

**Figure 245**  
 Map of Region Fourteen showing the service areas of the public water utilities and average daily use in million-gallons-per-day.

**Table 196**  
Public water system sellers and purchasers.

<i>Sellers</i>	<i>Purchasers</i>
Campbellsburg Water Works	North Brown Water Corporation
Corydon Water Utility	East Harrison Water Company West Harrison Water Corporation
Charlestown Water Department	Marysville-Ostisco-Nabb Water Utility
Edwardsville Water Corporation	Elizabeth Water Company
Madison Water Department*	Kent Water Company
Ramsey Water Company, Inc.	Floyd's Knobs Water Company Georgetown Water Department Greenville Water Utility Palmyra Water Company West Harrison Water Company
Riverside Water Company, Inc.	Oak Park Conservancy District
Salem Water Works	East Washington Rural Water Corporation Pekin Municipal Water Utility
Scottsburg Water Department	Underwood Water Company Vienna Water Company, Inc.
Sellersburg Water Department	Rural Membership Water Corporation Silver Creek Water Corporation
Stucker Fork Water Utility	Kent Water Company

\*Madison Water Department is located outside the region.

The utilities serving Louisville, Corydon, Salem, Scottsburg, Borden Tri-County Regional Water District, New Albany, Georgetown, Greenville, and Stucker Conservancy District withdraw their water supply from surface sources. The utilities that withdraw their water supply from ground water locate their well fields within or near their respective service areas.

The forty utilities in the region withdrew an average of 16.5 mgd in 1975. Approximately fifty percent is withdrawn from groundwater sources while fifty percent is withdrawn from surface water supplies. Projections of public water utilities indicate that withdrawals may increase to approximately 29.5 mgd by the year 2000, as presented here.

**Table 197**

The 1977 and projected water withdrawals and consumption rates of public water supplies, in million-gallons-per-day.

<i>Public Water Supply</i>	1977	1980	1990	2000
Withdrawal	16.5	18.1	23.6	29.5
Consumption	3.8	4.2	5.4	6.8

**Industrial Water** Industrial establishments had a water intake averaging 14.7 mgd in 1977. Of the total industrial intake, 9.6 mgd was self-supplied by the industries while 5.1 was consumed through the manufacturing process. Most of the self-supplied water is withdrawn from ground-water sources.

The largest water-using industry group is comprised of small industries. Others that use large amounts of water include the chemical, food processing, and steel industries.

Industrial production is expected to increase by the year 2000; however, due to increased plant efficiency, water withdrawals are projected to rise only moderately, to 20.2 mgd. Withdrawals of self-supplied water are estimated to increase by 14.0 mgd in the year 2000, as indicated in the following table. Use of water supplied by public utilities is projected to increase to approximately 6.2 mgd.

**Table 198**

The 1977 and projected self-supplied withdrawal and consumption rates for industries, in million-gallons-per-day.

<i>Industrial Self-Supply</i>	1977	1980	1990	2000
Withdrawal	9.6	10.3	12.0	14.0
Consumption	2.0	2.4	3.5	4.9

**Rural Self-Supplied Water** Most of the rural self-supplied water is withdrawn from ground-water sources. An estimated 63,500 persons lived in homes supplied by individual water sources in 1975. It is estimated that these people used about 3.6 mgd for residential purposes in that year. An estimated 9,800 additional persons will depend on their own supplies for household water by the year 2000. These people, along with the anticipated general rise in the standard of living, are expected to increase rural residential water use to about 4.2 mgd by the year 2000.

In 1975, use of rural self-supplied water for farm animals amount to 2.3 mgd. By the year 2000, this use may increase to 2.6 mgd. Water for livestock is usually withdrawn from ponds, streams, and springs.

The total withdrawal of rural self-supplied water may increase from the current 6.0 mgd to approximately 6.9 mgd by the year 2000, as shown in Table 199.

**Table 199**

The 1977 and projected water withdrawal and consumption rates for rural self-supplied water, in million-gallons-per-day.

<i>Rural Self-Supply</i>	1977	1980	1990	2000
Withdrawal	6.0	6.2	6.5	6.9
Consumption	6.0	6.2	6.5	6.9

**Irrigation Water** Based upon the survey of irrigated lands, approximately 230 acres of agricultural lands were irrigated during 1977. By the year 2000, about 250 acres may be irrigated. Assuming 1977 as a normal growing year, about 0.6 mgd of water could have been applied during the "average" irrigation period of July and August. Water withdrawal for crops by the year 2000 may approach 1.2 mgd during an "average" irrigation season.

In addition to irrigation for agricultural use, about 0.3 mgd was applied to golf courses during the peak July and August irrigation period in 1977. Irrigation withdrawals for golf courses is expected to increase to 0.6 mgd by the year 2000.

The total withdrawal for irrigation of croplands and golf courses during the irrigation season of 1977 was approximately 0.9 mgd. These withdrawals may increase to 1.2 mgd during the "average" growing season by the year 2000, as tabulated here.

**Table 200**

The current and projected withdrawals of irrigation water for croplands and golf courses during an average growing season, in million-gallons-per-day.

<i>Irrigation</i>	1977	1980	1990	2000
Withdrawal	0.9	1.0	1.1	1.2
Consumption	0.9	1.0	1.1	1.2

**Electric Energy** Region Fourteen contains one electric generating facility, the Gallagher plant. It is owned and operated by Public Service Indiana, and is located on the Ohio River in Floyd County. The facility is fossil-fueled and utilizes a once-through cooling system. It has a generating capacity of 680 megawatts and withdraws 488 mgd from the Ohio River. These withdrawals will end as the plant is retired by the year 2000.

There are four additional power plants in Kentucky across the Ohio River as well as many other existing and planned facilities both upstream and downstream of the region's borders along the river.

Water withdrawals for the production of electricity were approximately 488 mgd during 1977. These withdrawals are expected to end by the year 2000, as presented in the following table.

**Table 201**

The 1977 and projected water withdrawals and consumption rates for the production of energy, in million-gallons-per-day.

<i>Energy</i>	1977	1980	1990	2000
Withdrawal	488.0	488.0	488.0	0.0
Consumption	0.0	0.0	0.0	0.0

## EXCESS WATER

### Flooding

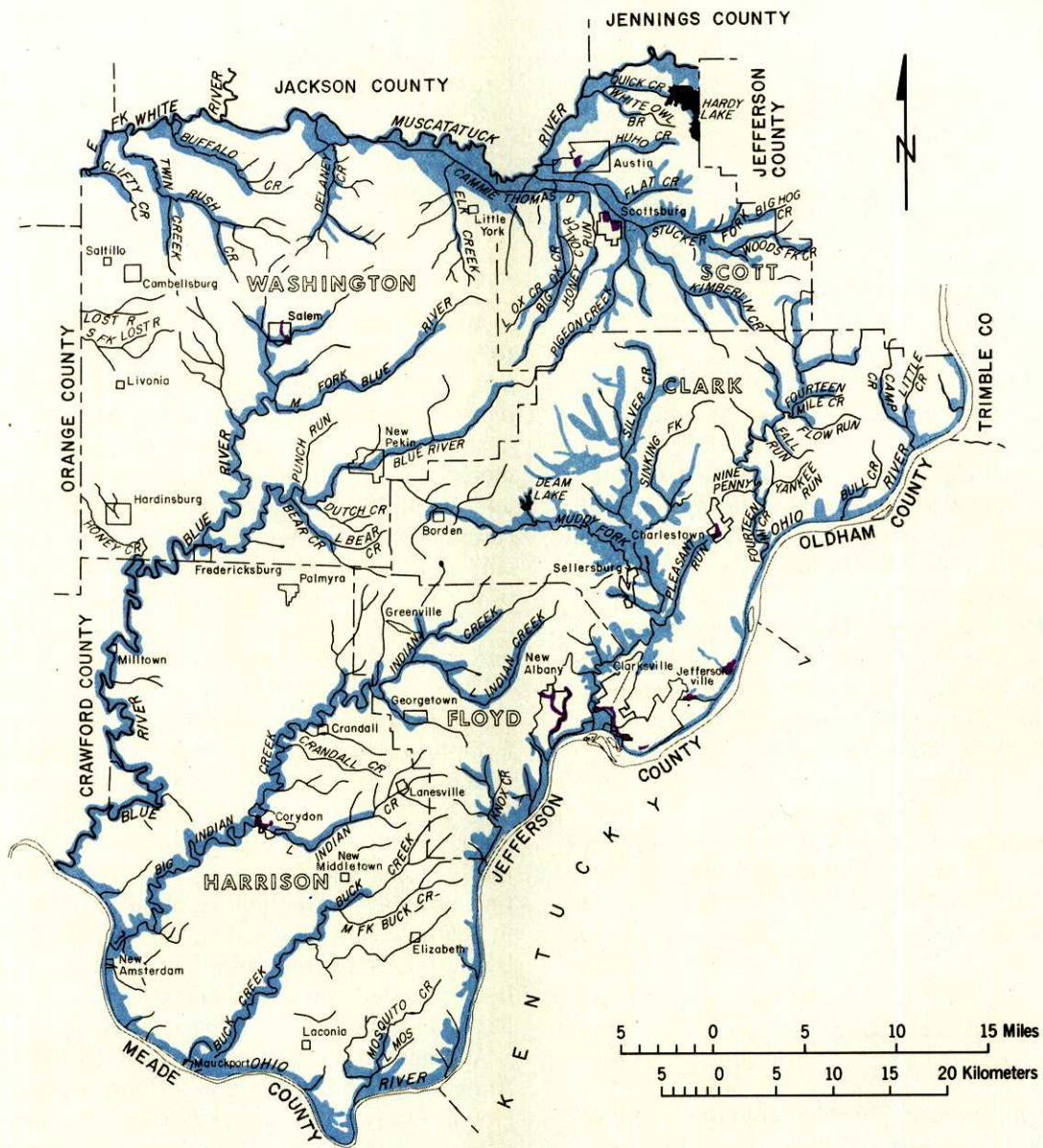
Approximately 84,247 acres of the region are subject to flooding. The major flood plains are shown in Figure 246. Figure 247 delineates the average annual flood damages along selected streams within the region. The average annual damages due to flooding were estimated in 1977 to be about \$480,000 for urban areas and \$1,800,000 for rural areas. Over half of the region's rural damages and one-third of the urban damages occurred along the Muscatatuck River and the East Fork of the White River. The Ohio River accounts for about fourteen percent of the urban damages and less than one percent of the rural damages.

**Flood Control** The U.S. Army Corps of Engineers has completed three local protection projects, one of which is located on the right bank of the Ohio River at the contiguous cities of Jeffersonville and Clarksville in Clark County. The project, consisting of a system of earth levees and concrete walls with pumping facilities, provides protection for about 4,190 acres of land in Jeffersonville, Clarksville, the community of Claysburg, and contiguous suburban and agricultural areas. It is estimated that flood damages amounting to almost \$21 million have been averted by the project to date.

Another protection project constructed by the U.S. Army Corps of Engineers is located at New Albany in Floyd County. This project consists of a system of 2.8 miles of earth levee, 0.7 miles of concrete walls, and six pumping facilities. The project protects about 1,500 acres in the city of New Albany from Ohio River floods equal in magnitude to the 1937 flood, which is the maximum flood on record at this location. It is estimated that flood damages amounting to \$3,028,000 have been averted by the project.

Another U.S. Army Corps of Engineers' protection project is located at Corydon in Harrison County. The work consists of channel modifications extending through Corydon on Indian and Little Indian Creeks and continues about 2.5 miles below their junction. The work provides for the enlargement of about 3.3 miles of Indian Creek and 1.1 miles of Little Indian Creek.

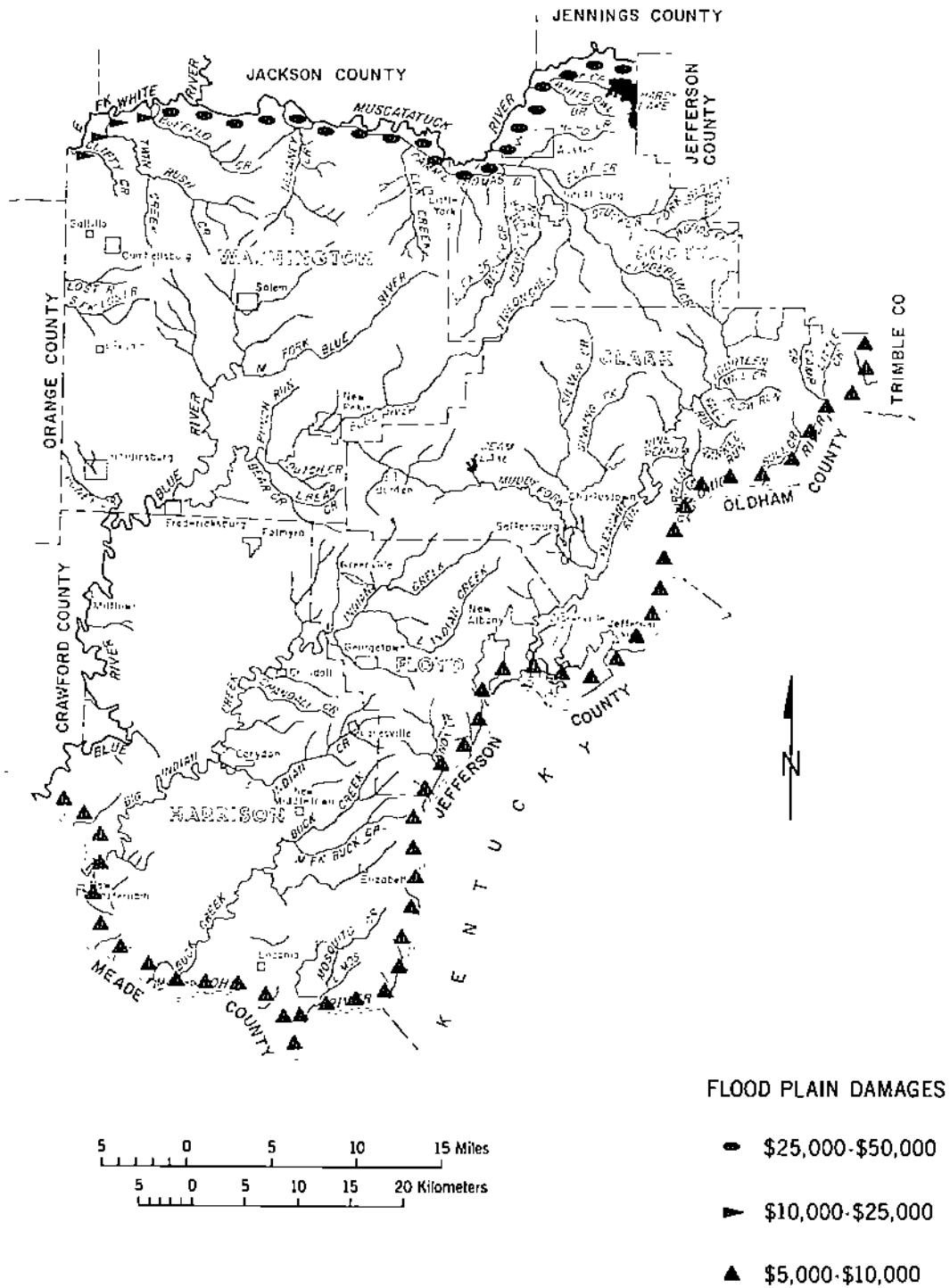
The Elk Creek Small Watershed project is located in



MAJOR FLOOD PLAINS

- Urban
- Rural

**Figure 246**  
Map of Region Fourteen showing the major flood plains.



**Figure 247**  
 Map of Region Fourteen showing the estimated average annual flood damages per mile along selected streams.

Region Fourteen. The Twin Rush Creek, Delaney Creek, Stucker Fork and Muddy Fork of Silver Creek small watershed projects are under construction.

**Flood Plain Management** Communities participating in the emergency phase of the National Flood Insurance Program are listed in the following table. New Albany and Salem are participating in the regular phase of the program.

**Table 202**

Communities participating in the emergency phase of the National Flood Insurance Program.

Austin	Georgetown
Clark County, unincorporated	Harrison County, unincorporated
Clarksville	Jeffersonville
Charlestown	Lanesville
Corydon	Mauckport
Crandall	New Amsterdam
Floyd County, unincorporated	Scottsburg
Fredericksburg	Sellersburg

### **Agricultural Drainage**

Approximately five percent of the soil associations have "severe," twelve percent have "moderate," and eighty-three percent have "slight" wetness characteristics as shown in Figure 248. There are approximately forty-three miles of legal drains in the region, which serve as the main collectors and outlets for on-farm drainage systems. The maintenance of this system of legal drains is the responsibility of the local county drainage boards or, in a limited number of cases, the conservancy districts. There is no legal entity that is responsible for maintaining drainage for other streams in the region.

### **Soil Erosion**

The erosion potential of soil associations is shown in Figure 249. Seventy-seven percent of the 1,101,000 acres in Region Fourteen is rated as having a "high" soil erosion hazard potential. Ten percent is classified as having a "medium" potential erosion hazard, and the remaining thirteen percent is rated as having a "low" erosion potential for land in a fallow state.

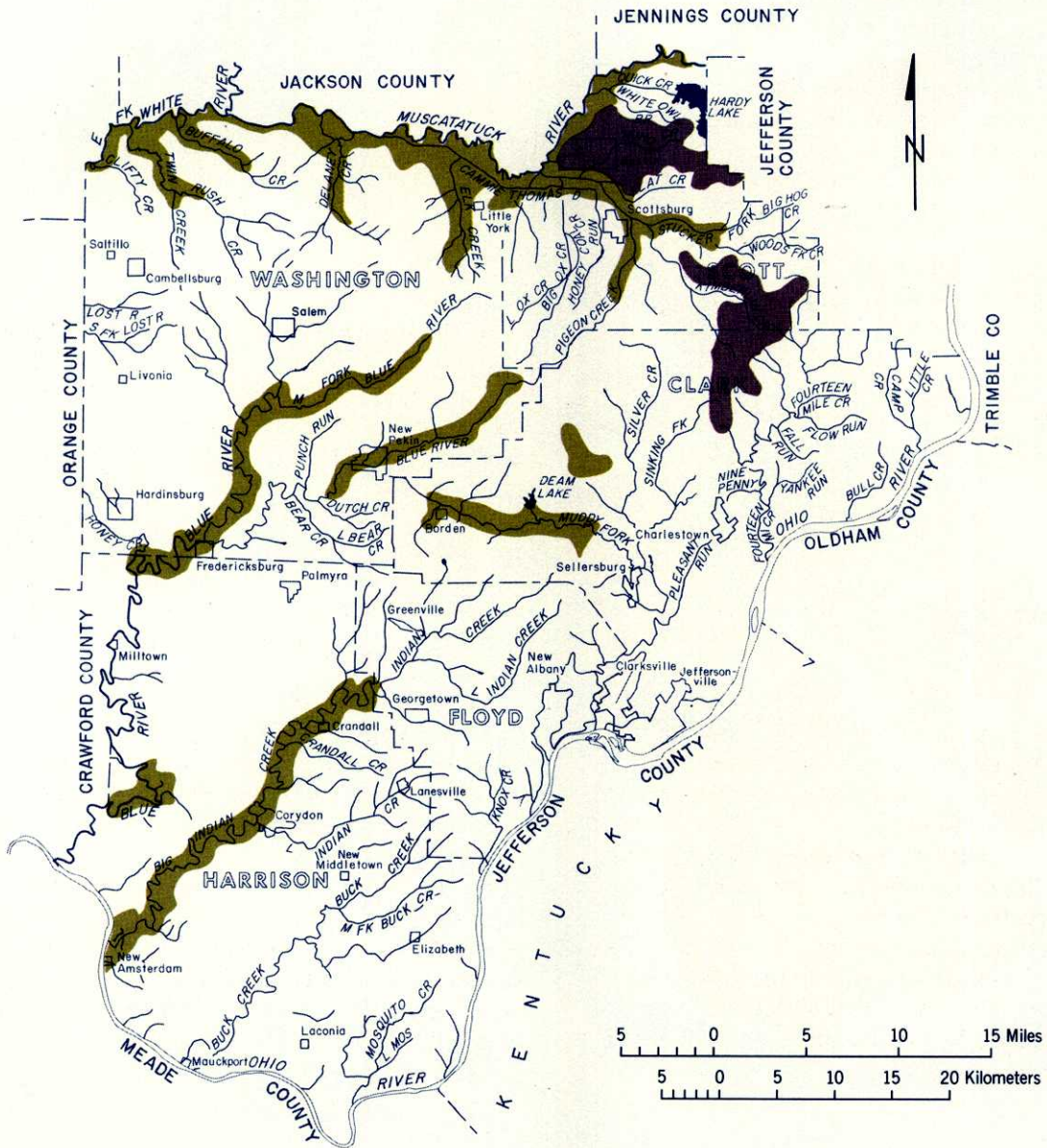
### **WATER QUALITY**

The surface streams routinely surveyed for water quality by the Indiana State Board of Health are the Blue, Muscatatuck, and Ohio Rivers. Water quality standards for the region are established by the Stream Pollution Control Board regulation SPC IR-4, the Water Quality Standards for the State of Indiana.

Samples of the Blue River near Fredricksburg indicated that the temperature, dissolved oxygen, and maximum and minimum values of pH were in compliance with state standards. Nitrate levels and the biochemical oxygen demand were also within recommended levels.

The Muscatatuck River exhibited temperature and pH values that were in compliance with state standards. Levels of dissolved oxygen occasionally fell below the water quality standard, although the biochemical oxygen demand concentrations seemed to be at acceptable levels.

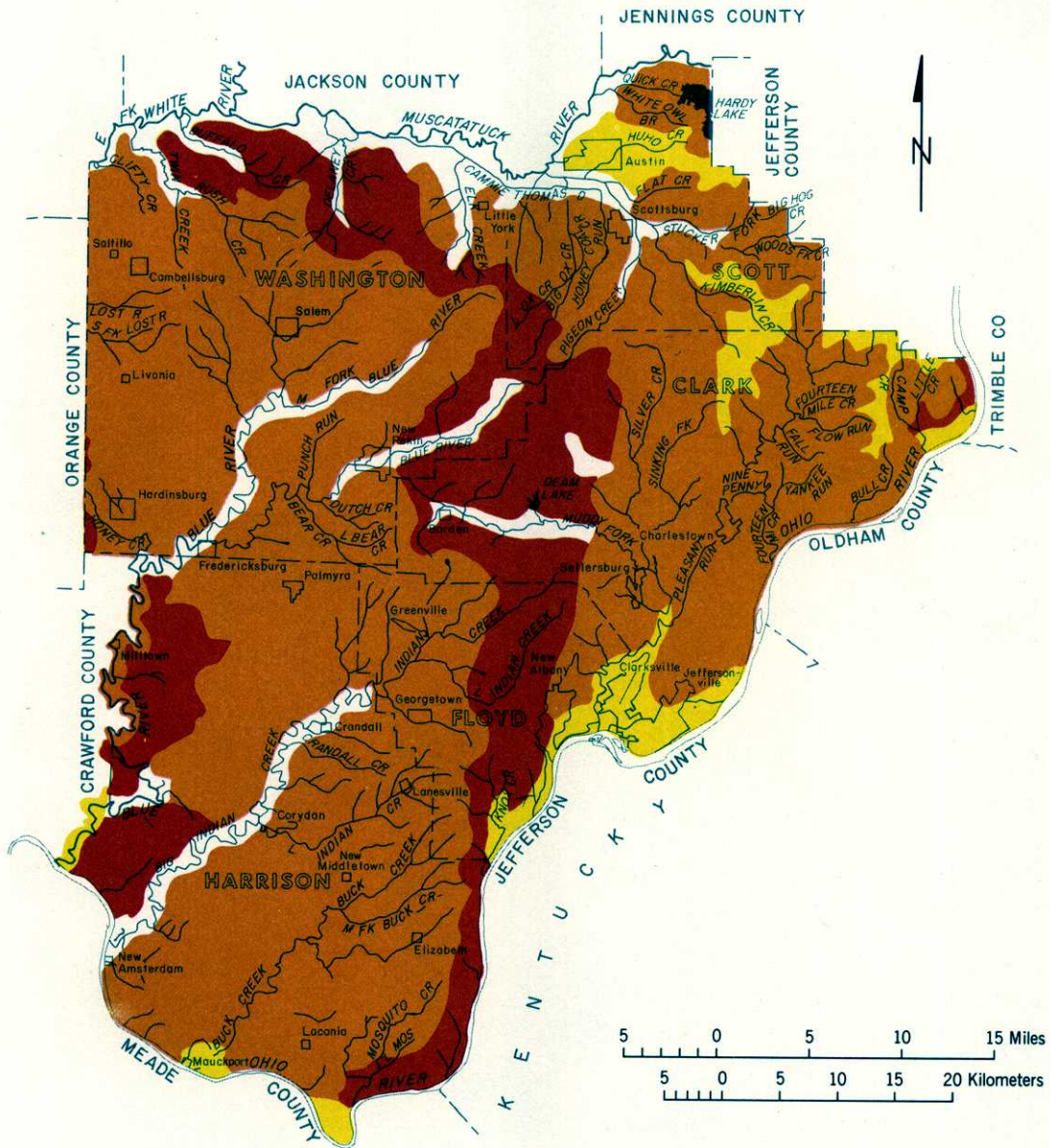
The Ohio River is degraded by the combined impacts of municipal and industrial discharges from cities in Indiana and Kentucky. Fecal coliform bacteria often exceeded limits established by the state. This is particularly true at times of low flow and when temperature increased in the stream.



**SOIL WETNESS CHARACTERISTICS**

- Slight
- Moderate
- Severe

**Figure 248**  
 Map of Region Fourteen showing the general location of the wetness characteristics of soil associations.



**SOIL EROSION POTENTIAL**

- Low
- Medium
- High
- Very high

**Figure 249**

Map of Region Fourteen showing the erosion potential of the soil associations.