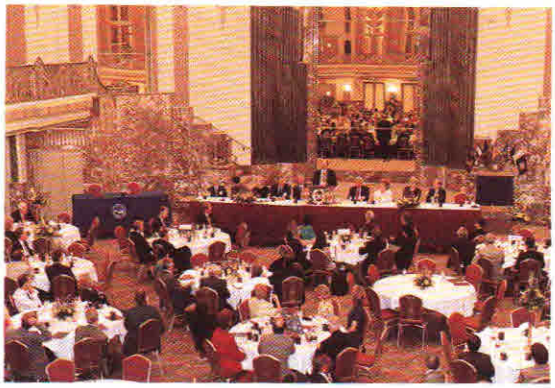
1948: ORSANCO's public information activities focus on providing publications and radio and television advertisements to inform the public of the need for waste water treatment.

Frequent unreported spills on the Ohio River disrupt water utilities. In 1978, the Commission initiates the Organics Detection System (ODS) at seven locations to protect against unreported spills to the Ohio River.

1948: The Ohio River is used for recreation, such as fishing and boating, but recreational users encounter a waterway filled with oil slicks, garbage, and untreated municipal and industrial waste.

1948: Ohio River fish are predominantly pollution tolerant fish species such as carp and suckers.





1998: Well-wishers gather at the Omni Netherland Hotel to celebrate 50 years of the Commission.

NOW

1995: A milestone is achieved when all municipal waste water receives primary and secondary treatment before being discharged to the Ohio River.

1998: All industrial discharges receive appropriate treatment.

River Sweep becomes one of the largest events of its kind in the nation, with more than 21,000 volunteers collecting in excess of 10,000 tons of trash from more than 2,000 miles of shoreline along the main stem and tributaries.

Public information efforts actively involve the public in the Commission's programs. RiverWatchers Volunteer Monitoring Program engages thousands of students in hands-on water quality tests. ORSANCO develops an Internet web site to provide the public with up-to-date information on how water quality affects their use of the River. Technological advancements facilitate communication about ORSANCO's pollution control efforts.

Today, 15 ODS sites provide advanced warning for spills and accidental discharges.

Water quality improvements provide a cleaner River for recreational purposes. More than 1,000 annual festivals and river-related events are held, attracting millions of visitors to the Ohio River Valley.

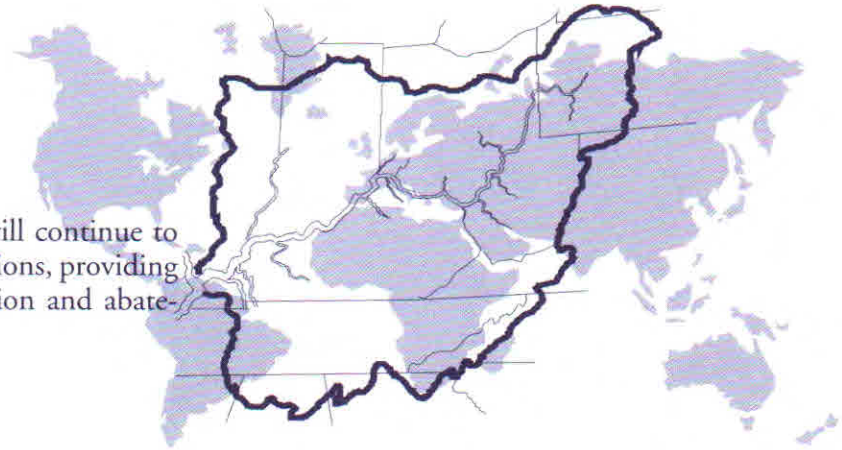
Today, the Ohio River is rich with commercial and sport fish species, such as walleye and bass. These species are less tolerant of pollution, thus demonstrating the improvements in water quality along the Ohio River.

International Issues

Throughout the year, ORSANCO broadened its international reputation in river basin approaches to pollution control and abatement. Serving as a model on river basin management, ORSANCO provided consultation on water quality issues to several world regions.

In July, ORSANCO signed an international friendship agreement with the Japan-based Lake Biwa-Yodo River Water Quality Preservation Organization. This agreement will promote the exchange of information regarding water quality issues and future protection of water resources.

In November, ORSANCO was invited to Latvia for discussions to create a Great Lakes/Baltic Sea Partnership. At the request of U.S. EPA, the Commission will play a major role in the formulation of this partnership. Early next year, ORSANCO will provide consultation and expertise in the development and implementation of a water quality management plan in the Baltic States.



In the future, ORSANCO will continue to broaden its international relations, providing consultation on water pollution and abatement issues.

ORSANCO/ Ohio River Users Program

ORSANCO/Ohio River Users Program Advisory Committee*

Elizabeth A. Becker, PhD.
Bristol-Myers Squibb Co.

Gordon R. Garner
Louisville & Jefferson County Metropolitan Sewer District

Allan F. Kapteina
Olin Chemicals Group

William M. Kudaroski
PA-American Water Company

Paul H. Loeffelman
American Electric Power

Andrew C. Meko
Ashland Inc.

Ronald. R. Potesta
Potesta & Associates

Daniel Ricciardi
Midland Enterprises Inc.

**As of December 31, 1998*

The ORSANCO/Ohio River Users Program is a cooperative effort between the Commission and Ohio River industries, utilities, and municipalities. This program was initiated in 1993 to make possible scientific studies, the results of which will provide the basis for decisions on Ohio River water quality issues.

Under this program, several projects were recommended and completed, including an on-line biological information management system. Four studies were approved for funding in 1998. Three of these studies have been completed and are currently in final review—Evaluation and Recommendation of Water Quality Models for the Ohio River, Guidelines for Delineating Mixing Zones for Ohio River Discharges, and Guidelines for Determining Instream Water Quality Conditions for the Ohio River. The fourth study, Trend Assessment of Biological Data, will commence in 1999.

Work on another study, Protocols for Development of Site-Specific Criteria for the Ohio River, has been completed and is under consideration by the Commission.

Combined Sewer Overflow Abatement

Combined sewer systems are designed to carry both waste water and storm water. During rainfall events, the volume of sewage and storm water often exceeds the capacity of the sewer pipes or the treatment plant. This may cause an overload to the treatment system. During this time, a portion of the sewage and storm water mixture may bypass the treatment process, resulting in untreated or partially-treated waste water being discharged into waterways.

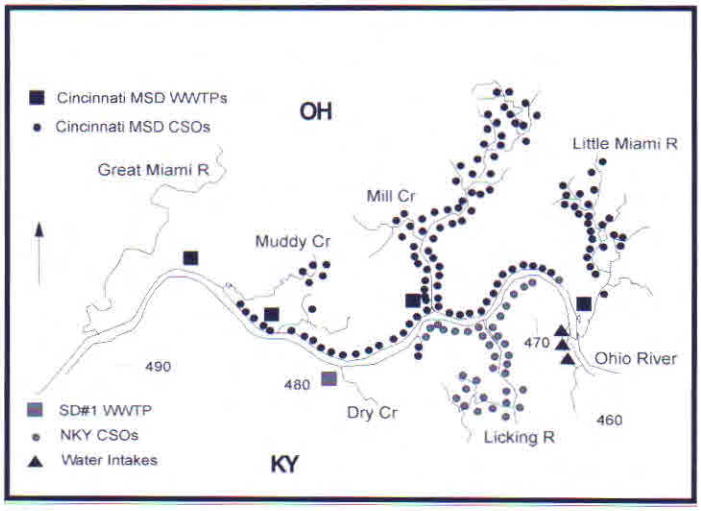
Wet Weather Studies

To better understand wet weather water quality impacts, the Commission initiated a study—Wet Weather Demonstration Project—that was designed to develop an appropriate method for evaluating these problems in large river systems. During heavy rainfall, certain pollutants, which can be detrimental to the waterway, are washed from parking lots, streets, and fields. Overall, the wet weather project will develop a water quality model that predicts pollutant loads to the Ohio River during such events. This model will allow the Commission to simulate water quality improvements resulting from various pollution control alternatives. Throughout 1998, the Commission continued studies in three urban areas along the Ohio River to calibrate and verify the water quality models.

Cincinnati

In 1995, ORSANCO, with funding from U.S. EPA, Metropolitan Sewer District (MSD) of Greater Cincinnati, Sanitation District #1 of Northern KY, and Cincinnati Water Works, initiated a multi-year study in the Cincinnati/Northern Kentucky area. This study investigated water quality impacts from nonpoint sources of pollution and combined sewer overflows under both wet and dry weather conditions. In 1998, the Commission continued development of a water quality model for the study area. This study will be completed in 1999.

Wet Weather Demonstration Study
Cincinnati/Northern Kentucky Area



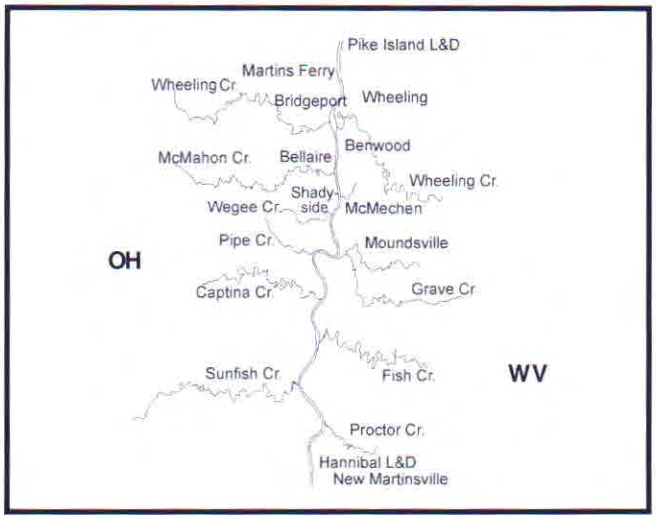
WWTP: waste water treatment plant

Wheeling (Hannibal Pool)

The Commission studied wet weather impacts to the Hannibal Pool of the Ohio River. Dry weather sampling for the Wheeling, WV study was completed and ORSANCO is currently analyzing the data. Due to lack of rain in late 1998, the wet weather sampling was postponed until Spring 1999. The Hannibal Pool study was made possible with funding from Virginia Environmental Endowment.

Project participants include Wheeling Water Pollution Control Division; Eastern Ohio Regional Wastewater Authority; Cities of McMechen, Moundsville and New Martinsville in WV; Village of Powhatan Point in OH; Wheeling Jesuit University; U.S. EPA Region III (Wheeling office); WV Department of Environmental Protection; and Ohio EPA.

Wet Weather Study
Hannibal Pool, Ohio River

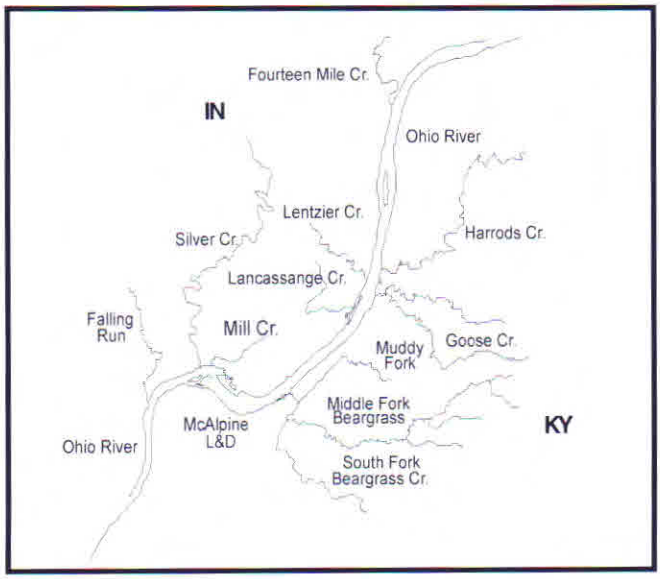


Louisville

In cooperation with U.S. EPA, Louisville Metropolitan Sewer District, Louisville Water Co., the Cities of Louisville, KY, and Jeffersonville, Clarksville, and New Albany, IN, the Commission continued a study of wet weather impacts in the Louisville area. In 1998, two dry weather and two wet weather water quality surveys were completed.

During 1999, additional dry and wet weather surveys will be conducted for examination of pollutant loadings to the Ohio River.

Wet Weather Study
Louisville, KY area

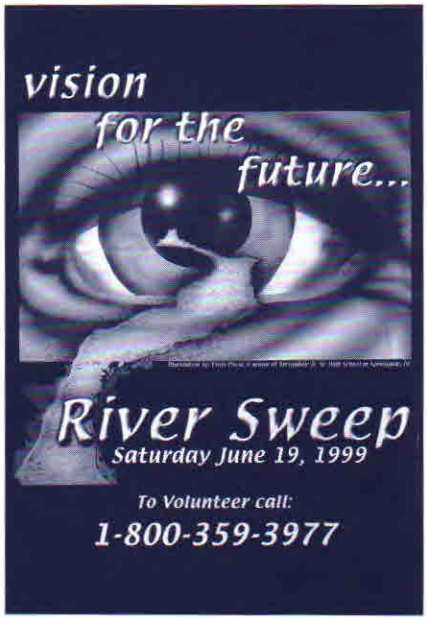


Public Information & Education

ORSANCO has long recognized the importance of informing and educating the public about Ohio River Valley issues, and has focused much attention on involving citizens in river-related activities. Two programs, River Sweep and RiverWatchers, invite the public to become stewards of the Valley's waterways. Throughout the years, these on-going Commission programs have drawn thousands of people to the Ohio River and its tributaries.

River Sweep

On Saturday, July 11, 1998, volunteers from civic groups, recreational clubs, public organizations, and the general public gathered to participate in the 10th annual River Sweep. More than 21,000 volunteers joined efforts to clean up the river banks along the Ohio River and several of its tributaries, collecting nearly 10,000 tons of trash and debris. This nationally-awarded event has not only improved the visual beauty of Valley waterways, but has improved the public's perception of water quality in the rivers and streams.



In addition to the Sweep cleanup, the Commission has sponsored a poster contest to promote public awareness for children in kindergarten through 12th grade. From more than 2,000 entries, Chris Pazul's creation was selected as the 1999 River Sweep Poster Contest Grand Prize Winner. This student was awarded a $1,000 U.S. Savings Bond.

The River Sweep owes its success to cooperative efforts among the state agencies helping coordinate this event and the numerous volunteers. However, much of its success can be attributed to the support of corporate sponsors (see list on opposite page).

River Sweep Corporate Sponsors

AK Steel
Allegheny Ludlum
Allegheny Power
American Electric Power (AEP)
AEP River Transportation Division
Aristech Chemical Corporation
Ashland Inc.
BASF
Bayer
BFI
CH2M Hill
Chiquita
CINergy
CSXT
Dow Corning
DuPont
Duquesne Light
Elf Atochem NA
Exxon
Gallatin Steel
GE Plastics
Louisville Gas & Electric
Louisville Water Co.
LTV Steel
Neville Chemical
North American Stainless
NOVA Chemical
Procter & Gamble
Toyota
U.S. Steel
Weirton Steel
West Virginia-American Water
Wheeling-Pittsburgh Steel

Augusta High School, *Augusta, KY*

Cairo High School, *Cairo, IL*

Chesapeake Middle School, *Chesapeake, OH*

Daviess County Middle School, *Owensboro, KY*

Dickson Intermediate School, *Pittsburgh, PA*
Partner in Education: Jack Mautino, Wilkinsburg-Penn Joint Water Authority

Evansville Day School, *Evansville, IN*

Fairfield West School, *Fairfield, OH*
Partner in Education: Tom Bokeno, Champion Paper

French Island Marina, *Rockport, IN*

Good Shepherd School, *Evansville, IN*
Partner in Education: Dave Stuckey, Mead Johnson

Hancock County High School, *Lewisport, KY*

Lawrenceburg High School, *Lawrenceburg, IN*

Loveland Middle School, *Loveland, OH*

Madison Consolidated High School, *Madison, IN*

Magnolia High School, *New Martinsville, WV*

Marietta High School, *Marietta, OH*

Marietta Middle School, *Marietta, OH*

Massac County High School, *Metropolis, IL*

Mater Dei High School, *Evansville, IN*

Perry Traditional Academy, *Pittsburgh, PA*

Raceland-Worthington School, *Worthington, KY*
Partner in Education: Richard Beihle, Ashland, Inc.

River Ridge Intermediate School, *Villa Hills, KY*

Sacred Heart of Mary School, *Weirton, WV*
Partner in Education: Miya Rock, Bayer Corporation

St. Francis Xavier School, *Moundsville, WV*
Partner in Education: Roger Frame, Bayer Corporation

St. Michael School, *Wheeling, WV*
Partner in Education: Tom Conti, Bayer Corporation

Switzerland County High School, *Vevay, IN*

Taylor High School, *North Bend, OH*
Partners in Education: Duane Day, Ron McAdams, Bayer Corporation

Vandevender Junior High School, *Parkersburg, WV*

Wahama High School, *Mason, WV*

Walnut Hills High School, *Cincinnati, OH*

Warwood Middle School, *Warwood, WV*

RiverWatchers Volunteer Monitoring

RiverWatchers, ORSANCO's volunteer monitoring program, has continued to foster a greater appreciation of water resources by involving Ohio River Valley students in hands-on science opportunities.

In 1998, 30 school groups actively served as stewards of the waterways and conducted chemical tests and macroinvertebrate sampling to examine water quality of the Ohio River and many of its tributaries. The continuing success of RiverWatchers has been a result of support from ORSANCO's Partners in Education. These Partners, from various organizations, assist the RiverWatchers in collecting their field data and performing their tests. The groups for 1998-99 and their Partners in Education are listed at the left.

New Developments

Welcome to

Ohio River EMPACT

...Tools for making informed Ohio River use decisions

In 1998, ORSANCO was selected to participate with U.S. EPA in a nationwide project to provide citizens with up-to-date environmental information. This project, Environmental Monitoring for Public Access and Community Tracking (EMPACT), will allow the public to make more informed day-to-day decisions about their health and the environment.

The Commission has designed an EMPACT project for the Ohio River. EMPACT will provide information in a timely manner to help Valley citizens understand how water quality impacts their use of the River for contact recreation. The project will include communications in electronic format via the Internet (on-line Geographical Information System maps, simulations, tutorials, links to other information sources), and in various other formats through written media. A vital component is the formation of partnerships that facilitate data exchange among federal, interstate, state, and local agencies involved with monitoring and protection of local water quality.

The on-line system is expected to be operational in May 1999. *(Visit the EMPACT site on the World Wide Web at www.orsanco/empact)*

ORSANCO Flag

In 1998, the Commission designed a flag to be flown at its Cincinnati headquarters. A four-color ORSANCO seal and blue bands with the eight signatory states in white adorn this banner. The flag will also be displayed at the Commission's official meetings, and smaller versions of the flag will be handed out at special functions.

Financial Report*

OHIO RIVER VALLEY WATER SANITATION COMMISSION
Combined Balance Sheet
All Fund Types and Account Groups
June 30, 1998

	Governmental Fund Types		Fiduciary Fund Type	Account Groups		Total (Memorandum Only)
Assets	General Fund	Special Revenue Funds	Pension Trust Fund	General Fixed Assets	General Long-Term Debt	
Cash	$ 506,083	$ 360,222	$ 32,878	$	$	$ 899,183
Restricted investments			1,680,560			1,680,560
Accounts receivable:						
Due from the federal government		112,121				112,121
Other receivables	1,000		15,278			16,278
Due from other funds			20,000			20,000
Prepaid expenditures	1,450					1,450
Property and equipment				1,972,752		1,972,752
Amount to be provided for retirement of long-term debt in future years					1,029,978	1,029,978
	$ 508,533	$ 472,343	$ 1,748,716	$ 1,972,752	$ 1,029,978	$ 5,732,322
Liabilities						
Accounts payable	$ 36,091	$ 72,274	$	$	$	$ 108,365
Accrued expenses:						
Annual leave	33,898					33,898
Due to other funds	20,000					20,000
General long-term debt					1,029,978	1,029,978
	89,989	72,274			1,029,978	1,192,241
Fund Equity						
Investment in general fixed assets				1,972,752		1,972,752
Fund balances:						
Reserved for prepaid expenditures	1,450					1,450
Reserved for employee retirement benefits			1,748,716			1,748,716
Unreserved:						
Designated for specific fund purposes	417,094					417,094
Undesignated		400,069				400,069
Total fund equity	418,544	400,069	1,748,716	1,972,752		4,540,081
	$ 508,533	$ 472,343	$ 1,748,716	$ 1,972,752	$ 1,029,978	$ 5,732,322

** The complete audit report is available for examination at the Commission offices.*

OHIO RIVER VALLEY WATER SANITATION COMMISSION

Combined Statement of Revenues, Expenditures and Changes in Fund Balance
All Governmental Fund Types
Year Ended June 30, 1998

	Governmental Fund types		
	General Fund	Special Revenue Funds	Total (Memorandum Only)
Revenues			
Federal, State and Local grants	$	$ 914,922	$ 914,922
State assistance	1,098,000		1,098,000
Contributions		314,450	314,450
Other	74,707		74,707
	1,172,707	1,229,372	2,402,079
Expenditures			
Programs:			
Water Pollution Control and Abatement	1,061,073	396,900	1,457,973
Cincinnati Area Wet Weather Impacts Study		115,047	115,047
Louisville Area Wet Weather Impacts Study		144,295	144,295
Upper River Recreational/Aquatic Habitat Study		34,897	34,897
Ohio River Sweep		175,127	175,127
Biological Information Systems		1,588	1,588
ORSANCO/Ohio River Users Program		10,953	10,953
Watershed Pollutant Reduction	11,437	212,930	224,367
Watershed Pollutant Reduction Phase III	2,172	41,261	43,433
Site Specific Procedures		2,919	2,919
Evaluation and Recommendations of Water Quality Models for the Ohio River		14,494	14,494
Guidelines for Delineating Mixing Zones for Ohio River Discharges		20,490	20,490
Guidelines of Determining Background Water Quality Conditions		11,622	11,622
U.S. Army Corps of Engineers/ORSANCO Partnership Program		53,071	53,071
Evaluation of Nutrient Loads & Sources in the Ohio River Basin	13,817	11,770	25,587
OEPA/ORSANCO Sediment Dioxin Sampling	115		115
Developing Biological Criteria for the Ohio River	23,110		23,110
Capital Outlay	68,793		68,793
	1,180,517	1,247,364	2,427,881
Excess of expenditures over revenues	(7,810)	(17,992)	(25,802)
Other financing sources			
Operating transfers in		8,179	8,179
Operating transfers out	(8,179)		(8,179)
Excess of expenditures and other uses over revenues and other sources	(15,989)	(9,813)	(25,802)
Fund equity, beginning of year	434,533	409,882	844,415
Fund equity, end of year	$ 418,544$	400,069	$ 818,613

Administrative Issues

Advisory Committees

The Commission receives advice and counsel from a wide range of viewpoints through its advisory committees. Each represents a particular river-based interest. PIACO, the Public Interest Advisory Committee, is comprised of private citizens from the member states. Public and private utilities that use the River as a source of water supply make up the Water Users Advisory Committee. The Publicly Owned Treatment Works (POTW) Advisory Committee represents municipal waste water treatment departments or districts in the Ohio River Valley.

Industry advisory committees include those representing power and chemical production. The ORSANCO/Ohio River Users Program Advisory Committee includes representatives from manufacturing, petrochemicals, barge, power, and pharmaceutical industries, and water/waste water utilities.

Years of Service Program

In January, the Commission implemented a new program honoring employees for their years of service. The following four staff members received commendations in 1998:

Twenty-five years:	Donna Beatsch
Fifteen years:	Marilyn Kavanaugh
Five years:	Karel Fraser, John Lyons

Elected Officers

In 1998, Phillip C. Morgan of Illinois was elected Chairman and Roy W. Mundy of Kentucky was elected Vice Chairman. Vasiliki Keramida of Indiana was elected Secretary/Treasurer for the period July 1, 1998 through June 30, 1999.

New Commissioners

During 1998 the following Commissioners were appointed to ORSANCO:

Ohio:	Amy Wright
Federal:	Michael McCabe

In Memory

The Commission records the death of two members of the Commission—former legal counsel Leonard A. Weakley and Archie Bailey, Commissioner representing the Commonwealth of Virginia. Mr. Bailey served on the Commission for two years.

Staff*

Donna M. Beatsch, Data Processing Specialist
L. Dane Boggs, Data Systems Administrator
Isabel E. Caputa, Environmental Chemist
Samuel A. Dinkins, Environmental Specialist
Tracey A. Edmonds, Public Information Programs Secretary
Geoffrey M. Edwards, Environmental Specialist
Erich B. Emery, Aquatic Biologist
Karel M. Fraser, Communications Coordinator
Constance R. Gabbard, Administrative Assistant
James P. Gibson, Jr., Environmental Specialist
Joseph T. Gilligan, Comptroller
Jason P. Heath, Water Quality Monitoring & Assessment Programs Manager
Barbara A. Horton, Technical Programs Secretary
Jeanne J. Ison, Public Information Programs Manager
John C. McManus, Environmental Specialist
Jonathan A. McSayles, Analytical Chemist
Kimberly A. Myers, Environmental Engineer
Deborah M. Olszowka, Environmental Specialist
Robert L. Ovies, Environmental Specialist
William H. Riddle, Building Maintenance
James T. Satzger, Budget & Finance Manager
Jerry G. Schulte, Senior Biologist
Peter A. Tennant, P.E., Deputy Executive Director
Alan H. Vicory, Jr., P.E., DEE, Executive Director & Chief Engineer

Publications

Publications are developed to provide information on water quality conditions, results of investigations, and activities of the Commission. Charges are levied for some publications to cover production and mailing costs. These charges are waived for requests from educational institutions, government agencies and nonprofit organizations. The following publications were produced in 1998:

1948-1998: Fifty-Year Pursuit for Clean Streams - A historical look at the Commission's first 50 years.
ORSANCO Public Information Brochure - A concise look at the Commission's programs and activities in trifold format.
ORSANCO 1997 - Annual Report of Commission programs and activities.
Ohio River Conference 2000 - Summary Report of the 50th Anniversary conference
Emergency Response Directory (May 1998) - A compilation of instructions for notification to appropriate agencies when a spill or accidental discharge to the Ohio River occurs.
Quality Monitor (July through December 1997) - Semiannual publication of data summaries from the Bimonthly Sampling and Bacteria Programs, and the Organics Detection System.
Newsletters - RiverWatchers, Outlook

** as of December 31, 1998*

Regulatory Agencies of the Member States

Illinois
Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Indiana
Department of Environmental Management
Office of Water Management
100 North Senate Avenue
Post Office Box 6015
Indianapolis, Indiana 46206-6015

Kentucky
Natural Resources & Environmental Protection Cabinet
Division of Water Quality
14 Reilly Road
Frankfort, Kentucky 40601

New York
Department of Environmental Conservation
Division of Water
50 Wolf Road
Albany, New York 12233-3500

Ohio
Environmental Protection Agency
Division of Water Pollution Control
Post Office Box 1049
Columbus, Ohio 43215-1049

Pennsylvania
Department of Environmental Protection
Bureau of Water Quality Management
Post Office Box 8465
Harrisburg, Pennsylvania 17150-8465

Virginia
Department of Environmental Quality
Post Office Box 10009
Richmond, Virginia 23240

West Virginia
Division of Environmental Protection
Office of Water Resources
1201 Greenbrier Street
Charleston, West Virginia 24311

Members of the Commission*

Illinois

Mary A. Gade, Director, Illinois Environmental Protection Agency
Constance Humphrey, Director of Inter-Government Affairs and Office Manager, The Association Group
Phillip C. Morgan, Director, Danville Sanitary District.

Indiana

Joseph H. Harrison, Sr., Bowers, Harrison, Kent & Miller
Vasiliki Keramida, President & Chief Executive Officer, Keramida Environmental, Inc.
John Hamilton, Commissioner, Department of Environmental Management

Kentucky

James E. Bickford, Secretary, Natural Resources & Environmental Protection Cabinet
Stephen L. Henry, M.D., Lieutenant Governor
Roy W. Mundy, Vice President & Manager, Kentucky-American Water Company

New York

Douglas E. Conroe, Director of Operations, Chautauqua Institution
Thomas A. Erlandson, Ph.D., Professor of Biology & Geology, Jamestown Community College
John P. Cahill, Commissioner, Department of Environmental Conservation

Ohio

Richard Miller
Donald R. Schregardus, Director, Ohio Environmental Protection Agency
Amy Wright, Manager of Environmental Management & Fuels, Dayton Power & Light

Pennsylvania

Melvin E. Hook, R & D Engineering, P.C.
William M. Kudaroski, Operations Manager/Production, Pennsylvania-American Water Company
James M. Seif, Secretary, Department of Environmental Protection

Virginia

Vacant

West Virginia

Michael P. Miano, Director, Department of Commerce, Labor & Environmental Resource, Division of Environmental Protection
Ronald R. Potesta, President, Potesta and Associates

Federal

Robin Corathers, Executive Director, Rivers Unlimited Mill Creek Restoration Project
Phillip J. Shepherd, Newberry, Hargrove & Rambicure
Michael McCabe, Regional Administrator U.S. EPA Region III

Officers

Phillip C. Morgan, Chairman
Roy W. Mundy, Vice Chairman
Vasiliki Keramida, Secretary Treasurer
Alan H. Vicory, Jr., Executive Director and Chief Engineer

*As of December 31, 1998