2006 Integrated Report to Congress on Water Quality in Kentucky

Volume I. 305(b) Assessment Results with Emphasis on the Kentucky River Basin Management Unit and Salt – Licking Rivers Basin Management Unit

Kentucky Environmental and
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ACKNOWLEDGMENTS

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Chapter 1. Introduction

The 2006 Integrated Report (IR) was prepared by the Kentucky Division of Water (KDOW), Department for Environmental Protection (DEP), for submittal to the U.S. Environmental Protection Agency (EPA) to fulfill requirements of sections 303(d), 305(b) and 314 of the Federal Water Pollution Control (or Clean Water) Act of 1972 (P.L. 92-500), as subsequently amended. Section 305(b) of the Act requires states to assess and report current water quality conditions to EPA every two years.

It is anticipated that by integrating the two reports users of the information will find this comprehensive reporting medium of greater utility by having all relevant information woven together in two volumes: Volume 1 containing assessment and data analyses (305(b) portion) and Volume II containing the 303(d) listing and relevant information. The use of assessment categories in which to file assessed stream segments and lakes/reservoirs provides an accurate and convenient method to track the miles (or acres) of assessed and non-assessed uses, while also tracking those impaired waters from the time of 303(d)-listing through the TMDL process.

Currently, KDOW is utilizing the assessment database (ADB) to store use assessments and aid in producing the various tables and compilation of statistics presented in this report. As with previous 305(b) reports, ADB provides assessment data of stream segments and locational data (GNIS and latitude/longitude) used to georeference those data. This has proved to be an efficient mechanism to produce the reach-index maps. In addition to the ADB, the TMDL section has developed a database based on the ADB to track 303(d)-listed waterbodies. This database is updated to reflect the TMDL development, approval, and delistings of those waters/segments, and this information is downloaded into ADB for 303(d) reporting purposes.

The KDOW initiated a five-year rotating watershed management approach in 1997. Results from the first basin management unit (BMU), the Kentucky River, were reported in the 2000 305(b) report. This IR focuses on monitoring efforts from the first two years of the second cycle of the BMU monitoring strategy: the Kentucky River and Salt-Licking Rivers BMUs. These BMUs were monitored in 2003 and 2004, respectively. The report also presents a summary of data from the entire state, including the first five year cycle of monitoring and analysis under the BMU framework. Data collected by the Ohio River Valley Water Sanitation Commission (ORSANCO) were used to make assessments for the main stem of the Ohio River.

Impaired waters in these two BMUs, along with those identified in the 2004 305(b) report (Kentucky Division of Water, 2004) from the Big Sandy-Little Sandy-Tygarts BMU, are listed in the 303(d) section of this IR. The 303(d)-list has approximately 5160 miles from 910 segments that are in category 5 (assessment category for impaired waters that require a total maximum daily load (TMDL) set for the nonsupporting use. For the first time, intensive monitoring from the Big Sandy-Little Sandy-Tygarts BMU was made in 2003, with results reported in the 2004 305(b) report. Thus, the 2006 IR contains waters 303(d)-listed from that BMU which resulted from that monitoring. This region contains the largest coal reserves in the state, primarily in the Big Sandy River Basin. There are approximately 780 miles of rivers and streams 303(d)-listed from the Big Sandy-Little Sandy-Tygarts BMU in this IR.

There are reasons that some impaired waters are not 303(d)-listed. For example, evaluated data from discharge monitoring reports (DMRs) from permitted facilities are not on the 303(d)-list because, through permit compliance, these facilities should not be the source of pollutants at sufficient levels to preclude assimilation at concentrations specified for each pollutant in a given permit; also, these DMR data were not directly monitored instream, but at the outfall.

Chapter 2. Background

2.1 Atlas of Kentucky's Water Resources and Profile of Select Demographic and Physiographic Statistics

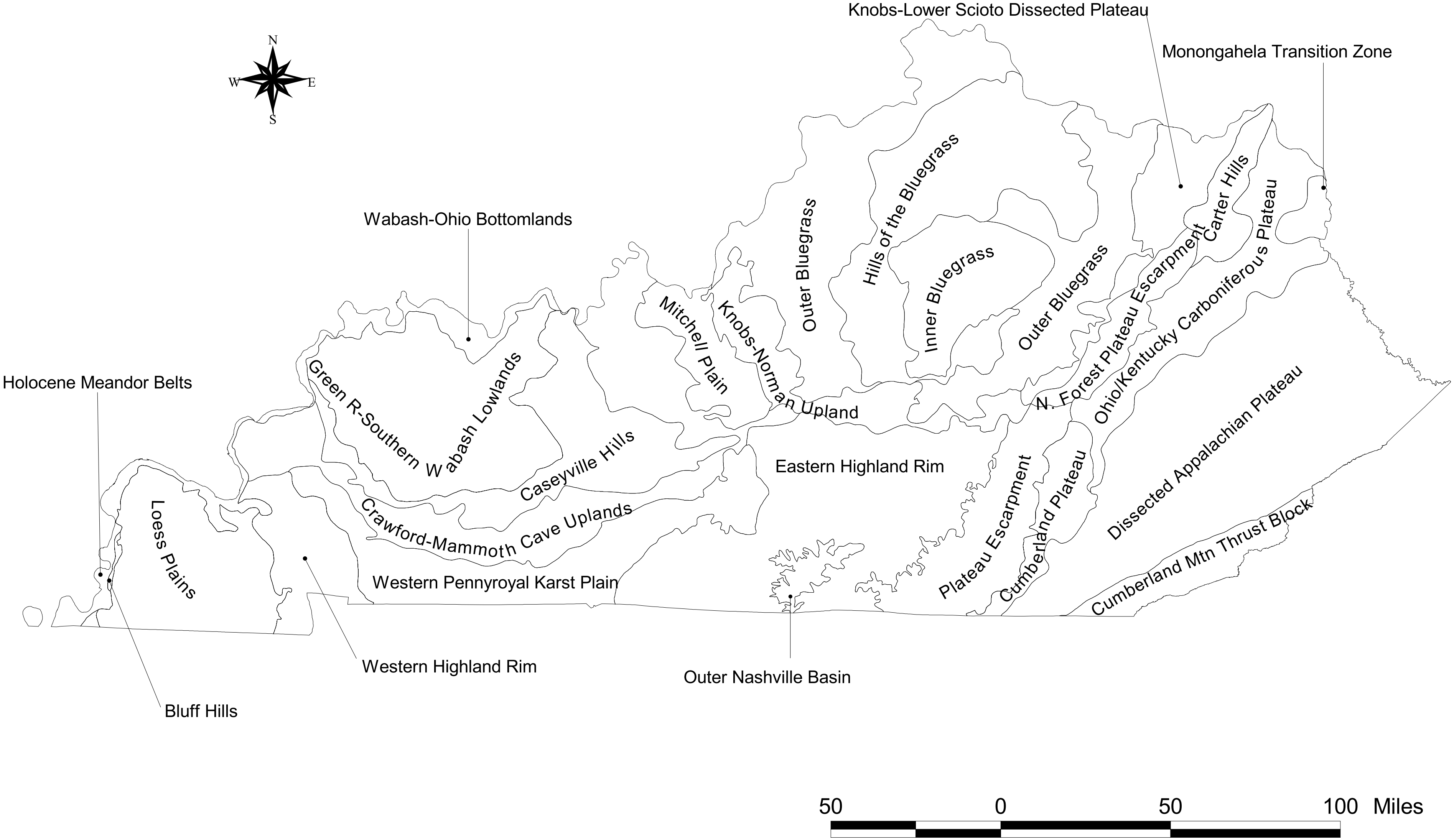
Atlas of Kentucky

State population (2004 estimate)	4,145,922
Surface area (square miles)	40,409
Number of counties	120
Number of level III ecoregions	7
Number of level IV ecoregions	25
Number of major basins	12
Number of USGS 8-digit HUCS	42
Number of stream miles (1:24,000 NHD)	90,961
Number of stream-formed border miles (primarily Ohio River)	861
Number of publicly owned lake and reservoir surface acres (estimated)	229,500
Three largest reservoirs by surface acres	
Kentucky Lake (Kentucky portion)	57,103
Cumberland Lake	47,623
Barkley Lake (Kentucky portion)	42,780
Wetland acres[1] (approximation)	324,000

[1]"The state of Kentucky's environment: 1994 status report." The Kentucky Environmental Quality Commission, 1995.

The physiography of Kentucky provides for a landscape of 25 Level IV Ecoregions (Figure 2.1-1) that are diverse geologically and physically and provide a variety of microclimates that are important in forming and supporting diverse plant and aquatic communities. This rich aquatic biodiversity is a part of the southeastern aquatic environment that provided long, stable conditions due to this region being non-glaciated. While the state has many miles of streams and rivers, natural lakes are uncommon and are found along the Lower Ohio and Mississippi rivers in the Jackson Purchase (region west of Tennessee River (Reservoir)); most of these lakes were formed by oxbows or shallow depression basins. Many of the major rivers in the commonwealth have been dammed for flood control and secondarily for generation of electricity. This change has affected the natural aquatic communities of these systems while providing drinking

Figure 2.1-1. Level IV Ecoregions of Kentucky.



water supplies, tourism and recreational opportunities. While only a portion of wetlands exist from what was estimated to have occurred historically (1.5+ million acres), loss of wetland acreage has slowed since federal and state regulations and disincentives for altering wetlands have been in place (The Kentucky Environmental Quality Commission, 1995). By river basin, the Green River has the largest proportion of remaining wetlands (approximately 88,000 acres). As indicated by the number of caves in Kentucky, there are significant karst areas in many areas of the state, but the largest karst landscape exists in the Green River Basin, which includes Mammoth Cave. These areas of karst present special concerns for water quality protection since groundwater flows may be unknown and underground rivers are difficult to monitor because of limited access.

2.2 Programmatic Framework

In order to better characterize the waters of the state, and better coordinate resources toward addressing problems, Kentucky adopted a Watershed Management Framework in 1997 (Figure 2.1-1). The purpose of this management framework is to use programs, people, information, and funds as efficiently as possible to protect, maintain, and restore water and land resources. This approach provides a framework in place and time within which participating individuals and institutions can link and support one another's efforts in watershed management.

Coordinated, multi-agency watershed monitoring was initiated in 1998 in the Kentucky River Basin, and monitoring for the first five-year watershed cycle was completed in 2002. The first cycle of monitoring focused on obtaining, for the first time, a snapshot of conditions of Kentucky’s waters, especially wadeable streams. Most local, state, and federal agencies in Kentucky with monitoring responsibilities cooperated in the watershed monitoring effort. Some agencies simply provided their data and carried out monitoring as usual; others revised their sampling programs and sampling methods for better fit with the watershed monitoring plan. In early 2005, the Kentucky Department for Environmental Protection and the Tennessee Department of Environment and Conservation formally agreed to begin cooperating and sharing combined resources to work toward making tangible improvement to shared watersheds. For example, several watersheds (Clarks River, Red River and Upper Cumberland) were identified to have interstate concerns and probable shared sources of pollutants or pollution affecting stream health. Currently, monitoring is going on to identify sources and spatial and temporal concentrations of nitrates in the Red River watershed in the Lower Cumberland River basin. In addition to scoping and fixing pollutant-source issues, an effort has been agreed upon whereby each state will identify shared high quality watersheds then establishing them as such in their respective regulations. Additionally, where one state has already identified high quality waters crossing the state boundary, but the other has not, that state will assess their portion of the stream and determine if it qualifies for elevation to high quality designation.

According to the adopted framework, the state is divided into five basin management units (Figure 2.2-1) for the purposes of focusing management activities spatially and temporally. Activities within each unit follow a five-year schedule, staggered by one year, so that efforts can better be focused within a basin. Phases in the cycle include: 1) collecting information about water resources in the basin; 2) identifying priority watersheds; 3) listing the watersheds in the basin in order of priority and deciding which problems can be solved with existing funds; 4) determining how best to solve the problems in the watershed; 5) developing an action plan; and 6) carrying out the strategies in the plan (Figure 2-3). Public participation is also encouraged throughout the process, allowing citizens and organizations to stay informed and have an active role in management of resources. Monitoring and assessment take place in the second and third years, respectively, of the watershed cycle.

Figure 2.2-1. Kentucky Basin Management Units and monitoring years of the second five-year cycle.

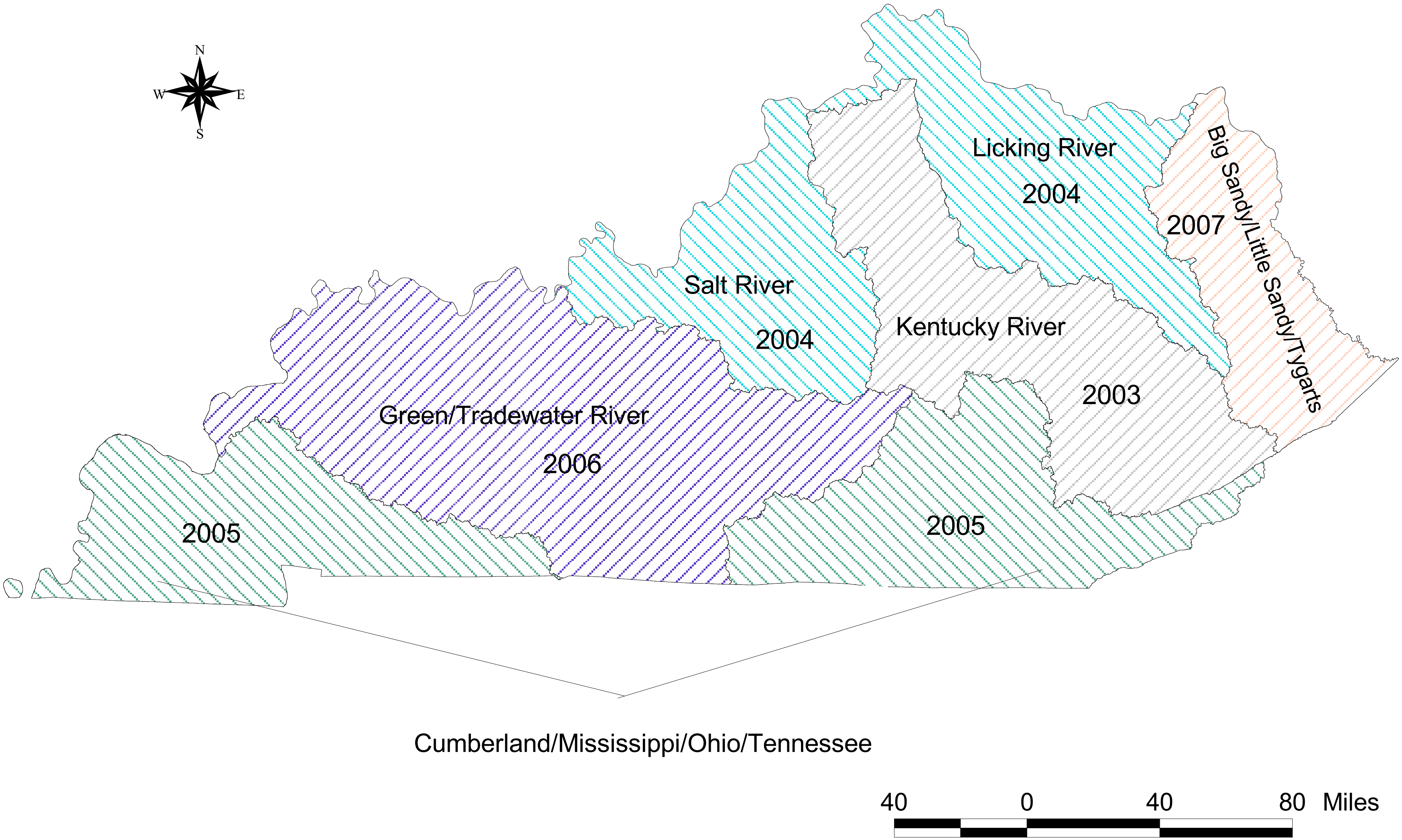
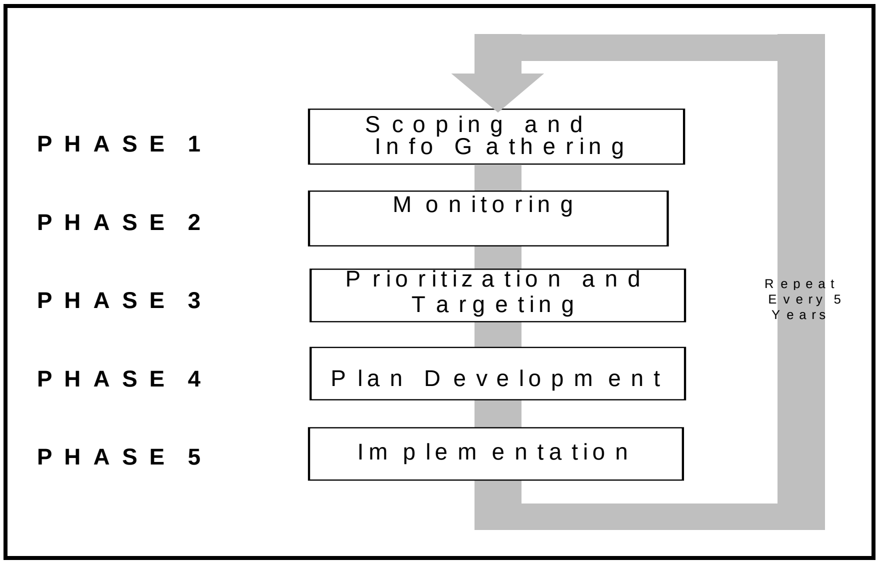


Figure 2.2-2. Planning, monitoring and implementation phases of the basin management unit approach.



Each basin was phased into the Watershed Framework schedule as listed below. Monitoring activities begin in the second year of the cycle.

- July 1997 – Kentucky River basin
- July 1998 – Salt and Licking river basins
- July 1999 – Upper Cumberland River and 4-Rivers (Lower Cumberland, Ohio, Mississippi and Tennessee rivers) basins
- July 2000 – Green and Tradewater rivers basins
- July 2001 – Big Sandy River, Little Sandy River , and Tygarts Creek basins

Benefits of this approach include:

- Better coordination of resource management activities around common basin management units and schedules.
- Better ability to stretch limited dollars for implementation activities through partnering.
- Better information about water resources without higher monitoring costs.

- More data as monitoring efforts are coordinated – approximately a four-fold increase in assessment data has been realized since the inception of the watershed approach in 1998.
- Better data as agencies standardize methods and procedures.
- Greater opportunities for citizen involvement.

The 2004 305(b) Report represented the completion of the first monitoring and assessment cycle of the five BMU management framework. Whereas the purpose of monitoring in the first watershed cycle was to obtain baseline data statewide, monitoring in the second cycle (begun in 2003) focuses more on impaired watersheds. However, ambient monitoring continues at long-term stream and lake stations, watersheds not sampled in the first watershed cycle, random survey sites, and on small streams to refine reference reach metrics. Much of the work is done sequentially to make best use of monitoring personnel and to collect data during the target index period according to stream sizes. The following is the cycle beginning with planning phase-year with the monitoring and assessment in years two and three, respectively.

- 2002 – Kentucky River Basin
- 2003 – Salt – Licking basin
- 2004 – Upper Cumberland River and 4-Rivers (Lower Cumberland, Mississippi, Ohio, and Tennessee rivers) basin
- 2005 – Green – Tradewater rivers basin
- 2006 – Big Sandy – Little Sandy rivers and Tygarts Creek basin

2.2.1 Overview of Programs Related to Monitoring and Assessment

The KDOW has the primary responsibility for monitoring and assessing the commonwealth’s water resources, and overseeing the permitting of facilities and industries that discharge point sources to waters through the Kentucky Pollutant Discharge Elimination System (KPDES).

To monitor the designated uses of Kentucky’s waters and monitor the effectiveness of various control programs, such as KPDES, KDOW has a number of monitoring programs that monitor biological and water quality indicators for 305(b) and 303(d) purposes. Table 2.2.1-1 highlights the monitoring programs and the indicators associated with each. A more comprehensive discussion of surface water quality monitoring programs follows in Chapter 3.

Table 2.2.1-1. Matrix of water resources and monitoring programs.

	[a]Long-term Surface Water	[a]Rotating Surface Water	[b,c]Targeted Biological Monitoring	[b]Reference Reach	[d]Probability Biological Monitoring	[e]Lake Monitoring	[a]Ground-water Monitoring
Streams (1st-5th order)		X	X	X	X		
Large Rivers	X	X	X				
Lakes/Reservoirs						X	
Groundwater							X
Swamps/Wetlands	--	--	--	--	--	--	--

[a]Indicators: physicochemical and pathogens

[b]Indicators: macroinvertebrates, fish, algae, physicochemical, habitat

[c]Includes some 6th order streams where wadeable and associated with ambient water quality stations

[d]Indicators: macroinvertebrates, physicochemical, habitat

[e]Indicators: physicochemical, fish kills, macrophytes, algae

For those waters requiring a Total Maximum Daily Load (TMDL) pollutant reduction, the division’s TMDL program manages this process by coordinating the monitoring and development of those discharge or load reductions necessary to bring the impaired Designated Use (DU) into full support. The primary source of pollutants affecting the commonwealth’s waters now is recognized to come from nonpoint sources (NPS). The fact that sedimentation became the leading pollutant in the 2004 305(b) cycle is a direct reflection on NPS pollution being the most significant source of degradation to the state’s waters. This is also the trend nationwide.

The primary objectives of the ambient monitoring program were to establish current conditions, long-term records and trends of water quality, biological, fish tissue, and sediment conditions in the state’s major watersheds (Kentucky Division of Water 1986). Sub-objectives were identified as determining: 1) the quality of water in

Outstanding Resource Waters; 2) background or baseline water quality conditions in streams not impacted by discharges; 3) the extent to which point and nonpoint sources affect trophic status of lakes and reservoirs; and 4) the impact of acid precipitation on water quality of lakes and reservoirs. Currently there are 71 primary water quality stations throughout the commonwealth that are monitored on a monthly frequency at each station respective of the current monitoring cycle. These stations are located at mid- and lower watershed reaches of 8-digit HUC basins. Location of stations also occurs near the inflow and outflow of major reservoirs, for example Taylorsville Lake in the Salt River basin. Those stations outside the BMU monitoring phase are monitored bimonthly. Implemented with the rotating basin approach are the rotating watershed stations. These stations are monitored for the same suite of water quality parameters the primary stations are but are monitored in smaller watersheds for a variety of reasons: 1) TMDL development; 2) characterization of water quality in reference watersheds; 3) monitoring of waters that receive permitted discharge (for instance a municipal wastewater treatment plant) to characterize upstream and downstream water quality; and 4) to characterize water quality conditions in specific land use, such as agricultural or mining areas.

KDOW's targeted biological monitoring program has a long history of determining the health and long-term water quality of stream and river resources. In addition to biological community surveys, physicochemical water quality variables are included in the monitoring program. Biological monitoring was implemented in the 1970s with significant refinement of the program as more research led to the development of biological multimetric indices (for more information go to: http://www.water.ky.gov/sw/swmonitor/sop/). A portion of KDOW's biological monitoring emphasis was shifted to development of those metrics and associated criteria through a reference reach approach. This was implemented in the 1990s based on an ecoregional effort to determine reference conditions in each basin. These waters do not represent pristine conditions, but they represent the best examples of high water quality and biological integrity in each of the four identified bioregions (Mountains, Bluegrass, Pennyroyal and Mississippi Valley – Interior River). Through this effort a network of streams, or stream reaches, have been identified throughout the commonwealth. These stream reaches are listed in water quality standards, 401 KAR 5:030, and can be accessed at: http://www.lrc.ky.gov/kar/401/005/030.htm. One to three biological communities (macroinvertebrates, fishes, or algae) are sampled per biosurvey. When one community only is used to make an aquatic life use support determination, either macroinvertebrates or fishes are utilized, typically the former.

A random biosurvey effort was initiated in 1998 with the help of EPA's technical support group in Corvallis, Oregon. Kentucky's approach is to sample macro-invertebrates once at a minimum of 50 sites in each BMU. In 2004, nutrients and additional chemical water quality variables were added to the suite of indicators used by this program. These additional data were added to aid in the development of numeric nutrient criteria, gain a more comprehensive knowledge of what ambient water quality variable values were in each BMU, and increase the confidence of each aquatic life use assessment. This program allows KDOW to report on aquatic life use support in wadeable streams for the entire state over the five year watershed cycle. Section 305(b) use support determinations made through the probabilistic biosurvey program were determined only on segments directly monitored, whereas extrapolated use support over a given BMU was made for informational, resource considerations, and planning purposes only. This program is important both on the statewide level as well as the national level, as indicated by EPA's probabilistic monitoring efforts in wadeable streams nationwide and planned lake and reservoir probabilistic monitoring. For a discussion on the probabilistic monitoring program, please refer to Section 3.1.4 of volume 1 of this report.

The lake and reservoir monitoring program began in the early 1980s as part of the Clean Lakes monitoring initiative. Currently KDOW monitors all significant publicly owned lakes and reservoirs in the state (approximately 105 water bodies). Many of the large Corps of Engineers (COE) reservoirs and Kentucky Lake (a Tennessee Valley Authority (TVA) project), are typically monitored by those respective agencies. The working relationship between KDOW and COE, Louisville and Nashville Districts, has proved to be a good cooperative effort that is beneficial to all parties by increasing available resources (e.g. COE may provide the field work and KDOW, in coordination with Division of Environmental Services (DES) provides chemical analyses).

Physicochemical and chlorophyll *a* are analyzed to determine current Trophic State status of these water bodies. Monitoring occurs three times during the growing season (spring, summer and fall) to capture the seasonal variability that occurs and reflects the trophic state of the resource. By monitoring these resources every five years, trends in water quality can be measured. This monitoring program collects data sufficient to determine aquatic life, secondary contact recreation and drinking water supply uses. Many of these resources are owned by the Kentucky Fish and Wildlife Department and are posted as "no swimming" water bodies, precluding applicability of primary contact recreation monitoring.

2.3 Costs Associated with Water Pollution

Putting a dollar figure on the costs associated with water pollution is difficult if not impossible to determine. However, the costs associated with KPDES-permitted facilities, which are primarily comprised of industrial facilities, package wastewater treatment plants, and municipal wastewater treatment plants, are in the millions of dollars considering construction, operating, maintenance, compliance, and administrative costs. Figures obtained from KDOW, Facilities Construction Branch, give some insight into the costs associated with treating household, business and industrial wastes.

Table 2.3-1. Costs to taxpayers for municipal waste water treatment facilities (planning, design and construction) for the control of pollution from houses, businesses and industries.

	Clean Water State Revolving Fund	EPA Special Appropriation Grants
FFY 2003	17,516,809	7,824,049
FFY 2004	58,198,400	10,775,950
Prior to FFY 2003	324,938,622 (first loan made in May 1989)	12,554,803 (first grant awarded in 1998)
After FFY 2004	36,594,665	31,829,314
Total	$437,248,496	$62,984,116

However, these costs are only a portion of the total costs to society. The increased cost of technology needed to treat potable water in areas of heavy siltation/sedimentation alone may result in loss of source water supply because the cost of treatment is prohibitive, while areas of organic industrial contamination may require expensive continuous carbon-based treatment. Medical and loss of productivity costs associated with various diseases that result from waterborne pollution are not accurately known. For example, consumption of fish flesh that has elevated levels of mercury carries increased health risks to children and women of childbearing age, while fish contaminated with elevated levels of PCBs carries increased cancer risks to the general population. Pollutants affect commercial fisheries where restricted consumption, or loss of resources, reduces the commercially available fish population; additionally, some members of society rely on subsistence fishing to supply a portion of their nutritional needs. Water pollution may also result in loss of revenue to governments and local businesses if recreation areas are unsafe for swimming or fishing. The shipping industry relies on barges to move many commodities around the nation, and the cost of maintaining shipping channels prone to excess sedimentation is an ongoing expense to both industries and governments.

2.4 Monitoring and Assessment Issues Facing the Commonwealth

KDOW submitted a nutrient criteria development plan in 2004 that was satisfactory to EPA. The first waters scheduled for criteria development are wadeable streams and intrastate reservoirs. Of particular need are data from the inner bluegrass (ecoregion 71l). True reference conditions are difficult to locate in this region. This particular area has high phosphate content found in the Lexington limestone layers of the plateau that, with the addition of significant inputs of nitrogen associated with intensive livestock grazing, grasslands, and urbanization and suburbanization, has resulted in nutrient-rich streams and reservoirs. The division has begun addressing this issue through increased nutrient sampling, but greater frequency is needed to capture seasonal variations and effects on stream systems.

Given the karst geology of much of the inner bluegrass, many of these streams are connected and have watersheds that are yet to be mapped and understood. Continuance of data collection and development of criteria based on the best attainable conditions will dictate nutrient numbers in this region. Collaboration with Tennessee DEC may be helpful since the Nashville Basin is similar to the inner bluegrass—both are composed of Ordovician limestone. Recent cooperative efforts between the two states may serve as a platform to investigate this issue collaboratively.

Lake and reservoir data are relatively complete and span approximately 25 years. This program continues to characterize the trophic state of these waters during the growing season; samples are collected in the spring, summer, and fall. The majority of reservoirs have remained stable according to the trophic state index (TSI), but there are trends from oligotrophic to mesotrophic occurring in several waters. The TSI (measure of biological productivity) is used extensively in lake water quality monitoring and assessment programs. This index uses chlorophyll *a* concentrations in the water to determine the TSI. As the TSI increases a more biologically productive system is represented.

Kentucky's wetlands are primarily bottomland hardwood systems that flood seasonally. This corresponds to the winter and spring rainy season. Any excess nutrients will likely have a subtle impact on these environments since the supply of water comes from flooding rivers, and inundation is ephemeral. These bottomland hardwoods naturally do not hold standing surface water for a significant time of the year.

To date, there have been no recognizable geographic patterns in mercury levels in fish tissue. A potential strategy to aid in trend recognition is moving toward a random monitoring scheme. Constraints may be put on the habitat population of interest, such as 4^{th} and 5^{th} order wadeable streams, major streams ($>5^{th}$ order), etc. Moving toward targeting specific feeding guilds and species may lead to finer resolution of contamination sources and would likely provide more informative fish consumption advisories issued to the public.

Like other states, Kentucky must allocate its monitoring resources to conduct a robust ambient monitoring program while also devoting substantial resources toward gathering the necessary data to develop TMDLs for hundreds of impaired waters. This can only be accomplished if all available funding mechanisms are utilized, such as regional and national EPA grants, 319 funds, third party data collection, and agreements with other cooperating local, state, and federal agencies such as the U.S. Geological Survey and the U.S. Army Corps of Engineers.

Chapter 3. Surface Water Monitoring and Assessment

3.1 Monitoring Program - General

DOW uses NHD 1:24,000 scale maps for monitoring, planning, and assessment. As noted in Chapter 2, there are more than 90,000 miles of streams in the commonwealth at this resolution. Of particular interest in this IR for new 305(b) assessments are two BMUs, the Kentucky and Salt-Licking (the latter is two river basins combined to form one BMU), which were the focus of monitoring in 2003 and 2004, respectively. Table 3.1-1 provides stream miles for those two BMUs by river basin.

Table 3.1-1. Total stream miles (NHD 1:24,000 scale) of respective river basins and BMUs in the Kentucky and Salt - Licking BMU.

Kentucky River Basin (BMU)	16,071
Salt - Licking BMU	22,322
Salt River Basin	9,621
Licking River Basin (incl. minor Ohio River Tributary HUCs)	12,701

For this report, monitoring occurred in 13 of the state's 42 eight-digit HUCs (hydrologic unit codes) established by the U.S. Geological Survey (Figure 3.1-1). In the Salt-Licking BMU, 562 stream segments were assessed on 245 streams (Figure 3.1-2), and 373 stream segments were assessed on 311 streams in the Kentucky River BMU (Figure 3.1-3). The Ohio River minor tributaries associated with the Licking River Basin (Ohio River Subregional Boundary, USGS) had a total of 53 segments and 43 streams from those two HUCs. Most of these assessments stemmed from intensive multi-agency watershed monitoring in 2003 and 2004. However, some data more than five years old were still considered valid for this reporting period.

3.1.1 Ambient (Long-Term) Monitoring Network

Water Quality. The KDOW's statewide ambient water quality monitoring network has 70 fixed stations (Table 3.1.1-1 and Figure 3.1.1-1). These ambient stations are located in the downstream and mid-unit reaches of USGS 8-digit hydrologic (cataloging) units, upstream of major reservoirs and in the downstream reaches of major tributaries. The Kentucky River BMU has 15 ambient stations and the Salt-Licking

BMU has 14 ambient water quality stations (Table 3.1.1-2). The ambient stations of a watershed management unit are sampled monthly during the year the unit is in the monitoring phase of the watershed cycle. During the other four years of the watershed cycle, sampling frequency is reduced to bimonthly to devote more monitoring and laboratory resources to the rotating watershed water quality network (described later). Field measurements are taken for pH, dissolved oxygen, specific conductance and temperature, and samples are analyzed for nutrients, metals and also pesticides and herbicides if the streams are in predominantly agricultural areas. The purpose of the ambient water quality sampling is to assess long-term conditions and trends on rivers and the larger streams of the state. In addition to DOW's network, long-term stations are maintained by ORSANCO on the lower Licking, lower Big Sandy, lower Green, lower Tennessee and lower Cumberland rivers and by the USGS on the lower Tennessee River. Figures 3.1.1-2, 3.1.1-3 and 3.1.1-4 give general locations of ambient monitored stations (including associated biomonitored stations) in the Kentucky River BMU and Salt and Licking rivers basins, respectively.

Sediment Quality. Sediment quality is determined at the ambient stations during the year in which monitoring occurs in a watershed management unit. At this time, sediment data supplement other data types; the data are not used directly in assessments of use support.

Biology. Fish, macroinvertebrate and algae data from the ambient stations provide long-term and trend information on mainstem rivers and many major tributaries. These stations will be revisited every five years. Most of the ambient biological stations are located on streams that also have water quality monitoring.

Fish Tissue. Fish tissue samples were obtained from 20 sites in the Kentucky River BMU and six sites in the Salt-Licking BMU; however, 21 other sites were monitored throughout Kentucky related to advisories. Tissue is analyzed for metals, including mercury, PCBs, chlordane, pesticides and herbicides. Results are used to determine if there are potential problems with contaminants in fish tissue that require further sampling. If results are not elevated, no further fish tissue sampling is conducted.

Table 3.1.1-1. Statewide primary water quality stations, with Kentucky River and Salt-Licking rivers BMUs highlighted in bold type.

River Basin & Stream	Station	HUC	Mile-point	Location	Latitude (dd)	Longitude (dd)	Drainage (mi^2)	Station Type
Big Sandy								
[a]Tug Fork	PRI002	05070201	35.1	at Kermit, WV	37.8379	-82.40970	1280	hydrologic unit index site
[a]Tug Fork	PRI003	05070201	77.7	at Freeburn	37.56615	-82.14358	271	mid-hydrologic unit index site
[a]Levisa Fork	PRI006	05070202	115.0	nr Pikeville	37.46435	-82.52589	1232	hydrologic unit index site
[a]Levisa Fork	PRI064	05070203	29.6	nr Louisa	38.1160	-82.6002	2326	hydrologic unit index site
[a]Levisa Fork	PRI094	05070203	75.0	at Auxier	37.72905	-82.75436	1726	mid-hydrologic unit index site
[a]Beaver Creek	PRI095	05070203	95.0	at Allen	37.60280	-82.72754	240	major tributary
[a]Johns Creek	PRI096	05070203	26.6	at McCombs	37.6553	-82.5870	168	inflow to Dewey Res. major tributary
Little Sandy								
[a]Little Sandy River	PRI049	05090104	13.2	at Argillite	38.49053	-82.83404	522	hydrologic unit index site
Tygarts Creek								
[a]Tygarts Creek	PRI048	05090103	23.5	nr Lynn	38.5997	-82.9528	242	hydrologic unit index site
Cumberland River								
Cumberland River	PRI086	05130101	661.0	at Calvin	36.72233	-83.62554	770	mid-hydrologic unit index site
Cumberland River	PRI009	05130101	563.0	at Cumberland Falls	36.83558	-84.34015	1977	hydrologic unit index site
Clear Fork	PRI087	05130101	0.9	nr Williamsburg	36.7259	-84.1424	370	major tributary
[a]Rockcastle River	PRI010	05130102	24.7	at Billows	37.17137	-84.29673	604	hydrologic unit index site
[a]Horse Lick Creek	PRI051	05130102	0.1	nr Lamero	37.3204	-84.1387	62	special interest watershed
Cumberland River	PRI007	05130103	423.0	nr Burkesville	36.68881	-85.56670	6053	hydrologic unit index site
Buck Creek	PRI088	05130103	12.3	nr Dykes	37.0601	-84.4264	294	major tributary
[a]S. Fk. Cumberland R.	PRI008	05130104	44.8	at Blue Heron	36.6703	-84.5492	954	hydrologic unit index site
[a]Little River	PRI043	05130205	24.4	nr Cadiz	36.84104	-87.77731	269	major tributary
Red River	PRI069	05130205	49	nr Keysburg	36.64065	-86.97961	509	hydrologic unit index site

Table 3.1.1-1 (cont.). Statewide primary water quality stations, with Kentucky River and Salt-Licking rivers BMUs highlighted in bold type.

River Basin & Stream	Station	HUC	Mile-point	Location	Latitude (dd)	Longitude (dd)	Drainage (mi^2)	Station Type
Kentucky River								
[a]**Eagle Creek**	PRI022	05100205	21.5	at Glenco	38.7061	-84.8254	437	hydrologic unit index site
Kentucky River	PRI024	05100205	64.8	at Frankfort	38.2129	-84.8721	5412	hydrologic unit index site
Kentucky River	PRI066	05100205	30.5	nr Lockport	38.4450	-84.9569	6180	hydrologic unit index site
Kentucky River	PRI067	05100205	119.0	at High Bridge	37.8201	-84.7051	5036	hydrologic unit index site
[a]**Elkhorn Creek**	PRI098	05100205	10.3	nr Peaks Mill	38.2686	-84.81429	473	major tributary
[a]**Dix River**	PRI045	05100205	34.7	nr Danville	37.64176	-84.66113	318	hydrologic unit index site
Silver Creek	PRI099	05100205	5.9	nr Ruthton	37.73251	-84.43674	100	major tributary
Kentucky River	PRI058	05100204		nr Trapp	37.84675	-84.08182	3236	hydrologic unit index site
Red River	PRI046	05100204	21.6	Clay City	37.86468	-83.93316	362	hydrologic unit index site
N. Fork Kentucky River	PRI031	05100201	49.7	Jackson	37.55127	-83.38464	1101	hydrologic unit index site
Troublesome Creek	PRI090	05100201	7.2	nr Clayhole	37.46722	-83.27936	187	major tributary
[a]**Middle Fk. Kentucky R.**	PRI032	05100202	8.4	nr Tallega	37.55505	-83.59373	537	hydrologic unit index site
[a]**South Fork Kentucky R.**	PRI033	05100203	12.1	at Booneville	37.47513	-83.67082	722	hydrologic unit index site
Red Bird River	PRI091	05100203		nr Oneida	37.23656	-83.61150	190	major tributary
Goose Creek	PRI092	05100203	3.4	nr Oneida	37.23280	-83.69103	250	major tributary
Licking River								
Licking River	PRI062	05100101	226	at West Liberty	37.91470	-83.26169	335	inflow to Cave Run Reservoir
[a]**Slate Creek**	PRI093	05100101	10.0	nr Owingsville	38.1415	-83.7285	230	major tributary
[a]**Licking River**	PRI061	05100101	78.2	at Claysville	38.52058	-84.18310	1993	mid-hydrologic unit index site
[a]**N. Fork Licking River**	PRI060	05100101	6.9	nr Milford	38.58123	-84.16566	290	major tributary
[a]**S. Fork Licking River**	PRI059	05100102	11.7	at Morgan	38.6033	-84.4008	839	hydrologic unit index site
[a]**Hinkston Creek**	PRI102	05100102	0.2	at Ruddles Mill	38.30471	-84.23778	260	major tributary
[a]**Stoner Creek**	PRI101	05100102	0.6	nr Ruddles Mill	38.3029	-84.2497	284	major tributary
[b]**Licking River**	PRI111	05100101		at Butler	38.7898	-84.3674		hydrologic unit index site

Table 3.1.1-1 (cont.). Statewide primary water quality stations, with Kentucky River and Salt-Licking rivers BMUs highlighted in bold type.

River Basin & Stream	Station	HUC	Mile-point	Location	Latitude (dd)	Longitude (dd)	Drainage (mi^2)	Station Type
Licking River								
Licking River	PRI062	05100101	226	at West Liberty	37.91470	-83.26169	335	inflow to Cave Run Reservoir
Ohio River Tributary								
[a]Kinniconick Creek	PRI063	05090201	10.4	nr Tannery	38.57458	-83.18811	230	major tributary
Salt River								
[a]Salt River	PRI029	05140102	22.9	at Shepherdsville	37.98524	-85.71720	1197	hydrologic unit index site
[a]Salt River	PRI052	05140102	82.5	at Glensboro	38.00231	-85.06028	172	major reservoir inflow
Brashears Creek	PRI105	05140102	1.2	at Taylorsville	38.03040	-85.35154	262	major tributary
[a]Floyds Fork	PRI100	05140102	7.4	nr Shepherdsville	38.03447	-85.65936	259	major tributary
[a]Rolling Fork	PRI057	05140103	12.3	nr Lebanon Jct.	37.82267	-85.74787	1375	hydrologic unit index site
[a]Beech Fork	PRI041	05140103	48.0	nr Maud	37.83266	-85.29610	436	major tributary
Green River								
[a]Green River	PRI018	05110001	226.0	at Munfordville	37.2687	-85.8853	1673	hydrologic unit index site
Green River	PRI076	05110001	334.0	at Neatsville	37.1919	-85.1303	339	major reservoir inflow
[a]Nolin River	PRI021	05110001	80.9	at White Mills	37.55530	-86.03177	357	major reservoir inflow-tributary
[a]Russell Creek	PRI077	05110001	10.0	nr Bramlett	37.1678	-85.4702	289	major tributary
Little Barren River	PRI078	05110001	6.3	nr Monroe	37.2264	-85.6776	256	major tributary
Bear Creek	PRI075	05110001	11.8	nr Huff	37.2488	-86.3612	159	major tributary
Barren River	PRI072	05110002	1.0	nr Woodbury	37.17069	-86.62052	1968	hydrologic unit index site
Drakes Creek	PRI074	05110002	8.0	nr Bowling Green	36.39212	-86.39212	502	major tributary
Green River	PRI055	05110003	72.0	at Livermore	37.47832	-87.12694	6431	hydrologic unit index site
Mud River	PRI056	05110003	17.4	nr Gus	37.1233	-86.9006	268	major tributary
Green River	PRI103	05110003	150.0	nr Woodbury	37.18174	-86.61507	3140	hydrologic unit index site
Rough River	PRI014	05110004	62.5	nr Dundee	37.54713	-86.72108	757	mid-hydrologic unit index site
Rough River	PRI054	05110004	1.0	nr Livermore	37.4993	-87.0653	1068	hydrologic unit index site
[b]Panther Creek	PRI113	05110005		nr West Louisville	37.72515	-87.31462		major tributary
Pond River	PRI012	05110006	12.4	nr Sacramento	37.44198	-87.35303	523	hydrologic unit index site

Table 3.1.1-1 (cont.). Statewide primary water quality stations, with Kentucky River and Salt-Licking rivers BMUs highlighted in bold type.

River Basin & Stream	Station	HUC	Mile-point	Location	Latitude (dd)	Longitude (dd)	Drainage (mi^2)	Station Type
<u>Ohio River Tributary</u>								
[b]Highland Creek	PRI110	05140102		nr Smith Mill	37.7569	-87.7950		major tributary
<u>Tradewater River</u>								
[a, b]Tradewater River	PRI112	05140205		nr Piney	37.39896	-87.90470		hydrologic unit index site
<u>Tennessee River</u>								
Clarks River	PRI106	06040006		nr Sharpe	36.9612	-88.4928		hydrologic unit index site
W. Fork Clarks River	PRI107	06040006		nr Symsonia	36.9324	-88.5439		major tributary
<u>Mississippi River</u>								
[a, b]Bayou de Chien	PRI109	08010201		nr Cayce	36.6154	-89.0302		major tributary
[a]Mayfield Creek	PRI042	08010201		nr Magee Springs	36.9299	-88.9430		major tributary

[a]Long-term ambient water quality stations that are also long-term ambient biological monitoring stations
[b]Stations created since 2004 (these were changes necessary for sampler safety issues)

Figure 3.1.1-1. Fixed primary (long-term) ambient surface water quality network.

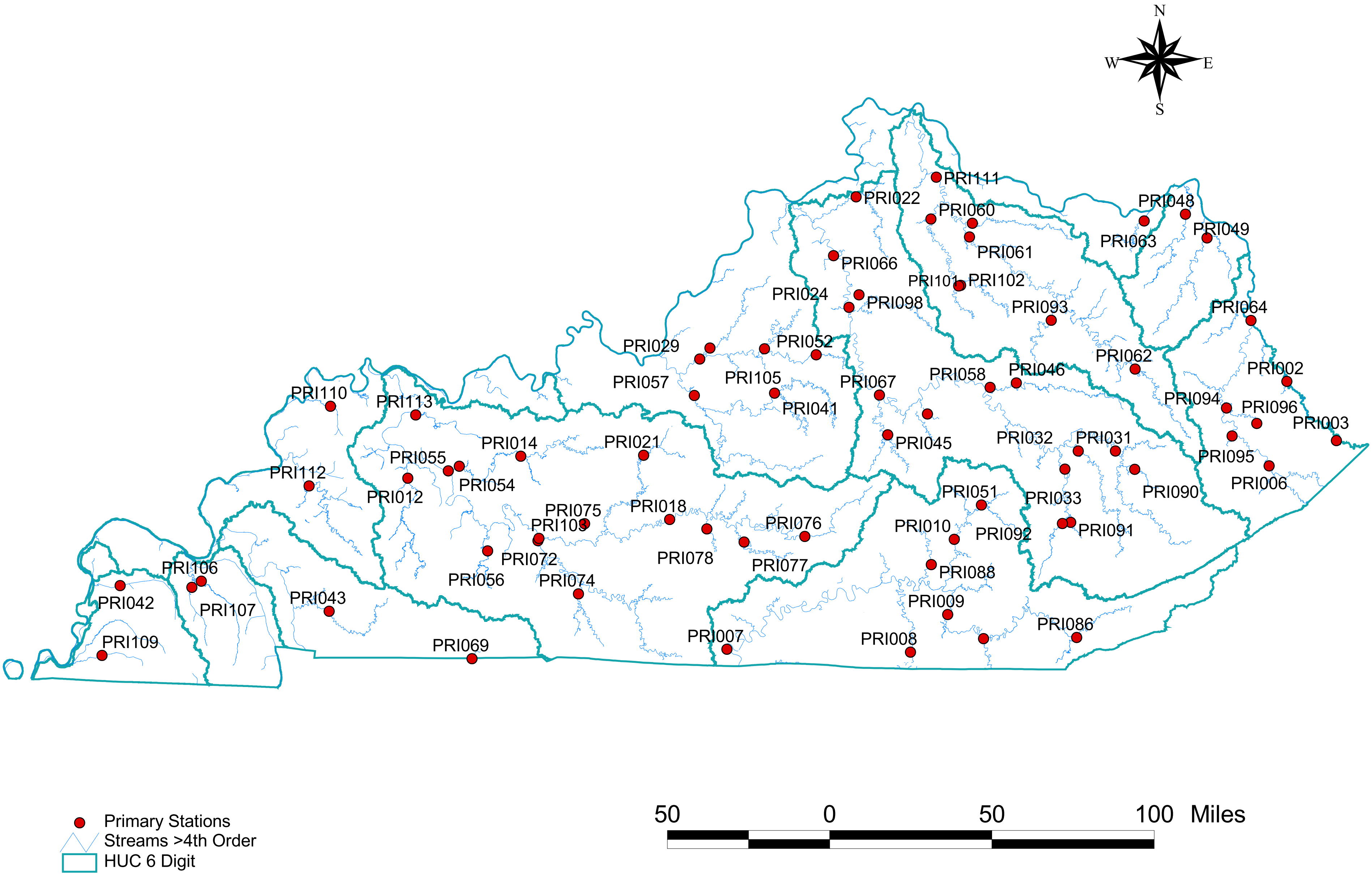


Figure 3.1.1-2. Targeted biological and ambient water quality monitoring in Kentucky River Basin Management Unit.

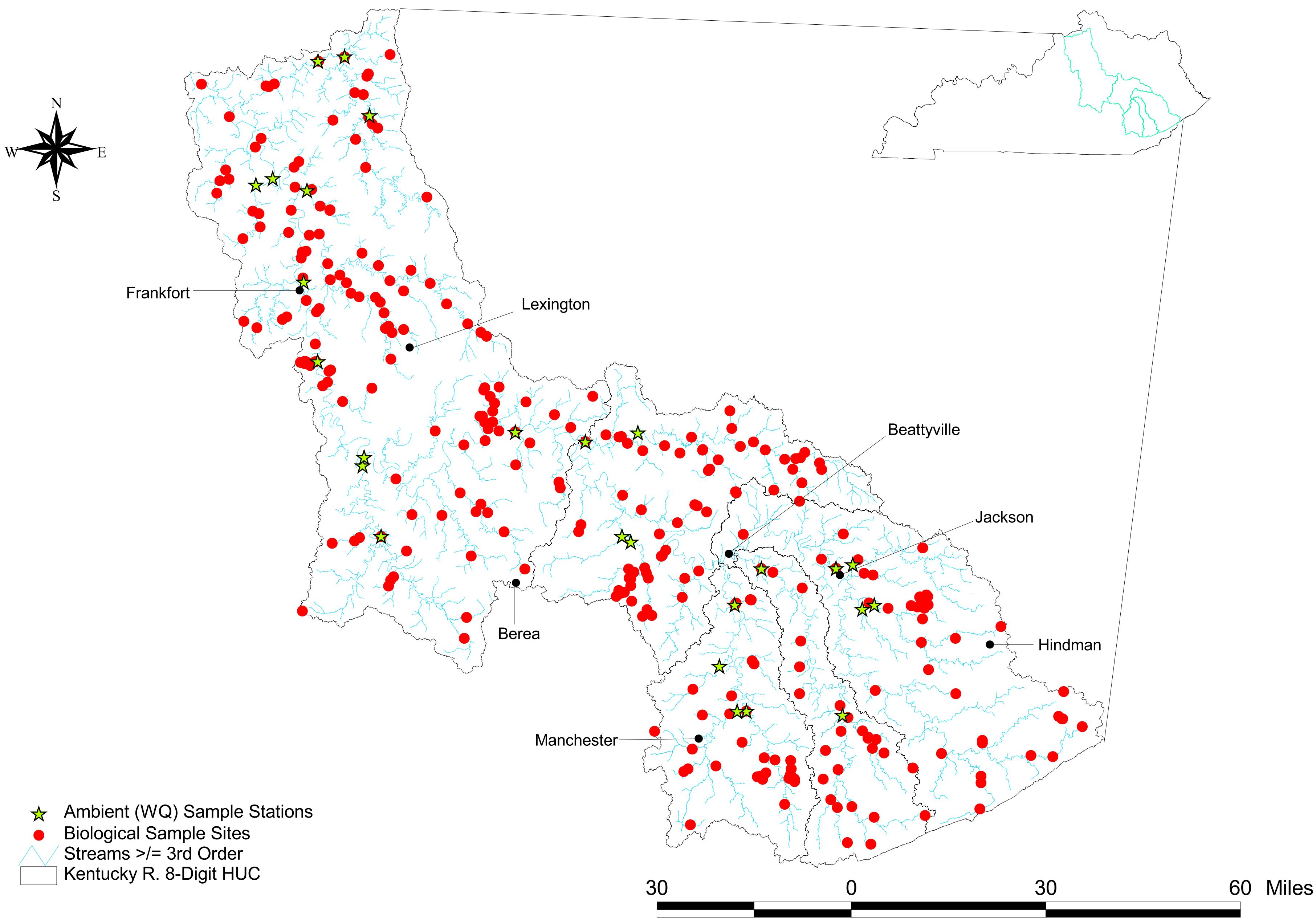


Figure 3.1.1-3. Targeted biological and ambeint water quality monitoring in Salt River Basin.

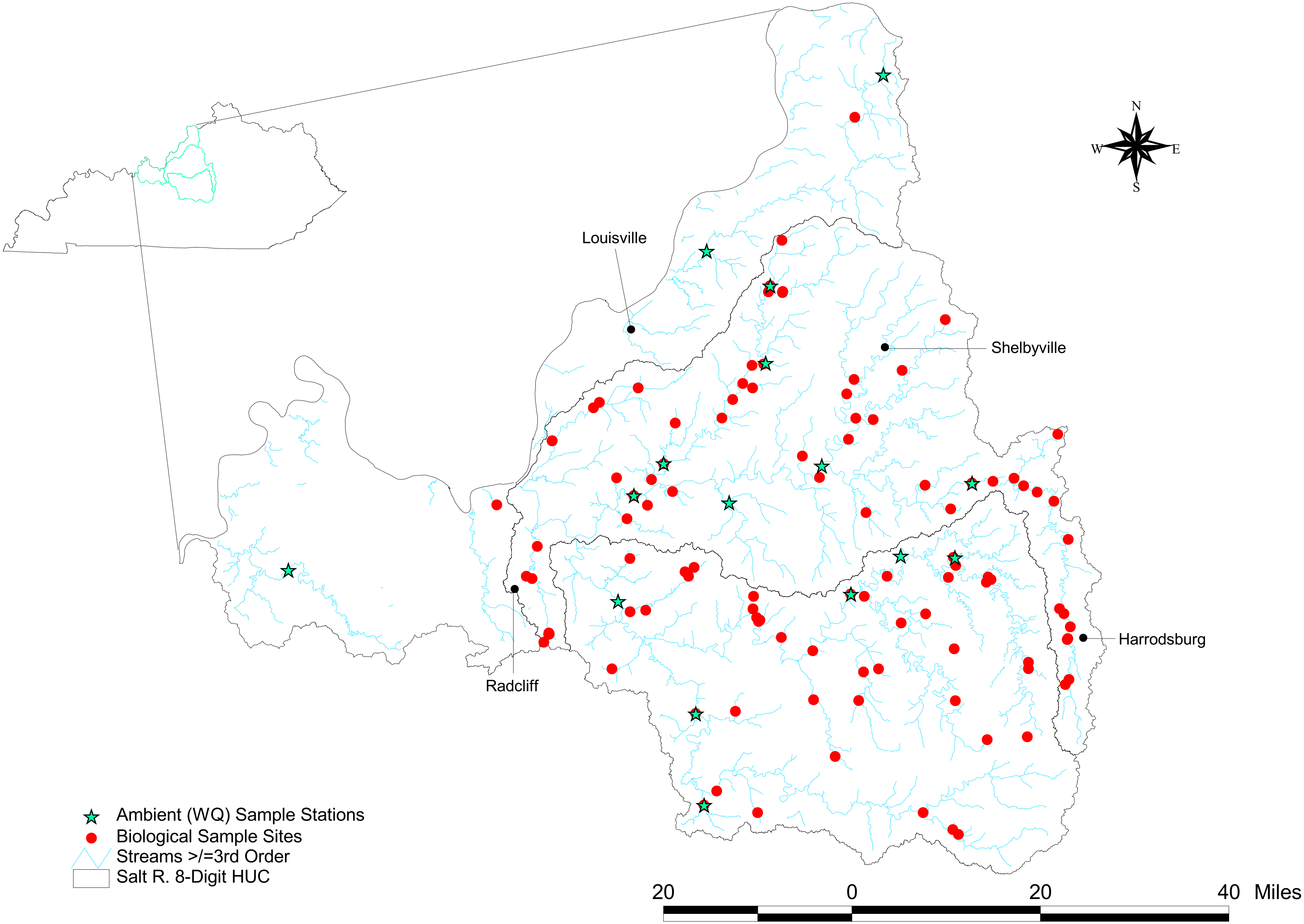
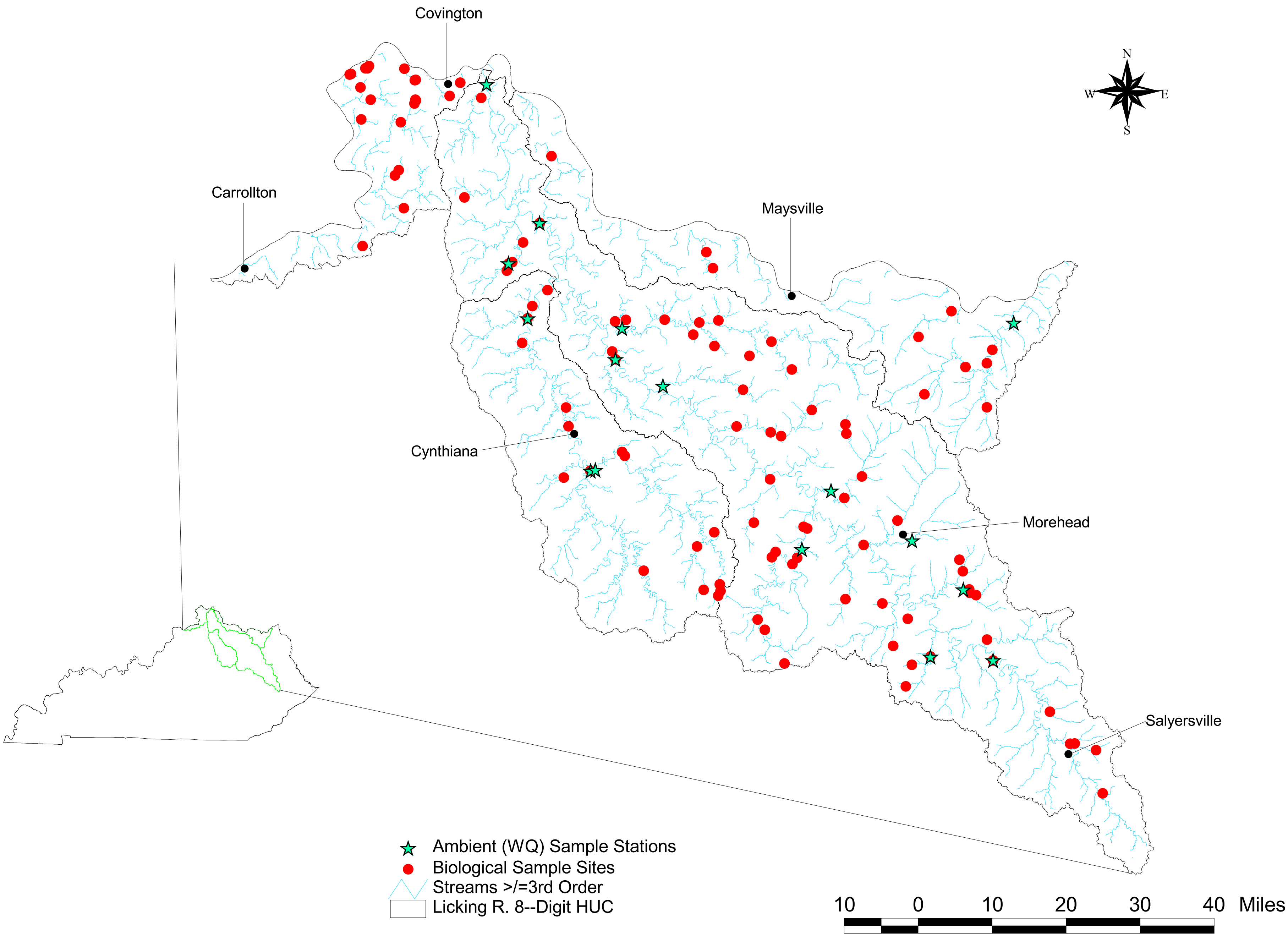


Figure 3.1.1-4. Targeted biological and ambient water quality monitoring in Licking River Basin.



3.1.2 Rotating Watershed Network

Water Quality. An inter-agency monitoring team established several objectives for the one-year watershed water quality monitoring stations. The objectives were to: (1) obtain an overall representation of the quality of the basin's water resources; (2) determine water quality conditions associated with major land cover/land uses such as forest, urban, agriculture and mining; (3) characterize the basin's least impacted waters; and (4) collect data for establishing total maximum daily loads (TMDLs) as required by Section 303(d) of the Clean Water Act. Field measurements are taken for pH, dissolved oxygen, specific conductance and temperature, and samples are analyzed for nutrients, metals and also pesticides and herbicides if the streams are in predominantly agricultural areas.

The Division of Environmental Services, the laboratory of the Kentucky Environmental and Public Protection Cabinet, analyzed water quality samples collected by DOW. The rotating watershed water quality monitoring network consisted of 12 stations in the Kentucky River BMU and 14 stations in the Salt and Licking rivers basins (Table 3.1.2-1). These usually were located at the downstream reaches of USGS 11-digit HUC (hydrologic unit code) watersheds, and many were coupled with biological sampling and with USGS gauging stations (Figures 3.1.2-1 and 3.1.2-2). Monthly sampling, sometimes complemented by rain event sampling, was conducted over the 12-month watershed monitoring period April 2003 – March 2004 in the Kentucky River BMU and April 2004 – March 2005 in the Salt-Licking Rivers BMU to characterize water quality of each watershed represented. The KDOW follows water quality sample collection and preservation procedures found in its water quality monitoring SOP (Kentucky Ambient/Watershed Water Quality Monitoring Standard Operating Procedure Manual, 2005).

3.1.3 Swimming Advisory Monitoring

DOW continued to sample areas with long-standing swimming advisories in three basins: 24 sites in the upper Cumberland River basin on seven streams, 20 sites in the Northern Kentucky area (lower Licking River Basin) and 29 sites in the North Fork Kentucky River Basin from Chavies to the headwater.

Table 3.1.2-1. Rotating watershed water quality stations.

Site ID	Stream	Latitude	Longitude	Mile Point	Description
		Kentucky River Basin (April 2003 – March 2004)			
KRW026	Tenmile Creek	38.7151	-84.7494	0.3	nr Folsom
KRW027	Eagle Creek	38.5831	-84.6801	49.4	nr Holbrook
KRW028	Sixmile Creek	38.4306	-85.0054	3.0	nr Lockport
KRW029	Cedar Creek	38.4172	-84.8604	2.2	nr Monterey
KRW030	Kentucky River	38.0345	-84.8348	87.0	nr Tyrone
KRW031	Dix River	37.8003	-84.7109	1.5	dam tailwaters
KRW032	Otter Creek	37.8709	-84.2791	1.7	nr Ford
KRW034	Station Camp Cr	37.621	-83.9594	11.1	nr Irvine
KRW035	Sexton Creek	37.3388	-83.7178	3.6	nr Taft
KRW036	Quicksand Cr	37.5591	-83.3367	2.6	nr Noctor
KRW037	Lost Creek	37.4588	-83.3134	1.9	nr Watts
KRW038	Red Lick Creek	37.6337	-83.9839	0.7	nr Jinks
		Salt River Basin (April 2004 – March 2005)			
SRW002	Chaplin River	37.8912	-85.1993	17.1	nr Chaplin
SRW005	Sinking Creek	37.8688	-86.3879	14.6	at Clifton Mills
SRW006	Harrods Creek	38.3611	-85.5748	7.3	nr Prospect
SRW008	Currys Fork	38.3074	-85.4506	0.3	nr Crestwood
SRW012	Floyds Fork	38.1899	-85.4581	33.0	at Fisherville
SRW013	Cox Creek	37.9737	-85.5421	2.7	nr Solitude
SRW014	Sulphur Creek	37.8878	-85.0938	0.8	at Sulphur Lick Creek Road
		Licking River Basin (April 2004 – March 2005)			
LRW001	Licking River	39.0631	-84.4954	2.4	at Newport
LRW003	S.F. Grassy Cr	38.7117	-84.4466	12.7	nr Falmouth
LRW007	Triplett Creek	38.1536	-83.4550	10.6	nr Morehead
LRW008	Blackwater Cr	37.9249	-83.4165	5.6	nr Ezel
LRW009	N.F. Licking R	38.0550	-83.3307	10.4	nr Leisure
LRW011	Johnson Creek	38.4671	-84.0660	0.8	nr Piqua
LRW012	Fox Creek	38.2547	-83.6529	2.8	nr Grange City

Figure 3.1.2-1. Kentucky River BMU rotating watershed water quality stations monitored in 2003.

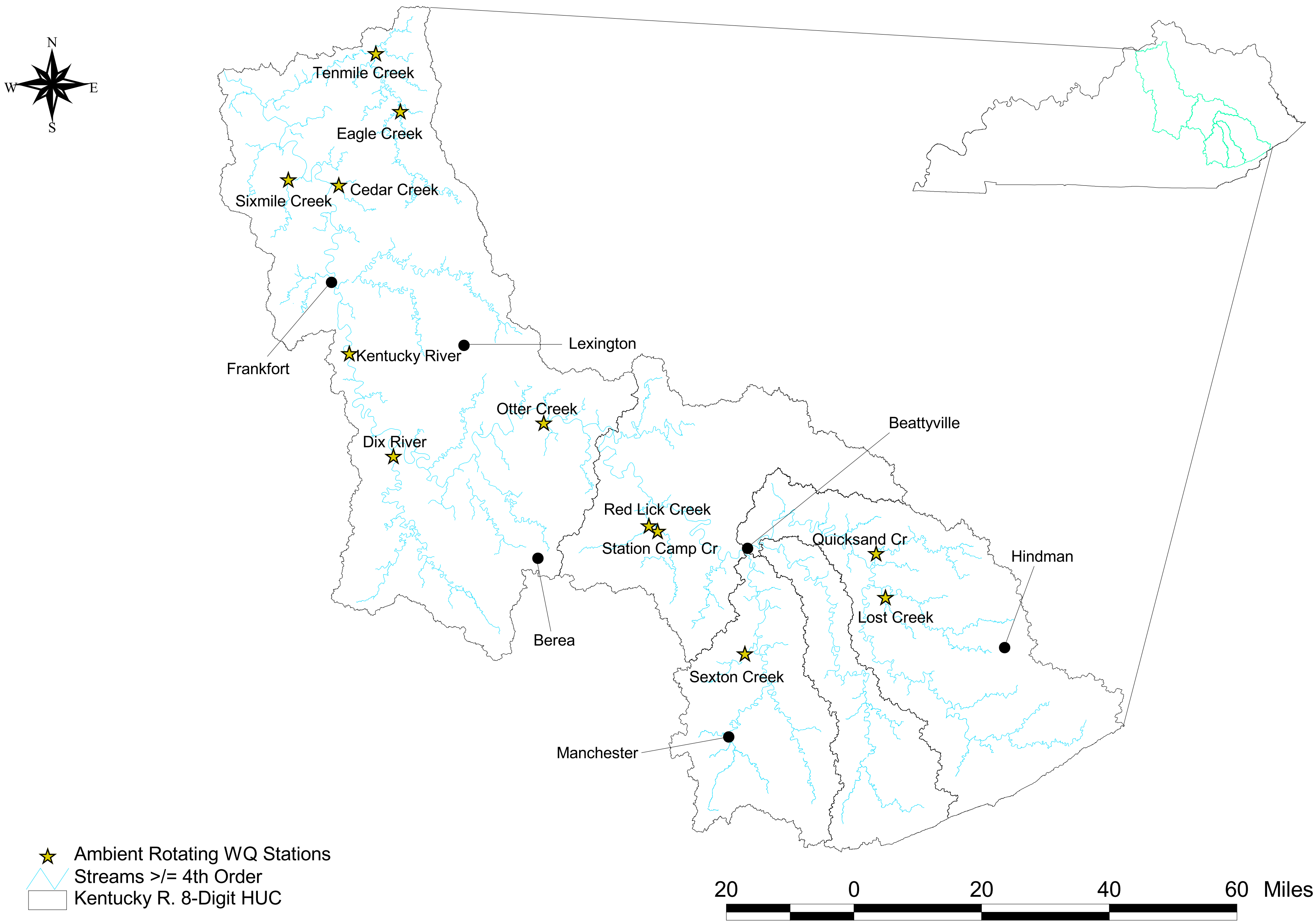
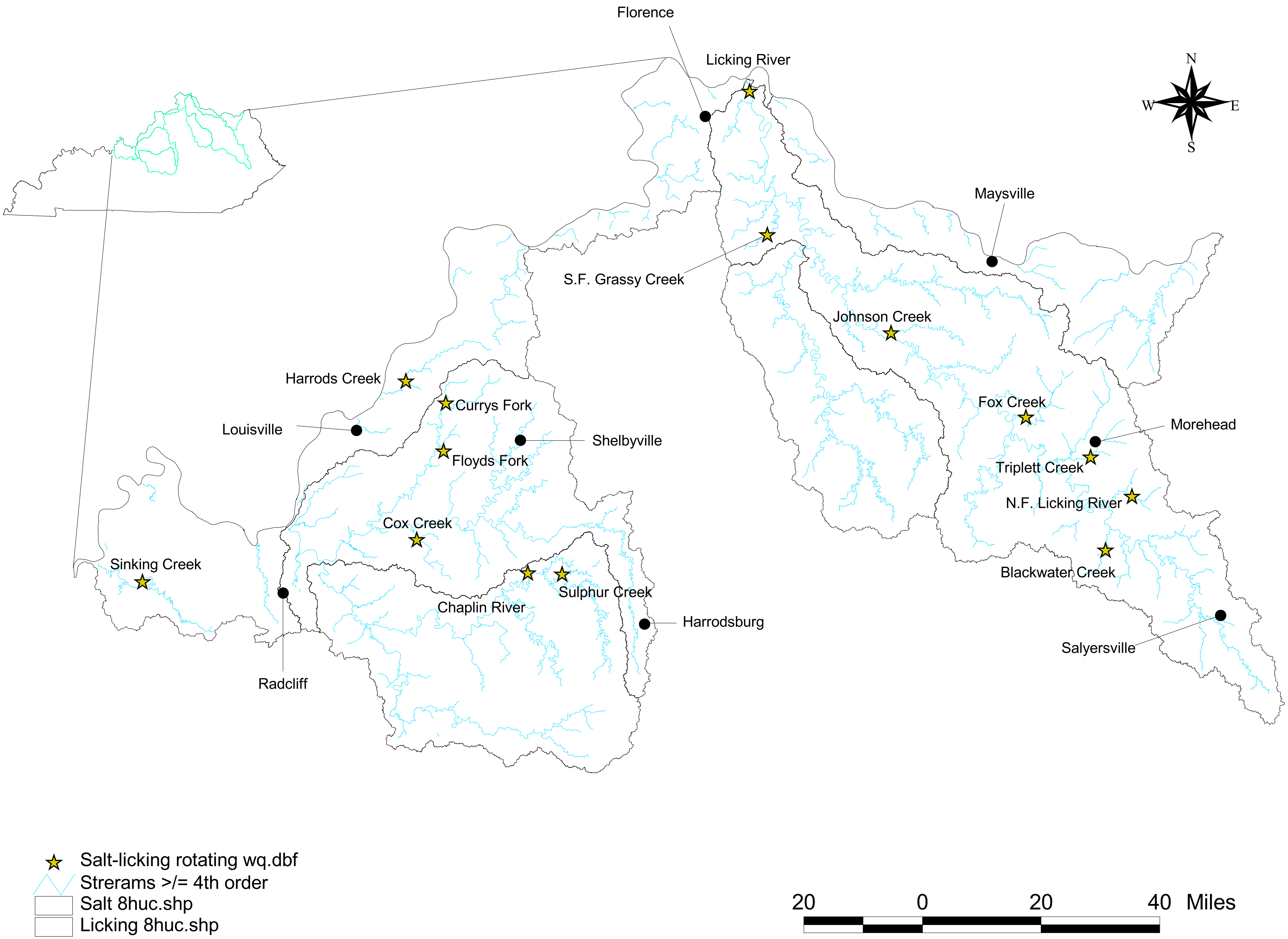


Figure 3.1.2-2. Salt-Licking BMU rotating watershed water quality stations monitored in 2004.



3.1.4 Biomonitoring and Biosurvey Programs

Introduction. There are four biological monitoring programs within DOW. Those programs have the primary purpose of assessing the aquatic life use support of streams in the commonwealth. Although each program is driven by broad objectives, together they provide a comprehensive program that addresses aquatic life use attainment from several approaches: 1) random, overall snapshot of the ambient conditions; 2) the integration of conditions in relatively large watersheds monitored for long-term trend evaluation; 3) impact assessments related to nonpoint source pollution; 4) impact assessments related to point source pollution; and 5) a regional reference program that assesses least impacted streams for development and refinement of metric benchmarks used to assess lotic (running water) ecosystems.

Reference Reach Program. In 1991, DOW began a Reference Reach (RR) program to gather data from the state's least impacted streams. Biologists first identified potential least impacted waters representative of geographic regions of the state known as ecoregions. Then, data on physicochemical water quality, sediment quality, fish tissue residue, habitat condition, and biotic conditions were collected to define the potential environmental quality for the streams of a particular ecoregion to provide a baseline to compare other streams in the same ecoregion to those reference conditions. Data from the reference reach program provided the basis for the development of narrative and numerical biocriteria for the various ecoregions of the commonwealth. Fifty-five stream sites from seven level III ecoregions were initially sampled in the spring and fall of 1992-1993. Since that time, many more potential reference reach streams were sampled. Some were adopted as reference reach streams; others were rejected because they did not possess adequate quality to represent least impacted condition. Currently, there are 52 RR streams totaling 490 miles throughout the commonwealth (Table 3.1.4-1). Another 85 streams totaling 421.5 miles will be considered for inclusion during the upcoming triennial review of water quality standards. There are 21 (188. 5 miles) existing and five proposed RR streams, or segments, equaling 22.5 miles in the two BMUs covered in this report Table 3.1.4-2).

Table 3.1.4-1. Reference reach streams[a] in Kentucky, with bold lettering identifying those in the Kentucky River and Salt-Licking BMUs.

Stream	County	Location	Basin	Start Segment	End Segment	Total Miles
Cane Creek	Whitley	0.1 mi below Daylight Branch	Upper Cumberland	11.5	7	4.5
Bark Camp Creek	Whitley	U.S. Forest Service Rd 193 bridge	Upper Cumberland	7.6	2.6	5
Eagle Creek	McCreary	KY 896 bridge	Upper Cumberland	6.3	3	3.3
South Fork Dog Slaughter Creek	Whitley	1000 ft above foot bridge (Dog Slaughter Falls Trail)	Upper Cumberland	4.6	0	4.6
Buck Creek	Pulaski	Off Bud Rainey Rd	Upper Cumberland	62.6	28.9	33.7
Marsh Creek	McCreary	KY 478 bridge	Upper Cumberland	26.2	12.6	13.6
Horse Lick Creek	Jackson	Horse Lick Creek Rd at first ford	Upper Cumberland	21.2	1.9	19.3
Bad Branch	Letcher	0.2 mi above KY 932 bridge	Upper Cumberland	3.0	0	3
Beaverdam Creek	Edmonson	KY 101-259 bridge	Green	14.0	7.6	6.4
Gasper River	Logan	0.2 mi above Bucksville Rd bridge	Green	38.0	32.3	5.7
Trammel Fork	Allen	0.1 mi below Red Hill Rd bridge	Green	30.15	19.4	10.75
Lick Creek	Simpson	0.1 mi above HWY 585 (265) bridge	Green	9.9	5.3	4.6
Peter Creek	Barren	HWY 3179; Oil Well Rd	Green	18.05	13.05	5
Caney Fork	Barren	0.1 mi below Hwy 3179 (Oil Well Rd)	Green	6.6	0.8	5.8
Falling Timber Creek	Metcalfe	Hwy 640 bridge crossing	Green	16.0	11.5	4.5
Russell Creek	Adair	0.15 mi below KY Hwy 80 at Gentry's Mill	Green	68.0	23.8	44.2
Goose Creek	Casey	Off Brock Rd	Green	14.6	5.6	9
Drennon Creek	**Henry**	**Flat Bottom Rd crossing**	**Kentucky**	**11.9**	**10.5**	**1.4**
Indian Creek	**Carroll**	**Hwy 36 bridge**	**Kentucky**	**4.7**	**0.55**	**4.15**
Musselman Creek	**Grant**	**Lawrenceville – Keefer Rd bridge**	**Kentucky**	**8.4**	**2.6**	**5.8**
Clear Creek	**Woodford**	**Hifner Rd bridge, 2.1 mi S of Mortonsville**	**Kentucky**	**19.0**	**4.1**	**14.9**
Station Camp Creek	**Estill**	**Off KY Hwy 1209 at Estill-Jackson County boundary**	**Kentucky**	**22.3**	**19**	**3.3**
South Fork Station Camp Creek	**Jackson**	**KY 89 bridge**	**Kentucky**	**48.6**	**5.3**	**43.3**
Sturgeon Creek	**Lee**	**Off Sturgeon Creek Rd**	**Kentucky**	**31.1**	**4**	**27.3**
Gladie Creek	**Menifee**	**0.2 mi upstream of bridge**	**Kentucky**	**8.4**	**0**	**8.4**
East Fork Indian Creek	**Menifee**	**1 mi upstream of West Fork Indian Cr**	**Kentucky**	**8.5**	**0**	**8.5**
Wolfpen Branch	**Menifee**	**at KY 715 bridge**	**Kentucky**	**3.3**	**0**	**3.3**
Right Fork Buffalo Creek	**Owsley**	**Off Whoopflarea Rd**	**Kentucky**	**11.2**	**0**	**11.2**
Buffalo Creek	**Owsley**	**Side road along mainsteam**	**Kentucky**	**12.8**	**0.8**	**12**
Coles Fork	**Breathitt**	**in Robinson Forest**	**Kentucky**	**5.5**	**0**	**5.5**
Elisha Creek	**Leslie**	**Elisha Creek Road**	**Kentucky**	**3.3**	**0.95**	**2.35**
Line Fork Creek	**Letcher**	**off KY 160**	**Kentucky**	**27.5**	**17.3**	**10.2**
North Fork Licking River	**Morgan**	**0.1 mi below Bucket Branch**	**Licking**	**21.3**	**13**	**8.3**
Bucket Branch	**Morgan**	**Leisure – Paragon Rd bridge**	**Licking**	**1.9**	**0**	**1.9**
Devils Fork	**Morgan**	**KY 711 bridge**	**Licking**	**7.8**	**0**	**7.8**
Big Sinking Creek	Carter	KY 986 bridge	Little Sandy	15.2	10.7	4.5
Arabs Fork	Elliott	KY 1620 bridge	Little Sandy	4.7	0	4.7
Big Caney Creek	Elliott	off KY 32, Binion Ford Rd	Little Sandy	15	2.2	12.8
Laurel Creek	Elliott	Carter School Rd bridge	Little Sandy	14.4	7.6	6.8
Yellowbank Creek	Breckinridge	Cart-Manning Crossing Rd Wildlife Management Area	Ohio	11.9	4.4	7.5

Table 3.1.4-1 (cont.). Reference reach streams[a] in Kentucky, with bold lettering identifying those in the Kentucky River and Salt-Licking BMUs.

Stream	County	Location	Basin	Start Segment	End Segment	Total Miles
Soldier Creek	Marshall	HWY 58 bridge	Tennessee	5.3	2.6	2.7
Panther Creek	Calloway	KY 280 bridge	Tennessee	5.1	1.2	3.9
Blood River	Calloway	Grubbs Lane bridge; O.75 mi E of State Line Rd	Tennessee	15.65	15.1	0.55
Tradewater River	Christian	J. T. Sparkman Rd; 0.7 mi from Mt. Zoar Rd	Tradewater	132.3	126	6.3
Sandlick Creek	Christian	Mt. Carmel-Camp Cr. Rd; 0.75 mi W of KY Hwy 109	Tradewater	9.0	3.5	5.5
Wilson Creek	**Bullitt**	**Mt. Carmel Church Rd, first crossing**	**Salt**	**17**	**12.2**	**4.8**
Salt Lick Creek	**Marion**	**Off Salt Lick Rd**	**Salt**	**8.4**	**5.3**	**3.1**
Otter Creek	**Larue**	**0.1 mi below West Fork, Herbert-Howell Rd**	**Salt**	**2.7**	**1.75**	**0.95**
West Fork Red River	Christian	Carter Rd bridge	Lower Cumberland	26.5	16.3	10.2
Whippoorwill Creek	Logan	KY Hwy 2375 bridge	Lower Cumberland	44.6	0	44.6

A result of the development of Reference Reach scoring for the four bioregions in Kentucky is the identification of Exceptional streams and segments. These 35 streams and segments, totaling 94.5 miles, are listed in commonwealth regulations (401 KAR 5:030) for anti-degradation purposes. A list of candidate Exceptional and RR streams are presented in Table 3.1.4-2. These streams and segments will be considered for official inclusion in 401 KAR 5:030 during the next triennial review.

Watershed Biological Monitoring Program (WBMP). The WBMP monitors streams in a fixed-station network so long-term trends can be tracked in the targeted fourth and fifth order watersheds (Figures 3.1.1-1, 3.1.1-2 and 3.1.1-3). Targeted stations were placed in the downstream reaches of fourth, fifth and occasionally sixth order (on 1:24,000 scale USGS topographic maps) watersheds. These stations were chosen because the number of these watersheds closely matched the available monitoring resources, and these watersheds were more hydrologically accurate and uniform in size than 11-digit watersheds.

A biosurvey is conducted at these stations, which typically include two or three biological communities (macroinvertebrates, fishes, or diatoms), to determine the condition of wadeable streams. Also collected are nutrient samples (un-ionized ammonia, nitrite-nitrate, total phosphorus, and total Kjeldahl-nitrogen) and bulk water

Table 3.1.4-2. Candidate reference reach and exceptional (401 KAR 5:030) streams and segments in the Kentucky River BMU and Salt-Licking BMU.

Basin	Stream	Segment Description	Segment Mile Points	Total Miles	Lat-Long (downstream)	Lat-Long (upstream)	County	Reference[a] or Exceptional[b]
Kentucky	Rock Lick Cr.	Mouth to Headwaters	0.0-9.6	9.6	37.53939 -84.01041	37.54762 -83.15038	Jackson	Reference
	Lower Howard Cr.	Mouth to West Fork	0.0-2.7	2.7	37.91802 -84.27256	37.93369 -84.26951	Clark	Exceptional
	Backbone Cr.	Mouth to Scrabble Cr.	0.0-1.7	1.7	38.33978 -84.99688	38.32024 -84.99354	Franklin, Henry, Shelby	Reference
	Sulphur Creek	Mouth to Headwaters	0.0-5.2	5.2	38.28752 -84.80238	38.30562 -84.74529	Franklin	Reference
	Craig Creek	Mouth to UT	0.0-2.7	2.7	37.97908 -84.8206	37.98133 -84.78473	Woodford	Reference
	Bear Branch	Above Sediment Pond to Headwaters	0.3-1.2	0.9	37.13216 -83.10139	37.12607 -83.11332	Perry	Exceptional
	Billey Fork	Land Use Change to Headwaters	2.6-8.8	6.2	37.6796 -83.7965	37.7254 -83.7250	Lee	Exceptional
	Cherry Run	Mouth to Boyd Run	0.0-0.9	0.9	38.21315 -84.48522	38.21726 -84.47431	Scott	Exceptional
	Gilberts Creek	Mouth to UT	0.0-2.6	2.6	37.97366 -84.81863	37.97570 -84.85231	Anderson	Exceptional
	Honey Branch	Mouth to Headwaters	0.0-1.4	1.4	37.01756 -83.35499	37.00966 -83.37233	Leslie	Exceptional
	Katies Creek	Mouth to Headwaters	0.0-4.0	4.0	37.0349 -83.5399	37.0177 -83.5964	Clay	Exceptional
	Little Middle Fk. Elisha Creek	Mouth Headwaters	0.0-0.75	0.75	37.08173 -8351566	37.08750 -83.50586	Leslie	Exceptional
	*Middle Fk. Kentucky River	Hurts Creek to Greasy Creek	75.9-84.3	9.4	37.15529 -83.3704	37.07655 -83.39242	Leslie	Exceptional
	Right Fk. Elisha Cr.	Mouth to Headwaters	0.0-3.3	3.3	37.08165 -83.51802	37.07601 -83.46882	Leslie	Exceptional
	Shaker Creek	Near Mouth to Shawnee Run	0.1-1.4	1.3	37.84727 -84.76563	37.84374 -84.76813	Mercer	Exceptional

Table 3.1.4-2 (cont.). Candidate reference reach and exceptional (401 KAR 5:030) streams and segments in the Kentucky River BMU and Salt-Licking BMU.

Basin	Stream	Segment Description	Segment Mile Points	Total Miles	Lat-Long (downstream)	Lat-Long (upstream)	County	Reference[a] or Exceptional[b]
Kentucky	*Spruce Branch	Mouth to Headwaters	0.0-1.0	1.0	36.95706 -83.53100	36.94948 -83.51666	Clay	Exceptional
	Steeles Run	Mouth to UT	0.0-4.2	4.2	38.11101 -84.62885	38.06734 -84.59552	Fayette	Exceptional
	UT of Jacks Creek	Mouth to Headwaters	0.0-1.15	1.15	37.85200 -84.36529	37.85177 -84.34607	Madison	Exceptional
	UT of Kentucky R.	Near Mouth to Land Use Change	0.1-1.4	1.3	38.219102 -84.87777	38.23174 -84.8624	Franklin	Exceptional
Licking	Blanket Creek	Mouth to UT	0.0-1.9	1.9	38.65566 -84.28532	38.64272 -84.29925	Pendleton	Exceptional
	Bowman Creek	Mouth to UT	0.0-6.0	6.0	38.89256 -84.44239	38.89406 -84.50250	Kenton	Exceptional
	Cedar Creek	Mouth to N. Br. Cedar Cr.	0.0-1.7	1.7	38.47647 -84.12288	38.49034 -84.10738	Robertson	Exceptional
	Flour Creek	Mouth to UT	0.0-2.2	2.2	38.78912 -84.34401	38.80180 -84.32476	Pendleton	Exceptional
	Sawyers Fork	Mouth to Headwaters	0.0-3.3	3.3	38.84833 -84.54032	38.82288 .84.58491	Kenton	Exceptional
	*Slabcamp Creek	Mouth to Headwaters	0.0-3.7	3.7	38.09982 -83.32884	38.13916 -83.3548	Rowan	Exceptional
	Slate Creek	Mouth to Mill Creek	0.0-13.6	13.6	38.21835 -83.69838	38.11217 -83.74668	Bath	Exceptional
	UT of Shannon Cr.	Mouth to Headwaters	0.0-2.2	2.2	38.55437 -83.93334	38.52929 -83.94689	Mason	Exceptional
	Little South Fork	Land Use Change to Headwaters	1.2-5.9	4.7	38.82221 -84.74072	38.82854 -84.68526	Boone	Exceptional
	Doctors Fork	Mouth to Begley Branch	0.0-3.8	3.8	37.67561 -84.968583	37.64618 -84.99938	Boyle	Exceptional

Table 3.1.4-2 (cont.). Candidate reference reach and exceptional (401 KAR 5:030) streams and segments in the Kentucky River BMU and Salt-Licking BMU.

Basin	Stream	Segment Description	Segment Mile Points	Total Miles	Lat-Long (downstream)	Lat-Long (upstream)	County	Reference[a] or Exceptional[b]
Salt	Indian Creek	Mouth to UT	0.0-0.9	0.9	37.85122 -84.97894	37.85371 -84.96872	Mercer	Exceptional
	Lick Creek	Mouth to 0.1 mi below dam	0.0-4.1	4.1	37.81839 85.21555	37.82618 85.16398	Washington	Exceptional
	UT of Glens Creek	Mouth to Headwaters	0.0-2.3	2.3	37.85772 -85.12185	37.85101 -85.08582	Washington	Exceptional

[a]Reference Reach streams and segments have the greatest biological integrity and intact habitat of those streams in a given bioregion.
[b]Exceptional streams and segments must score “excellent” on the Macroinvertebrate Biotic Index (MBI) or Kentucky Index of Biotic Integrity (KIBI) based on 50th percentile for Mountain, Bluegrass and Pennyroyal and 75th percentile for the Mississippi Valley-Interior River Lowlands bioregions.
*Streams that are already Exceptional in 401 KAR 5:030 but are proposed for a segment change based on new data or to conform to NHD mile points.

quality variables (total suspended solids, chlorides, sulfates, alkalinity, hardness and total organic carbon). Physicochemical measurements are also made at time of water quality sample collection; a Hydrolab multiparameter probe is used to measure pH, temperature, DO, percent DO saturation and specific conductance. Often, ambient water quality data are collected at these locations on a monthly basis during the BMU-cycle. These stations are revisited every five years.

Nonpoint Source Program (NPSP). The Kentucky Nonpoint Source Pollution Control Program is designed to protect the quality of Kentucky's surface and groundwater from NPS pollutants, abate NPS threats and restore degraded waters to the extent that water quality standards are met and beneficial uses are supported. The NPSP is achieving these goals through federal, state, local and private partnerships which promote complementary, regulatory and non-regulatory nonpoint source pollution control initiatives at both statewide and watershed levels.

Nonpoint source pollution is also known as runoff or diffuse pollution. Unlike pollution from industrial and sewage treatment plants, NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and even underground water. These pollutants include:

- Excess fertilizers, herbicides and insecticides from agricultural lands and residential areas;
- Oil, grease and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and silviculture lands and eroding streambanks;
- Acid mine drainage; and
- Pathogens and nutrients from livestock, wildlife, pet wastes and faulty septic systems.

Atmospheric deposition and hydromodification are also sources of nonpoint source pollution. NPS pollution is the number one contributor to water pollution in Kentucky.

Monitoring of streams impacted by NPS pollutants follows KDOW standard protocol and each biosurvey is conducted at these sites (which typically include two biological communities: macroinvertebrates and fishes), to determine the condition of wadeable streams. Collections for nutrient samples (un-ionized ammonia, nitrite-nitrate, total phosphorus, and total Kjeldahl-nitrogen) and bulk water quality variables (total suspended solids, chlorides, sulfates, alkalinity, hardness and total organic carbon) are made at these sites. Physicochemical measurements are also made at time of water quality sample collection; a Hydrolab multiparameter probe is used to measure pH, temperature, DO, percent DO saturation and specific conductance.

Probabilistic Monitoring Program (PMP). DOW conducts random biosurveys of streams across the commonwealth. Each year the Probabilistic Biosurvey Program Coordinator selects watersheds on the 8-digit HUC level to be monitored in a particular BMU. The target population is all wadeable streams 1st through 5th order within the cataloging units of each BMU. Then a request is sent to EPA's National Health and Environmental Research Laboratory, Office of Research and Development, Corvallis, Oregon, where the EMAP Design Group uses EPA's Reach File Version 3 – Alpha (RF3-Alpha) as a sampling frame. A frequency table is established for the population candidate streams (based on stream order) across the HUCs and, based on those frequencies, a random weighted survey design is utilized to determine those streams and the locations of the sample points for the study. A sample size of 50 sites with approximately an equal number in each of the five categories: 1st, 2nd, 3rd, 4th and 5th combined. An oversample of 200% (100 sites) for a total of 150 sites, including the base sites are derived per study. This oversample provides extra/reserve samples for alternative sites for sampling for those initial sites that do not conform to target population rules (e.g. nonwadeable, mis-mapped features) or are inaccessible due to safety concerns or denied access by landowners. Standard protocol dictates that surrogate stream sample sites be selected sequentially from the oversample population when replacement of an initial sample site is necessary. Since the random design is weighted, no regard to replacement of an initial sample site with one of "equal" stream order is required.

A biosurvey of the macroinvertebrate community is conducted to determine condition of wadeable streams. Additionally, the probabilistic program also collects nutrient samples (un-ionized ammonia, nitrite-nitrate, total phosphorus, and total

Kjeldahl-nitrogen) in addition to bulk water quality variables (total suspended solids, chlorides, sulfates, alkalinity, hardness and total organic carbon). Physicochemical measurements are also made at time of water quality sample collection; a Hydrolab multiparameter probe is used to measure pH, temperature, DO, percent DO saturation and specific conductance. For this reporting cycle, probabilistic network consisted of 100 sites (50 stations per BMU (Kentucky River and Salt-Licking)). Those sites, along with stream names, are presented in Tables 3.1.4-3 through 3.1.4-5 and Figures 3.1.4-1 and 3.1.4-2.

Table 3.1.4-3. Key to stream names sampled and assessed in the Kentucky River BMU using probabilistic methodology.

1. Sturgeon Creek	26. Horse Creek
2. Katies Creek	27. Stinnett Creek
3. Lotts Creek	28. Red River
4. Lick Creek	29. Station Camp Creek
5. S. Fork Quicksand Creek	30. Snow Creek
6. Silver Creek	31. Cedar Creek
7. Cane Creek	32. Troublesome Creek
8. [a]UT of Hanging Fork	33. Frozen Creek
9. Billey Fork	34. Clarks Creek
10. Caney Creek	35. Squabble Creek
11. [a]UT of Engle Fork	36. Copper Creek
12. S. Elkhorn Creek	37. Line Fork
13. [a]UT of Tanyard Branch	38. N. Severn Creek
14. Muncy Creek	39. R. Fork Buffalo Creek
15. Red River	40. [a]UT of N. Elkhorn Creek
16. Hall Branch	41. Meadow Creek
17. Little Willard Creek	42. Big Laurel Creek
18. Knob Lick Creek	43. N. Elkhorn Creek
19. Mill Creek	44. Buckhorn Creek
20. Troublesome Creek	45. Sugar Creek
21. White Oak Creek	46. Chambers Fork
22. Johnson Fork	47. S. Elkhorn Creek
23. Meadow Creek	48. Middle Fork Kentucky R.
24. Shop Fork	49. Indian Creek
25. Bailey Run	50. [a]UT of Upper Howard Creek

[a]UT= Unnamed tributary

Figure 3.1.4-1. Probabilistic biological survey sites in the Kentucky River Basin Management Unit (key to stream names on previous page).

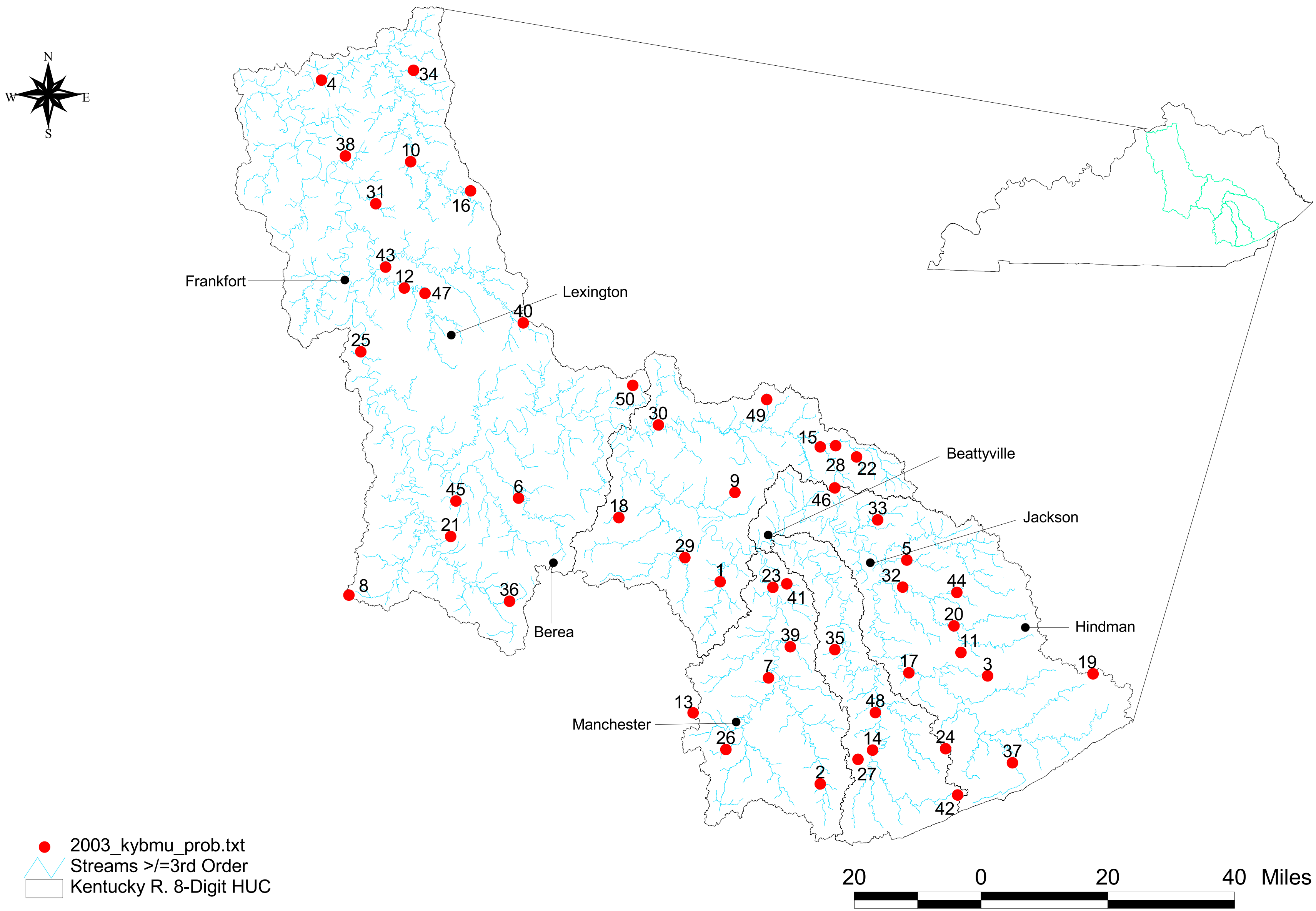


Table 3.1.4-4. Key to stream names sampled and assessed in Salt River Basin using probabilistic methodology.

1. Hardins Creek	13. Gravel Creek
2. Long Lick Creek	14. UT of Guist Creek
3. Floyds Fork	15. Long Lick Creek
4. Salt River	16. UT of Glens Creek
5. Tioga Creek	17. Ashes Creek
6. UT of Buffalo Run	18. Pennsylvania Run
7. UT of Hammond Creek	19. Big South Fork
8. Beech Fork	20. Short Creek
9. UT of Salt River	21. Bullskin Creek
10. Wilson Creek	22. Road Run
11. UT of Southern Ditch	23. Salt River
12. Monks Creek	

[a]UT= Unnamed tributary

Figure 3.1.4-2. Probabilistic biological survey sites in Salt River Basin (key to stream names on previous page).

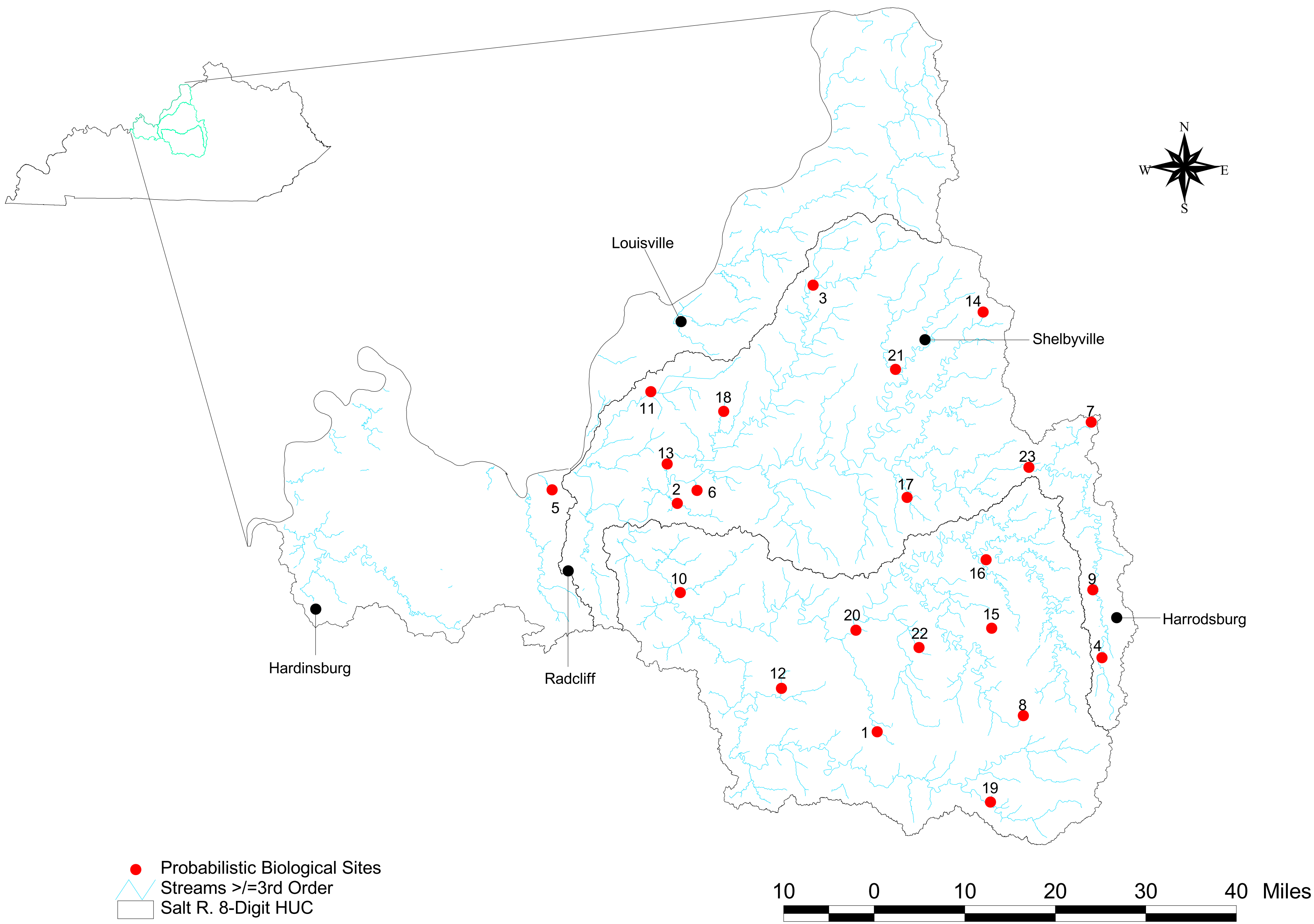
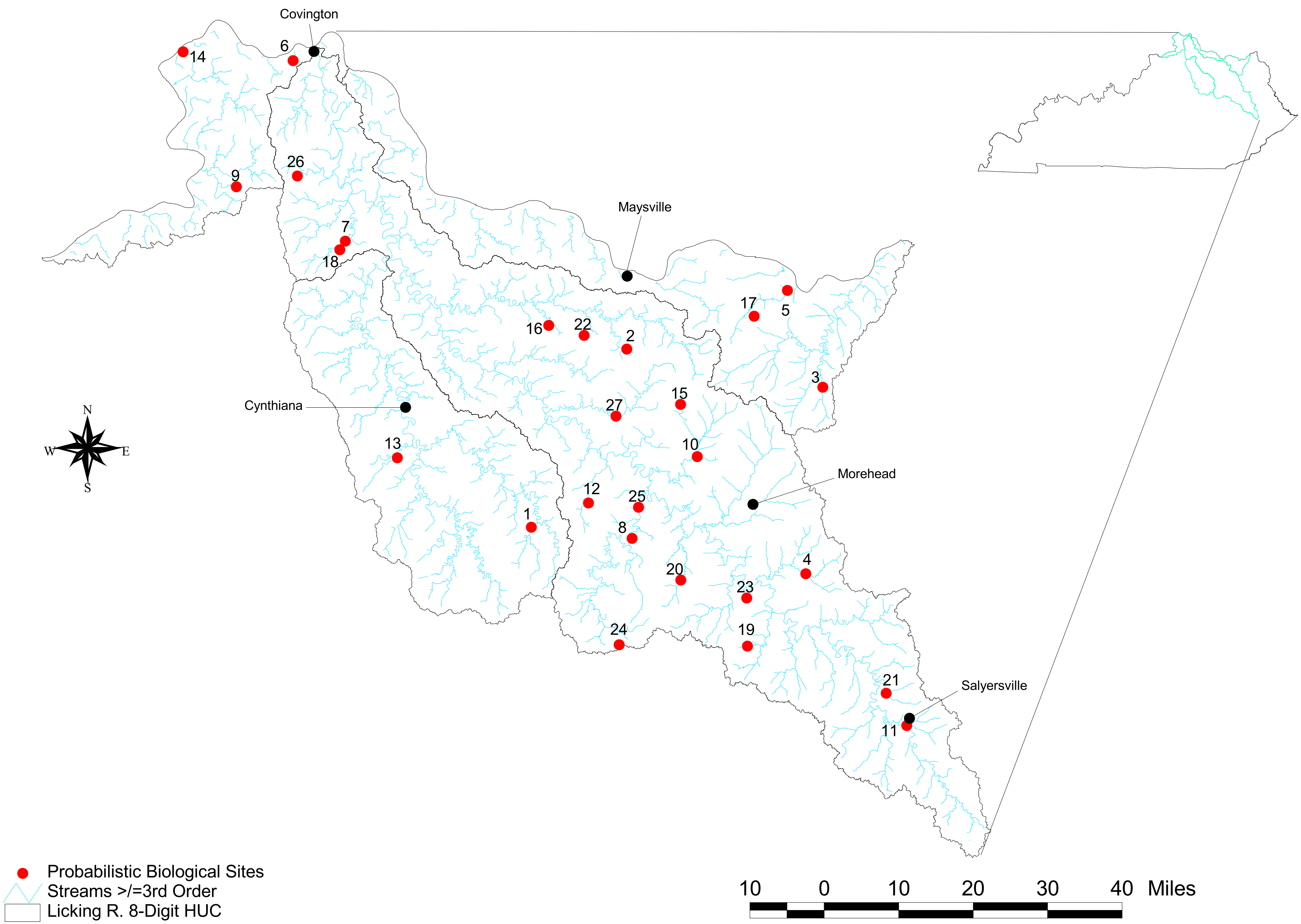


Table 3.1.4-5. Key to stream names sampled and assessed in Licking River Basin using probabilistic methodology.

1. Grassy Lick Creek	15. Sand Lick Creek
2. Mill Creek	16. Shannon Creek
3. Grassy Fork	17. Clary Branch
4. North Fork	18. Brushy Fork
5. Salt Lick Creek	19. Broke Leg Creek
6. Pleasant Run Creek	20. Salt Lick Creek
7. S. Fork Grassy Creek	21. Lick Creek
8. Slate Creek	22. UT Lees Creek
9. Little South Fork	23. Lick Creek
10. Crane Creek	24. Salt Spring Branch
11. Licking River	25. Cooks Branch
12. Flat Creek	26. Sawyers Fork
13. Townsend Creek	27. Fleming Creek
14. Second Creek	

[a]UT= Unnamed tributary

Figure 3.1.4-3. Probabilistic biological survey sites in Licking River Basin (key to stream names on previous page).



3.1.5 Lake and Reservoir Monitoring

Lakes and reservoirs are monitored over the growing season (April – October) for determination of trophic status using the Carlson Trophic State Index (TSI) for chlorophyll *a*. This method of determining trophic status of lakes allows lakes to be ranked numerically according to increasing trophic state: oligotrophic (low in plant nutrients); mesotrophic (water that is only moderately enriched in plant nutrients); eutrophic (water enriched in plant nutrients); and hyper-eutrophic (greatest abundance of plant nutrients). The growing season average TSI value is used to rank each lake.

A spring, summer and fall monitoring event occurs with an interval of six to eight weeks to allow sufficient time for seasonal changes to occur. All publicly accessible lakes and reservoirs make up the population of these resources monitored in Kentucky. Water quality variables, including nutrients (un-ionized ammonia, nitrite-nitrate, total phosphorus, TKN, total soluble (total dissolved) phosphorus, soluble reactive orthophosphate and total organic carbon), chlorophyll *a*, standard variables (total suspended solids, chlorides, sulfates, alkalinity and hardness) and a profile of water column physical data (DO, pH, temperature and specific conductance) (using a multiparameter probe) are monitored at each station per lake per sample event. The majority of these waters are small, usually several hundred acres or less in surface area; therefore, one sample station in the forebay is sufficient to characterize the status of the smaller lakes and reservoirs.

The Louisville and Nashville COE Districts cooperate in monitoring their dam projects in each BMU. The DOW monitors those reservoirs in the Huntington District of eastern Kentucky. The same data described above are used to determine the trophic status of each reservoir. Multiple monitoring stations are placed in these large reservoirs. Often, the major in-flow and out-flow tributaries of each reservoir are monitored for water quality as well. These tributary streams are assessed for aquatic life use support based on the physicochemical data.

Those lakes and reservoirs monitored in the Kentucky River and Salt-Licking Rivers BMUs are presented in Table 3.1.5-1. Maps of use support assessment results follow in Assessment Results, section 3.3.

Table 3.1.5-1. Lakes and reservoirs monitored in the Kentucky River and Salt-Licking BMUs during the 2003 and 2004, respectively.

Lake or Reservoir Name	Size (acres)	County	Basin	Latitude (dd)	Longitude (dd)
Bert Combs	36	Clay	Kentucky	37.16667	-83.7075
Boltz	92	Grant	Kentucky	38.70333	-84.6125
Buckhorn	1230	Perry	Kentucky	37.30444	-83.4483
Bullock Pen	134	Grant	Kentucky	38.79333	-84.6447
Carr Fork	710	Knott	Kentucky	37.23056	-83.0333
Cedar Creek	784	Lincoln	Kentucky	37.49271	-84.5522
Corinth	139	Grant	Kentucky	38.5	-84.5822
Elmer Davis	149	Owen	Kentucky	38.4975	-84.8778
Fishpond	32	Letcher	Kentucky	37.16167	-82.6772
General Butler State Park	29	Carroll	Kentucky	38.665	-85.1486
Herrington	2940	Garrard	Kentucky	37.74583	-84.7039
Reba	78	Madison	Kentucky	37.74111	-84.2519
Mill Creek	41	Wolfe	Kentucky	37.76861	-83.6683
Owsley Fork	152	Madison	Kentucky	37.54306	-84.1833
Panbowl	98	Breathitt	Kentucky	37.575	-83.375
Stanford City	43	Lincoln	Kentucky	37.48667	-84.68
Wilgreen	169	Madison	Kentucky	37.71222	-84.3453
Beaver	158	Anderson	Salt	37.96250	-85.02222
Guist	317	Shelby	Salt	38.20778	-85.14194
Jericho	137	Henry	Salt	38.45194	-85.28222
Long Run	27	Jefferson	Salt	38.26694	-85.41806
Marion County Sportsman	21	Marion	Salt	37.51500	-85.24583
McNeely	51	Jefferson	Salt	38.10250	-85.63528
Reformatory	54	Oldham	Salt	38.39778	-85.43778
Shelby	17	Shelby	Salt	38.23306	-85.21722
Sympson	184	Nelson	Salt	37.80750	-85.50472
Taylorsville	3050	Spencer	Salt	38.00144	-85.30394
A. J. Jolly	204	Campbell	Licking	38.88306	-84.37417
Doe Run	51	Kenton	Licking	38.98861	-84.55194
Greenbriar	66	Montgomery	Licking	38.01972	-83.85944
Kincaid	183	Pendleton	Licking	38.71583	-84.27667
Carnico	114	Nicholas	Licking	38.34667	-84.04167
Sand Lick Creek	74	Fleming	Licking	38.38972	-83.61139
Williamstown	300	Grant	Licking	38.67781	-84.51984
Cave Run	8270	Menifee	Licking	38.11764	-83.52936

3.2 Assessment Methodology

General Assessment Methods. Beginning with the 2005 electronic 305(b) report submittal, the commonwealth began assigning assessed uses, and any associated nonassessed uses, of stream segments and lakes to the appropriate category of the five reporting categories recommended by EPA (2005). Of those categories, two categories have been divided to better define assessment results, categories 2B and 5B were added by KDOW to better track assessed segments. Those categories used by the commonwealth are listed in Table 3.2-1. Many water body segments had only monitoring data for one use assessment, typically aquatic life use.

Table 3.2-1. Reporting categories assigned to surface waters during the assessment process.

Category	Definition
1	All designated uses for water body fully supporting.
2	Assessed designated use(s) is/are fully supporting, but not all designated uses assessed.
2B	Segment currently supporting use(s), but 303(d) listed & awaiting EPA approved delisting, or approved/established TMDL.
3	Designated use(s) has/have not been assessed (insufficient or no data available).
4A	Segment with an EPA approved or established TMDL for all listed uses not attaining full support.
4B	Nonsupport segment with an approved alternative pollution control plan (e.g. BMP) stringent enough to meet full support level of all uses within a specified time.
4C	Segment is not meeting full support of assessed use(s), but this is not attributable to a pollutant or combination of pollutants.
5	TMDL is required.
5B	Segment is not supporting use based on evaluated data; does not require a TMDL.

When considering waters for assessment, KDOW solicits data from a variety of entities. This includes other government agencies, including state agencies (e.g. Department of Fish & Wildlife, Nature Preserves Commission) and federal agencies including COE, F&WS, USGS, and TVA. Also, data from universities and volunteer monitoring groups are considered. Prior to 2004 KDOW considered volunteer monitoring data for screening purposes only; however, with proper SOP and QAPP, these data are considered to make assessment decisions. There were no data submitted by volunteer groups under an approved QAPP for assessment consideration in this IR. Meetings with volunteer groups continue and good progress is being made toward utilizing their quality assured data for future assessment.

Generally, data older than five years were not considered for assessment; however, assessment decisions were made on a case-by-case basis—not all data older than five years were excluded from consideration. If the only data available for a water body were older than five years, those data were considered.

A number of impairments or causes (term used prior to 2006 EPA IR guidance) in EPA's 2006 IR guidance were considered pollution rather than pollutants. Noting the ramifications of impairments are important since a water body found not supporting a use and shown to be impaired by pollution, without identified pollutants, does not require a TMDL, rather an alternative plan to bring the use back to full support. Those impairments considered pollution may be found in Table 3.2-2. The rationale behind pollutant vs. pollution is that a pollutant is a measurable variable that has deleterious effects on the water body, e.g. sedimentation/siltation, total phosphorus, ammonia (un-ionized), methylmercury, dissolved oxygen, pH, etc. For example, the pollution "alteration in stream-side or littoral vegetative covers" is a category that in and of itself may not directly attribute to impairment or water quality degradation. The loss of this vegetative integrity will no longer be a buffer to control excess sedimentation/siltation or nutrients (pollutants) from entering waterbodies which will subsequently affect biological communities, water quality, in-stream habitat and loss of shading that ameliorates water temperature. The previous example (alteration in stream-side or littoral vegetative covers) will serve to clarify why habitat assessment (streams) is also considered pollution. Those pollutants such as sedimentation/siltation, nutrients, or water temperature typically are listed along those nonsupporting segments, directly elucidating the pollutant(s) to be addressed to restore full support of the use to that water body/segment. Habitat assessment (streams) is the most commonly reported pollution for streams not supporting aquatic life use. It should be noted that streams with this identified pollution make their way on the 303(d)-list since it is almost never without associated pollutants such as sedimentation/siltation (this is a primary function of riparian vegetation: to abate excess sedimentation, remove excess nutrients and ameliorate water

Table 3.2-2. List of impairments or causes considered pollution by the KDOW (ADB numerical codes listed).

(84)	Alteration in stream-side or littoral vegetative covers
(85)	Alterations in wetland habitats
(105)	Benthic-macroinvertebrate bioassessment (streams)
(150)	Chlorophyll *a*
(161)	Combination benthic/fishes bioassessments (streams)
(162)	Combined biota/habitat bioassessments (streams)
(181)	Debris/floatable/trash
(205)	Dissolved oxygen saturation
(218)	Eurasian water milfoil, *Myriophyllum spicatum*
(227)	Excess algal growth
(228)	Fish-passage barrier
(229)	Fish kills
(230)	Fishes bioassessment (streams)
(243)	Habitat assessment (streams)
(266)	Lake bioassessment
(270)	Low flow alterations
(312)	Non-native aquatic plants
(313)	Non-native fish, shellfish, or zooplankton
(316)	Odor threshold number
(319)	Other flow regime alterations
(331)	Particle distribution (embeddedness)
(336)	Periphyton (Aufwuchs) indicator bioassessments (stream)
(368)	Secchi disk transparency
(387)	Suspended algae
(402)	Total organic carbon
(412)	Trophic State Index
(422)	Zebra mussels, *Dreissena polymorpha*
(445)	Abnormal fish deformities, erosions, lesions, tumors
(446)	Habitat assessment (lakes)
(450)	High flow regime
(459)	Taste and odor
(460)	Aquatic plants – native
(465)	Fish advisory – no restriction
(471)	Bottom deposits
(477)	Bacterial slimes
(478)	Aquatic plants (macrophytes)
(479)	Aquatic algae

temperature). In the uncommon circumstance where "habitat assessment (streams)" is the only reported "impairment," then it is recognized that pollutants have not been observed or measured that contribute to the biological indicator community(s) not supporting, so the impairment, "impairment unknown", will be listed which, as a pollutant, will put it on the 303(d)-list. In these instances more intensive investigation is needed to determine individual pollutants than the initial biosurvey provided. In this example the water body/segment will be categorized in category 5 (303(d)-list) with the impairment, habitat assessment (streams), included in the list of impairments. To restore aquatic life use to full support, pollution (e.g. riparian vegetative zone) must be addressed along with addressing the pollutants (e.g. sedimentation/siltation) in a TMDL.

Another group of impairments considered pollution that may be recognized in stream biosurveys are those indicating non-native aquatic plants, non-native fish, shellfish, or zooplankton and the zebra mussel, *Dreisenna polymorpha*. While these conditions are undesirable and can have a negative impact on the native plant or animal communities in a water body or segment, these non-natives, almost without exception, have been introduced accidentally or intentionally via commerce or recreation (ship ballasts, boating (carrying zebra mussels or exotic plants from one area to another), aquarists, sportspersons (non-native trout), etc.). To write a TMDL to eliminate these non-natives would often be more damaging to the environment (e.g. biocides or mechanical removal) than leaving them in place; they are so widespread and prevalent where they occur it is hardly feasible. For example, if the non-native carp, *Cyprinus carpio*, found in many perennial streams and reservoirs in the state, was considered a pollutant rather than pollution, a TMDL would be required to address this in thousands of stream miles and reservoir acres. These examples are instances where the occurrence of those impairments considered pollution (non-natives) alone will not result in a category 5 listing, rather a category 2 if all biological community metrics indicate the aquatic life use is supporting.

Those impairments that may be indicators of nonsupport for aquatic life use, but are not pollutants themselves: 1) benthic macroinvertebrate bioassessment (streams); 2) chlorophyll *a*; 3) combination benthic/fishes bioassessment; 4) combined biota/habitat bioassessments (streams); 5) dissolved oxygen saturation; 6) excess algal growth; 7) fishes bioassessment (streams); 8) lake bioassessment; 9) periphyton (aufwuchs) indicator bioassessments (stream); 10) Secchi disk transparency; 11) suspended algae; 12) trophic state index; and 13) fish advisory – no restriction, are considered pollution. The KDOW uses macroinvertebrates and fishes routinely to make aquatic life use support determinations in streams. These biological indicators are the data that go into KDOW's multimetric indices and are assigned various tolerance levels based on taxon, percent dominance of tolerant taxa, percent intolerant taxa, such as Ephemeroptera (mayflies), feeding strategy (e.g. filterers or scrapers), as well as watershed drainage area which naturally influences the populations within each community of indicators. While these biological communities are robust environmental indicators of water quality and integrity of habitat, they are not pollutants, but a manifestation of those tolerant organisms exploiting conditions that eliminate intolerant populations via pollutant(s). Through physicochemical data taken at time of biosurveys and habitat (in-stream habitat and land use observations), at least the most detrimental pollutants are usually recognized as contributors to the degraded biological community(s). Most stream miles in Kentucky not supporting aquatic life use are impaired primarily by the pollutants sedimentation/ siltation (habitat smothering), nutrient enrichment, or salinity/TDS/chlorides, in addition to pollution in the form of habitat alterations (often riparian zone related). All these pollutants affect habitat or physicochemical variables which manifest in the biological community structure. In cases where no pollutants are recognized, "impairment unknown" is listed, which places the water body/segment in category 5, needing a TMDL.

The total number of assessed stream miles was determined by adding the miles represented by the site-specific random survey (not extrapolated data) and the miles assessed by targeted monitoring. In other words, miles assessed by targeted monitoring in wadeable streams were included in miles assessed by the random survey (first-fifth order). However, results were also presented separately for targeted and random total miles.

3.2.1 Aquatic Life Use

The water quality and biological data provided by the programs described in the preceding pages were used to assess use support in rivers and streams. Table 3.2.1-1 shows the designated uses of Kentucky waters, and the indicators employed to make those support/nonsupport determinations. Given the comprehensive suite of parameters sampled by KDOW for many stream assessments, both biological and physicochemical, a determination can typically be made as to the cause(s) and source(s) of pollutant/ pollution affecting the resource. Further study during TMDL development will lead to specific definition of causes and sources. Data were categorized as “monitored” or “evaluated.” Monitored data were derived from site-specific surveys; generally no more than five years old. Typically, data older than five years were considered “evaluated” (assessment code 150), but this did not change the assessment category to which a water body and/or segment had been assigned unless there were more recent “monitored” data. In some instances where conditions were believed to have remained mostly unchanged, monitored data collected prior to 1995 were still considered valid and waters described by these data were categorized as monitored. Additionally, data from the random survey network were used. Approximately 17,500 stream miles had been monitored in the commonwealth by targeted efforts through March 2005. Like the targeted stations, each random survey station was used to assess a limited reach of stream around the sample point. Few evaluated waters remain in the assessment database. Although all efforts in the watershed initiative were to gather defensible, monitored data, there were some monitoring data more than five years old, strong anecdotal information, and extrapolation of discharge data that resulted in evaluated assessments.

Water Quality Data. Chemical data collected by KDOW and others were assessed according to EPA guidance (U.S. EPA 1997). Water quality data were compared to criteria contained in Kentucky Water Quality Regulations (401 KAR 5:031). The segment fully supported warmwater aquatic habitat (WAH) use when criteria for dissolved oxygen, un-ionized ammonia, temperature and pH were not met in 10 percent or less of the samples collected (April 2001 - March 2005 for the ambient stations and 12 months for the targeted rotating watershed cycle stations). Impaired, partial support was

Table 3.2.1-1. Designated uses in Kentucky waters and the indicators used to assess level of support.

<table>
<tr><th rowspan="2">Indicators</th><th colspan="4">USES</th></tr>
<tr><th>Aquatic Life</th><th>Recreation</th><th>Fish Consumption</th><th>[a]Drinking Water</th></tr>
<tr><td>Core Indicators</td><td><u>Stream</u>:
1-3 biological communities: macroinvertebrates, diatoms and fishes
Dissolved oxygen
Temperature
pH
Specific conductance

<u>Lake/Reservoir:</u>
Dissolved oxygen
Temperature
pH
Specific conductance
Fish kills</td><td><u>Stream:</u>
Pathogen indicators:
fecal coliform; E. coli
pH

<u>Lakes/Reservoir:</u>
Pathogen indicators:
fecal coliform or E. coli
pH</td><td>Mercury
PCBs</td><td>Inorganic chemicals
Organic chemicals
Pathogen indicators:
fecal coliform, E. coli</td></tr>
<tr><td>Supplemental Indicators</td><td>Chlorophyll-a
Trophic State Index (TSI)
Secchi depth
Indicator health (vigor)
Water chemistry
Sediments</td><td>Nuisance macrophytes
Nuisance macroscopic algal growth
Nuisance algal blooms
Suspended sediment</td><td>Other chemicals of concern found in water quality standards</td><td>Odor
Taste
Treatment problems caused by poor water quality</td></tr>
</table>

[a]All core indicators are based on "at the tap" MORs received from PWS

indicated if any one criterion for these parameters was not met in 11-25 percent of the samples. A segment was determined to be impaired, not supporting, if any one of these criteria was not met in more than 25 percent of the samples.

Data for mercury, cadmium, copper, iron, lead and zinc were analyzed for exceedences of acute criteria listed in state water quality standards regulations using at least three years of data. The segment fully supported WAH use if all criteria were met at stations with quarterly or less frequent sampling, or if only one exceedence occurred at stations with monthly sampling. Impaired, partial support was indicated if any one criterion was not met more than once but in less than 10 percent of the samples. The segment was determined to be impaired, not supporting, if criteria were exceeded in greater than 10 percent of the samples. The assessment criteria were closely linked to the way state and federal water quality criteria were developed. Aquatic life was considered protected if, on average, the acute criteria were not exceeded more than once every three years. Data were also compared to chronic criteria. Observations that equaled or were only slightly greater than chronic criteria were not considered to exceed water quality standards. Toxic criteria were assessed based on 12 monthly samples at the rotating watershed ambient water quality network and, generally, 48 samples from the primary ambient water quality network. The segment fully supported WAH use if all criteria were met or exceeded only once. Impaired, partial support was assessed if any criterion was not met more than once, but in less than 10 percent of samples. The segment was determined to be impaired, not supporting, if criteria were exceeded in greater than 10 percent of samples.

Biological Data (streams). Decisions about use attainment for aquatic life are primarily made using biological data obtained from monitoring programs within the KDOW and other agencies. There are a number of reasons biological data are important in making level of support decisions for aquatic life use. Biological communities (indicators) integrate their environment, and thus serve as good monitors of the conditions (physical, chemical, and habitat) they live in. The core indicators for bioassessment are outlined in Table 3.2.1-2. Level of use support is dependent on the indicator community(s) health and integrity, with supplemental physicochemical and habitat data. These results are applied for assessment purposes as outlined in Table 3.2.1-2.

Macroinvertebrates have been used extensively in water quality monitoring and impact assessment since the early 1900s. Today, macroinvertebrates are used throughout the world in water quality assessment as environmental indicators of biological integrity, to describe water quality conditions or health of the aquatic ecosystem, and to identify causes (pollutants) of impairment. This indicator community is relatively sedentary, spending a significant portion of its life cycle in the aquatic environment, various populations of a community are dependent on multiple habitats in the water column, occupy multiple consumer levels throughout the food web (herbivores, omnivores, and carnivores), and significantly, many sensitive taxa (benthos) live in or on the sediments of streams. These characteristics and habits make macroinvertebrates a key indicator

Table 3.2.1-2. Biological criteria for assessment of warm water aquatic habitat (streams) use support[a].

Indicator	Fully Supporting	Partial Support	Nonsupport
Algae	Diatom Bioassessment Index (DBI) Classification of excellent or good; biomass similar to reference/control or STORET mean.	DBI classification of fair; increased biomass (if nutrient enriched) of filamentous green algae.	DBI classification of poor; biomass very low (toxicity), or very high (organic enrichment).
Macroinvertebrates	Macroinvertebrate Bioassessment Index (MBI) excellent or good, high Ephemeroptera, Plecoptera and Trichoptera (EPT) sensitive species present.	MBI classification of fair, EPT lower than expected in relation to available habitat, reduction in RA of sensitive taxa. Some alterations of functional groups evident.	MBI classification of poor; EPT low, (total number of individuals) TNI of tolerant taxa very high. Most functional groups missing from community.
Fishes	Index of Biotic Integrity (IBI) excellent or good; presence of rare, endangered or species of special concern.	IBI fair.	IBI poor, very poor, or no fish.

[a]Acronyms used in this table: EPT= Ephemeroptera, Plecoptera, Trichoptera; RA= Relative Abundance; TNI= Total Number of Individuals

group of their environment. KDOW defines benthic macroinvertebrates as organisms large enough to be seen by the unaided eye, can be retained by a U.S. Standard Number 30 sieve (28 mesh/inch, 600 μm openings), and live at least part of their life cycle within or upon available substrates of a water body. In addition to determining use support level, biomonitoring will identify those Exceptional Waters (401 KAR 5:030) (those waters that are among the most biologically diverse and represent biological integrity to a high degree in a given bioregion) occurring across the commonwealth.

The evaluation of fish community structure is an important component of biological monitoring for providing reliable assessments for the CWA, Section 305(b). The primary goal of evaluating fish community structure is to ensure accurate assessments for 305(b) by using the Kentucky Index of Biotic Integrity (KIBI) of the community present. Advantages of using fish as biological indicators include their widespread distribution, utilization of a variety of trophic levels, stable populations during summer months, and the availability of extensive life history information (Karr et al. 1986).

Algae (primarily diatoms) are indicators of water quality, particularly as it relates to trophic (fertility) status and toxicity conditions. The Diatom Bioassessment Index (DBI) is calculated when this indicator community is monitored. This indicator group is critical to the food web of streams, beginning the process of primary production through photosynthesis.

Federally Threatened and Endangered Species. Waters with federally threatened or endangered species in November 1975 have an existing "use" of Outstanding State Resource Water and the loss or significant decline of one of these populations constitutes an impairment of use.

Lakes/Reservoirs. Lakes/reservoirs were assessed for aquatic life by measuring several physicochemical indicators, in addition to reported fish kills. The lack of a direct biological indicator is primarily due to most of this resource being manmade, thus supporting altered and unnatural biological communities that are composed almost exclusively of tolerant species (e.g. Tubificidae, *Chironomus* spp., *Chaoborus* spp., *Glyptotendipes* spp., etc.) that are capable of exploiting this naturally low DO-stressed environment. Thus, core and supplemental indicators (Table 3.2.1-1) are of utmost importance to assure water quality conditions are suitable for supporting primarily sportfish, and associated prey fishes; these populations are the primary concern for aquatic life use being met or not in created environments. Table 3.2.1-3 outlines the criteria used in making use assessment decisions.

Trophic status was assessed in lakes/reservoirs using the Carlson Trophic State Index (TSI) for chlorophyll-*a*. This method was convenient because it allows lakes to be ranked numerically according to increasing productivity, and it also provides for a distinction between oligotrophic, mesotrophic, eutrophic, and hyper-eutrophic lakes. The growing season (March – October) average TSI value was used to rank each lake. Areas of lakes that exhibited trophic gradients or embayment differences often were analyzed separately.

Table 3.2.1-3. Criteria for lake/reservoir use support classification.

Category	Fish Consumption	Warmwater Aquatic Habitat	Secondary Contact Recreation	Domestic Supply
Not Supporting:	(Pollutant specific)	(At least two of the following criteria)	(At least one of the following criteria)	(At least one of the following criteria)
	Methylmercury >1.00 ppm (fish tissue)	Fish kills caused by poor water quality	Widespread excess macrophyte/macro-scopic algal growth	Chronic taste and odor complaints caused by algae
	PCBs >1.9 ppm (fish tissue)	Severe hypolimnetic (deepest layer in a thermally stratified lake or reservoir) oxygen depletion	Chronic nuisance algal blooms	Chronic treatment problems caused by poor water quality
		Dissolved oxygen average less than 4 mg/L in the epilimnion (upper most layer of water in a thermally stratified lake or reservoir)		Exceeds drinking water MCL
Partially Supporting: (At least one of the following criteria)	Methylmercury >0.3 – 1.00 ppm (fish tissue)	Dissolved oxygen average less than 5 mg/L in the epilimnion	Localized or seasonally excessive macrophyte/macroscopic algal growth	Occasional taste and odor complaints caused by algae
	PCBs >0.2 ppm – 1.9 ppm (fish tissue)	Severe hypolimnetic oxygen depletion	Occasional nuisance algal blooms	Occasional treatment problems caused by poor water quality
		Other specific cause (e.g. low pH)	High suspended sediment concentrations during the recreation season	
Fully Supporting:	Methylmercury <0.3 ppm and PCBs <0.2 ppm	None of the above	None of the above	None of the above

3.2.2 Primary Contact Recreation Use Support

Fecal coliform or *Escherichia coli* and pH data were used to indicate the degree of support for primary contact recreation (PCR) (swimming) use. PCR assessment was based on six monthly grab samples collected during the recreation season of May – October. The use fully supported if the fecal coliform bacteria criterion of >400 colonies per 100 mL (>240 colonies per 100 mL for *E. coli*) was not met in less than 20 percent of samples; it was determined to be impaired, partial support if either criterion was not met in 25-33 percent of samples; and impaired, nonsupport, if either criterion was not met in >33 percent of samples. Secondary contact recreation (SCR) was also assessed following the same method using fecal coliform data at the concentration of >2000 colonies per 100 mL. Streams with pH <6.0 SU or >9.0 SU were considered full support if this criterion was exceeded once, but in less than 10 percent of samples collected in the recreation season; impaired, partial support if the standard was exceeded more than once, but in less than 10 percent of the samples during the recreation season; and impaired, nonsupport if the criterion was exceeded in more than 10 percent of samples during the recreation season.

3.2.3 Other Data Sources

Discharge Monitoring Reports (DMRs). Discharge monitoring report (DMR) data, collected by Kentucky Pollutant Discharge Elimination System (KPDES) permit holders, were assessed through KDOW's permit compliance database. Depending on the relative sizes of the wastewater discharge, the receiving stream and the severity of the permit exceedences, it sometimes was possible to assess in-stream uses as nonsupporting either AL or PCR. Because in-stream data were usually not collected, stream assessments based only on DMR data were considered evaluated, not monitored, and these segments were assigned to category 5B.

Corps of Engineers (COE) Reservoir Projects. Dam projects on major streams in Kentucky were monitored with the cooperation of the COE. During the Interagency Monitoring and Planning Meeting those reservoirs in the BMU of focus were identified and a cooperative effort between KDOW and COE resulted. Reservoir water quality variables were monitored over the growing season (March – October) and major in-flow and out-flow tributaries of these reservoirs were monitored for water quality. Aquatic life use support level was determined using these monitored data for reservoirs and monitored tributaries. The Louisville COE District covers both the Kentucky River and Salt - Licking Rivers BMUs reported on in this IR.

3.2.3 Fish Consumption Use Support

Fish consumption, in conjunction with aquatic life use, assesses attainment of the fishable goal of the Clean Water Act. Assessment of the fishable goal was separated into these two categories in 1992 because the fish consumption advisory does not preclude attainment of the aquatic life use and vice versa. Separating fish consumption and aquatic life use support gave a clearer picture of actual water quality conditions.

Kentucky revised its methodology for issuing fish consumption advisories in 1998 to a risk-based approach patterned after the Great Lakes Initiative. The risk-based approach generally was more conservative than the Food and Drug Administration (FDA) action levels that were used previously. For example, the FDA action level for mercury was 1.0 mg/Kg, but the risk-based number for issuing an advisory was as low as 0.12 mg/Kg. As a result of this change in methodology, a statewide advisory was issued in April 2000 for children under six and women of childbearing age to not consume more than one meal per week of any fish from Kentucky waters because of mercury. However, EPA (2001a) issued a draft mercury water quality criterion expressed as a methylmercury concentration in fish tissue of 0.3 mg/Kg. Therefore, for purposes of 305(b) reporting, waters were not considered impaired unless fish exhibited mercury tissue concentrations of at least 0.3 mg/Kg. In other words, the fish tissue concentration triggering the statewide advisory (0.12 mg/Kg) was considered more stringent than water quality standards.

Other than the statewide advisory for mercury explained above, the following criteria were used to assess support for the fish consumption use:

- Fully supporting- no fish consumption restrictions or bans in effect; highest species average concentration ≤ 0.3 mg/Kg
- Impaired: Partial support- "restricted consumption"-fish consumption advisory in effect for the general population or a subpopulation that potentially could be at a greater cancer risk (e.g. pregnant women, children); highest species average concentration > 0.3 mg/Kg – 1.0

mg/Kg. Restricted consumption was defined as limits on the number of meals consumed per unit time for one or more fish species

- Impaired: Not supporting- “no consumption” -fish advisory or ban in effect for the general population or a subpopulation that potentially could be at greater risk, for one or more fish species, or a commercial fishing ban in effect; highest species average concentration > 1.0 mg/Kg.

3.2.4 Drinking Water Supply

Drinking water use support was determined in several ways. First, compliance with maximum contaminant levels (MCLs) in finished water was determined by the annual average of quarterly samples. These MCL data were gleaned from monthly operating reports (MORs) submitted to KDOW, Drinking Water Branch, from treatment facilities. Drinking water use assessments in reservoirs were supplemented by surveys of drinking water operators on any taste and odor problems and use of biocides (Table 3.2.1-1). The routine application of a biocide, or use of carbon filtration, were reasons for assessing a source of water as not fully supporting the domestic water supply use. In-stream water quality data generally were not available to assess drinking water use.

3.2.5 Impairments and Sources

Impairments (pollutants and pollution) and sources were categorized according to EPA guidance. Impairments for primary contact recreation, fish consumption, and water supply usually were easily identified. The majority of segment/waterbodies not supporting aquatic life use were determined by biological monitoring supplemented by monitoring of select physicochemical parameters. Causes and sources of impairment may not be evident in the field and there may be other pollutants contributing to use impairment that were not listed. Once on the 303(d) list, subsequent intensive monitoring and watershed reconnaissance of land uses will more fully identify causes and sources of impairments.

3.2.6 Determination of Assessment Segments

Once an assessment is made on a water body, an appropriate segment or portion of the water body representative of the monitored area is determined. Part of this determination is based on the type of monitoring (e.g. physicochemical, biological, bacteriological, fish tissue, or lake/reservoir).

Aquatic Life, Recreation and Fish Consumption Uses. Monitoring for these uses occurs throughout the state at the Primary Ambient Water Quality Stations (Primary Network) and in the Rotating Watershed Stations particular to the BMU cycle phase. Since the Primary Network stations are located on large streams and rivers, these assessment segments are taken downstream and upstream of significant streams entering the monitored stream. Significance of tributaries is based on the watershed area and relative volume. Another important factor considered in defining segments is significant changes in land use from along the reach of stream sampled, such as leaving a contiguous forested area and entering a non-forested area with fragmented riparian vegetative zone. Since many of KDOW's PCR-SCR (recreation) monitoring locations are associated with the ambient water quality network, the same rationale is used to define these segments and typically is the same as the defined segment for the accompanying aquatic life use assessment.

Those waters assessed for aquatic life use having biological community data often will be of shorter segment reach since these indicators are typically more responsive to subtle changes in water quality as they integrate these conditions over a relatively long time. Also, the habitat conditions along the corridor being assessed are paid close attention to for the same reasons as physicochemical considerations for biological communities. Typically the smaller the watershed, a proportionately greater segment will be defined since the conditions and influences from surrounding land use are similar and localized in those streams. In larger watersheds, typically greater than five square miles, proportionately smaller assessment segments are defined due to the increased potential of sources of pollutants and habitat influences. These segments are defined by upstream and downstream tributaries judged to be of significant drainage area to the receiving stream.

Fish consumption segments are defined in a similar method as those reaches assessed using only physicochemical, or bacteria data. Many fish species are relatively long ranging, and that factor has significant consideration in defining segments. Also, with the plethora of sources, and the fact that much of the mercury in waters comes via atmospheric deposition, relatively long reaches are often defined when making these assessments. However, significant tributaries are often used to make the upstream and downstream termini, with less consideration given to habitat for the reasons given above.

Drinking Water. Since this use was assessed using finished water data supplied by Public Water Systems (PWS), the assessment segments were usually conservative when applied to the source water. The assessment segments were typically taken from the point of withdrawal and extended upstream one mile. A few exceptions to that rule occurred when multiple uses were assessed (e.g. fish tissue, aquatic life) in the same general area of PWS withdrawal points. Those segments were usually longer (see section above on these use assessment segments) in order to accommodate those other uses that overlapped the PWS withdrawal point. In the case of reservoirs, the assessment was applied to the water body.

3.3 Use Assessment Results: Focus on the Kentucky and Salt - Licking Rivers BMUs

Section Overview. This section of the IR presents assessment results focused primarily on two BMUs, the Kentucky River and Salt-Licking rivers, which were monitored in 2003 and 2004, respectively. However, a statewide summary updating all waters and segments assessed prior to 2003 was incorporated into overall use support summaries and statistics (17,478.3 miles representing approximately 19 percent of stream miles at a resolution of 1:24,000) and is presented in the following subsection. Appendix A contains a table with all assessed waters and the support level per use assessed. Trend analyses on Primary Water Quality Network stations were performed in 2005, and results of these analyses at stations showing trends of various water quality variables follow. Targeted and random biosurvey results of streams were presented with particular focus on the two BMUs of this reporting cycle. The KDOW continues to census lakes and reservoirs in the commonwealth, and trend information on these reservoirs is presented following 25 years of data related to trophic state analyses. The COE reservoirs were monitored by that agency, and the results of those data and trophic status of trends were also provided in the lakes section.

3.3.1 Statewide Assessment Results (Use Support)

Targeted Monitoring: Streams and Rivers. For this monitoring and reporting period (Kentucky and Salt-Licking BMUs) there were 281 stream segments representing 1,575 miles assessed during the monitoring years of 2003-2004. These data represent years one and two of the second five-year intensive monitoring effort based on rotating BMUs. Probabilistic monitoring results are included in the targeted monitoring statistics since that method is used for both specific stream reach assessments as well as extrapolation of data for aquatic life use support in a given BMU. Total miles of streams and segments that are fully supporting assessed uses (Categories 1, 2 which includes 2B) are 4,946; whereas those streams and rivers with segments not fully supporting assessed uses (Categories 4A, 4B, 4C, 5A and 5B) total 5,857 miles (Table 3.3.1-1). Category 3 represents water body segments that have at least one use assessed, but not all designated uses were assessed. This table reports results based on the lowest assessed use much like an overall assessment where if one use is not fully supporting than by default the entire stream mileage assessed is reported in Category 5. The uses most commonly assessed were aquatic life, drinking water (where it is applicable) and primary and secondary contact recreation. There were 10,310 total stream miles (59 percent) fully supporting a designated use (Table 3.3.1-2). (This where any one stream segment fully supported more than one use.)

Aquatic Life Use. Nonsupport of warm water and cold water aquatic habitat uses continues to represent the greatest number of stream miles, with 3,741 combined miles (Table 3.3.1-2) representing 39.2 percent of stream miles assessed. However, more miles of streams were assessed for this designated use, and it has the highest percentage of support level by percent, 60.8. Compared to the 2004 305(b) report, stream miles that do not support aquatic life use have increased by 746 miles. The number of stream miles fully supporting aquatic life use has decreased 79 miles as compared to 2004 305(b) data.

Fish Consumption. The percentage of stream miles that fail to support a use is highest for fish consumption at 58.1 percent of stream miles assessed (Table 3.3.1-2). This is an increase of more than 10 percent compared to the 48 percent seen in 2004

Table 3.3.1-1. Size of surface waters assigned to reporting categories for Kentucky.

Water Body Type	Category									Total in State	Total Assessed
	1	2	2B	3*	4A	4B	4C	5	5B		
RIVER (MILES)	82.00	4,363.81	499.80	25,092.51	295.33	0.00	0.00	5,510.36	51.64	10,483.10	1,858
FRESHWATER RESERVOIR (ACRES)	0.00	120,779.35	1471.00	430,186.8	0.00	0.00	232.00	97,970.00	0.00	218,981.35	109
FRESHWATER LAKE (ACRES)	0.00	342.00	0.00	1,677.00	0.00	0.00	0.00	229.00	0.00	571.00	12
POND (ACRES)	0.00	3.30	0.00	14.4	0.00	0.00	0.00	1.50	0.00	4.80	2
SPRING (MILES)	0.00	0.03	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.03	1
FRESHWATER WETLANDS (ACRES)	0.00	0.00	0.00	324,000.00	0.00	0.00	0.00	0.00	0.00	324,000.00	0

* Category 3 is the total size of all uses that were not assessed for each water body segment for which at least one use was assessed.

305(b) data of 48.0 percent. Besides the statewide fish consumption advisory for mercury, longstanding fish consumption advisories remain in effect in several rivers and streams throughout the commonwealth. The primary source of mercury entering waters is thought to be via air emissions. Because of interstate issues and complexity of identifying all sources of mercury, EPA is conducting national studies and will likely be involved in eventual efforts to calculate TMDLs and reduce mercury inputs by setting new mercury limits.

Polychlorinated biphenyls (PCBs) are man-made chemical products that are similar in structure. These chemicals are toxic and persistent in the environment. In 1976 Congress passed legislation that prohibits the manufacture, process and distribution in commerce of PCBs. Polychlorinated biphenyls contaminate fish flesh in four streams totaling 124.9 miles from the streams and segments listed below:

- Mud River from Hancock Lake Dam to mouth in Logan, Butler and Muhlenberg counties
- Town Branch Creek, headwaters to mouth in Logan, Butler and Muhlenberg counties
- West Fork Drakes Creek, dam at City of Franklin to mouth in Simpson and Warren counties
- Little Bayou Creek from headwaters to mouth in McCracken County

Primary (Swimming) Contact Recreation Use. The percentage of stream miles that do not support primary contact recreation (PCR) is now the second highest of all uses at 56.9 percent (Table 3.3.1-2). This represents an 8.3 percent increase in number of miles assessed that are not attaining support for this designated use compared to 2004 305(b) results. This designated use also represents the second highest number of stream miles not supporting with 2,147.3 miles (Table 3.3.1-2). Note that this designated use applies during the recreation months of May through October.

There continue to be a number of swimming advisories on segments of streams and rivers in Kentucky. Below are the waterbodies and segments where advisories exist. Fish consumption advisories on the Ohio River may be found in Section 3.3.3.

Table 3.3.1-2. Individual designated use support summary for streams and rivers in Kentucky (miles).

Designated Use	Total in State	Total Assessed	Supporting-Attaining WQ Standards	Supporting-Attaining WQ Standards but Threatened	Not Supporting-Not Attaining WQ Standards	Not Assessed
Warm Water Aquatic Habitat	10,153.2	9,223.0	5,507.8	0.0	3,715.2	930.3
Cold Water Aquatic Habitat	329.9	326.9	301.3	0.0	25.6	3.0
Fish Consumption	10,483.1	1,706.9	715.6	0.0	991.3	8,776.3
Primary Contact Recreation Water	10,483.1	3,773.4	1,626.1	0.0	2,147.3	6,709.8
Secondary Contact Recreation Water	10,483.1	1,089.2	800.4	0.0	288.8	9,393.9
Drinking Water	1,438.4	1,359.0	1,359.0	0.0	0.0	79.4

Upper Cumberland River Basin

- Cumberland River from SR 2014 to Pineville Hwy 66 and from SR 219 to Harlan
- Martins Fork from Harlan to Cawood Water Plant
- Catrons Creek
- Clover Fork
- Straight Creek
- Poor Fork from Harlan to Looney Creek
- Looney Creek from mouth to Lynch Water Plant Bridge

Lower Licking River Basin

- Banklick Creek
- Threemile Creek

North Fork Kentucky River Watershed

- North Fork Kentucky River upstream of Chavies to source (headwaters)

Secondary Contact Recreation Use. Secondary contact recreation designated use applies year-round and criteria for support of this use are based on fecal coliform standard of 2000 colonies/mL in streams, lakes and reservoirs. There are 288.8 miles not supporting this use out of 1089.23 miles of streams assessed. This represents 26.5 percent of assessed waters that do not support this designated use. No comparison for prior years can be made as this 305(b) cycle represents the first time this use has been assessed in flowing waters. In streams and rivers secondary contact recreation standard is applied to protect people from incidental water contact or only partial body emersion that may occur in such activities as fishing and boating.

Drinking Water Use. Drinking water standards apply to the source water at point of intake. Drinking water use support was assessed by review of the average quarterly results for contaminants as reported in MORs (monthly operating reports that are required by the Safe Drinking Water Act). The average annual result of these quarterly data is determined for compliance purposes. The MCLs (maximum contaminant levels) are based on concentration of each contaminant in the finished product distributed for public consumption. Of those streams assessed, all were fully supporting drinking (domestic) water use.

Probability Monitoring: Aquatic Life Use. The random design biosurvey effort has been implemented through a complete five-year cycle in the state. Data results on a statewide basis are presented in Table 3.3.1-3 covering cycle one from 1998-2003. These assessment data are exclusive of targeted (site-specific) monitoring, unlike the targeted results presented in Table 3.3.1-2 that incorporate both methodologies. These data indicate 42 percent of stream miles (1^{st} - 5^{th} Strahler order) were fully supporting aquatic life use while 58 percent of statewide stream miles were not fully supporting that use (Table 3.3.1-3). This was in contrast to targeted results indicating 60.8 percent fully supporting and approximately 40 percent not supporting aquatic life use. There are some reasons for this apparent discrepancy. Targeted monitoring has an inherent bias in monitoring strategy. For example, one of the targets is the reference reach program. This is a deliberate and necessary effort to find the best stream reaches in the commonwealth. These reaches can be afforded additional protection through Kentucky's water quality standards. Also, the WBMP monitors 4^{th} - 6^{th} order stream reaches on a cyclical schedule. These ambient locations typically support aquatic life use. The nature of random monitoring lends itself to integrating ambient conditions in a basin or bioregion since there is no bias of sample locations.

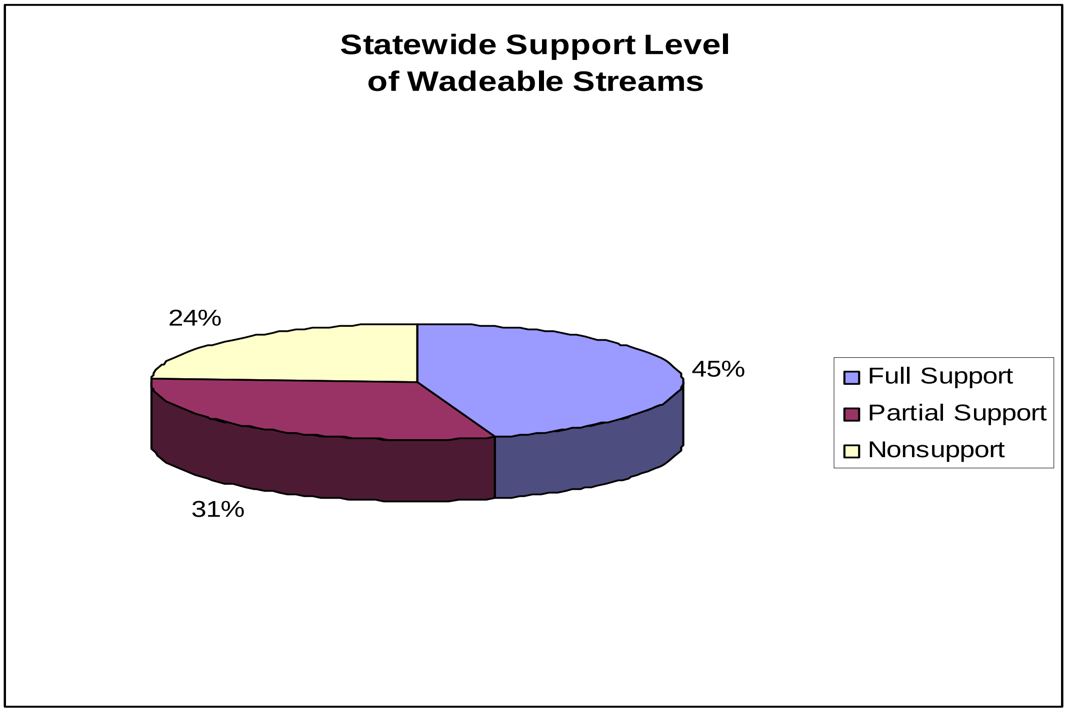
Table 3.3.1-3. Use support summary of Kentucky wadeable rivers and streams (miles), probabilistic monitoring (2000 – 2004).

	Total Assessed	Fully Supporting	Partially Supporting	Not Supporting
Aquatic Life	52,580.6	23,814.3 (45.3%)	16,056.6 (30.5%)	12,709.7 (24.2%)

A simple question has been asked throughout the 35-year history of the Clean Water Act: "What is the condition (health) of the nation's waters?" Various studies have been undertaken to determine an answer to that question. These findings concluded that while agencies have been good at collecting data about site-specific conditions of states' waters, there exist no data to determine the overall condition and trend of the waters on a national scale. To answer that question and related questions (Are water quality (fishable and swimmable) conditions improving? Are there new issues and threats related to aquatic ecosystem health or any successes?) to help citizens determine if more money and resources need to go toward water quality issues, or if the billions of dollars being spent to curb and control pollution is simply not working, a national study was undertaken.

To begin to answer this complex question it was determined that a statistically valid random biosurvey of the nation's streams would be necessary. The EPA oversaw the development and implementation of a random design study of the nation's streams and was able to make substantive decisions concerning the ecological condition of our waters. The random survey may be likened to a political poll in which a random sample of likely, eligible voters in a given congressional district, or nationally in a presidential race, is polled to discover the likelihood of a particular candidate to win election. In the national survey, all eligible wadeable streams of Strahler order 1-4 in similar ecoregions, or group of similar ecoregions based on biological similarities known as bioregions, define the population from which to randomly select representative stream segments in order to draw scientifically sound conclusions on the findings of those data. The national study segregated the lower 48 states into three broad regions defined as the West, Eastern

Figure 3.3.1-1. Statewide proportions of aquatic life use support in Kentucky based on probability biosurveys. Pie chart represents the entire defined stream population (Strahler order 1 – 5) for the commonwealth.



Highlands and Lowlands (Wadeable Streams Assessment, USEPA, 2006). When grouped together, only 28 percent of the nation's wadeable streams were in good condition (conditions similar to the least-disturbed reference streams in each ecoregion), and 42 percent were in the category "most disturbed." Approximately 75 percent of Kentucky is in the Eastern Highlands with the remainder (western Kentucky) in the Lowlands region.

The Eastern Highlands region had only 18 percent of streams in good condition and 52 percent were found to be in poor condition. This region had the smallest percent of regional stream miles in good condition. The Lowlands had 29 percent of regional stream miles in good condition, and 40 percent were in poor condition. In both cases the remaining percent are primarily streams represented by intermediate conditions.

Based on the results of KDOW's probability monitoring program, Kentucky's full support level of streams on a statewide basis (42 percent) is in contrast to streams in the same region in the national study. Looking only at the Eastern Highlands, the condition of the commonwealth's streams (33 percent) compare favorably with the multi-state region in which only 18 percent were in good condition and nationally where only 28 percent of streams were found to be in good condition.

Impairments (Causes) and Sources Related to Nonsupport of Uses. The leading impairments or causes for designated-use nonsupport of Kentucky streams and rivers are sedimentation, fecal coliform (pathogens), habitat (streams), polychlorinated biphenyls (PCBs) and nutrient/eutrophication biological indicators (Table 3.3.1-4). The leading sources of these impairments are agriculture, mining, urban or municipal and habitat related (other than hydromodifications), and a significant percentage of impairments have sources listed as unknown (Table 3.3.1-5). In this report, agriculture displaces "source unknown" as the leading source of pollution and pollutants in the commonwealth, with approximately 2,850 miles of streams impacted. This is the result of grouping the subcategories under broad categories to better reflect those significant sources that contribute to impairment of streams in the state.

Individual use support by major river basin is shown in Table 3.3.1-6. This overview of the commonwealth's major river basins shows the greatest percentage of river miles not supporting aquatic life use is found in the Mississippi River Basin. The Big Sandy River Basin had the second greatest percentage of nonsupporting miles followed by the Tradewater River Basin, the lower Cumberland River Basin and the Kentucky River Basin. The Kentucky, Mississippi, Big Sandy and Tradewater river basins are each in areas of intensive land use. The Big Sandy River Basin is one of the most intensive coal producing areas and the Mississippi River and Tradewater River basins are in areas of large-scale crop production. Less than one-third of the assessed stream miles in the Mississippi and Big Sandy basins and about 40 percent of assessed river miles in the Tradewater River Basin fully support aquatic life use (Figure 3.3.1-2).

The most problematic basins for primary contact recreation are in the Big Sandy (78 percent nonsupporting), upper Cumberland (78 percent nonsupporting), Tennessee (71 percent nonsupporting) and lower Cumberland (69 percent nonsupporting) (Figure 3.3.1-1). The upper Cumberland River Basin has both one of the highest percentages of aquatic life use support and lowest primary contact recreation support levels (Figure 3.3.1-1). The low support for primary contact recreation is primarily attributable to the number of straight-pipes discharging untreated sewer water into many of the streams in this basin. The associated pathogens with the straight-pipe discharge have no effect on the aquatic life as they target warm-blooded hosts. As was determined with data for the 2004 305(b) report, the Big Sandy River Basin has a high percent use of stream miles not supporting swimming, primarily because of the high percent of monitored streams where frequent observations were made of straight pipes from houses that discharged both gray and black water directly into streams.

Table 3.3.1-4. Ranking of impairments (causes) to Kentucky rivers and streams.

Impairment	Miles Impacted
1. Sedimentation	2,551.0
2. Fecal coliform (pathogens)	1,996.0
3. Habitat assessment (streams)	1,480.2
4. Polychlorinated biphenyls (PCBs)	774.0
5. Nutrient or eutrophication biological indicators	759.1
6. Impairment unknown	676.3
7. Total dissolved solids	659.9
8. Organic enrichment (sewage) biological indicators	648.1
9. Other flow regime alterations	490.8
10. Methylmercury	367.3
11. Sulfates	244.7
12. pH	223.6
13. Turbidity	218.0
14. Dioxin (including 2,3,7,8-TCDD)	194.4
15. Benthic macroinvertebrate bioassessments (streams)	147.9
16. Particle distribution (embeddedness)	100.9
17. Total phosphorus	100.9
18. Nonnative fish, shellfish or zooplankton	72.6
19. Chlorine	59.1
20. Other	53.1
21. Aquatic algae	49.0
22. Iron	48.8
23. Total suspended solids	48.1
24. Alteration in streamside or littoral vegetative covers	46.1
25. PCB in fish tissue	45.7
26. Cadmium	45.5
27. Ammonia (un-ionized)	39.2
28. Water temperature	34.7
29. Physical substrate habitat alterations	33.3
30. Chlorophyll *a*	30.4
31. Fishes bioassessment (streams)	23.1
32. Zinc	17.0
33. Nitrate + Nitrite as N	15.7
34. Copper	14.3
35. Beta particles and photon emitters	13.0
36. Gross alpha	13.0
37. Non-native aquatic plants	12.9
38. Total Kjeldahl Nitrogen (TKN)	12.3
39. Dissolved oxygen saturation	12.2
40. Total nitrogen	9.5
41. Chloride	9.3
42. Aquatic plants (macrophytes)	9.1
43. Oil and grease	8.5

Table 3.3.1-4 (cont.). Ranking of impairments (causes) to Kentucky rivers and streams.

Impairment	Miles Impacted
44. Ethylene glycol	6.8
45. Mercury	6.5
46. Dissolved oxygen	5.8
47. Total Chromium	3.9
48. Nickel	3.1

Table 3.3.1-5. Probable sources of impairment to Kentucky rivers and streams.

Source Categories	Miles Impacted
Agriculture (unspecified)	583.0
Non-irrigated crop production	514.6
Crop production (crop land or dry land)	454.0
Livestock (grazing or feeding operations)	426.8
Managed pasture grazing	386.8
Grazing in riparian or shoreline zones	170.2
Animal feeding operations (NPS)	109.8
Irrigated crop production	85.4
Rangeland grazing	55.8
Unrestricted cattle access	35.6
Permitted runoff from confined animal feeding operations (CAFOs)	15.5
Crop production with subsurface drainage	5.0
Dairies (outside milk parlor areas)	4.0
Specialty crop production	3.6
Category total (agriculture)	2,849.8
Source unknown	2,285.5
Mining	
Surface mining	738.2
Subsurface (hardrock) mining	270.8
Impacts from abandoned mine lands (inactive)	135.2
Acid mine drainage	110.3
Coal mining (surface)	105.0
Heap-leach extraction mining	87.2
Dredge mining	25.8
Coal mining (underground)	25.2
Mine tailings	11.9
Reclamation of inactive mining	8.0
Sand, gravel, rock mining or quarries	2.9
Category total	1,520.5
Urban or Municipal	
Municipal point source discharges	581.3
Unspecified urban stormwater	383.1
Urban runoff or stormwater sewers	256.2
Municipal (urbanization high density area)	89.9
Wet weather discharges (point sources and combination of stormwater, SSO or CSO)	35.0
Impervious surface or parking lot runoff	22.1
Illicit connections or hook-ups to storm sewers	10.6
Combined sewer overflows	6.3
Commercial districts (shopping or office complexes	2.6
Category total	1,386.9

Table 3.3.1-5 (cont.). Probable sources of impairment to Kentucky rivers and streams.

Source Categories	Miles Impacted
Habitat Related (other than hydromodifications)	
Loss of riparian habitat	1,059.6
Site clearance (land development or redevelopment)	177.2
Dredging (e.g. for navigation channels)	135.0
Category total	1,371.7
Residential Related	
On-site treatment systems (septic systems and similar decentralized systems, (incl. straight-pipes)	341.2
Package plant or other permitted small flows discharges	128.4
Sewage discharges in unsewered areas	50.5
Residential districts	7.5
Rural (residential areas)	4.3
Category total	531.9
Erosion and Sedimentation	
Post-development erosion and sedimentation	343.1
Sediment re-suspension (contaminated sediment)	33.9
Channel erosion or incision from upstream hydromodifications	14.6
Erosion from derelict land (barren land)	11.6
Sediment re-suspension (clean sediment)	11.6
Category total	414.8
Transportation	
Highway, road or bridge runoff (non-construction related)	262.4
Highways, roads, bridges, infrastructure (new construction)	99.7
Airports	1.6
Category total	363.6
Silviculture	
Silviculture harvesting	162.2
Silviculture activities	149.9
Permitted silvicultural activities	8.0
Silviculture reforestation	6.6
Category total	326.7
Fuel or Energy Development (other than coal)	
Petroleum or natural gas production activities	254.1
Petroleum or natural gas activities	71.4
Category total	325.5

Table 3.3.1-5 (cont.). Probable sources of impairment to Kentucky rivers and streams.

Source Categories	Miles Impacted
Industrial	
Industrial point source discharge	167.8
Industrial or commercial site stormwater discharge (permitted)	15.8
Commercial districts (industrial parks)	4.8
Category total	183.6
Waste Disposal	
Illegal dumps or other inappropriate waste disposal	91.5
Inappropriate waste disposal	59.8
Septage disposal	8.7
Category total	160.0
Hydromodifications: dams or impoundments (stream flow)	
Upstream impoundments (NRCS structures)	48.7
Dam construction (other than upstream flood control projects)	3.2
Category total	51.9
Miscellaneous (does not fit one particular category)	
Introduction of non-native organisms (accidental or intentional)	75.6
Wet weather discharges (nonpoint sources)	43.6
Atmospheric deposition (toxics)	22.7
Runoff from forest, grassland or parkland	21.4
Natural sources	20.0
Drainage, filling or loss of wetlands	15.7
Other spill related impacts	14.8
Upstream source	7.0
Sources outside state jurisdiction or borders	3.6
Nonpoint source pollution from military base facilities (other than port facilities)	2.5
Natural conditions – water quality standards attainability Analyses needed	2.1
Category total	229.0

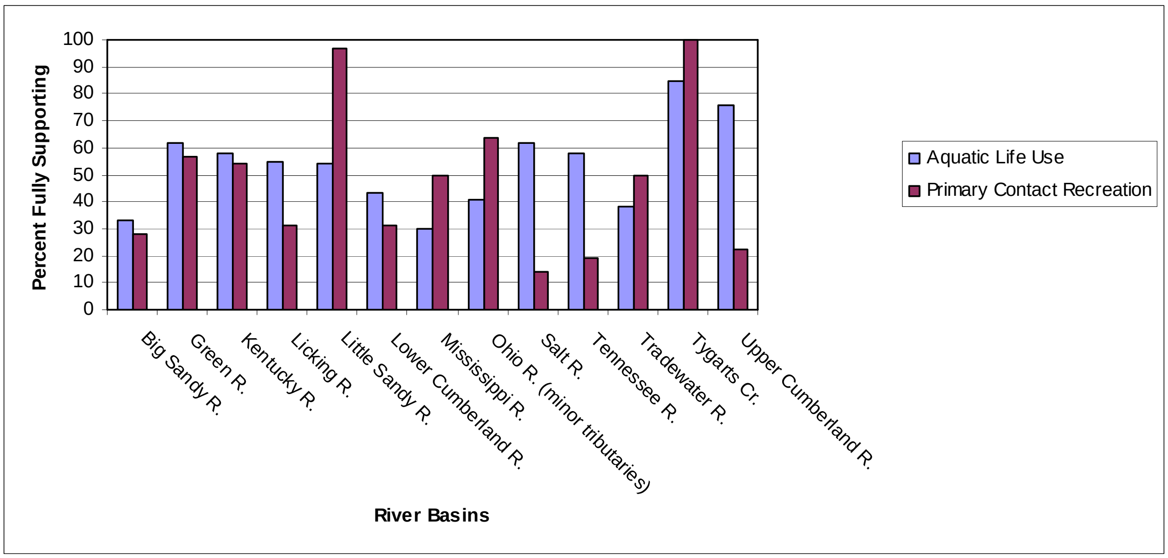
Table 3.3.1-6. Number of river miles assessed and level of support by use in each major river basin. Those basins in bold type are emphasized in this reporting cycle.

Basin	Total Assessed	Supporting	Partially Supporting	Not Supporting
Big Sandy				
Aquatic Life	645.3	210.8	274.8	159.7
Fish Consumption	58.7	48.4	15.3	0.0
Swimming	335.7	95.2	21.0	219.5
Drinking Water	48.1	48.1	0.0	0.0
Green River				
Aquatic Life	1616.6	1005.7	352.1	258.8
Fish Consumption	314.4	157.5	85.4	71.5
Swimming	811.8	462.8	49.3	299.7
Drinking Water	274.5	274.5	0.0	0.0
Kentucky River				
Aquatic Life	1844.0	1075.6	555.4	213.0
Fish Consumption	326.4	241.0	74.2	11.2
Swimming	645.8	348.6	145.6	151.6
Drinking Water	169.1	169.1	0.0	0.0
Licking River				
Aquatic Life	763.0	419.0	200.9	143.1
Fish Consumption	55.4	55.4	0.0	0.0
Swimming	475.8	149.1	75.5	251.2
Drinking Water	36.6	36.6	0.0	0.0
Little Sandy				
Aquatic Life	202.4	108.3	85.7	8.4
Fish Consumption	25.6	25.6	0.0	0.0
Swimming	62.1	60.4	0.0	1.6
Drinking Water	14.3	14.3	0.0	0.0
Lower Cumberland				
Aquatic Life	291.7	125.9	92.9	72.9
Fish Consumption	32.2	22.7	9.5	0.0
Swimming	148.4	46.4	34.0	68.0
Drinking Water	35.6	35.6	0.0	0.0

Table 3.3.1-6 (cont.). Number of river miles assessed and level of support by use in each major river basin. Those basins in bold type are emphasized in this reporting cycle.				
Basin	Total Assessed	Supporting	Partially Supporting	Not Supporting
Mississippi River				
Aquatic Life	238.7	66.8	101.8	70.1
Fish Consumption	17.2	17.2	0.0	0.0
Swimming	57.1	28.5	13.3	15.3
Drinking Water	0.0	0.0	0.0	0.0
Ohio River (minor tribs)				
Aquatic Life	188.5	77.3	34.6	76.6
Fish Consumption	11.0	11.0	0.0	0.0
Swimming	78.3	50.1	0.0	28.2
Drinking Water	0.0	0.0	0.0	0.0
Salt River				
Aquatic Life	1029.3	641.25	238.1	149.9
Fish Consumption	73.3	47.0	14.3	12.0
Swimming	471.5	67.8	118.5	285.2
Drinking Water	5.2	5.2	0.0	0.0
Tennessee River				
Aquatic Life	251.4	145.9	92.2	13.3
Fish Consumption	23.5	11.5	6.0	6.0
Swimming	91.9	17.8	31.5	42.6
Drinking Water	5.1	5.1	0.0	0.0
Tradewater River				
Aquatic Life	210.3	79.0	73.3	58.0
Fish Consumption	0.0	0.0	0.0	0.0
Swimming	105.8	53.0	0.0	52.8
Drinking Water	0.0	0.0	0.0	0.0
Tygarts Creek				
Aquatic Life	113.3	96.2	16.0	1.1
Fish Consumption	56.3	10.6	0.0	45.7
Swimming	55.6	55.6	0.0	0.0
Drinking Water	10.6	10.6	0.0	0.0

Table 3.3.1-6 (cont.). Number of river miles assessed and level of support by use in each major river basin. Those basins in bold type are emphasized in this reporting cycle.				
<u>Upper Cumberland</u>				
Aquatic Life	12003.1	912.4	138.1	152.6
Fish Consumption	78.5	72.7	5.8	0.0
Swimming	418.7	91.4	28.7	298.6
Drinking Water	126.0	126.0	0.0	0.0

Figure 3.3.1-2. Aquatic life and primary (swimming) contact recreation use support by major river basins in Kentucky.



3.3.2 Use Assessment Results for 305(b) Reporting Cycle 2004 and 2005

Kentucky River BMU. The Kentucky River Basin is intrastate, with the headwaters rising in southeast Kentucky on the northwest slope of Pine Mountain in Letcher County. The Kentucky River Basin drains 6,965 square miles and contains 16,071 linear miles of streams flowing through all or portions of 41 counties. The main stem of the Kentucky River is approximately 255 miles (410 km); it flows through 14 locks and dams. Major tributaries to the Kentucky River include: 1) Eagle Creek; 2) Dix River; 3) Elkhorn Creek; 4) Red River; 5) North Fork Kentucky River; 6) Middle Fork Kentucky River; and 6) South Fork Kentucky River. Principal cities in the basin are: Hazard, Richmond, Nicholasville, Lexington, Georgetown and Frankfort.

Following are highlights of data and statistical analyses related particularly to the Kentucky River BMU, both targeted and probability based biosurveys to determine aquatic life use and other monitoring results as they relate to each of the four designated uses. Appendix 3.A contains a complete table of monitoring results for each specific water body and segment as related to streams and rivers. For refinement to the degree of use support, nonsupport miles were further subdivided into partial support and nonsupport based on physicochemical, MBI or KIBI scores. This assists KDOW in recognizing the relative degree of potential pollutant and habitat impacts on each system. Appendix 3.B contains reach indexing maps of these assessment results based on NHD 1:24,000 scale map for this BMU.

Impairments, sources and land uses. Impairments (pollutants) and sources of impairments particular to the Kentucky River BMU are listed in Tables 3.3.2-1 and 3.3.2-2, respectively. The Kentucky River drains portions of three physiographic regions (Cumberland Plateau and Mountains, Pennyroyal and Bluegrass). Given the variety of landscapes and geologic differences that occur within this basin, there are contrasting land uses. Of the two BMUs this reporting cycle focuses on, this is the only one with significant coal reserves. Coal extraction is most prevalent in the North and Middle forks of the upper Kentucky River Basin (HUCs 05100201 and 05100202). The land cover in this region is primarily forested with a rural population that exists in the narrow valleys. The major economic activities are mineral extraction and forest-related activity. In landscapes of significant resource extraction, sedimentation and dissolved solids are often the prevailing pollutants as vegetation is removed and bare soil and geologic strata are exposed. Elevated total dissolved solids are a particular concern in these waters that often have low buffering capacity and are naturally infertile. In areas of significant land disturbance and exposure of geologic strata, an abundance of ions from minerals such as magnesium and calcium are liberated into the water column, along with other metals. These two impairments of issue within the BMU, along with related habitat disruption or loss, account for 1198.5 miles of the 1634.3 miles (73.3 percent) impacted by the top five pollutants in the BMU (Table 3.3.2-1). These land uses are reflected in identified sources of the pollutants; the top three are loss of riparian habitat, municipal point source discharges and coal mining. The impairment “other flow regime alterations” is often associated with loss of riparian zone vegetation and subsequent loss of pool habitat in streams due to sediment loading from sloughing banks and overland runoff.

The middle basin (downstream of the confluence of the three forks and upstream of the mouth of the Red River (HUC 05100204) is somewhat of a transition zone between the upper and lower segments of the basin. Resource extraction no longer is a primary activity in the landscape; however, small-scale agriculture production is prevalent and exists primarily of hay production and related grazing of cattle. Due to the physiography of the area, farming exists in the stream and river valleys where broad bottomlands are available to cultivate and produce livestock. The population is primarily rural in this area and is concentrated on the broader river valleys.

The lower Kentucky River BMU is designated by HUC 0500205 and drains the bluegrass region of the commonwealth. This landscape is one of the most populated regions of Kentucky with the second largest urban area, Lexington, near the center of the HUC. During the 1990s and into the early 21st century, this area was one of the fastest growing portions of the state. As with many cities in the U.S., Lexington is experiencing growth issues as urban sprawl supplants what was historically (and is) a major thoroughbred producing region containing many horse farms with pasture and grazing operations dominating most of the area. Through efforts of local governments and citizens, a program to encourage conservation of green spaces by paying a land owner to set aside his farmland from potential development has had some successes. With this type of land use, the fact that sedimentation was the most significant pollutant throughout this diverse BMU brings together the development and resource extraction that are dominant uses found in this basin (Table 3.3.2-1). Municipal point source discharges, the second most common source of pollutants in the BMU, also reflect the extent of urban areas and smaller cities (Table 3.3.2-2).

Table 3.3.2-1. Number of river miles of the top five impairments assessed in the major river basins within the Kentucky River and Salt - Licking River BMUs.

River Basin	Miles
Kentucky River	
Impairments	
Sedimentation/Siltation	579.7
Habitat Assessment (Streams)	385.6
Pathogens	297.2
Total Dissolved Solids	232.1
Other Flow Regime Alterations	164.2
Salt River	
Pathogens	408.0
Sedimentation/Siltation	196.5
Organic Enrichment (Sewage) Biological Indicators	163.9
Nutrient/Eutrophication Biological Indicators	88.9
Benthic-Macroinvertebrate Bioassessments (Streams)	88.2
Licking River	
Pathogens	333.1
Sedimentation/Siltation	252.8
Nutrient/Eutrophication Biological Indicators	179.4
Organic Enrichment (Sewage) Biological Indicators	79.5
Habitat Assessment (Streams)	48.8
Ohio River Minor Tributaries (Licking River BMU)	
Sedimentation/Siltation	62.9
Nutrient/Eutrophication Biological Indicators	49.3
Organic Enrichment (Sewage) Biological Indicators	36.5
Pathogens	28.2
Impairment Unknown	19.0

Table 3.3.2-2. Number of river miles of the top five sources of impairments assessed in the major river basins within the Kentucky River and Salt-Licking River BMUs.

River Basin	Miles
Kentucky River	
Sources	
Loss of Riparian Habitat	754.4
Municipal Point Source Discharges	441.3
Coal Mining	403.5
Managed Pasture Grazing	403.4
Source Unknown	340.8
Salt River	
Municipal Point Source Dischargers	332.6
Urban Runoff/Stormwater Sewers	272.1
Source Unknown	253.2
Municipal (Urbanized High Density Area)	220.2
Loss of Riparian Habitat	213.6
Licking River	
Agriculture	274.8
Source Unknown	180.8
Animal Feeding Operations (NPS)	149.5
Loss of Riparian Habitat	134.1
Crop Production (Crop Land or Dry Land)	132.6
Ohio River Minor Tributaries (Licking River BMU)	
Crop Production (Crop Land or Dry Land)	85.7
Agriculture	46.2
Dredging (e.g. for Navigation)	45.0
Silviculture Activities	38.7
Site Clearance (Land Development or Redevelopment)	34.6

Targeted Monitoring: Aquatic Life Use. The targeted monitoring effort resulted in 1844.0 miles assessed for aquatic life in the Kentucky River BMU (Table 3.3.1-6). This use may be considered the most sensitive to impairments of all uses that apply to streams and lakes because all ecological elements of the aquatic environment must be of a sufficient level of integrity and quality to support aquatic communities dependent on that resource for life (e.g. both in-stream and out-of-stream habitat [riparian corridor and buffer zone] and water quality). A result of targeted monitoring was the addition of 19 candidate reference reach or exceptional streams or segments; these streams total 60.3 miles (Table 3.1.4-2). This is about 3.3 percent of the targeted total stream miles assessed. It should be noted as each cycle phase is repeated a fewer number of stream miles will likely be added to the reference reach list since there has been a concerted effort to locate all suspected least impacted streams previously. However, identifying new stream segments as exceptional (401 KAR 5:030) will be a part of KDOW's overall monitoring strategy.

Approximately 58 percent of targeted miles were in full support of aquatic life use, whereas 42 percent of all targeted miles assessed did not fully support (Table 3.3.1-6). While the majority of miles assessed at targeted monitoring locations for aquatic life were assessed based on biological monitoring, some of those miles were assessed using water physicochemical data at long-term and rotating watershed locations.

Targeted Monitoring: Fish Tissue. Fish tissue samples were analyzed for mercury and PCB burden in the Kentucky River BMU. Of the 326.4 miles assessed for fish consumption, 241.0 (about 74 percent) were in full support (Table 3.3.1-6). Approximately 85 miles (26 percent) were not fully supporting this use.

Targeted Monitoring: Primary (Swimming) Contact Recreation. Water column samples were analyzed for the presence and quantity of fecal coliform colonies to assess this use support. There were 645.8 river miles assessed in the Kentucky River BMU (Table 3.3.1-6). Of those river miles, 348.6 (54 percent) (Figure 3.3.1-2) were fully supporting and 297.2 miles (46 percent) were partially or not supporting this use (Table 3.3.1-6). The North Fork Kentucky River (Chavies to headwaters) has had a long-standing swimming advisory based on pathogens that remains in effect as of this BMU cycle phase. There were two primary issues related to this high concentration of fecal coliform colonies: municipal point source discharges, with a number of bypasses at wastewater treatment facilities, and straight-pipes discharging untreated household wastewater. Both sources can be tied to topography of the region, which is mountainous with narrow valleys associated with stream and river courses. These valleys provide much of the suitable land where housing can exist with reasonable access. However, available land to construct septic systems with needed lateral lines typically does not exist. The soils in these bottomlands often are poorly drained, further restricting proper on-site treatment in rural areas. A related scenario exists for the wastewater treatment facilities, which often are built in the flood zone of rivers, as these areas provide the limited sites to seat a facility.

Targeted Monitoring: Drinking Water Supply. All miles (169.1) assessed in the Kentucky River BMU were fully supporting this use (Table 3.3.1-6).

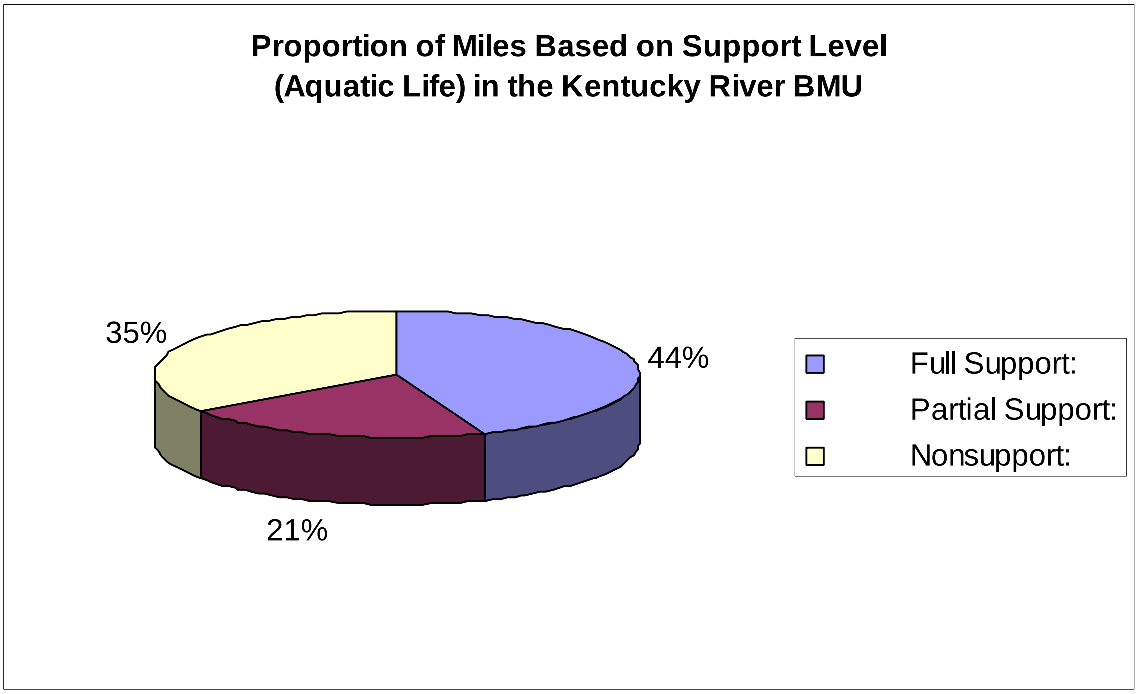
Probability Biosurvey of BMU. The Kentucky River BMU was sampled according to EMAP and Kentucky SOP (2006) protocol. Because of significant refinement and calibration to KDOW's MBI, comparisons to the 1998 results were problematic and not comparable; therefore, drawing trend information comparisons between the two monitoring years was not possible. As Table 3.3.2-3 shows, out of 17,595.8 miles of target stream resources, 16,995.5 miles were represented in the probability analysis. Once the probability data were extrapolated, 7497.0 miles or 44 percent of wadeable streams in this BMU were fully supporting aquatic life use, while 3560.4 miles or 21 percent of wadeable streams were partially supporting, and 35 percent were not supporting the aquatic life use (Table 3.3.2-3 and Figure 3.3.2-1).

Table 3.3.2-3. Aquatic use attainment results based on the 2003 probability biosurvey of the Kentucky River BMU.

Project ID	Kentucky River BMU Probability Survey
Target Population	Streams Strahler Order 1-5
Sample Frame	EPA River Reach File 3 (1:100,000 Scale)
Type of Water body	Wadeable Streams
Size of Target Population	17,595.8 mi
Size of Non-Target Population	3009.0 mi
Size of Target Sampled Population	16,995.5 mi
Designated Use	Aquatic Life
Attaining Full Use	7497.0 mi
Not Attaining Full Use (partial support)	3560.4 mi
Not Attaining Full Use (nonsupport)	5938.1
Indicator	Biology (Macroinvertebrates)
Assessment Date	2004
Precision	93% at 95% Confidence Level

Probability and Targeted Monitoring Compared (Aquatic Life Use). Probability and targeted monitoring results differed to a degree in the Kentucky River BMU (Table 3.3.2-4). In this BMU, the reference reach and other programs identified 53.2 miles or 2.9 percent of targeted streams as candidates for exceptional water designation (Table 3.1.4-2) during monitoring in 2003, and a number of miles were assessed as follow-up surveys on designated reference reach stream segments (Table 3.1.4-1). In the BMU-wide

Figure 3.3.2-1. Proportions of aquatic life use support in the Kentucky River BMU based on probability biosurveys. Pie chart represents the entire defined stream population (Strahler order 1 – 5) in the basin.



assessment data (stream miles) (including all monitoring efforts from 2003 and prior) targeted monitoring results include 243.1 miles (13 percent) of reference reach assessments, 395.8 miles (21 percent) of assessment results based on physicochemical data only, 346.7 stream miles (19 percent) using probability data for site-specific assessments. The balance of remaining mileage (858.4 miles [53 percent]) for other targeted monitoring efforts such as monitoring large order streams at most of the Primary Ambient Water Quality stations (refer to Table 3.1.1-1), fish only sites conducted by KDFWR, and streams monitored for possible exceptional water designation, but did not meet the higher criteria. Thus, 34 percent of all stream miles assessed for aquatic life use were based on reference reach and physicochemical programs. Of that 34 percent from targeted only reference reach and physicochemical programs, zero miles were nonsupporting based on results from these two monitoring programs. The streams with only physicochemical data are generally large (> 5th order) rivers that provide a considerable amount of dilution, and the chance of collecting water at the time any one particular pollutant passes with a concentration high enough to exceed water quality criteria are small. Many of the remaining targeted stream miles (858.4) (47 percent) are Strahler order 4 or greater, whereas probability monitoring design selects an equitable number of Strahler order 1 and 2 streams, in addition to Strahler order 3 - 5. These smaller watersheds show stress in biological communities to relatively smaller-scale perturbations than the large watersheds which can often assimilate more disturbances relative to watershed size. Also, the approach to locating sample locations differs significantly between the two biological programs. The targeted stations are located in the best available stream reach, whereas the probabilistic approach is designed to randomly detect the prevailing habitat and associated biological conditions in a defined stream population (like Strahler order watersheds) at randomly selected locations throughout the study area (BMU).

Table 3.3.2-4. Comparison of probability and targeted monitoring results for aquatic life use in the Kentucky River BMU (Note: percentages rounded to nearest integer).

	Full Support		Partial Support		Nonsupport	
	Probability	Target	Probability	Target	Probability	Target
Miles	7497.0	18844.0	3560.4	555.4	5938.1	213.0
Percent	44	58	21	30	35	11

Salt River Basin. The Salt River Basin is intrastate and drains about 4,150 square miles of parts or all of 18 counties in north-central Kentucky. The headwaters of the Salt River rise in Boyle County in the Knobs-Norman Upland (Ecoregion 71c). From there it flows northward into southern Anderson County where it bends westward to its eventual confluence with the Ohio River near West Point, Bullitt County. Along this course it picks up four principal tributaries, Rolling Fork, Chaplin River, Beech Fork and Floyds Fork. The streams in the Silver - Little Kentucky River HUC (05140101) of the Salt River Basin discharge directly into the Ohio River. According to 1:24,000 scale NHD map, there are 9,620.6 miles of streams in this basin. The watershed is bounded on the north and west by the Ohio River, on the east by the drainage divide with the Kentucky River Basin, and on the south by the drainage divide with the Green River Basin. The general topography ranges from nearly flat along alluvial plains to gently rolling pastures to hilly, steeply sloping hillsides in upland areas. The elevation of land surface ranges from slightly less than 400 feet to more than 1,200 feet above mean sea level. Data from the U.S. Census

Bureau indicate that six counties in the basin had the largest percent of population increase during 1990-1999. These counties and their rankings compared to the 120 total counties in Kentucky are Spencer County (1 out of 120), Oldham County (4 out of 120), Trimble County (7 out of 120), Anderson County (8 out of 120), Bullitt County (9 out of 120) and Nelson County (10 out of 120). Principal cities in the watershed include Louisville-Jefferson County, Radcliff, LaGrange, Shelbyville and many smaller communities.

Following are highlights of data and statistical analyses related particularly to the Salt River Basin, both targeted and probability-based biosurveys to determine aquatic life use and other monitoring results as they relate to each of the four designated uses. Appendix A contains a table of complete monitoring results for each specific water body and segment as related to streams and rivers. For refinement to the degree of use support, nonsupport miles were further subdivided into partial support and nonsupport based on physicochemical, MBI or KIBI scores. This assists KDOW in recognizing the relative degree of potential pollutant and habitat impacts on each system. Appendix 3.C contains reach indexing maps of these assessment results based on NHD 1:24,000 scale for this basin.

Impairments, sources and land uses. Impairments (causes) and sources of impairments particular to the Salt River Basin are listed in Tables 3.3.2-1 and 3.3.2-2, respectively. The Salt River Basin courses through one of the most densely populated areas of Kentucky, and this footprint of urban or municipal land uses is magnified given the relative drainage area in relation to basin area. Aside from urban areas, the landscape is dotted with small towns and mixed agriculture. The geologic strata are composed of sedimentary rock, primarily limestone. Soils are rich in phosphate, but less so than those in the Inner Bluegrass Ecoregion adjacent to this area. Because of this natural source of phosphorus, any increase of nitrogen above what occur naturally may trigger algal blooms in streams and manmade lakes under certain environmental and physical conditions. Organic enrichment was segregated into two sources, either sewage-related sources or all other sources (e.g. agriculture, lawn amendments to residences or urban parks, golf course turf management, etc.). If the issue of nutrients and organic enrichment is looked upon as a single concern it is the second most frequent occurrence of impairment by stream mileage in the basin (Table 3.3.2-1). Significant stream miles in the middle and lower portion of the basin had luxuriant growths of *Chladophora*, particularly in areas of intensive agricultural land uses where the riparian zone vegetation had been removed and there was increased nutrient runoff from nonpoint sources; this also was significant in suburban areas associated with intensive turf management. Data in Table 3.3.2-1 show that while pathogens were the leading impairment, if the two source-types of organic enrichment impairments were combined, then nutrient impairment would be the second most commonly identified impairment (pollutant) in the BMU. Sedimentation not only smothers habitat and aquatic life, but nutrients, bacteria and other compounds are often bound to soil particles and transported into rivers and streams.

The leading sources of impairments were associated with urban and suburban areas, which reflect the significant population that resides in this basin (824.9 stream miles out of 837.2 miles not supporting assessed uses [Tables 3.3.1-6 and 3.3.2-2]).

Targeted Monitoring: Aquatic Life Use. This basin has a high level of fully supporting stream miles for aquatic life use based on targeted monitoring (approximately 62 percent) (Table 3.3.1-6). This is an important distinction to note since this use represents the health and overall water and habitat qualities of aquatic communities in this basin. This use may be considered the most sensitive to impairments of all uses that apply to streams and lakes because nearly all ecological elements of the aquatic environment must be of a sufficient level of integrity and quality to support aquatic communities dependent on that resource for life (e.g. both in-stream and out-of-stream habitat [riparian corridor and buffer zone] and water quality). Total miles of targeted monitoring for this use was 1029.3 (Table 3.3.1-6). The majority of stream miles were monitored using biological indicators (primarily macroinvertebrates and/or fishes) on which to base assessment decisions; however, large, nonwadeable rivers and streams were assessed using physicochemical data collected over a minimum 12-month time period, and many of the stations' results were a compilation of three years of monitored data.

There were 7.3 miles of candidate exceptional stream segments identified from this second cycle of intensive monitoring in this basin (Table 3.1.4-2). These miles of candidate exceptional segments represent only 0.7 percent of the total number of miles assessed for this use.

Targeted Monitoring: Fish Tissue. Fish tissue samples were analyzed for mercury and PCB burden in the Salt River Basin. Fish consumption was assessed in 73.3 miles; of those miles assessed, 47.0 (about 64 percent) were full support (Table 3.3.1-6). A total of 26.3 miles, or 36 percent, were not fully supporting this use, and one-half of those miles resulted in mercury concentrations above 1.0 µg/g, which triggers an advisory for no consumption.

Targeted Monitoring: Primary (Swimming) Contact Recreation. Water column samples were analyzed for the presence and quantity of fecal coliform colonies to assess this use support. There were 471.5 river miles assessed in the Salt River Basin (Table 3.3.1-6). Of those river miles, 67.8 (14 percent) (Figure 3.3.1-2) were fully supporting and 403.7 miles (86 percent) were partially or not supporting this use. The majority of those stream miles not supporting this designated use were located in the Louisville-Jefferson County metropolitan area. There were three primary sources related to this high concentration of fecal coliform colonies: municipal point source discharges with bypasses at wastewater treatment facilities, urban runoff/stormwater sewers and municipal urbanized high density area. These issues are those that confront many municipalities and major urban areas in the U.S. because of population growth, aging and inadequate infrastructure and the lack of funding for upgrading and expanding infrastructure. With the planned expansion of regional wastewater treatment facilities and subsequent elimination of package wastewater facilities, it is anticipated the level of pathogens in these urban waters will be significantly reduced.

Targeted Monitoring: Drinking Water Supply. All miles assessed in the Salt River Basin fully supported this use (Table 3.3.1-6).

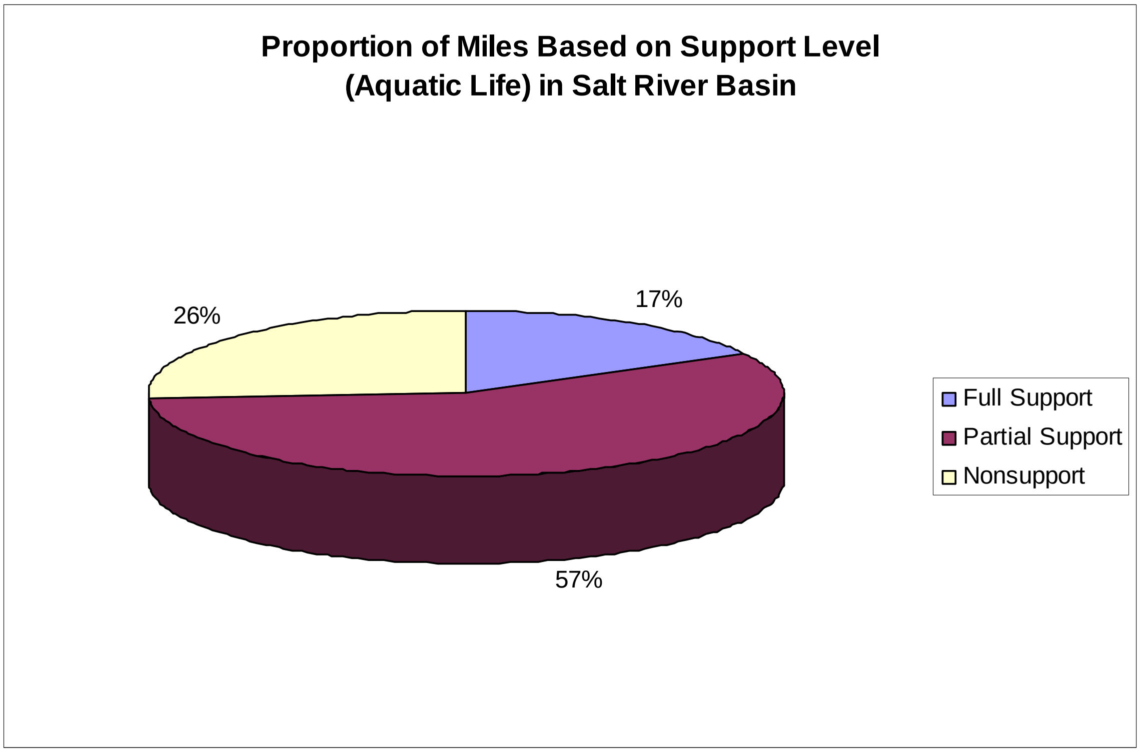
Probability Biosurvey of Salt River Basin. The Salt River Basin was sampled according to EMAP and Kentucky SOP (2006) protocol. Because of significant refinement and calibration to KDOW's MBI, comparisons to the 1999 results were problematic and not comparable; therefore, drawing trend information comparisons between the two monitoring years was not possible. Also, to further complicate data analyses comparisons, 1999 was a year of severe drought in Kentucky and much of the southeastern U.S. Thus, many headwater streams that might have been expected to be part of the survey were excluded. As Table 3.3.2-5 shows, out of 3464.98 miles of target stream resources, 3371.13 miles were represented in the probability analysis. Once the probability data were extrapolated, 584.4 miles or 17 percent of wadeable streams in this BMU were fully supporting aquatic life use, while 2880.5 miles or 83 percent of wadeable streams were not fully supporting that use (Table 3.3.2-5 and Figure 3.3.2-2).

Table 3.3.2-5. Aquatic life use attainment results based on the 2004 probability biosurvey of the Salt River Basin.

Project ID	Salt River Basin Probability Survey
Target Population	Streams Strahler Order 1-5
Sample Frame	EPA River Reach File 3 (1:100,000 Scale)
Type of Water body	Wadeable Streams
Size of Target Population	3464.98 mi
Size of Non-Target Population	882.07 mi
Size of Target Sampled Population	3371.13 mi
Designated Use	Aquatic Life
Attaining Full Use	584.43 mi
Not Attaining Full Use	2880.53 mi
Indicator	Biology (Macroinvertebrates)
Assessment Date	2005
Precision	90% at 95% Confidence Level

Probability and Targeted Monitoring Compared (Aquatic Life Use). Probability and targeted monitoring results differed considerably in the Salt River Basin (Table 3.3.2-6). In this basin, the reference reach and other programs identified 7.3 miles or 0.7 percent of targeted streams as candidates for exceptional water designation (Table 3.1.4-2), and a number of miles were assessed as follow-up surveys on designated reference reach stream segments (Table 3.1.4-1). In the BMU-wide assessment data (including all monitoring efforts from 2004 and prior), targeted monitoring results include 45.8 (4 percent) miles of reference reach assessments, 185.8 miles (18 percent) of assessments based solely on physicochemical data, 199.0 (19 percent) miles using probability data for site-specific assessments, and 599.2 miles (approximately 58 percent) for other targeted monitoring efforts such as monitoring large order streams at most of the Primary Ambient Water Quality Stations, fish collection only sites and streams monitored for possible exceptional water designation. Thus, 22 percent of all stream miles assessed for aquatic

Figure 3.3.2-2. Proportions of aquatic life use support in the Salt River Basin based on probability biosurveys. Pie chart represents the entire defined stream population (Strahler order 1 – 5) in the basin.



life use were based on reference reach and physicochemical programs alone. Of that 22 percent, zero miles were nonsupporting based on results from these two monitoring programs. Many of the remaining (other than reference reach) targeted streams (599.2 miles, approximately 58 percent) are in Strahler order 4 or greater; the physicochemical stations are located on streams >5th order. Those physicochemical river stations provide a considerable amount of dilution, and the chance of collecting water with a concentration high enough to exceed water quality criteria is small. Many of the remaining targeted stream miles (other than reference reach) (499.8) are Strahler order 4 or greater, whereas the probability monitoring design selects an equitable number of Strahler order 1 and 2 streams, in addition to Strahler order 3 – 5. These smaller watersheds show stress in biological communities to relatively smaller-scale perturbations than the large watersheds which can often assimilate more disturbances relative to watershed size. Also, the approach to locating sample stations differs significantly between the two biological programs. The targeted stations are located in the best available stream reach, whereas the probabilistic approach is designed to randomly detect the prevailing habitat and associated biological conditions in a defined stream population (like Strahler order watersheds) at randomly selected locations throughout the study area (BMU).

Table 3.3.2-6. Comparison of probabilistic and targeted monitoring results for aquatic life use in the Salt River Basin (Note: percentages rounded to nearest integer).

	Full Support		Partial Support		Nonsupport	
	Probability	Target	Probability	Target	Probability	Target
Miles	584.43	641.25	1989.56	238.10	890.97	149.90
Percent	17	65	57	22	26	14

Licking River Basin. The Licking River drains a diverse watershed, with forested hills and low mountains in the upper reaches, rolling farmland along the middle region and an urban center with much industrial development near the confluence with the Ohio River in northern Kentucky. The Licking River was named for the mineral springs and salt licks that attracted buffalo and other animals to the basin; it rises in the highlands of the Central Appalachians in Magoffin County. The elevation ranges from about 1500 feet in the headwaters to about 460 feet above mean sea level at the mouth. The river flows northwest crossing three Level III Ecoregions and has a length of about 300 miles before discharging into the Ohio River between Newport and Covington. This basin drains all or portions of 20 counties and is intrastate. It is bordered on the north by the Ohio River, south by the Kentucky River basin and to the east by the Big Sandy – Little Sandy – Tygarts basins. The two principal tributaries are the North Fork, which joins the main stem of the river near Milford, and the South Fork, which joins at Falmouth. According to NHD (1:24,000 scale), there are 9570.4 miles in the basin (HUCs 05100101 and 05100102) and another 2086.8 miles in HUC 05090201 which is drained by minor tributaries to the Ohio River, the largest being Kinniconick Creek. The Licking River drains an area of roughly 3,600 square miles, or about 10 percent of the entire state. A dam near the town of Farmers on the Rowan - Bath county line (about 173 miles upstream from the Ohio River) forms Cave Run Lake, an 8,300-acre reservoir that impounds approximately 30 miles of the main stem and the lower reaches of several tributaries. Smaller, low-water dams occur on Slate Creek, Stoner Creek, South Fork Licking River and other streams.

Following are highlights of data and statistical analyses related particularly to the Licking River Basin, both targeted and probability-based biosurveys to determine aquatic life use and other monitoring results as they relate to each of the four designated uses. Appendix 3.A contains a table of complete monitoring results for each specific water body and segment as related to streams and rivers. For refinement to the degree of use support, nonsupport miles were further subdivided into partial support and nonsupport based on physicochemical, MBI or KIBI scores. This assists KDOW in recognizing the relative degree of potential pollutant and habitat impacts on each system. Appendix 3.D contains reach indexing maps of these assessment results based on NHD 1:24,000 scale for this basin.

Impairments, sources and land uses. Impairments (causes) and sources of impairments particular to the Licking River basin are listed in Tables 3.3.2-1 and 3.3.2-2, respectively. As with the Salt River Basin, pathogens were the leading impairment in this basin, and sediment and siltation the second most commonly identified pollutant. While the Salt River Basin may mirror this basin in terms of impairments, the sources were tied to agriculture and related activities that occurred primarily in the lower two-thirds of the basin. The upper one-third of the basin was primarily forested and rugged terrain. This physiography dictates that communities be located in floodplains and narrow valleys associated with streams in the area. Two impairments (pathogens and sedimentation) were affected 585.9 stream miles (65.6 percent) of the 893.6 miles impacted by the top five impairments in the basin (Table 3.3.2-1). Of the top five most commonly identified sources of impairment, three were directly tied to agriculture, accounting for 556.9 stream miles (63.9 percent) (Table 3.3.2-1). One of the most detrimental effects of stream habitat integrity affecting the aquatic life use support level is the source “Loss of Riparian Habitat” identified as the fourth most common source of impairment in the basin (Table 3.3.2-2). This is a source that is often a direct result of other land-use-related sources of impairments such as agriculture, resource extraction and residential land uses, and is a major contributing factor to sedimentation and siltation.

The lower one-third of this basin becomes progressively more urban. Here pathogens are contributed primarily through municipal point source discharges and urban runoff or stormwater sewers. Kenton and Campbell counties in northern Kentucky are densely populated with impervious surfaces being a significant percentage of land cover in the lower most 20 miles of the river. Upgrades to stormwater sewers and POTWs in the planning or implementation phase should improve runoff and overflows associated with urban infrastructure.

Targeted Monitoring: Aquatic Life Use. This basin had a support level for aquatic life use of about 55 percent of miles assessed based on targeted monitoring (Table 3.3.1-6). This support level was comparable to that for the Kentucky River BMU. This use may be considered the most critical of all uses that apply to streams and lakes because all ecological elements of the aquatic environment must be of a sufficient level of integrity and quality to support aquatic communities dependent on that resource for life (e.g. both in-stream and out-of-stream habitat [riparian corridor and buffer zone] and water quality). Total miles of targeted monitoring for this use were 763.0 (Table 3.3.1-6). The majority of stream miles were monitored using biological indicators (primarily macroinvertebrates or fishes) on which to base assessment decisions; however, large, nonwadeable rivers and streams were assessed using physicochemical data collected over a minimum 12-month time period, and many of the stations' results were a compilation of three years of monitored data.

There were 43.1 miles of candidate exceptional streams identified from this second cycle of intensive monitoring of this basin (Table 3.1.3-2). These miles of candidate exceptional segments represent only 5.7 percent of the total number of miles assessed for aquatic life use. The commonwealth is in the second rotational BMU cycle of intensive monitoring which has led to many miles of exceptional and reference reach stream segments identified. Given that this has been a priority in development and refinement of multimetric indices for many years now, it is likely that the pace at which additional streams will qualify as exceptional and reference reach stream segments will slow as the majority of these waters have been identified. However, identifying new stream segments as exceptional (401 KAR 5:030) will be a part of KDOW's overall monitoring strategy.

Targeted Monitoring: Fish Tissue. Fish tissue samples were analyzed for mercury and PCB burden in the Licking River Basin. Of the 55.4 miles surveyed, all were found to be supporting.

Targeted Monitoring: Primary (Swimming) Contact Recreation. Water column samples were analyzed for the presence and quantity of fecal coliform colonies to assess this use support. There were 475.8 river miles assessed in the Licking River basin (Table 3.3.1-6). Of those river miles, 149.1 (31 percent) (Table 3.3.1-6 and Figure 3.3.1-2) were fully supporting and 326.7 miles (69 percent) were partially or not supporting this use (Table 3.3.1-6). The lower Licking River basin has a long-standing swimming advisory in two tributaries, Banklick and Threemile creeks. Pathogens were the number one impairment affecting the stream miles in this basin (Table 3.3.2-1). There was no distinct pattern in the basin where the nonsupporting streams occur; however, the majority of affected stream miles were in the middle portion of the basin. This area is rural and primarily agricultural. Many grazing operations for both horses and cattle exist in this area. Agriculture was the major source of impairments in this basin (Table 3.3.2-2). One other area where significant stream miles impaired by pathogens exist was in the lower basin, near an area of urban development.

Targeted Monitoring: Drinking Water Supply. All miles assessed in the Licking River Basin were fully supporting this use (Table 3.3.1-6).

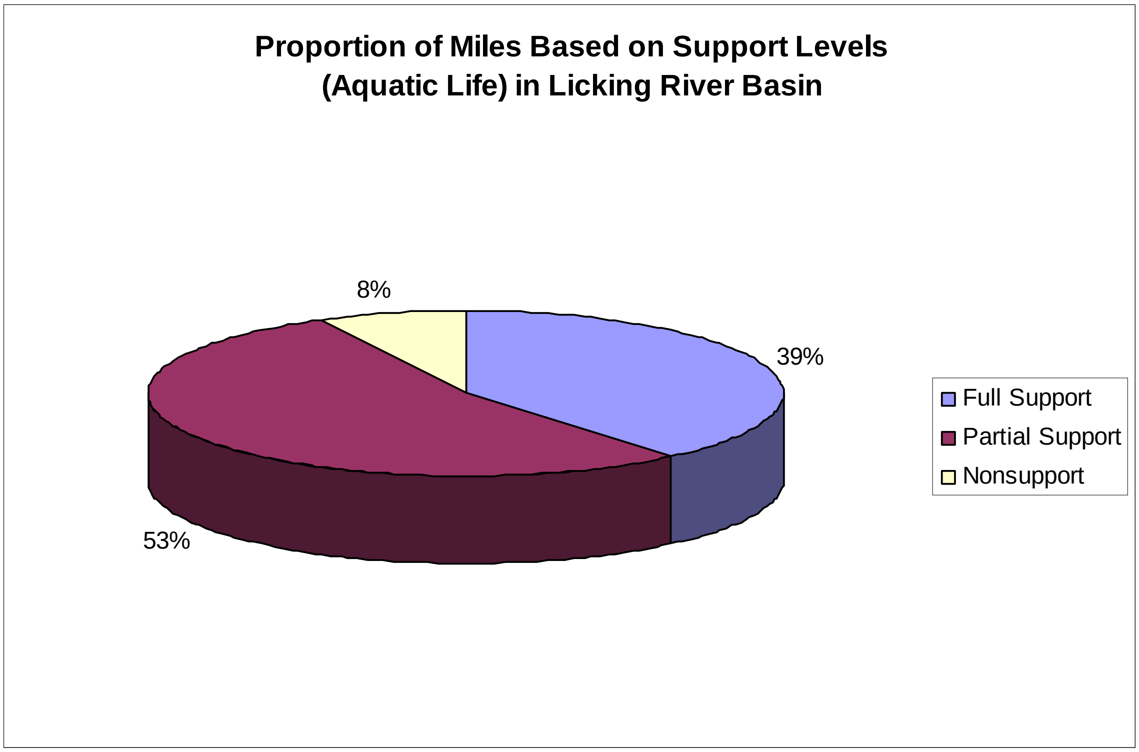
Probability Biosurvey of Salt River Basin. The Licking River basin was sampled according to EMAP and KDOW SOP (2006) protocol. Because of significant refinement and calibration to KDOW's MBI, comparisons to the 1999 results were problematic and not comparable; therefore, trend information comparisons between the two monitoring years were not made. Also, to further complicate data analyses comparisons, 1999 was a year of severe drought in Kentucky and much of the southeastern U.S. Thus, many headwater streams that might have been expected to be part of the survey were excluded because of those drought conditions. As Table 3.3.2-7 shows, out of 5811.7 miles of target stream resources, 5616.4 miles were represented in the probability analysis. Once the probability data were extrapolated, 2263.9 miles or 39 percent of wadeable streams in this BMU were fully supporting aquatic life use, while 3547.8 miles or 61 percent of wadeable streams were not fully supporting that use (Table 3.3.2-5 and Figure 3.3.2-3). This probability survey did find a considerably greater aquatic life use support level for this basin as compared to the Salt River Basin (39 percent compared to 17 percent). It is likely that less impervious surface and differences in land use were primarily responsible for these findings.

Table 3.3.2-7. Aquatic use attainment results based on the 2004 probability biosurvey of the Salt River Basin.

Project ID	Licking River Basin Probability Survey
Target Population	Streams Strahler Order 1-5
Sample Frame	EPA River Reach File 3 (1:100,000 Scale)
Type of Water body	Wadeable Streams
Size of Target Population	5811.74 mi
Size of Non-Target Population	390.73 mi
Size of Target Sampled Population	5616.37 mi
Designated Use	Aquatic Life
Attaining Full Use	2263.94 mi
Not Attaining Full Use	3547.80 mi
Indicator	Biology (Macroinvertebrates)
Assessment Date	2005
Precision	90% at 95% Confidence Level

Probability and Targeted Monitoring Compared (Aquatic Life Use). Probability and targeted monitoring results differed in the Licking River Basin (Table 3.3.2-8). In this basin, the reference reach and other programs identified 43.1 miles or 5.7 percent of targeted streams as candidates for exceptional water designation (Table 3.1.4-2), and a number of miles were assessed as follow-up surveys on designated reference reach stream segments (Table 3.1.4-1). In the BMU-wide assessment data targeted monitoring results include 59.1 miles (8 percent) of reference reach assessments, 66.8 miles (9 percent) of assessments based on physicochemical data only, 137.3 miles (18 percent) using probability data for site-specific assessments. The remaining 499.8 miles (65 percent) were from other targeted monitoring efforts such as monitoring large order streams at most of the Primary Ambient Water Quality stations (refer to Table 3.1.1-1), fish only sites conducted by KDFWR, and streams monitored for possible exceptional water designation. Many of the targeted streams are Strahler order 4 or greater whereas probability monitoring design selects an equitable number of Strahler order 1 – 5 streams. These smaller watersheds manifest stress in biological communities to relatively smaller-scale perturbations than large watersheds which can often assimilate more disturbances relative to watershed size.

Figure 3.3.2-3. Proportions of aquatic life use support in Licking River Basin based on probability biosurveys. Pie chart represents the entire defined stream population (Strahler order 1 – 5) in the basin.



Also, the approach to locating sample stations differs significantly between the two biological programs. The targeted stations are located in the best available stream reach, whereas the probabilistic approach is designed to randomly detect the prevailing habitat and associated biological conditions in a defined stream population (like Strahler order watersheds) at randomly selected locations throughout the study area.

Table 3.3.2-8. Comparison of probabilistic and targeted monitoring results for aquatic life use in the Licking River Basin (Note: percentages rounded to nearest integer).

	Full Support		Partial Support		Nonsupport	
	Probability	Target	Probability	Target	Probability	Target
Miles	2263.94	419.00	3104.06	200.90	443.74	143.10
Percent	39	55	53	26	8	19

3.3.3 Ohio River

ORSANCO assessed uses in the 664 miles of the Ohio River main stem that forms Kentucky's northern boundary and a summary of those findings are presented in the ORSANCO 2006 305(b) report. No reaches of the Ohio River fully support all uses. Drinking water and aquatic life use are fully supported in all river miles. Eighteen segments along this reach were not fully supporting primary contact recreation use due to pathogens. Of the 664 miles that form Kentucky's northern border, those 18 segments represent 350 miles (53 percent) that did not fully support the use. This limited support was often a result of combined sewer overflows (CSOs) during and immediately following rainfall events in and downstream of urban areas. All miles of the Ohio River partially supported the fish consumption use because of limited fish consumption advisories for PCBs and dioxin.

3.3.4 Water Quality Trend Analysis

Methods. Six water quality variables were evaluated for trend patterns of data at 23-primary long-term ambient monitoring stations. Those water quality variables thought to be of most significance were: 1) total suspended solids; 2) specific conductance 3) nitrite-nitrate; 4) total phosphorus; 5) sulfates; and 6) chloride. To meet the criterion for long-term monitored data, the stations selected from KDOW's 71 primary ambient water quality network were those that had a minimum of 25 years of monitored data (typically either monthly or bimonthly). Data were downloaded from STORET – the USEPA water quality storage and retrieval database. All subsequent work was performed using Microsoft Excel. Summary statistics were determined for the raw dataset. Summary statistics for the dataset include: median, 10^{th}, 25^{th} and 90^{th} percentiles.

In the absence of water quality statistical software, control charts were used to determine trends in the dataset. John K. Taylor, in his book *Quality Assurance of Chemical Measurements* (1987), states that control charts provide a graphical means of understanding a variety of process issues. Control charts have been used to monitor and document critical aspects of samples and sampling operations and to detect trends in laboratory process systems.

The recommended procedure for development of control charts uses the mean of a number of measured values of the variable as the central line and the standard deviation to establish the control and warning limits. The central line (the mean of all measured values) is bracketed by a warning line (+ or – twice the standard deviation [2σ]), or a control line (+ or – three times the standard deviation [3σ]).

Trend analysis. To identify trends in a dataset, the dataset was first assessed for outliers. Outliers have been defined as, "an observation that does not conform to the pattern established by other observations (Gilbert, 1987). To assess for outliers, an approach called the "Box plot rules" presented by Eric Aroner in his WQHYDRO – Water Quality/Hydrology Graphics/ Analysis User's Manual (1993) – was employed; the procedure is:

{LQ (lower quartile) 25th %tile– (3.0 IQR [interquartile range])} ≤ X ≤ (UQ [upper quartile] 75th %tile + (3.0 IQR [interquartile range])}.

Aroner stated that using 3.0 results in an extremely low chance of non-inclusion for what were labeled *far-outside fences* (i.e. data outliers). Those data outside the above calculated range were excluded from trend analysis. This normally resulted in exclusion of less than five percent of the raw data.

- Total mean and standard deviation statistics were next computed for the dataset. This mean served as the central line for the control charts. Standard deviations (2σ and 3σ) based on the dataset standard deviation were computed to serve as the control and warning limits.
- Control charts were then developed.
- As almost all yearly mean concentrations were within one standard deviation around the central line, charts that display the 0.5 σ warning line were developed.
- The resultant control charts were then visually examined to see if any trends were evident. Those charts which appeared to contain trends were handled in the following way.
    - The mean of five-year datasets of pollutant concentrations was computed. These means were then applied to the charts.
    - A trend was determined to exist if three consecutive five-year interval means were either increasing or decreasing. If less than three consecutive years were increasing or decreasing, no trend was determined to exist.

Results. Twenty trends were determined; of those 20 trends, 10 were decreasing and 10 were increasing (Table 3.3.4-1). Of those variables showing trends, specific conductance was the most common and was increasing in five-sixths of observations. Of those five increasing trends for specific conductance, with one exception, all stations were located in areas of coal mining activity (Table 3.3.4-2). The Kentucky River near Frankfort was the only station outside of coal mining regions indicating an increasing trend for specific conductance.

Table 3.3.4-1. Water quality variable trend observations and frequencies (number of stations).

Water Quality Variable	Increasing Trend	Decreasing Trend
Specific Conductance	5	1
Sulfate	4	1
Total Phosphorus	0	4
Nitrite + Nitrate	1	1
Chloride	0	1
Total Suspended Solids	0	1

Of the ongoing land uses identified to be primary stressors of streams in this region (mining, silviculture, residential and commercial development, agriculture, and road, railroad and bridge construction), mining and residential development are the most pervasive and occur in smaller watersheds where mountain streams are directly exposed to chemical and physical disturbances (Pond, 2004). Various studies have shown that high concentrations of dissolved ions such as chlorides and sulfates detrimentally affect water quality and the aquatic communities of streams (Branson and Batch, 1972; Howard et al.

Table 3.3.4-2. Primary long-term water quality stations with detectable water quality variable trends.

Stream Name	Basin	Variable	Trend Increasing	Trend Decreasing
Cumberland River near Burkesville	Upper Cumberland	Total Suspended Solids (TSS)		X
Kentucky River at Frankfort	Kentucky	Sulfate	X	
N. Fk. Kentucky River at Jackson	Kentucky	Specific Conductance	X	
Levisa Fork near Pikeville	Big Sandy	Specific Conductance	X	
		Sulfate	X	
Salt River at Shepherdsville	Salt	Total Phosphorus		X
Pond River near Sacramento	Green	Total Conductance (1979-1995)	X	
		Total Conductance (1995-2004)		X
		Chloride		X
		Nitrite-Nitrate		X
		Sulfate		X
Tug Fork near Kermit, WV	Big Sandy	Specific Conductance	X	
		Chloride		X
		Total Phosphorus		X

2001; and Pond, 2004). Sedimentation and habitat modifications are also important watershed impacts negatively affecting stream health (Pond and McMurray, 2002).

3.3.5 Assessment Results of Lakes and Reservoirs: Focus on Kentucky and Salt - Licking Rivers BMUs

Introduction. Since the initiation of the rotating basin approach in 1998, the Commonwealth's significant publicly-owned reservoirs are monitored over a five-year cycle instead of the previous seven- to eight-year cycle. During this two-year reporting period, 18 impoundments and reservoirs in the Kentucky River Basin, 12 in the Salt River Basin and eight in the Licking River Basin were monitored (figures located in Appendix C).

Designated uses in lakes consist of Warm Water Aquatic Habitat (WAH) (sometimes in conjunction with Cold Water Aquatic Habitat (CAH) in lakes with a two-story fishery) and Primary and Secondary Contact Recreation (PCR and SCR). Many reservoirs also have a domestic water supply (DWS) use. Indicators monitored or sampled for analysis to determine lake or reservoir health may be found in Table 3.2.1-1.

3.3.5.1 Assessment of Trophic State and Use Support.

Trophic status was assessed in lakes by using the Carlson Trophic State Index (TSI) for chlorophyll *a*. This method is convenient because it allows lakes to be ranked numerically according to increasing eutrophy, and it also provides for a distinction between oligotrophic, mesotrophic, eutrophic, and hyper-eutrophic lakes. The growing season (April – October) average TSI value was used to rank each lake. Areas of lakes that exhibited trophic gradients or embayment differences often were analyzed separately. Use support in lakes was determined by criteria listed in Table 3.2.1-3.

3.3.5.2 Results

Statewide. Tables 3.3.5.2-1 through 3.3.5.2-9 present statewide summaries of use support, impairments (causes) and sources of impairments of reservoirs, ponds and lakes in the state. The water quality assessment of lakes includes more than 90 percent of the publicly-owned lakes, ponds and reservoirs acreage of Kentucky. Sixty-five of 107 lakes, ponds and reservoirs (61 percent) fully support their uses, and 42 (39 percent) do not support one or more uses. On an acreage basis, approximately 82 percent (538,481 acres) of the 653,120 assessed acres fully support uses, and approximately 18 percent (114,639 acres) do not support one or more uses (Tables 3.3.5-1 – 3).

Methylmercury in fish tissue was the most frequently identified impairment, accounting for the most lake, pond and reservoir acres impacted (Table 3.3.5.2 – 6). Nutrients/eutrophication biological indicators and pH were the second and third most frequent impairments. A list of those sources of impairments is presented in Tables 3.3.5.2-7 – 9. Sources "unknown" were most commonly identified as it relates to impairments affecting Kentucky's reservoirs and lakes since methylmercury was the primary pollutant;

Table 3.3.5.2-1. Individual use support summary for Kentucky reservoirs.

Use	Total Size	Size Assessed	Size Fully Supporting	Size Fully Supporting but Threatened	Size Not Supporting	Size Not Assessed
Warm Water Aquatic Habitat	218,981	217,810	209,093	0	8,717	1,171
Cold Water Aquatic Habitat	2,410	2,410	2,410	0	0	0
Fish Consumption	218,981	203,031	111,408	0	91,623	15,950
Primary Contact Recreation Water	218,981	2,940	2,940	0	0	216,041
Secondary Contact Recreation Water	218,981	23,441	11,034	0	12,407	195,541
Domestic Water Supply	204,359	202,876	201,215	0	1,661	1,483

Table 3.3.5.2-2. Individual use support summary for Kentucky lakes.

Use	Total Size	Size Assessed	Size Fully Supporting	Size Fully Supporting but Threatened	Size Not Supporting	Size Not Assessed
Warm Water Aquatic Habitat	571	571	378	0	193	0
Fish Consumption	571	36	0	0	36	535
Primary Contact Recreation Water	571	0	0	0	0	571
Secondary Contact Recreation Water	571	0	0	0	0	571

Table 3.3.5.2-3. Individual use support summary for Kentucky ponds.

Use	Total Size	Size Assessed	Size Fully Supporting	Size Fully Supporting but Threatened	Size Not Supporting
Warm Water Aquatic Habitat	4.8	0	0	0	0
Fish Consumption	4.8	4.8	3.3	0	1.5
Primary Contact Recreation Water	4.8	0	0	0	0
Secondary Contact Recreation Water	4.8	0	0	0	0

this pollutant enters aquatic environments from multiple pathways. Agricultural-related sources, along with municipal point sources and septic systems, were the most commonly identified sources related to nutrient impairments (Tables 3.3.5.2-7 and 8). Ponds also had "unknown" as the most common source (Table 3.3.5.2-9) because of methylmercury. A fish consumption advisory for PCBs is in place on one reservoir of considerable size (Green River Lake), resulting in a high percentage of lake acres impacted by priority organics (Table 3.3.5.2-4). Low dissolved oxygen (Table 3.3.5.2-4) was the fourth most common impairment, and a large proportion of this acreage (36 percent) was from one relatively large reservoir (Herrington Lake). A related problem was dissolved gas super-saturation, which often occurs with excess nutrients during daylight hours as photosynthesis from excess algae occurs. Naturally shallow lake or reservoir basins, or those that have excessive sedimentation resulting in shallow basins, often provide suitable habitat for the proliferation of nuisance aquatic weeds that impair secondary contact recreation and account for the fifth highest cause of use nonsupport. Other natural conditions, such as manganese releases from anoxic hypolimnetic water and nutrients in runoff from relatively undisturbed watersheds affect, domestic water supply and secondary contact uses, respectively. Suspended solids from surface mining activities have decreased in severity as a source from previous years but continue to impede full secondary contact recreation use in one eastern Kentucky reservoir.

Trophic state was determined for the number of acres and lakes for the four possible categories of TSI. For this presentation of data, a distinction between lakes (natural waterbodies) and reservoirs (manmade lakes or impoundments) is made. Tables 3.3.5.2-10 and 11 present these results.

Table 3.3.5.2-4. Number of acres of Kentucky reservoirs, lakes and ponds affected by impairments.

Impairment	Total Size
Methylmercury	91,623
Nutrient/Eutrophication Biological Indicators	8,890
pH	8,489
Oxygen, Dissolved	8,234
Polychlorinated biphenyls	8,210
Dissolved Gas Supersaturation	3,864
Total Suspended Solids (TSS)	3,040
Sedimentation/Siltation	2,417
Organic Enrichment (Sewage) Biological Indicators	1,936
Taste and Odor	1,171
Chlorophyll-a	548
Habitat Assessment (Streams)	339
Aquatic Plants (Macrophytes)	331
Manganese	317
Aquatic Algae	169
Impairment Unknown	43

Table 3.3.5.2-5. Number of acres of Kentucky lakes (natural) affected by impairments.

Impairment	Total Size
Nutrient/Eutrophication Biological Indicators	193
Methylmercury	36

Table 3.3.5.2-6. Number of acres of Kentucky ponds affected by impairment.

Impairment	Total Size
Methylmercury	1.5

Table 3.3.5.2-7. Sources of impairments to Kentucky reservoirs.

Source	Total Size
Source Unknown	84,398
Atmospheric Deposition - Toxics	18,638
Upstream Source	11,560
Agriculture	9,087
Industrial Point Source Discharge	8,210
Municipal Point Source Discharges	6,129
On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	4,232
Livestock (Grazing or Feeding Operations)	3,356
Internal Nutrient Recycling	3,212
Surface Mining	3,040
Natural Sources	2,015
Heap-leach Extraction Mining	1,230
Rural (Residential Areas)	317
Littoral/shore Area Modifications (Non-riverine)	232
Impacts from Abandoned Mine Lands (Inactive)	219
Unspecified Urban Stormwater	170
Non-irrigated Crop Production	169
Crop Production (Crop Land or Dry Land)	137
Grazing in Riparian or Shoreline Zones	99
Habitat Modification - other than Hydromodification	99
Septage Disposal	98
Golf Courses	78
Contaminated Sediments	18

Table 3.3.5.2-8. Sources of impairments to Kentucky lakes (natural).

Source	Total Size
Natural Sources	193
Agriculture	193
Source Unknown	36

Table 3.3.5.2-9. Source of impairment to Kentucky ponds.

Source	Total Size
Source Unknown	1.5

Table 3.3.5.2-10. Trophic state of reservoirs in Kentucky

Trophic State	Number of Lakes	Total Size
Oligotrophic	13	63,686
Mesotrophic	25	17,110
Eutrophic	55	136,481
Hypereutrophic	2	507
Dystrophic	0	0

Table 3.3.5.2-11. Trophic state of lakes in Kentucky

Trophic Status	Number of Lakes	Total Size
Oligotrophic	0	0
Mesotrophic	0	0
Eutrophic	10	501
Hypereutrophic	2	70

Kentucky River Basin Management Unit. Of the fully supporting reservoirs in this BMU, two were eutrophic, three were mesotrophic and one was oligotrophic (Tables 3.3.5.2-12). There were 17 reservoirs monitored or evaluated, six were fully supporting uses and 11 did not support all uses (Table 3.3.5.2-12 – 14). Of reservoirs fully supporting uses, the trend in trophic state was increasing toward a more enriched system as compared to 1998 data (Table 3.3.5.2-12). Dissolved oxygen and nutrient/eutrophication biological indicators were the two most common impairments affecting water quality conditions in these lakes (Tables 3.3.5.2-13 and 14). Excess nutrients (phosphorus and nitrogen) eventually result in depleted or lowered DO in the water column; conversely, the excess algal growth will result in super-saturation of DO during photosynthesis. Sources of those impairments are listed in Tables 3.3.5.2-13 and 14.

Table 3.3.5.2-12. Kentucky River Basin reservoirs that fully support uses.

Lake	Acres	County	Trophic State	Eutrophication Trend	Uses
Bert Combs	36	Clay	Mesotrophic	Increasing	WAH, CAH, SCR, DWS
Corinth	139	Grant	Eutrophic	Increasing	WAH, SCR
General Butler	26	Carroll	Eutrophic	Increasing	WAH, SCR
Fishpond	32	Letcher	Mesotrophic	Increasing	WAH, SCR
Owsley Fork	151.6	Madison	Oligotrophic	Increasing	WAH, SCR, DWS
Mill Creek	41	Wolfe	Mesotrophic	Increasing	WAH, CAH, SCR, DWS

Salt – Licking Basin Management Unit. Of the fully supporting reservoirs in this BMU, eight were eutrophic and six had no data for TSI (five of those six reservoirs were assessed using MORs for drinking water use and one only for fish consumption) (Tables 3.3.5.2-15 and 16). There were 25 reservoirs monitored or evaluated; 14 were fully supporting uses and 11 were not supporting all uses in this BMU during 2004 (Tables 3.3.5.2-15 – 19). Of those, 16 reservoirs were eutrophic, one was mesotrophic and one was hyper-eutrophic (Tables 3.3.5.2-15 – 19). The trends in trophic state of all reservoirs that fully support uses were increasing eutrophy as compared to 1999 data (Tables 3.3.5.2-15 and 16). Methylmercury (fish tissue), nutrient/eutrophication biological indicators, dissolved oxygen and dissolved gas super-saturation were the common impairments listed for those reservoirs not fully supporting (Tables 3.3.5.2-17 – 19). Excess nutrients (phosphorus and nitrogen) eventually result in depleted or lowered DO in the water column; conversely, the excess algal growth will result in super-saturation of DO during photosynthesis. As these reservoirs were primarily in rural areas, sources of these impairments were often related to unknown sources and agriculture (Tables 3.3.5.2-17 – 19).

Table 3.3.5.2-13. Kentucky River Basin reservoirs that partially support uses.

Lake	Acres	County	Trophic State	Use Impaired	Cause of Impairment	Source of Impairment
Boltz	92	Grant	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen	Agriculture, Unspecified Urban Stormwater
Buckhorn	1230	Perry	Mesotrophic	SCR	Siltation, Total Suspended Solids	Agriculture, Natural Sources, Surface Mining, Heap-Leach Extraction Mining
Bullock Pen	134	Grant	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen	Agriculture, Onsite Treatment Systems (and similar decentralized systems)
Carr Creek	710	Knott	Eutrophic	WAH, SCR	Siltation, Nutrient/Eutrophication Biological Indicators, Organic Enrichment (Sewage) Biological Indicators, Dissolved Oxygen, Total Suspended Solids,	Surface Mining, Source Unknown
Cedar Creek	784	Lincoln	Eutrophic	FC	Methylmercury	Source Unknown
Elmer Davis	149	Owen	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen	Agriculture
Herrington	2940	Mercer/ Garrard	Eutrophic	WAH, FC	Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen, Methylmercury	Municipal Point Sources, Internal nutrient recycling , Agriculture, Onsite Treatment Systems (and similar decentralized systems), Source Unknown
Stanford City	43	Lincoln	Mesotrophic	DWS	Taste And Odor, Impairment Unknown	Source Unknown

Table 3.3.5.2-14. Kentucky River Basin reservoirs not supporting uses.

Lake	Acres	County	Trophic State	Use Impaired	Cause of Impairment	Source of Impairment
Pan Bowl	98	Breathitt	Mesotrophic	WAH	Organic Enrichment (Sewage) Biological Indicators, Dissolved Oxygen	Septage disposal, Internal nutrient recycling,
Reba	78	Madison	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen	Golf Courses, Unspecified Urban Runoff
Wilgreen	139	Madison	Eutrophic	WAH, SCR	Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen, Chlorophyll-a, Aquatic Algae	Non-Irrigated Crop Production, Onsite Treatment Systems (and similar decentralized systems), Livestock (grazing and feeding operations)

Table 3.3.5.2-15. Licking River Basin reservoirs that fully support assessed uses.

Lake	Acres	County	Trophic State	Eutrophication Trend	Uses
Greenbriar	66	Montgomery	Eutrophic	Increasing	WAH, SCR, DWS
Williamstown	300	Grant	Eutrophic	Increasing	WAH, SCR, DWS
A. J. Jolly	204	Campbell	Eutrophic	Increasing	WAH, SCR
Carnico	114	Nicholas	Eutrophic	Increasing	WAH, SCR
Evans Branch	22	Rowan	N/A	N/A	DWS
Carlisle Water Supply	8	Nicholas	N/A	N/A	DWS
Flemingsburg	60	Fleming	N/A	N/A	DWS
Doe Valley	372	Meade	N/A	N/A	DWS
Fagan Branch	126	Marion	N/A	N/A	DWS

Table 3.3.5.2-16. Salt River Basin reservoirs that fully support uses.

Lake	Acres	County	Trophic State	Eutrophication Trend	Uses
Sympson	184	Nelson	Eutrophic	Increasing	WAH, SCR, DWS
Marion County	21	Marion	Eutrophic	Increasing	WAH, SCR
Long Run Park	27	Jefferson	Eutrophic	Increasing	WAH, FC, SCR
Willow Pond	3.3	Jefferson	N/A	N/A	FC
Reformatory	54	Oldham	Eutrophic	Increasing	WAH, FC, SCR

Table 3.3.5.2-17. Licking River Basin reservoirs that partially support uses.

Lake	Acres	County	Trophic State	Use Impairment	Cause of Impairment	Source of Impairment
Cave Run	8270	Rowan/Menifee/Bath	Mesotrophic	FC	ph, Methylmercury	Source Unknown, Upstream Source
Kincaid	183	Pendleton	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, DO, Dissolved Gas Super-saturation	Agriculture
Doe Run	51	Kenton	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, DO, Dissolved Gas Super-saturation	Upstream Source, Source Unknown
Sandlick Creek	74	Fleming	Eutrophic	SCR	Aquatic Macrophytes	Littoral/Shoreline Area Modifications

Table 3.3.5.2-18. Salt River Basin reservoirs partially supporting uses.

Lake	Acres	County	Trophic State	Use Impairment	Cause of Impairment	Source of Impairment
Beaver	158	Anderson	Eutrophic	SCR	Aquatic Macrophytes	Littoral/Shoreline Area Modifications
Chickasaw Park Pond	1.5	Jefferson	N/A	FC	Methylmercury	Source Unknown
McNeely	51	Jefferson	Eutrophic	FC	Methylmercury	Source Unknown
Willisburg	126	Washington	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, DO, Dissolved Gas Super-saturation	Upstream Source, Source Unknown
Taylorsville	3050	Anderson/ Nelson/Spencer	Hyper-eutrophic	WAH, FC	Nutrient/Eutrophication Biological Indicators, DO, Methylmercury	Municipal Point Source, Livestock (Grazing & Feeding Operations), Agriculture, Upstream Source, Source Unknown
Jericho	137	Henry	Eutrophic	WAH	Nutrient/Eutrophication Biological Indicators, DO, Dissolved Gas Super-saturation	Agriculture, Crop Production (Crop Land or Dry Land), Livestock (Grazing or Feeding Operations)

Table 3.3.5.2-19. Salt River reservoir not supporting uses.

Lake	Acres	County	Trophic State	Use Impairment	Cause of Impairment	Source of Impairment
Guist Creek	317	Shelby	Hyper-eutrophic	WAH, DWS, FC	Nutrient/Eutrophication Biological Indicators, DO, Dissolved Gas Super-saturation, Methylmercury, Taste and Odor, Manganese	Agriculture, Onsite Treatment Systems (& similar decentralized systems), Rural Residential Areas, Natural Sources, Atmospheric Deposition, Source Unknown

Chapter 4. Groundwater

4.1 Introduction

Kentucky's groundwater is an important source of drinking water for more than 1.7 million Kentuckians, as well as a source of water for industry and irrigation. An estimated 1,537,595 Kentuckians are served by 185 public water systems (PWSs) that rely on groundwater (Figure 4.1-1), in whole or part, as their source. An additional 415,950 rural Kentuckians not connected to public water systems rely on private wells, springs, and other sources (e.g. cisterns) for their drinking water (Table 4.1-1). Groundwater also contributes significant recharge to streams. Protection of this resource is crucial to Kentucky's economy, public health and the environment.

Figure 4.1-1. Groundwater sources for public water suppliers in Kentucky.

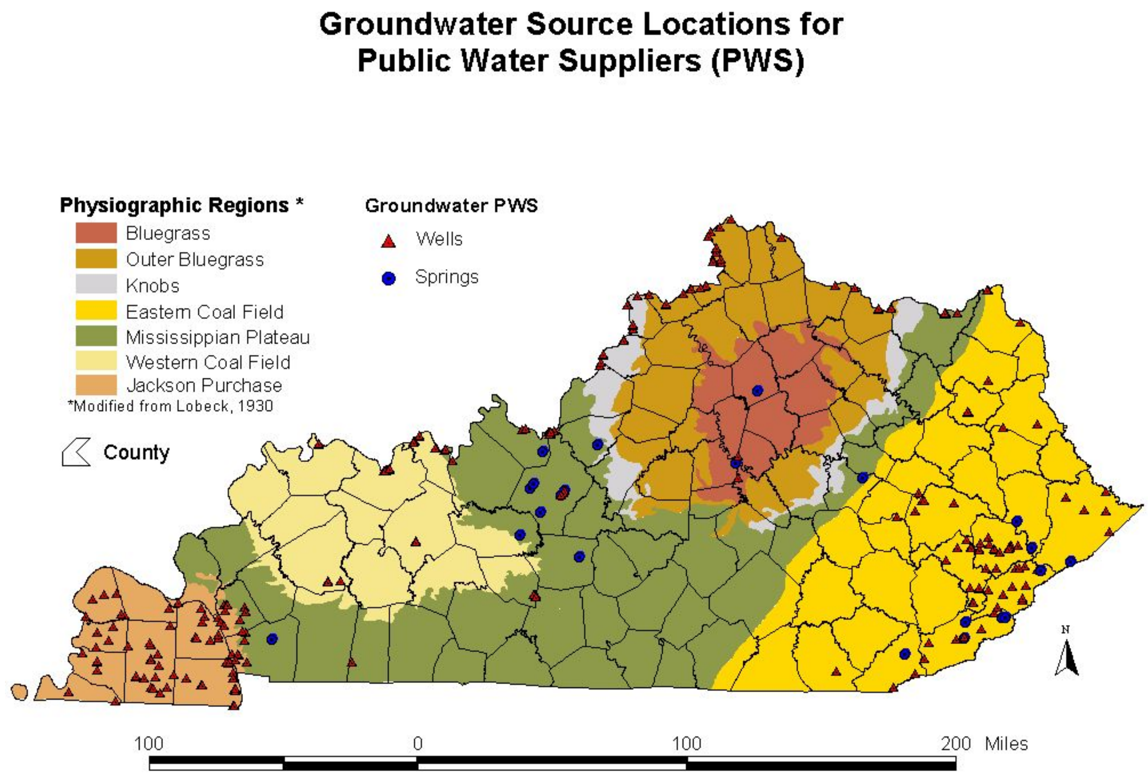


Table 4.1-1. Estimates of state population served by public water and private sources.

Year 2000	Population 2005	% of State Population 2005	% Population on Potable Water Sources in 2005[1]	Population 2000	% of State Population 2000	% Population on Potable Water Sources in 2000[1]	Population 1990	% of State Population 1990	% Population on Potable Water Sources in 1990[1]
# Service Connections	1,537,595	N/A	N/A	1,350,788	N/A	N/A	1,214,664	N/A	N/A
Population Served	3,751,732[2]	90.06%	90.06%	3,512,049[2]	86.89%	86.89%	2,970,717	80.61%	80.61%
Population not served by Community PWS's[5]	415,331	9.97%	4.34%[4]	529,720	13.11%	7.21%[4]	714,578	19.30%	10.66%[4]
Population on private wells	293,690	7.05%	3.07%[4]	374,547	9.27%	5.23%[4]	505,254	13.71%	7.75%[4]
Population on private springs & other sources	122,475	2.94%	1.28%[4]	155,173	3.84%	2.17%[4]	209,324	5.68%	3.21%[4]
State Population	4,165,814[6]	100.00%	95.65%	4,041,769[3]	100.00%	94.29%	3,685,296	100.00%	91.57%
Total	4,165,814[6]	100.00%	95.65%	4,041,769[3]	100.00%	94.29%	3,685,296	100.00%	91.57%

1. "Potable" traditionally means that water which poses no appreciable health risk (via pathogens or chemicals) for consumption. The assumption in this model is that all public water is "potable," however some public water systems do have occasional problems with Maximum Contaminant Levels, (MCL) violations. Also, some public water systems fail secondary (non-enforceable) standards relating to taste and odor. These failures to meet secondary standards can be related to variations in source water quality, and problems with treatment or the distribution system. Problems with public water systems (PWS) meeting secondary standards can be ongoing, but are more commonly occasional or intermittent. The Division of Water works with these systems to address secondary standard violations in order to bring these PWS's into compliance. For wells, springs, and other sources, other aesthetic considerations such as color, taste, and odor were considered in addition to pathogen or other contaminant issues in resolving the estimate of the number of people with access to potable drinking water sources.

2. The population served by Community Public Water Systems in 2000 is calculated by multiplying the total number of service connections by 2.6. N x 2.6 = PS, where N = the number of service connections, and PS = the estimated population served. The multiplier (2.6) represents the average number of people served per service connection. N is estimated at 2.44 for 2005 [6].

3. Number available from U.S. Census Bureau 2000.

4. Based on Departmental studies, approximately 43.5percent of all wells tested exceed the secondary standard for Iron. These studies tested pre-treatment water only and this number does not include water that is successfully treated via domestic treatment systems to meet or exceed primary and secondary standards. As the secondary standard for iron was the most common "potability" problem for private sources we determined that this consideration would be the most conservative estimator of access to potable private sources. Please note that a well, spring, or cistern may have one or more conditions that effect the potability of the water.

5. Population not served by Community PWS's includes private wells, springs, cisterns, and hauled bottled water.

6. Estimated population for the year 2005 by the U of L Kentucky State Data Center.

Definitions: 1) "Community Public Water Systems" are public water systems serving an average of ≥ 25 people/day year-round, or systems with ≥ 15 service connections; **2)** "Service connections" are individual homes and businesses connected to Community Public Water Systems; **3)** "Other sources" are springs, cisterns, and hauled water; and **4)** "Potable water" is water produced by any Community Public Water System, and domestic/private water supplies which meets both the Primary Maximum Contaminant Levels and the Secondary Maximum Contaminant Levels

4.2 Availability and Use

Naturally occurring potable groundwater is found throughout Kentucky, although quantities available for use vary considerably, as controlled by regional geological characteristics. Kentucky's groundwater resources occur in four aquifers types: 1) alluvial deposits in the Ohio and Mississippi river valleys and other major stream valleys; 2) karst aquifer systems of the Pennyroyal and Bluegrass regions; 3) unconsolidated sediments of the Jackson Purchase area; and 4) fractured bedrock aquifers of the Eastern Kentucky and Western Kentucky Coal Fields.

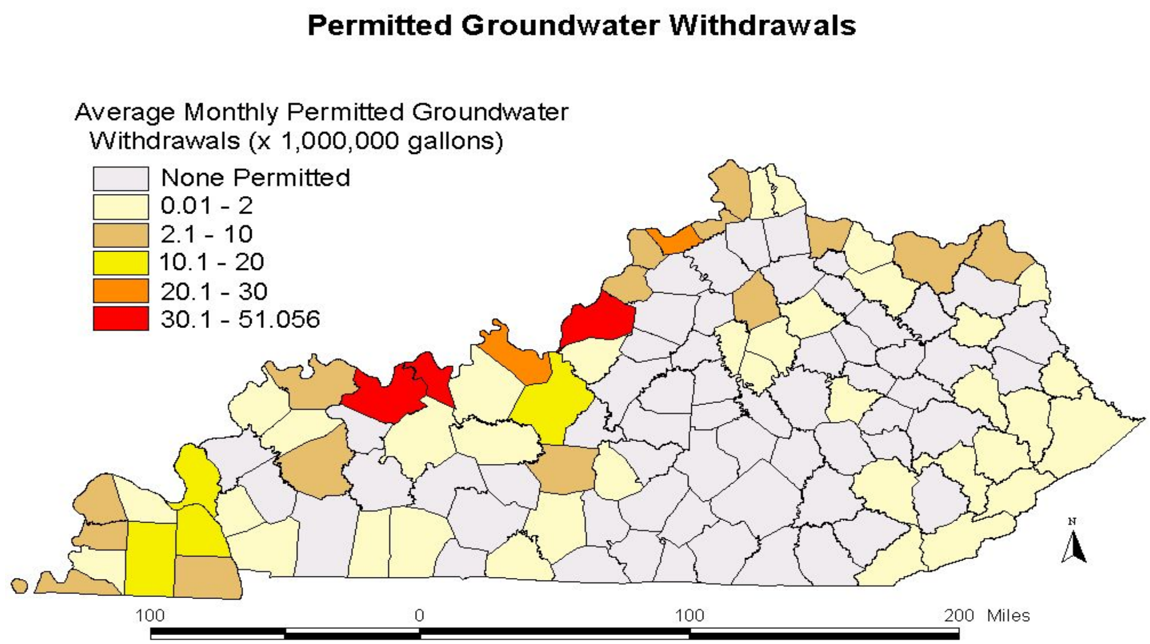
High-yielding wells constructed in alluvial deposits are typical of the Ohio and Mississippi river valleys that comprise Kentucky's northern and western borders. Wells in these valley aquifers are the most productive of any wells in the Commonwealth, producing adequate high-quality water for domestic, public, industrial and agricultural use. Much of Kentucky's future drinking water needs will be met by these aquifers, as evidenced by a recent increase in use of the aquifers by public water systems rather than surface water sources. This trend is being driven, in part, by new, more stringent surface water treatment rules and the cost to treat.

Karst aquifers, developed in soluble rocks (e. g. limestone and dolomite) are characterized by numerous shallow conduit-flow systems of generally limited extent. Approximately 50 percent of Kentucky is underlain by karst aquifers. The most extensive karst aquifers are in the Pennyroyal region of western Kentucky. Karst aquifers are present, but less well developed, in the Inner Bluegrass region. The availability of groundwater in karst areas is highly variable and generally supports public and domestic supplies. Locally, karst groundwater may support agriculture and industry.

In the Western Kentucky and Eastern Kentucky Coal Field regions, wells in fractured sedimentary rocks generally provide sufficient water for domestic use, and locally provide sufficient water for smaller public water systems. The unconsolidated sediments of the Jackson Purchase region are prolific aquifers, supporting widespread domestic, industrial and agricultural use, as well as public water systems (PWSs).

In 2005, 36 percent of PWSs in Kentucky depended upon groundwater, in whole or part, as a source, withdrawing more than 70 million gallons per day total (Figure 4.2-1). The majority of PWS's use is from the alluvial deposits along the Ohio River and unconsolidated sediments in the Jackson Purchase region. Numerous PWSs in eastern Kentucky are supplied by water wells and a number of PWSs in the Pennyroyal and Bluegrass utilize natural springs. Households that depend upon private water wells for their drinking water are most numerous in eastern Kentucky and in the Jackson Purchase region; these two regions account for about 75 percent of all new well construction in the state. Approximately 415,331 people depend on private sources for their drinking water, primarily from private wells and springs (Table 4.2-1). The number of people on private sources is decreasing as PWSs expand to previously unserved areas.

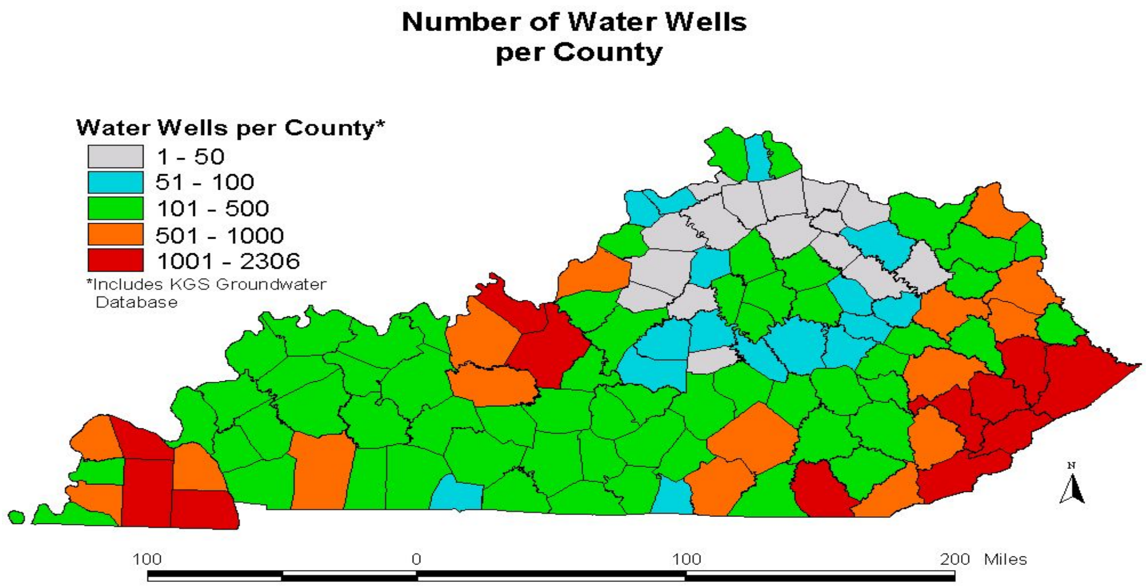
Figure 4.2-1. Permitted groundwater withdrawals in Kentucky.



4.3 Groundwater Quality

In Kentucky, water wells are found in every county (Fig. 4.3-1) and the quality of groundwater used for private domestic supplies is generally good, although there are areas of the state where local water quality problems exist. Common, naturally occurring groundwater quality problems include pathogens, elevated levels of nitrates, iron, sulfur, and “hard” or “salty” water due to high total dissolved solids (TDS). Of these contaminants, nitrates and pathogens represent potentially serious, acute health risks if levels above maximum contaminant levels (MCLs) is regularly consumed, especially by unborn children, infants, and those vulnerable to infection or other health impacts (e. g., the very young, elderly, and immune-compromised people).

Figure 4.3-1. Number of water wells per county in Kentucky.



Pathogens, indicated by the presence of coliform bacteria, generally occur in wells because of improper construction or maintenance. Exposure to pathogens normally manifests itself with gastro-intestinal problems and flu-like symptoms, however some pathogens can have much more serious consequences. Pathogens can be introduced into wells from local soils if well construction fails to meet the established standards, including the required amount of casing, sealing of the annulus, and the proper set-backs from potential sources of contamination such as septic systems. Pathogens may also occur in the well because of a failure to disinfect the well after maintenance, or failure to maintain sanitary seals. Well disinfection after construction, pump removal, etc. by a certified driller is required, and the KDOW strongly recommends that well owners routinely inspect, disinfect, and sample their wells for bacteria. Although this is not difficult, and guidance is readily available from the KDOW and other sources, most well owners fail to do this.

Elevated nitrates (greater than 10 parts per million NO_3-N) do occur locally, principally in shallow wells, or in springs, where sources of nitrate (e. g. fertilizer application, manure storage/application, animal feedlots) are prevalent. Elevated nitrates are known to cause methemoglobinemia in infants (“blue baby” syndrome). This illness is caused by the conversion of nitrate to nitrite in the blood, which reduces its ability to carry oxygen, thus causing cyanosis, a bluish discoloration of the skin, and in severe cases, death.

Iron and sulfur, common in many of Kentucky’s aquifers, do not typically represent health risks, but if elevated these parameters can affect the aesthetic quality of water including taste, odor, and staining of clothes, appliances and plumbing.

Elevated TDS in groundwater occurs naturally in some areas, but may also result from historic oil and gas drilling and production. Elevated TDS is largely an aesthetic concern, causing “hard” water and scaling in pipes and appliances. At higher levels, water may taste “salty” and be variously objectionable to many people.

4.3.1 Contamination Issues

Groundwater quality in Kentucky is generally good; water quality is directly related to land use, geology, groundwater sensitivity and well construction. Nonpoint source impacts on groundwater quality are primarily from agriculturally related nutrients and pesticides. Major sources of groundwater contamination in Kentucky are listed in Table 4.3.1-1.

Nitrates are a widespread concern, especially in shallow wells constructed in alluvial and coastal plain aquifers and in karst springs. Nitrates impact these aquifers because recharge in these areas is sufficiently rapid so that attenuation of nitrates is not complete in the upper soil horizons. The principal sources of nitrates in these aquifers are from agricultural activities including fertilizer application, manure storage and application, and animal feeding operations. Elevated nitrates have impacted a small number of PWSs relying on groundwater. In addition, shallow, private wells are more likely to have elevated nitrate.

Table 4.3.1-1. Major sources of groundwater contamination.

Contamination Source	Eleven Highest Priority Sources (X)	Factors Considered in Selecting a Contaminant Source (See Below) (Use all that apply)	Contaminants (See Below) (Use all that apply)
Agricultural Activities			
Agriculture Chemical Facilities			
Animal Feedlots	X	I, III, V, VI, VII	B, E, J, K, L
Drainage Wells			
Fertilizer Applications	X	I, III, IV, V, VI, VII	E
Irrigation Practices			
Pesticides Applications	X	I, III, IV, VI, VII	A, B
On-farm Agricultural Mixing and Loading Procedures			
Land Application of Manure (unregulated)			
Storage and Treatment Activities			
Land Application			
Material Stockpiles			
Storage Tanks (above ground)			
Storage Tanks (underground)	X	I, III, IV, V, VI, VII	C, D, H
Surface Impoundment			
Waste Piles			
Waste Tailings			
Disposal Activities			
Shallow Injection Wells (Class V) – includes stormwater runoff from urban and agricultural land uses.	X	I, II, III, IV, V, VI, VII	A, B, C, D, E, F, G, H, J, L, M (Sediment)
Deep Injection Wells			
Landfills, including pre-law landfills	X	I, III, IV, V, VI, VII	A, B, C, D, E, F, G, H, I, J, K, L, M (Leachate Compounds)
Septic Systems	X	I, II, III, IV, V, VI, VII	A, B, C, D, E, F, G, H, J, K, L
Other			
Dry Cleaners	X	I, III, IV	C (TCE)
Hazardous Waste Generators			
Hazardous Waste Sites			
Industrial Facilities	X	I, III, IV, V, VII	A, B, C, D, E, F, G, H, I, J, K, L, M (TCE)
Material Transfer Operations			
Mining and Mine Drainage	X	I, III, IV, V, VI, VII	G, H, M (Sediment runoff, dewatering wells)
Oil and Gas wells/operations		III, IV, VI, VII	G, H
Pipelines and Sewer Lines			
Salt Storage and Road Salting			
Salt Water Intrusion			
Spills	X	I, II, III, IV, V, VII	A, B, C, D, E, F, G, H, I, J, K, L, M (TCE)
Transportation of Materials			
Various (e.g. drums wire-burners, battery crackers)			B, C, D, H,
Small-Scale Manufacturing and Repair Shops			

Factors

- **I-** Human Health and/or environmental risk (toxicity)
- **II-** Size of the population at risk
- **III-** Location of the Sources relative to drinking water sources
- **IV-** Number and Size of contaminant source
- **V-** Hydrogeologic Sensitivity
- **VI-** State Findings, other Findings
- **VII-** Best Professional Judgment

Contaminants

- A- Inorganic Pesticides
- B- Organic Pesticides
- C- Halogenated compounds
- D- Petroleum compounds
- E- Nitrate
- F- Fluoride
- G- Salinity / Brine
- H- Metals
- I- Radionuclides
- J- Bacteria
- K- Protozoa
- L- Viruses
- M- Other (see narrative)

Pesticides are also a concern, especially in karst areas coincident with major agricultural and urban areas where use of herbicides on row crops is prevalent in the former, and domestic lawn and garden chemicals are commonly applied in the latter. In karst areas, pesticides bypass soil attenuation processes and contribute to elevated levels in karst groundwater systems. These aquifers, in turn, discharge pesticide contaminated water to surface water systems in an efficient fashion, as groundwater and surface water in karst terrain are conjunctive. Although pesticide concentrations in groundwater are often elevated seasonally, detections and significant levels are not limited to application season. Atrazine is the most commonly detected pesticide, but only limited detections occur above the MCL of 3 parts per billion. Two PWSs have experienced compliance problems with atrazine.

Urban growth and land use also impact karst aquifers. Urban sprawl threatens some karst aquifers, particularly where new growth does not coincide, as is common, with the extension of sewers. The additional hydrological loading from concentrated septic systems exasperates collapse potential forming sink basins, and the increased hydrologic, pathogen, nutrient, and pesticide loading typical of urban areas can degrade groundwater quality in karst and other regions. Further, improperly managed injection of storm water into karst aquifers in urban areas also impacts local groundwater and surface-water quality.

Local contamination from landfills, USTs, Superfund sites and hazardous waste sites remains a concern as much for Kentucky as for other states. However, no widespread impacts or negative trends on ambient water quality resulting from waste sites have occurred in Kentucky. The occurrence of MTBE and BTEX is largely limited to contaminated sites; occasional minor detections of BTEX and MTBE in urban karst springs are likely the result of storm water runoff. Disruption of groundwater use in both private and public water supply wells and springs because of contamination has occurred locally, but is uncommon. There are currently 1,405 sites with known or suspected groundwater contamination, including 1,116 UST sites, 45 solid waste sites, 202 state and federal Superfund sites and 42 hazardous waste sites (Table 4.3.1-2). The department is tracking contaminated groundwater sites and the condition of groundwater at these sites. Kentucky has recently developed a broad-based remediation program that applies to

Table 4.3.1-2. Local contamination from landfills, USTs, Superfund and hazardous waste sites. Date of data shown: (1-1-04) to (12-31-05).

<table>
<tr><th>Source Type</th><th colspan="2">Number of Sites</th><th>Number of Sites with Confirmed Releases</th><th>Number of Sites with Groundwater Contamination</th><th>Contaminants</th><th>Source</th></tr>
<tr><td>NPL</td><td colspan="2">19</td><td>19</td><td>19</td><td rowspan="3">PCBs, SVOCs, VOCs, Metals, Inorganics, Pesticides, and Radionuclides</td><td rowspan="4">Division of Waste Management (DWM) Superfund Branch State Superfund Section – Hubbard</td></tr>
<tr><td>State Sites</td><td colspan="2" rowspan="2">1,029</td><td rowspan="2">1,066</td><td rowspan="2">138</td></tr>
<tr><td>CERCLIS</td></tr>
<tr><td>Non-UST Petroleum</td><td colspan="2">176</td><td>250</td><td>45</td><td>Petroleum</td></tr>
<tr><td>UST</td><td colspan="2">4,314</td><td>2,472</td><td>1,116</td><td>BTEX, PAH, Lead</td><td>DWM - UST Branch – Terry</td></tr>
<tr><td rowspan="2">RCRA Corrective Action</td><td rowspan="2">87</td><td>RCRA-D 45</td><td>45</td><td>45</td><td>Organics</td><td>DWM - Solid Waste Branch- Pilcher</td></tr>
<tr><td>RCRA-C 63</td><td>36</td><td>36</td><td rowspan="2">Cyanide, PCBs, VOCs, ABNs, PAHs, Metals, and Radionuclides</td><td rowspan="2">DWM - Hazardous Waste Branch – Jung</td></tr>
<tr><td>DOD/DOE</td><td>6</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td rowspan="3">UIC</td><td>Total</td><td>Class I 1</td><td rowspan="3">N/A</td><td rowspan="3">N/A</td><td rowspan="3">Varied</td><td rowspan="3">Robert Olive -EPA</td></tr>
<tr><td rowspan="2"></td><td>Class II 3,897</td></tr>
<tr><td>Class V 467</td></tr>
</table>

Contaminants: PCB- Polychlorinated Biphenyl BTEX- Benzene, Toluene, Ethylene, and Xylene, SVOC- Semi Volatile Organic Compound, PAH- Poly Aromatic Hydrocarbons, VOC- Volatile Organic Compound and ABN- Acid Base Neutral contaminated sites, including brownfields. Over the next several years, this program should significantly reduce the number of contaminated sites.

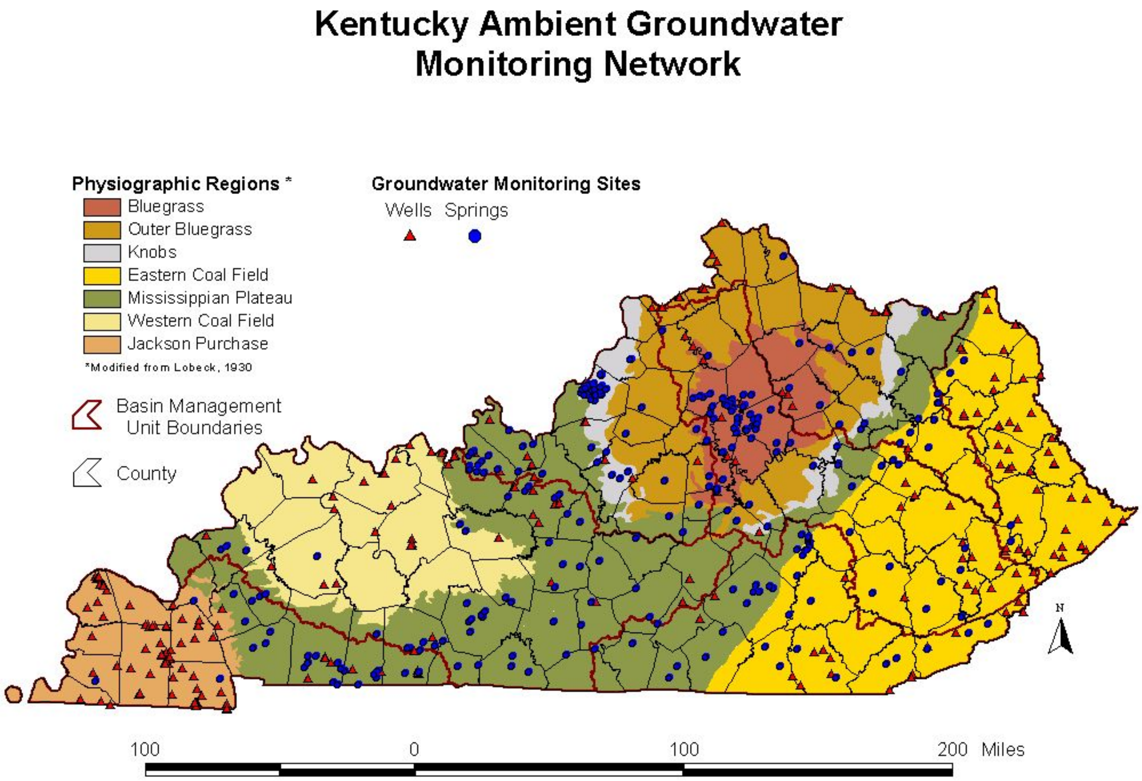
4.4 Ambient Groundwater Quality Monitoring

The Division of Water has collected and analyzed approximately 4,000 groundwater samples from about 500 sites to characterize ambient groundwater conditions and nonpoint source impacts (Figure 4.4-1). Sites are usually sampled from one to six times per year, based on aquifer type and monitoring goals. However, two projects are underway that will assess groundwater in karst areas based on surface water protocols, which may be more appropriate for these systems that can directly and profoundly influence surface water quality. Water quality parameters evaluated include nutrients, major inorganic ions, total and dissolved metals, pesticides and volatile organic compounds, including MTBE. Analysis of groundwater for pathogens is a major logistical challenge, but the division has addressed this issue in several assessment projects and is improving.

A summary of the results of ambient groundwater monitoring for major parameters of concern in Kentucky is presented in Table 4.4-1. Water quality trends seem to be related to regional geology, land use, groundwater sensitivity (Figure 4.4-2) and well construction. Anthropogenic impacts on groundwater quality occur predominantly in the most sensitive (karst) areas, primarily from agricultural activities. Persistent localized groundwater contamination from human activities occurs around pre-law landfills, leaking underground storage tanks, poorly maintained septic systems, direct discharge of waste through “straight pipes” to karst aquifers, historic oil and gas production, mining operations and drainage, and urban runoff. Less persistent, but still of concern locally, are spills and contamination from industrial facilities. Urban storm-water runoff is an increasing concern, particularly in karst areas where storm-water is commonly managed via Class V Underground Injection Control wells.

Results. Specific groundwater quality standards have not been adopted in Kentucky; however, other appropriate standards are applicable to assess impacts to groundwater. Generally, we assume the highest use of groundwater: that the groundwater is being consumed without any treatment, as hundreds of thousands of

Figure 4.4-1. Kentucky ambient groundwater monitoring network.



Kentuckians do. Therefore, drinking water standards are generally used as a comparative standard for groundwater quality. Drinking water standards include maximum contaminant levels (MCLs), and secondary (aesthetic) standards (SMCLs), both promulgated for the drinking water program that regulates PWSs. In addition, for elements or compounds that do not have an MCL or SMCL, a health advisory level (HAL) is used as a comparative standard. Some impacts to groundwater, such as those from nonpoint sources, may be significant, but well below any health or aesthetic concerns. Therefore, it is appropriate to use reference groundwater conditions as a comparative standard for assessing these types of impacts.

Table 4.4-1. Ambient water quality monitoring results for reporting period 2004 – 2005.

Suite	Constituent	MCL (mg/L)	Number of Sites	Sites with Detects	Sites w/ Detects < ½ MCL	Sites w/ Detects >= ½ MCL	Sites w/ Detects > MCL	Number of Samples	Non-Detects	Detects < ½ MCL	Detects >= ½ MCL
Other	Fluoride	4	203	147	146	1	1	472	129	342	1
	Nitrate (as N)	10	203	192	159	33	9	472	25	351	96
	Nitrite (as N)	1	203	12	12	0	0	472	459	13	0
RCRA Metals	Arsenic	0.010	219	79	75	4	1	497	378	115	4
	Barium	2	219	219	215	4	2	497	0	493	4
	Cadmium	0.005	219	2	2	0	0	497	495	2	0
	Chromium	0.1	219	124	124	0	0	497	196	301	0
	Copper[1]	1.0	219	212	211	1	0	497	68	428	1
	Iron[1]	0.3	219	129	68	89	69	497	265	93	139
	Lead	0.015	219	91	88	3	2	497	377	115	5
	Manganese[1]	0.05	219	193	141	82	58	497	60	311	126
	Mercury	0.002	218	9	9	0	0	496	487	9	0
	Nickel[2]	0.1	219	147	146	1	1	497	271	225	1
	Selenium	0.05	219	110	109	1	0	497	306	190	1
	Silver[1 2]	0.1	219	25	25	0	0	497	471	26	0
	Zinc[1]	5	219	184	183	1	1	497	164	332	1
PCB	Aroclor 1016	0.0005	193	0	0	0	0	462	462	0	0
	Aroclor 1221	0.0005	193	0	0	0	0	462	462	0	0
	Aroclor 1232	0.0005	193	0	0	0	0	462	462	0	0
	Aroclor 1242	0.0005	193	1	1	0	0	462	461	1	0
	Aroclor 1248	0.0005	193	1	0	1	1	462	461	0	1
	Aroclor 1254	0.0005	193	0	0	0	0	462	462	0	0
	Aroclor 1260	0.0005	193	0	0	0	0	462	462	0	0
	Aroclor 1262	0.0005	193	0	0	0	0	462	462	0	0
	Aroclor 1268	0.0005	193	0	0	0	0	462	462	0	0
Pesticides	Acetochlor[3]	0.055	165	0	0	0	0	352	352	0	0
	Alachlor	0.002	165	3	3	0	0	352	349	3	0
	Atrazine	0.003	165	37	36	1	0	352	297	54	1
	Atrazine desethyl	0.003	165	33	33	0	0	352	297	55	0

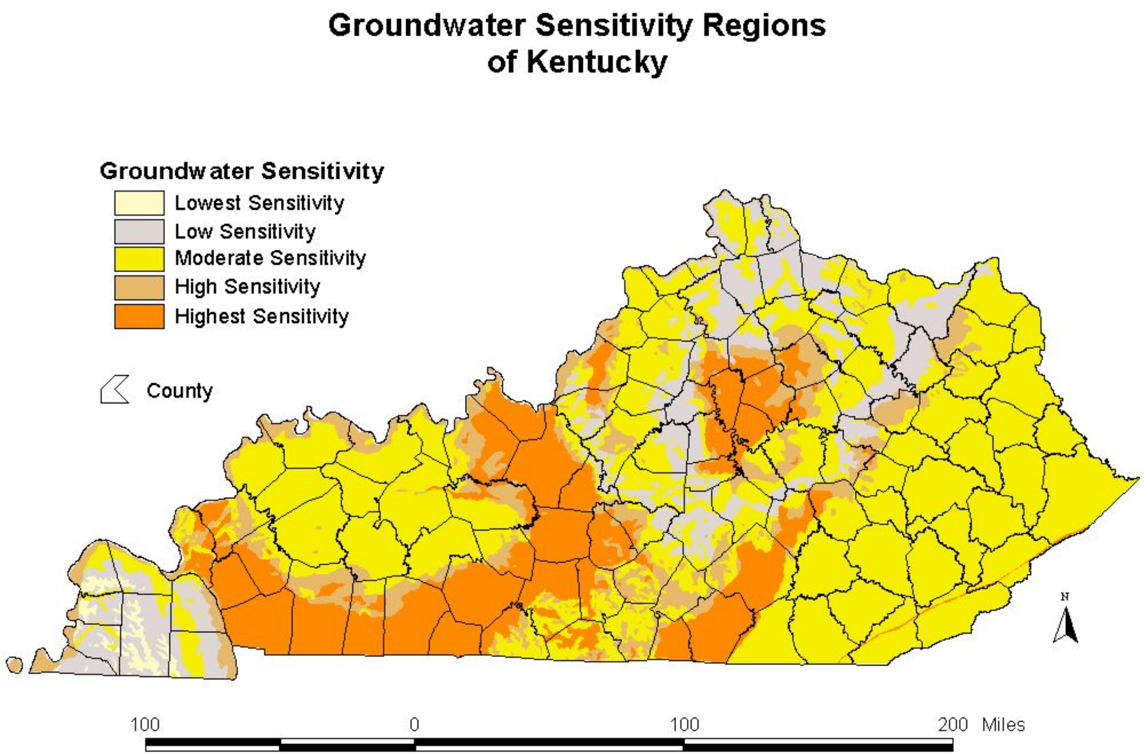
Table 4.4-1 (cont.). Ambient water quality monitoring results for reporting period 2004 – 2005.

	Constituent	MCL (mg/L)	Number of Sites	Sites with Detects	Sites w/ Detects < ½ MCL	Sites w/ Detects >= ½ MCL	Sites w/ Detects > MCL	Number of Samples	Non-Detects	Detects < ½ MCL	Detects >= ½ MCL
Pesticides (cont.)	Cyanazine[2]	0.001	165	0	0	0	0	352	352	0	0
	Metolachlor[2]	0.1	165	13	13	0	0	352	335	17	0
	Simazine	0.004	165	7	7	0	0	352	343	9	0
SVOC	Anthracene[3]	0.830	179	10	10	0	0	371	360	11	0
	Benzo(a)anthracene[3]	0.000034	179	9	0	9	8	371	361	0	10
	Benzo(a)pyrene	0.0002	179	13	10	3	1	371	354	14	3
	Fluorene[3]	0.110	179	51	51	0	0	371	319	52	0
	Naphthalene[2]	0.1	219	1	1	0	0	481	480	1	0
VOC	Benzene	0.005	221	4	4	0	0	483	478	5	0
	Chlorobenzene[3]	0.017	219	1	1	0	0	481	479	2	0
	Dichloromethane (Methylene chloride)	0.005	219	17	17	0	0	481	463	18	0
	Ethylbenzene	0.7	221	3	3	0	0	483	480	3	0
	Methyl-tert-butyl ether (MTBE)[3]	0.05	219	3	3	0	0	481	478	3	0
	Tetrachloroethane (1,1,1,2-)[2]	0.07	219	0	0	0	0	481	481	0	0
	Tetrachloroethene[3]	0.010	219	19	18	1	0	481	449	31	1
	Toluene	1	221	7	7	0	0	483	476	7	0
	Trichloroethane (1,1,1-)	0.2	219	18	18	0	0	481	463	18	0
	Trichloroethene	0.002	219	8	6	2	0	481	472	6	3
	Vinyl chloride	0.002	219	2	2	0	0	481	478	3	0
	Xylene (1,2-)	10	221	3	3	0	0	483	480	3	0
	Xylene (1,3- & 1,4-)	10	221	3	3	0	0	483	480	3	0

[1] SDWR
[2] HAL
[3] DEP standard

These standards used where MCL unavailable

Figure 4.4-2. Groundwater sensitivity regions of Kentucky.



Results: Inorganics. Fluoride is common in much of Kentucky as the mineral fluorite, and its presence in groundwater is also common; 73 percent of 472 samples collected over the reporting period had detections of fluoride. Only 1 sample exceeded the MCL of 4 mg/L. Fluoride is important in the development of healthy teeth and bones, but too much can cause dental and skeletal fluorosis.

Results: Nutrients. As noted above, low levels of nitrate occur naturally in groundwater. Elevated nitrate (more than its MCL of 10 mg/L) in drinking water can cause health problems, specifically methemoglobinemia. Nitrate was detected in 89 percent of samples, with 40 samples exceeding the MCL. However, preliminary results of on-going research focusing on shallow wells in agricultural areas indicate that there may be a more widespread problem with nitrate in shallow groundwater.

Results: Metals. Arsenic was detected in approximately 24 percent of ambient samples but was detected above its MCL of 0.010 mg/L only once. Arsenic is naturally occurring in groundwater, and its occurrence may be related to iron reducing bacteria in these wells.

Lead, a metal found in natural deposits, may also be found in household plumbing materials and water service lines. Although lead is not commonly detected in groundwater, it is sometimes detected in samples as a result of its leaching from plumbing and service lines, typically from older lead-based solder or pipes containing lead, which are no longer approved for potable water applications. Lead was detected in 24 percent of 497 samples, but exceeded the action level of 0.015 mg/L in only three samples. Nevertheless, lead is a significant health risk at even mildly elevated levels and needs to be addressed when present in significant concentrations.

In groundwater, iron and manganese are common naturally occurring metals. Of 497 samples, the majority detected both metals, with 19 percent of iron and 15 percent of manganese exceeding their respective SMCLs. Iron and manganese can cause significant aesthetic issues including color, taste, odor and staining issues.

Zinc is commonly detected in groundwater, but rarely at elevated levels. Of 497 samples analyzed for zinc, 67 percent detected some zinc, but only one exceeded the SMCL. Silver is rarely found in groundwater in Kentucky. Of 497 samples analyzed for silver, there were 26 detections and no samples exceeded the SMCL. Elevated levels of both of these metals generally result from the leaching of service lines and plumbing materials.

Results: Pesticides and PCBs. Polychlorinated bi-phenyls (PCBs) were detected in three of the 462 samples analyzed for these potent carcinogens, with one sampling exceeding the MCL. Many of the more widely-used herbicides were often detected in many samples, the most common being atrazine, with lesser occurrences of alachlor, metolachlor, and simazine. Generally, these agricultural pesticides occur only in karst springs coincident with intensive row-cropping and rarely exceed established health-based standards. Atrazine does appear to be more persistent in groundwater, occurring in 16 percent of 352 samples analyzed, with no detections above MCL. Metolachlor and simazine were infrequently detected and never above MCL. In addition, traces of several domestic use pesticides are routinely detected, especially in urban areas developed on karst terrain, such as Louisville (Jefferson Co.) and Lexington (Fayette Co.).

Results: SVOCs. Semi-volatile organic compounds do not normally occur naturally in groundwater and therefore their occurrence in ambient sampling is rare. Benzo(a)anthracene was detected in 8 of 371 samples (two percent) above MCL and benzo(a)pyrene was found in 1 of 371 samples (< one percent) above its MCL. The most frequently detected SVOC was fluorine, which was found in about 14 percent of 371, but was not detected at levels above the MCL. The source of these detections is anthropogenic, principally fuels, such as gasoline and diesel fuel. Although these detections are rarely above drinking water standards, their presence does suggests impacts from point sources, such as leaking underground storage tanks, and nonpoint sources, such as storm-water runoff.

Results: VOCs. Volatile organic compounds were not detected above MCL during the reporting period. Trace amounts of several of these compounds were infrequently detected. For example, tetrachloroethene was the most frequently detected volatile organic compound and was found in 31 of 481 samples (six percent), and the second most frequently detected compounds were trichloroethane (1, 1, 1, 2-) and dichloromethane, which were both found in 18 of 481 samples (four percent).

4.5 Groundwater Quality and Public Water Systems

The KDOW has collected and analyzed untreated groundwater samples at numerous (22) public water systems (PWSs) to characterize groundwater conditions including point and nonpoint source impacts to groundwater supplying those systems. This monitoring effort supports both the ambient groundwater monitoring program and the wellhead protection program, providing PWSs valuable information about the quality of and threats to their supplies. A summary of the results of ambient groundwater monitoring for major parameters of concern in Kentucky is shown in Table 4.5-1. Groundwater quality at PWSs is exceptional, which is critical, as the majority of these systems do not treat their source water other than disinfection.

Table 4.5-2 illustrates the corresponding data for finished water (water distributed to customers) at PWSs using groundwater as source, either in whole or part. For 25

Table 4.5-1. Ambient (raw) water quality results for PWS sites, reporting period 2004 – 2005.

Constituent	MCL (mg/L)	PWS Sites Only: Number of Sites	Sites With Detects	Sites w/ Detects < ½ MCL	Sites w/ Detects >= ½ MCL	Sites w/ Detects > MCL	Samples: Number of Samples	Non-Detects	Detects < ½ MCL	Detects >= ½ MCL	Detects > MCL
Fluoride	4	22	16	16	0	0	25	6	19	0	0
Nitrate (as N)	10	22	20	18	2	2	25	3	19	3	2
Nitrite (as N)	1	22	3	3	0	0	25	22	3	0	0
Arsenic	0.010	22	8	8	0	0	25	16	9	0	0
Barium	2	22	22	22	0	0	25	0	25	0	0
Cadmium	0.005	22	0	0	0	0	25	25	0	0	0
Chromium	0.1	22	9	9	0	0	25	15	10	0	0
Copper[1]	1.0	22	21	21	0	0	25	2	23	0	0
Iron[1]	0.3	22	11	4	8	8	25	13	4	8	8
Lead	0.015	22	9	8	1	0	25	16	8	1	0
Manganese[1]	0.05	22	17	10	8	7	25	5	12	8	7
Mercury	0.002	22	1	1	0	0	25	24	1	0	0
Nickel[2]	0.1	22	14	14	0	0	25	10	15	0	0
Selenium	0.05	22	9	9	0	0	25	15	10	0	0
Silver[1 2]	0.1	22	0	0	0	0	25	25	0	0	0
Zinc[1]	5	22	20	19	1	1	25	2	22	1	1
Aroclor 1016	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1221	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1232	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1242	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1248	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1254	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1260	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1262	0.0005	22	0	0	0	0	25	25	0	0	0
Aroclor 1268	0.0005	22	0	0	0	0	25	25	0	0	0
Acetochlor[3]	0.055	18	0	0	0	0	19	19	0	0	0
Alachlor	0.002	18	0	0	0	0	19	19	0	0	0
Atrazine	0.003	18	1	1	0	0	19	18	1	0	0
Atrazine desethyl	0.003	18	0	0	0	0	19	19	0	0	0
Cyanazine[2]	0.001	18	0	0	0	0	19	19	0	0	0
Metolachlor[2]	0.1	18	0	0	0	0	19	19	0	0	0

Table 4.5-1 (cont.). Ambient (raw) water quality results for PWS sites, reporting period 2004-2005.

Simazine	0.004	18	0	0	0	0	19	19	0	0	0
Anthracene[3]	0.830	18	3	3	0	0	19	16	3	0	0
Benzo(a)anthracene[3]	0.000034	18	0	0	0	0	19	19	0	0	0
Benzo(a)pyrene	0.0002	18	0	0	0	0	19	19	0	0	0
Fluorene[3]	0.110	18	9	9	0	0	19	10	9	0	0
Naphthalene[2]	0.1	22	0	0	0	0	25	25	0	0	0
Benzene	0.005	22	0	0	0	0	25	25	0	0	0
Chlorobenzene[3]	0.017	22	0	0	0	0	25	25	0	0	0
Dichloromethane (Methylene chloride)	0.005	22	0	0	0	0	25	25	0	0	0
Ethylbenzene	0.7	22	0	0	0	0	25	25	0	0	0
Methyl-tert-butyl ether (MTBE)[3]	0.05	22	0	0	0	0	25	25	0	0	0
Tetrachloroethane (1,1,1,2-)[2]	0.07	22	0	0	0	0	25	25	0	0	0
Tetrachloroethene[3]	0.010	22	0	0	0	0	25	25	0	0	0
Toluene	1	22	1	1	0	0	25	24	1	0	0
Trichloroethane (1,1,1-)	0.2	22	0	0	0	0	25	25	0	0	0
Trichloroethene	0.002	22	0	0	0	0	25	25	0	0	0
Vinyl chloride	0.002	22	0	0	0	0	25	25	0	0	0
Xylene (1,2-)	10	22	0	0	0	0	25	25	0	0	0
Xylene (1,3- & 1,4-)	10	22	0	0	0	0	25	25	0	0	0

[1] SDWR
[2] HAL
[3] DEP standard

These standards used where MCL unavailable

Table 4.5-2. Finished drinking water data at PWSs for groundwater systems

For period of 1-1-04 to 12-31-05							
# of Sites	Parameter Group	Total # of Analyses	# of Non-detects <MDL	# of Detects >MDL to <MCL	Less than 1/2 MCL <=5	5 to <=10	Greater than the MCL
92	VOC	4,861	4,848	13	--------	--------	0
47	SOC	2,458	2,426	32	--------	--------	0
97	IOC	1,603	1,328	249	--------	--------	26
149	NO_3	344	64	----------	280	47	0

samples collected at 22 PWSs, MCL exceedances were infrequent. Nitrate was found above MCL in two samples, and zinc in one. The only volatile organic compound detected was toluene, which was found in one sample at less than half its MCL. Iron and manganese are common naturally occurring constituents in many aquifers, and SMCLs were exceeded in eight of 25 iron samples and seven of 25 manganese samples. Atrazine was detected in trace amounts in one of 19 samples. PCBs and SVOCs were not detected.

In finished water samples at PWSs sourced by groundwater, no VOC, SVOC or nitrate detections exceeded MCLs. Twenty-six of 1,603 (1.6 percent) samples exceeded standards for IOCs.

4.6 Monitoring Resource Issues

Although Kentucky is among the nation's leaders in coordinating its groundwater activities through its Interagency Technical Advisory Committee, additional resources are necessary to improve efforts to characterize our groundwater. Routine monitoring should expand to better capture regional and temporal trends and conduct additional aquifer characterization for pathogens, pharmaceutically active compounds and other emerging pollutants. In addition, expanded mapping of some aquifers is needed to better assess aquifer quantity. Significant resources have been invested to implement new technologies and consolidate data management, but additional resources are necessary to expand groundwater education and public outreach.

4.7 Groundwater Protection Programs

Kentucky has established or is maintaining many programs that protect the Commonwealth's groundwater resources (Table 4.7-1). Three programs are highlighted in the following.

Ambient Groundwater Monitoring Network. Since 1995, the KDOW has about 4,000 groundwater samples at approximately 500 sites as part of the state's ambient groundwater monitoring program aimed at characterizing ambient groundwater conditions and nonpoint source impacts to groundwater. Monitoring sites included public and private water supply wells and springs, unregulated public access springs (i. e. "roadside springs"), and unused springs. About 70 sites comprise the current ambient network and these sites are sampled from one to six times per year, depending on aquifer type. Samples are analyzed for a number of water quality parameters, including nutrients, major inorganic ions, total and dissolved metals, pesticides, and volatile/semi-volatile organic compounds. Each year the KDOW also collects groundwater samples for several nonpoint source assessment projects funded through Section 319(h) of the CWA as part of ongoing watershed-based initiatives. In addition, the KDOW conducts quarterly groundwater monitoring at four sites under an agreement with the Division of Pesticide Regulation (DOPR) as part of their FIFRA grant work plan. The ambient monitoring program supports the Groundwater Protection Plan and Wellhead Protection programs by providing a resource-quality tracking measure and providing raw water data to several PWSs using groundwater. Also, ambient network data are used by the solid waste, hazardous waste, Superfund and UST programs to characterize ambient, or "background", conditions and identify potential problems.

Groundwater Protection Plan Program: Kentucky's Groundwater Protection Plan regulation requires that entities conducting activities that have the potential to pollute groundwater develop and implement a groundwater protection plan. The plan must include pollution prevention activities such as preventative maintenance and best management practices, spill response plans, record keeping, training and regular inspections to ensure that the protective practices are in place and functioning properly. For agricultural activities, Kentucky's Agricultural Water Quality Plan outlines mandatory best management practices that help prevent pollution of the state's waters.

Table 4.7-1 Groundwater protection programs[a]

Programs or Activities		Implementation Status	Responsible State Agency
Active SARA Title III Program		Continuing Efforts	Department for Environmental Protection Commissioner's Office
Ambient Groundwater Monitoring System		Continuing Efforts	Division of Water
Aquifer Vulnerability Assessment		*N/A*	*N/A*
Aquifer Mapping		Ongoing	Kentucky Geological Survey/Division of Water
Aquifer Characterization		Ongoing	Kentucky Geological Survey/Division of Water
Coal and Non Coal Mining Regulations	✔	Established	Division of Mine Reclamation and Enforcement
Comprehensive Data Management System		Established	Division of Water
EPA-endorsed Core Comprehensive State Ground-Water Protection Program (CSGWPP)		*N/A*	*N/A*
Groundwater Discharge Permits		Continuing Efforts	EPA Region IV
Groundwater Best Management Practices		Established	Division of Conservation
Groundwater Legislation		Implemented	Division of Water/Kentucky Geological Survey
Groundwater Classification		*N/A*	*N/A*
Groundwater Protection Program		Established	Division of Water
Groundwater Quality Standards	✔	Developing	Division of Water
Groundwater Sensitivity Mapping		Complete	Division of Water
Interagency Coordination for Groundwater Protection Initiatives		Established	Interagency Technical Advisory Committee Watershed Steering Committee
Kentucky Pollution Discharge Elimination System (KPDES)	✔	Established	Division Of Water
Kentucky Voluntary Environmental Remediation Program	✔	Established	Division of Waste Management
Non-Point Source Controls		Established	Division of Water
Pesticides State Management Plans		Developing	Division of Pesticides
Pollution Prevention Program		Implementing	Division of Water
Oil and Gas Regulations	✔	Established	Division of Oil and Gas
Resource Conservation and Recovery Act (RCRA) Primacy		Established	Division of Waste Management
Safe Drinking Water Act and 1986 , 1996 Amendments	✔	Established	Division of Water
Source Water Assessment Program		Continuing Efforts	Division of Water
State Superfund		Established	Division of Waste Management
State RCRA Program Incorporating more Stringent Requirements than RCRA Primacy		N/A	N/A
State Septic System Regulations		Established	Cabinet of Health Services

Table 4.7-1 (cont.). Groundwater protection programs[a]

Programs or Activities		Implementation Status	Responsible State Agency
Underground Storage Tank Installation Requirements		Established	Division of Waste Management
Underground Storage Tank Remediation Fund		Established	Division of Waste Management
Underground Injection Control Program		Fully Established	EPA Region IV
Vulnerability Assessment for Drinking Water/Wellhead Protection		Completed	Division of Water
Well Abandonment Regulations		Continuing Efforts	Division of Water
Wellhead Protection Program (EPA-approved)		Established	Division of Water
Well Installation Regulations		Continuing Efforts	Division of Water

[a]Italicized programs are N/A (Not Applicable) at this time

Wellhead Protection Program: Kentucky's Wellhead Protection program requires that PWSs using a groundwater source develop a wellhead protection plan for their source water. A wellhead protection plan is designed to delineate the recharge area of the well(s) or spring(s), identify potential contaminant sources in the recharge area and implement groundwater protection strategies for these areas. Kentucky's wellhead protection program is a fundamental part of its Source Water Assessment Program (SWAP), as required by the 1996 Amendments to the Safe Drinking Water Act. Kentucky has been a national leader in source water protection, and was the first state in the nation to have its SWAP approved by the USEPA.

Literature Cited

Aroner, E. R. 1993. (WQHYDRO) Water quality/hydrology graphics/analysis system. Portland, Oregon 97218.

Branson, B. A. and D. L. Batch. 1972. Effects of strip-mining on small-stream fishes in east-central Kentucky. Proc. Biol. Soc. Wash. 84(59): 507-518.

Gilbert, R. O. 1987. Statistical methods for environmental pollution monitoring. Van Nostrand Reinhold Company, Inc. New York, NY 10003.

Howard, H. S., B. Berrang, M. Flexner, G. Pond and S. Call. 2000. Kentucky mountaintop mining benthic macroinvertebrate survey. U. S. Environmental Protection Agency, Science and Ecosystem Support Division, Ecological Assessment Branch, Athens, GA.

Karr, J. R., K. D. Fausch, P. L. Angermeier, P. R. Yant and I. J. Schlosser. 1986. Assessment of biological integrity in running waters: A method and its rational. Illinois Nat. Hist. Surv. Spec. Publ. 5.

Kentucky Division of Water. 2006. Methods of assessing biological integrity of surface waters in Kentucky (Draft). Frankfort, Kentucky.

_____. 2005. Kentucky ambient/watershed water quality monitoring standard operating procedure manual. Frankfort, Kentucky.

_____. 2004. 2004 Kentucky report to congress on water quality. Frankfort, Kentucky

Pond, G. J. 2004. Effects of surface mining and residential land use on headwater stream biotic integrity in the eastern Kentucky coalfield region. Frankfort, Kentucky.

_____ and S. E. McMurray. 2002. A macroinvertebrate bioassessment index for headwater streams in the eastern Kentucky coalfield region, Kentucky. Kentucky Division of Water. Frankfort, Kentucky.

Taylor, J. K. 1987. Quality assurance of chemical measurements. Lewis Publishers, Inc. Chelsea, MI 48118.

The Kentucky Environmental Commission. 1995. The state of Kentucky’s environment: 1994 status report. Frankfort, Kentucky.

U. S. Environmental Protection Agency. 2006. Wadeable streams assessment: a collaborative survey of the nation’s streams EPA 841-B-06-002. Washington, D.C.

U. S. Environmental Protection Agency. 2005. Guidance for 2006 assessment, listing and reporting requirements pursuant to sections 303(d), 305(b) and 314 of the clean water act. Office of Water, Washington, D.C.

______. 1997. Guidelines for preparation of the comprehensive state water quality assessments (305(b) Reports and electronic updates. Office of Water, Washington, D.C.

Appendix A. 305(b) Statewide Assessment Results for Kentucky through 2004

		Water Body	8-Digit								Assess	Designated	Assess
Waterbody and Segment	Basin	Type	HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Date	Uses	Category
Abbott Cr. 0.0 to 3.2	Big Sandy River	RIVER	5070203	FLOYD	NS		NS				7/30/2004		5, 5B
Arkansas Cr. 0.0 to 3.6	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Arnold Fk. 0.0 to 2.6	Big Sandy River	RIVER	5070203	KNOTT	NS						12/10/2003		5
Barnetts Creek 0.0 to 1.6	Big Sandy River	RIVER	5070203	JOHNSON	PS						7/3/2004		5
Bear Cr. 0.0 to 1.9	Big Sandy River	RIVER	5070204	LAWRENCE	PS	PS	NS				1/20/2003		5
Beaver Cr. 0.0 to 7.1	Big Sandy River	RIVER	5070203	FLOYD	PS	PS	NS				1/21/2004		2B, 5
Big Cr. 0.0 to 1.9	Big Sandy River	RIVER	5070201	PIKE		FS	NS				1/16/2004		5
Big Cr. 10.7 to 15.1	Big Sandy River	RIVER	5070201	PIKE	PS						11/25/2003		5
Big Cr. 7.3 to 10.7	Big Sandy River	RIVER	5070201	PIKE	PS						11/21/2003		5
Big Mine Cr. 1.4 to 3.9	Big Sandy River	RIVER	5070203	MAGOFFIN	PS		PS	PS			1/27/2004		5
Big Mine Cr. 5.8 to 8.4	Big Sandy River	RIVER	5070203	MAGOFFIN	PS						11/10/2003		5
Big Sandy R. 0.0 to 27.1	Big Sandy River	RIVER	5070204	BOYD		FS	FS		FS		1/20/2004	DWS	2, 2B
Bill D Br. 0.0 to 1.1	Big Sandy River	RIVER	5070203	KNOTT	NS						12/10/2003		5
Blackberry Creek 1.2 to 5.9	Big Sandy River	RIVER	5070201	PIKE	FS						7/30/2004		2
Blaine Cr. 35.0 to 40.8	Big Sandy River	RIVER	5070204	LAWRENCE		FS	NS				1/20/2004		5
Blaine Cr. 41.6 to 43.0	Big Sandy River	RIVER	5070204	LAWRENCE	PS						11/25/2002		5
Blaine Cr. 44.0 to 48.4	Big Sandy River	RIVER	5070204	LAWRENCE	NS		NS	NS			2/12/2004		5
Blaine Cr. 8.1 to 17.4	Big Sandy River	RIVER	5070204	LAWRENCE	NS	NS	FS				11/13/2003		5
Brushy Fk. 0.0 to 10.0	Big Sandy River	RIVER	5070203	PIKE	NS						7/30/2004		5
Buck Br. 0.0 to 2.8	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Buffalo Creek 0.0 to 1.8	Big Sandy River	RIVER	5070203	FLOYD	NS						7/30/2004		5
Caleb Fk. 0.0 to 1.2	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Caney Fk. 0.0 to 7.5	Big Sandy River	RIVER	5070203	KNOTT	FS						12/10/2003		2
Cat Fork 0.0 to 6.7	Big Sandy River	RIVER	5070204	LAWRENCE	FS						2/12/2004		2
Clear Cr. 0.0 to 4.9	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Dewey Lake	Big Sandy River	RIVER	5070203	FLOYD		FS		PS			3/5/2003		5
Dry Cr. 0.0 to 4.0	Big Sandy River	Reservoir	5070203	KNOTT	PS						12/10/2003		5
Elkhorn Cr. 0.0 to 10.6	Big Sandy River	RIVER	5070202	PIKE	PS	PS	NS				1/20/2004		5
Fishtrap Reservoir	Big Sandy River	RIVER	5070202	PIKE		FS			FS		3/5/2003		2
Frasure Creek 0.0 to 5.2	Big Sandy River	Reservoir	5070203	FLOYD	PS						12/10/2003		5
Georges Cr. 0.0 to 0.9	Big Sandy River	RIVER	5070203	LAWRENCE	PS						7/30/2004		5
Georges Cr. 0.9 to 6.5	Big Sandy River	RIVER	5070203	JOHNSON	FS						11/17/2003		2
Goose Cr. 0.0 to 2.2	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Greasy Cr. 0.0 to 4.8	Big Sandy River	RIVER	5070203	JOHNSON	PS						7/30/2004		5
Griffin Cr. 0.0 to 2.5	Big Sandy River	RIVER	5070203	LAWRENCE	FS						7/30/2004		2
Hobbs Fk. 0.0 to 2.0	Big Sandy River	RIVER	5070201	MARTIN	FS						1/27/2004		2
Hobbs Fk. 2.0 to 3.8	Big Sandy River	RIVER	5070201	MARTIN	FS						11/21/2003		2
Hood Creek 0.0 to 3.6	Big Sandy River	RIVER	5070204	LAWRENCE	PS						1/27/2004		5
Hood Creek 3.6 to 5.4	Big Sandy River	RIVER	5070204	LAWRENCE	FS						11/21/2003		2
Ice Dam Cr. 0.0 to 0.4	Big Sandy River	RIVER	5070204	BOYD	NS						12/10/2003		5
Ice Dam Cr. 0.4 to 2.4	Big Sandy River	RIVER	5070204	BOYD	NS						12/10/2003		5
Indian Cr. 0.0 to 3.5	Big Sandy River	RIVER	5070202	PIKE	PS						11/13/2003		5
Island Cr. 0.0 to 1.7	Big Sandy River	RIVER	5070203	PIKE	PS						11/20/2003		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Jennys Creek 5.3 to 10.8	Big Sandy River	RIVER	5070203	JOHNSON	NS						9/5/2003		5
Johns Br. 0.0 to 1.6	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Johns Creek 0.0 to 5.8	Big Sandy River	RIVER	5070203	FLOYD	NS						8/3/2003		5
Johns Creek 24.0 to 30.7	Big Sandy River	RIVER	5070203	PIKE	PS	PS	NS		FS		1/21/2004		5
Johns Creek 34.4 to 42.5	Big Sandy River	RIVER	5070203	PIKE	NS						11/20/2003		5
Johnson Br. 0.0 to 0.9	Big Sandy River	RIVER	5070202	PIKE	FS						10/27/2003		2
Jones Fk. 0.0 to 9.4	Big Sandy River	RIVER	5070203	KNOTT	PS						12/10/2003		5
Knox Cr. 0.0 to 7.6	Big Sandy River	RIVER	5070201	PIKE	PS		PS				8/3/2004		5
Coldwater Fk. 2.1 to 8.8	Big Sandy River	RIVER	5070201	MARTIN	PS						11/17/2003		5
Left Fk. Beaver Cr. 0.0 to 11.4	Big Sandy River	RIVER	5070203	FLOYD	PS						12/10/2003		5
Left Fk. Beaver Cr. 13.6 to 18.7	Big Sandy River	RIVER	5070203	FLOYD	PS						11/17/2003		5
Left Fk. Blaine Cr. 0.0 to 2.1	Big Sandy River	RIVER	5070204	LAWRENCE	NS		NS	NS			1/27/2004		5
Left Fk. Middle Cr. 0.0 to 8.4	Big Sandy River	RIVER	5070203	FLOYD		NS	NS	NS			2/3/2004		5
Levisa Fk. 0.0 to 5.8	Big Sandy River	RIVER	5070203	LAWRENCE		FS	FS			FS	1/21/2004	DWS	2, 2B
Levisa Fk. 116.0 to 124.4	Big Sandy River	RIVER	5070202	PIKE		NS	PS				4/1/1998		5
Levisa Fk. 5.8 to 15.3	Big Sandy River	RIVER	5070203	LAWRENCE	PS		FS		PS		1/12/2004		2B, 5
Levisa Fk. 65.2 to 99.9	Big Sandy River	RIVER	5070203	JOHNSON	FS		NS			FS	1/25/2006	DWS	5
Levisa Fork 15.3 to 38.9	Big Sandy River	RIVER	5070203	LAWRENCE		FS	FS				1/25/2006		2, 2B
Little Cat Fk. 1.1 to 3.7	Big Sandy River	RIVER	5070204	LAWRENCE	FS						11/20/2003		2
Little Paint Cr. 3.2 to 6.4	Big Sandy River	RIVER	5070203	JOHNSON	PS						11/20/2003		5
Little Paint Cr. 6.4 to 11.6	Big Sandy River	RIVER	5070203	JOHNSON	PS		NS	NS			2/13/2004		5
Long Br. 0.0 to 2.0	Big Sandy River	RIVER	5070203	FLOYD	NS						11/12/2003		5
Lower Elk Fk. 0.4 to 2.4	Big Sandy River	RIVER	5070201	PIKE	FS						11/17/2003		2
Lower Laurel Fk. 0.0 to 7.9	Big Sandy River	RIVER	5070204	LAWRENCE	PS						2/13/2004		5
Lower Pigeon Br. 0.6 to 1.9	Big Sandy River	RIVER	5070202	PIKE	FS						10/27/2003		2
Marrowbone Cr. 1.4 to 11.3	Big Sandy River	RIVER	5070202	PIKE	PS						11/13/2003		5
Martin unty Lake	Big Sandy River	Reservoir	5070201	MARTIN		FS					1/1/1998	DWS	2
Middle Creek 0.0 to 4.5	Big Sandy River	RIVER	5070203	FLOYD	PS						8/3/2004	DWS	5
Middle Fk. Rockcastle Cr. 0.0 to 16.8	Big Sandy River	RIVER	5070201	MARTIN	PS						11/25/2003		5
Miller Cr. 0.0 to 6.4	Big Sandy River	RIVER	5070203	JOHNSON	NS						11/12/2003		5
Mud Creek 0.0 to 2.7	Big Sandy River	RIVER	5070203	FLOYD	NS						2/13/2004		5
Nats Creek 0.0 to 3.1	Big Sandy River	RIVER	5070203	LAWRENCE	PS						8/3/2004		5
Open Fk. 6.4 to 11.3	Big Sandy River	RIVER	5070203	MORGAN	PS		NS	NS			1/15/2004		5
Otter Cr. 0.0 to 0.5	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Paddle Cr. 0.0 to 1.4	Big Sandy River	RIVER	5070204	BOYD	NS						12/10/2003		5
Paint Cr. 0.0 to 7.9	Big Sandy River	RIVER	5070203	JOHNSON	NS	NS	NS				11/13/2003	CAH	5
Paintsville Reservoir	Big Sandy River	Reservoir	5070203	JOHNSON	FS	FS			PS		3/5/2003	WAH & CAH	5
Panther Fk. 0.0 to 3.72	Big Sandy River	RIVER	5070201	MARTIN	PS						11/25/2003		5
Peter Creek 0.0 to 5.8	Big Sandy River	RIVER	5070201	PIKE	NS						8/3/2004		5
Pigeonroost Fork 0.0 to 1.3	Big Sandy River	RIVER	5070201	MARTIN	NS						8/3/2004		5
Pond Cr. 3.4 To 9.7	Big Sandy River	RIVER	5070201	PIKE	PS						11/17/2003		5
Prater Cr. 0.0 to 4.8	Big Sandy River	RIVER	5070203	FLOYD	FS						2/16/2004		2
Puncheon Br. 0.0 to 3.6	Big Sandy River	RIVER	5070203	KNOTT	PS						12/10/2003		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Racon Cr. 5.6 to 7.4	Big Sandy River	RIVER	5070203	PIKE	PS						11/17/2003		5
Right Fk. Beaver Creek 0.0 to 17.4	Big Sandy River	RIVER	5070203	FLOYD	PS	PS	NS	NS			11/13/2003		5
Right Fk. Beaver Creek 30.3 to 33.4	Big Sandy River	RIVER	5070203	KNOTT	PS						11/17/2003		5
Robinson Cr. 0.0 to 2.1	Big Sandy River	RIVER	5070202	PIKE	FS						8/14/2002		2
Rock Fk. 0.0 to 7.0	Big Sandy River	RIVER	5070203	FLOYD	PS						12/10/2003		5
Rockcastle Cr. 0.0 to 3.7	Big Sandy River	RIVER	5070201	LAWRENCE	PS	PS	FS				11/20/2003		5
Rockcastle Cr. 13.25 to 15.3	Big Sandy River	RIVER	5070201	MARTIN	NS						8/3/2004		5
Rockcastle Cr. 3.7 to 13.25	Big Sandy River	RIVER	5070201	MARTIN	PS				FS		1/14/2004		5
Rockhouse Fk. 0.0 to 6.3	Big Sandy River	RIVER	5070201	MARTIN	PS						11/12/2003		5
Russell Fk 0.0 to 4.2	Big Sandy River	RIVER	5070202	PIKE		FS	NS				1/16/2004		5
Russell Fk 12.9 to 16.0	Big Sandy River	RIVER	5070202	PIKE						FS	1/15/2004	DWS	2
Russell Fk 6.2 to 9.2	Big Sandy River	RIVER	5070202	PIKE	FS						11/25/2003		2
Salisbury Br. 0.0 to 1.8	Big Sandy River	RIVER	5070203	KNOTT	PS						12/10/2003		5
Salt Lick Cr. 0.0 to 6.8	Big Sandy River	RIVER	5070203	FLOYD	PS						12/10/2003		5
Shelby Cr. 0.0 to 6.1	Big Sandy River	RIVER	5070202	PIKE	PS	PS	FS				11/25/2003		5
Shelby Cr. 6.1 to 13.3	Big Sandy River	RIVER	5070202	PIKE	PS						8/14/2002		5
Simpson Br. 0.0 to 1.8	Big Sandy River	RIVER	5070203	FLOYD	PS						12/10/2003		5
Sizemore Br. 0.0 to 2.0	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Spewing Camp Br. 0.0 to 3.1	Big Sandy River	RIVER	5070203	FLOYD		NS	NS	NS			2/6/2004		5
Steele Cr. 0.0 to 2.4	Big Sandy River	RIVER	5070203	FLOYD	NS						12/12/2003		5
Stephens Br. 0.0 to 2.6	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Sturgeon Br. 0.0 to above 1.1	Big Sandy River	RIVER	5070203	JOHNSON							11/17/2003		3
Toms Br. 0.0 to 1.6	Big Sandy River	RIVER	5070202	PIKE	FS						10/27/2003		2
Toms Creek 0.0 to 8.0	Big Sandy River	RIVER	5070203	JOHNSON	PS						8/3/2004		5
Tug Fk. 0.0 to 10.2	Big Sandy River	RIVER	5070201	LAWRENCE		FS	FS				1/20/2004		2, 2B
Tug Fk. 71.9 to 77.7	Big Sandy River	RIVER	5070201	MARTIN	FS				PS		11/25/2003		5
Tug Fk. 78.25 to 84.4	Big Sandy River	RIVER	5070201	PIKE		FS	NS				1/20/2004		5
Tug Fk. 10.2 to 41.6	Big Sandy River	RIVER	5070201	MARTIN	FS	FS	NS				1/20/2004		5
Turkey Cr. 0.0 to 5.9	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Upper Pidgeon Br. 0.0 to 2.1	Big Sandy River	RIVER	5070202	PIKE	NS						10/27/2003		5
Whites Cr. 0.6 to 3.5	Big Sandy River	RIVER	5070204	BOYD	FS						9/22/2003		2
Wilson Cr. 0.0 to 2.9	Big Sandy River	RIVER	5070203	FLOYD	NS						12/10/2003		5
Wolf Cr. 0.0 to 6.5	Big Sandy River	RIVER	5070201	MARTIN	PS	PS	NS				1/16/2004		5
Wolf Cr. 17.6 to 20.5	Big Sandy River	RIVER	5070201	MARTIN	PS						11/25/2003		5
Wolf Cr. 6.5 to 17.6	Big Sandy River	RIVER	5070201	MARTIN	NS						11/25/2003		5
Wolfpen Br. 0.0 to 1.7	Big Sandy River	RIVER	5070202	PIKE	NS						11/17/2003		5
Yatesville Reservoir	Big Sandy River	Reservoir	5070204	LAWRENCE		FS					3/5/2003		2
Adams Fork 0.0 to 4.6	Green River	RIVER	5110004	OHIO	PS						3/1/2003		5
Adams Fork DMP 8.9 to UMP 9.8	Green River	RIVER	5110004	OHIO	FS						3/1/2003		2
Alexander Creek 0.0 to 3.6	Green River	RIVER	5110001	EDMONSON	FS						11/12/2002		2
Alexander Creek 3.6 to 8.0	Green River	RIVER	5110001	EDMONSON	FS						11/12/2002		2
Austin Creek 2.6 to 3.6	Green River	RIVER	5110003	LOGAN		PS					3/1/2003		5, 5B
Ban Creek 0.0 to 17.2	Green River	RIVER	5110001	HART	FS	FS	NS		FS		3/1/2003		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Ban Creek 26.3 to 31.2	Green River	RIVER	5110001	HART	FS		NS				3/1/2003		5
Ban Creek 17.2 to 26.3	Green River	RIVER	5110001	HART	PS		NS				2/26/2003		5
Barnett Creek DMP: 0 UMP: 6.1	Green River	RIVER	5110004	OHIO	FS						3/1/2003		2
Barren River DMP: 0 UMP: 8.4	Green River	RIVER	5110002	WARREN		FS	FS				3/1/2003		2
Barren River DMP: 110 UMP: 124.3	Green River	RIVER	5110002	ALLEN	FS		NS			FS	3/1/2003	DWS	5
Barren River DMP: 29.4 UMP: 35.0	Green River	RIVER	5110002	WARREN			FS				3/1/2003		2
Barren River DMP: 35.0 UMP: 43.6	Green River	RIVER	5110002	WARREN			FS			FS	3/1/2003	DWS	2
Barren River DMP: 8.4 UMP: 15	Green River	RIVER	5110002	WARREN	FS						3/1/2003		2
Barren River Reservoir	Green River	Reservoir	5110002	ALLEN		FS			PS		3/5/2003	DWS	5
Barren Run 0.0 to 5.5	Green River	RIVER	5110001	LARUE	FS						3/1/2003		2
Bat East Creek DMP: 3.3 UMP: 7.1	Green River	RIVER	5110003	MUHLENBERG	PS	PS					12/17/2002		5
Bat East Creek 0.0 to 3.3	Green River	RIVER	5110003	MUHLENBERG	PS	PS	FS				12/17/2002		5
Bear Creek 14.5 to 22.3	Green River	RIVER	5110001	EDMONSON	NS						2/28/2003		5
Bear Creek 22.3 to 31.7	Green River	RIVER	5110001	GRAYSON	PS						3/1/2003		5
Bear Creek 8.0 to 12.6	Green River	RIVER	5110001	EDMONSON		FS	FS				3/1/2003		2
Beaver Creek 16.6 to 29.0	Green River	RIVER	5110002	BARREN	FS					FS	3/1/2003	DWS	2
Beaver Creek DMP: 9.4 UMP: 16.6	Green River	RIVER	5110002	BARREN		FS					3/1/2003		2
Beaverdam Creek DMP: 0.0 UMP: 14.1	Green River	RIVER	5110001	EDMONSON	FS						11/12/2002	CAH	2
Beech Creek 0.0 to 3.4	Green River	RIVER	5110003	MUHLENBERG		NS	NS	NS			2/14/2006		4A
Big Brush Creek 0.0 to 4.8	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Big Brush Creek 12.9 to 17.3	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Big Creek 3.0 to 8.2	Green River	RIVER	5110001	ADAIR	PS		NS				3/1/2003		5
Big Pitman Creek 0.0 to 13.6	Green River	RIVER	5110001	GREEN	FS	FS	PS				2/28/2003		5
Big Pitman Creek 26.9 to 32.0	Green River	RIVER	5110001	GREEN	PS						3/1/2003		5
Big Reedy Creek 7.5 to 13.6	Green River	RIVER	5110001	BUTLER	PS		NS				3/1/2003		5
Billy Creek 0.0 to 5.9	Green River	RIVER	5110001	HARDIN	PS		NS		FS		3/1/2003		5
Blacklick Creek 11.2 to 12.2	Green River	RIVER	5110002	LOGAN	NS						1/15/2004		5, 5B
Brier Creek DMP: 0 UMP: 4.7	Green River	RIVER	5110006	MUHLENBERG		NS	NS	NS			3/1/2003		4A
Briggs Lake	Green River	Reservoir	5110003	LOGAN		FS					1/1/2002		2
Brush Creek 0.0 to 6.2	Green River	RIVER	5110001	CASEY	PS						3/1/2003		5
Brush Fork 0.0 to 3.8	Green River	RIVER	5110005	MC LEAN	NS	NS					12/17/2002		5
Buck Creek 0.0 to 8.0	Green River	RIVER	5110005	MC LEAN	PS		NS				3/1/2003		5
Buck Creek 1.3 to 7.4	Green River	RIVER	5110006	CHRISTIAN	PS		FS				3/1/2003		5
Buck Fork 14.0 to 20.0	Green River	RIVER	5110006	CHRISTIAN	PS		NS				3/1/2003		5
Burnett Fork 0.0 to 1.3	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
Butchers Branch 0.0 to 0.3	Green River	RIVER	5140201	HANCK		FS	FS	FS			6/3/2005		2
Butchers Branch 0.3 to 2.3	Green River	RIVER	5140201	HANCK		NS	NS	NS			2/14/2006		4A
Butler Fork 2.3 to 4.0	Green River	RIVER	5110001	ADAIR	NS		NS				3/1/2003		5
Calhoun Creek 0.0 to 2.8	Green River	RIVER	5110001	CASEY	PS						3/1/2003		5
Campbellsville City Reservoir	Green River	Reservoir	5110001	TAYLOR		FS		PS			1/1/2002	DWS	5
Cane Run 0.0 to 3.6	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
Cane Run 1.0 to 6.5	Green River	RIVER	5110001	HART	FS						11/12/2002		2
Caney Creek 0.0 to 3.5	Green River	RIVER	5110003	MUHLENBERG	PS	PS					12/17/2002		5

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Caney Creek 0.0 to 4.3	Green River	RIVER	5110004	OHIO		FS	FS				1/15/2004		2
Caney Creek DMP: 11.4 UMP: 17.95	Green River	RIVER	5110004	OHIO			FS				3/1/2003		2
Caney Creek DMP:17.95 UMP: 23.3	Green River	RIVER	5110004	OHIO			FS				3/1/2003		2
Caney Creek 1.4 to 5.3	Green River	RIVER	5110003	MUHLENBERG			NS				4/1/1998		5
Caney Creek 3.5 to 7.5	Green River	RIVER	5110003	MUHLENBERG	NS						4/1/1998		5
Caney Fork DMP: 0 UMP: 6.6	Green River	RIVER	5110002	BARREN	FS						11/12/2002		2
Caneyville City Reservoir	Green River	Reservoir	5110004	GRAYSON		FS		PS		PS	1/1/1992	DWS	5
Casey Creek 18.0 to 21.4	Green River	RIVER	5110001	CASEY	FS						3/1/2003		2
Casey Creek 3.7 to 4.7	Green River	RIVER	5110001	CASEY	FS	FS	PS				3/1/2003		5
Cash Creek DMP: 0 UMP: 5.8	Green River	RIVER	5110005	HENDERSON	PS						3/1/2003		5
Claylick Creek 2.0 to 3.1	Green River	RIVER	5110001	WARREN	PS		NS				3/1/2003		5
Claylick Creek 4.1 to 5.3	Green River	RIVER	5110001	METCALFE	PS						12/3/2002		5
Clifty Creek 0.0 to 13.2	Green River	RIVER	5110003	TODD	FS						11/12/2002		2
Clifty Creek 7.3 to 22.2	Green River	RIVER	5110004	GRAYSON	FS						11/12/2002		2
Craborchard Creek 0 to 4.6	Green River	RIVER	5110006	HOPKINS	NS	NS	NS				12/17/2002		5
Craborchard Creek 4.6 to 7.6	Green River	RIVER	5110006	HOPKINS		NS	NS	NS			12/17/2002		4A
Crooked Creek 0.0 to 2.9	Green River	RIVER	5110005	DAVIESS			NS				3/1/2003		5
Cypress Creek 0.0 to 5.8	Green River	RIVER	5110002	MUHLENBERG		FS	FS				3/1/2003		2
Cypress Creek 23.1 to 25.4	Green River	RIVER	5110006	MUHLENBERG	PS		PS	PS			4/1/1998		5
Cypress Creek 25.4 to 33.3	Green River	RIVER	5110002	MUHLENBERG	PS		PS	PS			3/1/2003		5
Daniels Creek 0.0 to 5.7	Green River	RIVER	5110004	BRECKINRIDGE	PS						3/1/2003		5
Deer Creek 0.0 to 8.2	Green River	RIVER	5110005	WEBSTER	NS	NS	FS				1/15/2004		5
Deer Creek 8.2 to 17.5	Green River	RIVER	5110005	WEBSTER	NS						3/1/2003		5
Deserter Creek 0.0 to 3.1	Green River	RIVER	5110005	DAVIESS	PS		NS				3/1/2003		5
Dorsey Run 1.9 to 3.7	Green River	RIVER	5110001	HARDIN	NS						3/1/2003		5
Drakes Creek 0.0 to 23.4	Green River	RIVER	5110002	WARREN		FS	FS		PS		3/1/2003		5
Drakes Creek 0.0 to 8.5	Green River	RIVER	5110006	HOPKINS		NS	NS	NS			2/14/2006		4A
Dry Creek 0.0 to 3.7	Green River	RIVER	5110001	CASEY	PS						3/1/2003		5
East Branch 0.0 to 2.0	Green River	RIVER	5110006	CHRISTIAN	PS		FS				3/1/2003		5
East Fork Barren River 4.2 to 8.6	Green River	RIVER	5110002	MONROE	FS						3/1/2003		2
East Fork Deer Creek 0.0 to 6.8	Green River	RIVER	5110005	WEBSTER	NS						3/1/2003		5
East Fork Little Barren River 0.0 to 15.5	Green River	RIVER	5110001	METCALFE	FS						2/28/2003		2
East Fork Little Barren River 18.8 to 25.2	Green River	RIVER	5110001	METCALFE	FS						11/12/2002		2
East Prong Indian Camp Creek 0.0 to 6.3	Green River	RIVER	5110003	BUTLER	FS						3/1/2003		2
Elk Creek 0.0 to 5.4	Green River	RIVER	5110006	HOPKINS	NS						3/1/2002		5
Elk Creek 7.5 to 10.6	Green River	RIVER	5110006	HOPKINS			NS				7/16/2001		5
Elk Lick Creek 3.6 to 11.85	Green River	RIVER	5110003	LOGAN	FS						11/12/2002		2
Elk Pond Creek 0.0 to 4.5	Green River	RIVER	5110006	MUHLENBERG	NS		NS				3/1/2003		5
Falling Timber Creek 7.0 to 15.5	Green River	RIVER	5110002	METCALFE	FS						3/1/2003		2
Falling Timber Creek DMP:3.0 UMP: 7.0	Green River	RIVER	5110002	METCALFE	FS				FS		2/28/2003		2
Fiddlers Creek 0.0 to 5.8	Green River	RIVER	5110004	BRECKINRIDGE	FS						11/12/2002		2
Flat Creek 0.0 to 10.6	Green River	RIVER	5110006	HOPKINS	NS	NS	NS	NS			12/17/2002		5
Forbes Creek 0.0 to 1.5	Green River	RIVER	5110006	CHRISTIAN	FS						3/1/2003		2

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Ford Ditch 0.0 to 2.6	Green River	RIVER	5110005	DAVIESS	PS	PS					3/1/2003		5
Freeman Lake	Green River	RIVER	5110001	HARDIN		FS					1/1/2002	DWS	2
Gasper River 7.7 to 14.5	Green River	Reservoir	5110002	WARREN		FS	FS				3/1/2003		2
Gasper River DMP: 14.5 UMP: 17.2	Green River	RIVER	5110002	LOGAN	FS						3/1/2003		2
Gasper River DMP: 17.0 UMP: 35.2	Green River	RIVER	5110002	LOGAN	FS						11/12/2002		2
Gilles Ditch 0.0 to 4.9	Green River	RIVER	5110005	DAVIESS	NS						3/1/2003		5
Glens Fork 0.0 to 8.0	Green River	RIVER	5110001	ADAIR	PS		NS				3/1/2003		5
Goose Creek DMP: 0 UMP: 8.1	Green River	RIVER	5110001	CASEY	FS						11/12/2001		2
Grapevine Lake	Green River	RIVER	5110006	HOPKINS		FS		FS			1/1/2002		2
Grassy Creek 0.8 to 2.9	Green River	Reservoir	5110004	OHIO	NS						3/1/2003		5
Green River 250.2 to 265.8	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Green River DMP: 246.4 UMP: 250.2	Green River	RIVER	5110001	HART	FS		FS				1/30/2003		2
Green River 108.6 to 149.5	Green River	RIVER	5110003	BUTLER					FS	FS	3/1/2003	DWS	2
Green River 207.8 to 246.4	Green River	RIVER	5110001	HART	FS	FS	FS		PS	FS	3/1/2003	DWS	5
Green River 265.8 to 276.8	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Green River 276.8 to 279.8	Green River	RIVER	5110001	GREEN					FS		3/1/2003		2
Green River 279.8 to 295.6	Green River	RIVER	5110001	TAYLOR	FS	FS				FS	3/1/2003	DWS	2
Green River 28.4 to 55.1	Green River	RIVER	5110001	MC LEAN		FS				FS	6/2/2003	DWS	2
Green River 334.2 to 342.2	Green River	RIVER	5110001	ADAIR		FS	FS				3/1/2003		2
Green River 359.0 to 366.1	Green River	RIVER	5110001	CASEY	FS						11/12/2002		2
Green River 374.3 to 383.4	Green River	RIVER	5110001	LINCOLN	FS						3/1/2003		2
Green River 63.1 to 71.3	Green River	RIVER	5110005	MC LEAN						FS	3/1/2003	DWS	2
Green River DMP: 149.5 UMP: 168.4	Green River	RIVER	5110001	BUTLER			FS				3/1/2003		2
Green River DMP: 71.3 UMP: 108.6	Green River	RIVER	5110003	MC LEAN	FS	FS	FS		FS	FS	3/1/2003	DWS	2
Green River Reservoir	Green River	RIVER	5110001	TAYLOR		FS			PS		3/10/2003	DWS	5
Groves Creek DMP: 0 UMP: 6.2	Green River	Reservoir	5110005	WEBSTER	NS						3/1/2003		5
Halls Creek 8.6 to 12.1	Green River	RIVER	5110004	OHIO	FS						11/12/2002		2
Havana Creek 0.0 to 1.9	Green River	RIVER	5110006	WEBSTER	PS						3/1/2003		5
Indian Camp Creek 0.0 to 3.0	Green River	RIVER	5110003	BUTLER	PS		FS				3/1/2003		5
Indian Camp Creek 3.9 to 10.2	Green River	RIVER	5110003	BUTLER	PS						3/1/2003		5
Indian Creek 0.0 to 7.3	Green River	RIVER	5110003	WARREN	FS						3/1/2003		2
Indian Creek 0.6 to 5.3	Green River	RIVER	5110002	MONROE	FS						3/1/2003		2
Isaacs Creek 0.0 to 7.4	Green River	RIVER	5110006	MUHLENBERG	NS		NS	NS			3/1/2003		5
Jarrels Creek 0.0 to 1.6	Green River	RIVER	5110006	MUHLENBERG	NS		NS				3/1/2003		5
Jarret Fork 0.0 to 1.0	Green River	RIVER	5110004	GRAYSON	NS						3/1/2003		5
Jenny Hollow Branch 0.0 to 2.4	Green River	RIVER	5110004	OHIO	NS						3/1/2003		5
Joes Branch 0.0 to 3.5	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
Joes Run 0.0 to 2.4	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
Knoblick Creek DMP: 0 UMP: 2.1	Green River	RIVER	5110005	DAVIESS			NS				3/1/2003		5
Knoblick Creek 0.0 to 9.0	Green River	RIVER	5110005	WEBSTER	NS						3/1/2003		5
Lake Luzerne	Green River	RIVER	5110003	MUHLENBERG		FS				PS	1/1/1992	DWS	5
Lake Malone	Green River	Reservoir	5110003	LOGAN		FS					1/1/2002	DWS	2
Lake Washburn	Green River	Reservoir	5110004	OHIO		FS					1/1/2002		2

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Lewis Creek 0.0 to 11.8	Green River	Reservoir	5110003	OHIO	PS		FS				3/1/2001		5
Lewisburg Lake	Green River	RIVER	5110003	LOGAN		FS					1/1/1984		2
Liberty Lake	Green River	Reservoir	5110001	CASEY		FS					1/1/2002	DWS	2
Lick Creek 0.0 to 3.7	Green River	Reservoir	5110005	HENDERSON	NS						3/1/2001		5
Lick Creek DMP: 0.0 UMP: 9.9	Green River	RIVER	5110002	SIMPSON	FS						11/12/2002		2
Lick Creek 5.0 to 13.8	Green River	RIVER	5110005	HENDERSON	NS						2/1/2006		5
Linders Creek DMP: 0 UMP: 7.7	Green River	RIVER	5110004	HARDIN	FS						3/1/2003		2
Lindy Creek 0.0 to 0.9	Green River	RIVER	5110001	HART	PS						3/1/2003		5
Line Creek 0.0 to 7.0	Green River	RIVER	5110002	MONROE	FS						3/1/2003		2
Little Barren River 0.0 to 8.8	Green River	RIVER	5110001	GREEN		FS	PS				3/1/2003		5
Little Barren River 8.8 to 14.1	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Little Beaverdam Creek 10.7 to 11.4	Green River	RIVER	5110002	WARREN	PS						3/1/2003		5
Little Beaverdam Creek DMP: 0 UMP: 10.7	Green River	RIVER	5110001	WARREN	FS						3/1/2003		2
Little Cypress Creek 0.0 to 9.2	Green River	RIVER	5110006	MUHLENBERG	PS	PS					12/7/2002		5
Little Muddy Creek 4.9 to 6.4	Green River	RIVER	5110002	BUTLER	NS						3/1/2003		5
Little Muddy Creek 6.4 to 12.9	Green River	RIVER	5110002	BUTLER	PS						3/1/2001		5
Little Pitman Creek 10.1 to 11.2	Green River	RIVER	5110001	TAYLOR	FS						6/2/2003		2
Little Pitman Creek 0.0 to 10.1	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2, 2B
Little Russell Creek DMP: 0 UMP: 5.1	Green River	RIVER	5110001	GREEN	FS						11/12/2002		2
Little Short Creek 0.0 to 3.0	Green River	RIVER	5110004	GRAYSON	FS						11/12/2002		2
Little Trammel Creek 0.0 to 2.4	Green River	RIVER	5110002	ALLEN	FS						3/1/2003		2
Long Falls Creek DMP: 0 UMP:7.5	Green River	RIVER	5110005	MC LEAN	PS	PS	NS				12/17/2002		5
Long Falls Creek DMP: 7.5 UMP: 11.8	Green River	RIVER	5110005	MC LEAN	PS		NS	NS			3/1/2003		5
Long Fork 0.6 to 2.0	Green River	RIVER	5110002	MONROE	FS						3/1/2003		2
Long Lick Creek 4.5 to 6.9	Green River	RIVER	5110004	BRECKINRIDGE	NS						3/1/2003		5
Lynn Camp Creek DMP: 0 UMP: 8.3	Green River	RIVER	5110001	HART	FS						11/12/2002		2
McFarland Creek DMP: 1.4 UMP: 4.8	Green River	RIVER	5110006	CHRISTIAN	FS						11/12/2002		2
McGrady Creek 0.0 to 2.0	Green River	RIVER	5110004	OHIO	PS		FS				3/1/2003		5
Meadow Creek 0.0 to 0.6	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Meadow Creek 0.6 to 7.5	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Meeting Creek 5.2 to 13.8	Green River	RIVER	5110004	GRAYSON	FS						11/12/2002		2
Metcalfe County Lake	Green River	RIVER	5110001	METCALFE		FS					1/1/2002		2
Middle Pitman Creek 0.0 to 7.6	Green River	Reservoir	5110001	GREEN	FS						3/1/2003		2
Middle Pitman Creek 8.2 to 10.0	Green River	RIVER	5110001	TAYLOR	FS						3/1/2003		2
Mill Creek 0.0 to 2.6	Green River	RIVER	5110001	TAYLOR	FS						3/1/2003		2
Mill Creek 0.0 to 3.8	Green River	RIVER	5110004	OHIO			NS				3/1/2003		5
Mill Creek Lake (Monroe County)	Green River	RIVER	5110002	MONROE		FS					1/1/2002	DWS	2
Motts Lick Creek 0.0 to 3.2	Green River	Reservoir	5110003	LOGAN	FS						3/1/2003		2
Mud River DMP: 0 UMP: 9.0	Green River	RIVER	5110003	BUTLER					NS		3/1/2003		5
Mud River DMP: 30.5 UMP:38.9	Green River	RIVER	5110003	LOGAN			FS		NS		3/1/2003		5
Mud River DMP: 38.9 UMP: 67.8	Green River	RIVER	5110003	MUHLENBERG					NS		3/1/2003		5
Mud River DMP: 9 UMP: 30.5	Green River	RIVER	5110003	BUTLER		PS	FS		NS		3/1/2003		5
Muddy Creek 0.0 to 5.7	Green River	RIVER	5110003	BUTLER			FS				3/1/2003		2

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Muddy Creek 1.9 to 3.9	Green River	RIVER	5110004	OHIO	NS		FS				2/28/2003		5
Muddy Creek 12.1 to 14.9	Green River	RIVER	5110003	LOGAN	PS						3/1/2003		5
Muddy Creek 5.9 to 9.1	Green River	RIVER	5110004	OHIO	PS						3/1/2003		5
Muddy Creek 8.3 to 12.1	Green River	RIVER	5110004	BUTLER	NS						2/28/2003		5
Muddy Creek 9.1 to 15.5	Green River	RIVER	5110004	OHIO	FS						11/12/2002		2
Muddy Creek 0.0 to 6.1	Green River	RIVER	5110004	OHIO	PS						8/2/2003		5
Muddy Fork 0.0 to 3.4	Green River	RIVER	5110006	MUHLENBERG	FS	FS					12/17/2002		2
Narge Creek 2.2 to 3.9	Green River	RIVER	5110006	HOPKINS	NS						3/1/2003		5
No Creek DMP: 0 UMP: 9.6	Green River	RIVER	5110004	OHIO	FS						3/1/2003		2
Nolin River DMP: 93.2 UMP: 101.2	Green River	RIVER	5110001	HARDIN	FS						3/1/2003		2
Nolin River 44.0 to 93.2	Green River	RIVER	5110001	HARDIN	FS	FS	FS			FS	3/1/2003	DWS	2, 2B
Nolin River Reservoir	Green River	RIVER	5110001	GRAYSON		FS			FS		3/10/2003	DWS	2
North Branch 0.0 to 12.4	Green River	Reservoir	5110005	HANCK	NS						3/1/2003		5
North Fork Barnett Creek DMP: 0 UMP: 2.8	Green River	RIVER	5110004	OHIO	PS						3/1/2003		5
North Fork Panther Creek 4.2 to 6.0	Green River	RIVER	5110005	DAVIESS	PS		NS				3/1/2003		5
North Fork Panther Creek 9.7 to 12.7	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
North Fork Panther Creek 0.0 to 4.2	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
North Fork Panther Creek 6.1 to 9.7	Green River	RIVER	5110005	DAVIESS	NS						4/1/1998		5
North Fork Rough River 23.4 to 26.8	Green River	RIVER	5110004	BRECKINRIDGE	FS						11/12/2002		2
North Fork Rough River 26.8 to 28.1	Green River	RIVER	5110004	BRECKINRIDGE	FS						11/12/2002		2
North Fork Rough River DMP: 19.0 UMP: 23.4	Green River	RIVER	5110004	BRECKINRIDGE	FS						3/1/2003		2
Old Panther Creek 0.4 to 5.7	Green River	RIVER	5110005	DAVIESS	NS						3/1/2003		5
Old Panther Creek 5.7 to 8.8	Green River	RIVER	5110005	DAVIESS	NS						3/1/2003		5
Otter Creek DMP: 0 UMP: 6.2	Green River	RIVER	5110006	HOPKINS	NS						3/1/2003		5
Panther Creek 0.0 to 2.7	Green River	RIVER	5110005	DAVIESS	NS						3/1/2003		5
Panther Creek 17.1 to 19.5	Green River	RIVER	5110005	DAVIESS	NS	NS					12/17/2002		5
Panther Creek 2.7 to 5.6	Green River	RIVER	5110005	DAVIESS			NS				3/1/2003		5
Pennyrile Lake	Green River	RIVER	5140205	CHRISTIAN		FS					1/1/2002		2
Peter Creek DMP: 11.6 UMP: 18.5	Green River	Reservoir	5110002	BARREN	FS						11/12/2002		2
Pettys Fork 0.0 to 6.0	Green River	RIVER	5110001	ADAIR	PS		NS				3/1/2003		5
Pigeon Creek 0.0 to 2.9	Green River	RIVER	5110004	OHIO	PS						3/1/2003		5
Pleasant Run 0.0 to 2.1	Green River	RIVER	5110006	HOPKINS		NS	NS	NS			4/1/1998		5
Pleasant Run 2.1 to 7.9	Green River	RIVER	5110006	HOPKINS		NS	NS	NS			4/1/1998		4A
Plum Creek 2.5 to 4.3	Green River	RIVER	5110006	MUHLENBERG	NS		NS				3/1/2003		5
Plum Creek DMP: 0 UMP: 2.5	Green River	RIVER	5110003	MUHLENBERG	NS						3/1/2003		5
Pond Creek 0.0 to 4.7	Green River	RIVER	5110003	MUHLENBERG		FS	PS				3/1/2003		2B, 5
Pond Creek 14.3 to 18.1	Green River	RIVER	5110003	MUHLENBERG	PS	PS	NS	NS			12/17/2002		5
Pond Creek 18.1 to 21.4	Green River	RIVER	5110003	MUHLENBERG	NS		NS	NS			3/1/2003		5
Pond Creek 4.9 to 7.5	Green River	RIVER	5110003	MUHLENBERG	NS	NS	FS				12/17/2002		5
Pond Creek 7.5 to 11.7	Green River	RIVER	5110003	MUHLENBERG	NS	NS	NS	NS			12/17/2002		5
Pond Creek 11.7 to 14.3	Green River	RIVER	5110003	MUHLENBERG		NS	NS	NS			4/1/1998		5
Pond Drain 0.0 to 2.0	Green River	RIVER	5110006	MC LEAN	PS						3/1/2003		5
Pond River 1.0 to 20.8	Green River	RIVER	5110006	HOPKINS	PS	PS	FS				3/1/2003		5

		Water Body	8-Digit								Assess	Designated	Assess
Waterbody and Segment	**Basin**	**Type**	**HUC**	**County**	**Biology**	**WQ**	**PCR**	**SCR**	**Fish**	**DW**	**Date**	**Uses**	**Category**
Pond River 0.0 to 1.0	Green River	RIVER	5110006	HOPKINS			FS				3/1/2003		2
Pond River 20.8 to 31.1	Green River	RIVER	5110006	MUHLENBERG	PS	PS					4/1/1998		5
Pond River 69.1 to 79.7	Green River	RIVER	5110006	MUHLENBERG	PS		FS				3/2/2003		5
Pond Run 0.0 to 6.3	Green River	RIVER	5110003	OHIO	FS						11/12/2002		2
Poplar Grove Branch 0.0 to 3.0	Green River	RIVER	5110001	TAYLOR			NS				3/1/2003		5
Puncheon Creek 1.1 to 3.8	Green River	RIVER	5110002	ALLEN	FS						3/1/2003		2
Render Creek 0.0 to 3.3	Green River	RIVER	5110003	OHIO	NS	NS	NS	NS			2/14/2006		5
Rhodes Creek 0.0 to 1.9	Green River	RIVER	5110005	DAVIESS	PS						3/1/2003		5
Rhodes Creek 2.2 to 7.5	Green River	RIVER	5110005	DAVIESS	NS	NS					12/17/2002		5
Rhodes Creek DMP: 0 UMP: 2.2	Green River	RIVER	5110005	DAVIESS	NS	NS					12/17/2002		5
Richland Slough 0.0 to 6.2	Green River	RIVER	5110005	HENDERSON	NS						3/1/2003		5
Rough River DMP: 0 UMP: 10.2	Green River	RIVER	5110004	MC LEAN		FS	FS				3/1/2003		2
Rough River DMP: 127.6 UMP: 147.8	Green River	RIVER	5110004	HARDIN	FS	FS	FS				11/12/2002		2
Rough River DMP: 26.7 UMP: 28.0	Green River	RIVER	5110004	OHIO			FS				3/1/2003		2
Rough River DMP: 59.4 UMP: 64.0	Green River	RIVER	5110004	OHIO		FS	FS				3/1/2003		2
Rough River Reservoir	Green River	RIVER	5110004	HARDIN		FS			PS		3/10/2003	DWS	5
Roundstone Creek 0.0 to 10.1	Green River	Reservoir	5110001	HART	FS						3/1/2003		2
Russell Creek 0.0 to 7.2	Green River	RIVER	5110001	GREEN			FS				3/1/2003		2
Russell Creek DMP: 12.8 UMP: 23.8	Green River	RIVER	5110001	GREEN	FS						3/1/2003		2
Russell Creek DMP: 40.0 UMP: 41.5	Green River	RIVER	5110001	ADAIR			NS				3/1/2003		5
Russell Creek DMP: 41.5 UMP: 68.2	Green River	RIVER	5110001	ADAIR	FS					FS	11/12/2002	DWS	2
Russell Creek DMP:23.8 UMP: 40.0	Green River	RIVER	5110001	ADAIR	FS						3/1/2003		2
Russell Creek DMP:7.2 UMP: 12.8	Green River	RIVER	5110001	GREEN	FS	FS	FS				3/1/2003		2
Salem Lake	Green River	RIVER	5110001	LARUE		FS		PS			1/1/2002	DWS	5
Salt Lick Creek 0.0 to 1.3	Green River	Reservoir	5110002	WARREN	NS						3/1/2003		5
Salt Lick Creek 0.0 to 2.9	Green River	RIVER	5110003	MUHLENBERG	FS	FS					12/17/2002		2
Salt Lick Creek 20. To 4.9	Green River	RIVER	5110002	MONROE	FS						3/1/2003		2
Sand Lick Creek 0.0 to 3.0	Green River	RIVER	5110003	MUHLENBERG	PS	PS					12/17/2002		5
Shanty Hollow Lake	Green River	RIVER	5110001	WARREN		FS					1/1/2002		2
Sixes Creek 0.0 to 7.5	Green River	Reservoir	5110003	OHIO	FS						11/12/2002		2
Skaggs Creek DMP: 16.6 UMP: 24.5	Green River	RIVER	5110002	BARREN	FS						3/1/2001		2
Smith Creek 0.0 to 4.5	Green River	RIVER	5110004	OHIO	FS						3/1/2003		2
South Fork 0.0 to 2.3	Green River	RIVER	5110001	CASEY	FS						3/1/2001		2
South Fork 2.3 to 7.5	Green River	RIVER	5110001	CASEY	FS						3/1/2003		2
South Fork Beaver Creek 1.2 to 5.9	Green River	RIVER	5110002	BARREN	PS						3/1/2003		5
South Fork Little Barren River 0.0 to 24.5	Green River	RIVER	5110001	METCALFE	FS						3/1/2003		2
South Fork Nolin River 0.0 to 6.4	Green River	RIVER	5110001	LARUE	FS						3/1/2001		2
South Fork Panther Creek 0.0 to 2.4	Green River	RIVER	5110005	DAVIESS	PS	PS	NS				12/17/2002		5
South Fork Panther Creek 13.5 to 17.7	Green River	RIVER	5110005	DAVIESS			NS				3/1/2003		5
South Fork Panther Creek 2.4 to 9.55	Green River	RIVER	5110005	DAVIESS	NS						12/1/2001		5
South Fork Panther Creek 9.55 to 13.5	Green River	RIVER	5110005	DAVIESS	PS	PS	NS				12/17/2002		5
South Fork Russell Creek DMP: 0.0 UMP: 6.4	Green River	RIVER	5110001	GREEN	FS						8/2/2002		2
Spa Lake	Green River	RIVER	5110003	LOGAN		FS		PS			1/1/2002	DWS	5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Spurlington Lake	Green River	Reservoir	5110001	TAYLOR		FS					1/1/2002		2
Sputzman Creek 1.0 to 4.1	Green River	Reservoir	5110005	HENDERSON	PS	PS					11/12/2002		5
Sulphur Branch 0.0 to 3.2	Green River	RIVER	5110001	EDMONSON	FS						11/12/2002		2
Sulphur Creek 0.0 to 10.5	Green River	RIVER	5110001	ADAIR			FS				3/1/2003		2
Sulphur Creek 11.4 to 15.1	Green River	RIVER	5110001	ADAIR	FS						3/1/2003		2
Sulphur Fork Creek 0.0 to 5.3	Green River	RIVER	5110002	ALLEN	FS						3/1/2003		2
Sulphur Fork Creek 5.4 to 8.0	Green River	RIVER	5110002	ALLEN	FS						3/1/2003		2
Sunfish Creek 6.6 to 9.7	Green River	RIVER	5110001	GRAYSON	PS						3/1/2003		5
Sweepstakes Branch 1.0 to 3.8	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
Sycamore Creek 0.0 to 1.5	Green River	RIVER	5110001	EDMONSON	NS						3/1/2003		5
Taylor Fork DMP: 0 UMP: 4.0	Green River	RIVER	5110001	GRAYSON	NS						3/1/2003		5
Thompson Branch 0.4 to 1.5	Green River	RIVER	5110002	SIMPSON	FS						3/1/2003		2
Three Lick Fork 0.0 to 3.3	Green River	RIVER	5110004	OHIO	NS						3/1/2003		5
Town Branch DMP: 0 UMP: 6.7	Green River	RIVER	5110003	LOGAN					NS		3/1/2003		5
Trammel Fork Drakes Creek DMP: 0 UMP: 23.55	Green River	RIVER	5110002	WARREN	FS	FS	FS				11/12/2002		2
Trammel Fork Drakes Creek DMP:23.55 UMP: 30.15	Green River	RIVER	5110002	ALLEN	FS						11/12/2002		2
Tules Creek 6.2 to 14.1	Green River	RIVER	5110004	BRECKINRIDGE	FS						3/1/2003		2
Two Mile Creek 0.0 to 4.85	Green River	RIVER	5110005	DAVIESS	FS	FS					12/17/2002		2
Upper Brush Creek 0.0 to 2.8	Green River	RIVER	5110001	TAYLOR			FS				3/1/2003		2
UT to Bull Run Creek 0.1 to 1.0	Green River	RIVER	5110001	CASEY	FS						3/1/2003		2
UT to Butler Branch 0.0 to 1.7	Green River	RIVER	5110001	ADAIR	PS						3/1/2001		5
UT to Cypress Creek 0.0 to 1.6	Green River	RIVER	5110006	MUHLENBERG	PS	PS					12/17/2002		5
UT to Elk Creek 0.0 to 1.0	Green River	RIVER	5110006	HOPKINS			NS				4/1/1998		5
UT to Flat Creek 0.0 to 3.1	Green River	RIVER	5110006	HOPKINS	NS						3/1/2003		5
UT to Flat Creek 3.1 to 4.1	Green River	RIVER	5110006	HOPKINS			NS				4/1/1998		5
UT to Hatter Creek 1.1 to 1.6	Green River	RIVER	5110001	CASEY	FS						3/1/2003		2
UT to Mays Run 0.0 to 0.4	Green River	RIVER	5110004	HARDIN	FS						3/1/2003		2
UT to Middle Pitman Creek 0.0 to 0.6	Green River	RIVER	5110001	TAYLOR	FS						3/1/2003		2
UT to ol Springs Creek 0.0 to 1.6	Green River	RIVER	5110001	ADAIR	NS						3/1/2003		5
UT to Pond Creek 0.0 to 2.3	Green River	RIVER	5110003	MUHLENBERG	NS						3/1/2003		5
UT to Pond Run 0.0 to 0.7	Green River	RIVER	5110003	BRECKINRIDGE	FS						11/12/2002		2
UT to South Fork Russell Creek 0.0 to 0.6	Green River	RIVER	5110001	GREEN	NS						7/31/2002		4A
UT to West Fork Lewis Creek 0.0 to 2.2	Green River	RIVER	5110003	OHIO	NS						3/1/2003		5
UT to Wiggington Creek 0.9 to 1.9	Green River	RIVER	5110002	LOGAN	NS						3/1/2003		5
Valley Creek 0.0 to 3.5	Green River	RIVER	5110001	HARDIN	PS	PS	NS				3/1/2003		5
Valley Creek 10.3 to 11.8	Green River	RIVER	5110001	HARDIN			NS				3/1/2003		5
Valley Creek 8.0 to 10.3	Green River	RIVER	5110001	HARDIN	NS						3/1/2003		5
Walters Creek 0.0 to 2.4	Green River	RIVER	5110001	LARUE	FS						3/1/2003		2
Welch Creek 0.0 to 16.4	Green River	RIVER	5110003	BUTLER	FS						3/1/2003		2
West Fork Drakes Creek 0.0 to 9.9	Green River	RIVER	5110002	WARREN					PS		3/1/2003		5
West Fork Drakes Creek 23.4 to 26.6	Green River	RIVER	5110002	SIMPSON						FS	3/1/2003	DWS	2
West Fork Drakes Creek 26.6 to 32.8	Green River	RIVER	5110002	SIMPSON	FS						3/1/2003		2
West Fork Drakes Creek 9.9 to 23.4	Green River	RIVER	5110002	SIMPSON	FS				PS		3/1/2003		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
West Fork Pond River 1.6 to 8.9	Green River	RIVER	5110006	CHRISTIAN	PS		FS				6/1/2001		5
West Fork Pond River 19.6 to 26.0	Green River	RIVER	5110006	CHRISTIAN	NS						7/27/2001		5
West Fork Pond River 8.9 to 19.6	Green River	RIVER	5110006	CHRISTIAN	FS	FS	FS				11/12/2002		2
Wolf Branch Ditch 0.0 to 4.1	Green River	RIVER	5110005	DAVIESS	PS	PS					12/17/2002		5
Wolf Lick Creek DMP: 3.3 UMP: 13.7	Green River	RIVER	5110003	LOGAN	PS		FS				10/31/2001		5
Cox's Run 0.0 to 3.2	Green River	RIVER	5110001	HARDIN	PS						3/1/2003		5
Arnolds Creek 0.0 to 10.8	Kentucky River	RIVER	5100205	GRANT	PS						7/22/1999		5
Avon Fork (Unnamed on Topo) 0.0 to 5.8	Kentucky River	RIVER	5100205	FAYETTE	FS						12/15/1999		2
Back Creek 0.0 to 4.7	Kentucky River	RIVER	5100205	GARRARD	FS						9/17/1999		2
Bailey Run 0.0 to 2.9	Kentucky River	RIVER	5100205	ANDERSON	PS						10/1/2004		5
Balls Fork 8.3 to 11.3	Kentucky River	RIVER	5100201	KNOTT	NS						9/17/1999		5
Bantas Fork 0.0 to 6.2	Kentucky River	RIVER	5100205	HENRY	PS						7/22/1999		5
Baughman Fork 0.0 to 2.7	Kentucky River	RIVER	5100205	FAYETTE	PS				FS		12/15/1999		4A
Baughman Fork 3.4 to 5.9	Kentucky River	RIVER	5100205	FAYETTE	FS				FS		12/29/1999		2
Beals Run 0.0 to 1.9	Kentucky River	RIVER	5100205	WOODFORD	NS						3/3/2005		5
Beech Fork 0.0 to 8.0	Kentucky River	RIVER	5100202	LESLIE	FS				FS		12/29/1999		2
Beech Fork Reservoir	Kentucky River	Reservoir	5100204	POWELL						FS	3/18/2005	DWS	2
Benson Creek 0.0 to 4.6	Kentucky River	RIVER	5100205	FRANKLIN	PS						7/23/1999		5
Benson Creek 22.1 to 25.7	Kentucky River	RIVER	5100205	ANDERSON	FS						9/17/1999		2
Benson Creek 4.6 to 6.7	Kentucky River	RIVER	5100205	FRANKLIN	PS						7/23/1999		5
Benson Creek 6.7 to 13.4	Kentucky River	RIVER	5100205	FRANKLIN	NS						7/23/1999		5
Berea Water Supply Reservoir	Kentucky River	Reservoir	5100204	MADISON						FS	3/7/2005	DWS	2
Bert Combs Lake	Kentucky River	Reservoir	5100203	CLAY		FS				FS	3/21/2004	DWS	2
Big Calaboose Creek 0.0 - 2.2	Kentucky River	RIVER	5100204	WOLFE	FS						3/6/2001		2
Big Caney Creek 0.3 to 8.0	Kentucky River	RIVER	5100201	BREATHITT	PS						10/25/1999		5
Big Creek 0.0 - 3.1	Kentucky River	RIVER	5100201	PERRY							9/15/1999		3
Big Creek 0.0 to 4.3	Kentucky River	RIVER	5100203	CLAY	FS						12/19/1999	CAH	2
Big Dan Branch 0.0 to 1.2	Kentucky River	RIVER	5100203	CLAY	FS						12/29/1999		2
Big Double Creek 0.0 to 4.4	Kentucky River	RIVER	5100203	CLAY	FS						1/1/2004		2
Big Laurel Cr. 3.6 to 6.4	Kentucky River	RIVER	5100202	HARLAN	FS						10/4/2004		2
Big Middle Fork Elisha Creek 0.0 to 1.5	Kentucky River	RIVER	5100203	CLAY	FS						1/1/2005		2
Big Sinking Creek 0.0 to 14.1	Kentucky River	RIVER	5100204	ESTILL	FS						12/29/1999		2
Big Twin Creek 0.0 to 3.8	Kentucky River	RIVER	5100205	OWEN	PS						7/23/1999		5
Big Willard Creek 0.0 to 4.5	Kentucky River	RIVER	5100201	PERRY	NS						9/15/1999		5
Bill Branch 0.0 to 0.3	Kentucky River	RIVER	5100202	LESLIE	FS						1/1/2005		2
Billey Fork 2.6 to 8.8	Kentucky River	RIVER	5100204	LEE	FS						10/4/2004		2
Black Creek 0.0 - 4.0	Kentucky River	RIVER	5100204	POWELL	FS						3/6/2001		2
Bolen Branch 0.0 to 2.1	Kentucky River	RIVER	5100201	KNOTT	FS						9/20/1999		2
Boltz Lake	Kentucky River	Reservoir	5100205	GRANT		PS					3/22/2004		5
Boone Creek 0.0 to 7.4	Kentucky River	RIVER	5100205	FAYETTE	FS						3/4/2005		2, 2B
Boone Creek 7.4 to 12.6	Kentucky River	RIVER	5100205	FAYETTE		PS	NS				12/15/1999		5
Boone Fork 1.5 to 3.3	Kentucky River	RIVER	5100201	BREATHITT	FS						9/15/1999		2
Brush Creek 0.0 - 6.6	Kentucky River	RIVER	5100204	POWELL	PS						3/2/2001		5

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Brush Creek 0.0 to 9.7	Kentucky River	RIVER	5100205	OWEN	FS						7/1/1999		2
Buck Creek 0.0 to 2.3	Kentucky River	RIVER	5100204	ESTILL	FS						9/20/1999		2
Buck Creek 0.0 to 4.0	Kentucky River	RIVER	5100203	OWSLEY	FS						7/22/1999		2
Buck Run 0.0 to 5.7	Kentucky River	RIVER	5100205	OWEN	FS						1/1/2005		2, 2B
Buckhorn Creek 2.4 to 6.8	Kentucky River	RIVER	5100201	BREATHITT	PS						3/4/2005		5
Buckhorn Creek 0.0 to 2.4	Kentucky River	RIVER	5100201	BREATHITT	NS	NS	NS				2/3/2006		5
Buckhorn Lake	Kentucky River	Reservoir	5100202	PERRY		FS		PS		FS	8/15/2005	DWS	2B, 5
Buffalo Creek 0.0 to 1.6	Kentucky River	RIVER	5100203	OWSLEY	FS						3/4/2005		2
Bull Creek 0.0 to 2.0	Kentucky River	RIVER	5100203	KNOX	PS						7/22/1999		5
Bull Creek 0.0 to 4.1	Kentucky River	RIVER	5100202	LESLIE	FS						12/13/1999		2
Bullock Pen Creek 0.0 to 1.5	Kentucky River	RIVER	5100205	BOONE	FS						7/22/1999		2
Bullock Pen Lake	Kentucky River	Reservoir	5100205	GRANT		PS				FS	3/22/2004	DWS	5
Bullskin Creek 0.0 to 13.9	Kentucky River	RIVER	5100203	CLAY	FS						10/1/1999		2
Campton City Lake	Kentucky River	Reservoir	5100204	WOLFE		FS		FS		FS	3/18/2005	DWS	2
Cane Creek 0.0 to 3.1	Kentucky River	RIVER	5100204	POWELL	FS	FS	NS				12/15/1999		5
Cane Creek 0.0 to 9.5	Kentucky River	RIVER	5100201	BREATHITT	FS		NS				9/15/1999		4A
Cane Run 0.0 to 3.0	Kentucky River	RIVER	5100205	SCOTT	NS						9/20/1999		5
Cane Run 3.0 to 9.6	Kentucky River	RIVER	5100205	SCOTT	PS	PS	NS				1/1/1999		5
Cane Run 9.6 to 17.4	Kentucky River	RIVER	5100205	FAYETTE	NS	NS	NS				1/1/1999		5
Caney Cr. 0.0 to 1.5	Kentucky River	RIVER	5100205	OWEN	PS						10/4/2004		5
Canoe Creek 0.0 to 0.5	Kentucky River	RIVER	5100202	BREATHITT	FS						9/30/2005		2
Carr Creek Reservoir	Kentucky River	Reservoir	5100201	KNOTT		PS		PS			8/18/2005	DWS	5
Carr Fork 0.0 to 5.9	Kentucky River	RIVER	5100201	PERRY			PS	PS			9/30/2005		4A
Carr Fork 15.6 to 26.4	Kentucky River	RIVER	5100201	KNOTT		FS	NS	NS			8/19/2005		2B, 5
Carr Fork 5.9 to 8.9	Kentucky River	RIVER	5100201	PERRY		FS	NS	FS			8/18/2005		4A
Cat Creek 0.0 - 8.0	Kentucky River	RIVER	5100204	POWELL	PS						3/4/2005		5
Cavanaugh Creek 0.0 to 8.8	Kentucky River	RIVER	5100204	JACKSON	FS						9/20/1999		2
Cedar Creek 0.0 to 4.2	Kentucky River	RIVER	5100205	LINCOLN	FS						4/1/1999		2
Cedar Creek 0.0 to 9.4	Kentucky River	RIVER	5100205	OWEN	PS	PS	FS	FS			1/1/2005		5
Cedar Creek Lake	Kentucky River	Reservoir	5100205	LINCOLN		FS		FS	PS		6/3/2004		5
Cedar Run 1.8-2.8	Kentucky River	RIVER	5100205	FRANKLIN		FS					1/21/2000		2, 5B
Chambers Fk. 0.7 to 1.1	Kentucky River	RIVER	5100204	WOLFE	PS						10/4/2004		5
Cherry Run 0.0 to 0.9	Kentucky River	RIVER	5100205	SCOTT	FS						3/4/2005		2
Chester Creek 0.0 to 2.8	Kentucky River	RIVER	5100204	WOLFE	FS						3/4/2005		2
Chimney Top Creek 0.0 to 4.4	Kentucky River	RIVER	5100204	WOLFE	FS						1/6/2000	CAH	2
Clarks Creek 0.0 to 5.2	Kentucky River	RIVER	5100205	GRANT	FS						10/4/2004		2
Clarks Run 4.3 to 6.6	Kentucky River	RIVER	5100205	BOYLE	NS						1/1/2000		5
Clarks Run 8.1 to 13.5	Kentucky River	RIVER	5100205	BOYLE	PS						9/30/2005		5
Clarks Run 0.0 to 4.3	Kentucky River	RIVER	5100205	BOYLE	PS						4/1/1998		5
Claylick Creek 0.0 to 5.5	Kentucky River	RIVER	5100205	OWEN	FS						1/1/2000		2
Clear Creek 0.0 to 9.0	Kentucky River	RIVER	5100205	WOODFORD	FS						3/4/2003		2
Clemons Fork 2.2 to 4.8	Kentucky River	RIVER	5100201	BREATHITT	FS						3/4/2005		2
Clifty Creek 0.0 - 2.0	Kentucky River	RIVER	5100204	WOLFE	FS						3/6/2001		2

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Craig Creek 0.1 to 4.0	Kentucky River	RIVER	5100205	WOODFORD	FS						9/20/2005		2
Crane Cr. 0.0 to 5.4	Kentucky River	RIVER	5100203	CLAY	PS						10/4/2004		5
Crooked Creek 0.0-7.3	Kentucky River	RIVER	5100204	ESTILL	FS						2/2/2000		2
Crystal Cr. 0.0 to 2.3	Kentucky River	RIVER	5100201	LEE	PS						3/7/2004		5
Cutshin Creek 9.7 to 10.7	Kentucky River	Reservoir	5100202	LESLIE	PS						3/7/2003		5
Defeated Creek 0.4 to 1.6	Kentucky River	RIVER	5100201	KNOTT		FS	NS	NS			9/30/2005		5
Dix River 0.0 to 3.1	Kentucky River	RIVER	5100205	GARRARD		FS					2/21/2005		2
Dix River 33.3 to 36.1	Kentucky River	RIVER	5100205	GARRARD		FS	FS	FS			2/23/2005		2, 2B
Dog Fork 0.0-2.3	Kentucky River	RIVER	5100204	WOLFE	FS						1/10/2000	CAH	2
Drakes Creek 0.0 to 1.3	Kentucky River	RIVER	5100205	LINCOLN	FS						4/1/1999		2
Drennon Creek 8.7 to 12.2	Kentucky River	RIVER	5100205	HENRY	FS						3/7/2005		2
Drowning Creek 0.0-9.45	Kentucky River	RIVER	5100204	MADISON	FS						1/7/2000		2
Dry Run 0.0-3.1	Kentucky River	RIVER	5100205	SCOTT	PS						12/16/1999		5
Duck Fork 0.0-4.8	Kentucky River	RIVER	5100204	LEE	FS						1/19/2000		2
Eagle Creek 15.3 to 28.5	Kentucky River	RIVER	5100205	OWEN	FS	FS					2/22/2005		5
Eagle Creek 50.8 to 58.5	Kentucky River	RIVER	5100205	GRANT	PS	PS	FS	FS			2/21/2005		5
Eagle Creek 31.6 to 36.5	Kentucky River	RIVER	5100205	GRANT	NS						2/3/2006		5
East Fork Indian Creek 0.0 - 8.5	Kentucky River	RIVER	5100204	MENIFEE	FS						12/1/1999	CAH	2
East Fork Mill Creek 0.0 to 3.1	Kentucky River	RIVER	5100205	CARROLL	FS						7/23/1999		2
East Fork Otter Creek 0.0 to 2.7	Kentucky River	RIVER	5100205	MADISON	PS						12/17/1999		5
East Hickman Creek 12.6 to 14.0	Kentucky River	RIVER	5100205	FAYETTE			NS				1/20/2000		5
East Hickman Creek 4.2-10.2	Kentucky River	RIVER	5100205	FAYETTE	PS	PS	NS				1/24/2000		5
Edward Branch 0.0 - 1.7	Kentucky River	RIVER	5100204	MENIFEE	FS						3/6/2001		2
Elisha Creek 0.8 to 1.8	Kentucky River	RIVER	5100203	LESLIE	FS						3/4/2005		2
Elk Creek 0.0 to 1.6	Kentucky River	RIVER	5100205	OWEN	PS						9/19/1999		5
Elkhorn Creek 0.0 to 18.2	Kentucky River	RIVER	5100205	FRANKLIN		FS	FS	FS	PS		3/1/2005		2B, 5
Elkhorn Creek 0.6 to 3.7	Kentucky River	RIVER	5100202	LESLIE	FS						9/30/2005		2
Elmer Davis Lake	Kentucky River	RIVER	5100205	OWEN		PS					6/3/2004		5
Emily Run 0.0 to 3.9	Kentucky River	RIVER	5100205	CARROLL	FS						4/1/1999		2
Evans Fork 0.0 to 3.0	Kentucky River	RIVER	5100204	ESTILL	FS						3/7/2005		2
Falling Rock Branch 0.0 to 0.7	Kentucky River	RIVER	5100201	BREATHITT	FS						3/7/2005		2
Fishpond Lake	Kentucky River	RIVER	5100201	LETCHER		FS					6/3/2004		2
Five Mile Creek 0.0 to 2.7	Kentucky River	RIVER	5100205	HENRY	FS						9/21/1999		2
Flat Creek 0.0 to 7.1	Kentucky River	RIVER	5100205	FRANKLIN	PS						4/1/1999		5
Four Mile Creek 0.0 to 7.4	Kentucky River	Reservoir	5100205	CLARK							9/21/1999		3
Freeman Fork 0.0 to 1.4	Kentucky River	RIVER	5100202	BREATHITT	FS						12/17/1999		2
Frozen Creek 0.0 to 13.9	Kentucky River	RIVER	5100201	BREATHITT	PS						10/4/2004		5
General Butler State Park Lake	Kentucky River	RIVER	5100205	CARROLL		FS					6/3/2004		2, 2B
Gilberts Big Creek 0.0 to 5.1	Kentucky River	Reservoir	5100203	LESLIE	FS						9/21/1999		2
Gilberts Creek 0.0-1.2	Kentucky River	RIVER	5100205	LINCOLN							8/1/1998		3
Gilberts Creek 0.0 to 2.6	Kentucky River	RIVER	5100205	ANDERSON	FS						9/20/2005		2
Gilmore Creek 0.0 - 5.5	Kentucky River	RIVER	5100204	WOLFE	FS						3/7/2001		2
Gladie Creek 0.37 to 7.28	Kentucky River	RIVER	5100204	MENIFEE	FS						3/7/2005	CAH	2

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Glenns Creek 0.0 to 5.2	Kentucky River	RIVER	5100205	FRANKLIN	FS						7/22/1998		2
Goose Creek 0.0 to 1.8	Kentucky River	Reservoir	5100205	SHELBY	PS						7/22/1999		5
Goose Creek 0.0 to 8.3	Kentucky River	RIVER	5100203	CLAY		FS	FS	FS			3/7/2005		2, 2B
Goose Creek 1.85 to 4.2	Kentucky River	RIVER	5100205	SHELBY	PS						9/21/1999		5
Goose Creek 18.9 to 19.9	Kentucky River	RIVER	5100203	CLAY						FS	3/1/2005	DWS	2
Granny's Branch 0.0 to 2.3	Kentucky River	RIVER	5100203	CLAY	FS						1/10/2000		2
Grapevine Creek 0.0 to 1.1	Kentucky River	RIVER	5100201	PERRY	NS						9/13/1999		5
Grassy Run 0.0 to 6.4	Kentucky River	RIVER	5100205	GRANT	FS						9/16/1999		2
Greasy Creek 0.0 to 10.0	Kentucky River	RIVER	5100202	LESLIE	FS						12/13/1999		2
Greasy Creek 12.1 to 22.6	Kentucky River	RIVER	5100202	LESLIE	FS						9/29/1999		2
Griers Creek 0.0 to 3.5	Kentucky River	RIVER	5100205	WOODFORD	FS						3/7/2005		2, 2B
Grindstone Cr. 0.1 to 1.9	Kentucky River	RIVER	5100205	FRANKLIN	FS						3/22/2005		2
Hall Branch 0.7 to 1.2	Kentucky River	RIVER	5100205	SCOTT	FS						10/4/2004		2
Hammons Fork 0.0 to 4.9	Kentucky River	RIVER	5100203	KNOX	FS						3/22/2005		2, 2B
Hanging Fork 0.0-15.0	Kentucky River	RIVER	5100205	LINCOLN	FS	FS	NS				12/17/1999		5
Hanging Fork 15.0 to 22.9	Kentucky River	RIVER	5100205	LINCOLN	FS						7/22/1999		2
Hardwick Creek 0.0-3.2	Kentucky River	RIVER	5100204	POWELL	FS	FS	NS				12/17/1999		5
Harts Fork 3.2-4.2	Kentucky River	RIVER	5100205	MADISON		PS					1/25/2000		5, 5B
Hatcher Creek 0.0 - 1.2	Kentucky River	RIVER	5100204	POWELL	FS						3/6/2001		2
Hatton Creek 0.0 - 4.2	Kentucky River	RIVER	5100204	POWELL	PS						3/2/2001		5
Hawes Fork 0.0-4.4	Kentucky River	RIVER	5100201	BREATHITT	NS						9/10/1999		5
Hays Fork 1.2-4.7	Kentucky River	RIVER	5100205	MADISON		FS					1/25/2000		2, 5B
Hell Creek 0.0-3.5	Kentucky River	RIVER	5100201	LEE	PS						9/15/1999		5
Hell For Certain Creek 0.0-2.1	Kentucky River	RIVER	5100202	LESLIE	FS						12/14/1999		2
Herrington Lake	Kentucky River	RIVER	5100205	GARRARD		NS	FS	FS	PS	FS	3/18/2005	DWS	5
Hickman Creek 6.0 to 25.5	Kentucky River	RIVER	5100205	JESSAMINE	PS						10/4/2005		5
Hickman Creek 0.0 to 6.0	Kentucky River	RIVER	5100205	JESSAMINE	PS						2/3/2006		5
Hines Creek 0.1 to 1.9	Kentucky River	RIVER	5100205	MADISON	FS						3/22/2005		2
Holly Creek 0.0 to 6.2	Kentucky River	RIVER	5100201	WOLFE	PS						3/22/2005		5
Honey Branch 0.0 to 1.4	Kentucky River	RIVER	5100202	LESLIE	FS						3/1/2003		2
Hopper Cave Branch 0.0 to 1.8	Kentucky River	RIVER	5100204	JACKSON	FS						3/22/2005		2
Horse Creek 0.0 to 8.3	Kentucky River	Reservoir	5100203	CLAY	PS						10/4/2004		5
Hoys Fork 0.0-3.8	Kentucky River	RIVER	5100204	ESTILL	FS						2/2/2000		2
Hunting Creek 0.0 to 2.6	Kentucky River	RIVER	5100201	BREATHITT	NS						4/1/1999		5
Indian Creek 0.0 to 5.4	Kentucky River	RIVER	5100205	CARROLL	FS						3/22/2005		2
Indian Creek 2.6 to 7.8	Kentucky River	RIVER	5100204	MENIFEE	PS						10/4/2004	CAH	5
Indian Fork 0.0 to 3.3	Kentucky River	RIVER	5100205	SHELBY	FS						3/22/2005		2
Jessamine Creek 0.0-5.3	Kentucky River	RIVER	5100205	JESSAMINE	FS						7/1/1998		2
John Carpenter Fk. 0.0 to 1.2	Kentucky River	RIVER	5100201	BREATHITT	FS						3/22/2005		2
Johnson Fk. 0.0 to 0.5	Kentucky River	RIVER	5100204	WOLFE	PS						10/4/2004		5
Judy Creek 0.0 - 1.5	Kentucky River	RIVER	5100204	POWELL	NS						3/2/2001		5
Judy Creek 1.5 to 3.4	Kentucky River	RIVER	5100204	POWELL	FS						9/29/1999		2
Katies Cr. 0.0 to 4.0	Kentucky River	RIVER	5100203	CLAY	FS						10/4/2004		2

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Keens Fork 0.0-1.8	Kentucky River	RIVER	5100203	CLAY	FS						5/1/1994		2
Kentucky River 0.3 to 11.5	Kentucky River	RIVER	5100205	OWEN					NS		3/9/2005		5
Kentucky River 11.6 to 53.4	Kentucky River	RIVER	5100205	OWEN		FS	PS		FS		3/3/2005		5
Kentucky River 121.0 to 121.4	Kentucky River	RIVER	5100205	MERCER			FS			FS	3/10/2005	DWS	2
Kentucky River 121.4 to 138.7	Kentucky River	RIVER	5100205	GARRARD		FS	FS	FS	FS	FS	2/28/2005	DWS	1
Kentucky River 154.0 to 210.0	Kentucky River	RIVER	5100205	JESSAMINE		FS	FS	FS	PS	FS	3/10/2005	DWS	5
Kentucky River 223.35 to 224.35	Kentucky River	RIVER	5100205	ESTILL						FS	3/10/2005	DWS	2
Kentucky River 225.9 to 253.7	Kentucky River	RIVER	5100204	ESTILL					FS		3/10/2005		2
Kentucky River 53.5 to 118.2	Kentucky River	RIVER	5100205	FRANKLIN		FS	FS	FS	FS	FS	2/22/2005	DWS	1, 2B
Knob Lick Br. 0.0 to 2.8	Kentucky River	RIVER	5100204	ESTILL	FS						10/6/2004		2
Knoblick Creek 0.0 to 4.7	Kentucky River	RIVER	5100205	LINCOLN	FS						7/22/1999		2
Lacy Creek 0.0 to 7.25	Kentucky River	RIVER	5100204	WOLFE	PS						3/22/2005		5
Lake Reba	Kentucky River	RIVER	5100205	MADISON		NS					6/3/2004		5
Lake Vega	Kentucky River	RIVER	5100205	MADISON						FS	3/23/2005	DWS	2
Lanes Run 0.0 - 0.5	Kentucky River	RIVER	5100205	SCOTT			NS				2/6/2006		5, 5B
Laurel Creek 3.8-4.8	Kentucky River	RIVER	5100203	CLAY	PS						9/29/1999		5
Laurel Fork 0.0 to 4.2	Kentucky River	RIVER	5100203	OWSLEY	FS						3/22/2005		2
Leatherwood Creek 0.0-4.2	Kentucky River	RIVER	5100201	BREATHITT	FS						8/1/1998		2
Leatherwood Creek 0.6-8.2	Kentucky River	RIVER	5100201	PERRY	FS	FS	FS				12/21/1999		2
Leatherwood Creek 1.7-3.2	Kentucky River	Reservoir	5100202	PERRY	FS						12/17/1999		2
Lee Branch 0.0 - 1.0	Kentucky River	Reservoir	5100205	WOODFORD			PS				2/6/2006		5, 5B
Left Fork Big Double Creek 0.0 to 1.5	Kentucky River	RIVER	5100203	CLAY	FS						3/22/2005		2
Left Fork Buffalo Creek 0.0-3.1	Kentucky River	RIVER	5100203	OWSLEY	FS						12/14/1999		2
Left Fork Elisha Creek 0.0 to 3.9	Kentucky River	RIVER	5100203	LESLIE	FS						3/22/2005		2
Left Fork Island Creek 0.0-5.0	Kentucky River	RIVER	5100203	OWSLEY	PS						4/1/1999		5
Left Fork Millstone Creek 1.6 to 2.9	Kentucky River	RIVER	5100201	LETCHER	NS						3/22/2005		5
Lemptes Run 0.0-1.9	Kentucky River	RIVER	5100205	SCOTT	FS						12/17/1999		2
Coles Fork 0.0-5.5	Kentucky River	RIVER	5100201	BREATHITT	FS				FS		5/19/1998		2
Lexington Reservoir No. 4 9 (Jabsen Reservoir)	Kentucky River	RIVER	5100205	FAYETTE						FS	3/7/2005	DWS	2
Lick Creek 0.0 to 5.4	Kentucky River	RIVER	5100205	CARROLL	PS						10/6/2004		5
Line Fork 9.1 to 11.6	Kentucky River	RIVER	5100201	LETCHER	PS						10/6/2004		5
Line Fork 11.6 to 27.5	Kentucky River	RIVER	5100201	LETCHER	FS	FS	PS				4/1/1998		5
Little Goose Creek 0.0 to 7.6	Kentucky River	RIVER	5100203	CLAY							9/30/1999		3
Little Middle Fork Elisha Creek 0.0 to 0.75	Kentucky River	RIVER	5100203	LESLIE	FS						3/22/2005		2
Little Millseat Branch 0.0 to 1.2	Kentucky River	Reservoir	5100201	BREATHITT	FS						3/22/2005		2
Little Sexton Creek 0.0 to 2.8	Kentucky River	RIVER	5100203	CLAY	FS						4/1/1999		2
Little Sinking Creek 0.0 to 4.0	Kentucky River	RIVER	5100204	LEE	FS						9/30/1999		2
Little Sixmile Creek 0.0 to 5.3	Kentucky River	RIVER	5100205	HENRY	FS						3/22/2005		2
Little Sturgeon Creek 0.0 to 2.8	Kentucky River	RIVER	5100204	OWSLEY	FS						1/1/1999		2
Little Sturgeon Creek 4.8 to 6.8	Kentucky River	RIVER	5100204	OWSLEY	FS						2/3/2000		2
Little Willard Cr. 0.0 to 2.5	Kentucky River	RIVER	5100201	PERRY	NS						10/6/2004		5
Collins Fork 2.4-6.3	Kentucky River	RIVER	5100203	CLAY	PS						12/13/1999		5
Log Lick Creek 0.0 - 2.6	Kentucky River	RIVER	5100204	CLARK							2/21/2001		3

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Logan Creek 0.0 to 3.15	Kentucky River	RIVER	5100205	LINCOLN	FS						10/4/2005		2
Long Fork 0.0 to 2.0	Kentucky River	RIVER	5100203	CLAY	FS						9/30/1999		2
Long Fork 0.0 to 4.6	Kentucky River	RIVER	5100201	BREATHITT	PS						3/22/2005		5
Lost Creek 0.0 to 3.7	Kentucky River	RIVER	5100201	BREATHITT		FS	NS	FS			2/22/2005		5
Lost Creek 3.7 to 8.95	Kentucky River	RIVER	5100201	BREATHITT	NS						2/6/2006		5
Lotts Creek 0.4 to 1.0	Kentucky River	RIVER	5100201	KNOTT	PS						10/6/2004		5
Lotts Creek 1.2 to 6.0	Kentucky River	RIVER	5100201	PERRY	NS						2/6/2006		5
Lower Buffalo Creek 0.0 to 2.4	Kentucky River	RIVER	5100203	OWSLEY	PS						4/1/1999		5
Lower Cane Creek 0.0 - 2.6	Kentucky River	RIVER	5100204	POWELL	FS						3/6/2001		2
Lower Devil Creek 0.0 to 4.5	Kentucky River	RIVER	5100201	LEE	FS						9/15/1999		2
Lower Hood Branch 0.0 to 1.3	Kentucky River	RIVER	5100204	POWELL	FS						1/11/1998		2
Lower Howard Creek 2.65 to 6.2	Kentucky River	RIVER	5100205	CLARK	NS						12/17/1999		5
Lower Thomas Lake	Kentucky River	RIVER	5100205	OWEN						FS	3/23/2005	DWS	2
Lulbegrud Creek 0.0 to 7.3	Kentucky River	RIVER	5100204	CLARK	PS				FS		12/17/1999		5
Lulbegrud Creek 16.9 to 22.2	Kentucky River	RIVER	5100204	MONTGOMERY							3/2/2001		3
Lulbegrud Creek 7.3 to 16.9	Kentucky River	RIVER	5100204	POWELL	FS						2/28/2001		2
Lytles Fork 0.0 to 14.7	Kentucky River	RIVER	5100205	SCOTT	FS						3/22/2005		2, 2B
Maces Creek 0.0-0.2	Kentucky River	Reservoir	5100201	PERRY	FS	FS	FS				12/21/1999		2
Marble Cr. 0.05 to 3.9	Kentucky River	RIVER	5100205	JESSAMINE	PS						3/10/2005		5
Mcnnell Run 0.0 to 4.4	Kentucky River	RIVER	5100205	SCOTT	PS						12/17/1999		5
Meadow Creek 0.5 to 3.7	Kentucky River	RIVER	5100203	OWSLEY	PS						10/6/2004		5
Middle Fork Kentucky River 36.9 to 43.8	Kentucky River	RIVER	5100202	PERRY		FS	FS	FS			3/3/2005	DWS	2
Middle Fork Kentucky River 6.4 to 12.6	Kentucky River	RIVER	5100202	LEE	FS	FS	FS	FS			2/23/2005	DWS	2
Middle Fork Kentucky River 75.4 to 75.9	Kentucky River	RIVER	5100202	LESLIE						FS	3/11/2005	DWS	2
Middle Fork Kentucky River 75.9 to 84.3	Kentucky River	RIVER	5100202	LESLIE	FS						3/22/2005	DWS	2
Middle Fork Kentucky River 67.0 to 73.4	Kentucky River	RIVER	5100202	LESLIE	PS	PS	PS	FS			3/3/2005		5
Middle Fork Quicksand Creek 0.0 to 10.0	Kentucky River	RIVER	5100201	KNOTT	FS						9/20/1999		2
Middle Fork Red River 12.9 to 15.4	Kentucky River	RIVER	5100204	WOLFE	FS						3/23/2005		2
Middle Fork, Kentucky River 61.5 to 64.2	Kentucky River	RIVER	5100202	LESLIE		FS	NS	NS			8/16/2005	DWS	5
Mill Cr. 0.0 to 3.3	Kentucky River	RIVER	5100201	LETCHER	NS						10/7/2004		5
Mill Creek 0.0 to 5.7	Kentucky River	RIVER	5100205	CARROLL	FS						4/1/1999		2
Mill Creek 0.5 to 8.3	Kentucky River	RIVER	5100205	OWEN	FS						3/23/2005		2
Mill Creek Lake (Powell County)	Kentucky River	RIVER	5100204	POWELL		FS				FS	6/3/2004	DWS	2
Millers Creek 0.0 to 6.7	Kentucky River	RIVER	5100204	LEE	FS	FS	FS				12/17/1999		2
Millseat Branch 0.0 to 1.85	Kentucky River	RIVER	5100201	BREATHITT	FS						3/23/2005		2
Mocks Br. 1.6 to 5.7	Kentucky River	RIVER	5100205	BOYLE	PS						3/11/2005		5
Morris Creek 0.1 - 3.7	Kentucky River	RIVER	5100204	POWELL							3/2/2001		3
Moseby Branch 0.0 to 2.2	Kentucky River	Reservoir	5100205	OWEN	NS						9/16/1999		5
Muddy Creek 0.0-20.2	Kentucky River	RIVER	5100205	MADISON	FS	FS	NS		FS		12/1/1999		5
Muddy Creek 20.2 to 29.2	Kentucky River	RIVER	5100205	MADISON	FS						1/2/2000		2
Muncy Cr. 2.7 to 4.7	Kentucky River	RIVER	5100202	LESLIE	NS						9/30/2004		5
Musselman Creek 0.0 to 9.0	Kentucky River	RIVER	5100205	GRANT	FS						3/23/2005		2
N. Elkhorn Creek 66.0 to 73.75	Kentucky River	RIVER	5100205	FAYETTE	PS		NS				10/4/2005		5

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Noland Cr. 0.05 to 1.2	Kentucky River	RIVER	5100204	ESTILL	PS						3/11/2005		5
North Benson Creek 0.8 to 2.0	Kentucky River	RIVER	5100205	FRANKLIN	PS						4/1/1999		5
North Elkhorn Creek 0.7 to 7.4	Kentucky River	RIVER	5100205	FRANKLIN	FS						7/24/2003		2
North Elkhorn Creek 33.6 to 34.6	Kentucky River	RIVER	5100205	SCOTT						FS	3/11/2005	DWS	2
North Fork Kentucky River 1.3 to 2.3	Kentucky River	RIVER	5100201	LEE						FS	3/11/2005	DWS	2
North Fork Kentucky River 104.1 to 105.1	Kentucky River	RIVER	5100201	PERRY						FS	3/14/2005	DWS	2
North Fork Kentucky River 131.0 to 132.0	Kentucky River	RIVER	5100201	LETCHER						FS	3/14/2005	DWS	2
North Fork Kentucky River 145.5 to 147.9	Kentucky River	RIVER	5100201	LETCHER	NS						9/28/2005		5
North Fork Kentucky River 147.9 to 162.0	Kentucky River	RIVER	5100201	LETCHER	NS					FS	3/14/2005	DWS	5
North Fork Kentucky River 2.3 to 35.6	Kentucky River	RIVER	5100201	LEE					FS		3/11/2005		2
North Fork Kentucky River 35.7 to 47.2	Kentucky River	RIVER	5100201	BREATHITT		FS	PS	FS			2/22/2005		4A
North Fork Kentucky River 47.2 to 48.2	Kentucky River	RIVER	5100201	BREATHITT						FS	3/14/2005	DWS	2
North Fork Lulbegrud Creek 0.0 - 2.4	Kentucky River	RIVER	5100204	MONTGOMERY	FS						3/2/2001		2
North Fork North Benson Creek 0.0 to 2.2	Kentucky River	RIVER	5100205	FRANKLIN	PS						4/1/1999		5
North Severn Creek 0.0 to 2.1	Kentucky River	RIVER	5100205	OWEN	FS						10/7/2004		2
Otter Creek 0.0 to 4.1	Kentucky River	RIVER	5100205	MADISON	PS	PS	FS	FS	FS		2/22/2005		2B, 5
Owsley Fork Lake	Kentucky River	RIVER	5100205	MADISON		FS				FS	6/3/2004	DWS	2
Paint Lick Creek 0.0 to 7.5	Kentucky River	RIVER	5100205	GARRARD	FS	FS					10/25/1999		5
Paint Lick Creek 7.5 to 22.2	Kentucky River	RIVER	5100205	MADISON	FS						9/16/1999		2
Panbowl Lake	Kentucky River	RIVER	5100201	BREATHITT		NS					6/3/2004		5
Parched rn Creek 0.0 to 2.2	Kentucky River	RIVER	5100204	WOLFE	FS						3/6/2001		2
Cope Fork 0.0-1.9	Kentucky River	Reservoir	5100201	BREATHITT	PS						9/15/1999		5
Plum Branch 0.0 to 3.9	Kentucky River	RIVER	5100204	POWELL	PS						1/1/2005		5
Polls Creek 0.0 to 4.7	Kentucky River	RIVER	5100202	LESLIE	PS						9/30/1999		5
Potter Fork 0.0 to 4.4	Kentucky River	Reservoir	5100201	LETCHER	NS						9/30/1999		5
Copper Creek 2.2 to 5.0	Kentucky River	RIVER	5100205	ROCKCASTLE	PS						3/7/2004		5
Puncheon Camp Creek 0.0 to 3.2	Kentucky River	RIVER	5100202	BREATHITT	PS						12/21/1999		5
Quicksand Creek 0.0 to 17.0	Kentucky River	RIVER	5100201	BREATHITT	PS	PS	PS	FS			2/22/2005		5
Quicksand Creek 21.7 to 30.8	Kentucky River	RIVER	5100201	BREATHITT	NS						2/6/2006		5
Rattlesnake Creek 0.0 to 1.2	Kentucky River	RIVER	5100205	GRANT	NS						9/16/1999		5
Red Bird River 0.0 to 15.0	Kentucky River	RIVER	5100203	CLAY		FS	FS	FS			3/1/2005		2, 2B
Red Lick Creek 0.0 to 8.4	Kentucky River	RIVER	5100204	MADISON	PS	PS	PS	FS			2/22/2005		5
Red River 21.8 to 30.7	Kentucky River	RIVER	5100204	POWELL	FS	FS	FS	FS			3/3/2005		2
Red River 31.0 to 32.0	Kentucky River	RIVER	5100204	POWELL						FS	3/3/2005	DWS	2
Red River 50.1 to 60.9	Kentucky River	RIVER	5100204	POWELL	FS						3/14/2005		2
Red River 64.1 to 67.6	Kentucky River	RIVER	5100204	WOLFE	PS						10/1/2004		5
Red River 70.0 to 83.9	Kentucky River	RIVER	5100204	WOLFE	PS						10/1/2004		5
Red River 89.5 to 93.4	Kentucky River	RIVER	5100204	WOLFE	PS						3/14/2005		5
Richland Creek 0.0-0.8	Kentucky River	RIVER	5100205	OWEN	PS						1/12/2000		5
Right Fk. Lacy Cr. 0.0 to 2.2	Kentucky River	RIVER	5100204	WOLFE	PS						10/4/2005		5
Right Fork Big Double Creek 0.0 to 2.1	Kentucky River	RIVER	5100203	CLAY	FS						3/3/2005		2
Right Fork Buffalo Creek 0.0 to 2.1	Kentucky River	RIVER	5100203	OWSLEY	PS						10/7/2004		5
Right Fork Elisha Creek 0.0 to 3.3	Kentucky River	RIVER	5100203	LESLIE	FS						3/15/2005		2

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Right Fork Millstone Creek 0.0 to 1.6	Kentucky River	RIVER	5100201	LETCHER	NS						3/15/2005		5
Corinth Lake	Kentucky River	RIVER	5100205	GRANT		FS					6/3/2004		2
Roaring Fork 0.0 to 0.9	Kentucky River	RIVER	5100201	BREATHITT	FS						3/15/2005		2
Rockbridge Fork 0.0 to 3.3	Kentucky River	RIVER	5100204	WOLFE	FS						3/15/2005		2
Rockhouse Creek 0.0-3.6	Kentucky River	RIVER	5100201	LETCHER	PS	PS	NS				9/20/1999		5
Rockhouse Creek 20.5 to 21.5	Kentucky River	RIVER	5100201	LETCHER		FS					1/25/2000		2, 5B
Rockhouse Creek 4.0-5.2	Kentucky River	RIVER	5100202	LESLIE							9/21/1999		3
Rose Fork 0.0 - 3.1	Kentucky River	RIVER	5100204	WOLFE	NS						10/5/2005		5
Royal Springs 0.7 to 0.73	Kentucky River	RIVER	5100205	SCOTT						FS	3/15/2005	DWS	2
Salt Fork 0.0 - 0.8	Kentucky River	RIVER	5100204	MENIFEE	FS						3/6/2001		2
Sand Lick Fork 0.0 to 5.0	Kentucky River	SPRING	5100204	POWELL	NS						12/21/1999		4A
Sand Ripple Creek 0.1 to 3.9	Kentucky River	RIVER	5100205	HENRY	FS						3/15/2005		2
Sawdridge Creek 0.0 to 3.35	Kentucky River	RIVER	5100205	OWEN	FS						3/15/2005		2
Severn Creek 0.55 to 1.35	Kentucky River	RIVER	5100205	OWEN						FS	3/15/2005	DWS	2
Severn Creek 1.35 to 3.0	Kentucky River	RIVER	5100205	OWEN	FS						3/15/2005		2
Sexton Creek 0.1 to 17.2	Kentucky River	RIVER	5100203	CLAY	PS	PS	FS	FS			2/22/2005		5
Shaker Cr. 0.1 to 1.4	Kentucky River	RIVER	5100205	MERCER	FS						3/15/2005		2
Shallow Ford Creek 5.9 - 6.9	Kentucky River	RIVER	5100205	MADISON		NS					1/26/2000		5, 5B
Shelly Rock Fork 0.0 to 0.6	Kentucky River	RIVER	5100201	BREATHITT	FS						3/15/2005		2
Shop Fk. 0.0 to 1.4	Kentucky River	RIVER	5100202	LESLIE	FS						10/6/2004		2
Silver Creek 0.0-11.1	Kentucky River	RIVER	5100205	MADISON		FS	PS	FS			3/2/2005		5
Silver Creek 11.2 to 29.8	Kentucky River	RIVER	5100205	MADISON	PS						3/15/2005		5
Silver Creek Lake (Lower Lake)	Kentucky River	RIVER	5100205	MADISON						FS	3/4/2005	DWS	2
Silver Creek Lake (Upper Lake) No. 2	Kentucky River	RIVER	5100205	MADISON						FS	1/1/2005	DWS	2
Sixmile Creek 0.1 to 12.6	Kentucky River	Reservoir	5100205	HENRY	FS	FS					2/21/2003		2
Snow Creek 0.0 to 3.9	Kentucky River	Reservoir	5100204	POWELL	PS						10/8/2004		5
South Benson Creek 0.0 to 5.4	Kentucky River	RIVER	5100205	FRANKLIN	FS						4/1/1999		2
South Elkhorn Creek 5.0 to 16.6	Kentucky River	RIVER	5100205	FRANKLIN	PS						3/16/2005		5
South Elkhorn Creek 16.6 to 34.5	Kentucky River	RIVER	5100205	WOODFORD	PS		NS				3/16/2005		5
South Elkhorn Creek 34.5 to 52.7	Kentucky River	RIVER	5100205	WOODFORD	PS						3/16/2005		5
South Fork Kentucky River 11.7 to 18.9	Kentucky River	RIVER	5100203	OWSLEY		FS	FS	FS		FS	2/23/2005	DWS	2
South Fork Quicksand Creek 0.0 to 16.9	Kentucky River	RIVER	5100201	BREATHITT	NS						10/11/2004		5
South Fork Red River 0.0-3.9	Kentucky River	RIVER	5100204	POWELL	NS						12/22/1999		4A
South Fork Red River 3.9 to 10.1	Kentucky River	RIVER	5100204	POWELL	NS						12/22/1999		4A
South Fork Station Camp Creek 0.0-9.6	Kentucky River	RIVER	5100204	JACKSON	FS						12/15/1999		2
South Fork Station Camp Creek 9.6 to 26.3	Kentucky River	RIVER	5100204	JACKSON	FS						2/2/2000		2
Spears Cr. 0.1 to 6.3	Kentucky River	RIVER	5100205	BOYLE	PS						3/16/2005		5
Spring Fork 3.1-6.9	Kentucky River	RIVER	5100201	BREATHITT	NS						9/10/1999		5
Spruce Branch 0.0 to 1.8	Kentucky River	RIVER	5100203	CLAY	FS						3/1/2003		2
Squabble Cr. 0.0 to 4.7	Kentucky River	RIVER	5100202	PERRY	PS						10/11/2004		5
Stanford City Lake (Rice Lake)	Kentucky River	RIVER	5100205	LINCOLN		FS				PS	6/3/2003	DWS	5
State Road Fork 0.0 - 4.0	Kentucky River	RIVER	5100204	WOLFE	FS						3/7/2001		2
Station Camp Creek 0.0 to 21.3	Kentucky River	Reservoir	5100204	JACKSON	PS	PS	FS	FS			2/22/2005		5

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Steammill Branch 0.6 to 1.6	Kentucky River	RIVER	5100205	GRANT		PS					1/26/2000		5, 5B
Steeles Run 0.0 to 4.2	Kentucky River	RIVER	5100205	FAYETTE	FS						3/16/2005		2
Steer Fork 0.0 to 2.7	Kentucky River	RIVER	5100204	JACKSON	FS						3/16/2005		2
Stevens Creek 0.0-14.4	Kentucky River	RIVER	5100205	GRANT							10/14/1999		3
Stevens Creek 14.4 to 17.1	Kentucky River	RIVER	5100205	OWEN	PS						10/13/1999		5
Stillwater Creek 0.0 to 3.5	Kentucky River	RIVER	5100204	WOLFE	PS						3/16/2005		5
Stinnett Cr. 1.3 to 4.7	Kentucky River	RIVER	5100202	LESLIE	NS						10/11/2004		5
Stump Cave Branch 0.0 to 2.4	Kentucky River	RIVER	5100204	POWELL		NS					4/1/1998		4A
Sturgeon Creek 8.0 to 12.2	Kentucky River	RIVER	5100204	LEE	PS						10/11/2004		5
Sugar Cr. 4.8 to 6.0	Kentucky River	RIVER	5100205	GARRARD	PS						10/13/2004		5
Sugar Creek 0.6 to 5.4	Kentucky River	RIVER	5100203	LESLIE	FS						1/1/2005		2
Sulphur Creek 0.0 to 1.4	Kentucky River	RIVER	5100205	HENRY	NS						4/1/1999		5
Swift Camp Creek 0.0 - 13.8	Kentucky River	RIVER	5100204	WOLFE	PS						11/1/1998		5
Tate Creek 0.0 to 6.5	Kentucky River	RIVER	5100205	MADISON	NS						12/22/1999		5
Tate Creek 6.5 to 11.5	Kentucky River	RIVER	5100205	MADISON		FS	FS				12/22/1999		2
Ten Mile Creek 0.0 to 2.9	Kentucky River	RIVER	5100205	GRANT	PS	PS	PS	FS			2/18/2005		5
Three Forks Creek 0.0-7.6	Kentucky River	RIVER	5100205	GRANT	PS						9/15/1999		5
Town Branch 0.0 to 9.2	Kentucky River	RIVER	5100205	FAYETTE	PS	PS	NS				1/18/2000		5
Town Branch 10.6 to 12.1	Kentucky River	RIVER	5100205	FAYETTE	PS						2/9/2000		5
Town Branch 9.2 to 10.6	Kentucky River	RIVER	5100205	FAYETTE	NS	NS	NS				1/18/2000		5
Town Creek 2.5 - 3.5	Kentucky River	RIVER	5100205	HENRY		NS					1/26/2000		5, 5B
Trace Fork 0.15 to 2.4	Kentucky River	RIVER	5100201	KNOTT		FS	NS	NS			8/19/2005		5
Troublesome Creek 0.0 to 45.1	Kentucky River	RIVER	5100201	BREATHITT	NS	NS	FS	FS			2/28/2005		5
Two Mile Creek 0.0-3.1	Kentucky River	RIVER	5100205	OWEN							9/16/1999		3
Upper Devil Creek 0.0-1.0	Kentucky River	RIVER	5100201	WOLFE	PS						9/15/1999		5
Upper Hood Branch 0.0-1.6	Kentucky River	RIVER	5100204	POWELL	FS						1/18/2000		2
Upper Howard Creek 0.0-3.2	Kentucky River	RIVER	5100205	CLARK	PS						12/22/1999		5
Upper Twin Creek 0.0-3.6	Kentucky River	RIVER	5100202	BREATHITT	PS						12/22/1999		5
UT of Cane Run 0.0-3.5	Kentucky River	RIVER	5100205	SCOTT			NS				1/21/2000		5
UT of Clear Creek 0.0-4.3	Kentucky River	RIVER	5100205	WOODFORD	FS						1/18/2000		2
UT to Baughman Fork 0.0 to 1.1	Kentucky River	RIVER	5100205	FAYETTE	NS	NS					7/5/2003		4A
UT to Cawood Branch 0.0 to 2.1	Kentucky River	RIVER	5100202	LESLIE	FS						1/1/2005		2
UT to Cedar Cr. 0.0 to 1.4	Kentucky River	RIVER	5100205	OWEN	FS						3/4/2005		2
UT to East Fork Clear Creek 2.8-3.8	Kentucky River	RIVER	5100205	JESSAMINE			FS				9/1/1999		2, 5B
UT to Engle Fork 0.0 to 0.5	Kentucky River	RIVER	5100201	PERRY	NS						10/13/2004		5
UT to Flat Creek 0.0 to 1.5	Kentucky River	RIVER	5100205	FRANKLIN	FS						3/7/2005		2
UT to Glenns Cr. 0.0 to 1.9	Kentucky River	RIVER	5100205	WOODFORD	FS						3/22/2005		2
UT to Hanging Fork 0.0 to 1.3	Kentucky River	RIVER	5100205	CASEY	FS						10/13/2004		2
UT to Jacks Creek 0.0 to 1.15	Kentucky River	RIVER	5100205	MADISON	FS						3/22/2005		2
UT to Kentucky River 0.1 to 1.4	Kentucky River	RIVER	5100205	FRANKLIN	FS						3/22/2005		2
UT to Line Fork 0.0 to 0.6	Kentucky River	RIVER	5100201	LETCHER	FS						3/22/2005		2
UT to N. Elkhorn Creek 0.0 to 5.6	Kentucky River	RIVER	5100205	FAYETTE	PS						10/14/2004		5
UT to North Branch Lulbegrud Creek 0.0 to 2.2	Kentucky River	RIVER	5100204	MONTGOMERY	NS						2/7/2006		5

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UT to Smith Fk. 0.0 to 0.55	Kentucky River	RIVER	5100205	MADISON	PS						3/16/2005		5
UT to Swift Camp Creek 0.0-1.5	Kentucky River	RIVER	5100204	WOLFE	NS						10/14/1999		5
UT to Tanyard Br. 1.0 to 1.6	Kentucky River	RIVER	5100203	CLAY	FS						10/13/2004		2
UT to Upper Howards Cr. 2.1 to 2.7	Kentucky River	RIVER	5100205	CLARK	FS						1/14/2005		2
Cow Creek 0.0 to 2.7	Kentucky River	RIVER	5100203	OWSLEY	FS						7/22/1999		2
Cow Creek 0.0-2.7	Kentucky River	RIVER	5100204	ESTILL	FS				FS		12/15/1999		2
Walker Creek 0.0 to 5.4	Kentucky River	RIVER	5100201	LEE	FS						10/14/1999		2
Walnut Meadows Branch 0.0 to 3.9	Kentucky River	RIVER	5100205	MADISON							9/16/1999		3
War Creek 0.0 to 3.1	Kentucky River	RIVER	5100201	BREATHITT	FS						9/15/1999		2
War Fork 0.0 to 13.8	Kentucky River	RIVER	5100204	JACKSON	FS						12/15/1999		2
West Fork Mill Creek 0.0 to 1.0	Kentucky River	RIVER	5100205	CARROLL	PS						7/23/1999		5
West Fork Otter Creek 0.0 to 2.8	Kentucky River	RIVER	5100205	MADISON	FS						12/17/1999		2
West Fork Sugar Cr. 0.0 to 2.6	Kentucky River	RIVER	5100205	GARRARD	FS						3/3/2005		2
West Hickman Creek 0.0-3.0	Kentucky River	RIVER	5100205	JESSAMINE	PS	PS	PS				1/24/2000		5
West Hickman Creek 3.0 to 8.6	Kentucky River	RIVER	5100205	JESSAMINE	PS						1/18/2000		5
White Lick Creek 0.0 to 2.8	Kentucky River	RIVER	5100205	GARRARD	PS						9/16/1999		5
White Oak Cr. 0.0 to 2.8	Kentucky River	RIVER	5100205	GARRARD	NS						10/14/2004		5
White Oak Creek 0.0 to 2.7	Kentucky River	RIVER	5100204	ESTILL							12/22/1999		3
Wilgreen Lake	Kentucky River	Reservoir	5100205	MADISON		NS					6/3/2004		5
Winchester Reservoir (Lower Howards Creek)	Kentucky River	Reservoir	5100205	CLARK						FS	3/22/2005	DWS	2
Wolf Run 0.0 to 4.1	Kentucky River	RIVER	5100205	FAYETTE	PS	PS					1/13/2000		5
Wolfpen Creek 0.0 to 3.3	Kentucky River	RIVER	5100204	MENIFEE	FS						3/26/1998		2
Wooten Creek 0.0 to 3.0	Kentucky River	RIVER	5100202	LESLIE	PS						12/22/1999		5
A.J.Jolly Lake (Campbell County Lake)	Licking River	Reservoir	5100101	CAMPBELL		FS					8/26/2005		2
Allison Creek 0.0 to 4.9	Licking River	RIVER	5100101	FLEMING	NS	NS	NS				2/5/2001		4A
Banklick Creek 0.0 to 3.5	Licking River	RIVER	5100101	KENTON	PS		NS				2/23/2001		5
Banklick Creek 3.5 to 8.2	Licking River	RIVER	5100101	KENTON		NS	NS				4/13/2001		5
Banklick Creek 8.2 to 19.2	Licking River	RIVER	5100101	KENTON		PS	PS				5/2/2002		5
Beaver Creek 10.0-14.4	Licking River	RIVER	5100101	MENIFEE	PS						3/12/2001		5
Beaver Creek 7.6 to 15.4	Licking River	RIVER	5100101	HARRISON	FS						10/19/2005		2
Blacks Creek 0.0-3.4	Licking River	RIVER	5100102	BOURBON	PS						8/1/2000		5
Blackwater Creek 3.8 to 11.7	Licking River	RIVER	5100101	MORGAN	FS	FS	NS	FS			9/20/2005		5
Blanket Cr. 0.0 to 1.9	Licking River	RIVER	5100101	PENDLETON	FS						3/4/2005		2
Boone Creek 0.0 - 5.0	Licking River	RIVER	5100102	BOURBON	PS						8/1/2000		5
Botts Fork 0.0 to 2.1	Licking River	RIVER	5100101	MENIFEE	FS						10/24/2005		2
Bowman Creek 0.0 to 6.0	Licking River	RIVER	5100101	KENTON	FS						10/24/2005		2
Broke Leg Creek 0.0 to 1.0	Licking River	RIVER	5100101	MORGAN	PS						10/25/2005		5
Broke Leg Creek 1.0 to 4.4	Licking River	RIVER	5100101	MORGAN	PS						6/24/2005		5
Brushy Fork 0.0 - 2.2	Licking River	RIVER	5100101	FLEMING	FS						8/1/2000		2
Brushy Fork 0.7 to 5.6	Licking River	RIVER	5100101	MENIFEE	FS						10/25/2005		2
Brushy Fork 0.0 to 5.8	Licking River	RIVER	5100101	PENDLETON	PS						7/13/2005		5
Bucket Branch 0.0 - 1.9	Licking River	RIVER	5100101	MORGAN	FS						9/20/2005		2
Bull Fork 2.4 to 4.4	Licking River	RIVER	5100101	ROWAN	FS						10/25/2005		2

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Burning Fork 0.0 to 3.25	Licking River	RIVER	5100101	MAGOFFIN	NS		NS				10/25/2003		5
Caney Creek 0.0-4.2	Licking River	RIVER	5100101	MORGAN	PS						2/9/1999		5
Carlisle Water Supply Lake	Licking River	Reservoir	5100102	NICHOLAS						FS	11/15/2005	DWS	2
Caskey Fork 0.0 to 2.3	Licking River	RIVER	5100101	MORGAN	NS						10/27/2005		5
Cassidy Creek 0.0-3.9	Licking River	RIVER	5100101	FLEMING			NS				1/1/2001		4A
Cassidy Creek 0.5-5.0	Licking River	RIVER	5100101	NICHOLAS							8/1/1999		3
Cave Run Lake	Licking River	Reservoir	5100101	ROWAN		FS		PS	PS		1/3/2006	DWS	5
Cedar Creek 0.0 to 1.7	Licking River	RIVER	5100101	ROBERTSON	FS						10/27/2005		2
Christy Creek 0.0-4.3	Licking River	RIVER	5100101	ROWAN	PS						5/12/2001		5
Clarks Run 0.0 to 2.1	Licking River	RIVER	5100101	MASON	PS						10/27/2005		5
Craintown Branch 0.0 to 3.6	Licking River	RIVER	5100101	FLEMING	PS	PS					4/20/2001		4A
Crane Creek 0.0 to 2.9	Licking River	RIVER	5100101	FLEMING	PS						6/30/2004		5
Craney Creek 0.0 to 5.9	Licking River	RIVER	5100101	ROWAN	FS						9/20/2005	CAH	2
Craney Creek 5.9-10.0	Licking River	RIVER	5100101	ROWAN	FS						4/9/2001	CAH	2
Crooked Creek 0.0-9.1	Licking River	RIVER	5100101	NICHOLAS			NS				8/14/2000		5
Crooked Creek 0.5 to 6.8	Licking River	RIVER	5100102	HARRISON	FS						10/27/2005		2
Cruises Creek 0.0-8.6	Licking River	RIVER	5100101	KENTON	FS		FS				3/6/2001		2
Devils Fork 0.0 to 8.5	Licking River	RIVER	5100101	MORGAN	FS						9/20/2005		2
Doe Run Lake	Licking River	RIVER	5100101	KENTON		PS		FS			8/26/2004		5
Doty Branch 0.0 to 2.3	Licking River	RIVER	5100101	FLEMING	NS		NS				4/1/1998		5
Dry Creek 0.0 to 2.5	Licking River	RIVER	5100101	ROWAN	PS						10/27/2005		5
Elk Fork 0.0-4.9	Licking River	RIVER	5100101	MORGAN	PS						4/9/2001		5
Elk Fork 12.6-14.7	Licking River	Reservoir	5100101	MORGAN	PS						8/3/2000		5
Elk Fork 4.9-10.5	Licking River	RIVER	5100101	MORGAN	NS						8/3/2000		5
Evans Branch Impoundment	Licking River	RIVER	5100101	ROWAN						FS	11/15/2005	DWS	2
Fannins Branch 1.5 to 3.4	Licking River	RIVER	5100101	MORGAN	PS						11/1/2005		5
Coffee Creek 0.0 to 4.1	Licking River	RIVER	5100101	MORGAN	NS						9/20/2005		5
Flat Creek 0.0-.9	Licking River	RIVER	5100101	BATH	FS	FS	NS				1/5/2001		5
Flat Run 0.0 to 2.2	Licking River	Reservoir	5100102	BOURBON	NS						8/3/2000		5
Fleming Creek 12.8 to 16.0	Licking River	RIVER	5100101	FLEMING	PS		NS				1/9/2001		5
Fleming Creek 20.8 to 39.4	Licking River	RIVER	5100101	FLEMING	NS		NS				1/8/2001		5
Fleming Creek 0.0 to 12.8	Licking River	RIVER	5100101	FLEMING	PS	PS	NS				1/8/2001		5
Fleming Creek 16.0 to 20.8	Licking River	RIVER	5100101	FLEMING	FS		NS				7/8/2004		4A
Flemingsburg Lake	Licking River	RIVER	5100101	FLEMING						FS	11/15/2005	DWS	2
Flour Creek 0.0 to 2.2	Licking River	RIVER	5100101	PENDLETON	FS						11/1/2005		2
Fox Creek 0.0 to 10.1	Licking River	RIVER	5100101	FLEMING	PS	PS	PS	PS	FS		12/8/2005		5
Fox Creek 20.1-22.7	Licking River	Reservoir	5100101	FLEMING	NS						8/3/2000		5
Grassy Creek 0.0-1.3	Licking River	RIVER	5100101	PENDLETON			FS				8/14/2000		2
Grassy Creek 4.6 to 10.0	Licking River	RIVER	5100101	MORGAN	PS						11/1/2005		5
Grassy Lick Creek 0.0 to 4.6	Licking River	RIVER	5100102	MONTGOMERY	FS						7/21/2004		2, 2B
Greenbriar Lake	Licking River	RIVER	5100101	MONTGOMERY		FS		FS			8/26/2005	DWS	2, 2B
Grovers Creek 0.5 to 3.4	Licking River	RIVER	5100101	PENDLETON	FS						11/2/2005		2
Hillsboro Branch 0.0 to 2.7	Licking River	RIVER	5100101	FLEMING	FS						3/8/2005		2

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Hinkston Creek 0.0 to 12.6	Licking River	Reservoir	5100102	BOURBON	FS	FS	NS	FS	FS		9/20/2005		2B, 5
Hinkston Creek 20.8-31.0	Licking River	RIVER	5100102	BOURBON	FS		PS				8/4/2000		5
Hinkston Creek 31.0-33.3	Licking River	RIVER	5100102	NICHOLAS	FS						8/4/2000		2
Hinkston Creek 41.8-49.1	Licking River	RIVER	5100102	BOURBON	PS		NS				8/4/2000		5
Hinkston Creek 51.5 to 65.9	Licking River	RIVER	5100102	MONTGOMERY	NS						10/1/1999		5
Hinkston Creek 68.0 to 71.5	Licking River	RIVER	5100102	MONTGOMERY	FS						1/10/2001		2
Hinkston Creek 13.3 to 14.3	Licking River	RIVER	5100102	BOURBON						FS	11/3/2005	DWS	2
Houston Creek 0.0-9.0	Licking River	RIVER	5100102	BOURBON			NS				8/14/2000		5
Houston Creek 9.0-12.7	Licking River	RIVER	5100102	BOURBON	PS						8/7/2000		5
Hutchison Creek 0.0-5.4	Licking River	RIVER	5100102	BOURBON							8/7/2000		3
Indian Creek 0.0 to 0.7	Licking River	RIVER	5100102	BOURBON			NS	NS			9/29/2005		5, 5B
Johnson Creek 0.0 to 3.5	Licking River	RIVER	5100101	ROBERTSON		FS	NS	FS			12/8/2005		5
Johnson Creek 0.0-3.1	Licking River	RIVER	5100101	MAGOFFIN			NS				1/9/2001		5
Johnson Creek 14.6 to 21.8	Licking River	RIVER	5100101	FLEMING	FS						9/20/2005		2
Kincaid Lake	Licking River	RIVER	5100101	PENDLETON		PS		FS			8/26/2005		5
Knox Hill Branch 0.0 to 2.8	Licking River	RIVER	5100101	BATH	FS						11/21/2005		2
Lake Carnico	Licking River	RIVER	5100102	NICHOLAS		FS		FS			8/26/2004		2
Lees Creek 0.0 to 4.3	Licking River	Reservoir	5100101	MASON	PS						11/3/2005		5
Left Fork White Oak Creek 0.0-1.8	Licking River	RIVER	5100101	MORGAN	PS						8/7/2000		5
Lick Creek 0.0 to 2.1	Licking River	Reservoir	5100101	MAGOFFIN	PS						11/3/2005		5
Licking River 0.0 to 4.8	Licking River	RIVER	5100101	CAMPBELL		FS	PS				12/8/2005		2B, 5
Licking River 102.5 to 103.5	Licking River	RIVER	5100101	NICHOLAS						FS	11/3/2005	DWS	2
Licking River 110.2 to 130.1	Licking River	RIVER	5100101	NICHOLAS			FS	FS		FS	10/1/2005	DWS	2
Licking River 14.9 to 21.5	Licking River	RIVER	5100101	CAMPBELL			FS				2/8/2001		2
Licking River 145.2 to 148.6	Licking River	RIVER	5100101	FLEMING			FS	FS			3/6/2001		2
Licking River 224.3 to 241.3	Licking River	RIVER	5100101	MORGAN		FS	NS	PS			12/7/2005	DWS	5
Licking River 265.0 to 271.6	Licking River	RIVER	5100101	MAGOFFIN	PS						11/3/2005		5
Licking River 271.6 to 294.1	Licking River	RIVER	5100101	MAGOFFIN	FS						8/8/2000		2, 2B
Licking River 31.0 to 37.6	Licking River	RIVER	5100101	KENTON		FS	PS	FS			12/8/2005		5
Licking River 4.8 to 14.9	Licking River	RIVER	5100101	CAMPBELL			PS				2/8/2001	DWS	5
Licking River 52.8 to 53.8	Licking River	RIVER	5100101	PENDLETON						FS	11/3/2005	DWS	2
Licking River 174.4 to 180.8	Licking River	RIVER	5100101	ROWAN		FS	FS	PS		FS	11/3/2005	CAH, DWS	5
Licking River 294.1 to 302.4	Licking River	RIVER	5100101	MAGOFFIN	NS						4/1/1998		5
Licking River 76.8 to 88.9	Licking River	RIVER	5100101	HARRISON		FS	FS	FS			12/8/2005		2
Little Beaver Creek 0.0 to 3.3	Licking River	RIVER	5100101	HARRISON	PS						11/3/2005		5
Little Flat Creek 0.0-2.3	Licking River	RIVER	5100101	BATH	FS						8/8/2000		2
Little Stoner Creek 0.0-5.0	Licking River	RIVER	5100102	CLARK			NS				8/14/2000		5
Lockegee Branch 0.0 to 1.5	Licking River	RIVER	5100101	ROWAN	FS						9/20/2005		2
Locust Creek 0.0 to 11.8	Licking River	RIVER	5100101	FLEMING	PS						11/4/2005		5
Logan Run 0.0 to 2.3	Licking River	RIVER	5100101	FLEMING	NS		NS				3/23/2001		4A
Mash Fork 0.0 to 3.0	Licking River	RIVER	5100101	MAGOFFIN	PS						11/4/2005		5
Middle Fork Licking River 0-2.5	Licking River	RIVER	5100101	MAGOFFIN	FS		NS		FS		4/9/2001		5
Mill Creek 0.0 to 21.6	Licking River	RIVER	5100102	HARRISON	PS						11/4/2005		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Mill Creek 0.0-2.6	Licking River	RIVER	5100101	BATH	FS						8/8/2000		2
Mill Creek 0.0 to 6.4	Licking River	RIVER	5100101	MASON	FS						11/4/2005		2
Mill Creek 0.0 to 6.4	Licking River	RIVER	5100101	MASON	FS						11/4/2005		2
Minor Creek 0.0 to 2.8	Licking River	RIVER	5100101	MORGAN	FS						9/20/2005	CAH	2
Minor Creek 2.8 to 7.0	Licking River	RIVER	5100101	MORGAN	FS						11/4/2005		2
North Fork Licking River 18.5 to 52.5	Licking River	RIVER	5100101	BRACKEN	NS		NS				3/6/2001		5
North Fork Licking River 2.3 to 18.5	Licking River	RIVER	5100101	BRACKEN	FS		FS	FS			11/7/2005		2
North Fork Licking River 12.0 to 13.1	Licking River	RIVER	5100101	MORGAN	PS						6/22/2004		5
North Fork Licking River 8.4 to 12.0	Licking River	RIVER	5100101	MORGAN	FS	FS	NS	FS			9/20/2005		5
North Fork Triplett Creek 1.2-14.8	Licking River	RIVER	5100101	ROWAN							8/11/2000		3
North Fork Triplett Creek 14.9-15.9	Licking River	RIVER	5100101	ROWAN	FS						12/31/2000		2
Oakley Creek 0.0-0.9	Licking River	RIVER	5100101	MAGOFFIN							8/9/2000		3
Cooks Branch 0.0 to 2.9	Licking River	RIVER	5100101	MONTGOMERY	FS						4/26/2004		2
Oldfield Fork 0.0 to 3.6	Licking River	RIVER	5100101	MORGAN	NS						11/4/2005		5
Cooper Run 0.0-10.1	Licking River	RIVER	5100102	BOURBON	NS						8/2/2000		5
Coopertown Creek 0.0 to 4.8	Licking River	RIVER	5100102	GRANT	FS						10/27/2005		2
Passenger Branch 0.0-1.8	Licking River	RIVER	5100101	ROWAN	FS						1/18/2001		2
Phillips Creek 0-5.3	Licking River	RIVER	5100101	CAMPBELL			NS				3/6/2001		5
Poplar Creek 0.0-2.9	Licking River	RIVER	5100101	FLEMING			NS				1/1/2001		4A
Powder Lick Br. 0.0 to 3.5	Licking River	RIVER	5100101	LEWIS	FS						11/8/2005		2
Prickly Ash Creek 0.0-3.1	Licking River	RIVER	5100101	BATH	NS						8/9/2000		5
Puncheon Camp Creek 0.0-1.1	Licking River	RIVER	5100101	MAGOFFIN			NS				8/14/2000		5
Raven Creek 0.0 to 5.5	Licking River	RIVER	5100102	HARRISON	FS						11/8/2005		2
Rock Fork 0.0 to 4.0	Licking River	RIVER	5100101	ROWAN	PS						11/8/2005		5
Rock Lick 0.0-0.8	Licking River	RIVER	5100101	FLEMING							8/9/2000		3
Rockhouse Creek 0.0-4.6	Licking River	RIVER	5100101	MORGAN							8/9/2000		3
Salt Lick Creek 3.0 to 8.0	Licking River	RIVER	5100101	BATH	PS						6/1/1999		5
Salt Lick Creek 8.8 to 14.9	Licking River	RIVER	5100101	BATH	PS						6/30/2004		2
Salt Spring Br. 0.7 to 2.0	Licking River	RIVER	5100101	MENIFEE	FS						11/8/2005		2
Sand Lick Creek 6.0 to 8.1	Licking River	RIVER	5100101	FLEMING	FS						6/23/2005		2
Sand Lick Creek 0.0 to 5.8	Licking River	RIVER	5100101	FLEMING	FS						8/1/1999		2
Sandlick Creek Lake	Licking River	Reservoir	5100101	FLEMING		FS		PS			8/26/2005		2B, 4C
Sawyers Fork 0.0 to 3.3	Licking River	RIVER	5100101	KENTON	FS						11/8/2005		2
Scrubgrass Creek 0.0-1.6	Licking River	RIVER	5100101	NICHOLAS	NS						8/9/2000		5
Shannon Creek 0.0 to 8.7	Licking River	RIVER	5100101	MASON	FS						11/8/2005		2
Short Creek 0.0 to 7.9	Licking River	RIVER	5100102	PENDLETON	FS						11/8/2005		2
Slabcamp Creek 0.0 to 3.7	Licking River	RIVER	5100101	ROWAN	FS						9/20/2005	CAH	2
Slate Creek 0.0 to 13.6	Licking River	RIVER	5100101	BATH	FS	FS	PS	FS	FS		11/9/2005		5
Slate Creek 17.2 to 18.2	Licking River	RIVER	5100101	BATH						FS	11/9/2005	DWS	2
Slate Creek 36.1 to 37.1	Licking River	RIVER	5100101	MONTGOMERY						FS	11/15/2005	DWS	2
Slate Creek 42.8-52.2	Licking River	RIVER	5100101	MONTGOMERY			FS				2/15/2001		2
Slate Creek 52.2-56.6	Licking River	RIVER	5100101	MENIFEE							8/10/2000		3
Sleepy Run 0.0 to 2.8	Licking River	RIVER	5100101	FLEMING			NS				5/2/2002		4A

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Somerset Creek 0.0-4.4	Licking River	RIVER	5100102	NICHOLAS							8/10/2000		3
South Fork Grassy Creek 10.4 to 15.2	Licking River	RIVER	5100101	PENDLETON	FS	FS	FS	FS			11/9/2005		2
South Fork Licking River 11.6 to 16.95	Licking River	RIVER	5100102	PENDLETON	FS	FS	FS	FS			9/20/2005		2
South Fork Licking River 16.6-27.2	Licking River	RIVER	5100102	HARRISON	FS		FS				8/11/2000		2
South Fork Licking River 2.0-6.8	Licking River	RIVER	5100102	PENDLETON	FS		FS				8/11/2000		2
South Fork Licking River 35.0-46.4	Licking River	RIVER	5100102	HARRISON	FS		FS				8/11/2000		2
South Fork Licking River 51.1 to 52.1	Licking River	RIVER	5100102	HARRISON						FS	11/14/2005	DWS	2
South Fork Licking River 6.8-11.3	Licking River	RIVER	5100102	PENDLETON	FS						8/11/2000		2
Spruce Creek 0.0 to 1.7	Licking River	RIVER	5100101	MONTGOMERY	PS						11/14/2005		5
State Road Fork 0.0-1.1	Licking River	RIVER	5100101	MAGOFFIN							8/10/2000		3
Stoneal Branch 0-2.5	Licking River	RIVER	5100101	ROWAN	FS						4/11/2001		2
Stoner Creek 0.0 to 5.5	Licking River	RIVER	5100102	BOURBON	FS	FS	PS	FS			9/20/2005		5
Stoner Creek 16.7 to 17.3	Licking River	RIVER	5100102	BOURBON						FS	11/14/2005	DWS	2
Stoner Creek 17.3 to 30.1	Licking River	RIVER	5100102	BOURBON			FS				8/14/2000		2
Stoner Creek 44.8-60.5	Licking River	RIVER	5100102	BOURBON			FS				3/6/2001		2
Stoner Creek 5.5 to 15.0	Licking River	RIVER	5100102	BOURBON			NS				8/14/2000		5
Stoner Creek 60.5-72.2	Licking River	RIVER	5100102	CLARK							8/10/2000		3
Stony Creek 0.0-3.0	Licking River	RIVER	5100101	NICHOLAS	NS						8/10/2000		5
Straight Creek 0.0-1.8	Licking River	RIVER	5100101	MORGAN	NS						8/10/2000		5
Strodes Creek 2.7-19.3	Licking River	RIVER	5100102	BOURBON	PS	PS	NS		FS		3/3/2001		5
Threemile Creek 0.1 to 4.7	Licking River	RIVER	5100101	CAMPBELL	NS		NS				10/1/1999		5
Town Branch 0.3 to 2.3	Licking River	RIVER	5100102	BATH	FS						9/20/2005		2
Town Branch 0-4	Licking River	RIVER	5100101	FLEMING			NS				4/11/2001		4A
Townsend Creek 0.0 to 4.9	Licking River	RIVER	5100102	BOURBON	FS		NS				11/14/2005		5
Townsend Creek 4.9 to 15.4	Licking River	RIVER	5100102	BOURBON	FS						11/14/2005		2
Trace Fork 0.0-3.1	Licking River	RIVER	5100101	MAGOFFIN	PS						8/10/2000		5
Triplett Creek 12.3 to 15.7	Licking River	RIVER	5100102	ROWAN						FS	3/25/2002	DWS	2
Triplett Creek 15.7-20.5	Licking River	RIVER	5100101	ROWAN	FS						3/12/2001		2
Triplett Creek 5.9 to 12.3	Licking River	RIVER	5100101	ROWAN	PS	PS	NS	PS			12/7/2005		5
UT to Flat Creek 0.0 to 2.2	Licking River	RIVER	5100101	BATH	FS						4/26/2005		2
UT to Fleming Creek 0.0-2.1	Licking River	RIVER	5100101	FLEMING			NS				1/1/2001		4A
UT to Mill Creek 0.0 to 4.0	Licking River	RIVER	5100101	FLEMING	NS						6/29/2004		5
UT to Shannon Creek 0.0 to 2.2	Licking River	RIVER	5100101	MASON	FS						4/29/2004		2
UT to UT to Lees Creek 0.0 to 1.6	Licking River	RIVER	5100101	MASON	NS						11/3/2005		5
Welch Fork 0.0 to 1.0	Licking River	RIVER	5100101	MENIFEE	FS						11/14/2005		2
West Creek 0.0 to 9.8	Licking River	RIVER	5100101	HARRISON	FS						9/20/2005		2
Williams Creek 0.0-5.3	Licking River	RIVER	5100101	MORGAN			NS				8/10/2000		5
Williamstown Lake	Licking River	Reservoir	5100101	GRANT		FS		FS		FS	8/26/2005	DWS	2
Willow Creek 0.0-10.2	Licking River	RIVER	5100101	PENDLETON	FS						8/10/2000		2
Wilson Run 0-5.1	Licking River	RIVER	5100101	FLEMING			NS				4/11/2001		4A
Allrn Creek 1.4 to 3.9	Little Sandy River	RIVER	5090104	GREENUP	NS						11/7/2003		5
Arabs Fork 0.0 to 5.1	Little Sandy River	RIVER	5090104	ELLIOTT	FS						2/9/2004		2
Barrett Creek 0.0 to 7.2	Little Sandy River	RIVER	5090104	CARTER	PS						1/21/2004		5

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Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Big Caney Creek 1.8 to 13.4	Little Sandy River	RIVER	5090104	ELLIOTT	FS	FS	FS				1/16/2004	CAH	2
Big Sinking Creek 6.1 to 15.2	Little Sandy River	RIVER	5090104	CARTER	FS	FS	FS				9/22/2003		2
Cane Creek 0.0 to 4.1	Little Sandy River	RIVER	5090104	GREENUP	PS						1/21/2004		5
Caney Fork 0.9 to 3.5	Little Sandy River	RIVER	5070204	LAWRENCE	FS						11/11/2003		2
Clay Fk 0.0 to 4.0	Little Sandy River	RIVER	5090104	ELLIOTT	FS						2/9/2004		2
Dry Fk 1.2 to 4.5	Little Sandy River	RIVER	5090104	LAWRENCE	PS						1/22/2004		5
East Fork Little Sandy River 24.9 to 26.4	Little Sandy River	RIVER	5090104	BOYD		FS	NS				2/9/2004		5
East Fork Little Sandy River 27.1 to 30.0	Little Sandy River	RIVER	5090104	BOYD	PS						11/25/2003		5
East Fork Little Sandy River 4.7 to 9.0	Little Sandy River	RIVER	5090104	BOYD		FS	FS				1/15/2004		2
Ellingtons Bear Cr 0.0 to 1.5	Little Sandy River	RIVER	5090104	BOYD	PS						11/10/2003		5
Everman Cr 0.0 to 5.7	Little Sandy River	RIVER	5090104	CARTER	PS						1/21/2004		5
Garner Cr 0.0 to 1.8	Little Sandy River	RIVER	5090104	BOYD	PS						1/22/2004		5
Grayson Lake	Little Sandy River	Reservoir	5090104	CARTER		FS		FS	PS		3/5/2003		5
Green Br 0.0 to 1.4	Little Sandy River	RIVER	5090104	ELLIOTT	FS						9/22/2003		2
Greenbo Lake	Little Sandy River	Reservoir	5090104	GREENUP		FS					1/1/1998	WAH & CAH	2
Laurel Br 1.0 to 2.6	Little Sandy River	RIVER	5090104	ELLIOTT	FS						12/10/2003		2
Laurel Cr. 0.0 to 7.6	Little Sandy River	RIVER	5090104	ELLIOTT	FS						9/22/2003	CAH	2
Laurel Cr. 7.6 to 11.2	Little Sandy River	RIVER	5090104	ELLIOTT	FS						9/22/2003	CAH	2
Left Fk. Redwine Cr. 0.0 to 1.2	Little Sandy River	RIVER	5090104	ELLIOTT	PS						11/7/2003		5
Lick Fk. 0.0 to 5.2	Little Sandy River	RIVER	5090104	ELLIOTT	PS						12/10/2003		5
Little Fk. Little Sandy R. 12.0 to 23.8	Little Sandy River	RIVER	5090104	CARTER	PS						11/11/2002		5
Little Fk. Little Sandy R. 2.3 to 4.8	Little Sandy River	RIVER	5090104	CARTER		FS	FS				1/14/2004		2
Little Fk. Little Sandy R. 23.8 to 27.7	Little Sandy River	RIVER	5090104	ELLIOTT	NS						1/22/2004		5
Little Fk. Little Sandy R. 27.7 to 30.5	Little Sandy River	RIVER	5090104	ELLIOTT	PS						11/11/2003		5
Little Fk. Little Sandy R. 4.8 to 6.0	Little Sandy River	RIVER	5090104	CARTER	PS						7/8/2002		5
Little Fk. Little Sandy R. 6.0 to 12.0	Little Sandy River	RIVER	5090104	CARTER	FS						11/25/2003		2
Little Sandy R. 0.0 to 0.2	Little Sandy River	RIVER	5090104	GREENUP			NS				2/4/2004		5
Little Sandy R. 0.2 to 12.1	Little Sandy River	RIVER	5090104	GREENUP						FS	2/2/2004	DWS	2
Little Sandy R. 12.1 to 20.1	Little Sandy River	RIVER	5090104	GREENUP	FS	FS	FS		FS		11/25/2003		2, 2B
Little Sandy R. 40.1 to 42.5	Little Sandy River	RIVER	5090104	CARTER						FS	2/2/2004	DWS	2
Little Sandy R. 42.5 to 47.1	Little Sandy River	RIVER	5090104	CARTER	FS	FS	FS				1/14/2004		2
Little Sandy R. 71.8 to 74.7	Little Sandy River	RIVER	5090104	ELLIOTT	PS	PS	FS				1/14/2004		5
Little Sandy R. 20.1 to 37.7	Little Sandy River	RIVER	5090104	GREENUP							11/25/2003		2, 2B
Little Sinking Cr. 0.0 to 6.2	Little Sandy River	RIVER	5090104	CARTER	FS						1/22/2004		2
Lower Stinson Cr. 0.0 to 1.1	Little Sandy River	RIVER	5090104	CARTER	PS						2/11/2004		5
Meadow Br. 0.0 to 1.4	Little Sandy River	RIVER	5090104	ELLIOTT	FS						9/22/2003		2
Middle Fk. Little Sandy R. 0.0 to 5.7	Little Sandy River	RIVER	5090104	ELLIOTT	FS						9/22/2003		2
Middle Fk. Little Sandy R. 5.7 to 7.5	Little Sandy River	RIVER	5090104	ELLIOTT	PS						1/22/2004		5
Newmbe Cr. 0.0 to 11.9	Little Sandy River	RIVER	5090104	ELLIOTT	PS						1/22/2004		5
Nichols Fk. 0.0 to 1.6	Little Sandy River	RIVER	5090104	ELLIOTT	FS						9/22/2003		2
Oldtown Cr. 0.0 to 1.9	Little Sandy River	RIVER	5090104	GREENUP	PS						11/10/2003		5
Right Fk. Newmbe Cr. 0.0 to 4.2	Little Sandy River	RIVER	5090104	ELLIOTT	PS						12/10/2003		5
Rocky Br. 0.0 to 3.2	Little Sandy River	RIVER	5090104	ELLIOTT	PS						12/10/2003		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
S. Fk. Ruin Cr. 0.0 to 0.7	Little Sandy River	RIVER	5090104	ELLIOTT							1/22/2004		3
Straight Cr. 0.0 to 3.8	Little Sandy River	RIVER	5090104	CARTER	PS						1/22/2004		5
Tunnel Br. 0.0 to 1.7	Little Sandy River	RIVER	5090104	GREENUP	NS						11/10/2003		5
UT to E. Fk. Little Sandy R. 0.0 to 0.3	Little Sandy River	RIVER	5090104	GREENUP	NS						11/6/2003		5
UT to Newmbe Cr. 0.0 to 0.95	Little Sandy River	RIVER	5090104	ELLIOTT	FS						12/10/2003		2
UT to Newmbe Cr. 0.0 to 1.35	Little Sandy River	RIVER	5090104	ELLIOTT	FS						12/10/2003		2
Wells Cr. 0.0 to 3.5	Little Sandy River	RIVER	5090104	ELLIOTT	PS						1/22/2004		5
Williams Cr. 0.0 to 2.9	Little Sandy River	RIVER	5090104	BOYD	PS						1/21/2004		5
Casey Creek DMP: 0 UMP: 3.6	Lower Cumberland	RIVER	5130205	TRIGG	PS		FS				3/25/2002		5
Claylick Creek 14.8 to 15.7	Lower Cumberland	RIVER	5130205	CRITTENDEN	FS						5/2/2002		2
Claylick Creek 4.8 to 10.6	Lower Cumberland	RIVER	5130205	CRITTENDEN							5/2/2002		3
Claylick Creek DMP: 2.0 UMP: 4.8	Lower Cumberland	RIVER	5130205	CRITTENDEN	FS		NS				1/10/2002		5
Crooked Creek DMP: 4 UMP: 9.4	Lower Cumberland	RIVER	5130205	TRIGG	FS						7/5/2001		2
Cumberland River DMP: 0 UMP: 30.6	Lower Cumberland	RIVER	5130205	LIVINGSTON						FS	4/1/1998	DWS	2
Donaldson Creek 4.5 to 9.3	Lower Cumberland	RIVER	5130205	TRIGG	PS						5/2/2002		5
Donaldson Creek DMP: 6.0 UMP: 9.6	Lower Cumberland	RIVER	5130205	TRIGG	FS						7/31/2001		2
Dry Creek DMP: 0 UMP: 3.5	Lower Cumberland	RIVER	5130205	CALDWELL	PS						4/1/1998		5
Dry Creek DMP: 4.9 UMP: 7.4	Lower Cumberland	RIVER	5130205	TRIGG	NS						5/2/2002		5
Dry Fork Creek 5.0 to 5.8	Lower Cumberland	RIVER	5130206	CHRISTIAN	NS						5/2/2002		5
Eddy Creek 13.3 to 16.1	Lower Cumberland	RIVER	5130205	CALDWELL	PS						5/2/2002		5
Eddy Creek 8.4 to 10.5	Lower Cumberland	RIVER	5130205	LYON			NS				5/2/2002		5
Eddy Creek 10.5 to 13.3	Lower Cumberland	RIVER	5130205	CALDWELL	FS						7/13/2000		2
Elk Fork 22.0 to 29.0	Lower Cumberland	RIVER	5130206	TODD	NS						7/12/2000		5
Elk Fork 7.5 to 21.9	Lower Cumberland	RIVER	5130206	TODD	FS						7/5/2001		2
Energy Lake	Lower Cumberland	Reservoir	5130205	TRIGG		FS					1/1/2000		2
Ferguson Creek 0.0 to 1.1	Lower Cumberland	RIVER	5130205	LIVINGSTON			NS				5/2/2002		5
Ferguson Creek 1.1 to 2.2	Lower Cumberland	RIVER	5130205	LIVINGSTON	PS						5/2/2002		5
Franklin Creek 0.0 to 2.4	Lower Cumberland	RIVER	5130206	TRIGG							5/2/2002		3
Fulton Creek DMP: 2.6 UMP:6.0	Lower Cumberland	RIVER	5130205	LYON	FS						5/2/2002		2
Hammond Creek 2.0 to 2.2	Lower Cumberland	RIVER	5130205	LYON		PS	PS				5/2/2002		5, 5B
Hematite Lake	Lower Cumberland	Reservoir	5130205	TRIGG		NS					1/1/2000		5
Hickory Creek 0.0 to 3.8	Lower Cumberland	RIVER	5130205	LIVINGSTON	FS		NS				5/2/2002		5
Honker Lake	Lower Cumberland	Reservoir	5130205	LYON		FS					1/1/2000		2
Kenady Creek 0.0 to 3.9	Lower Cumberland	RIVER	5130205	TRIGG	PS						5/2/2002		5
Lake Barkley	Lower Cumberland	Reservoir	5130205	LYON		FS					1/1/2001	DWS	2
Lake Blythe	Lower Cumberland	Reservoir	5130205	CHRISTIAN		FS					1/1/2000	DWS	2
Lake Morris	Lower Cumberland	Reservoir	5130205	CHRISTIAN		FS					1/1/2000	DWS	2
Laura Furnace Creek 0.0 to 2.9	Lower Cumberland	RIVER	5130205	TRIGG							5/2/2002		3
Little River 20.4 to 23.6	Lower Cumberland	RIVER	5130205	TRIGG	NS						5/2/2002		5
Little River 23.6 to 33.1	Lower Cumberland	RIVER	5130205	TRIGG	PS	PS	FS		PS		1/3/2002		5
Little River 34.4 to 48.4	Lower Cumberland	RIVER	5130205	TRIGG	PS		PS		FS		5/2/2002		5
Little River DMP: 33.1 UMP: 34.4	Lower Cumberland	RIVER	5130205	TRIGG	NS		PS				5/2/2002		5
Little River 48.4 to 61.0	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS		NS				5/2/2002		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Little Whipporwill Creek 0.0 to 4.2	Lower Cumberland	RIVER	5130206	LOGAN	FS						6/22/2000		2
Livingston Creek 4.6 to 7.0	Lower Cumberland	RIVER	5130205	LYON		NS	NS				5/2/2002		5
Livingston Creek 11.6 to 15.4	Lower Cumberland	RIVER	5130205	LYON	PS						5/2/2002		5
Long Creek DMP: 1.3 UMP: 3.4	Lower Cumberland	RIVER	5130205	TRIGG	FS						5/2/2002		2
Long Pond Branch 2.7 to o3.1	Lower Cumberland	RIVER	5130205	TRIGG	NS						5/2/2002		5
Lower Branch 3.7 to 9.2	Lower Cumberland	RIVER	5130205	CHRISTIAN	PS						5/2/2002		5
Muddy Fork 14.5 to 26.6	Lower Cumberland	RIVER	5130205	TRIGG	NS						5/2/2002		5
Muddy Fork 7.0 to 7.9	Lower Cumberland	RIVER	5130205	TRIGG		FS	FS				5/2/2002		2
North Fork Little River 12.3 to 16.2	Lower Cumberland	RIVER	5130205	CHRISTIAN			NS			FS	5/2/2002	DWS	5
North Fork Little River DMP: 0 UMP: 0.3	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS	NS	PS				5/2/2002		5
North Fork Little River DMP: 6.9 UMP: 11.6	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS		NS				4/1/1998		5
North Fork Little River 0.3 to 6.9	Lower Cumberland	RIVER	5130205	CHRISTIAN	PS		PS				5/2/2002		5
North Fork Little River 11.6 to 12.3	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS		NS				5/2/2002		5
Pleasant Grove Creek 0.0 to 2.2	Lower Cumberland	RIVER	5130206	LOGAN	PS		NS				5/2/2002		5
Red River 54.2 to 56.3	Lower Cumberland	RIVER	5130206	LOGAN							7/13/2000		3
Red River 56.3 to 65.0	Lower Cumberland	RIVER	5130206	LOGAN	FS				FS		1/3/2002		2
Red River 73.5 to 80.5	Lower Cumberland	RIVER	5130206	SIMPSON	PS						6/23/2000		5
Red River DMP: 50.1 UMP: 54.2	Lower Cumberland	RIVER	5130206	LOGAN	PS	PS	FS				6/22/2000		5
Red River DMP: 65 UMP: 73.5	Lower Cumberland	RIVER	5130206	LOGAN							7/13/2000		3
Richland Creek 0.6 to 5.3	Lower Cumberland	RIVER	5130205	LIVINGSTON			NS				5/2/2002		5
Sandy Creek 0.0 to 2.3	Lower Cumberland	RIVER	5130205	LIVINGSTON			NS				5/2/2002		5
Sinking Fork DMP: 2.2 UMP: 5.6	Lower Cumberland	RIVER	5130205	TRIGG	PS	PS	FS				5/2/2002		5
Sinking Fork DMP: 24.2 UMP: 30.5	Lower Cumberland	RIVER	5130205	TRIGG	FS						5/2/2002		2
Sinking Fork 13.6 to 16.6	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS						5/2/2002		5
Skinframe Creek DMP: 0 UMP: 4.8	Lower Cumberland	RIVER	5130205	LYON	PS		NS				5/2/2002	CAH	5
Skinner Creek 0.0 to 5.8	Lower Cumberland	RIVER	5130205	TRIGG	NS						5/2/2002		5
South Fork Little River 0.0 to 10.5	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS	NS	NS				5/2/2002		5
South Fork Little River 10.5 to 19.9	Lower Cumberland	RIVER	5130205	CHRISTIAN	PS		NS				5/2/2002		5
South Fork Little River 20.9 to 25.4	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS						5/2/2002		5
South Fork Red River 0.0 to 5.3	Lower Cumberland	RIVER	5130206	LOGAN							6/23/2000		3
South Fork Red River 5.3 to 6.5	Lower Cumberland	RIVER	5130206	LOGAN						FS	5/2/2002	DWS	2
Spring Creek 3.0 to 3.7	Lower Cumberland	RIVER	5130205	LYON	NS						5/2/2002		5
Sugar Creek 1.0 to 1.4	Lower Cumberland	RIVER	5130205	CHRISTIAN	NS						5/2/2002		5
Sugar Creek DMP:2.1 UMP: 6.7	Lower Cumberland	RIVER	5130205	LIVINGSTON	FS		PS				5/2/2002		5
Sulphur Spring Creek DMP: 0 UMP: 6.6	Lower Cumberland	RIVER	5130206	SIMPSON	FS						6/23/2000		2
Upper Branch 0.0 to 2.7	Lower Cumberland	RIVER	5130205	CHRISTIAN	PS						5/2/2002		5
West Fork Creek (not named on map) 0.6 to 1.6	Lower Cumberland	RIVER	5130206	TODD		PS					5/2/2002		5, 5B
West Fork Red River DMP: 14.5 UMP: 26.4	Lower Cumberland	RIVER	5130206	CHRISTIAN	FS	FS	FS				7/5/2001	CAH	2
Whippoorwill Creek DMP: 0 UMP: 13.0	Lower Cumberland	RIVER	5130206	LOGAN	FS	FS	FS				7/5/2000		2
Arrowhead Lake	Mississippi River	RESHWATER LAK	8010100	BALLARD		FS					1/1/1992		2
Bayou de Chien 9.4-14.0	Mississippi River	RIVER	8010201	FULTON		FS	FS				3/25/2002		2
Bayou de Chien DMP: 14 UMP: 25.9	Mississippi River	RIVER	8010201	HICKMAN	FS		NS		FS		1/3/2002		5
Beaverdam Lake	Mississippi River	RESHWATER LAK	8010100	BALLARD		FS					1/1/1992		2

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Brush Creek DMP: 0 UMP: 6.0	Mississippi River	RIVER	8010201	HICKMAN	PS						7/7/2000		5
Brush Creek DMP: 0 UMP: 8.3	Mississippi River	RIVER	8010201	GRAVES	PS						7/5/2001		5
Burnt Pond	Mississippi River	RESHWATER LAK	8010100	BALLARD		FS					1/1/1992		2
Caldwell Creek 0.0-3.05	Mississippi River	RIVER	8010202	GRAVES	NS						6/26/2000		5
Cane Creek 0.0 to 3.8	Mississippi River	RIVER	8010100	BALLARD	PS						7/6/2000		5
Cane Creek 0.0 to 5.4	Mississippi River	RIVER	8010201	HICKMAN	PS						7/12/2000		5
Cane Creek 3.2 to 4.0	Mississippi River	RIVER	8010201	GRAVES		PS	PS				5/4/2002		5, 5B
Central Creek 0.8-2.5	Mississippi River	RIVER	8010201	CARLISLE			NS				3/25/2002		5
Flat Lake	Mississippi River	RIVER	8010100	BALLARD		FS					1/1/1994		2
Gilbert Creek 1.8 to 3.5	Mississippi River	RESHWATER LAK	8010201	GRAVES	NS						5/2/2002		5
Goose Creek 0.0 to 4.4	Mississippi River	RIVER	8010201	GRAVES	PS						6/29/2000		5
Hazel Creek 0.0 to 3.7	Mississippi River	RIVER	8010100	BALLARD	NS						7/6/2000		5
Hurricane Creek DMP: 0 UMP: 3.7	Mississippi River	RIVER	8010201	CARLISLE	PS						7/7/2000		5
Jackson Creek 0.0 to 2.6	Mississippi River	RIVER	8010201	GRAVES	FS						7/5/2001		2
Key Creek 0.0 to 1.8	Mississippi River	RIVER	8010201	GRAVES							6/29/2000		3
Knob Creek DMP: 1.1 UMP: 2.2	Mississippi River	RIVER	8010202	GRAVES	NS						5/2/2002		5
Lick Creek 0.0 to 2.2	Mississippi River	RIVER	8010201	CARLISLE							7/7/2000		3
Little Bayou de Chein 10.1 to 12.3	Mississippi River	RIVER	8010201	FULTON	NS						5/2/2002		5
Little Bayou de Chein DMP: 0 UMP: 2.1	Mississippi River	RIVER	8010201	HICKMAN	PS						5/2/2002		5
Little Creek DMP: 0 UMP: 6.2	Mississippi River	RIVER	8010201	HICKMAN	NS						7/7/2000		5
Little Cypress Creek DMP: 0 UMP: 2.0	Mississippi River	RIVER	8010201	GRAVES	NS						6/26/2000		5
Little Cypress Creek DMP: 5.8 UMP: 9.3	Mississippi River	RIVER	8010201	HICKMAN	FS						11/7/2001		2
Little Mud Creek 0.0 to 1.8	Mississippi River	RIVER	8010201	FULTON	PS						7/12/2000		5
Long Creek 0.0 to 0.8	Mississippi River	RIVER	8010201	CARLISLE		PS	PS				5/2/2002		5, 5B
Mayfield Creek 0.0 to 3.4	Mississippi River	RIVER	8010201	CARLISLE	PS						7/10/2000		5
Mayfield Creek 19.2 to 32.9	Mississippi River	RIVER	8010201	MC CRACKEN	PS						6/29/2000		5
Mayfield Creek 57.7 to 59.8	Mississippi River	RIVER	8010201	CALLOWAY	NS						5/2/2002		5
Mayfield Creek DMP: 32.9 UMP: 34.9	Mississippi River	RIVER	8010201	GRAVES	PS						5/2/2002		5
Mayfield Creek DMP: 34.9 UMP: 37.6	Mississippi River	RIVER	8010201	GRAVES		NS					5/2/2002		5
Mayfield Creek DMP: 8.2 UMP: 13.5	Mississippi River	RIVER	8010201	CARLISLE	NS	NS	PS		FS		1/3/2002		5
Mayfield Creek 13.5 to 14.8	Mississippi River	RIVER	8010201	CARLISLE	NS						5/2/2002		5
Mayfield Creek 14.8 to 17.0	Mississippi River	RIVER	8010201	BALLARD	FS						5/2/2002		2, 2B
Mayfield Creek 17.0 to 19.2	Mississippi River	RIVER	8010201	CARLISLE	FS						6/8/2000		2, 2B
Mayfield Creek 37.6 to 40.8	Mississippi River	RIVER	8010201	GRAVES	PS	PS					4/1/1997		5
Mayfield Creek 40.8 to 44.0	Mississippi River	RIVER	8010201	GRAVES	NS	NS					7/25/2006		5
Mud Creek DMP: 0 UMP: 6.4	Mississippi River	RIVER	8010201	FULTON	NS						4/1/1998		5
Obion Creek 38.6 to 42.0	Mississippi River	RIVER	8010201	HICKMAN	NS						1/4/2002		5
Obion Creek 42.0 to 47.6	Mississippi River	RIVER	8010201	HICKMAN	PS						4/4/2002		5
Obion Creek 47.6 to 56.0	Mississippi River	RIVER	8010201	GRAVES	PS						1/3/2002		5
Obion Creek DMP: 1.3 UMP: 15.8	Mississippi River	RIVER	8010201	FULTON	NS	NS	FS				1/4/2002		5
Obion Creek DMP: 25.2 UMP: 35.5	Mississippi River	RIVER	8010201	HICKMAN	FS						1/10/2002		2
Cooley Creek 0.6 to 2.3	Mississippi River	RIVER	8010201	GRAVES			NS				5/2/2002		5
Opossum Creek 0.0 to 2.2	Mississippi River	RIVER	8010201	GRAVES	NS						6/26/2000		5

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Running Slough 0.0 to 15.3	Mississippi River	RIVER	8010202	FULTON	PS						7/5/2001		5
Sand Creek DMP:0.0 UMP:3.6	Mississippi River	RIVER	8010201	GRAVES	FS						12/12/2001		2
Shawnee Creek Slough 0.0 to 3.0	Mississippi River	RIVER	8010100	BALLARD		NS	FS				5/2/2002		5
Shawnee Creek Slough 7.9 to 8.9	Mississippi River	RIVER	8010100	BALLARD		PS	PS				5/2/2002		5, 5B
Shawnee Creek Slough DMP: 8.9 UMP: 17.9	Mississippi River	RIVER	8010100	BALLARD	PS						7/5/2001		5
Shelby Lake	Mississippi River	ESHWATER LAK	8010100	BALLARD		FS					1/1/1992		2
South Fork Bayou de Chien DMP:2.0 UMP: 7.2	Mississippi River	RIVER	8010201	GRAVES	NS						7/5/2001		5
Stovall Creek 0.0 to 3.8	Mississippi River	RIVER	8010201	BALLARD	FS						7/6/2000		2
Sugar Creek 0.0 to 1.4	Mississippi River	RIVER	8010201	BALLARD							6/29/2000		3
Swan Pond	Mississippi River	ESHWATER LAK	8010201	BALLARD		NS					1/1/2000		5
Terrapin Creek DMP: 0 UMP: 4.2	Mississippi River	RIVER	8010202	GRAVES	FS	FS	FS				7/5/2001		2
Torian Creek 0.0 to 0.8	Mississippi River	RIVER	8010201	GRAVES		PS					8/2/2002		5, 5B
Truman Creek 2.0 to 3.0	Mississippi River	RIVER	8010201	CARLISLE		PS	PS				5/2/2002		5, 5B
UT to Mayfield Creek 0.0 to 1.0	Mississippi River	RIVER	8010201	MC CRACKEN	NS						5/2/2002		5
UT to Mayfield Creek 1.1 to 3.5	Mississippi River	RIVER	8010201	GRAVES	NS						5/2/2002		5
UT to Obion Creek 1.6 to 2.2	Mississippi River	RIVER	8010201	HICKMAN	NS						5/2/2002		5
West Fork Mayfield Creek DMP: 6.0 UMP: 15.9	Mississippi River	RIVER	8010201	CARLISLE	FS						11/7/2001		2
Wilson Creek 0.0 to 2.2	Mississippi River	RIVER	8010201	CARLISLE		FS	FS				5/2/2002		2
Wilson Creek 2.2 to 8.0	Mississippi River	RIVER	8010201	CARLISLE	FS						7/7/2000		2
Allen Fork 2.0 to 4.6	Ohio River	RIVER	5090203	BOONE	PS						4/11/2001		5
Bayou Creek 0.0 to 6.5	Ohio River	RIVER	5140206	MC CRACKEN	NS	NS					4/1/1998		5
Bayou Creek DMP: 0 UMP: 17.3	Ohio River	RIVER	5140203	LIVINGSTON	NS						3/1/2003		5
Bear Run 1.5 to 1.9	Ohio River	RIVER	5140201	BRECKINRIDGE	NS						3/1/2003		5
Beech Fork 0.1 to 4.9	Ohio River	RIVER	5140201	BRECKINRIDGE	FS						9/20/2005		2
Big Bone Creek 1.2 to 10.7	Ohio River	RIVER	5090203	BOONE	FS						3/3/2005		2, 2B
Big South Fork .08-3.0	Ohio River	RIVER	5090203	BOONE	FS						8/1/2000		2
Big Sugar Cr. 0.7 to 2.0	Ohio River	RIVER	5090203	GALLATIN	PS						3/3/2005		5
Blackford Creek 0.0 to 3.6	Ohio River	RIVER	5140201	HANCK		FS	FS				1/14/2004		2
Blackford Creek 3.6 to 8.0	Ohio River	RIVER	5140201	HANCK	PS						2/28/2003		5
Bracken Creek 2.8 to 11.0	Ohio River	RIVER	5090201	BRACKEN	PS						10/25/2005		5
Briery Branch 0.2 to 2.2	Ohio River	RIVER	5090201	LEWIS	PS						10/24/2005		5
Brush Creek 0.0 to 1.6	Ohio River	RIVER	5090201	CAMPBELL	FS		NS				2/5/2001		2B, 5
Buck Creek DMP: 0 UMP: 7.4	Ohio River	RIVER	5140203	LIVINGSTON	FS						3/1/2003		2
Buck Lake	Ohio River	ESHWATER LAK	5140206	BALLARD		FS					1/1/1992		2
Cabin Creek 3.6-11.3	Ohio River	RIVER	5090201	MASON	NS						2/5/2001		5
Camp Creek 0.0 to 4.3	Ohio River	RIVER	5140203	CRITTENDEN	FS						3/1/2003		2
Canoe Creek 0.0 to 3.9	Ohio River	RIVER	5140202	HENDERSON		NS	NS				1/15/2004		5
Carpenter Lake	Ohio River	Reservoir	5140201	DAVIESS		FS					1/1/2002		2
Casey Creek 0.6 to 9.5	Ohio River	RIVER	5140202	UNION	NS						3/1/2003		5
Clanton Creek DMP: 0 UMP: 4.9	Ohio River	RIVER	5140206	BALLARD	NS						7/6/2000		5
Clary Branch 0.0 to 1.9	Ohio River	RIVER	5090201	LEWIS	PS						4/28/2004		5
Clover Creek DMP: 7.8 UMP: 9.2	Ohio River	RIVER	5140201	BRECKINRIDGE	PS						11/12/2002		5
Craigs Creek 2.9-6.7	Ohio River	RIVER	5090203	GALLATIN							8/2/2000		3

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Crooked Creek 0.0-5.6	Ohio River	RIVER	5090201	LEWIS	FS						8/2/2000		2
Crooked Creek DMP: 0 UMP: 11.7	Ohio River	RIVER	5140203	CRITTENDEN	PS						2/26/2003		5
Crooked Creek 17.5 to 22.3	Ohio River	RIVER	5140203	CRITTENDEN	FS						11/12/2002		2
Crooked Creek 22.7 to 23.7	Ohio River	RIVER	5140203	CRITTENDEN			NS				2/15/2006		5, 5B
Deer Creek DMP: 0 UMP: 7.9	Ohio River	RIVER	5140203	LIVINGSTON	NS						3/1/2003		5
Dennis Onans Ditch 0.0 to 5.1	Ohio River	RIVER	5140203	UNION		FS	FS				3/1/2003		2
Double Lick Cr. 0.0 to 3.5	Ohio River	RIVER	5090203	BOONE	FS						3/7/2005		2
Dry Creek .2-7.0	Ohio River	RIVER	5090203	BOONE	PS						8/3/2000		5
Dry Creek 1.1 to 3.0	Ohio River	RIVER	5090203	GALLATIN	PS						8/3/2000		5
East Fork Cabin Creek 0.0 to 4.7	Ohio River	RIVER	5090201	LEWIS	FS						10/27/2005		2
Coefield Creek DMP: 0 UMP: 7.2	Ohio River	RIVER	5140203	CRITTENDEN	FS						11/12/2002		2
Elijahs Creek 0.0-5.2	Ohio River	RIVER	5090203	BOONE	NS						4/11/2001		4A, 5B
Fish Lake	Ohio River	RESHWATER LAK	5140206	BALLARD		FS					1/1/1992		2
Fourmile Creek 0.2 to 8.5	Ohio River	RIVER	5090201	CAMPBELL	FS		NS				8/3/2000		5
Fourmile Creek 8.5 to 9.4	Ohio River	RIVER	5090201	CAMPBELL	FS						4/10/2001		2
Garrison Creek 0.0 to 4.85	Ohio River	RIVER	5090203	BOONE	FS						3/7/2005		2
Goose Creek 0.0-1.9	Ohio River	RIVER	5090201	BRACKEN	PS						8/3/2000		5
Goose Pond Ditch/Wardens Slough 0.0 to 14.0	Ohio River	RIVER	5140203	UNION	NS						3/1/2003		5
Grassy Fork 0.0 to 3.9	Ohio River	RIVER	5090201	LEWIS	FS						11/2/2005		2
Gunpowder Creek 0.0 to 15.0	Ohio River	RIVER	5090203	BOONE	NS						1/8/2001		5
Gunpowder Creek 15.4 to 17.1	Ohio River	RIVER	5090203	BOONE	NS						8/3/1999		5
Gunpowder Creek 18.9 to 21.6	Ohio River	RIVER	5090203	BOONE	PS						5/2/2002		5
Happy Hollow Lake	Ohio River	RESHWATER LAK	5140206	BALLARD		FS					1/1/1992		2
Highland Creek DMP: 0 UMP: 7.1	Ohio River	RIVER	5140202	UNION	PS	PS	NS				4/1/1998		5
Hood Creek 0.0 to 5.4	Ohio River	RIVER	5090103	BOYD		FS	FS				1/16/2004		2, 2B
Humphrey Creek 0.0 to 3.4	Ohio River	RIVER	5140206	BALLARD	PS		FS				5/2/2002		5
Humphrey Creek 11.0 to 12.2	Ohio River	RIVER	5140206	BALLARD		PS	PS				5/2/2002		5, 5B
Humphrey Creek DMP: 3.4 UMP: 11.0	Ohio River	RIVER	5140206	BALLARD			PS				5/2/2002		5
Indian Creek 0.0-9.4	Ohio River	RIVER	5090201	LEWIS	FS						1/10/2001		2
Kingfisher Lake	Ohio River	Reservoir	5140201	DAVIESS		FS					1/1/2002		2
Kinninick Creek 0.8 to 50.9	Ohio River	RIVER	5090201	LEWIS	FS	FS	FS	FS			9/20/2005		2
Kinninick Creek 24.6 to 38.9	Ohio River	RIVER	5090201	LEWIS	FS						11/12/2002		2
Lake George	Ohio River	Reservoir	5140203	CRITTENDEN		FS					1/1/2002	DWS	2
Lake Jericho	Ohio River	Reservoir	5140101	HENRY		NS		FS			8/26/2005		5
Laurel Fork 5.8 to 15.9	Ohio River	RIVER	5090201	LEWIS	PS						11/3/2005		5
Lawrence Creek 2.6 to 4.2	Ohio River	RIVER	5090201	MASON	FS						11/3/2005		2
Lead Creek 0.0 to 0.6	Ohio River	RIVER	5140201	HANCK			FS				4/1/1998		2
Lead Creek 10.6 to 11.6	Ohio River	RIVER	5140201	HANCK			FS				4/1/1998		2
Lead Creek 3.5 to 4.5	Ohio River	RIVER	5140201	HANCK			NS				4/1/1998		5, 5B
Lee Creek 0.0-2.0	Ohio River	RIVER	5090201	MASON							8/7/2000		3
Little Bayou Creek 0.0 to 6.5	Ohio River	RIVER	5140206	MC CRACKEN	PS	PS			NS		5/2/2002		5
Little South Fork 1.2 to 5.9	Ohio River	RIVER	5090203	BOONE	FS						4/24/2004		2
Locust Creek 0.0-4.1	Ohio River	RIVER	5090201	BRACKEN	FS		NS				8/8/2000		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Locust Creek 4.1-12.2	Ohio River	RIVER	5090201	BRACKEN	NS						8/8/2000		5
Long Pond	Ohio River	RESHWATER LAI	5140206	BALLARD		FS					1/1/1992		2
Massac Creek DMP: 3.6 UMP: 4.2	Ohio River	RIVER	5140206	MC CRACKEN	PS	PS					5/2/2002		5
Massac Creek DMP: 4.2 UMP: 7.1	Ohio River	RIVER	5140206	MC CRACKEN	FS						5/2/2002		2
Mauzy Lake	Ohio River	Reservoir	5140202	UNION		FS					1/1/2002		2
Mcols Creek 0.0-6.7	Ohio River	RIVER	5090203	CARROLL							8/8/2000		3
Mcys Fork 0.0-2.2	Ohio River	RIVER	5090203	BOONE							8/8/2000		3
Metropolis Lake	Ohio River	RESHWATER LAI	5140206	MC CRACKEN		FS			PS		1/1/2000		5
Middle Fork Massac Creek DMP: 0 UMP: 6.2	Ohio River	RIVER	5140206	MC CRACKEN	FS						7/5/2001		2
Mitchell Lake	Ohio River	Reservoir	5140206	BALLARD		FS					1/1/1992		2
Montgomery Creek 0.0 to 6.5	Ohio River	RIVER	5090201	LEWIS	PS						3/11/2005		5
Mudlick Creek 0.0-6.6	Ohio River	RIVER	5090203	BOONE					FS		8/9/2000		2
Mudlick Creek 6.6-11.3	Ohio River	RIVER	5090203	BOONE							8/9/2000		3
Newberry Branch 0.0 to 2.8	Ohio River	RIVER	5090103	GREENUP	NS						11/11/2003		5
Newtons Creek DMP: 0 UMP: 9.7	Ohio River	RIVER	5140206	MC CRACKEN							6/30/2000		3
Pleasant Run Creek 0.2 to 3.4	Ohio River	RIVER	5090203	KENTON	FS						7/9/2004		2
Reformatory Lake	Ohio River	Reservoir	5140101	OLDHAM		FS		FS	FS		8/26/2005		2
Rush Creek 0.0 to 1.3	Ohio River	RIVER	5140203	CRITTENDEN	PS						11/12/2003		5
Salt Lick Creek 0.2 to 7.2	Ohio River	RIVER	5090201	LEWIS	PS						6/24/2004		5
Scenic Lake	Ohio River	Reservoir	5140202	HENDERSON		PS		FS			1/1/1992		5
Send Creek 0.5 to 2.9	Ohio River	RIVER	5090203	BOONE	FS						11/8/2005		2
Snag Creek .5-5.5	Ohio River	RIVER	5090201	BRACKEN			NS				8/14/2000		5
South Fork Gunpowder Creek 4.1-6.8	Ohio River	RIVER	5090203	BOONE			NS				3/3/2001		5
South Fork Gunpowder Creek 0-2	Ohio River	RIVER	5090203	BOONE	NS						4/10/2001		5
Stephens Creek 0.0-1.8	Ohio River	RIVER	5090203	GALLATIN	FS						8/10/2000		2
Straight Fork 0-1.9	Ohio River	RIVER	5090201	LEWIS	FS						4/11/2001		2
Sugg Creek 0.0 to 1.4	Ohio River	RIVER	5140203	UNION	NS						3/1/2003		5
Tenmile Cr. 0.05 to 1.15	Ohio River	RIVER	5090201	CAMPBELL	PS						3/16/2005		5
Trace Creek 0.2 to 4.6	Ohio River	RIVER	5090201	LEWIS	PS						11/14/2005		5
Turner Lake	Ohio River	RESHWATER LAI	5140206	BALLARD		FS					1/1/2000		2
Twelve Mile Creek 3.5-9.0	Ohio River	RIVER	5090201	CAMPBELL	FS						8/11/2000		2
Twelvemile Creek 10.4 to 13.2	Ohio River	RIVER	5090201	CAMPBELL	FS						11/14/2005		2
UT to Big Sugar Cr. 1.0 to 1.8	Ohio River	RIVER	5090203	GALLATIN	FS						3/4/2005		2
UT to Chinns Branch 0.0 to 1.1	Ohio River	RIVER	5090103	GREENUP	NS						11/10/2003		5
UT to Humphrey Branch 0.0 to 1.3	Ohio River	RIVER	5140206	BALLARD		PS	PS				5/2/2002		5, 5B
UT to Massac Creek 0.0 to 0.4	Ohio River	RIVER	5140206	MC CRACKEN		PS	PS				5/2/2002		5, 5B
UT to Massac Creek 0.0 to 0.7	Ohio River	RIVER	5140206	MC CRACKEN			PS				5/2/2002		5, 5B
UT to Massac Creek 0.0 to 1.7	Ohio River	RIVER	5140206	MC CRACKEN	FS						5/2/2002		2
UT to West Fork Massac Creek 0.0 to 0.8	Ohio River	RIVER	5140206	MC CRACKEN		PS	PS				5/2/2002		5, 5B
West Fork Massac Creek 0.3 to 5.4	Ohio River	RIVER	5140206	MC CRACKEN	FS						7/5/2001		2
West Fork Massac Creek DMP: 0.0 UMP: 0.3	Ohio River	RIVER	5140206	MC CRACKEN		PS					4/1/1998		5, 5B
Woolper Creek 11.9 to 14.0	Ohio River	RIVER	5090203	BOONE	NS		NS				8/10/2000		5
Woolper Creek 2.8 to 7.2	Ohio River	RIVER	5090203	BOONE			NS				8/10/2000		5

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Ashes Creek 0.4 to 6.6	Salt River	RIVER	5140102	NELSON	FS						10/5/2005		2
Beargrass Creek 0.5 to 1.8	Salt River	RIVER	5140101	JEFFERSON		NS					5/2/2002		5
Beaver Creek 0-20.9	Salt River	RIVER	5140103	ANDERSON	FS						4/9/2001		2
Beaver Lake	Salt River	Reservoir	5140103	ANDERSON		FS		PS			8/25/2005		4C
Beech Creek 4.6 to 19.6	Salt River	RIVER	5140102	SHELBY	FS		NS	NS			10/5/2005		5
Beech Fork 109.7 to 111.9	Salt River	RIVER	5140103	MARION	FS						10/5/2005		2
Beech Fork 39.5 to 50.4	Salt River	RIVER	5140103	NELSON	FS	FS	NS	FS	FS		9/20/2005		5
Beech Fork 49.7-56.5	Salt River	RIVER	5140103	WASHINGTON	FS						8/11/2000		2
Beech Fork 56.5-85.3	Salt River	RIVER	5140103	WASHINGTON	FS						8/11/2000		2
Beech Fork 0.0 to 12.0	Salt River	RIVER	5140103	NELSON		FS					12/2/2005		2
Big South Fork 16.6 to 18.0	Salt River	RIVER	5140103	MARION	FS						10/6/2005		2
Big South Fork 0.0 to 12.4	Salt River	RIVER	5140103	MARION		FS	PS	FS			9/11/2000		5
Blue Spring Ditch 0.0 to 2.1	Salt River	RIVER	5140102	JEFFERSON		NS	NS				2/22/2006		5
Brashears Creek 0.0 to 13.0	Salt River	RIVER	5140102	SPENCER		FS	NS	FS			12/2/2005		5
Brashears Creek 13.0 to 25.8	Salt River	RIVER	5140102	SHELBY	FS						9/20/2005		2
Brooks Run 0.0 to 2.5	Salt River	RIVER	5140102	BULLITT		PS	FS				2/9/2001		2B, 5
Brooks Run 2.5 to 4.1	Salt River	RIVER	5140102	BULLITT	PS	PS	PS				2/7/2006		5
Brooks Run 4.1 to 6.1	Salt River	RIVER	5140102	BULLITT	PS	PS	NS				2/7/2006		5
Buchanan Creek 0.0 to 3.7	Salt River	RIVER	5140102	MERCER	FS						10/6/2005		2
Buckhorn Creek 0.0 to 2.3	Salt River	RIVER	5140103	MARION		FS	FS				4/1/1998		2
Bullitt Lick Creek 0.0-2.3	Salt River	RIVER	5140102	BULLITT	PS						7/28/2000		5
Bullskin Creek 0.0 to 3.4	Salt River	RIVER	5140102	SHELBY	FS						6/28/2005		2
Cane Run 0.0-7.6	Salt River	RIVER	5140102	JEFFERSON	FS						2/5/2001		2
Cartwright Creek 0.0 to 6.6	Salt River	RIVER	5140103	WASHINGTON	PS				FS		4/9/2001		5
Cartwright Creek 6.6-12.6	Salt River	RIVER	5140103	WASHINGTON	PS						4/6/2001		5
Cedar Creek 0.0 to 5.2	Salt River	RIVER	5140102	BULLITT	FS						9/20/2005		2
Cedar Creek 4.2 to 11.1	Salt River	RIVER	5140102	JEFFERSON		FS	FS				3/12/2001		2
Chaplin River	Salt River	RIVER	5140103	WASHINGTON	FS						4/9/2001		2
Chaplin River 0.0 to 23.1	Salt River	RIVER	5140103	NELSON	FS	FS	NS	FS			12/1/2005		5
Chaplin River 40.9 to 54.2	Salt River	RIVER	5140103	WASHINGTON	FS						9/20/2005		2
Chaplin River 63.0 to 69.7	Salt River	RIVER	5140103	MERCER	NS						4/9/2001		5
Chaplin River 69.7-78	Salt River	RIVER	5140103	MERCER	FS						4/9/2001		2
Cheese Lick 0.7 to 4.4	Salt River	RIVER	5140103	ANDERSON	PS						10/6/2005		5
Chenoweth Run 0.0 to 5.2	Salt River	RIVER	5140102	JEFFERSON	PS	PS	NS				3/12/2001		5
Chenoweth Run 5.2 to 9.2	Salt River	RIVER	5140102	JEFFERSON	PS	PS	NS				3/12/2001		5
Chickasaw Park Pond	Salt River	POND	5140101	JEFFERSON					PS		10/7/2005		5
Clear Creek 0.0-11.0	Salt River	RIVER	5140102	SHELBY	NS	NS					1/12/2001		5
Clear Creek 0-4.4	Salt River	RIVER	5140103	HARDIN	NS						4/6/2001		5
Crooked Creek 1.0-10.1	Salt River	RIVER	5140102	SPENCER	FS						8/2/2000		2
Crooked Creek 5.6-12.8	Salt River	RIVER	5140103	BULLITT	NS						8/11/2000		5
Currys Fork 0.0 to 4.8	Salt River	RIVER	5140102	OLDHAM		FS	NS	FS			12/1/2005		5
Doctors Fork 0.0 to 3.8	Salt River	RIVER	5140103	BOYLE	FS						10/7/2005		2
Doe Run 4.1-7.9	Salt River	RIVER	5140104	MEADE		FS	NS				3/6/2001	CAH	5

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Doe Valley Lake	Salt River	RIVER	5140104	MEADE						FS	11/15/2005	DWS	2
East Fork Beech Fork 0.0 to 1.9	Salt River	RIVER	5140103	WASHINGTON	PS						10/7/2005		5
East Fork x Creek 0.0-4.3	Salt River	RIVER	5140102	BULLITT	FS						8/4/2000		2
Fagan Branch Reservoir	Salt River	Reservoir	5140103	MARION						FS	10/18/2005	DWS	2
Fern Creek 1.3 to 4.4	Salt River	RIVER	5140102	JEFFERSON		NS	NS				5/2/2001		5
Fern Creek 0.0 to 1.3	Salt River	RIVER	5140102	JEFFERSON		PS	NS				3/22/2001		5
Fern Creek 4.4 to 5.9	Salt River	Reservoir	5140102	JEFFERSON		PS	NS				3/12/2001		5
Fishpool Creek 0.0-1.9	Salt River	RIVER	5140102	JEFFERSON		FS	FS				3/22/2001		2
Floyds Fork 0.0 to 11.6	Salt River	RIVER	5140102	BULLITT	NS	NS	NS	FS	FS		9/20/2005		2B, 4A
Floyds Fork 11.6 to 24.2	Salt River	RIVER	5140102	JEFFERSON	NS	NS	NS				10/15/1999		5
Floyds Fork 24.2 to 34.1	Salt River	RIVER	5140102	JEFFERSON	NS		PS	FS			12/1/2005		2B, 5
Floyds Fork 34.1 to 61.9	Salt River	RIVER	5140102	SHELBY	PS						12/1/2005		5
Glens Cr. 0.0 to 4.8	Salt River	RIVER	5140103	WASHINGTON	PS						10/10/2005		5
Goose Creek 0.3 to 3.6	Salt River	RIVER	5140101	JEFFERSON		PS	NS				3/12/2001		5
Goose Creek 3.6 to 13.0	Salt River	RIVER	5140101	JEFFERSON		PS	NS				3/15/2001		5
Gravel Creek 0.7 to 2.9	Salt River	RIVER	5140102	BULLITT	FS						10/10/2005		2
Guist Creek 0.0 to 15.4	Salt River	RIVER	5140102	SHELBY	FS						3/25/2002		2
Guist Creek 15.4-27.6	Salt River	RIVER	5140102	SHELBY	PS	PS			FS		3/25/2002		5
Guist Creek Lake	Salt River	RIVER	5140102	SHELBY		NS		FS	PS	PS	8/26/2005	DWS	5
Hammond Creek 0.0-5.2	Salt River	RIVER	5140102	ANDERSON					FS		8/4/2000		2
Hardins Creek 0.0 - 7.0	Salt River	RIVER	5140103	WASHINGTON	FS						3/7/2001		2
Hardins Creek 0.0-5.0	Salt River	Reservoir	5140104	BRECKINRIDGE	NS						7/28/2000		5
Hardins Creek 13.3 to 22.9	Salt River	RIVER	5140103	MARION	PS						6/8/2004		5
Hardins Creek 5.2 to 11.4	Salt River	RIVER	5140104	BRECKINRIDGE	PS						9/20/2005		5
Hardy Creek 1.6 to 5.6	Salt River	RIVER	5140101	TRIMBLE	PS						3/22/2005		5
Hardy Creek 0.0 to 1.4	Salt River	RIVER	5140101	TRIMBLE	NS						8/1/1999		5
Harrods Creek 0.0 to 3.2	Salt River	RIVER	5140101	OLDHAM		NS	PS	FS			12/1/2005		5
Harrods Creek 3.2 to 33.3	Salt River	RIVER	5140101	OLDHAM			PS	FS			12/1/2005		5
Harts Run 0.0 to 1.8	Salt River	RIVER	5140103	BULLITT	FS						9/20/2005		2
Hayden Cr. 0.0 to 1.3	Salt River	RIVER	5140103	MERCER	NS						3/8/2005		5
Hite Creek 0-5.5	Salt River	RIVER	5140101	JEFFERSON	NS						4/9/2001		5
Indian Cr. 0.0 to 2.9	Salt River	RIVER	5140103	MERCER	FS						3/8/2005		2
Jeptha Creek 0.0 to 0.7	Salt River	RIVER	5140102	SHELBY	NS						8/7/2000		5
Jones Creek 0-3.9	Salt River	RIVER	5140103	MARION	PS						4/6/2001		5
Lick Creek 0.0 to 4.1	Salt River	RIVER	5140103	WASHINGTON	FS						3/10/2005		2
Lick Run Creek 0.0-3.5	Salt River	RIVER	5140104	BRECKINRIDGE	PS						7/28/2000		5
Little Goose Creek 0.0 to 9.2	Salt River	RIVER	5140101	JEFFERSON		FS	PS				3/12/2001		5
Little Kentucky River 0.2 to 21.4	Salt River	RIVER	5140101	TRIMBLE		FS	FS	FS			12/2/2005		2
Little Kentucky River 21.0-27.0	Salt River	RIVER	5140101	HENRY	PS						8/8/2000		5
Little South Fk, North Rolling Fk.	Salt River	RIVER	5140103	CASEY	FS						9/19/2005		2
Locust Creek 0.0 to 2.0	Salt River	RIVER	5140101	CARROLL	FS						8/8/2000		2
Long Lick Creek 0.0 to 10.5	Salt River	RIVER	5140102	BULLITT	NS						10/12/2005		5
Long Lick Creek 3.1 to 21.3	Salt River	RIVER	5140103	WASHINGTON	FS						6/9/2004		2

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Long Run 0.0 to 10.0	Salt River	RIVER	5140102	JEFFERSON		FS	NS				3/13/2001		5
Long Run Lake	Salt River	RIVER	5140102	JEFFERSON		FS		FS	FS		8/26/2005		2
Marion unty Sportsman Lake	Salt River	RIVER	5140103	MARION		FS		FS			8/26/2005		2, 2B
McNeely Lake	Salt River	RIVER	5140102	JEFFERSON		FS		FS	PS		8/26/2005		2B, 5
Mellins Br. 0.0 to 1.5	Salt River	Reservoir	5140101	CARROLL	PS						3/10/2005		5
Middle Fork Beargrass Creek 0.0 to 2.0	Salt River	Reservoir	5140101	JEFFERSON		NS	NS				3/13/2001		5
Middle Fork Beargrass Creek 2.0 to 2.9	Salt River	Reservoir	5140101	JEFFERSON		PS	NS				3/13/2001		5
Middle Fork Beargrass Creek 2.9 to 15.3	Salt River	RIVER	5140101	JEFFERSON		PS	NS				3/12/2001		5
Middle Fork Otter Creek 0-4.2	Salt River	RIVER	5140103	LARUE	FS						4/6/2001		2
Mill Creek 0.0 to 11.2	Salt River	RIVER	5140101	JEFFERSON		NS	NS				3/13/2001		5
Mill Creek 11.8-23.6	Salt River	RIVER	5140102	HARDIN	FS						2/6/2001		2
Mill Creek 6.0 to 7.0	Salt River	RIVER	5140102	HARDIN					NS		2/6/2001		5, 5B
Mill Creek 7.0-11.8	Salt River	RIVER	5140102	HARDIN	FS						2/6/2001		2
Mill Creek 0.0 to 2.7	Salt River	RIVER	5140103	NELSON	FS						10/12/2005		2
Mill Creek Branch 0.0 to 0.7	Salt River	RIVER	5140102	HARDIN	PS						2/6/2001		5, 5B
Mill Creek Cutoff 0.0 to 6.7	Salt River	RIVER	5140101	JEFFERSON		FS	NS				3/12/2001		5
Monks Creek 0.0 to 1.6	Salt River	RIVER	5140103	NELSON	FS						10/12/2005		2
Muddy Fork Beargrass Creek 0.0-6.9	Salt River	RIVER	5140101	JEFFERSON		FS	NS				3/12/2001		5
Mussin Branch 0.0 to 1.7	Salt River	RIVER	5140103	MARION		NS	NS	NS			2/14/2006		4A
North Rolling Fork 0-3.7	Salt River	RIVER	5140103	MARION	FS						4/6/2001		2
North Rolling Fork 16.7-20.9	Salt River	RIVER	5140103	BOYLE	FS						4/6/2001		2
Northern Ditch 0.0 to 7.3	Salt River	RIVER	5140102	JEFFERSON		PS	NS				4/1/1998		5
Otter Creek 0.0 to 10.7	Salt River	RIVER	5140104	MEADE	FS	FS	PS				3/13/2001	CAH	5
Otter Creek 0.0 to 2.9	Salt River	RIVER	5140103	LARUE	FS	FS	PS	FS			10/13/2005		5
Overalls Creek 0.0 to 1.3	Salt River	RIVER	5140103	BULLITT	FS						10/13/2005		2
Pennsylvania Run 0.0 to 3.3	Salt River	RIVER	5140102	JEFFERSON	NS		NS				4/16/2004		5
Pleasant Run 4.2 to 6.9	Salt River	RIVER	5140103	WASHINGTON	PS						10/13/2005		5
Plum Creek 0.0 to 17.8	Salt River	RIVER	5140102	SPENCER	NS						10/13/2005		5
Pond Creek 0.0 to 1.5	Salt River	RIVER	5140101	OLDHAM	PS						5/2/2002		5
Pond Creek/Southern Ditch 5.1-8.1	Salt River	RIVER	5140102	JEFFERSON	NS	NS	NS				3/13/2001		5
Pope Creek 0.0 to 2.1	Salt River	RIVER	5140103	MARION	FS						3/25/2002		2
Pope Lick Creek 2-5.2	Salt River	RIVER	5140102	JEFFERSON		FS	NS				3/14/2001		5
Pottinger Creek 0-5	Salt River	RIVER	5140103	NELSON	FS						3/7/2001		2
Prather Creek 0-3.1	Salt River	RIVER	5140103	MARION	FS						4/6/2001		2
Corn Creek 0.0-4.1	Salt River	RIVER	5140101	TRIMBLE	FS						8/2/2000		2
Road Run 0.0 to 7.1	Salt River	RIVER	5140103	WASHINGTON	PS						10/13/2005		5
Rolling Fork 100.2-107.9	Salt River	RIVER	5140103	MARION							8/11/2000		3
Rolling Fork 41.8-62.5	Salt River	RIVER	5140103	LARUE	FS						4/10/2001		2
Rolling Fork 62.5-76.3	Salt River	RIVER	5140103	LARUE	FS						8/11/2000		2
Rolling Fork 76.3-93.7	Salt River	RIVER	5140103	MARION	FS						3/7/2001		2
Rolling Fork 98.25 to 99.25	Salt River	RIVER	5140103	MARION						FS	10/18/2005	DWS	2
Rolling Fork 0.0 to 40.7	Salt River	RIVER	5140103	LARUE		FS	NS	FS			12/2/2005		5
Rowan Creek 0.0 to 7.4	Salt River	RIVER	5140103	NELSON	FS						4/10/2000		2

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Salt Lick Creek 0-8.4	Salt River	RIVER	5140103	MARION	FS						8/9/2000		2
Salt River 11.9 to 26.2	Salt River	RIVER	5140102	BULLITT	FS	FS	NS	FS	PS		11/30/2005		5
Salt River 49.7 to 55.4	Salt River	RIVER	5140102	SPENCER	FS						3/25/2002		2
Salt River 55.4-55.9	Salt River	RIVER	5140102	SPENCER	FS				FS		3/2/2001		2
Salt River 57.1 to 61.25	Salt River	RIVER	5140102	SPENCER		FS	FS	FS		FS	2/28/2006	DWS	2
Salt River 78.0 to 89.0	Salt River	RIVER	5140102	ANDERSON	FS	FS	FS	FS	NS		9/20/2005		5
Salt River 88.5-111.2	Salt River	RIVER	5140102	ANDERSON	FS						8/11/2000		2
Salt River 135.5 to 142.8	Salt River	RIVER	5140102	MERCER	FS						10/14/2005		2
Scrubgrass Branch .2-.7	Salt River	RIVER	5140103	BOYLE	FS						4/6/2001		2
Shelby Lake	Salt River	RIVER	5140102	SHELBY		PS					11/1/1999		5
Short Creek 0.0 to 5.0	Salt River	RIVER	5140103	WASHINGTON	PS						6/10/2004		5
Simpson Creek 0.0-6.8	Salt River	Reservoir	5140102	SPENCER			FS				2/1/2001		2
Sinking Creek 15.4 to 39.7	Salt River	RIVER	5140104	BRECKINRIDGE	FS	FS	PS				12/1/2005	CAH	2B, 5
Sinking Creek 5.9 to 8.7	Salt River	RIVER	5140104	BRECKINRIDGE							8/9/2000	CAH	3
Sinking Creek 8.7 to 15.4	Salt River	RIVER	5140104	BRECKINRIDGE	PS	PS	NS				9/10/2000	CAH	5
South Fork Beargrass Creek 0.0 to 2.7	Salt River	RIVER	5140101	JEFFERSON		PS	NS				3/15/2001		5
South Fork Beargrass Creek 2.7 to 13.6	Salt River	RIVER	5140101	JEFFERSON		FS	NS				3/15/2001		5
Southern Ditch 0.0 to 5.9	Salt River	RIVER	5140102	JEFFERSON		FS	NS				4/1/1998		5
Sulphur Creek 0.0 to 10.0	Salt River	RIVER	5140103	ANDERSON		FS	PS	FS			12/1/2005		5
Sympson Lake	Salt River	RIVER	5140103	NELSON		FS		FS		FS	8/26/2005	DWS	2
Taylorsville Lake	Salt River	RIVER	5140102	SPENCER		PS		FS	PS		2/28/2006		5
Thompson Cr. 0.0 to 9.2	Salt River	Reservoir	5140103	MERCER	PS						3/17/2005		5
Tioga Creek 0.0 to 2.5	Salt River	Reservoir	5140104	HARDIN	PS						10/14/2005		5
Town Creek 0.0 to 4.1	Salt River	RIVER	5140103	NELSON	FS						4/11/2001		2
UT of Pond Creek .5-.9	Salt River	RIVER	5140101	OLDHAM	FS						4/12/2001		2
UT of Pond Creek 0-.5	Salt River	RIVER	5140101	OLDHAM	NS						4/12/2001		5
UT to Brooks Run 0.0 to 2.0	Salt River	RIVER	5140102	BULLITT	NS	NS	NS				8/5/1999		5
UT to Buffalo Run 0.0 to 1.1	Salt River	RIVER	5140102	BULLITT	NS						4/8/2004		5
UT to Carmon Creek 0.0 to 1.9	Salt River	RIVER	5140101	HENRY			NS	NS			9/30/2005		5, 5B
UT to Glens Creek 0.0 to 2.3	Salt River	RIVER	5140103	WASHINGTON	FS						4/6/2004		2
UT to Hammond Creek 0.0 to 1.8	Salt River	RIVER	5140102	ANDERSON	NS						4/6/2004		5
UT to N. Fork Currys Fork 0.0 to 0.1	Salt River	RIVER	5140102	OLDHAM			NS				9/28/2005		5, 5B
UT to Corn Creek 0.0 to 2.0	Salt River	RIVER	5140101	TRIMBLE	FS						10/10/2005		2
UT to Rolling Fork 0.0 to 0.6	Salt River	RIVER	5140103	MARION		NS	NS	NS			2/14/2006		4A
UT to Salt River 0.0 to 2.4	Salt River	RIVER	5140102	MERCER	PS						5/4/2004		5
UT to Southern Ditch 0.0 to 2.6	Salt River	RIVER	5140102	JEFFERSON	NS						4/16/2004		5
UT to UT to Guist Creek	Salt River	RIVER	5140102	SHELBY	PS						10/10/2005		5
West Fork Otter Creek 0.0 to 3.1	Salt River	RIVER	5140103	LARUE	FS						10/17/2005		2
Wetwoods Creek (Slop Ditch) 0.0 to 3.7	Salt River	RIVER	5140102	JEFFERSON		PS	NS				4/1/1998		5
White Sulphur Creek 0.0-3.9	Salt River	RIVER	5140101	HENRY							8/10/2000		3
Willisburg Lake	Salt River	RIVER	5140103	WASHINGTON		PS		FS		FS	8/26/2005	DWS	5
Willow Pond	Salt River	RIVER	5140101	JEFFERSON					FS		10/7/2005		2
Wilson Creek 0.0 to 2.2	Salt River	Reservoir	5140103	BULLITT	NS						10/17/2005		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Wilson Creek 9.5 to 18.4	Salt River	POND	5140103	BULLITT	FS						2/13/2006		2
Withrow Creek 0.0 to 3.9	Salt River	RIVER	5140103	NELSON	PS						10/17/2005		5
Wolf Creek 0.0-8.7	Salt River	RIVER	5140104	MEADE							8/10/2000		3
Cox Creek 11.2-15.5	Salt River	RIVER	5140102	NELSON	PS						7/28/2000		5
Cox Creek 0.0 to 4.7	Salt River	RIVER	5140102	BULLITT		FS	PS	FS			12/2/2005		5
Yellowbank Creek 1.5 to 12.0	Salt River	RIVER	5140104	BRECKINRIDGE	PS						9/20/2005		5
Younger Creek 0.0 to 4.5	Salt River	RIVER	5140103	HARDIN	PS						10/17/2005		5
Angle Creek 0.0 to 0.7	Tennessee River	RIVER	6040006	MARSHALL	PS		NS				3/25/2002		5
Bear Creek 0.6 to 1.6	Tennessee River	RIVER	6040006	GRAVES		PS	PS				5/4/2002		5, 5B
Bear Creek 3.1 to 6.3	Tennessee River	RIVER	6040005	MARSHALL			NS				3/25/2002		5
Bee Creek 0.0 to 1.8	Tennessee River	RIVER	6040006	CALLOWAY			NS				3/25/2002		5
Beechy Creek DMP: 0.2 UMP: 3.2	Tennessee River	RIVER	6040005	CALLOWAY	FS						4/1/1998		2
Blizzard Pond 0.0 to 3.7	Tennessee River	RIVER	6040006	MC CRACKEN			NS				5/2/2002		5
Blizzard Pond 4.5 to 5.5	Tennessee River	RIVER	6040006	MC CRACKEN		PS	PS				5/2/2002		5, 5B
Blood River DMP:8.3 UMP: 15.7	Tennessee River	RIVER	6040005	CALLOWAY	FS						7/5/2001		2
Brooks Creek DMP: 0 UMP: 4.3	Tennessee River	RIVER	5140205	HOPKINS	FS						3/1/2003		2
Camp Creek 0.0-5.4	Tennessee River	RIVER	6040006	MC CRACKEN	PS		PS				3/25/2002		5
Champion Creek DMP: 0 UMP: 1.5	Tennessee River	RIVER	6040006	MC CRACKEN	NS						3/25/2002		5
Chestnut Creek 0.0 to 3.0	Tennessee River	RIVER	6040006	MARSHALL	PS		PS				3/25/2002		5
Clarks River 12.7-19.3	Tennessee River	RIVER	6040006	MC CRACKEN		FS	FS				3/25/2002		2
Clarks River 26.6-28.4	Tennessee River	RIVER	6040006	MARSHALL	FS						3/25/2002		2
Clarks River 29.3-32.2	Tennessee River	RIVER	6040006	MARSHALL	FS						3/25/2002		2
Clarks River 39.5-45.4	Tennessee River	RIVER	6040006	MARSHALL	FS						3/25/2002		2
Clarks River 50.9 to 59.9	Tennessee River	RIVER	6040006	CALLOWAY	PS				FS		5/2/2002		5
Clarks River 59.9-61.9	Tennessee River	RIVER	6040006	CALLOWAY	PS		PS				3/25/2002		5
Clarks River DMP: 48.4 UMP: 50.9	Tennessee River	RIVER	6040006	CALLOWAY	FS	FS	FS		FS		5/2/2002		2
Clarks River DMP: 5.0 UMP: 12.7	Tennessee River	RIVER	6040006	MC CRACKEN	PS						3/25/2002		5
Clayton Creek 0.8 to 3.3	Tennessee River	RIVER	6040006	CALLOWAY	PS						5/2/2002		5
Clayton Creek 3.3 to 7.1	Tennessee River	RIVER	6040006	CALLOWAY			NS				5/2/2002		5
Clear Creek 1.7 to 2.7	Tennessee River	RIVER	6040005	MARSHALL							5/2/2002		3
Cypress Creek 0.1 to 5.7	Tennessee River	RIVER	6040006	MARSHALL		FS	FS				5/2/2002		2
Cypress Creek 6.3 to 7.7	Tennessee River	RIVER	6040006	MARSHALL	NS						5/2/2002		5
Cypress Creek 7.7 to 9.7	Tennessee River	RIVER	6040006	MARSHALL	NS						2/27/2002		5
Damon Creek 0.0 to 1.8	Tennessee River	RIVER	6040006	CALLOWAY	NS		NS				5/2/2002		5
Duncan Creek 0.0 to 2.5	Tennessee River	RIVER	6040006	MARSHALL	FS						5/2/2002		2
East Fork Clarks River 5.7 to 6.7	Tennessee River	RIVER	6040006	CALLOWAY			PS				5/2/2002		5, 5B
East Fork Clarks River DMP: 0 UMP: 2.7	Tennessee River	RIVER	6040006	CALLOWAY	FS						5/2/2002		2
Guess Creek 0.0 to 2.6	Tennessee River	RIVER	6040006	LIVINGSTON	PS						5/2/2002		5
Island Creek 0.0 to 5.5	Tennessee River	RIVER	6040006	MC CRACKEN	PS		NS				5/2/2002		5
Island Creek 5.5 to 10.3	Tennessee River	RIVER	6040006	MC CRACKEN	PS						4/1/1998		5
Jonathan Creek DMP: 6.2 UMP: 18	Tennessee River	RIVER	6040005	CALLOWAY	PS						5/2/2002		5
Kentucky Lake	Tennessee River	Reservoir	6040005	CALLOWAY		FS			FS	FS	5/2/2002	DWS	2
Ledbetter Creek DMP: 1.8 UMP: 4.2	Tennessee River	RIVER	6040005	MARSHALL	FS	FS					5/2/2002		2

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Little Cypress Creek DMP: 0 UMP:3.4	Tennessee River	RIVER	6040006	MARSHALL	NS		PS				5/2/2002		5
Little Cypress Creek DMP: 3.4 UMP:6.0	Tennessee River	RIVER	6040006	MARSHALL	NS						5/2/2002		5
Little Jonathan Creek DMP: 0 UMP: 3.3	Tennessee River	RIVER	6040005	CALLOWAY	FS						5/2/2002		2
Little White Oak Creek 0.9 to 1.9	Tennessee River	RIVER	6040006	MARSHALL			PS				5/2/2002		5, 5B
Martin Creek 0.0 to 0.9	Tennessee River	RIVER	6040006	MARSHALL		PS	PS				5/2/2002		5, 5B
Middle Fork Clarks River 2.7 to 4.9	Tennessee River	RIVER	6040006	CALLOWAY	PS						5/2/2002		5
Middle Fork Clarks River DMP: 0.0 UMP: 2.7	Tennessee River	RIVER	6040006	CALLOWAY	PS		NS				5/2/2002		5
Middle Fork Creek 0.2 to 6.6	Tennessee River	RIVER	6040006	MARSHALL	PS		NS				5/2/2002		5
Panther Creek 3.1 to 4.2	Tennessee River	RIVER	6040006	GRAVES	FS						6/28/2000		2
Panther Creek DMP: 0 UMP: 3.1	Tennessee River	RIVER	6040005	GRAVES	FS	FS	FS				7/5/2001		2
Panther Creek DMP: 0.2 UMP: 5.1	Tennessee River	RIVER	6040005	CALLOWAY	FS						7/5/2001		2
Piney Creek DMP: 4.6 UMP: 10.0	Tennessee River	RIVER	5140205	CALDWELL	FS						11/12/2002		2
Pogue Creek DMP: 0 UMP: 4.6	Tennessee River	RIVER	5140205	HOPKINS	FS						3/1/2003		2
Pryor Branch 0.0 to 3.0	Tennessee River	RIVER	6040006	GRAVES	FS						6/28/2000		2
Reeves Branch 0.0 to 0.3	Tennessee River	RIVER	6040006	MARSHALL	PS						5/2/2002		5
Rockhouse Creek DMP: 0 UMP: 4.9	Tennessee River	RIVER	6040006	CALLOWAY	FS						5/2/2002		2
Sandlick Creek DMP: 4.9 UMP: 9	Tennessee River	RIVER	5140205	CHRISTIAN	FS						11/12/2002		2
Soldiers Creek DMP: 0 UMP: 5.3	Tennessee River	RIVER	6040006	MARSHALL	FS						7/5/2001		2
Spring Creek 0.0 to 1.8	Tennessee River	RIVER	6040006	GRAVES	PS						8/25/2000		5
Sugar Creek 0.0 to 4.0	Tennessee River	RIVER	6040006	GRAVES	FS						6/28/2000		2
Sugar Creek 2.1 to 5.5	Tennessee River	RIVER	6040005	CALLOWAY	FS						5/2/2002		2
Tennessee River DMP: 12.0 UMP: 21.1	Tennessee River	RIVER	6040006	MARSHALL	FS						12/3/2001		2
Tennessee River DMP: 21.1 UMP: 22.4	Tennessee River	RIVER	6040006	MARSHALL	PS						5/2/2002		5
Tennessee River DMP:4.3 UMP: 10.1	Tennessee River	RIVER	6040006	MC CRACKEN		FS					5/2/2002		2
Trace Creek DMP: 0 UMP: 3.0	Tennessee River	RIVER	6040006	GRAVES	FS						6/28/2000		2
Tradewater River DMP: 40.8 UMP: 45.9	Tennessee River	RIVER	5140205	UNION						FS	3/1/2003	DWS	2
Turkey Creek DMP: 1.0 UMP: 3.0	Tennessee River	RIVER	6040005	TRIGG	FS						5/2/2002		2
UT to Chestnut Creek 0.0 to 0.7	Tennessee River	RIVER	6040006	MARSHALL		PS	PS				5/2/2002		5, 5B
UT to Old Beaver Dam Slough 0.0 to 0.5	Tennessee River	RIVER	6040006	MARSHALL	NS						5/2/2002		5
Wades Creek DMP: 0 UMP: 3.8	Tennessee River	RIVER	6040006	MARSHALL	FS						5/2/2002		2
West Fork Clarks River 12.8 to 16.8	Tennessee River	RIVER	6040006	GRAVES	FS		NS				5/4/2002		5
West Fork Clarks River 16.8 to 19.7	Tennessee River	RIVER	6040006	MARSHALL	FS						5/2/2002		2
West Fork Clarks River 19.7 to 22.7	Tennessee River	RIVER	6040006	MARSHALL	FS				PS		1/3/2002		5
West Fork Clarks River 2.6 to 10.1	Tennessee River	RIVER	6040006	MC CRACKEN	FS	FS	PS				3/25/2002		5
West Fork Clarks River 22.7 to 27.3	Tennessee River	RIVER	6040006	CALLOWAY			PS				5/2/2002		5
West Fork Clarks River 33.1 to 37.2	Tennessee River	RIVER	6040006	CALLOWAY	PS						5/2/2002		5
West Fork Clarks River (Relict Channel) 0.0 to 13.8	Tennessee River	RIVER	6040006	GRAVES	PS						7/11/2000		5
West Fork Clarks River-Old Channel 19.7 to 22.7	Tennessee River	RIVER	6040006	MARSHALL	FS				PS		1/3/2002		5
Wildcat Creek DMP: 1.6 UMP: 6.3	Tennessee River	RIVER	6040005	CALLOWAY	FS						5/2/2002		2
Bishop Ditch 3.0 to 5.7	Tradewater	RIVER	5140205	WEBSTER	NS						3/1/2003		5
Buffalo Creek DMP: 0 UMP: 6.7	Tradewater	RIVER	5140205	HOPKINS	PS						3/1/2003		5
Bull Creek 0.0 to 1.0	Tradewater	RIVER	5140205	WEBSTER	PS						3/1/2003		5
Cane Run DMP: 0 UMP: 3.4	Tradewater	RIVER	5140205	HOPKINS		NS					4/1/1998		4A

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Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Caney Creek 0.0 to 3.3	Tradewater	RIVER	5140205	CALDWELL	NS						3/1/2003		5
Caney Creek 0.0 to 8.8	Tradewater	RIVER	5140205	HOPKINS	NS		NS	NS			3/1/2003		5
Caney Fork 3.5 to 7.9	Tradewater	RIVER	5140205	WEBSTER	PS						3/1/2003		5
Castleberry Creek 0.0 to 2.2	Tradewater	RIVER	5140205	CHRISTIAN	PS						3/1/2003		5
Clear Creek 0.0 to 2.7	Tradewater	RIVER	5140205	HOPKINS		NS	FS				3/1/2003		5
Clear Creek 19.1 to 25.5	Tradewater	RIVER	5140205	HOPKINS	PS						3/1/2003		5
Clear Creek 25.5 to 26.5	Tradewater	RIVER	5140205	HOPKINS			NS				4/1/1998		5
Craborchard Creek 1.4 to 8.8	Tradewater	RIVER	5140205	WEBSTER			NS				3/1/2003		5
Craborchard Creek 13.2 to 15.3	Tradewater	RIVER	5140205	WEBSTER	PS						3/1/2003		5
Cypress Creek 0.0 to 2.25	Tradewater	RIVER	5140205	UNION		FS	NS				3/1/2003		5
Donaldson Creek 0.0 to 5.3	Tradewater	RIVER	5140205	CALDWELL	FS	FS	FS				3/1/2003		2
East Fork Flynn Fork 2.0 to 5.4	Tradewater	RIVER	5140205	CALDWELL	FS						11/12/2002		2
Hoods Creek 0.0 to 6.9	Tradewater	RIVER	5140205	CRITTENDEN	FS						11/12/2002		2
Hurricane Creek 0.7 to 2.2	Tradewater	RIVER	5140205	HOPKINS		NS	NS	NS			3/1/2003		5
Lake Beshear	Tradewater	RIVER	5140205	CALDWELL		FS					1/1/2002	DWS	2
Lake Peewee	Tradewater	RIVER	5140205	HOPKINS		FS				PS	1/1/2002	DWS	5
Lambs Creek 0.0 to 3.5	Tradewater	Reservoir	5140205	HOPKINS	PS						3/1/2003		5
Lick Creek 0.0 to 12.1	Tradewater	Reservoir	5140205	HOPKINS	NS						3/1/2003		5
Loch Mary	Tradewater	RIVER	5140205	HOPKINS		FS				FS	1/1/2002	DWS	2
Lynn Fork 0.0 to 2.4	Tradewater	RIVER	5140205	WEBSTER	PS						3/1/2003		5
Moffit Lake	Tradewater	Reservoir	5140205	UNION		FS					1/1/2002		2
Montgomery Creek 0.0 to 7.5	Tradewater	RIVER	5140205	CALDWELL	FS						3/1/2003		2
Pigeonroost Creek 0.9 to 3.9	Tradewater	Reservoir	5140205	CRITTENDEN	PS						3/1/2003		5
Piney Creek 17.1 to 25.1	Tradewater	RIVER	5140205	CRITTENDEN	FS						11/12/2002		2
Pond Creek 0.0 to 5.5	Tradewater	RIVER	5140205	HOPKINS	PS						3/1/2003		5
Copper Creek 0.0 to 1.1	Tradewater	RIVER	5140205	HOPKINS		NS	NS	NS			3/1/2003		5
Copperas Creek 0.0 to 3.1	Tradewater	RIVER	5140205	HOPKINS		NS					3/1/2003		5
Providence City Reservoir	Tradewater	Reservoir	5140205	WEBSTER		FS					1/1/2002	DWS	2
Richland Creek 0.0 to 4.4	Tradewater	RIVER	5140205	HOPKINS	NS						3/1/2003		5
Sugar Creek 0.0 to 5.3	Tradewater	RIVER	5140205	HOPKINS	PS	PS	NS	NS			3/1/2003		4A
Tradewater River 0.0 to 16.7	Tradewater	RIVER	5140205	UNION	FS	FS	NS				3/27/2003		5
Tradewater River 63.1 to 93.9	Tradewater	RIVER	5140205	HOPKINS	PS		FS				3/1/2003		5
Tradewater River 95.0 to 109.2	Tradewater	RIVER	5140205	CHRISTIAN		FS	FS				3/1/2003		2
Tradewater River DMP: 120.3 UMP: 131.1	Tradewater	RIVER	5140205	CHRISTIAN	FS						4/1/1998		2
Tyson Branch 0.0 to 2.5	Tradewater	RIVER	5140205	CALDWELL	NS						3/1/2003		5
UT to Clear Creek 0.0 to 2.2	Tradewater	RIVER	5140205	HOPKINS			NS				4/1/1998		5
UT to Piney Creek 0.0 to 2.4	Tradewater	RIVER	5140205	CALDWELL	FS						11/12/2002		2
UT to Sandlick Creek 0.0 to 1.5	Tradewater	RIVER	5140205	CHRISTIAN	FS						11/12/2002		2
UT to UT to Slover Creek 0.2 to 1.2	Tradewater	RIVER	5140205	WEBSTER	NS						3/1/2003		5
Ward Creek 4.9 to 10.1	Tradewater	RIVER	5140205	CALDWELL	NS						3/1/2003		5
Weirs Creek 0.0 to 5.0	Tradewater	RIVER	5140205	HOPKINS	NS						3/1/2003		5
Wolf Creek 0.0 to 1.2	Tradewater	RIVER	5140205	CRITTENDEN	NS						3/1/2003		5
Backs Branch 0.0 to 0.9	Tygarts Creek	RIVER	5090103	GREENUP	PS						11/12/2003		5

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Brushy Creek 0.0 to 3.9	Tygarts Creek	RIVER	5090103	GREENUP	FS						1/2/2004		2
Buffalo Creek 0.0 to 6.3	Tygarts Creek	RIVER	5090103	CARTER		FS	FS				1/14/2004		2
Buffalo Creek 6.3 to 9.6	Tygarts Creek	RIVER	5090103	CARTER	FS						11/25/2003		2
Jabs Fork 3.6 to 5.7	Tygarts Creek	RIVER	5090103	CARTER	PS						11/12/2003		5
Leatherwood Br. 0.0 to 4.3	Tygarts Creek	RIVER	5090103	GREENUP	FS						1/21/2004		2
McGlone Fk. 0.0 to 2.5	Tygarts Creek	RIVER	5090103	CARTER	FS						1/24/2004		2
Schultz Creek 1.3 to 4.7	Tygarts Creek	RIVER	5090103	GREENUP	FS						11/11/2003		2
Schultz Creek 4.7 to 10.8	Tygarts Creek	RIVER	5090103	GREENUP	PS						2/9/2004		5
Smith Creek 2.0 to 4.3	Tygarts Creek	RIVER	5090103	CARTER	PS						11/11/2003		5
Smokey Valley Lake	Tygarts Creek	Reservoir	5090103	CARTER		FS					3/5/2003		2
Smoky Cr. 1.4 to 3.8	Tygarts Creek	RIVER	5090103	CARTER							2/11/2004		3
Soldier Fk. 0.0 to 2.0	Tygarts Creek	RIVER	5090103	CARTER							2/11/2004		3
Three Prong Branch 0.0 to 5.8	Tygarts Creek	RIVER	5090103	CARTER	FS						1/21/2004		2
Trough Camp 1.5 to 6.1	Tygarts Creek	RIVER	5090103	CARTER	PS						11/11/2003		5
Tygarts Creek 0.0 to 45.7	Tygarts Creek	RIVER	5090103	GREENUP		FS	FS		NS		1/20/2004		2B, 5
Tygarts Creek 51.0 to 57.8	Tygarts Creek	RIVER	5090103	CARTER	FS						11/12/2003		2
Tygarts Creek 65.0 to 68.6	Tygarts Creek	RIVER	5090103	GREENUP		FS	FS				1/16/2004		2
Tygarts Creek 78.0 to 88.6	Tygarts Creek	RIVER	5090103	CARTER					FS	FS	2/9/2004	DWS	2
White Oak Creek 0.0 to 1.1	Tygarts Creek	RIVER	5090103	GREENUP							4/1/1998		5
Adams Branch DMP: 0 UMP: 1.5	Upper Cumberland	RIVER	5130101	WHITLEY	FS						4/1/1998		2
Archers Creek DMP: 0 UMP: 3.1	Upper Cumberland	RIVER	5130101	WHITLEY	FS						4/1/1998		2
Bad Branch DMP: 0 UMP: 3	Upper Cumberland	RIVER	5130101	LETCHER	FS						7/31/2001	CAH	2
Bailey Creek DMP: 0 UMP: 2.5	Upper Cumberland	RIVER	5130101	HARLAN			NS				4/1/1998		4A
Bark Camp Creek DMP: 0 UMP: 7.6	Upper Cumberland	RIVER	5130101	WHITLEY	FS						7/31/2001	CAH	2
Bear Creek 0.0 to 2.8	Upper Cumberland	RIVER	5130103	CUMBERLAND							3/25/2002		3
Bear Creek DMP: 0 UMP: 3.2	Upper Cumberland	RIVER	5130104	MC CREARY	NS		NS	NS			4/1/1998		5
Beaver Creek 0.0-6.5	Upper Cumberland	RIVER	5130103	MC CREARY	FS						7/31/2001	CAH	2
Beaver Creek 21.4 to 38.8	Upper Cumberland	RIVER	5130103	WAYNE	FS						1/3/2002		2
Beaver Creek DMP: 21.0 UMP:21.4	Upper Cumberland	RIVER	5130103	WAYNE	FS						4/1/1998		2
Becks Creek DMP: 0 UMP: 4.0	Upper Cumberland	RIVER	5130101	WHITLEY	PS		PS	PS			4/1/1998		5
Bee Lick Creek 0.0-5.7	Upper Cumberland	RIVER	5130103	PULASKI	FS						9/19/2000		2
Bennetts Fork 0.0 to 7.5	Upper Cumberland	RIVER	5130101	BELL	FS						1/3/2002		2, 2B
Bens Fork 0.0 to 2.4	Upper Cumberland	RIVER	5130101	BELL	FS						1/1/2001		2
Big Branch DMP: 0.8 UMP: 1.2	Upper Cumberland	RIVER	5130101	MC CREARY	FS						4/1/1998		2
Big Clifty Creek 1.1 to 4.9	Upper Cumberland	RIVER	5130101	PULASKI							9/20/2000		3
Big Indian Creek 0.0 to 5.1	Upper Cumberland	RIVER	5130101	KNOX	NS						9/21/2000		5
Big Lick Branch DMP: 0 UMP: 2.9	Upper Cumberland	RIVER	5130103	PULASKI	FS						12/10/2001		2
Big Lily Creek DMP:4.7 UMP:11.0	Upper Cumberland	RIVER	5130103	RUSSELL	FS				FS		1/3/2002		2
Big Renox Creek 0.0-5.8	Upper Cumberland	RIVER	5130103	CUMBERLAND	PS						7/10/2000		5
Blacksnake Branch DMP: 0 UMP: 2	Upper Cumberland	RIVER	5130101	BELL	FS						12/7/2001		2
Blake Fork 0.0-4.6	Upper Cumberland	RIVER	5130101	WHITLEY							8/18/2000		3
Breedens Creek DMP: 0 UMP: 2.2	Upper Cumberland	RIVER	5130101	HARLAN	FS						12/10/2001		2
Briary Creek 0.0-4.4	Upper Cumberland	RIVER	5130103	PULASKI	PS						9/19/2000		5

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Brices Creek DMP: 0 UMP: 3.1	Upper Cumberland	RIVER	5130101	KNOX	FS						12/10/2001		2
Brownies Creek DMP: 9.0 UMP: 16.0	Upper Cumberland	RIVER	5130101	BELL	FS						7/31/2000		2
Brush Creek 0.0-2.8	Upper Cumberland	RIVER	5130101	KNOX	NS						12/6/2000		5
Brush Creek DMP: 1.1 UMP: 7.6	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS		NS				1/1/2001		5
Brushy Creek 0.0-7.8	Upper Cumberland	RIVER	5130103	PULASKI	FS						7/31/2001		2
Buck Creek 32.0 to 39.2	Upper Cumberland	RIVER	5130103	PULASKI	FS						3/25/2002		2
Buck Creek 39.2-44.9	Upper Cumberland	RIVER	5130103	PULASKI	FS						3/25/2002		2
Buck Creek 44.9 to 45.4	Upper Cumberland	RIVER	5130103	PULASKI	FS				PS		5/2/2002		5
Buck Creek 45.4-51.4	Upper Cumberland	RIVER	5130103	LINCOLN	FS						3/25/2002		2
Buck Creek 5.0 to 32.0	Upper Cumberland	RIVER	5130103	PULASKI	FS						7/31/2001		2
Buck Creek 52.8-58.6	Upper Cumberland	RIVER	5130103	LINCOLN	FS						3/25/2002		2
Buck Creek DMP: 1.4 UMP: 2.4	Upper Cumberland	RIVER	5130101	WHITLEY	FS						12/10/2001		2
Bucks Branch 0.0 to 2.3	Upper Cumberland	RIVER	5130101	WHITLEY	FS		FS	FS			4/1/1998		2
Buffalo Creek 2.4-3.7	Upper Cumberland	RIVER	5130101	MC CREARY	FS						1/1/2001		2
Bunches Creek DMP: 0 UMP: 3.3	Upper Cumberland	RIVER	5130101	WHITLEY	FS						7/31/2001	CAH	2
Campbell Branch DMP: 0 UMP: 2	Upper Cumberland	RIVER	5130101	WHITLEY	FS						12/10/2001		2
Cane Branch 0.0 to 2.0	Upper Cumberland	RIVER	5130103	MC CREARY	NS		NS	NS			2/14/2006		4A
Cane Creek 0.0-11.5	Upper Cumberland	RIVER	5130101	LAUREL	FS						7/31/2001		2
Cane Creek 0.1-1.0	Upper Cumberland	RIVER	5130101	WHITLEY	FS						11/17/2001		2
Caney Creek 0.0 to 4.0	Upper Cumberland	RIVER	5130101	BELL	FS						12/10/2001		2
Cannon Creek DMP: 0 UMP: 3.2	Upper Cumberland	RIVER	5130101	BELL							4/1/1998		3
Cannon Creek DMP: 5.8 UMP: 7.7	Upper Cumberland	RIVER	5130101	BELL	FS						11/10/2001		2
Cannon Creek Lake	Upper Cumberland	Reservoir	5130101	BELL		FS					1/1/2000	WAH & CAH, DWS	2
Casey Fork 0.0-2.0	Upper Cumberland	RIVER	5130103	CUMBERLAND	FS						6/20/2000		2
Catron Creek DMP: 0.0 UMP: 8.5	Upper Cumberland	RIVER	5130101	HARLAN	FS		NS				12/6/2000		4A
Chenoa Lake	Upper Cumberland	Reservoir	5130101	BELL		FS					1/1/2000	DWS	2
Clear Creek 3.4 to 6.4	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						5/2/2002		2
Clear Creek DMP: 1.2 UMP: 3.4	Upper Cumberland	RIVER	5130101	BELL	FS						1/3/2002		2
Clear Fork 0.0 to 2.9	Upper Cumberland	RIVER	5130101	WHITLEY	FS	FS					1/3/2002		2
Clear Fork Branch 2.6 to 3.6	Upper Cumberland	RIVER	5130105	CLINTON			PS				5/2/2002		5, 5B
Clifty Creek 0.0 to 2.7	Upper Cumberland	RIVER	5130103	PULASKI	FS						5/2/2002		2
Clover Fork 1.6 to 8.5	Upper Cumberland	RIVER	5130101	HARLAN		FS	NS				5/2/2002		4A
Clover Fork 10.6 to 15.0	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Clover Fork 15.0 to 21.6	Upper Cumberland	RIVER	5130101	HARLAN	FS		NS				1/3/2002		4A
Clover Fork 29.1 to 30.3	Upper Cumberland	RIVER	5130101	HARLAN	PS		NS				5/2/2002		5
Clover Fork 30.3 to 34.5	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Clover Fork 8.5 to 10.6	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Clover Fork 21.6 to 29.1	Upper Cumberland	RIVER	5130101	HARLAN			NS				4/1/1998		4A
Cloverlick Creek 0.0 to 5.0	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/1/2002		5
Crab Orchard Creek 0.0 to 1.0	Upper Cumberland	RIVER	5130103	PULASKI	FS						5/2/2002		2
Craig Creek 7.7 to 9.8	Upper Cumberland	RIVER	5130101	LAUREL	FS						5/2/2002		2
Crane Creek 0.0 to 2.3	Upper Cumberland	RIVER	5130101	HARLAN	FS						5/2/2002		2
Cranks Creek 1.9 to 2.5	Upper Cumberland	RIVER	5130101	HARLAN	PS						5/2/2002		5

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Cranks Creek Lake	Upper Cumberland	RIVER	5130101	HARLAN		PS		PS			1/1/2000		5
Criscillis Branch DMP: 0 UMP: 1.8	Upper Cumberland	Reservoir	5130101	WHITLEY	FS						12/10/2001		2
Crocus Creek 0.0 to 4.8	Upper Cumberland	RIVER	5130103	CUMBERLAND		FS	FS				5/2/2002		2
Crocus Creek 13.8 to 16.9	Upper Cumberland	RIVER	5130103	ADAIR	PS						7/10/2000		5
Crocus Creek 4.8 to 13.8	Upper Cumberland	RIVER	5130103	CUMBERLAND	PS						5/2/2002		5
Crooked Creek DMP: 6.4 UMP: 12.2	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						5/2/2002		2
Crooked Creek 1.0 to 6.4	Upper Cumberland	Reservoir	5130102	ROCKCASTLE			PS				4/1/1998		5
Cumberland River 650.6 to 654.5	Upper Cumberland	RIVER	5130101	BELL			NS				5/2/2002	DWS	4A
Cumberland River 674.8 to 684.8	Upper Cumberland	RIVER	5130101	HARLAN	FS				FS		4/3/2002		2
Cumberland River DMP: 385.6 UMP: 460.7	Upper Cumberland	RIVER	5130103	RUSSELL		FS	FS			FS	5/2/2002	CAH, DWS	2
Cumberland River DMP: 562.2 UMP: 569.3	Upper Cumberland	RIVER	5130101	WHITLEY	FS				FS	FS	5/2/2002	DWS	2
Cumberland River DMP: 574.8 UMP: 587.9	Upper Cumberland	RIVER	5130101	WHITLEY						FS	5/2/2002	DWS	2
Cumberland River DMP: 635.5 UMP: 649.6	Upper Cumberland	RIVER	5130101	KNOX						FS	5/2/2002	DWS	2
Cumberland River DMP: 660.1 UMP: 666.7	Upper Cumberland	RIVER	5130101	HARLAN		PS					5/2/2002		5
Cumberland River 649.0 to 650.6	Upper Cumberland	RIVER	5130101	BELL			NS				5/2/2002		5
Cumberland River 684.9 to 694.2	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Dale Hollow Reservoir	Upper Cumberland	RIVER	5130105	CLINTON		FS			FS		1/1/1998	DWS	2
Davis Branch DMP: 0 UMP: 4.3	Upper Cumberland	RIVER	5130101	BELL	FS						12/10/2001		2
Difficulty Creek DMP: 0 UMP: 3.5	Upper Cumberland	RIVER	5130104	MC CREARY	FS						4/1/1998		2
Dog Slaughter Creek DMP: 0 UMP: 1.1	Upper Cumberland	RIVER	5130101	WHITLEY	FS						7/31/2001	CAH	2
Dry Branch 0.0 to 0.3	Upper Cumberland	RIVER	5130103	PULASKI		PS					5/2/2002		5, 5B
Dry Fork 0.0 to 3.4	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						8/10/2000		2
Eagle Creek DMP: 0 UMP: 6.3	Upper Cumberland	Reservoir	5130101	MC CREARY	FS						7/31/2001		2
East Fork Lynn Camp Creek 0.0 to 4.5	Upper Cumberland	RIVER	5130101	KNOX	PS						9/21/2000		5
Elk Spring Creek 0.0 to 7.8	Upper Cumberland	RIVER	5130103	WAYNE	NS						8/16/2000		5
Ewing Creek 0.0 to 2.7	Upper Cumberland	RIVER	5130101	HARLAN	NS						11/19/2001		5
Ferris Fork Creek 0.0 to 1.2	Upper Cumberland	RIVER	5130103	CUMBERLAND	NS						5/2/2002		5
Coffey Branch 0.1 to 1.4	Upper Cumberland	RIVER	5130104	MC CREARY	FS						11/19/2001		2
Fishing Creek 17.3 to 27.1	Upper Cumberland	RIVER	5130103	PULASKI	FS						1/3/2002		2
Four Mile Run DMP: 1 UMP: 2.5	Upper Cumberland	RIVER	5130101	BELL	FS						5/2/2002		2
Fourmile Creek 2.5 to 4.6	Upper Cumberland	RIVER	5130101	BELL	FS						12/6/2001		2
Franks Creek DMP: 3.00 UMP: 4.8	Upper Cumberland	RIVER	5130101	LETCHER	FS						11/19/2001		2
Fugitt Creek DMP: 0.5 UMP: 4.9	Upper Cumberland	RIVER	5130101	HARLAN	FS						7/31/2001	CAH	2
Gilmore Creek 0.0 to 4.7	Upper Cumberland	RIVER	5130103	PULASKI	PS						5/2/2002		5
Goodin Creek 2.1 to 2.3	Upper Cumberland	RIVER	5130101	KNOX	PS						5/2/2002		5
Greasy Creek DMP: 0.0 UMP: 3.7	Upper Cumberland	RIVER	5130101	BELL			PS				12/6/2000		4A
Cogur Fork DMP: 0 UMP: 7.9	Upper Cumberland	RIVER	5130101	MC CREARY	FS						7/31/2001	CAH	2
Hale Fork	Upper Cumberland	RIVER	5130101	KNOX	FS						12/10/2001		2
Harrods Fork 0.0 to 5.3	Upper Cumberland	RIVER	5130103	CUMBERLAND	FS						7/10/2000		2
Hatchell Branch 0.0 to 1.0	Upper Cumberland	RIVER	5130101	MC CREARY	PS						11/19/2001		5
Hays Creek 8.6 to 9.6	Upper Cumberland	RIVER	5130105	CLINTON	FS						5/2/2002		2
Helton Branch DMP: 0 UMP: 1	Upper Cumberland	RIVER	5130103	MC CREARY	FS						5/2/2002		2
Hinkle Branch DMP: 0 UMP: 1.5	Upper Cumberland	RIVER	5130101	KNOX	FS						12/10/2001		2

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Honeycut Branch DMP: 0 UMP: 1.8	Upper Cumberland	RIVER	5130101	KNOX	FS						12/10/2001		2
Horse Lick Creek DMP: 0 UMP:12.2	Upper Cumberland	RIVER	5130102	JACKSON	FS	FS					7/31/2001		2
Howards Creek 0.6 to 3.4	Upper Cumberland	RIVER	5130105	CLINTON	FS						7/31/2001		2
Hunting Shirt Branch DMP: 0 UMP: 2.1	Upper Cumberland	RIVER	5130101	KNOX	FS						12/10/2001		2
Illwill Creek 5.8 to 9.4	Upper Cumberland	RIVER	5130105	CLINTON							5/2/2002		3
Indian Creek 0.0 to 4.1	Upper Cumberland	RIVER	5130103	PULASKI	PS						5/2/2002		5
Indian Creek DMP: 2.3 UMP: 6.7	Upper Cumberland	RIVER	5130101	MC CREARY	FS						7/31/2001	CAH	2
Jackie Branch 0.0 to 1.7	Upper Cumberland	RIVER	5130101	WHITLEY	FS						11/19/2001		2
Jellico Creek 0.0 to 4.6	Upper Cumberland	RIVER	5130101	WHITLEY	FS						1/3/2002		2
Jellico Creek 4.6 to 5.8	Upper Cumberland	RIVER	5130101	WHITLEY							5/2/2002		3
Jennys Branch DMP: 0 UMP: 3.4	Upper Cumberland	RIVER	5130101	MC CREARY	PS						5/2/2002		5
Kennedy Creek DMP: 0 UMP: 3	Upper Cumberland	RIVER	5130104	WAYNE	FS						12/10/2001		2
Kettle Creek 0.0 to 6.8	Upper Cumberland	RIVER	5130103	MONROE							7/6/2000		3
Kilburn Fork DMP: 0 UMP: 6.3	Upper Cumberland	RIVER	5130101	MC CREARY	FS						12/10/2001		2
Lake Cumberland	Upper Cumberland	RIVER	5130103	RUSSELL		FS			PS		1/1/2001	DWS	5
Lake Linville	Upper Cumberland	RIVER	5130102	ROCKCASTLE		FS					1/1/2000	DWS	2
Laurel Creek DMP: 0 UMP: 9.2	Upper Cumberland	RIVER	5130101	MC CREARY	FS						8/15/2000		2
Laurel Creek Lake	Upper Cumberland	RIVER	5130101	MC CREARY		FS					1/1/2000	WAH & CAH, DWS	2
Laurel Fork DMP: 0 UMP: 2.2	Upper Cumberland	Reservoir	5130101	MC CREARY	FS						8/14/2000		2
Laurel Fork of Clear Fork 16.9 to 19.1	Upper Cumberland	Reservoir	5130101	WHITLEY	FS						5/2/2002		2
Laurel Fork of Clear Fork DMP:10.3, UMP:13.9	Upper Cumberland	RIVER	5130101	WHITLEY	NS						8/31/2000		5
Laurel Fork of Clear Fork DMP:4.3 UMP:10.3	Upper Cumberland	Reservoir	5130101	WHITLEY	FS						12/11/2001		2
Laurel Fork of Middle Fork DMP: 0.0, UMP 12.2	Upper Cumberland	RIVER	5130102	JACKSON	FS						7/31/2001		2
Laurel River 36.6 to 46.3	Upper Cumberland	RIVER	5130101	LAUREL	NS						2/15/2002		5
Laurel River DMP: 0 UMP: 2.3	Upper Cumberland	RIVER	5130101	LAUREL	NS						5/2/2002		5
Laurel River DMP: 24.9 UMP: 27.9	Upper Cumberland	RIVER	5130101	LAUREL	NS						5/2/2002		5
Laurel River DMP:31.7 UMP:36.6	Upper Cumberland	RIVER	5130101	LAUREL		FS					5/2/2002		2
Laurel River Reservoir	Upper Cumberland	RIVER	5130101	WHITLEY		FS					1/1/2001	DWS	2
Left Fork Straight Creek 0.0 to 13.0	Upper Cumberland	RIVER	5130101	BELL	NS		NS				12/6/2000		5
Coles Branch DMP: 0 UMP: 2.1	Upper Cumberland	RIVER	5130101	KNOX	FS						4/1/1998		2
Lick Fork of Yellow Creek DMP: 0.0 UMP: 0.6	Upper Cumberland	RIVER	5130101	BELL	FS						5/2/2002		2
Lick Fork of Yellow Creek DMP:0.6 UMP: 2.5	Upper Cumberland	Reservoir	5130101	BELL	FS						12/1/2001		2
Line Creek 0.0 to 1.55	Upper Cumberland	RIVER	5130102	PULASKI	FS						5/2/2002		2
Little Clear Creek 0.0 to 10.4	Upper Cumberland	RIVER	5130101	BELL	PS		NS	NS			5/2/2002		5
Little Hurricane Fork DMP: 0 UMP: 3.9	Upper Cumberland	RIVER	5130103	MC CREARY	FS						5/2/2002		2
Little Laurel River DMP: 0 UMP: 8.3	Upper Cumberland	RIVER	5130101	LAUREL	NS	NS	PS				5/2/2002		5
Little Laurel River DMP: 12.4 UMP: 14.6	Upper Cumberland	RIVER	5130101	LAUREL		NS	NS				5/2/2002		5
Little Laurel River DMP: 14.6 UMP: 22.8	Upper Cumberland	RIVER	5130101	LAUREL			NS				4/1/1998		5
Little Laurel River DMP: 8.3 UMP: 12.4	Upper Cumberland	RIVER	5130101	LAUREL	NS		NS				5/2/2002		5
Little Poplar Creek DMP: 0 UMP: 2.8	Upper Cumberland	RIVER	5130101	KNOX	PS						8/23/2000		5
Little Rockcastle River 0.0 to 2.1	Upper Cumberland	RIVER	5130102	LAUREL	FS						1/3/2002		2
Little South Fork 18.3 to 35.6	Upper Cumberland	RIVER	5130104	WAYNE	FS						7/14/2000		2
Little South Fork DMP: 4.1 UMP: 6.8	Upper Cumberland	RIVER	5130104	WAYNE	FS						5/2/2002		2

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Little South Fork DMP: 6.8 UMP: 9.3	Upper Cumberland	RIVER	5130104	WAYNE					FS		1/3/2002		2
Little South Fork DMP:14.9 UMP: 16.3	Upper Cumberland	RIVER	5130104	WAYNE							5/2/2002		3
Little South Fork 0.0 to 4.1	Upper Cumberland	RIVER	5130104	WAYNE	PS						4/1/1998		5
Colliers Creek DMP: 0 UMP: 3.9	Upper Cumberland	RIVER	5130101	LETCHER	PS						5/2/2002		5
Long Branch DMP: 0 UMP: 1.9	Upper Cumberland	RIVER	5130101	BELL	FS						12/11/2001		2
Looney Creek DMP: 0 UMP: 3.4	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Looney Creek 3.4 to 5.5	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Lynn Camp Creek 0.0 to 4.5	Upper Cumberland	RIVER	5130101	LAUREL	NS		NS				5/2/2002		5
Lynn Camp Creek DMP : 4.6 to UMP : 10.7	Upper Cumberland	RIVER	5130101	WHITLEY	PS						9/8/2000		5
Marrowbone Creek 0.0 to 2.8	Upper Cumberland	RIVER	5130103	CUMBERLAND	PS	PS	FS				5/2/2002		5
Marrowbone Creek 13.5 to 15.2	Upper Cumberland	RIVER	5130103	CUMBERLAND	FS						6/20/2000		2
Marrowbone Creek 3.8 to 8.9	Upper Cumberland	RIVER	5130103	CUMBERLAND	FS						1/3/2002		2
Marsh Creek DMP: 0 UMP: 8.6	Upper Cumberland	RIVER	5130101	MC CREARY	FS	FS					1/3/2002		2
Marsh Creek DMP: 8.6 UMP: 13.3	Upper Cumberland	RIVER	5130101	MC CREARY	FS						7/31/2001		2
Marsh Creek DMP:13.3 UMP: 16.3	Upper Cumberland	RIVER	5130101	MC CREARY	NS						5/2/2002		5
Marsh Creek 19.0 to 24.1	Upper Cumberland	RIVER	5130101	MC CREARY	NS						4/1/1998		5
Martin Creek 0.0 to 1.2	Upper Cumberland	RIVER	5130102	CLAY	FS						8/16/2000		2
Martins Fork DMP: 0 UMP: 10.1	Upper Cumberland	RIVER	5130101	HARLAN	FS		NS				4/1/1998		4A
Martins Fork DMP: 10.1 UMP: 15.5	Upper Cumberland	RIVER	5130101	HARLAN	PS					FS	5/2/2002	DWS	5
Martins Fork 18.0 to 27.4	Upper Cumberland	RIVER	5130101	HARLAN			NS	NS			5/2/2002		5
Martins Fork 27.4 to 37.2	Upper Cumberland	RIVER	5130101	HARLAN	FS						4/1/1998	CAH	2
Martin's Fork Reservoir	Upper Cumberland	RIVER	5130101	HARLAN		FS					1/1/2001	DWS	2
McCammon Branch 0.0 to 2.7	Upper Cumberland	RIVER	5130102	JACKSON	FS						5/2/2002		2
McFarland Creek 0.8 to 6.2	Upper Cumberland	Reservoir	5130103	MONROE	FS						7/7/2000		2
Meadow Creek 0.0 to 6.8	Upper Cumberland	RIVER	5130101	KNOX	PS						9/6/2000		5
Meadow Fork DMP: 0 UMP: 1.9	Upper Cumberland	RIVER	5130101	LETCHER	FS						12/3/2001		2
Meshack Creek 0.0 to 2.8	Upper Cumberland	RIVER	5130103	MONROE	FS						7/6/2000		2
Middle Fork Richland Creek 0.0 to 1.2	Upper Cumberland	RIVER	5130101	KNOX	PS						9/21/2000		5
Middle Fork Rockcastle River 0.0 to 7.8	Upper Cumberland	RIVER	5130102	JACKSON	FS	FS					7/31/2001		2
Mill Branch of Stinking Creek DMP: 0 UMP: 2	Upper Cumberland	RIVER	5130101	KNOX	FS						3/13/2001		2
Mill Creek of Cumberland River DMP: 0 UMP: 3.6	Upper Cumberland	RIVER	5130101	MC CREARY	FS						12/6/2001		2
Mill Creek of Straight Creek DMP: 0 UMP: 3.2	Upper Cumberland	RIVER	5130101	BELL	FS						12/6/2001		2
Mitchell Creek 0.0 to 3.6	Upper Cumberland	RIVER	5130102	LAUREL	NS						5/2/2002		5
Moore Branch 0.0 to 0.6	Upper Cumberland	RIVER	5130101	BELL		PS	PS	NS			5/2/2002		5, 5B
Moore Creek DMP: 0.0, UMP: 8.2	Upper Cumberland	RIVER	5130101	KNOX	FS						12/11/2001		2
Mud Camp Creek 0.0 to 1.3	Upper Cumberland	RIVER	5130103	CUMBERLAND	FS						7/31/2001		2
Mud Creek DMP: 0 UMP: 5.1	Upper Cumberland	RIVER	5130101	WHITLEY	PS						8/30/2000		5
Mud Lick DMP: 0 UMP: 2.2	Upper Cumberland	RIVER	5130101	KNOX	FS						12/6/2001		2
Ned Branch DMP: 0 UMP: 1.9	Upper Cumberland	RIVER	5130102	LAUREL	FS						12/6/2001		2
North Fork Dogslaughter Creek 0.0 to 0.7	Upper Cumberland	RIVER	5130101	WHITLEY	FS						7/31/2001		2
Otter Creek 14.5 to 22.0	Upper Cumberland	RIVER	5130103	WAYNE	FS						1/3/2002		2
Patterson Creek 7.4 to 8.6	Upper Cumberland	RIVER	5130101	WHITLEY	FS						12/11/2001		2
Patterson Creek DMP: 0.0 UMP: 4.9	Upper Cumberland	RIVER	5130101	WHITLEY	FS						9/6/2000		2

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Peter Branch DMP: 0 UMP: 1.2	Upper Cumberland	RIVER	5130102	JACKSON	FS						5/2/2002		2
Pilot Creek 0.7 to 2.5	Upper Cumberland	RIVER	5130103	LINCOLN	FS						5/2/2002		2
Pitman Creek 25.1 to 26.0	Upper Cumberland	RIVER	5130103	PULASKI	FS						5/2/2002		2
Pitman Creek DMP: 5.7 UMP: 25.1	Upper Cumberland	RIVER	5130103	PULASKI	FS						1/3/2002		2
Pitman Creek 4.0 to 5.7	Upper Cumberland	RIVER	5130103	PULASKI	PS						5/2/2002		5
Pointer Creek 0.2 to 3.9	Upper Cumberland	RIVER	5130103	PULASKI	FS						9/20/2000		2
Pond Creek DMP: 0.0 UMP: 6.3	Upper Cumberland	RIVER	5130102	JACKSON	FS						8/15/2000		2
Poor Fork 14.9 to 16.3	Upper Cumberland	RIVER	5130101	HARLAN	PS		NS			FS	5/2/2002	DWS	5
Poor Fork 16.3 to 25.1	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Poor Fork 25.1 to 27.5	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		5
Poor Fork 8.1 to 14.9	Upper Cumberland	RIVER	5130101	HARLAN			NS				5/2/2002		4A
Poor Fork DMP: 41.4 UMP: 51.7	Upper Cumberland	RIVER	5130101	LETCHER	FS						7/31/2001	CAH	2
Poor Fork 0.0 to 14.9	Upper Cumberland	RIVER	5130101	HARLAN	FS		NS		FS	FS	5/2/2000	DWS	4A
Powder Mill Creek 0.0 to 4.6	Upper Cumberland	RIVER	5130102	LAUREL	FS						5/2/2002		2
Copperas Fork 0.0 to 4.23	Upper Cumberland	RIVER	5130104	MC CREARY	NS		NS	NS			2/14/2006		4A
Presley House Branch 0.2 to 1.5	Upper Cumberland	RIVER	5130101	LETCHER	FS						11/19/2001		2
Puckett Creek 0.0 to 9.9	Upper Cumberland	RIVER	5130101	BELL	FS		NS				8/14/2000		4A
Puncheoncamp Branch 0.0 to 1.9	Upper Cumberland	RIVER	5130104	MC CREARY	FS						11/19/2001		2
Racon Creek 0.0 to 2.7	Upper Cumberland	RIVER	5130102	LAUREL	PS						8/15/2000		5
Corbin City Reservoir	Upper Cumberland	RIVER	5130101	LAUREL		PS				NS	1/1/2000	DWS	5
Renfro Creek DMP: 0 UMP: 3.0	Upper Cumberland	RIVER	5130102	ROCKCASTLE	PS						8/9/2000		5
Richland Creek 11.2 to 15.7	Upper Cumberland	RIVER	5130101	KNOX	FS		NS				1/3/2002		4A
Richland Creek 15.7 to 20.8	Upper Cumberland	RIVER	5130101	KNOX	FS		NS				4/1/1998		4A
Richland Creek DMP: 6.2 to 11.2	Upper Cumberland	RIVER	5130101	KNOX			NS				9/21/2000		4A
Richland Creek 0.0 to 6.2	Upper Cumberland	RIVER	5130101	KNOX	NS	NS	NS				9/21/2000		5
Roaring Fork DMP: 0 UMP: 2.9	Upper Cumberland	RIVER	5130101	KNOX	FS						12/6/2001		2
Roaring Paunch Creek 0.0 to 15.6	Upper Cumberland	RIVER	5130104	MC CREARY	NS		NS	NS			1/3/2002		5
Robinson Creek DMP: 8.2 UMP: 11.8	Upper Cumberland	RIVER	5130101	LAUREL	FS						1/3/2002		2
Rock Creek 0.0 to 4.1	Upper Cumberland	RIVER	5130104	MC CREARY	NS		NS	NS			2/14/2006		4A
Rock Creek DMP: 0 UMP: 5.7	Upper Cumberland	RIVER	5130101	MC CREARY	FS						5/2/2002		2
Rock Creek DMP: 4.1 UMP: 11.1	Upper Cumberland	RIVER	5130104	MC CREARY	FS						4/1/1998	CAH	2
Rock Creek DMP:16.6 UMP: 21.9	Upper Cumberland	RIVER	5130104	MC CREARY	FS				PS		1/3/2002	CAH	5
Rock Lick Creek 0.0 to 8.2	Upper Cumberland	RIVER	5130103	PULASKI	FS						9/20/2000		2
Rockcastle River 16.9 to 31.2	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS	FS			FS		5/2/2002		2
Rockcastle River 43.9 to 51.5	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						1/3/2002		2
Rockcastle River DMP: 12.5 UMP: 16.9	Upper Cumberland	RIVER	5130102	LAUREL	FS						5/2/2002		2
Ross Branch DMP: 0.0 UMP:1.6	Upper Cumberland	RIVER	5130101	WHITLEY	FS						12/12/2001		2
Roundstone Creek DMP: 0 UMP: 2.6	Upper Cumberland	RIVER	5130102	ROCKCASTLE		FS					5/2/2002		2
Roundstone Creek DMP: 4.7 UMP: 6.0	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						1/3/2002		2
Roundstone Creek 16.9 to 23.7	Upper Cumberland	RIVER	5130102	ROCKCASTLE	PS						8/6/2000		5
Ryans Creek 0.0 to 5.3	Upper Cumberland	RIVER	5130101	MC CREARY	NS		NS	NS			2/14/2006		5
Sam Branch 0.0 to 0.5	Upper Cumberland	RIVER	5130103	PULASKI	PS						5/2/2002		5
Sanders Creek DMP: 0 UMP: 4.9	Upper Cumberland	RIVER	5130101	WHITLEY	FS						12/6/2001		2

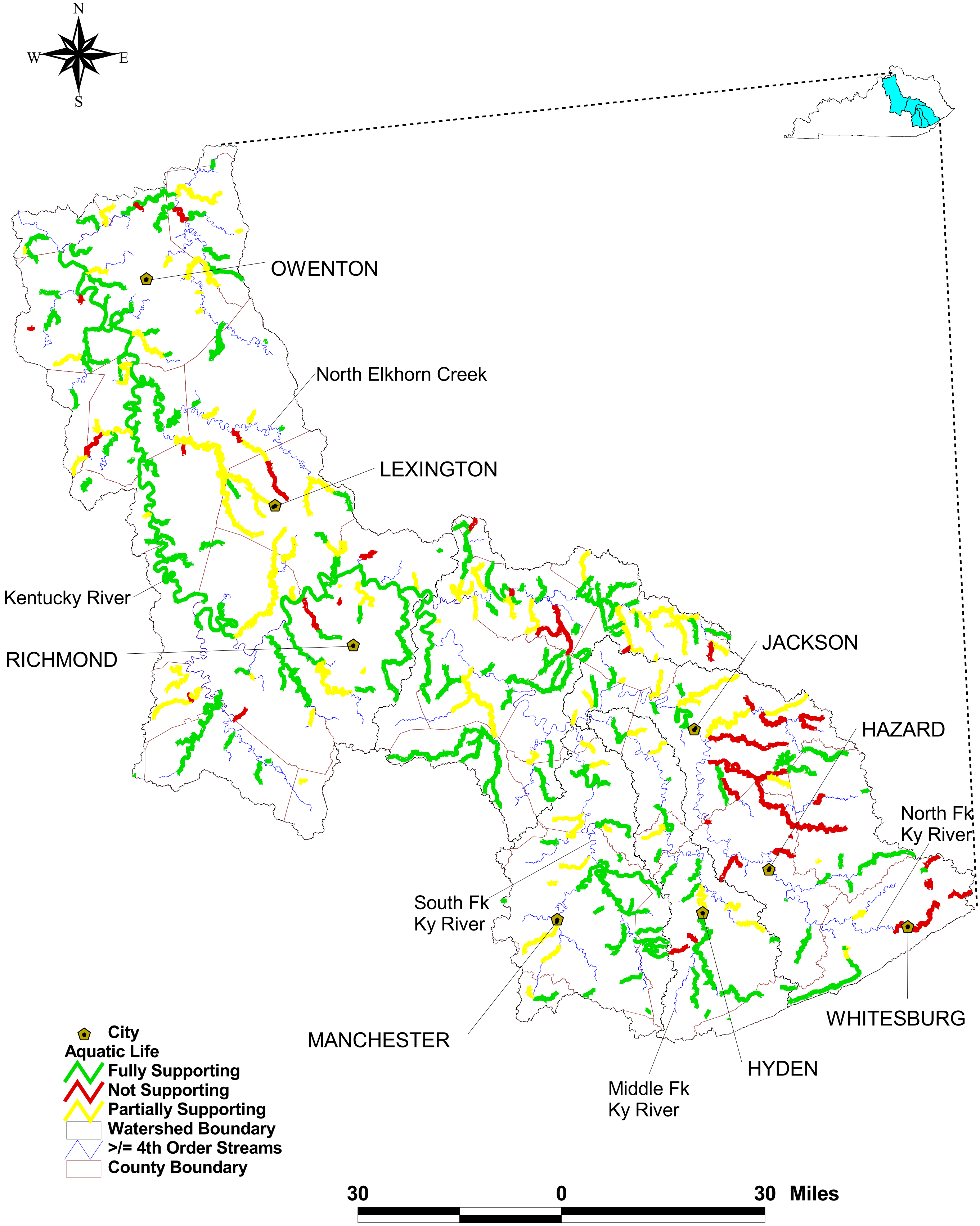
Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Shillalah Creek DMP: 0 UMP: 5.5	Upper Cumberland	RIVER	5130101	BELL	FS						7/5/2001	CAH	2
Shut-in Branch DMP: 0 UMP: 1.1	Upper Cumberland	RIVER	5130101	MC CREARY	FS						12/6/2001		2
Sims Fork 0.0 to 5.2	Upper Cumberland	RIVER	5130101	BELL	NS						12/6/2001		5
Sinking Creek DMP: 0 UMP: 1.8	Upper Cumberland	RIVER	5130103	PULASKI	FS						5/2/2002		2
Sinking Creek DMP: 0 UMP: 9.8	Upper Cumberland	RIVER	5130102	LAUREL	FS						7/5/2001		2
Sinking Creek DMP: 13.1 UMP:16.0	Upper Cumberland	RIVER	5130102	LAUREL	FS						5/2/2002		2
Sinking Creek DMP: 9.8 UMP:13.1	Upper Cumberland	RIVER	5130102	LAUREL	FS						5/2/2002		2
Skegg Creek 0.0 to 3.2	Upper Cumberland	RIVER	5130102	ROCKCASTLE	PS						1/3/2002		5
Skegg Creek 3.3 to 10.9	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						8/1/2000		2
Smith Creek DMP: 0 UMP: 3.1	Upper Cumberland	RIVER	5130101	LETCHER	FS						12/6/2001		2
South Fork Cumberland River 49.5 to 55.1	Upper Cumberland	RIVER	5130104	MC CREARY	FS						1/3/2002		2
South Fork Cumberland River DMP: 22 UMP: 43.9	Upper Cumberland	RIVER	5130104	MC CREARY	FS				FS		4/1/1998		2
South Fork Cumberland River DMP: 43.9 UMP: 49.5	Upper Cumberland	RIVER	5130104	MC CREARY	FS	FS					5/2/2002		2
South Fork Cumberland River DMP: 0 UMP: 22	Upper Cumberland	RIVER	5130104	MC CREARY	FS						4/1/1998		2
South Fork Dog Slaughter Creek DMP: 0 UMP: 4.6	Upper Cumberland	RIVER	5130101	WHITLEY	FS						7/5/2001		2
South Fork Rockcastle River 20.8 to 21.5	Upper Cumberland	RIVER	5130102	LAUREL	NS						5/2/2002		5
South Fork Rockcastle River 21.5 to 25.5	Upper Cumberland	RIVER	5130102	LAUREL	PS						8/16/2000		5
South Fork Rockcastle River 4.4 to 5.6	Upper Cumberland	RIVER	5130102	JACKSON	FS						5/2/2002		2
Spring Creek 2.5 to 3.7	Upper Cumberland	RIVER	5130105	CLINTON	FS						7/5/2001		2
Spring Creek 3.7 to 7.3	Upper Cumberland	RIVER	5130105	CLINTON	FS						7/5/2001		2
Stevenson Branch DMP: 0 UMP: 1.9	Upper Cumberland	RIVER	5130101	BELL	FS						12/6/2001		2
Stinking Creek 0.0 to 2.1	Upper Cumberland	RIVER	5130101	KNOX	NS		NS	NS			1/3/2001		5
Stoney Fork 0.0 to 2.4	Upper Cumberland	RIVER	5130101	BELL	NS						12/6/2000		5
Stony Fork 0.0 to 5.2	Upper Cumberland	RIVER	5130101	BELL	NS						12/6/2000		5
Straight Creek 0.0 to 1.7	Upper Cumberland	RIVER	5130101	BELL		PS	NS				5/2/2002		5
Straight Creek 1.7 to 23.5	Upper Cumberland	RIVER	5130101	BELL	FS		NS				1/3/2002		4A
Sulphur Creek 1.7 to 5.1	Upper Cumberland	RIVER	5130105	CLINTON	FS						7/5/2001		2
Trace Branch DMP: 0 UMP: 2.8	Upper Cumberland	RIVER	5130101	KNOX	FS						4/1/1998		2
Trammel Fork Marsh Creek DMP:0.0 UMP:1.5	Upper Cumberland	RIVER	5130101	MC CREARY	FS						12/12/2001		2
Turkey Creek DMP: 0 UMP: 1.2	Upper Cumberland	RIVER	5130101	KNOX	FS						12/7/2001		2
Tyner Lake	Upper Cumberland	Reservoir	5130102	JACKSON		FS					1/1/2000	WAH & CAH, DWS	2
UT to Arn Fork DMP:0.0 UMP:0.9	Upper Cumberland	RIVER	5130101	KNOX	FS						12/12/2001		2
UT to Bridge Fork 0.0 to 0.1	Upper Cumberland	RIVER	5130101	MC CREARY		PS					5/2/2002		5, 5B
UT to Caney Fork 0.0 to 0.6	Upper Cumberland	RIVER	5130103	RUSSELL	FS						5/2/2002		2
UT to Clifty Creek 0.0 to 0.5	Upper Cumberland	RIVER	5130103	PULASKI			PS				5/2/2002		5, 5B
UT to Jennys Branch 0.0 to 1.1	Upper Cumberland	RIVER	5130101	MC CREARY	NS						11/19/2001		5
UT to Little Laurel River 0.0 to 1.4	Upper Cumberland	RIVER	5130101	LAUREL	NS						5/2/2002		5
UT to Pond Creek 0.0 to 0.2	Upper Cumberland	RIVER	5130102	JACKSON		PS					5/2/2002		5, 5B
UT to Pond Creek 0.0 to 0.2	Upper Cumberland	RIVER	5130102	JACKSON		PS	PS				5/2/2002		5, 5B
UT to Rock Creek 0.0 to 1.15	Upper Cumberland	RIVER	5130104	MC CREARY	FS						5/2/2002		2
UT to Rock Creek 0.0 to 1.4	Upper Cumberland	RIVER	5130104	MC CREARY	FS						11/19/2001		2
UT to Rock Creek 0.0 to 1.9	Upper Cumberland	RIVER	5130104	MC CREARY	FS						11/17/2001		2
Watts Branch 0.0 to 2.6	Upper Cumberland	RIVER	5130104	MC CREARY	FS						11/19/2001		2

Waterbody and Segment	Basin	Water Body Type	8-Digit HUC	County	Biology	WQ	PCR	SCR	Fish	DW	Assess Date	Designated Uses	Assess Category
Watts Creek 0.0 to 1.3	Upper Cumberland	RIVER	5130101	WHITLEY	FS						2/15/2002		2
Watts Creek DMP: 2.2 UMP: 4.3	Upper Cumberland	RIVER	5130101	HARLAN	FS						12/4/2001		2
White Oak Creek 0.0 to 1.0	Upper Cumberland	RIVER	5130102	LAUREL	NS						5/2/2002	CAH	5
White Oak Creek 1.0 to 5.7	Upper Cumberland	RIVER	5130102	LAUREL	FS						5/2/2002		2
White Oak Creek DMP: 0.9 UMP: 1.9	Upper Cumberland	RIVER	5130102	ROCKCASTLE	FS						5/2/2002		2
White Oak Creek 0.0 to 4.2	Upper Cumberland	RIVER	5130104	MC CREARY	NS	NS	NS	NS			2/9/2006		5
Whitley Branch 0.0 to 1.1	Upper Cumberland	RIVER	5130101	LAUREL		NS	PS				5/2/2002		5
Whitley Branch 1.1 to 2.5	Upper Cumberland	RIVER	5130101	LAUREL			NS				4/1/1998		5
Wildcat Branch 0.0 to 2.1	Upper Cumberland	RIVER	5130103	PULASKI	NS		NS	NS			2/14/2006		4A
Wolf Creek 0.0 to 1.8	Upper Cumberland	RIVER	5130101	WHITLEY	NS						8/22/2000		5
Wood Creek Lake	Upper Cumberland	Reservoir	5130102	LAUREL		FS				PS	1/1/2000	WAH & CAH, DWS	5
Yellow Creek 0.0 to 0.8	Upper Cumberland	RIVER	5130101	BELL	PS						5/2/2002		5
Yellow Creek 14.9 to 16.0	Upper Cumberland	RIVER	5130101	BELL	FS						1/3/2002		2
Yellow Creek 8.9 to 16.0	Upper Cumberland	RIVER	5130101	BELL	FS						5/2/2002		2
Yellow Creek 0.8 to 8.9	Upper Cumberland	RIVER	5130101	BELL	PS	PS					5/2/2002		5
Yocum Creek DMP: 0 UMP: 6.5	Upper Cumberland	RIVER	5130101	HARLAN			NS				4/1/1998		4A
Youngs Creek DMP: 0 UMP: 5.4	Upper Cumberland	RIVER	5130101	WHITLEY	FS						8/21/2000		2

All waters are designated for AL, PCR, SCR and FC uses; additionally DW is noted where it applies.

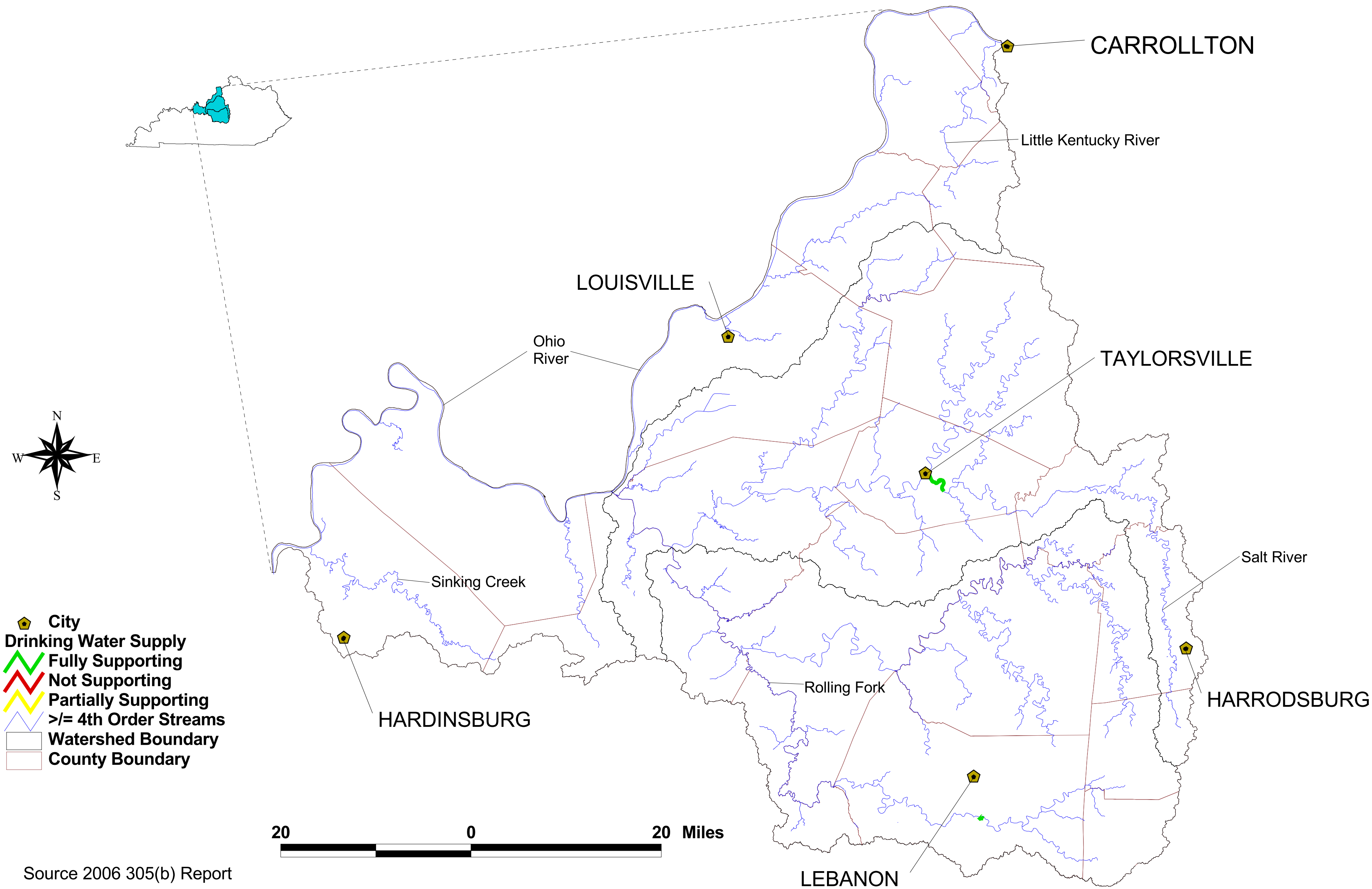
Appendix B. Reach Indexing Maps of Assessed Streams in the BMU Kentucky River and Salt – Licking Rivers BMU

Figure B-1. Reach indexing results of streams assessed in the Kentucky River Basin for Aquatic Life Use.



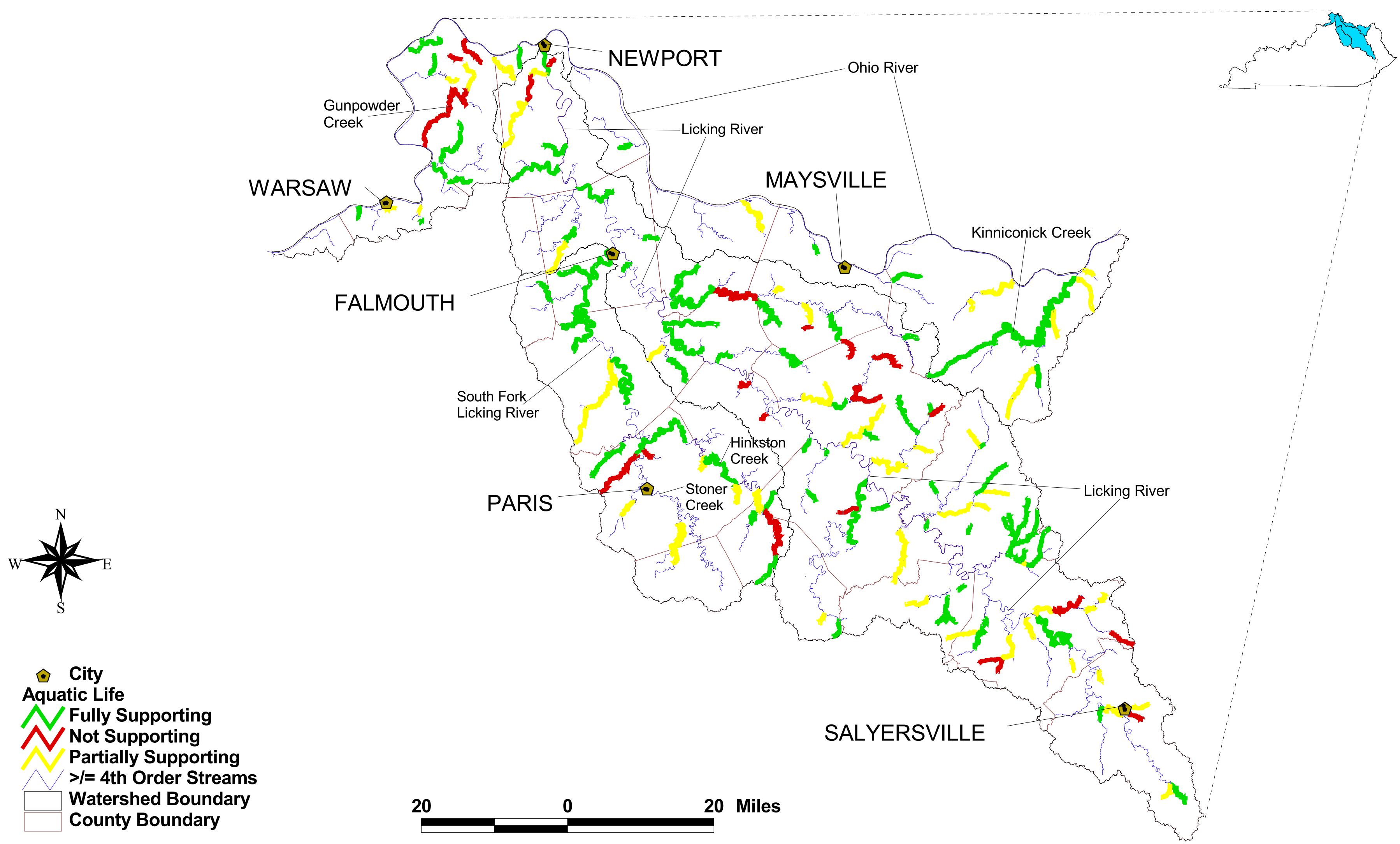
Source 2006 305(b) Report

Figure B-10. Reach indexing results of streams assessed in the Salt River Basin and adjacent Ohio River minor tributaries for Drinking Water Supply Use.



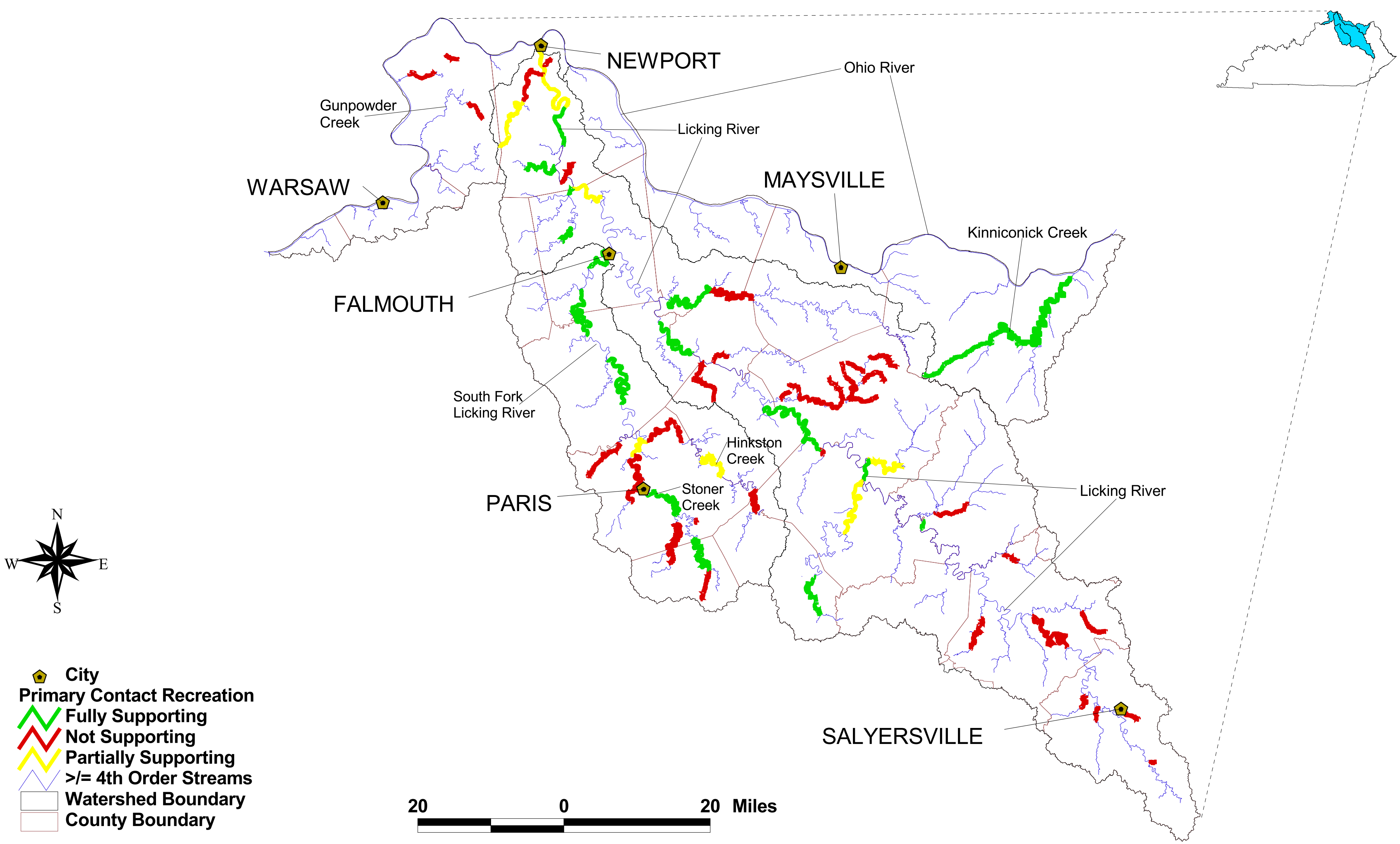
Source 2006 305(b) Report

Figure B-11. Reach indexing results of streams assessed in the Licking River Basin and adjacent Ohio River minor tributaries for Aquatic Life Use.



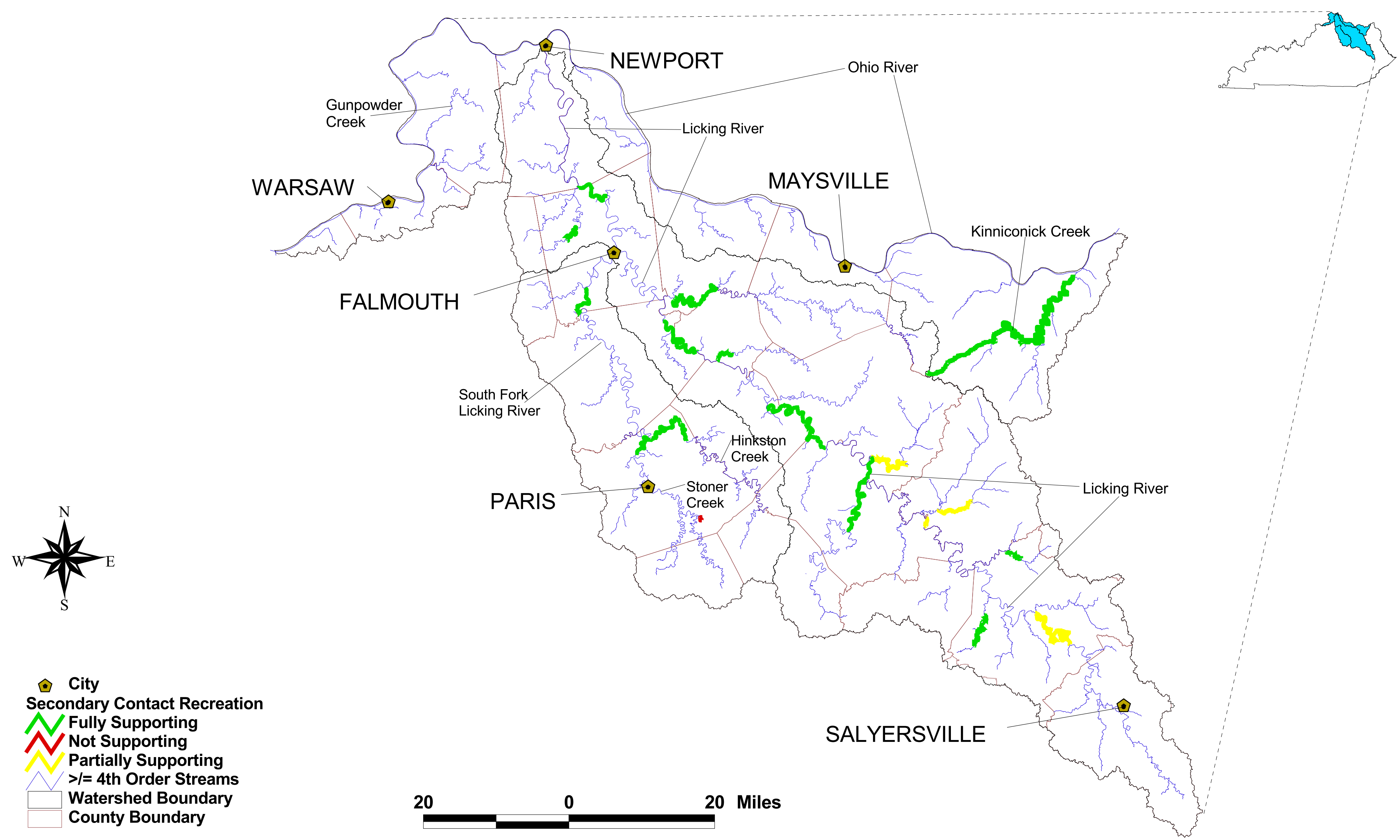
Source 2006 305(b) Report

Figure B12. Reach indexing results of streams assessed in the Licking River Basin and adjacent Ohio River minor tributaries for Primary Contact Recreation Use.



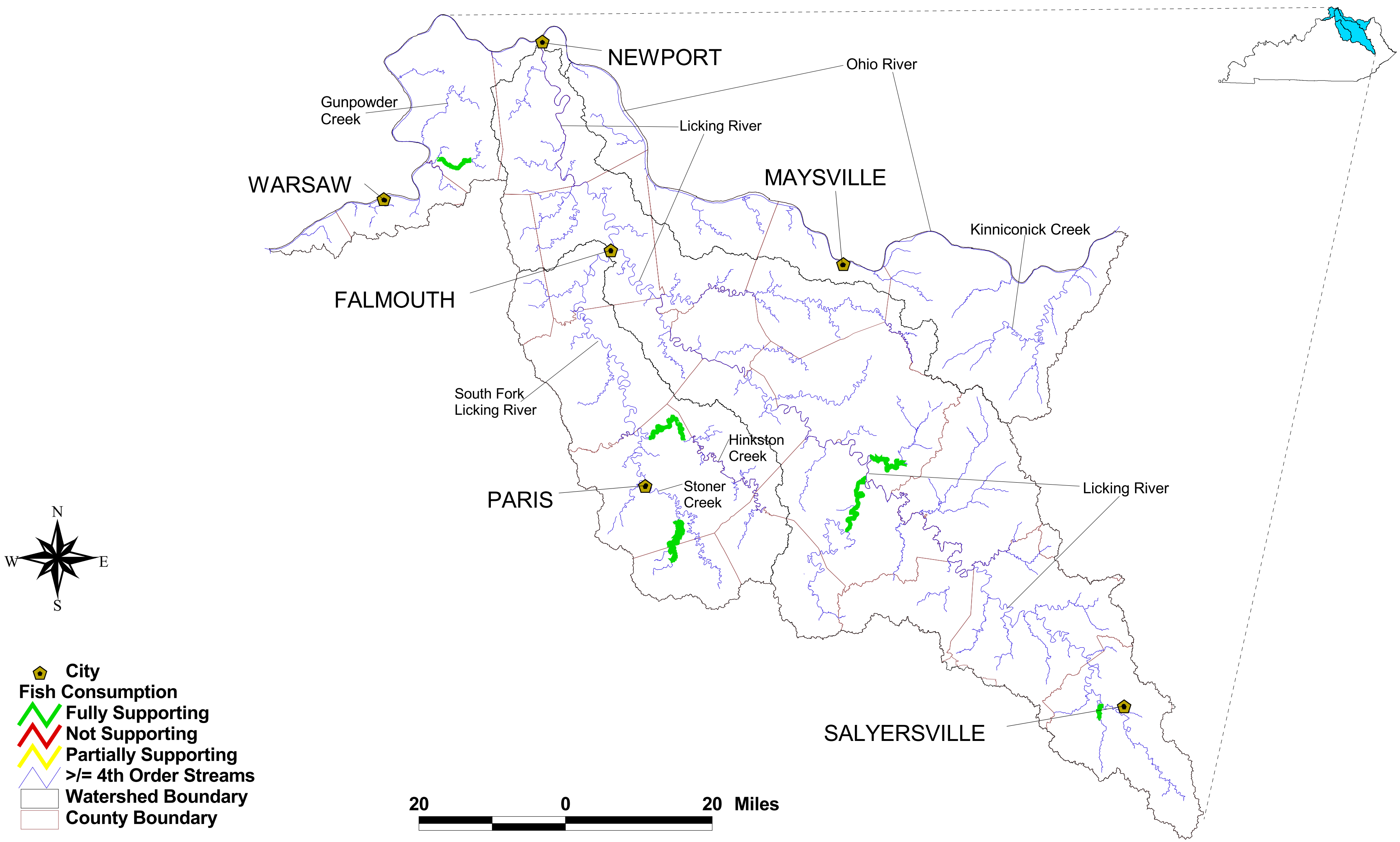
Source 2006 305(b) Report

Figure B-13. Reach indexing results of streams assessed in the Licking River Basin and adjacent Ohio River minor tributaries for Secondary Contact Recreation Use.



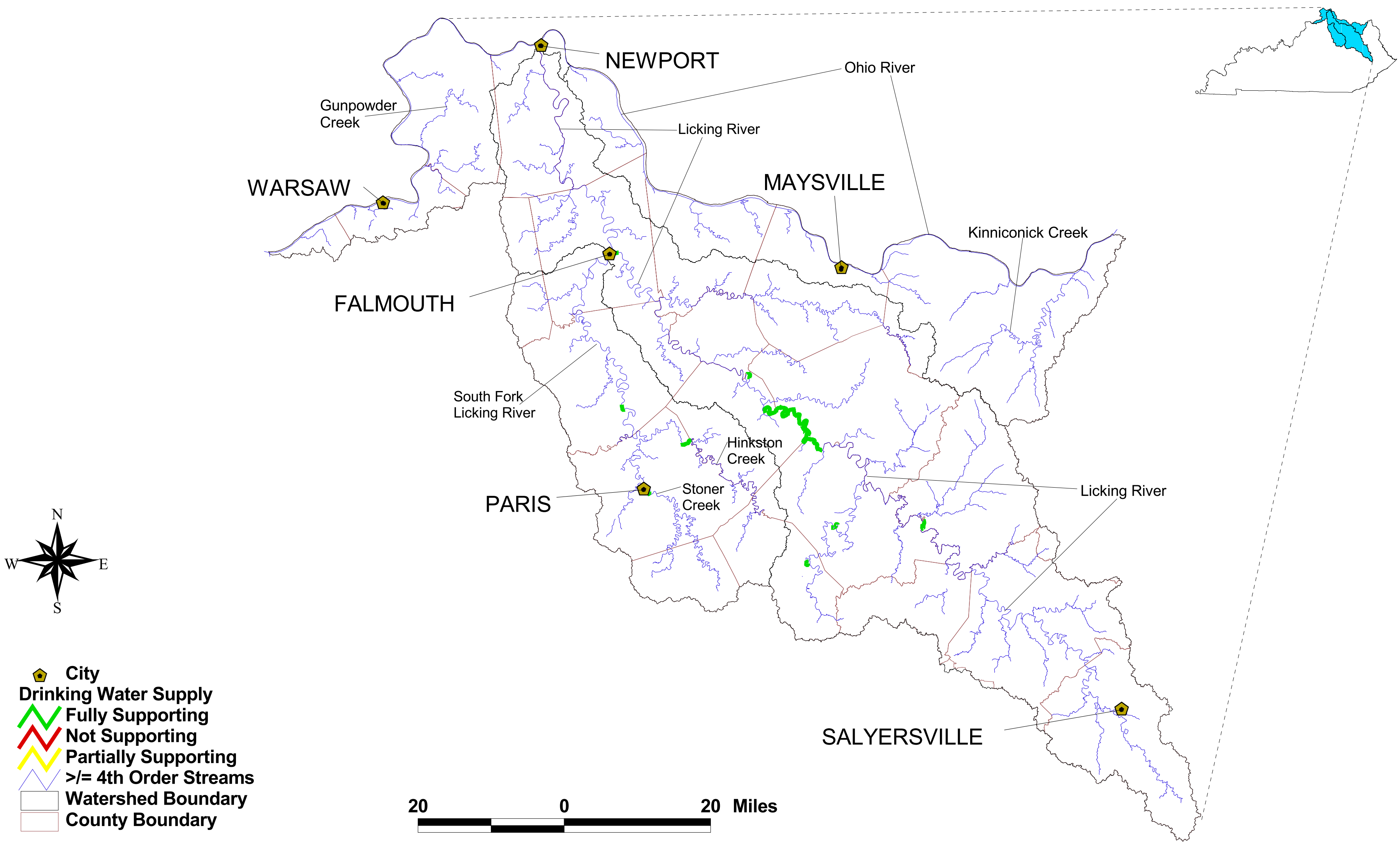
Source 2006 305(b) Report

Figure B-14. Reach indexing results of streams assessed in the Licking River Basin and adjacent Ohio River minor tributaries for Fish Consumption Use.



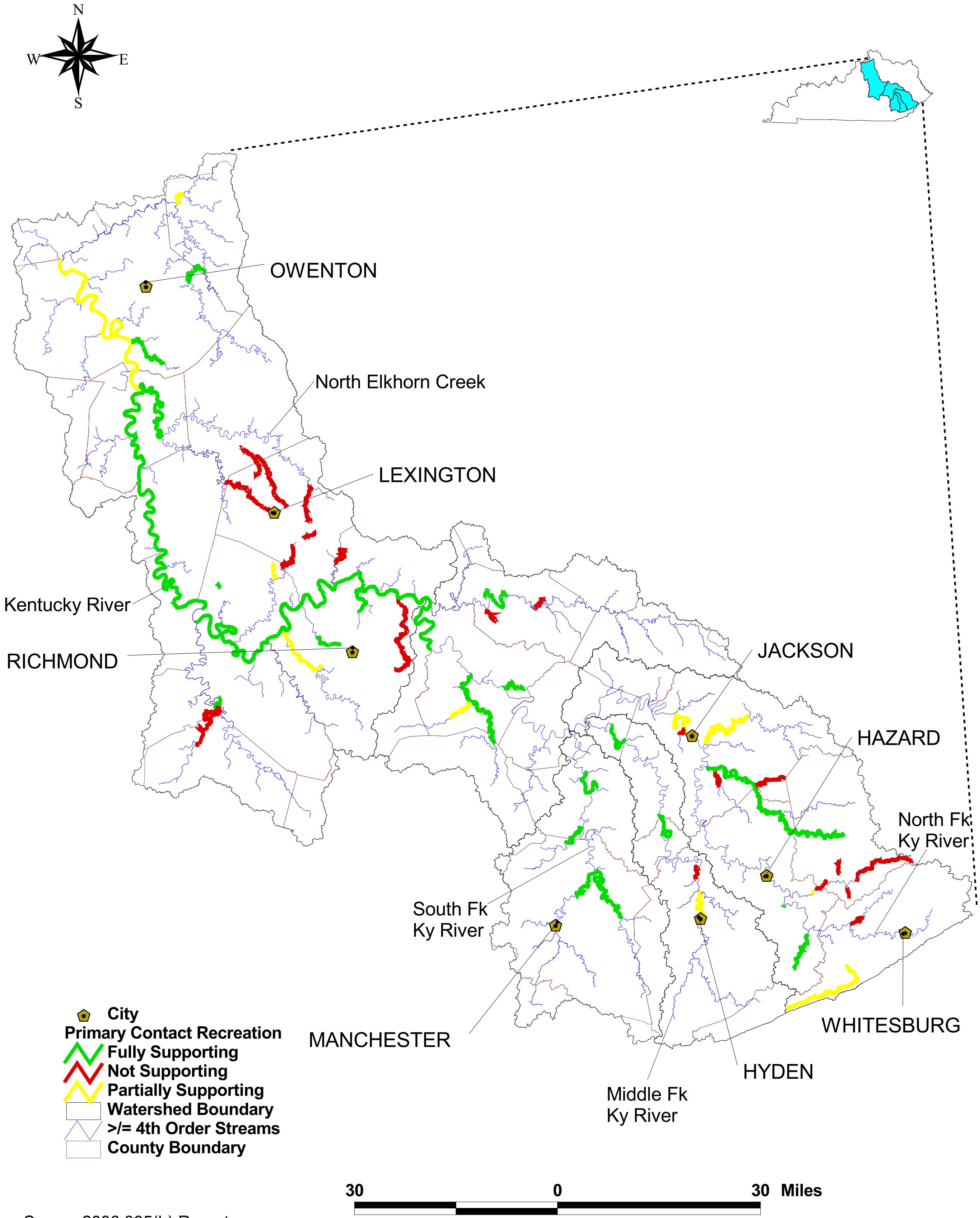
Source 2006 305(b) Report

Figure B-15. Reach indexing results of streams assessed in the Licking River Basin and adjacent Ohio River minor tributaries for Drinking Water Source Use.



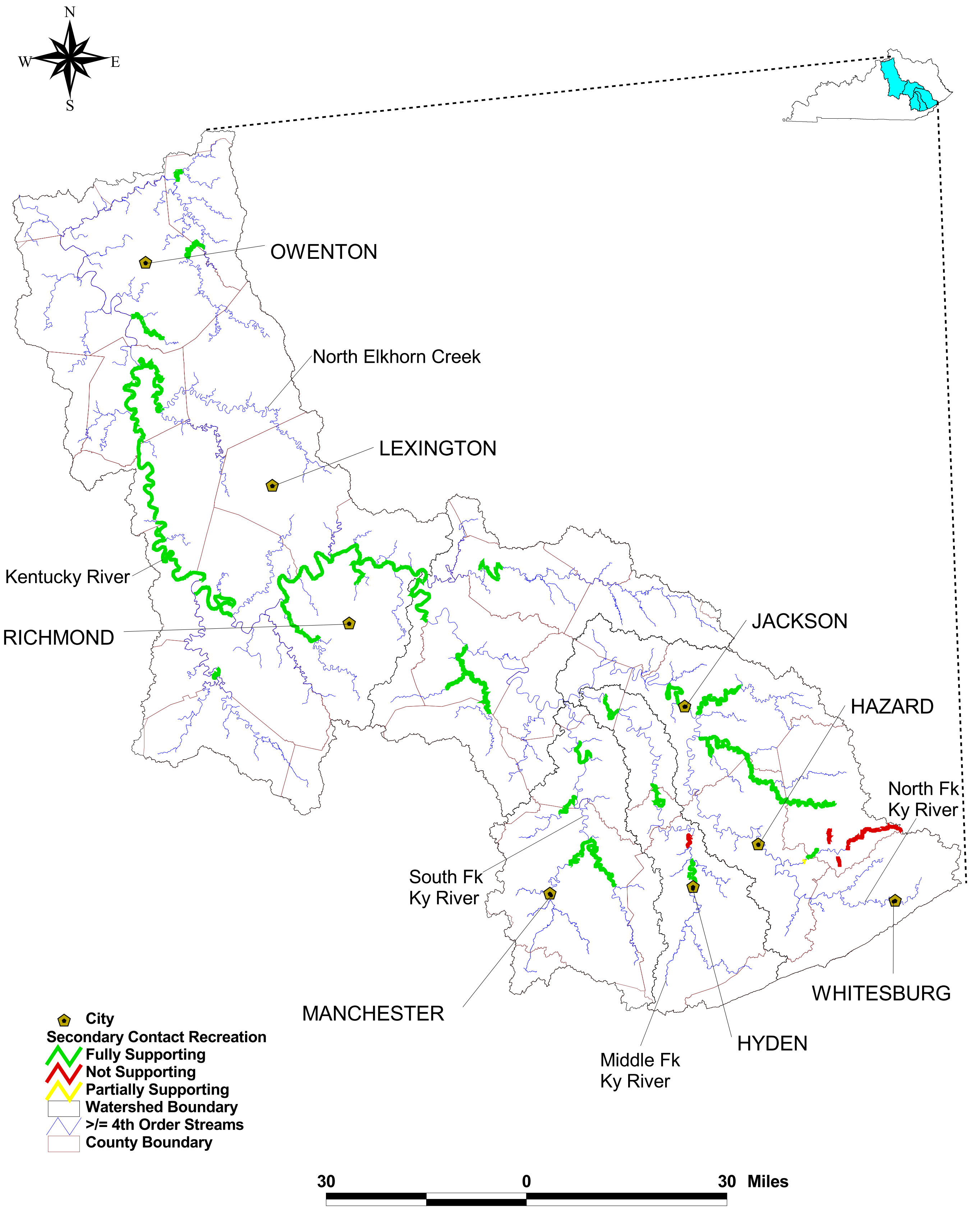
Source 2006 305(b) Report

Figure B-2. Reach indexing results of streams in the Kentucky River Basin for Primary Contact Recreation Use.



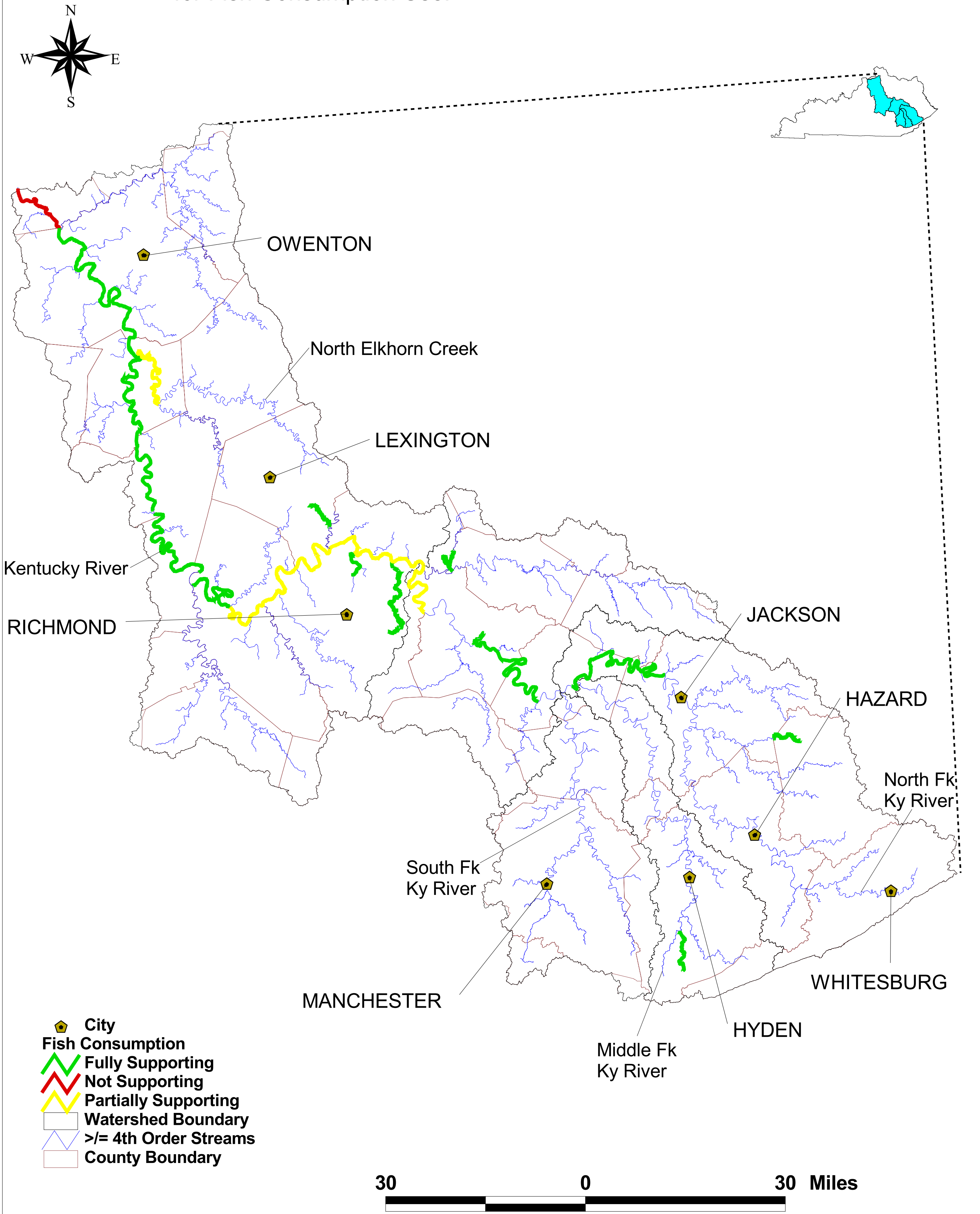
Source 2006 305(b) Report

Figure B-3. Reach indexing results of streams assessed in the Kentucky River Basin for Secondary Contact Recreation Use.



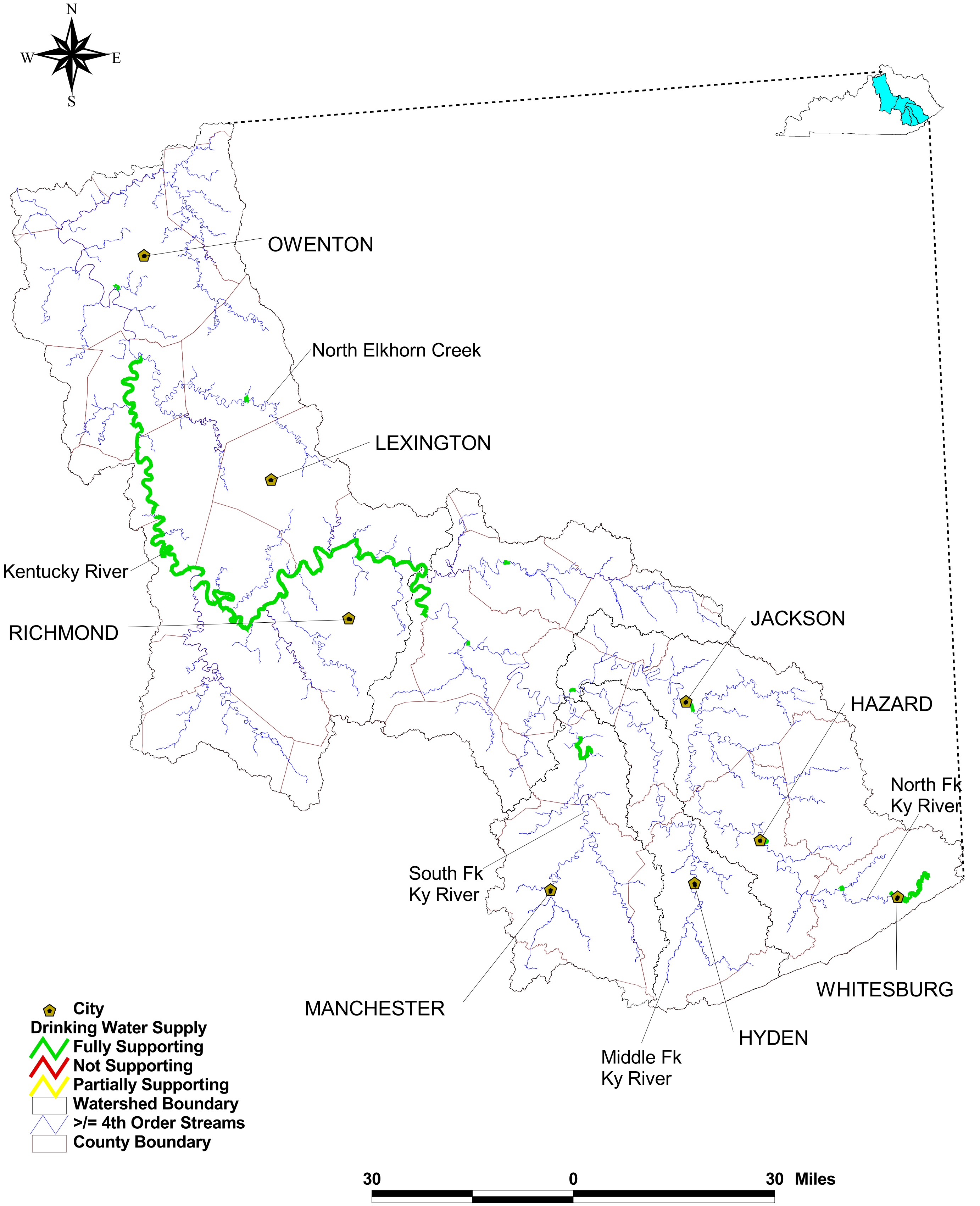
Source 2006 305(b) Report

Figure B-4. Reach indexing results of streams assessed in the Kentucky River Basin for Fish Consumption Use.



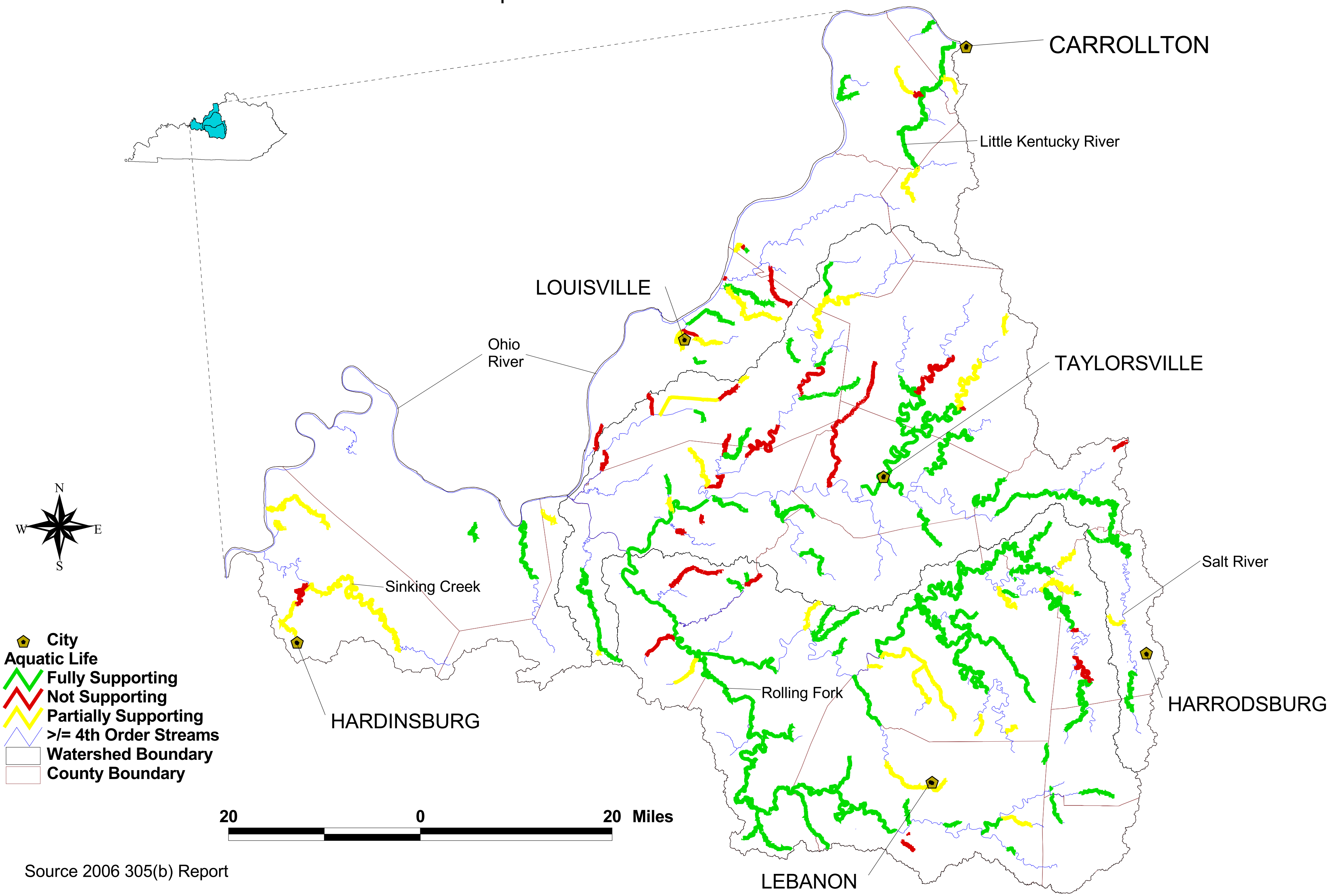
Source 2006 305(b) Report

Figure B-5. Reach indexing results of streams assessed in the Kentucky River Basin for Drinking Water Supply Use.



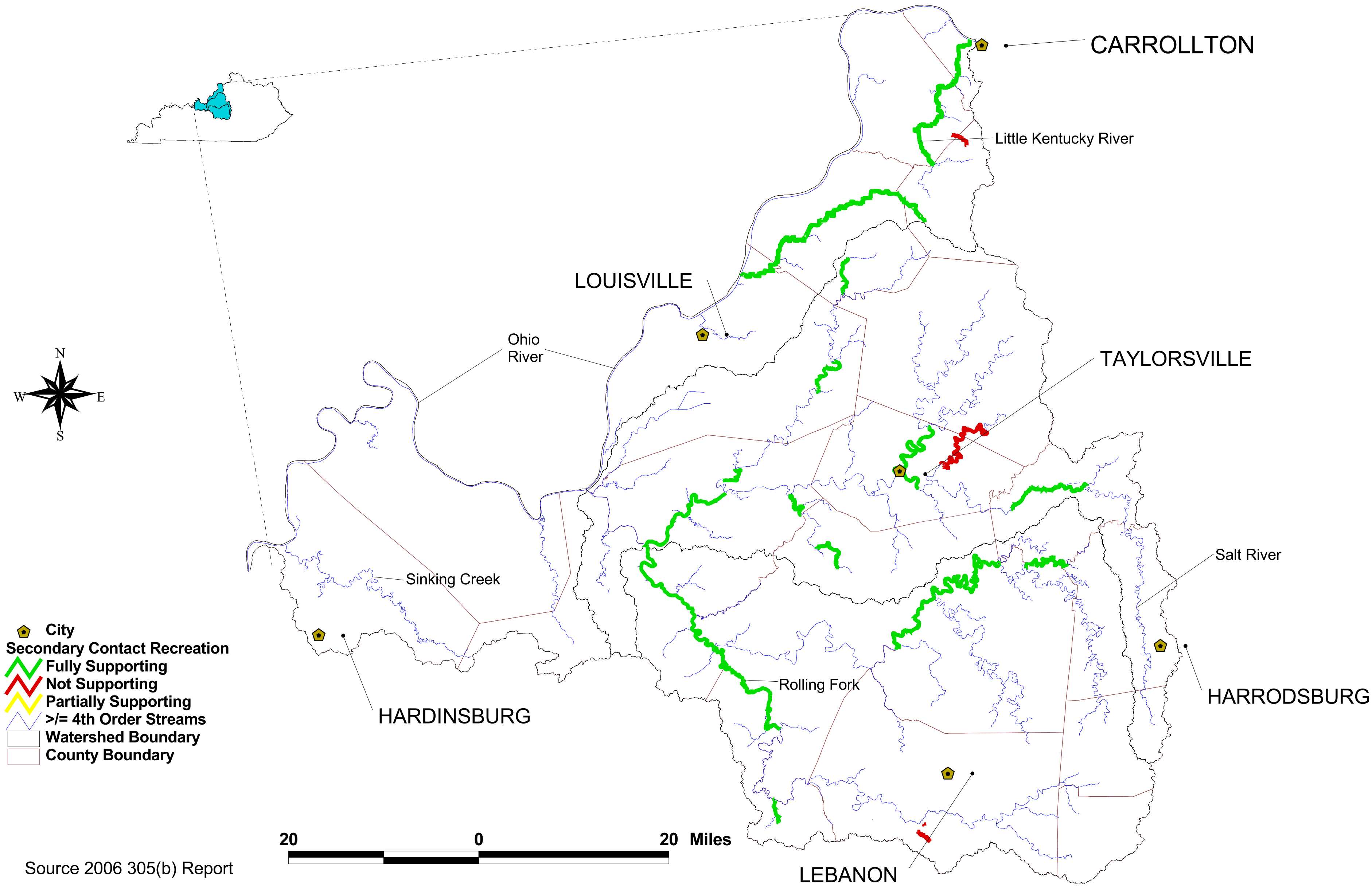
Source 2006 305(b) Report

Figure B-6. Reach indexing results of streams assessed in the Salt River Basin and adjacent Ohio River minor tributaries for Aquatic Life Use.



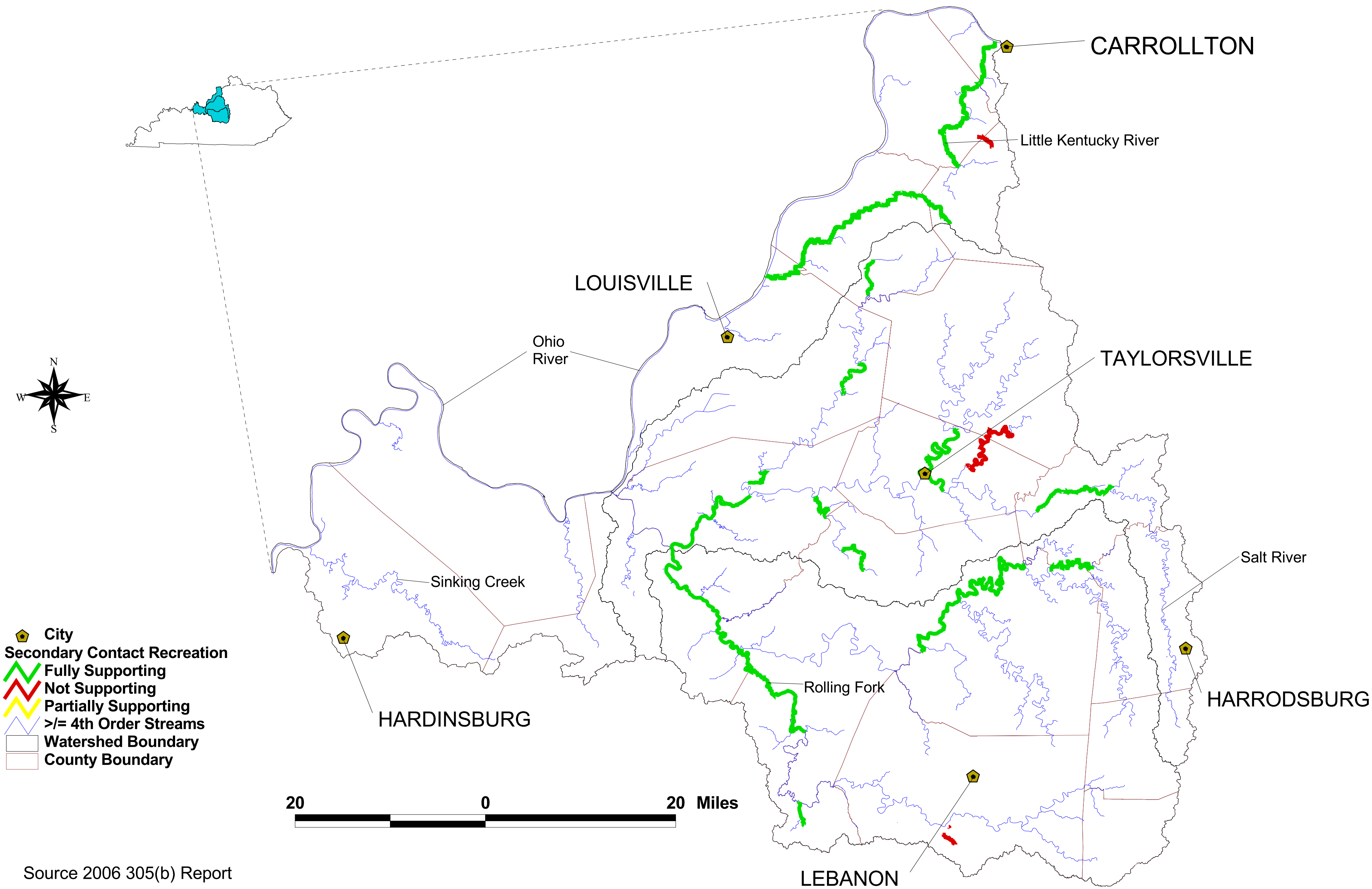
Source 2006 305(b) Report

Figure B-7. Reach indexing results of streams assessed in the Salt River Basin and adjacent Ohio River minor tributaries for Primary Contact Recreation Use.



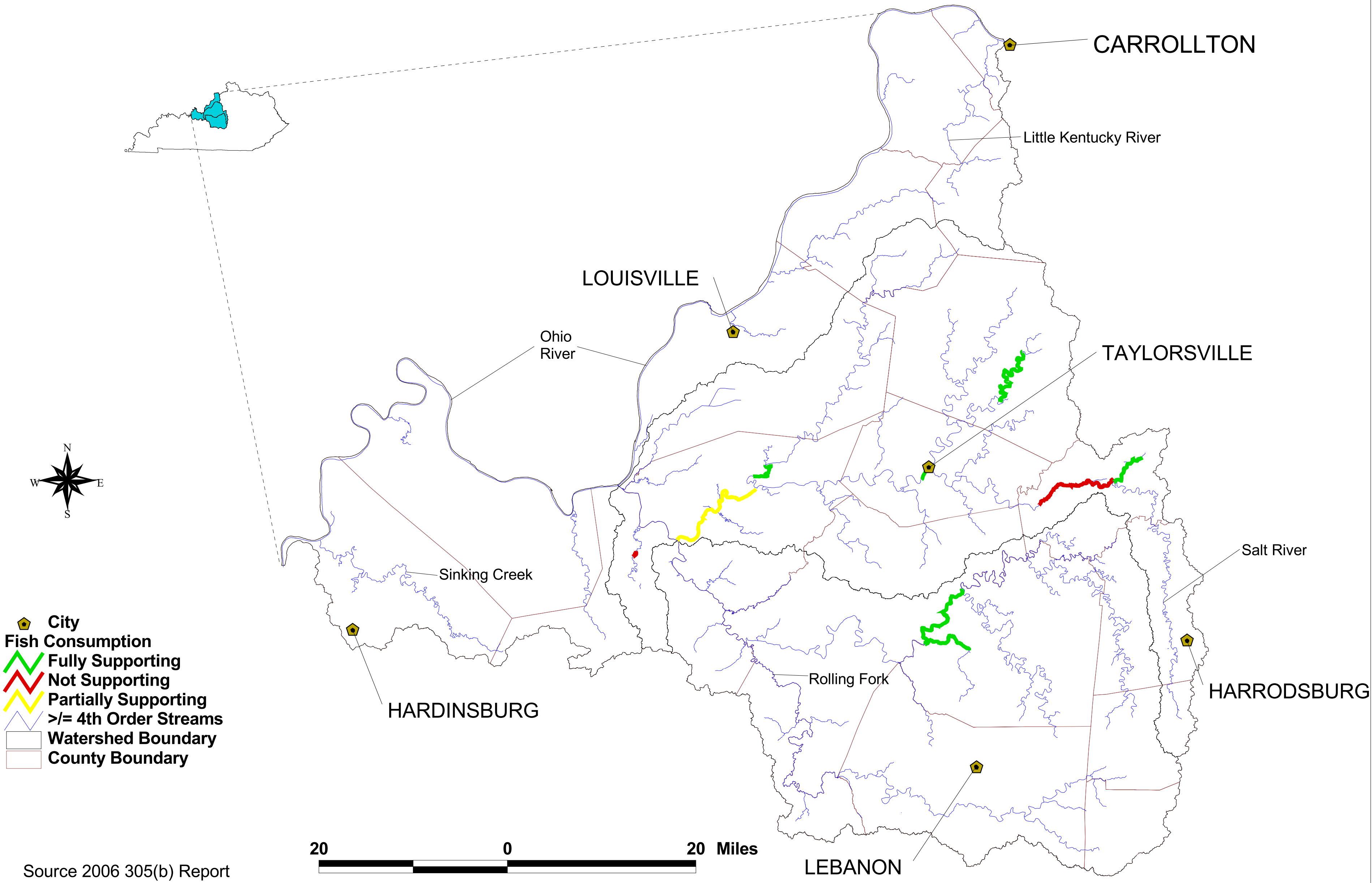
Source 2006 305(b) Report

Figure B-8. Reach indexing results of streams assessed in the Salt River Basin and adjacent Ohio River minor tributaries for Secondary Contact Recreation Use.



Source 2006 305(b) Report

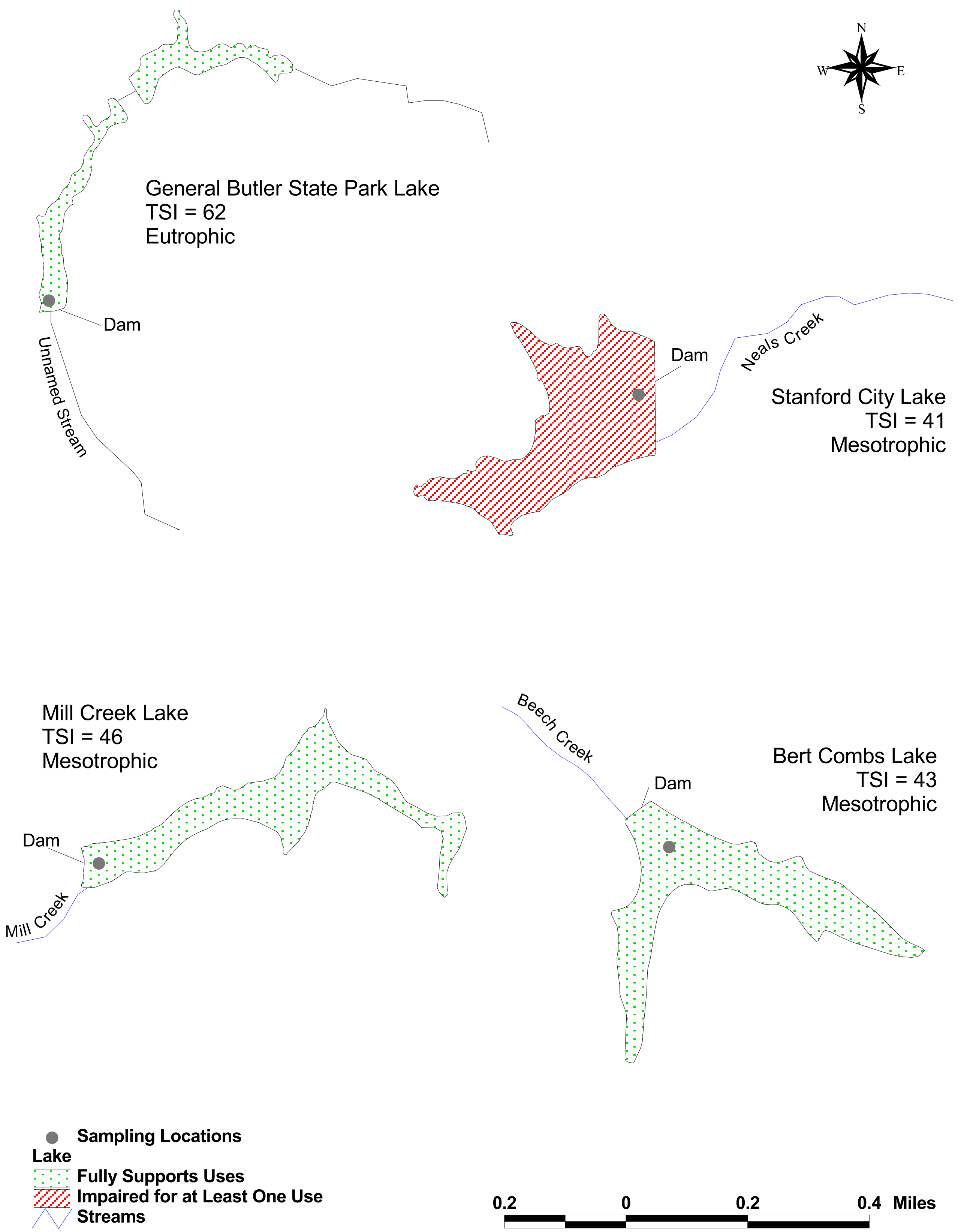
Figure B-9. Reach indexing results of streams assessed in the Salt River Basin and adjacent Ohio River minor tributaries for Fish Consumption Use.



Source 2006 305(b) Report

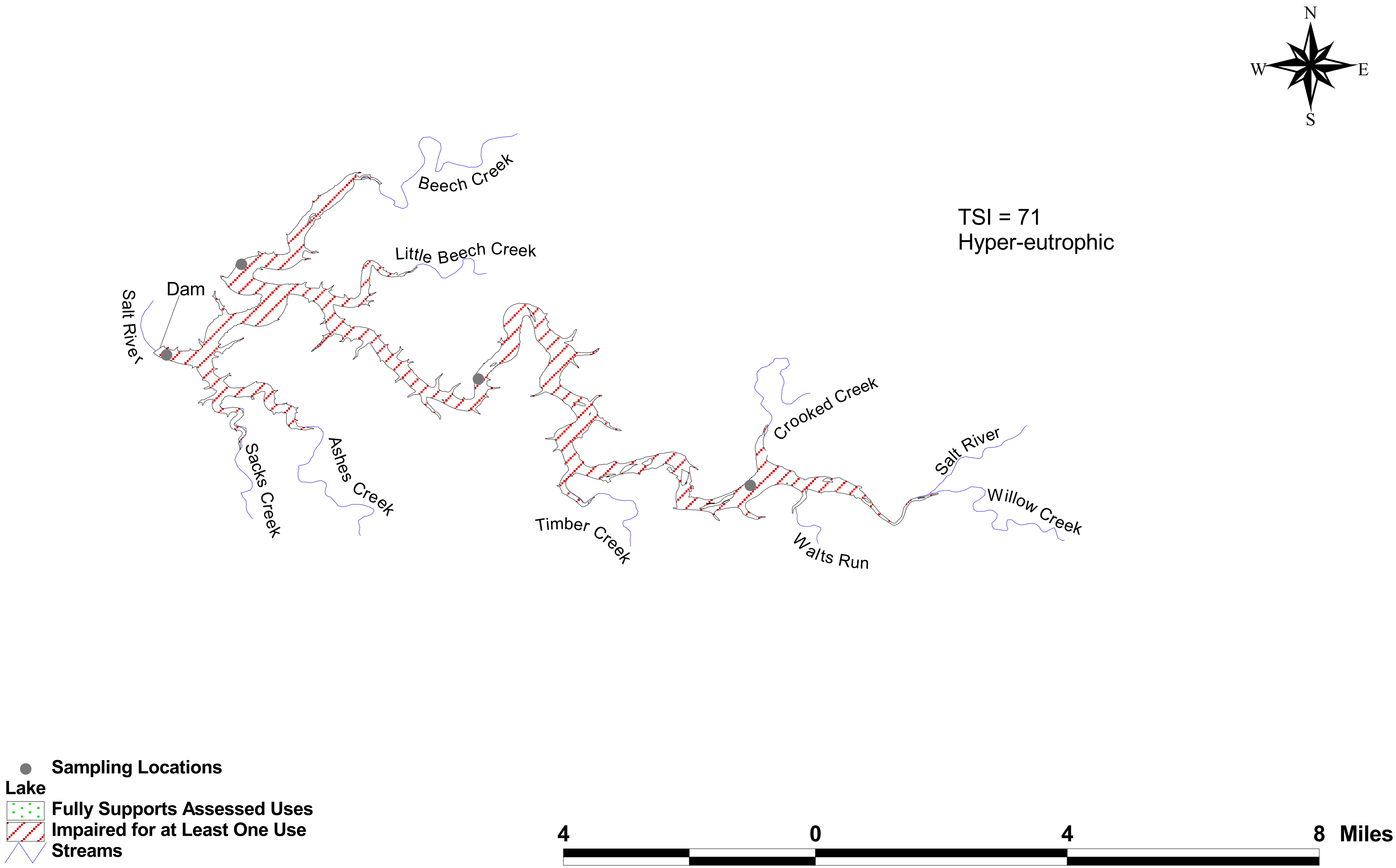
Appendix C. Use Assessment Maps of Lakes and Reservoirs Monitored in the Kentucky River BMU and Salt – Licking Rivers BMU.

Figure C-1. Monitoring sites on General Butler State Park, Stanford City, Bert Combs and Mill Creek Reservoirs in the Kentucky River Basin.



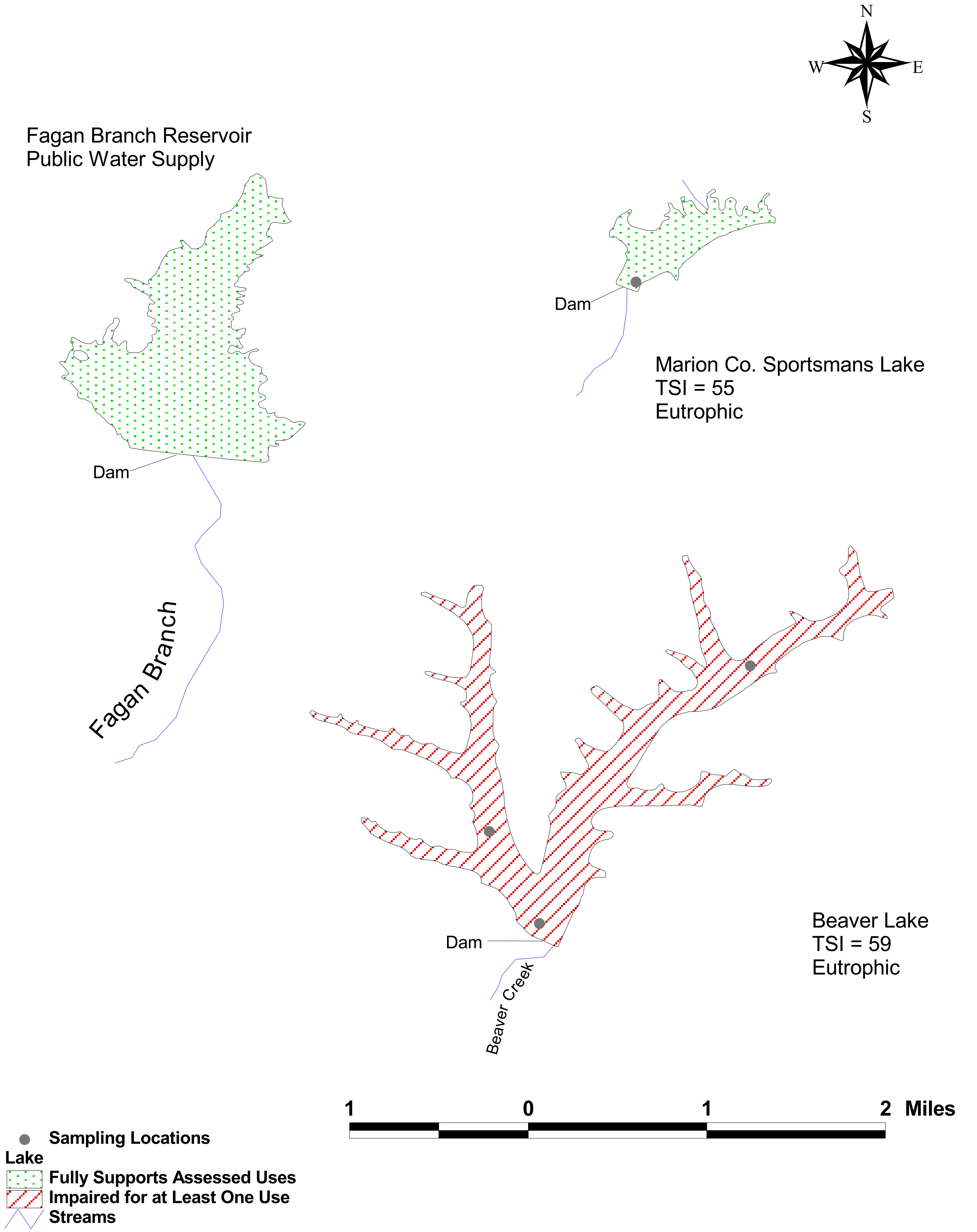
Source 2006 305(b) Report

Figure C-10. Monitoring sites on Taylorsville Lake in the Salt River Basin.



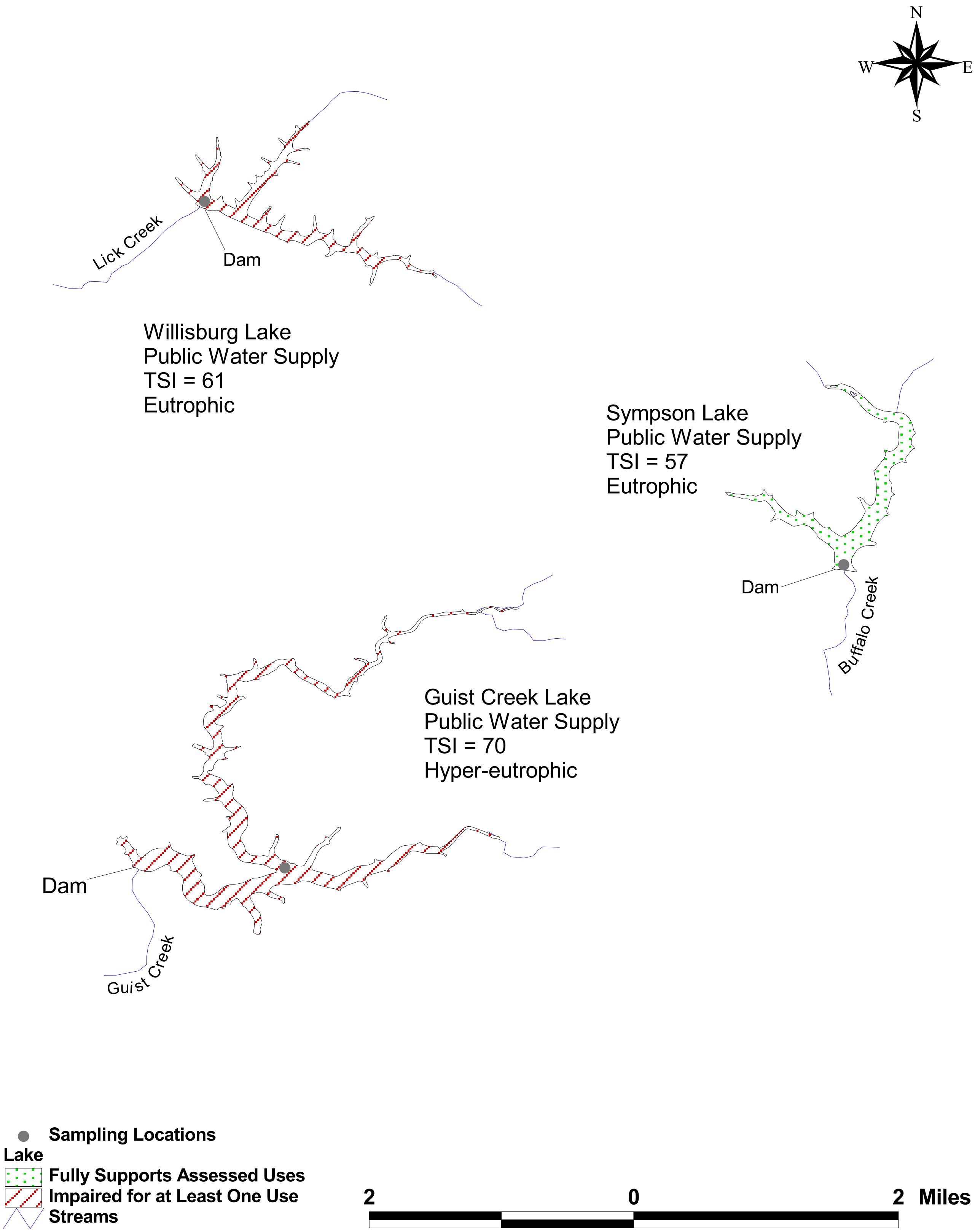
Source 2006 305(b) Report

Figure C-11. Monitoring sites on Fagan Branch, Marion County Sportsmans and Beaver Lakes in the Salt River Basin.



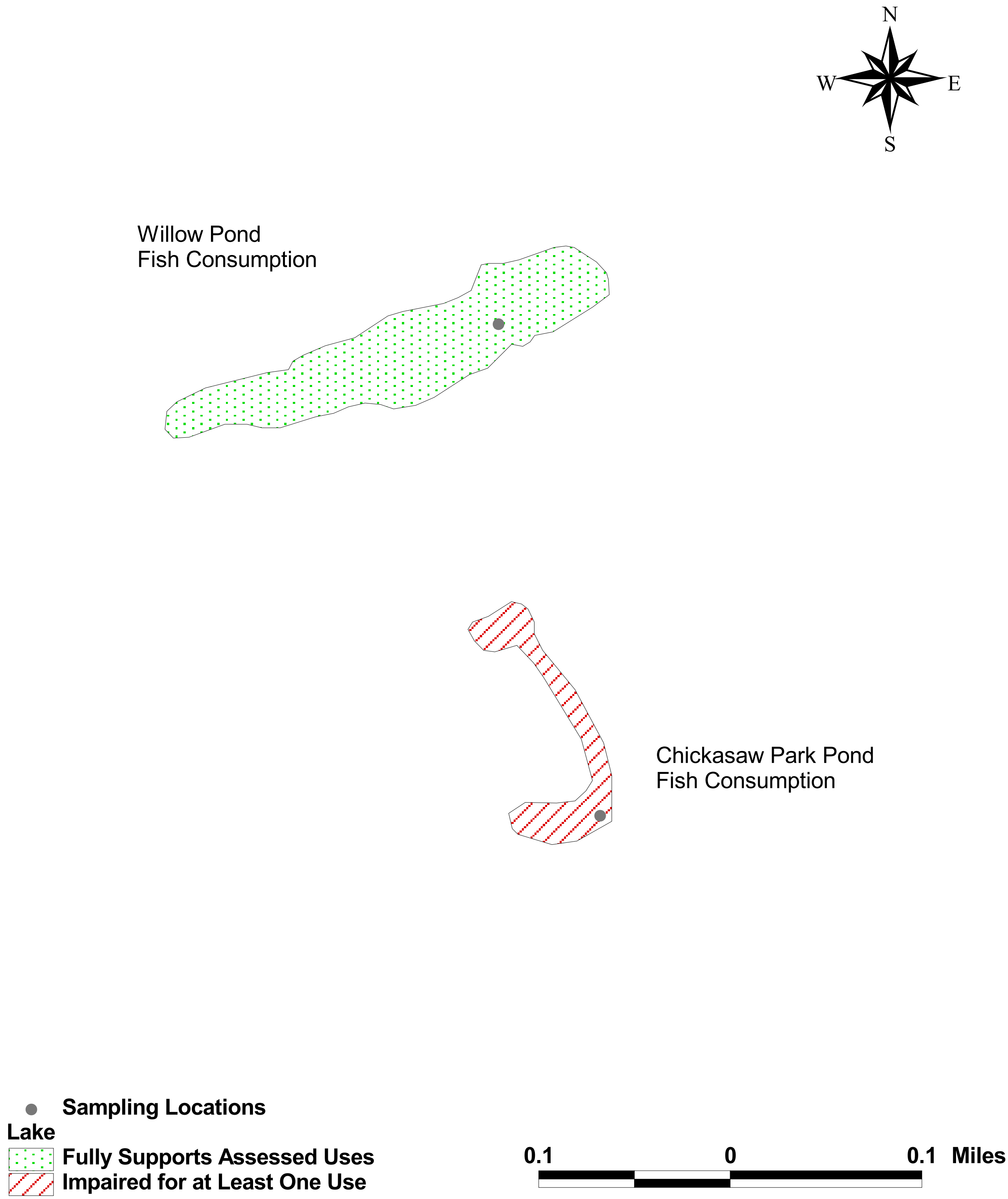
Source 2006 305(b) Report

Figure C-12. Monitoring sites on Willisburg, Sympson and Guist Creek Lakes in the Salt River Basin.



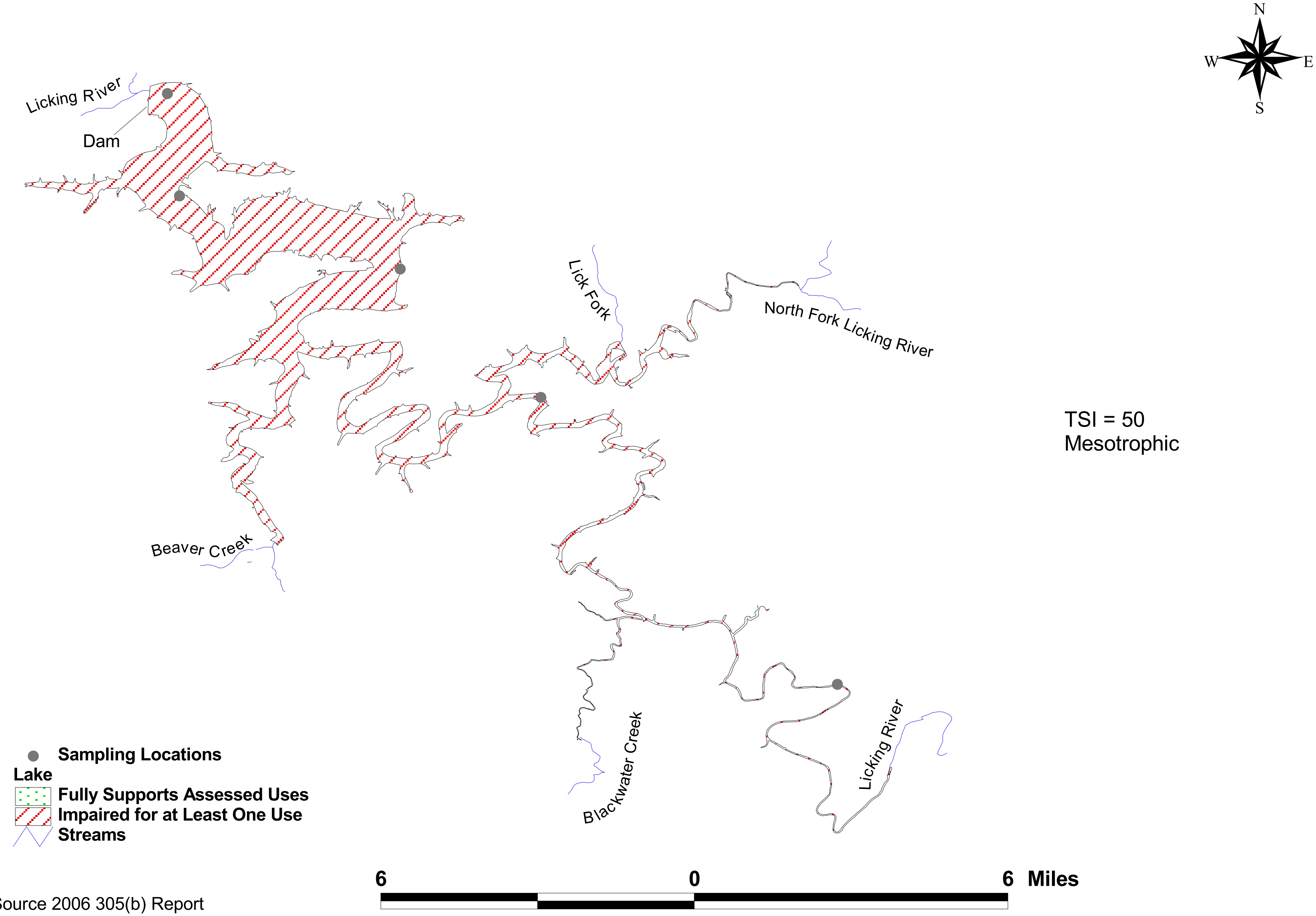
Source 2006 305(b) Report

Figure C-13. Monitoring sites on Willow Pond and Chickasaw Park Pond in the Salt River Basin.



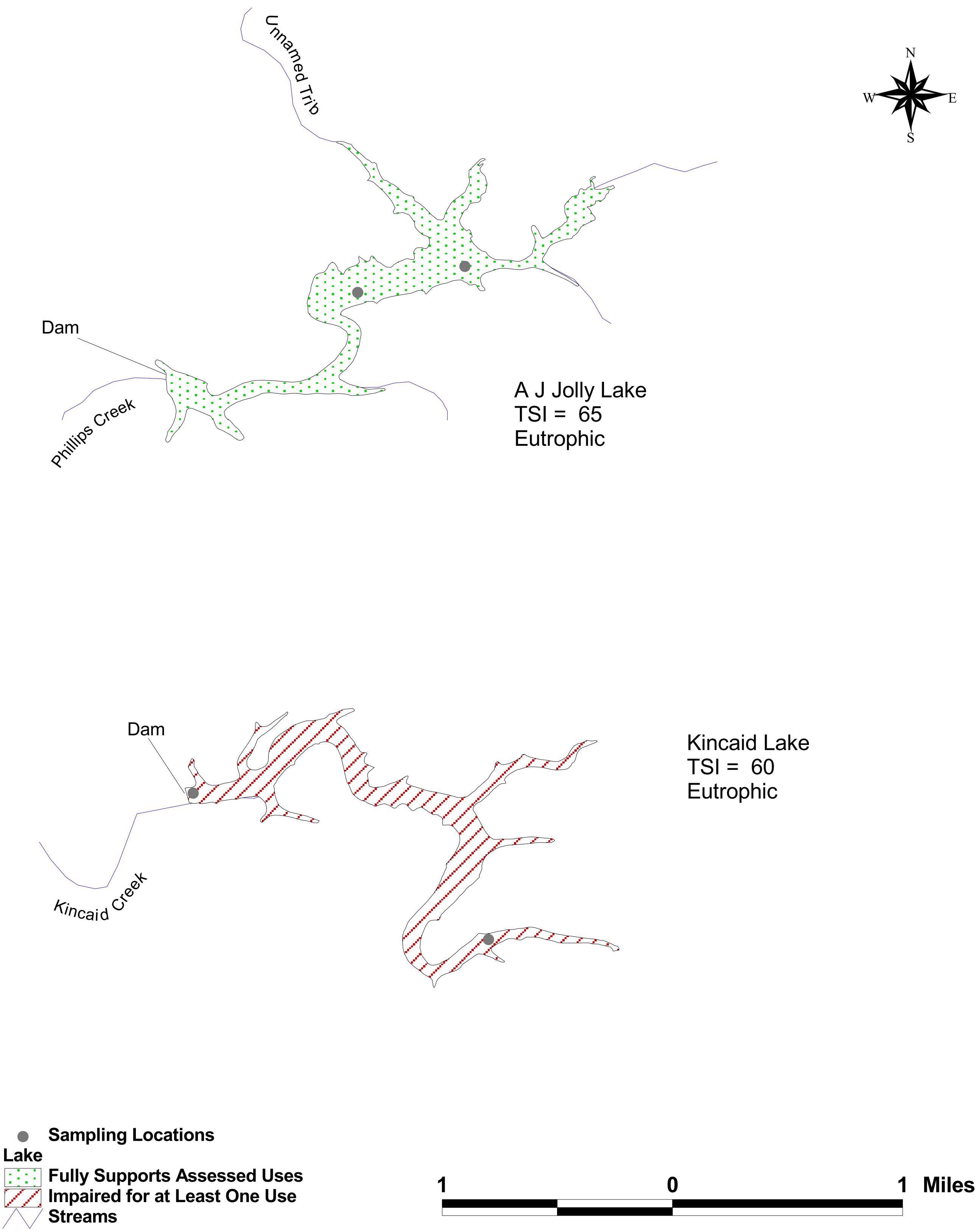
Source 2006 305(b) Report

Figure C-14. Monitoring sites on Cave Run Lake in the Licking River Basin.



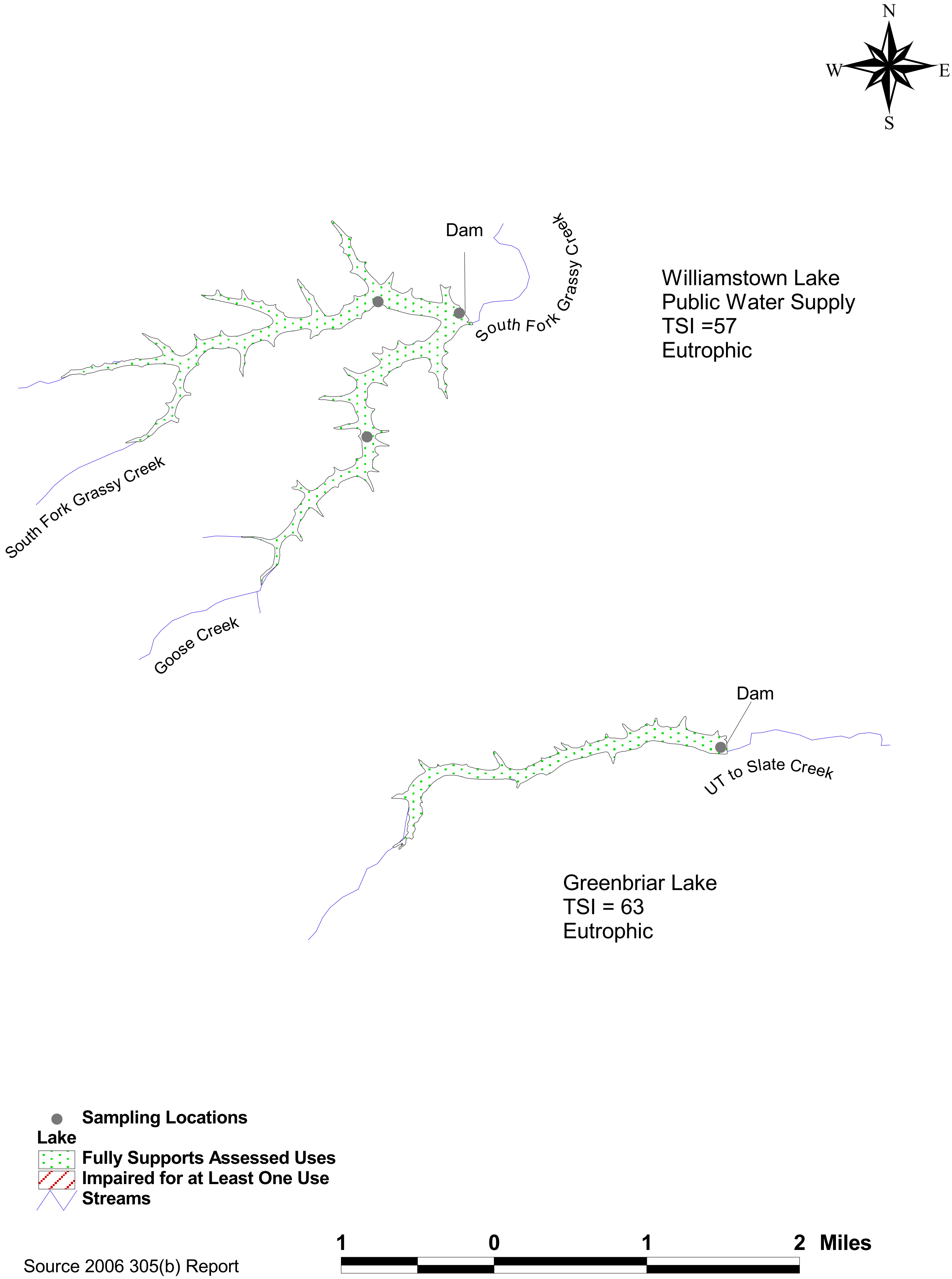
Source 2006 305(b) Report

Figure C-15. Monitoring sites on A. J. Jolly and Kincaid Lakes in the Licking River Basin.



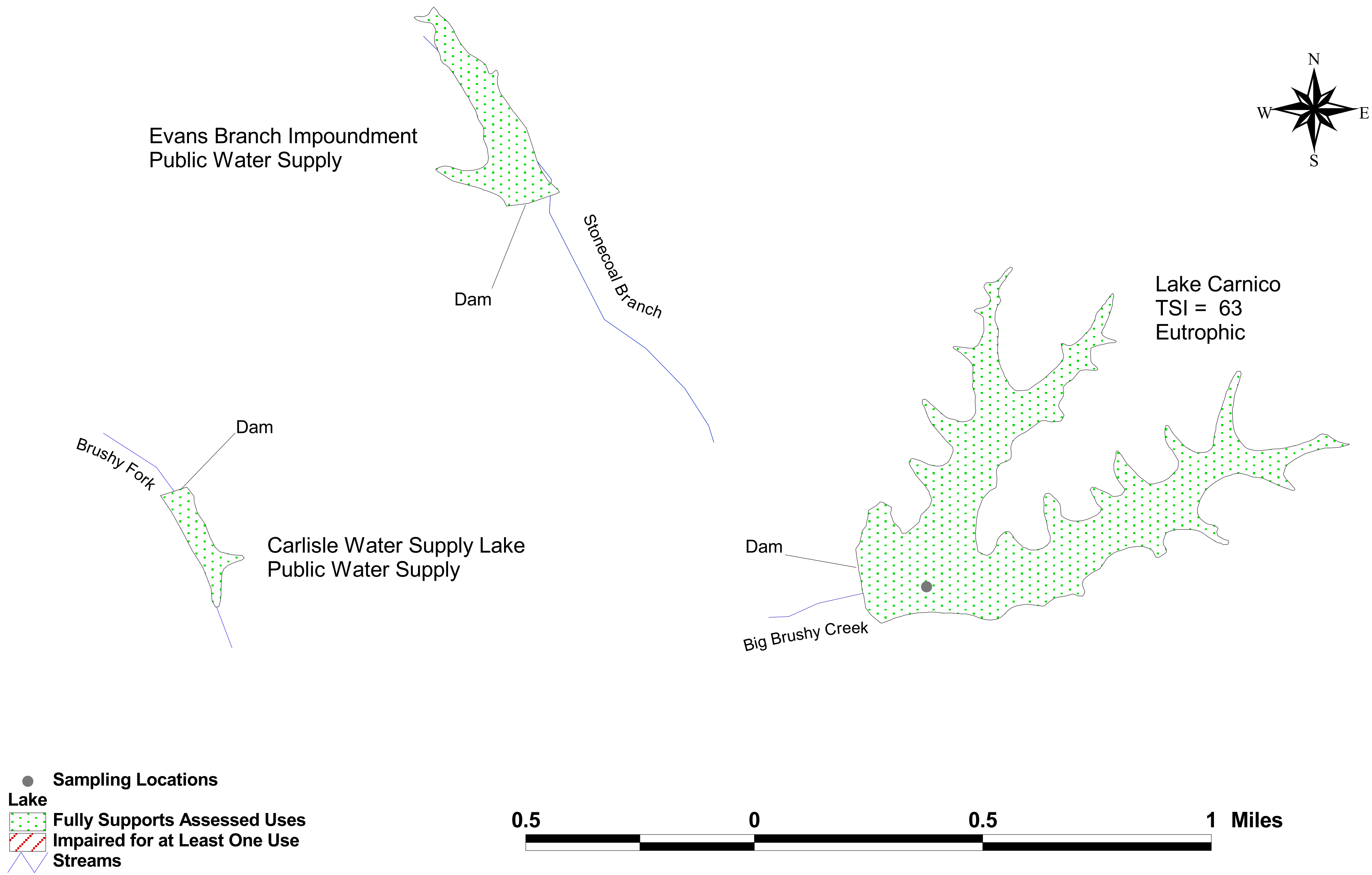
Source 2006 305(b) Report

Figure C-16. Monitoring sites on Williamstown and Greenbriar Lakes in the Licking River Basin.



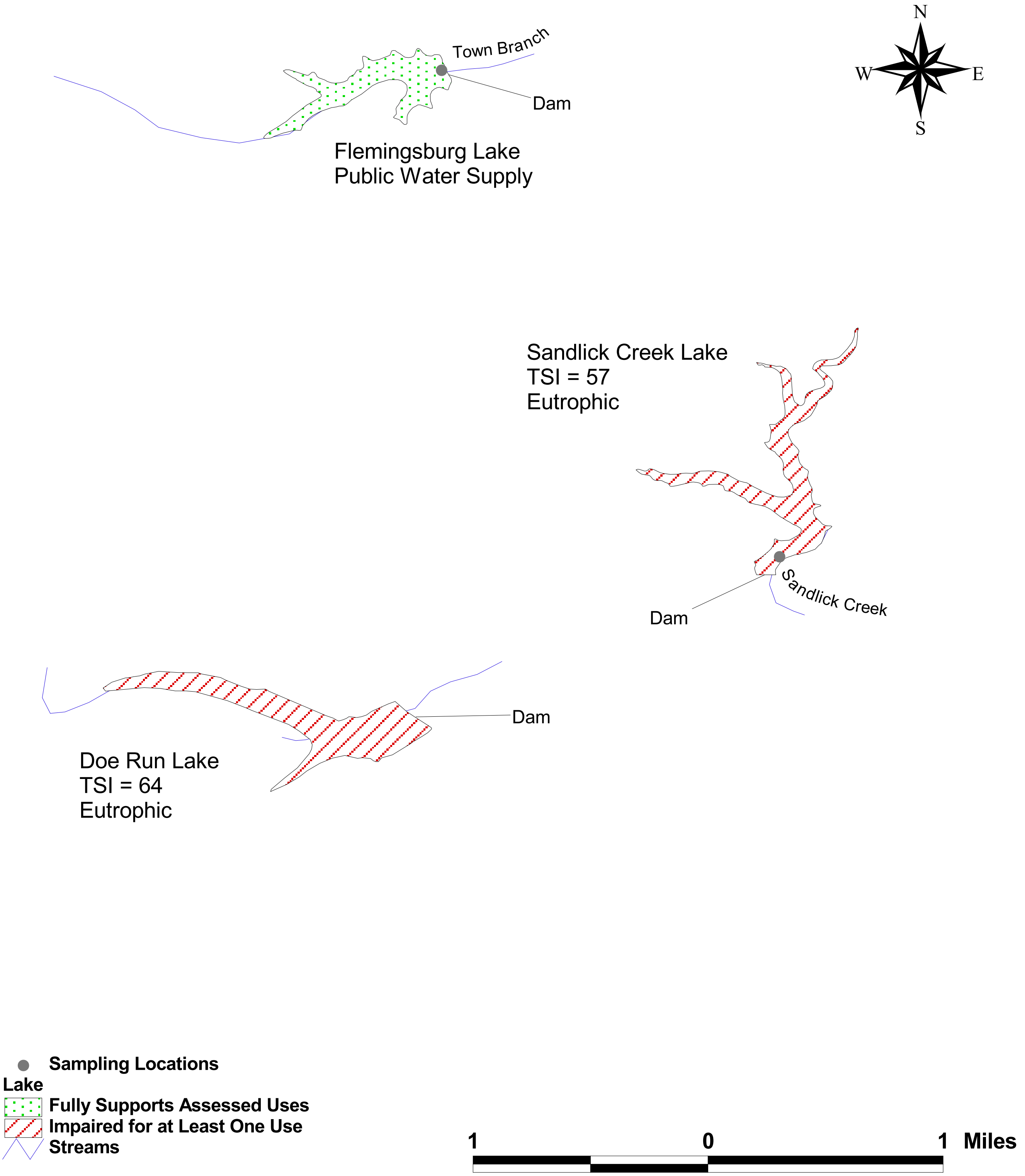
Source 2006 305(b) Report

Figure C-17. Monitoring sites on Evans Branch, Carlisle Lake, and Lake Carnico in the Licking River Basin.



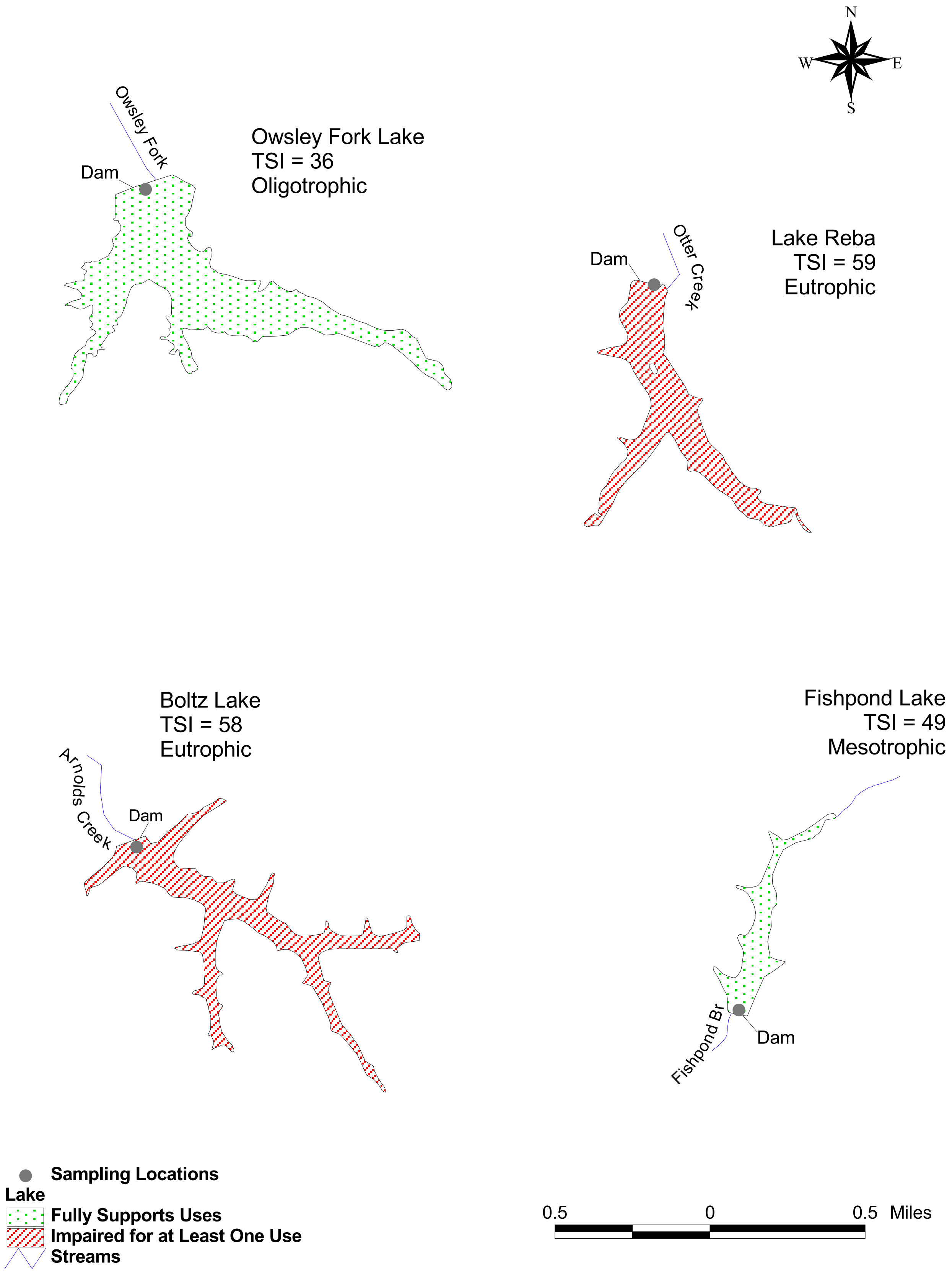
Source 2006 305(b) Report

Figure C-18. Monitoring sites on Flemingsburg, Doe Run and Sandlick Creek Lakes in the Licking River Basin.



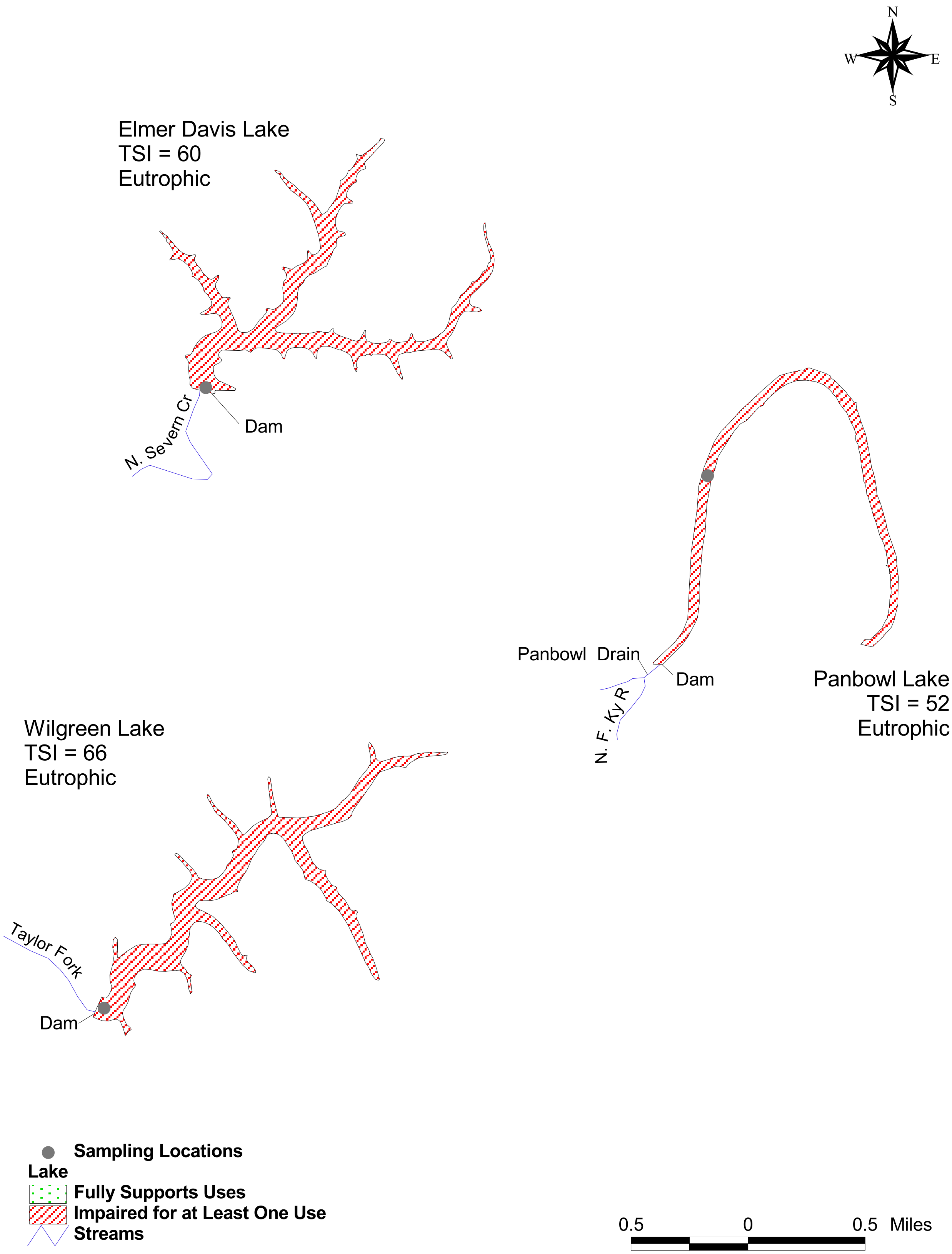
Source 2006 305(b) Report

Figure C-2. Monitoring sites on Owsley Fork, Boltz, Reba and Fishpond Reservoirs in the Kentucky River Basin.



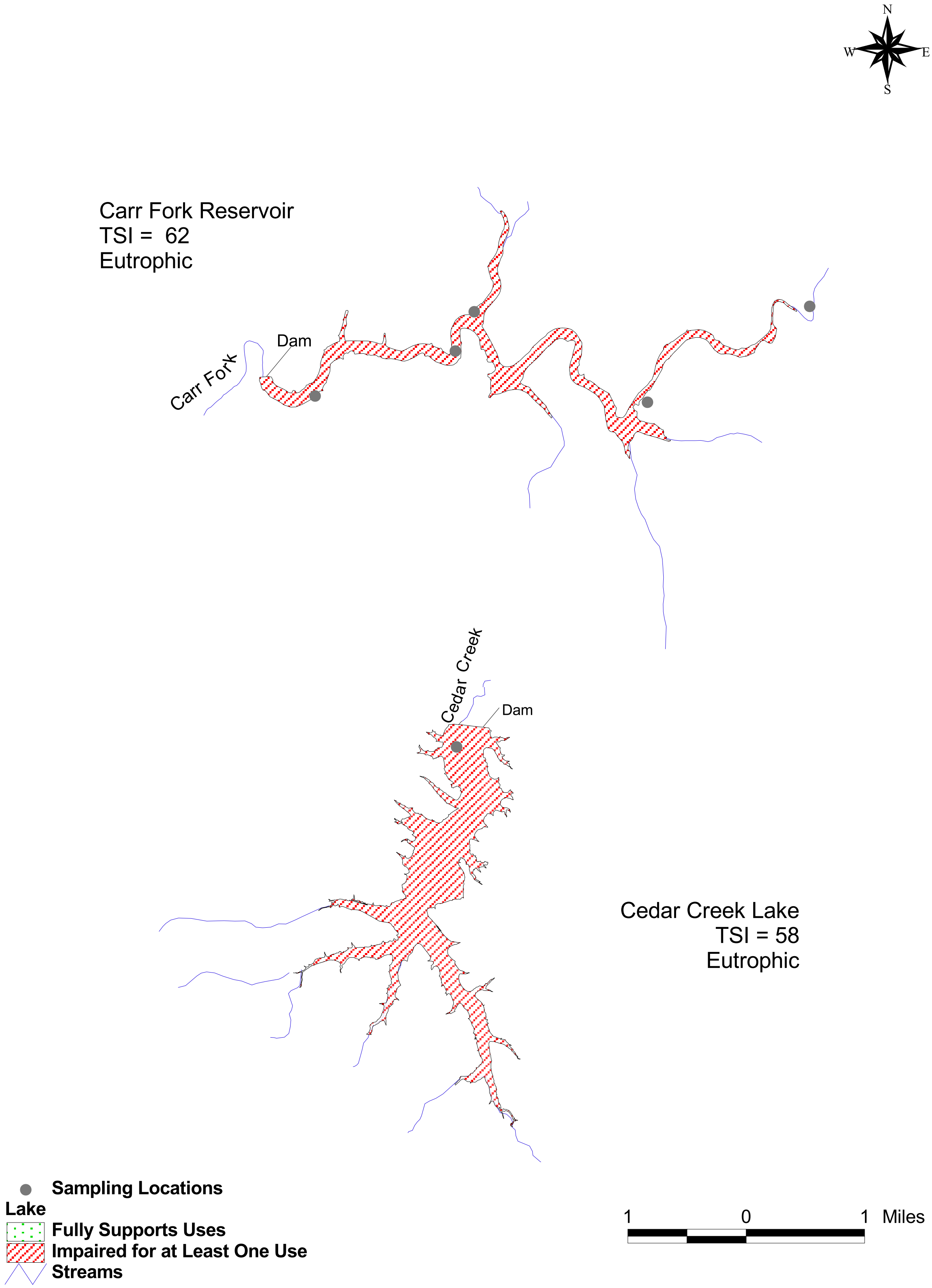
Source 2006 305(b) Report

Figure C-3. Monitoring sites on Panbowl, Elmer Davis and Wilgreen Reservoirs in Kentucky River Basin.



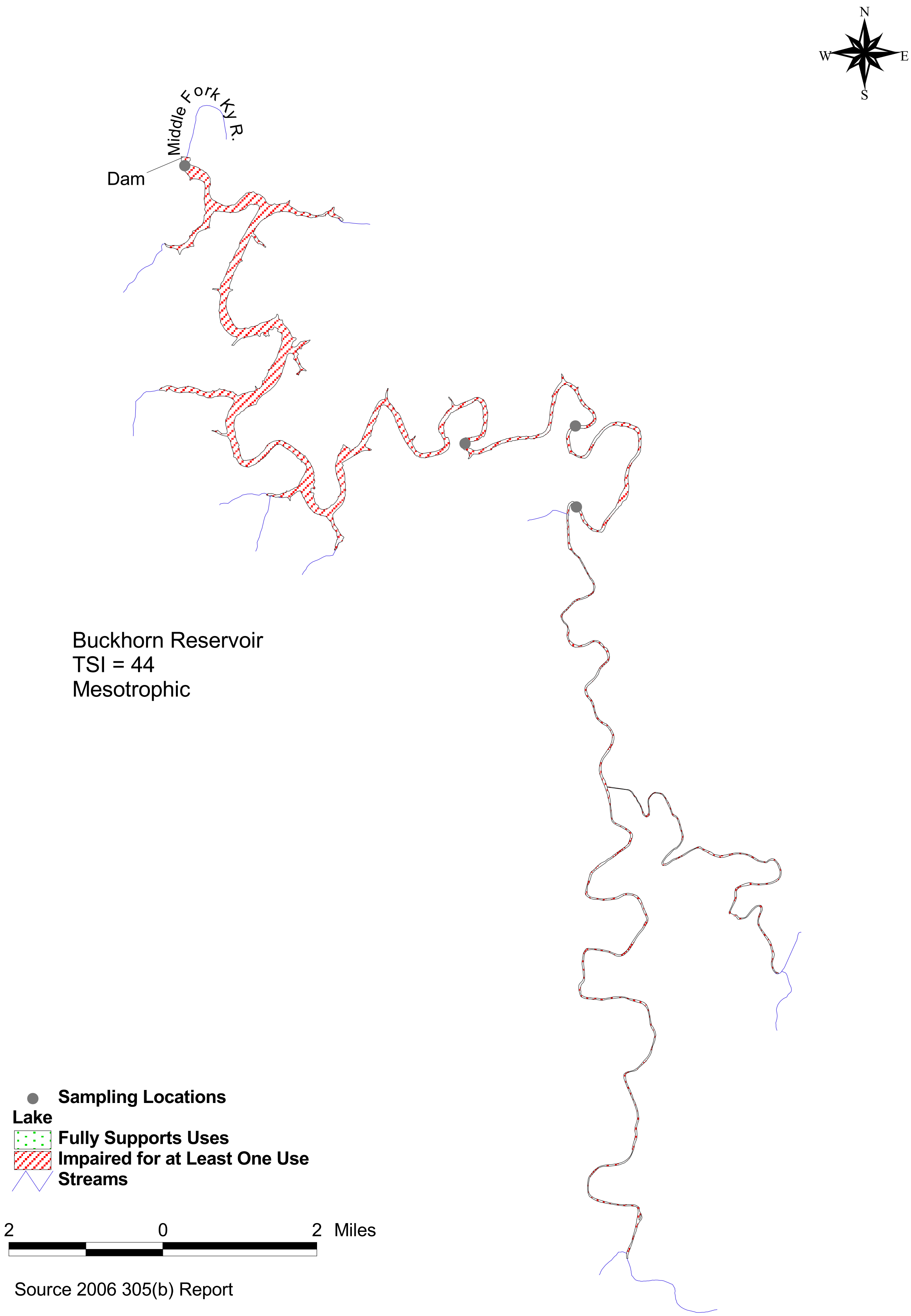
Source 2006 305(b) Report

Figure C-4. Monitoring sites on Carr Fork and Cedar Creek Reservoirs in the Kentucky River Basin.



Source 2006 305(b) Report

Figure C-5. Monitoring sites on Buckhorn Reservoir in the Kentucky River Basin.

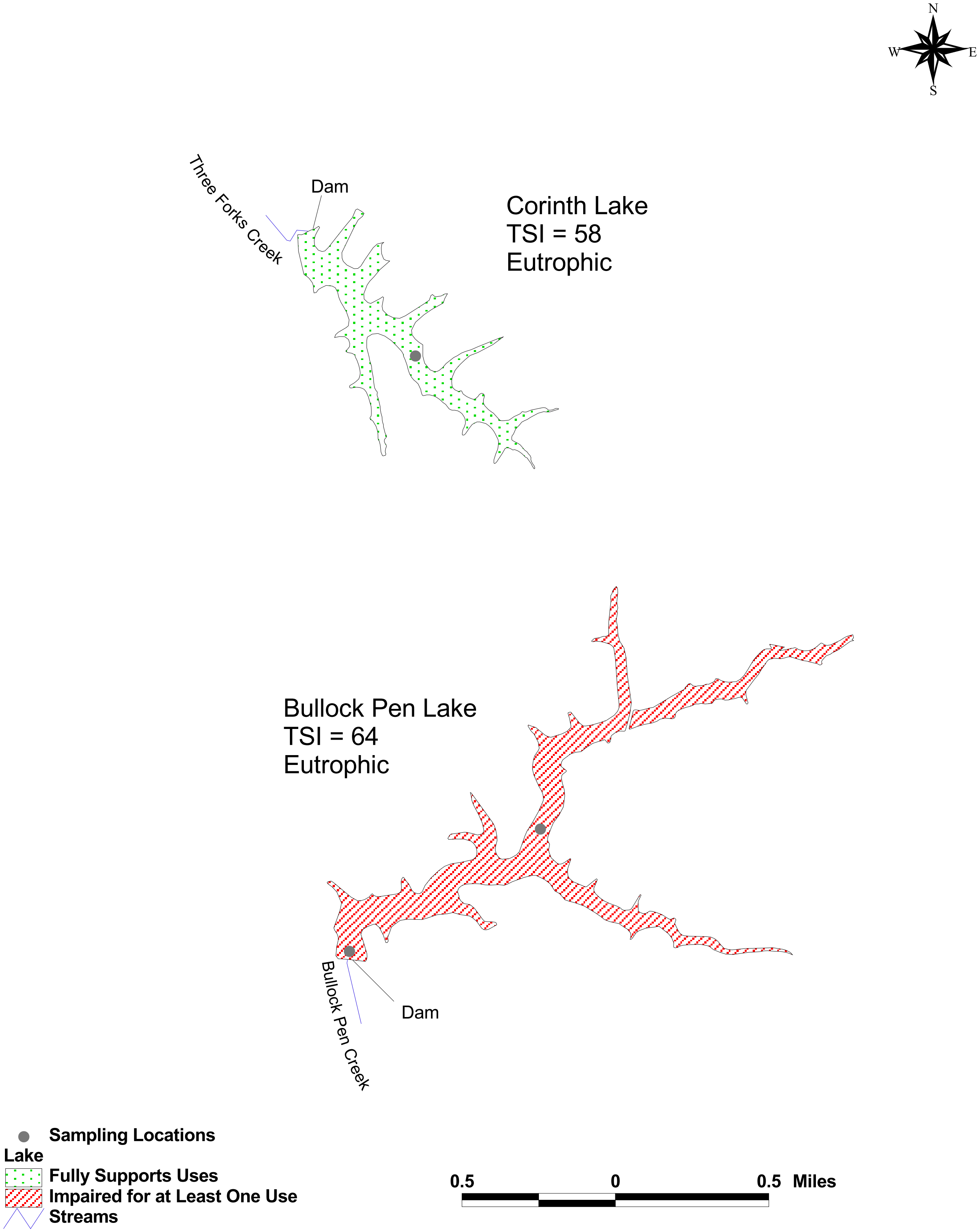


Source 2006 305(b) Report

Figure C-6. Monitoring sites on Herrington Lake in the Kentucky River Basin.

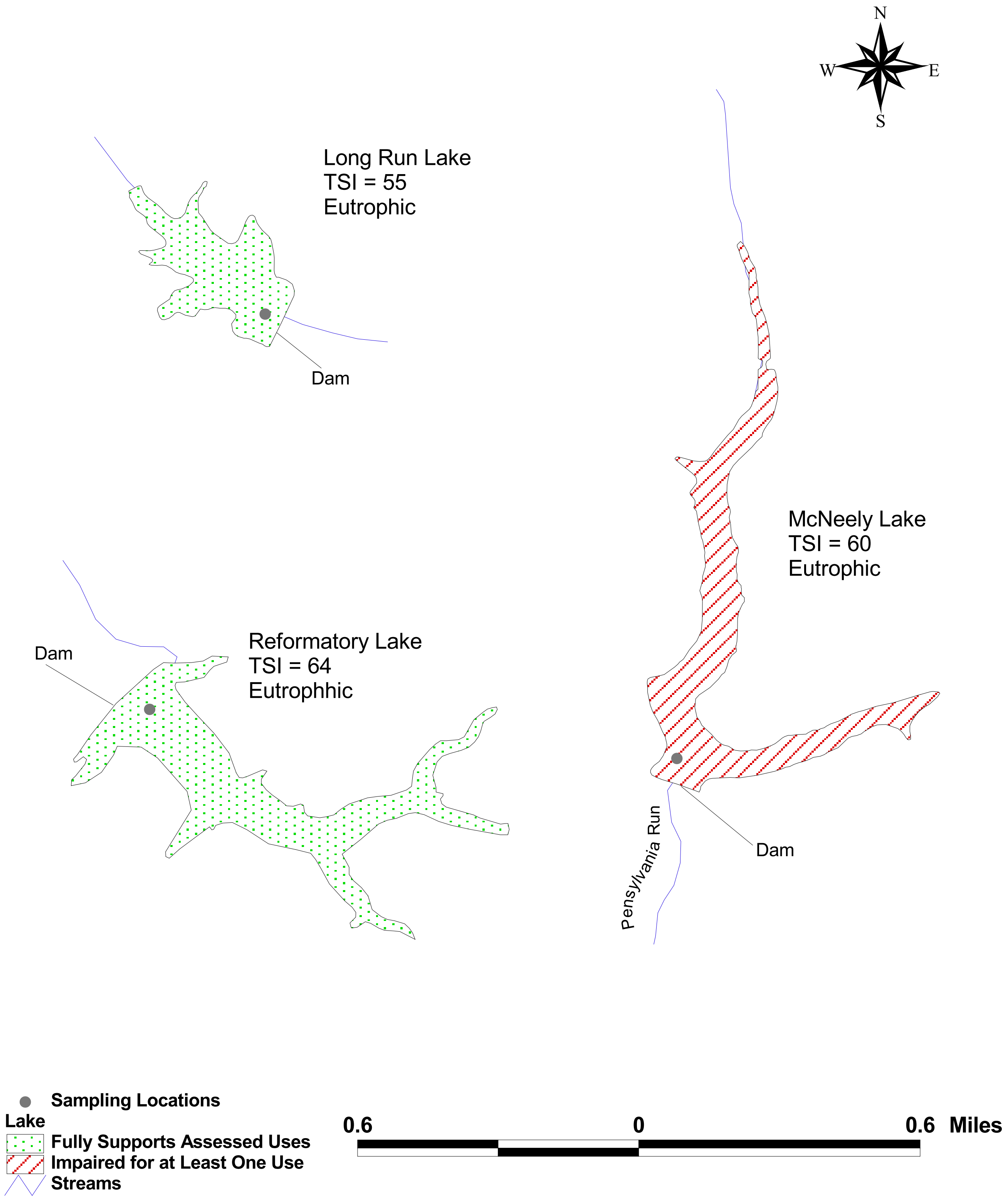
Source 2006 305(b) Report

Figure C-7. Monitoring sites on the Bullock Pen and Crointh Reservoirs in the Kentucky River Basin.



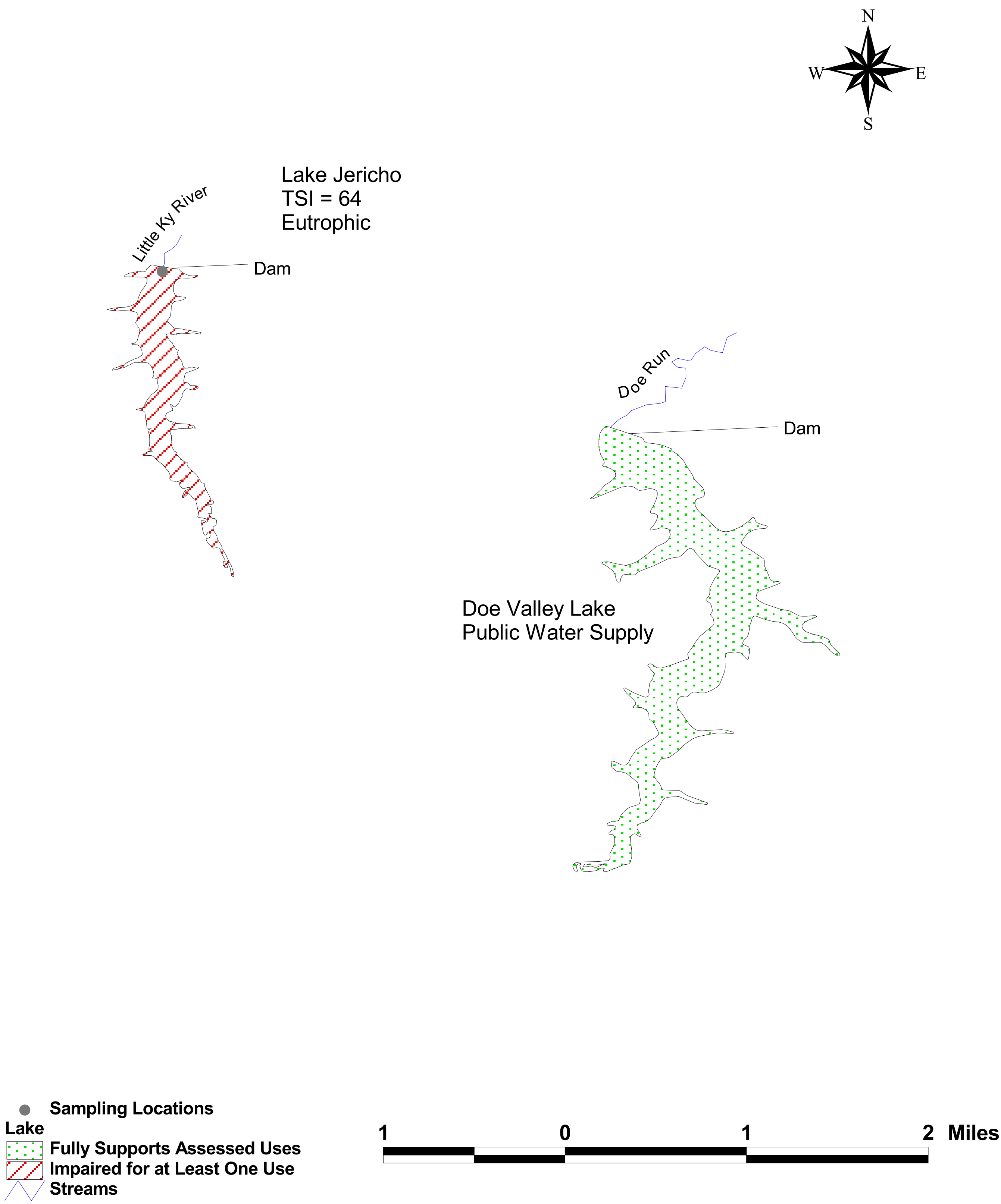
Source 2006 305(b) Report

Figure C-8. Monitoring sites on Long Run, Reformatory and McNeely Lakes in the Salt River Basin.



Source 2006 305(b) Report

Figure C-9. Monitoring sites on Lake Jericho and Doe Valley Lake in the Salt River Basin.



Source 2006 305(b) Report

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