

Fishtrap Lake Project Master Plan

Draft Programmatic Environmental Assessment



August 2011

prepared for:



**US Army Corps
of Engineers** ®
Huntington District

Huntington, West Virginia 25701

prepared by:



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Acronyms and Abbreviations

AMSL	above mean sea level
BMP	best management practice
CFR	Code of Federal Regulations
CO	carbon monoxide
Commonwealth	Commonwealth of Kentucky
CWA	Clean Water Act
dB	decibel
DNL	Day-Night Average Sound Level
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FERC	Federal Energy Regulatory Commission
FY	fiscal year
GIS	Geographic Information System
HPMP	Historic Properties Management Plan
I	Interstate
KPDES	Kentucky Pollutant Discharge Elimination System
KSNPC	Kentucky State Nature Preserves Commission
KYDFWR	Kentucky Department of Fish and Wildlife Resources
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NHRP	National Register of Historic Places
NPDES	National Pollutant Discharge Elimination System
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetland Inventory
O ₃	ozone
PEA	Programmatic Environmental Assessment
Project	Fishtrap Lake Project

spp.	<i>species pluralis</i> (multiple species)
SR	State Route
State Park	Fishtrap Lake State Park
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
var.	variety
WMA	Wildlife Management Area

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1.0 INTRODUCTION

The 1989 Fishtrap Lake Project Master Plan supplements to the original 1962 Master Plan (USACE, 1989) (1989 Master Plan) was updated in 2011. The U.S. Army Corps of Engineers (USACE) proposes to implement the measures and actions that are recommended in the updated Master Plan (USACE, 2011) to achieve five resource use objectives. The environmental impacts of these measures have been evaluated, and the results of the evaluation are presented in this document. The measures are referred to collectively as the Proposed Action.

This draft Programmatic Environmental Assessment (PEA) has been prepared in part to fulfill the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. §§ 4321–4327). The PEA identifies and assesses the potential environmental impacts of the Proposed Action. As required under NEPA, the draft PEA contains an assessment of the No Action Alternative in which the Proposed Action would not be implemented. The PEA is being prepared in coordination with Federal and State agencies and will support USACE decision-making regarding implementation of the measures recommended in the updated Master Plan.

1.1 Scope of the Programmatic Environmental Assessment

NEPA documents are allowed to cover broad actions, such as agency programs and related or similar actions, under the Council on Environmental Quality’s NEPA implementing regulations (40 CFR § 1502.4). These NEPA documents are referred to as “Programmatic,” are often broad in scope, and may be followed by supplemental NEPA documentation that incorporates the programmatic documents by reference. Supplemental NEPA documentation addresses specific actions.

Because the designs, specifications, footprints, and implementation schedules of the Proposed Action have not been finalized, this draft PEA contains a general evaluation of potential environmental impacts of the Proposed Action. Supplemental NEPA documents, which may include Categorical Exclusions or Environmental Assessments, may be required for implementation of individual measures or actions. The USACE would determine the appropriate level of NEPA documentation and whether incorporation of this PEA by reference into the supplemental NEPA documentation is appropriate for each action/measure.

1.2 Fishtrap Lake Project Background

The Fishtrap Lake Project (Project) is located on the Levisa Fork of the Big Sandy River in Pike County, KY, near the Virginia and West Virginia borders. The USACE oversees 15,693 acres in

fee and 203 acres of flowage easements in the Project. The Project includes the Fishtrap Lake dam, Fishtrap Lake, and adjacent lands (Figure 1-1). Table 1-1 lists the acreages of the Federal recreational and outgrant areas along with the managing agencies and major facilities and activities.

Table 1-1: Outgrant Areas and Managing Agencies

Name of Area	Acreage	Managing Agency
Dam Site Area	61	USACE
Lick Creek Launch Ramp	10	USACE
Grapevine Creek Campground	47	USACE
Feds Creek Recreation Area	3	Pike County
Lick Creek Recreation Area	312	Pike County
Grapevine Recreation Area	1	Pike County
Appalachian Marina	15	Appalachian Marina, Inc.
Wildlife Management Area	15,296	KYDFWR
Fishtrap Lake State Park	331	Kentucky Department of Parks
Millard-East Shelbiana Volunteer Fire & Rescue Department	1	Millard-East Shelbiana Volunteer Fire & Rescue Department, Inc.
Kentucky Division of Forestry Offices	2	Kentucky Division of Forestry
KYDFWR = Kentucky Department of Fish and Wildlife Resources		

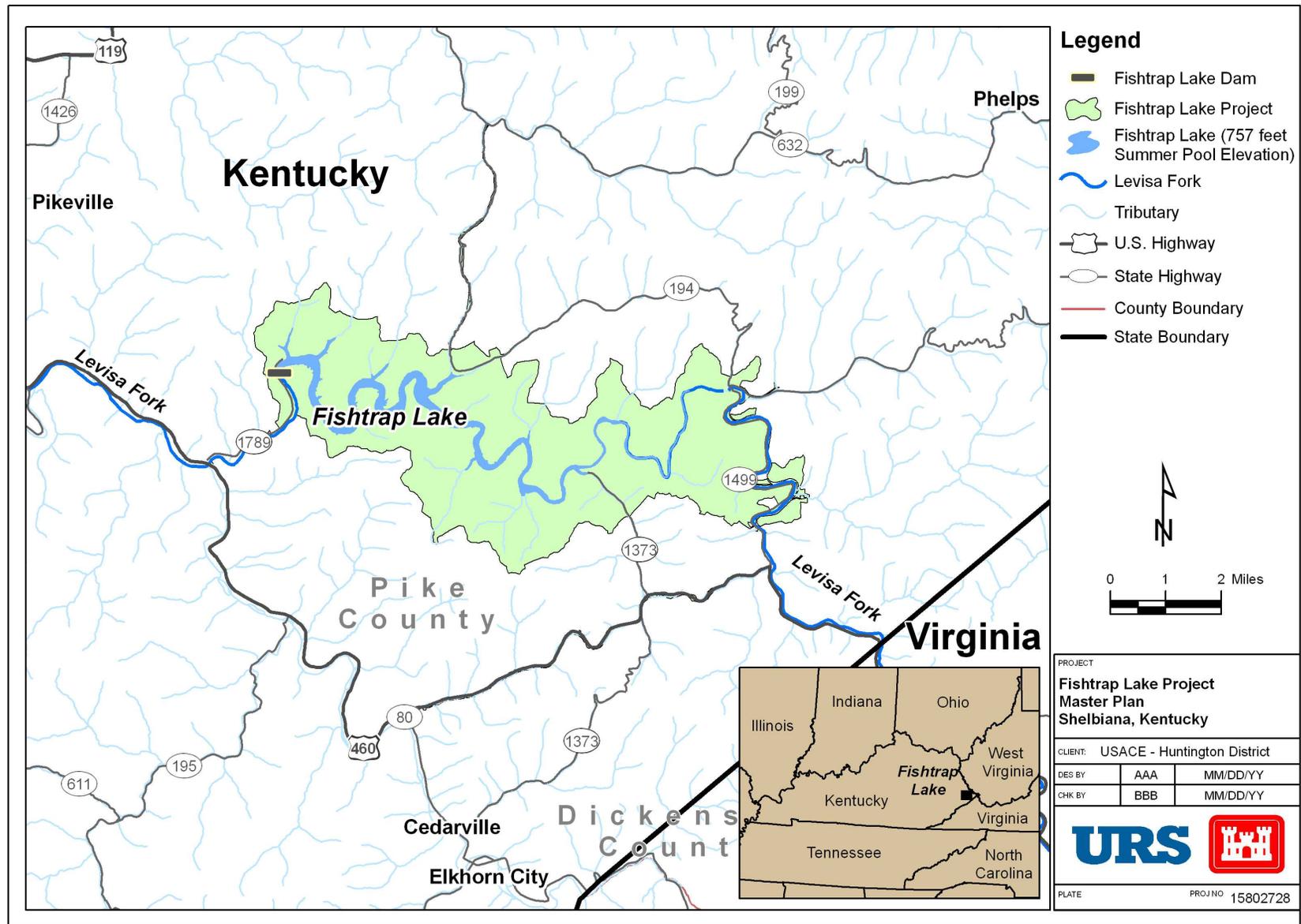


Figure 1-1: Fishtrap Lake Project Location

1.3 Fishtrap Lake Project Authority

The Fishtrap Lake Project was authorized by the Flood Control Act of 1938 (Public Law 75-6761). Dam construction was completed in 1968. The primary authorized purpose of the Fishtrap Lake Project is flood risk management, and the secondary purposes are recreation, water quality improvement, low flow augmentation, and fish and wildlife conservation (USACE, 1994).

1.4 Purpose and Need

This PEA contains an evaluation of the environmental impacts of the measures and actions that are recommended in the 2011 Fishtrap Lake Master Plan (USACE, 2011) (Master Plan Update). Master plans are updated periodically to maintain focus on regional and ecosystem needs, project resource capabilities and sustainability, and expressed public interests and desires. An updated master plan is essential in fostering efficient and cost-effective projects for natural and cultural resources management and recreational programs by ensuring that current environmental mandates and considerations are incorporated (USACE, 1996). The Master Plan Update also includes recommendations for accommodating increased or new demands that may affect project resources.

The Master Plan Update addresses the resources in the Project area, which include but are not limited to water; geology; soils; vegetation; wildlife; and aquatic, cultural, aesthetic, recreational, and mineral resources. Through the implementation of the Master Plan Update, Project managers can provide responsible and timely protection, conservation, and enhancement of Project resources. The PEA is needed to assist USACE in its decision-making process regarding implementation of the Master Plan Update's recommended measures and actions to comply with NEPA.

2.0 NO ACTION AND PROPOSED ACTION ALTERNATIVES

This section provides a description of the two alternatives considered in this PEA—the No Action Alternative and the Proposed Action.

2.1 No Action Alternative

Under the No Action Alternative, the measures described in the Master Plan Update would not be implemented. Operation and management of the Project would continue as described in the 1989 Master Plan. Existing facility maintenance, wildlife and vegetation enhancement, trail development, erosion control, flood risk management, and management of recreational areas and activities would continue. New facilities and/or activities not identified in the 1989 Master Plan could be constructed or implemented on a case-by-case basis.

2.2 Proposed Action

Under the Proposed Action, the measures and actions described in the Master Plan Update would be implemented fully. The measures are divided into three categories: (1) modifying resource management based on updated resource status and guidance, (2) facility development based on resource capability, regional demand, and public desires, and (3) designating utility corridors.

Implementation of the Master Plan Update would allow an update of the Fishtrap Lake Project lands and waters that reflects environmental stewardship and conservation while meeting current and future public, social, and economic demands.

The Proposed Action consists of the measures and actions that are listed in Table 2-1. The Proposed Action would address the projected demands that are identified in the Master Plan Update. More information about the Proposed Action is provided in Sections 7.0 and 8.0 of the Master Plan Update, which is provided as Appendix A of this document.

Major utility corridors such as cross-country utilities and pipelines that would cross the Project may be considered. Utility corridor alignments would be determined based on impacts to environmentally sensitive areas, recreation uses, and land use such as mining.

Table 2-1: Fishtrap Lake Project Master Plan Recommended Measures and Actions

Project Area	Land Classification	Management Agency	Issue	Recommendations
Dam Site Area	Project Operations	USACE	Recreational facilities do not meet the needs and demands of visitors. Shelters are reserved throughout the recreation season.	<ul style="list-style-type: none"> • Construct a picnic shelter to meet demand. Develop the site with picnic tables, charcoal grills, and trash receptacles. A potential area for the picnic shelter is at the open area between the two existing picnic shelters. Road access is currently available, but a parking lot with 20 spaces would be needed.
Grapevine Creek Campground	Project Operations and Recreation	USACE	Current camping facilities do not meet demand and needs. There are frequent requests for utilities.	<ul style="list-style-type: none"> • Extend the utility hook-ups to remaining RV campsites. Utility hook-up are popular and frequently requested, however only a portion of the campsites have this service.
			Recreational facilities do not meet the needs and demands of visitors. Shelters are reserved throughout the recreation season.	<ul style="list-style-type: none"> • Construct an additional picnic shelter to meet demand. Develop the site with picnic tables, charcoal grills, and trash receptacles. Potential area for the picnic shelter adjacent to the existing shelters.
Feds Creek Recreation Area	Recreation (Low Density)	Pike County	Parking is not sufficient to meet the needs of visitors, who often park at the adjacent elementary school or at the volunteer fire department.	<ul style="list-style-type: none"> • Available space for additional parking is very limited. It is recommended that an additional half acre of land be acquired from the WMA to construct a parking lot for visitors.
Lick Creek Recreation Area	Recreation (Low Density)	Pike County	Recreational facilities do not meet the needs and demands of visitors. Parking is not sufficient to meet the needs of visitors, who often park in grass area used for overflow parking and shelters are reserved throughout the recreation season.	<ul style="list-style-type: none"> • Construct an additional picnic shelter to meet demand. Develop the site with picnic tables, charcoal grills, and trash receptacles. Potential area for the picnic shelter adjacent to the existing shelters. • Construct asphalt parking lot to accommodate visitors.

Table 2-1: Fishtrap Lake Project Master Plan Recommended Measures and Actions

Project Area	Land Classification	Management Agency	Issue	Recommendations
Wildlife Management Area	Multiple Resource Management, Wildlife Management General	KYDFWR	Recreational facilities do not meet the needs and demands of visitors. Multi-use trails are limited to south side of the lake and there are limited trailheads that can accommodate vehicles with horse trailers.	<ul style="list-style-type: none"> • Create additional trailheads that can accommodate vehicles with horse trailers.
			The Project area includes unique habitats such as wetlands, habitat that supports neotropical migratory birds, and bottomland hardwood. The locations and extent of the various ecosystems are not well known, which hinders the ability to provide effective management.	<ul style="list-style-type: none"> • Conduct baseline study that identifies habitats throughout the Project (e.g., wetland delineation) and develop monitoring program. The amount and range of the habitats would allow losses or gains to be tracked.

KYDFWR = Kentucky Department of Fish and Wildlife Resources

USACE = U.S. Army Corps of Engineers

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3.0 ENVIRONMENTAL SETTING

This section describes the current (baseline) condition of the environment that could be affected by the No Action or the Proposed Action Alternatives.

3.1 Physical Environment

This section contains a description of the topography, geology, and soils in the Project area.

3.1.1 Topography

The topography of the Project area is hilly and mountainous and characterized by deep coves and valleys that have been eroded through thick, flat-lying, or gently folded sedimentary rocks. Flat areas are uncommon except along the valley bottoms. Elevations in the Project area range from approximately 760 feet to 2,040 feet National Geodetic Vertical Datum (NGVD). Approximately 80 percent of the Project area consists of steep slopes in excess of 30 percent (USGS, 2009). Figure 3-1 shows the topography in the Project area and how the topography relates to suitability of the Project area for development.

3.1.2 Geology

The Project area is in the Eastern Coalfields Physiographic Region of the Cumberland Plateau. The geology of the Project area is characterized by Lower to Upper Pennsylvanian-aged rock that is approximately 305 to 320 million years old. Four primary geologic units occur within the Project area (Kentucky Geological Survey, 2009): (1) alluvium, which is found along valley bottoms and consists of stream deposits of sediments (gravels, sands, silts, clay) up to approximately 30 feet thick, (2) the Grundy Formation, which is found primarily at the bottom of mountain side slopes and consists of sandstone, siltstone, shale, and coal, (3) the Pikeville Formation, which is typically the first unit encountered upward from the valley floor, and consists of sandstone, shale, and coal, and (4) the Hayden Formation, which is found along ridgetops and upper side slopes and consists of shale and coal.

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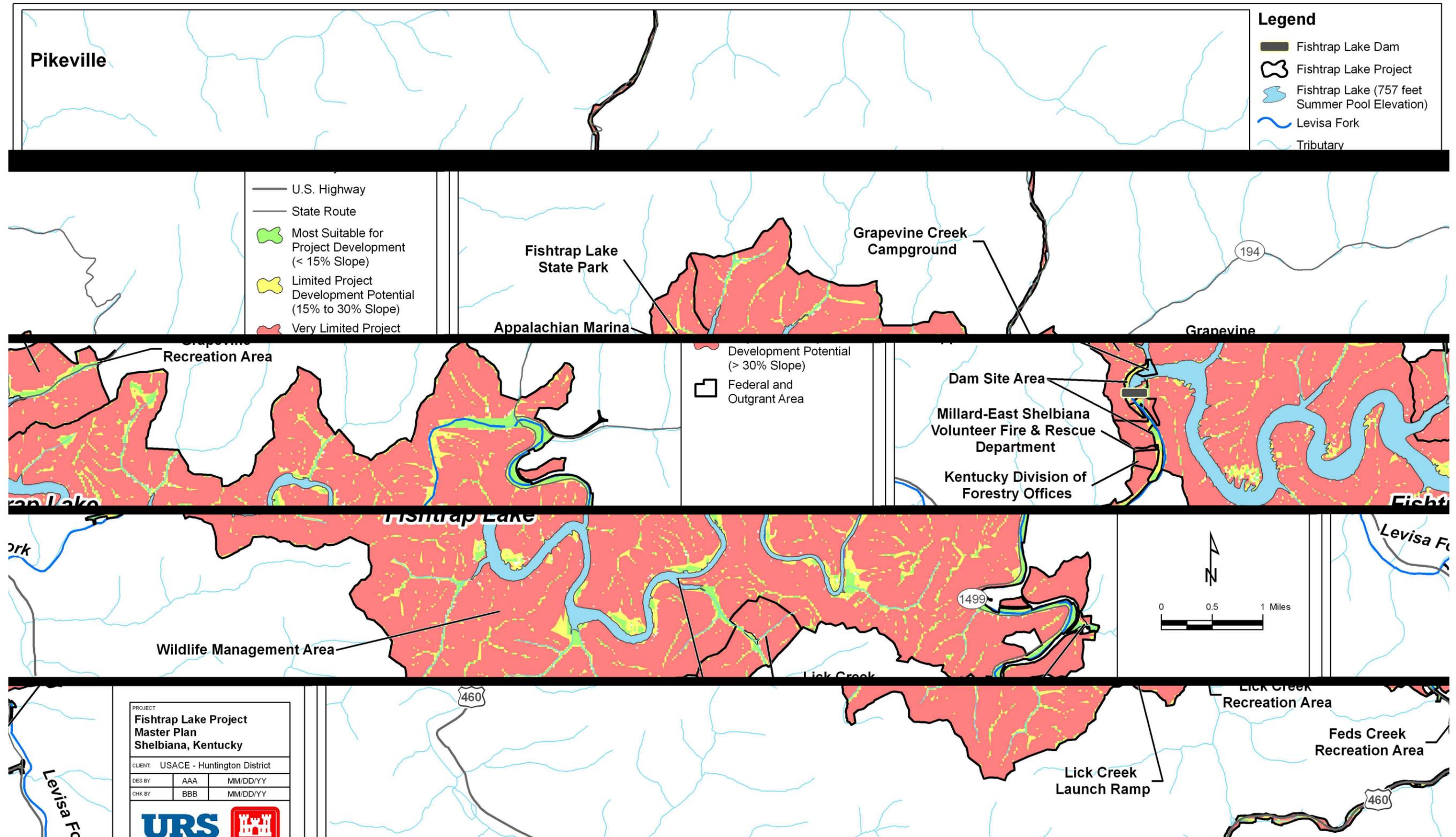


Figure 3-1: Topography Suitability for Project Development

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3.1.3 Soils

The soil types in the Project area are primarily the result of variability in the geologic parent material and positions on the landscape. Soils in the Project area were formed primarily from weathered sandstone, siltstone, shale, or from sediments deposited by running water. The soils on steep mountainside slopes are typically characterized by rock fragments throughout the soil.

According to the *Soil Survey of Pike County, Kentucky* (USDA, 1990), 16 groups (referred to as soil map units in Table 3-1) occur at the Project area, 9 of which occupy less than 1 percent of the area. Because of the limited presence of the 9 soil map units, they are excluded from further discussion. The remaining 7 soil map units are listed in Table 3-1 and categorized as the following based on their suitability and limitations for recreational development: (1) most suitable for development, (2) limited development potential, and (3) least suitable for development. Figure 3-2 shows soil types in the Project.

The Farmland Protection Policy Act of 1981 (7 U.S.C. §§ 4201–4209) designates soils that are suitable to farming as prime or unique farmlands and is intended to minimize irreversible conversion of farmland to nonagricultural uses. Prime farmland soils cover approximately 5 percent of the Project area and are generally in valley bottoms along streams. These soils are not currently planted or managed for forage or wildlife habitat by USACE or the KYDFWR. An additional 5 percent of the soils in the Project area is classified as farmland of statewide importance.

Table 3-1: Soils Covering Greater Than 1 Percent of the Project Area in Order of Predominance

Soil Map Unit Symbol	Soil Type	Typical Slope	Suitability for Project Development Based on Slope and Soil Type
MaF	Marrowbone-Dekalb-Muskingum complex, very rocky	30–80%	Least suitable
KsF	Kimper-Sharondale-Muskingum complex, very stony	30–80%	Least suitable
FmF	Fedscreek-Marrowbone-Dekalb complex, very stony	30–80%	Least suitable
MmF	Marrowbone-Fedscreek-Myra complex, very stony	30–80%	Least suitable
BrG	Berks-Rock outcrop-Marrowbone complex	60–120%	Least suitable
HpC	Hayter-Potomac-Stokly complex	2–15%	Most suitable
FgE	Fedscreek-Gilpin-Marrowbone complex	20–50%	Limited development potential

Source: USDA (1990)

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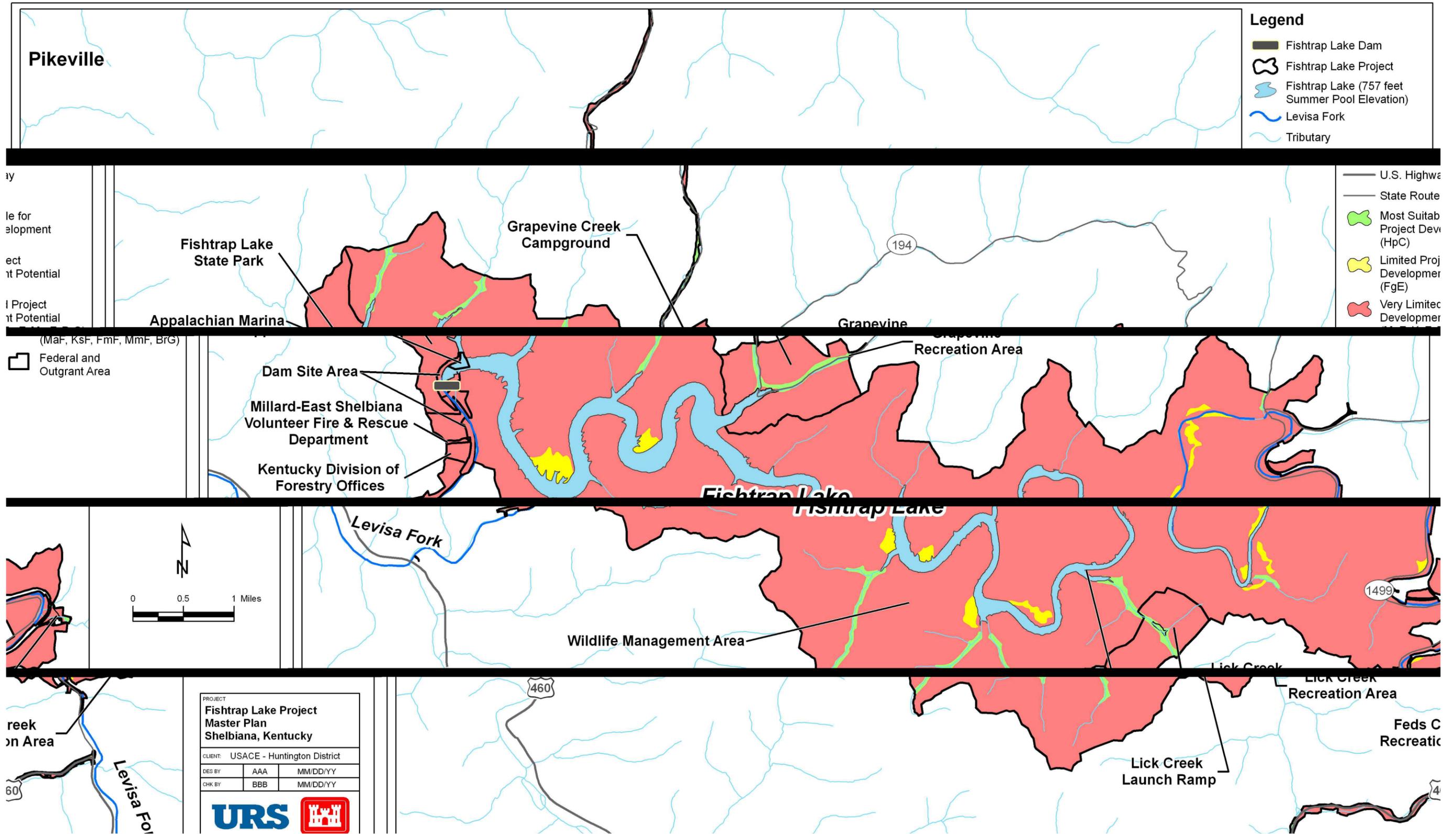


Figure 3-2: Fishtrap Lake Project Soils

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3.1.4 Water Resources

This section contains a discussion of surface water and groundwater in the Project area.

3.1.4.1 Surface Water

Surface water in the Project area includes rivers and streams, Fishtrap Lake, and the tailwater.

Rivers and Streams

Fishtrap Lake is located Pike County on the Levisa Fork River, a major tributary of the Big Sandy River. Fishtrap Lake is approximately 100 miles upstream from the confluence of Levisa Fork with the Big Sandy River and lies within the Upper Levisa watershed, which encompasses approximately 1,210 square miles.

The 392-square-mile watershed upstream of the Fishtrap Lake dam includes a network of stream tributaries that carry surface water to the Levisa Fork River. Figure 3-3 shows the Fishtrap Lake and Upper Levisa watershed boundaries, and Figure 3-4 shows the surface waters and tributaries within the Project.

Upstream land use, such as coal mining, logging, agriculture, and land development, have caused erosion, and the eroded sediment has been transported into surface water. Sediment is considered a pollutant and has diminished the clarity of streams and degraded surface water quality in the Upper Levisa watershed.

According to the *Draft 2010 Integrated Report to Congress on the Condition of Water Resources in Kentucky* (Kentucky Division of Water, 2010), water bodies in the Project or that drain to Fishtrap Lake that are considered impaired for water quality under Section 303(d) of the Clean Water Act (33 U.S.C. § 1313) are the Levisa Fork River, Island Creek, and Lick Creek. An impaired water body has chronic or recurring monitored violations of State water quality regulations and is a priority for water quality enhancement.

Upstream of Fishtrap Lake, the Levisa Fork is impaired for use as warm water aquatic habitat and partially impaired for use as primary contact water recreation by sedimentation/siltation and fecal coliform due to onsite treatment systems (septic systems and similar decentralized systems), sewage discharge in unsewered areas, and surface mining. The lower section of Island Creek is partially impaired for use as warm water aquatic habitat by sedimentation/siltation and total dissolved solids due to surface mining. The lower section of Lick Creek is partially impaired for use as warm water aquatic habitat by nutrient/eutrophication biological indicators

and sediment/siltation due to channelization, coal mining, highway/road/bridge runoff (non-construction related), loss of riparian habitat, and non-point source pollution (Kentucky Division of Water, 2010).

The Commonwealth of Kentucky (Commonwealth) regulates and preserves its most pristine rivers through the Wild Rivers Program. The program was established by the Kentucky Wild Rivers Act of 1972 and is administered by the Kentucky Division of Water. None of the streams or rivers designated as wild and scenic under this program or designated under the National Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271 et seq.) are within the Project area boundaries.

The CWA (33 U.S.C. §§ 1251 et seq.) established the basic framework for regulating discharges of pollutants into the waters of the United States. The CWA National Pollutant Discharge Elimination System (NPDES) (33 U.S.C. § 1342) requires permits for stormwater discharges associated with construction. The Kentucky Division of Water is authorized to carry out NPDES permitting under the Kentucky Pollutant Discharge Elimination System (KPDES). Construction projects that disturb more than 1 acre of land require coverage under the General Permit for Stormwater Discharges Associated with Construction Activities. Coverage under this permit requires development of construction site erosion control and storm water management plans.

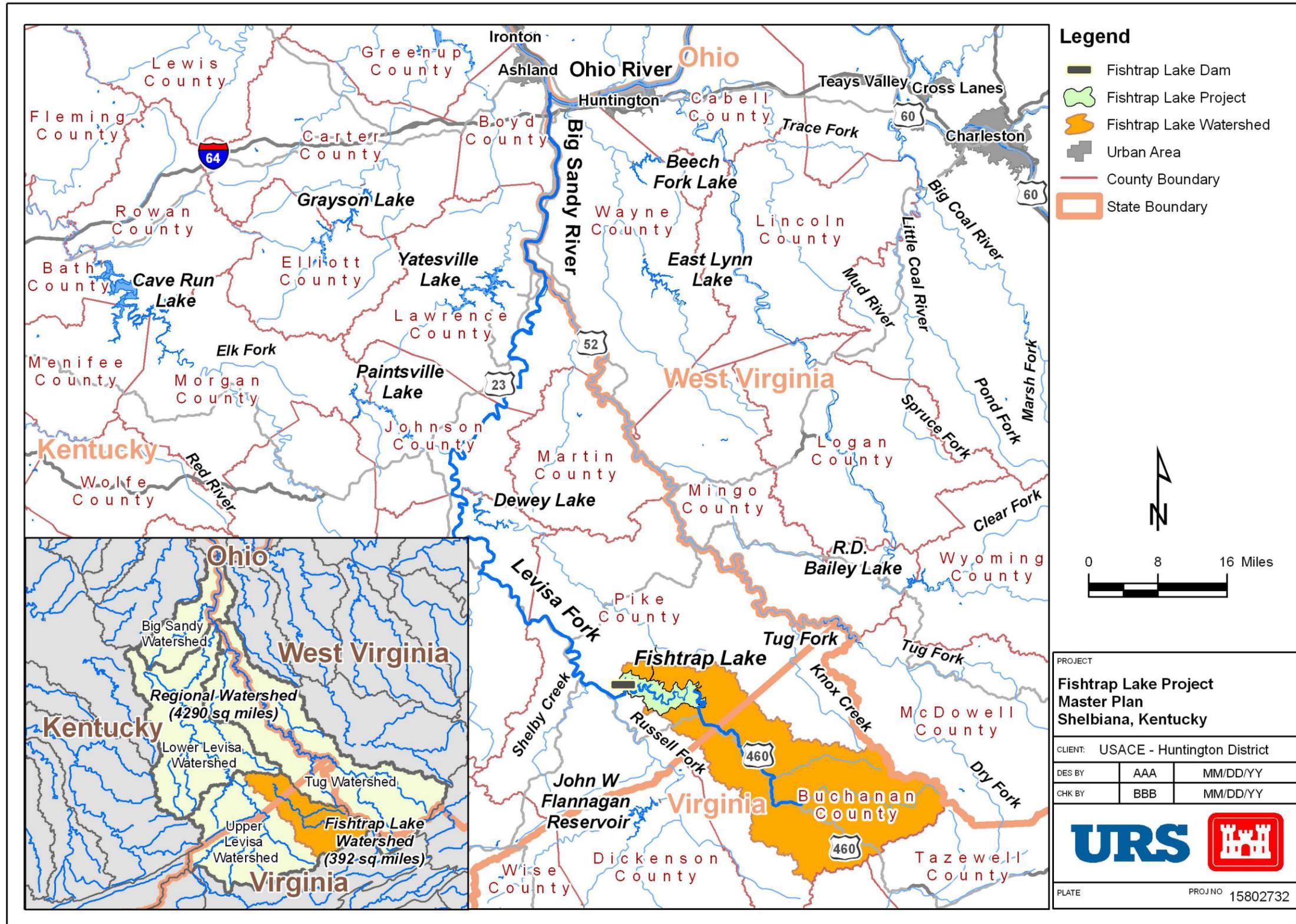


Figure 3-3: Fishtrap Lake Watershed

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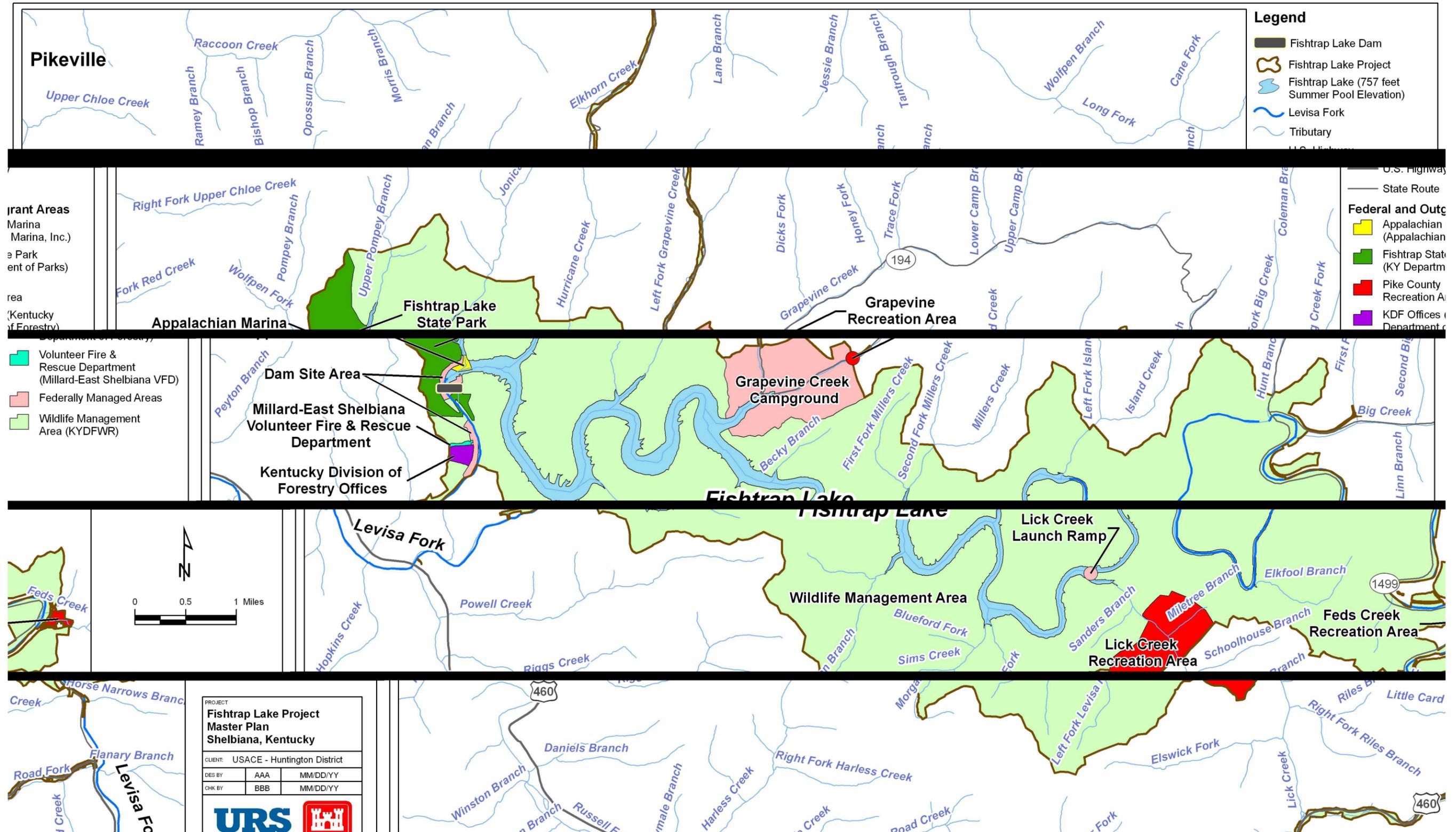


Figure 3-4: Surface Waters in the Project Area

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Fishtrap Lake

The surface of Fishtrap Lake covers 1,131 acres and is approximately 16.5 miles long during the normal summer pool elevation of 757 feet NGVD. The summer pool (April through November) is typically the highest water level during the year. The lake is long and relatively narrow with many coves at junctions with tributaries; these features result in a shoreline that is approximately 41 miles long during the summer. The shoreline generally consists of steep hills that are well-vegetated down to the water line above the summer pool elevation. Approximately 795 acres of the lake are designated for unrestricted boat use, and 330 acres are restricted as controlled speed or no wake zones. Boating is not allowed on 6 acres.

Fishtrap Lake is listed as impaired for fish consumption due to PCBs and methyl mercury contamination of fish (KY Division of Water, 2010; KYDFWR, 2011a). Floating trash and woody debris are common on Fishtrap Lake.

The USACE regularly samples the water of Fishtrap Lake at different depths for temperature, dissolved oxygen, acidity (or pH), and conductivity. The KYDFWR uses these data to assess the quality of the water for fish habitat. The lake is stratified during the summer with warm, oxygenated water on the surface and cold, unoxygenated water levels at the bottom.

Tailwater

The tailwater is immediately downstream of the dam where the outflow from the lake is discharged. Water is released from the lake through an intake structure and passes through a tunnel to emerge as outflow. This system allows withdrawal from various water depths and offers choices over a considerable range of outflow rates and water parameters, including temperature. In April, May, June, October, and November, the KYDFWR stocks the tailwater with rainbow trout (*Oncorhynchus mykiss*) to increase recreational fishing opportunities at the Project.

3.1.4.2 Groundwater

One aquifer, the Middle Breathitt Formation, provides groundwater to the groundwater wells in the Project area. Eleven groundwater wells (2 public, 8 domestic, and 1 monitoring) are recorded in the Project area (Figure 3-5), but their condition is unknown (Kentucky Geological Survey, 2002). No natural springs have been identified for water use in the Project area.

In Pike County, the groundwater contains noticeable amounts of iron (Fe) and is considered moderately hard. Other naturally occurring constituents that may be present in objectionable amounts are sulfate (SO₄), sodium chloride (NaCl), and manganese (Mn). Salty water may be found at depths of 200 feet or below the ground surface level of the major valley bottoms (Kentucky Geological Survey, 2011). No groundwater contamination has been identified in the Project area.

Groundwater is a vital, natural resource that is susceptible to contamination from a variety of activities. Contaminated groundwater can be difficult to remediate. The Kentucky Department for Environmental Protection assesses how easily and quickly a contaminant can move into and within a groundwater system (Ray et al., 1994) on a scale from 1 (low) to 5 (high). The sensitivity of the groundwater system in the Project area is rated between 3 (moderate) and 4 (moderate-high) (Kentucky Geological Survey, 2011).

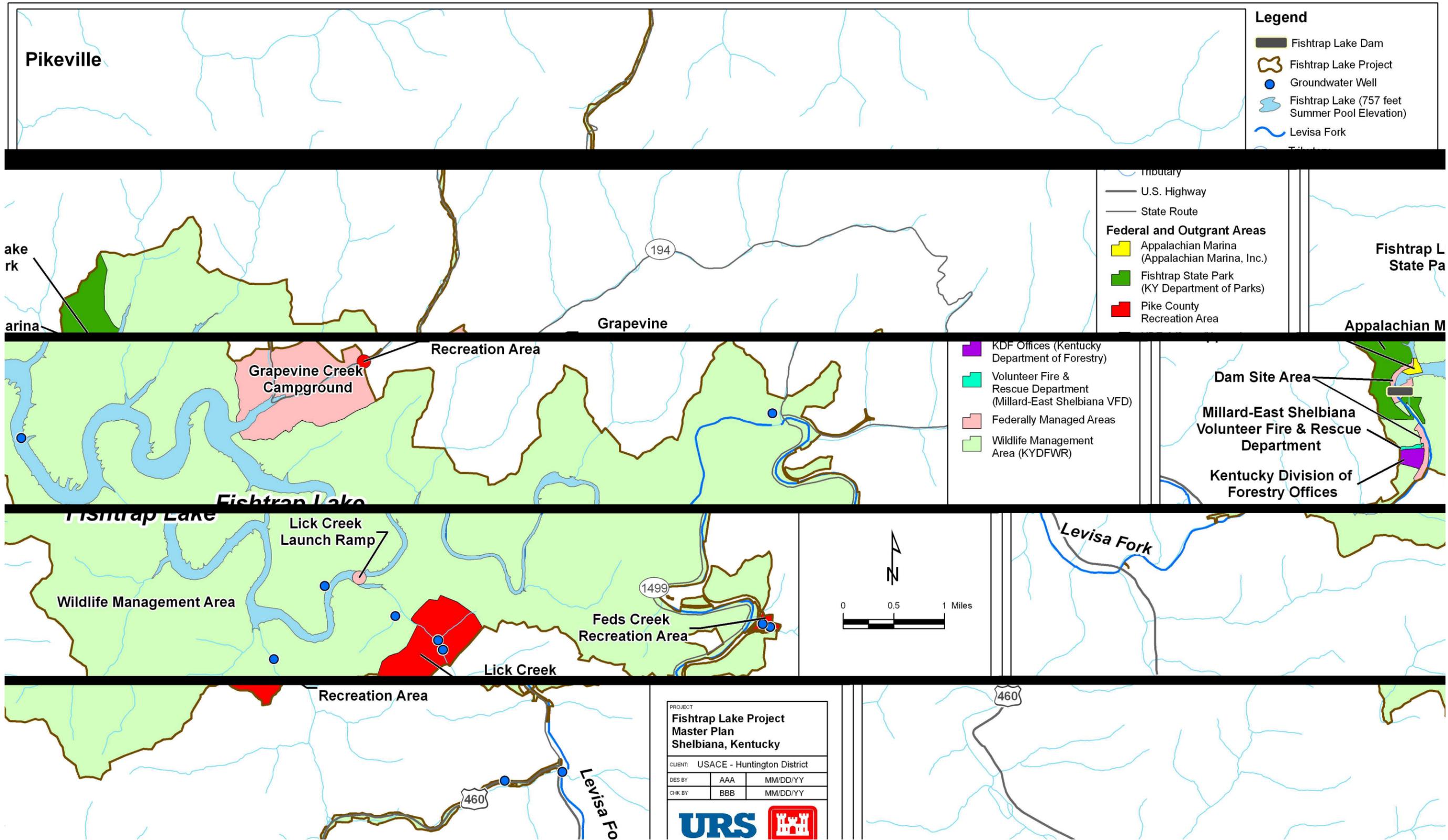


Figure 3-5: Groundwater Wells

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3.1.5 Floodplains

One of the primary authorized purposes of the Project is flood risk management. The Project area around the lake is designed to store floodwaters to reduce flood risk downstream. Consequently, inundation by flooding is largely artificially controlled. Figure 3-6 shows inundation areas between the summer pool elevation of 757 feet NGVD and the maximum flood control pool elevation 825 feet NGVD. Flooding of the land above the recreational summer pool elevation does occur, but the majority of flooding instances occur during the winter and spring months.. Based on Figure 3-6, the majority of the recreation areas are subject to inundation.

3.1.6 Air Quality

The U.S. Environmental Protection Agency (EPA) has set national air quality standards for six principal pollutants (also referred to as “criteria” pollutants): carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter, and sulfur dioxide (SO₂) (EPA, 2010). Ambient air quality in the Fishtrap Lake area is in attainment for all criteria pollutants (Kentucky Division of Air Quality, 2010).

3.1.7 Climate

The Project area has a temperate climate and experiences the four seasons with average temperatures ranging from approximately 34 degrees Fahrenheit in January to 75 degrees Fahrenheit in July. The region receives an average rainfall of between 2 and 5 inches per month, with an annual average of between 40 and 45 inches (NOAA, 2006). There are striking variations in the severity of summer and winter from year to year.

3.1.8 Noise

EPA’s Noise Control Act of 1972 (42 U.S.C. §§ 4901–4918), as amended by the Quiet Communities Act of 1978, states that the policy of the United States is to promote an environment for all Americans that is free from noise that jeopardizes health or welfare.

Noise is generally defined as loud or undesirable sound. Sound is most commonly measured in decibels (dB), with the Day-Night Average Sound Level (DNL) used as an average measure of sound in dB. The DNL descriptor is accepted by Federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. EPA guidelines, and those of many other Federal agencies, state that outdoor sound levels in excess of 55 dB DNL are “normally unacceptable” for “outdoors in residential areas and farms and other outdoor areas

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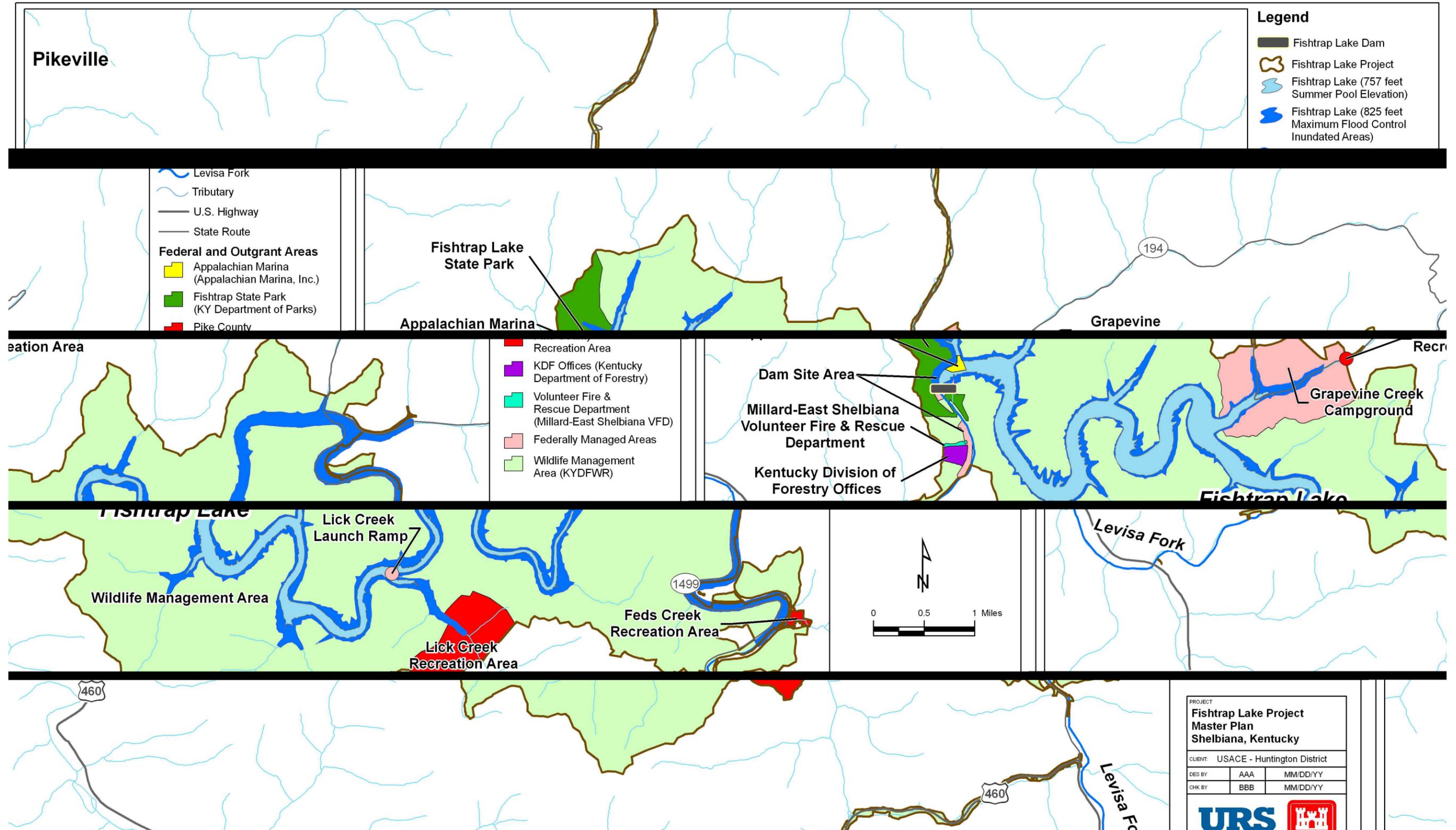


Figure 3-6: Inundation Areas of Summer Pool and Maximum Flood Control Elevations

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where people spend widely varying amounts of time ...,” which would include the Project area (EPA, 1974). Although temporary/transient noises occur in the Project area (e.g., from vehicles or boats), no notable sources of noise pollution are known to be present.

3.2 Biological Environment

The biological environment includes vegetation, wetlands, terrestrial wildlife, and aquatic life. Threatened and endangered species in the Project area are also discussed in this section.

3.2.1 Vegetation

Most of the land cover at the Project is forested (82 percent) with small, scattered open areas and grasslands, pasture/hay, and developed open space (Homer et al., 2004). See Figure 3-7.

Table 3-2 lists the land cover types in the Project area and the percentage of the area they cover.

Table 3-2: Land Cover Types in the Project Area

Land Cover	Percent of Project Area
Allegheny-Cumberland dry oak forest and woodland	75%
Open water	7%
Successional grassland/herbaceous	6%
South central interior mesophytic forest	5%
Developed open space	2%
Low intensity developed	1%
Southern Appalachian low mountain pine forest	1%
Appalachian hemlock-hardwood forest	1%
Other (developed) includes medium- and high-intensity developed land and quarry/strip mine/gravel pit	1%
Other (natural) includes pasture/hay, south central interior small stream/riparian, row crop, successional shrub/scrub, southern interior acid cliff, and southern Appalachian mountain pine forest and woodland	1%

Source: Homer et al. (2004)

The primary tree species in the Project area are oaks (*Quercus* spp.), maples (*Acer* spp.), and hickories (*Carya* spp.), with small stands of pine (*Pinus* spp.). Less dominant species include American beech (*Fagus grandifolia*), yellow poplar (*Liriodendron tulipifera*), yellow birch (*Betula alleghaniensis*), American basswood (*Tilia americana*), cucumber tree (*Magnolia*

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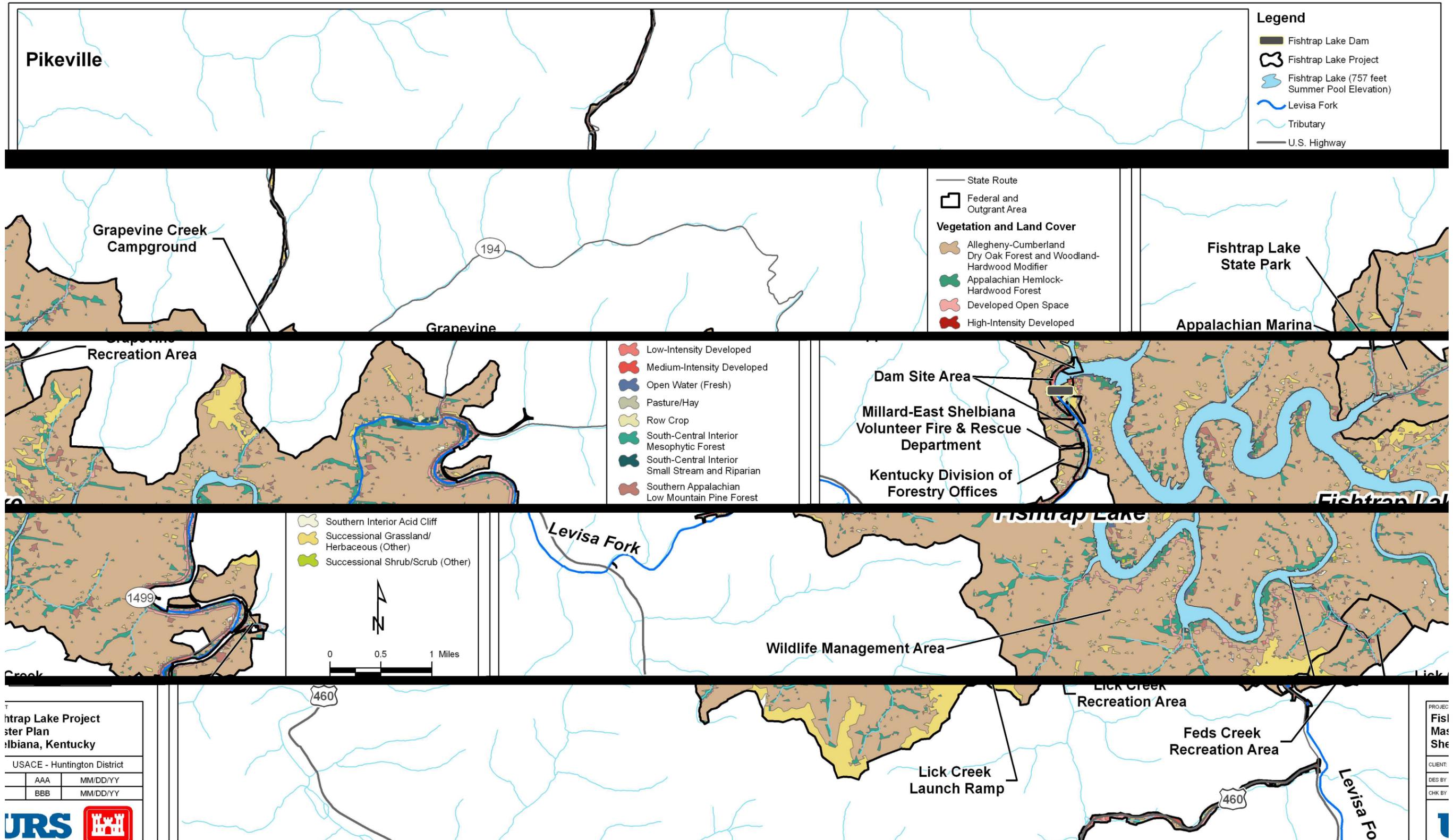


Figure 3-7: Vegetation and Land Cover in the Project Area

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acuminata), black walnut (*Juglans nigra*), eastern hemlock (*Tsuga canadensis*), black cherry (*Prunus serotina*), and sweet birch (*Betula lenta*) (NatureServe, 2007).

The four primary forest communities are as follows:

- **Allegheny-Cumberland Dry Oak Forests and Pine Woodlands** are typically dominated by white oak (*Quercus alba*), southern red oak (*Quercus falcata*), chestnut oak (*Quercus prinus*), and scarlet oak (*Quercus coccinea*), with lesser amounts of red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and mockernut hickory (*Carya alba*). Small stands of shortleaf pine (*Pinus echinata*) or Virginia pine (*Pinus virginiana*) may occur, particularly adjacent to escarpments or following fire. In the absence of fire, eastern white pine (*Pinus strobus*) may be prominent, occurring in a variety of situations, including on nutrient-poor or acidic soils (NatureServe, 2007).
- **Successional Grassland/Herbaceous** communities consist either of dense shrubs or dense herbaceous cover dominated by grasses or sedges (*Carex* spp.). Herbaceous vegetation is most often dominated by rhododendron (*Rhododendron* spp.) but also includes mountain laurel (*Kalmia latifolia*) or a mixture of shrubs. Grassy areas are characteristically dominated by flattened oatgrass (*Danthonia compressa*) or sedges. Large areas have also become dominated by blackberry (*Rubus allegheniensis*) and by mixtures of native grasses with exotic pasture grasses. Most examples of grassy areas have some invading shrubs and trees, often dense enough to threaten the herbaceous vegetation.
- **South-Central Interior Mesophytic Forests** are highly diverse and predominantly deciduous. They occur on deep and enriched soils enhanced by limestone or related base-rich geology, in non-mountainous settings, and usually in somewhat protected landscape positions such as coves or lower slopes. Dominant species include sugar maple (*Acer saccharum*), American beech, yellow poplar, American basswood, red oak (*Quercus rubra*), cucumber tree, and black walnut. eastern hemlock may be present in some stands. Trees may grow to be large in undisturbed areas. Many examples of this type of forest are bisected by small streams (NatureServe, 2007).
- **Southern Appalachian Low Mountain Pine Forests** are characterized by shortleaf pine, and Virginia pine and hardwoods (oaks and maples) are sometimes abundant on especially dry sites. This forest type occurs from ridge tops to the valleys and is generally found on acidic soils and bedrock. The shrub layer may be well developed, and herbs are often sparse. Frequent low-intensity fires, coupled with severe fires, may have been the sole factor for determining the occurrence of this ecological system (NatureServe, 2007).

- **Appalachian Hemlock-Hardwood Forests** are characterized by northern hardwoods such as sugar maple, yellow birch, and American beech, either forming a deciduous canopy or mixed with eastern hemlock or eastern white pine. Other common and sometimes dominant trees include oaks (mostly red oak), yellow poplar, black cherry, and sweet birch (NatureServe, 2007).

Although the stands of eastern hemlocks in the Project area are generally healthy, eastern hemlocks are in decline regionally primarily because of infestations of the hemlock wooly adelgid (*Adelges tsugae*), and special care is given to prevent adverse impacts on the 25 acres of existing stands (eastern hemlocks are not listed separately in Table 3-2).

3.2.1.1 Vegetation Management

A primary goal of the KYDFWR's and USACE's comprehensive forestry management approach is to manage the forest to yield a healthy, sustainable forest. A key issue is controlling invasive species. Invasive species are problematic because they compete with native flora and fauna for the same resources. An invasive species is a species that is foreign to a particular region and out-competes native species for the same resources. Japanese knotweed (*Polygonum cuspidatum*), Japanese stiltgrass (*Microstegium vimineum*), Tree-of--Heaven *Ailanthus altissima*, paulownia (*Paulownia tomentosa*), and kudzu (*Pueraria lobata*) are the invasive species of primary concern at the Project (Rick Mauro, Northeast Region Public Lands Wildlife Biologist, written communication, 17 June 2011). Invasive species are monitored and managed at the Project to ensure that they do not affect native ecology; management includes chemical applications and physical removal.

Although the KYDFWR occasionally seeds open areas with native grass seed to augment or supplement the naturally occurring vegetation and provide benefit to small mammals, deer, turkeys, and birds by providing nesting areas, bedding areas for deer, and habitat for insects; seeding is primarily done on reclaimed mine land. In the Fishtrap Lake WMA, about 650 acres of reclaimed mine land have been converted into grassland and shrub-cover (KYDFWR, 2009).

3.2.2 Wetlands

The USACE regulates the discharge of dredged or fill material into waters of the United States, including wetlands, pursuant to Section 404 of the CWA (33 U.S.C. § 1344). Additionally, Executive Order (EO) 11990 (Protection of Wetlands) requires Federal agencies to avoid, to the extent possible, adverse impacts to wetlands. Wetlands provide a number of benefits to the environment, including water quality improvement, floodwater storage, fish and wildlife habitat, aesthetics, and biological productivity.

The National Wetland Inventory (NWI) maps from the USFWS are generalized maps that give approximate locations of wetland areas based on surveys. According to the NWI maps, 9 wetland types cover a total of approximately 110 acres. The wetlands tend to occur mainly in relation to streams and are scattered, consisting of relatively small areas of less than 3 acres (USFWS, 2010). Figure 3-8 shows the NWI-mapped wetlands in the Project area.

3.2.3 Terrestrial Wildlife

According to the KYDFWR, the Project area supports at least 26 amphibian species, 140 bird species, 48 mammal species, and 23 reptile species (KYDFWR, 2011b). Migratory waterfowl using the Project for at least part of the year include mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), American black duck (*Anas rubripes*), bufflehead (*Bucephala albeola*), green-winged teal (*Anas crecca*), green heron (*Butorides virescens*), blue heron (*Ardea herodias*), and belted kingfisher (*Megaceryle alcyon*).

Although none of the main North American flyways cross the Project area, many neotropical migrants can be found in eastern Kentucky. Neotropical birds breed in North America and spend the non-breeding season in Mexico, the Caribbean, and Central and South America. The annual migration of neotropical migrants brings species such as cerulean warblers, indigo buntings (*Passerina cyanea*), scarlet tanagers (*Piranga olivacea*), Baltimore orioles (*Icterus galbula*), and wood thrushes (*Hylocichla mustelina*) into Kentucky to nest and breed while others pass through on their way to and from their breeding habitat north of Kentucky. During the non-breeding season, the neotropical species return south (KSNPC, 2005).

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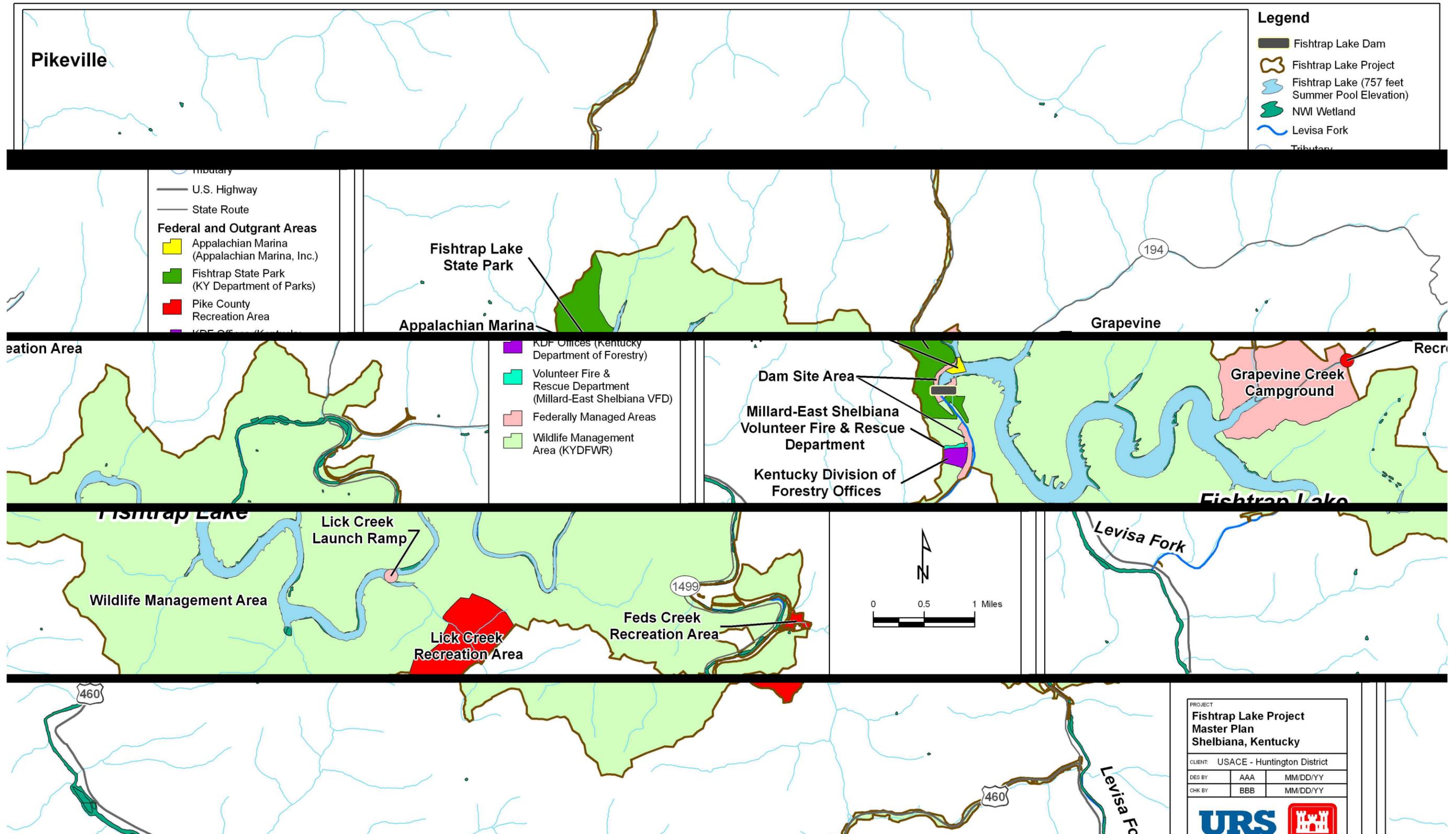


Figure 3-8: Wetlands in the Project Area

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3.2.3.1 Wildlife Management

The KYDFWR implemented wildlife restoration within the WMA in the 1980s with releases of white-tailed deer (*Odocoileus virginianus*) and in the 1990s with releases of wild turkey (*Meleagris gallopavo*). In recent years, otters (*Lutra Canadensis*), elk (*Cervus elaphus*) and black bear (*Ursus Americanus*) have also been relocated to the WMA (Richard Mauro, Northeast Region Public Lands Wildlife Biologist, written communication, 17 June 2011). The KYDFWR conducts regular surveys to measure wildlife populations and collects reports from hunters regarding numbers and types of animals harvested to estimate the numbers of game species. Hunting for deer, turkey, and squirrel is popular in the WMA. Fishtrap Lake is the only WMA in the state open to bear hunting. Besides statewide youth hunts, the only gun or muzzle-loader hunting for deer permitted on the WMA is an annual two-day quota hunt. Grouse are present in areas of second growth forest, and some woodcock (*Scolopax minor*) are found in forested bottomland along the creeks. Populations of quail, dove, and rabbits are currently low (KYDFWR, 2009a).

The KYDFWR has implemented various habitat development measures within the WMA. Construction of 18 small wildlife waterholes of less than 0.1 acre have been constructed at scattered locations in the WMA to provide habitat for a variety of upland species of frogs and salamanders and a standing water source for birds and mammals (Richard Mauro, Northeast Region Public Lands Wildlife Biologist, written communication, 17 June 2011).

3.2.4 Aquatic Life

Fishtrap Lake sustains a diverse composition of aquatic species. Some of the fish species found in the lake are listed in Table 3-3. Additionally, there are semi-aquatic species such as amphibians that spend half their life cycle in aquatic ecosystems and half in terrestrial ecosystems. The Project area supports many species of amphibians such as toads, salamanders, and frogs; these animals are good indicators of the health and stability of an aquatic ecosystem.

Existing structure like rocky bottoms, sandy bottoms, pooling areas, rock outcrops, and grassy areas all work together to provide habitat for a variety of aquatic life. The lake provides habitat for many fish species and is considered a good fishery. The KYDFWR stocks the tailwater below the dam with rainbow trout in April, May, and November, and in some years, also in June and October (KYDFWR, 2010).

Table 3-3: Some of the Fish Species in Fishtrap Lake

Common Name	Scientific Name
largemouth bass	<i>Micropterus salmoides</i>
smallmouth bass	<i>Micropterus dolomieu</i>
spotted bass	<i>Micropterus punctulatus</i>
hybrid striped bass	<i>Morone</i> sp.
black crappie	<i>Promoxis nigro-maculatus</i>
white crappie	<i>Promoxis annularis</i>
channel catfish	<i>Ctalurur punctatus</i>
flathead catfish	<i>Pylodictis olivaris</i>

KYDFWR (2009a)

In addition to all waters in the Commonwealth being under a statewide advisory for women of childbearing age and children 6 years old and younger to eat no more than one meal per week of freshwater fish from any body of water in the Commonwealth, the Levisa Fork River including Fishtrap Lake has fish consumption advisories (KYDFWR, 2011a). The Fishtrap Lake advisory is for the general population to consume no more than one fish per month and sensitive populations to consume no more than six fish per year of channel catfish, drum, white bass, or suckers/carp because PCB and methylmercury contamination and for the general population to consume no more than one fish per week and sensitive populations¹ to consume no more than one fish per month of black bass (which includes largemouth, smallmouth and spotted bass) and flathead catfish because of PCB and methylmercury contamination.

3.2.5 Threatened and Endangered Species

Threatened, endangered, and species of special concern are defined in this PEA as sensitive and protected biological resources, including plant and animals, that are listed for protection by the USFWS or the Commonwealth. Under the Endangered Species Act of 1973 (ESA) (16 U.S.C. §§ 1531–1544), an endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species likely to become an endangered species in the foreseeable future.

Threatened or endangered species that may occur at the Project are shown in Table 3-4 along with their State and Federal status. The Kentucky State Nature Preserves Commission (KSNPC)

¹Women of childbearing age, children 6 years of age or younger, pregnant and nursing women and women who plan to become pregnant

lists 13 species for Pike County as State-endangered or threatened (KSNPC, 2011). Of the 13 species, none are federally listed as threatened or endangered, but 4 are federally listed as species of management concern.

Table 3-4: Listed Threatened and Endangered Species in Pike County, KY

Taxonomic Group	Scientific Name	Common Name	Federal Status	State Status
Birds	<i>Aimophila aestivalis</i>	Bachman’s sparrow	MC	E
Vascular Plants	<i>Agrimonia gryposepala</i>	tall hairy groovebur	—	T
	<i>Boykinia aconitifolia</i>	brook saxifrage	—	E
	<i>Castanea pumila</i>	Allegheny chinkapin	—	T
	<i>Schisandra glabra</i>	bay starvine	—	E
	<i>Scutellaria saxatilis</i>	rock skullcap	—	T
	<i>Thuja occidentalis</i>	northern white cedar	—	T
Terrestrial Snails	<i>Glyphyalinia rhoadsi</i>	sculpted glyph	—	T
Insects	<i>Pseudanophthalmus hypolithos</i>	Aschamp cave beetle	MC	T
Amphibians	<i>Plethodon wehrlei</i>	Wehrle’s salamander	—	E
Fishes	<i>Lampetra appendix</i>	American brook lamprey	—	T
	<i>Percina macrocephala</i>	longhead darter	MC	E
Mammals	<i>Myotis leibii</i>	eastern small-footed myotis	MC	T

Source: KSNPC (2011)

E = endangered

MC = Species of Management Concern

T = threatened

3.3 Socioeconomic Environment

The socioeconomic environment includes population and employment, environmental justice, transportation and traffic, recreation, cultural resources, and aesthetics.

3.3.1 Population and Employment

An area of influence comprising counties in Kentucky, West Virginia, and Ohio was identified as the area from which most visitors would be attracted to the Project. The area of influence was divided into primary, secondary, and tertiary subareas. The primary subarea of influence is within a 30-minute drive of the Project, the secondary subarea is between a 30- and 60-minute drive of the Project, and the tertiary subarea is between a 1-and 3-hour drive of the Project. The primary subarea includes portions of four counties (two in Kentucky and two Virginia). The

secondary area of influence includes portions of nine counties in three different states (four in Kentucky, three in Virginia and two in West Virginia). The tertiary subarea of influence includes a larger geographical region comprising portions of 34 counties in three states (15 in Kentucky, 11 in Virginia, and 8 in West Virginia).

3.3.1.1 Population

Demographic data (population and age) were compiled from U.S. Census Bureau data and regional and State data centers. The data were analyzed to determine the population in the subareas of influence and the projected change by 2020. Table 3-5 shows the population in the subareas of influence in 2010 and the projected growth for 2020.

Table 3-5: Population in the Area of Influence

Subarea of Influence	2010 Population	2020 Projection	Projected Growth 2010–2020
Primary	38,924	36,811	–5.4%
Secondary	91,625	89,502	–2.3%
Tertiary	368,215	365,932	–0.6%

Source: U.S. Census Bureau (2010)

Based on available population estimates, the rate of population growth in the primary subarea is lower than the growth rates in the other subareas between 2010 and 2020. Projected changes in the age of the population in the three subarea’s of influence were calculated and the analysis indicates are that the percentage of people 17 years old and under will decrease from approximately 23 percent in 2000 to 20 percent by 2020. The population of persons over 50 years old is projected to increase from approximately 29 percent to 40 percent by 2020 across all three areas. Overall, the population of the three subareas of influence will have a higher percentage of senior citizens than the percentage of persons of all other ages.

Median incomes in the areas of influence were calculated by taking a weighted average of the median incomes of the counties in the respective areas. As shown in Table 3-6, the primary area of influence exhibited the highest median income compared to the two other subareas (U.S. Census Bureau, 2008).

**Table 3-6: Median Household Income
in the Subareas of Influence**

Subarea	Median Income (2008)
Primary	\$32,113
Secondary	\$30,620
Tertiary	\$31,434

Source: U.S. Census Bureau (2008)

Table 3-7 lists the estimated number of visits to the Project area from 2000 to 2010. A visit represents the entry of one person into a recreational area. visitation was highest in 2003 with an estimated 560,945 visitors. Project visitation decreased from 2004 to 2007 and increased thereafter. Based on population growth estimates, visitation to the project is not anticipated to increase beyond 2010. In terms of recreational activity, demand for RV accessible campsites will increase because of preferences for RV camping as opposed to tent camping among older campers. The shift to an older population will create a demand for shorter walking and hiking trails that are easy to traverse. The only increases in participation are anticipated to be in the sightseeing and other categories.

**Table 3-7: Number of Visitors to the Fishtrap
Lake Project, Fiscal Years 2000–2010**

Fiscal Year (10/1 to 9/30)	Number of Visitors
FY 2000	715,366
FY 2001	514,246
FY 2002	540,830
FY 2003	560,945
FY 2004	448,806
FY 2005	406,593
FY 2006	392,059
FY 2007	288,373
FY 2008	477,124
FY 2009	495,798
FY 2010	486,289

3.3.1.2 Employment

Fishtrap Lake is located in the southeastern portion of the State. An analysis of employment in the counties in the region identified key employment sectors and the anticipated change in employment opportunities. The decrease in population in the region over the next decade is consistent with the lack of anticipated significant new employment opportunities in the region.

Coomes and Kornstein (2010) indicate that areas along the north-south interstate corridor in Kentucky will continue to experience growth, while areas in the eastern and western portions of the Commonwealth will experience a decrease in employment opportunities. The service industry and government, including education and social services, are the primary employment sectors in the Kentucky portion of the study area. Mining is a key employment sector in both Perry and Pike Counties. Other key employers are the construction and healthcare services industries. For the West Virginia counties included in the region, service and mining are the two primary employment sectors. According to the Virginia State Bureau of Labor Statistics, the health care and social assistance sector was the single largest employment sector in 2004 in the Virginia counties included in the project region. Other major sectors are educational services, mining, and construction.

3.3.2 Environmental Justice

Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority Populations and Low Income Populations, and the February 11, 1994, Presidential Memorandum providing guidance for this EO require Federal agencies to develop strategies for protecting minority and low-income populations from disproportionate and adverse effects of Federal programs and activities. The EO is “intended to promote non-discrimination in Federal programs substantially affecting human health and the environment.” An environmental justice evaluation is performed to evaluate the impact of a proposed project on the population and to ascertain whether target populations would be affected more adversely than other residents.

The 2010 U.S census data were reviewed to determine the racial composition of the population in Pike County (U.S. Census Bureau, 2010). The county reported a total population of 65,024 persons in 2010 and Minority persons accounted for 2 percent (1,300 persons). The U.S 2010 data regarding income and poverty is not available at the block group level. However based on 2009 estimates, the levels of poverty within Pike County is higher than those exhibited within the state. Based on the above statistics there is some probability of minority and low-income persons residing in areas surrounding the project.

3.3.3 Transportation and Traffic

The Project is about 5 miles east of the junction of U.S. Route 460 and U.S. Highway 23 in Pikeville, KY. Access to the Project from U.S. Route 460, is via State Route (SR) 1789/Fishtrap Road. State Secondary Routes 194 and 1373 also provide access to Project areas. Communities within a 1-hour drive of Fishtrap Lake are Pikeville, KY; Williamson, WV; and Grundy, VA. The Project is almost 2 hours from Huntington, WV, and just over 3 hours from Lexington, KY.

3.3.4 Recreation

The Project has nine distinct recreational areas. Table 1-1 lists the recreational areas, the entities that manage them, and the approximate size of each area. Figure 3-9 shows the locations of the recreational areas.

3.3.4.1 Dam Site Area

The 61-acre Dam Site Area is divided into the upper area and tailwater area. The upper area has a 36-foot-wide boat ramp with three lanes. A courtesy dock in the launch area can be used to load passengers and gear and can accommodate up to three boats. The tailwater area has a Visitor Center and two picnic shelters and an open area for recreation and picnicking.

3.3.4.2 Lick Creek Launch Ramp

The Lick Creek Launch Ramp has a seasonal boat ramp, courtesy dock, and fishing pier. The 15-foot-wide, concrete boat ramp has one lane. The boat ramp was designed for use when the elevation of Fishtrap Lake is at the normal summer pool and is therefore not usable during the winter months. A wooden courtesy dock adjacent to the ramp allows for tying off when launching a boat.

3.3.4.3 Grapevine Creek Campground

The 47-acre Grapevine Creek Campground has two campgrounds with camping facilities, picnic facilities, a playground, a boat ramp, and courtesy dock. The boat ramp is not usable when the lake level is at the winter pool elevation. An asphalt parking for vehicles with trailers is provided adjacent to the ramp.

3.3.5 Feds Creek Recreation Area

The approximately 3-acre Feds Creek Recreation Area, also known as Lundy Rowe Memorial Park, is located along Feds Creek and includes four picnic shelters, small playground, paved walking track, a miniature golf course, baseball diamond, tennis court, and an 11-space parking

area. The Feds Creek Volunteer Fire Department is onsite. A caretaker lives in a mobile home next to the volunteer fire department.

3.3.5.1 Lick Creek Recreation Area

The 312-acre Lick Creek Recreation Area is located on SR 1373 at the entrance to the Lick Creek Boat Launch Area and includes 3 picnic shelters, paved walking track, playground equipment, basketball and tennis courts, restrooms, and a parking area. Across from the recreational area is an equestrian trailhead with 8 campsites with electricity. There are a total of six horse trails in this area. A caretaker lives in a mobile home next to the recreational area.

3.3.5.2 Grapevine Recreation Area

The 1-acre Grapevine Recreation Area, also known as Grapevine County Park, is outside the entrance to the Grapevine Creek campground and includes a paved walking track, playground equipment, basketball court, one picnic shelter, amphitheater, and a community meeting room, miniature golf course, restrooms, and parking area.

3.3.5.3 Appalachian Marina

In 2000, the USACE issued a lease to Appalachian Marina, Inc., for the operation and maintenance of the Appalachian Marina, which is 0.5 mile upstream of the dam on the right descending bank of Upper Pompey Branch. The 15-acre area has docking facilities, a concession area, and parking.

3.3.5.4 Wildlife Management Area

In 2011, the USACE issued a renewed license to the KYDFWR for fish and wildlife conservation. The WMA covers 15,296 acres of land and water, which are managed to create, enhance, and sustain permanent wildlife habitats and populations. A 10-mile all-terrain vehicle (ATV) trail for hunting and fishing access is on the right descending bank of Biggs to Miller Creek.

3.3.5.5 Fishtrap Lake State Park

In 2004, the USACE issued a lease to the Kentucky Department of Parks for public park and recreational purposes. The Commonwealth has subleased the area to Pike County. The 331-acre Fishtrap Lake State Park has a campground, two picnic shelters, basketball court, baseball diamond, and playground equipment.

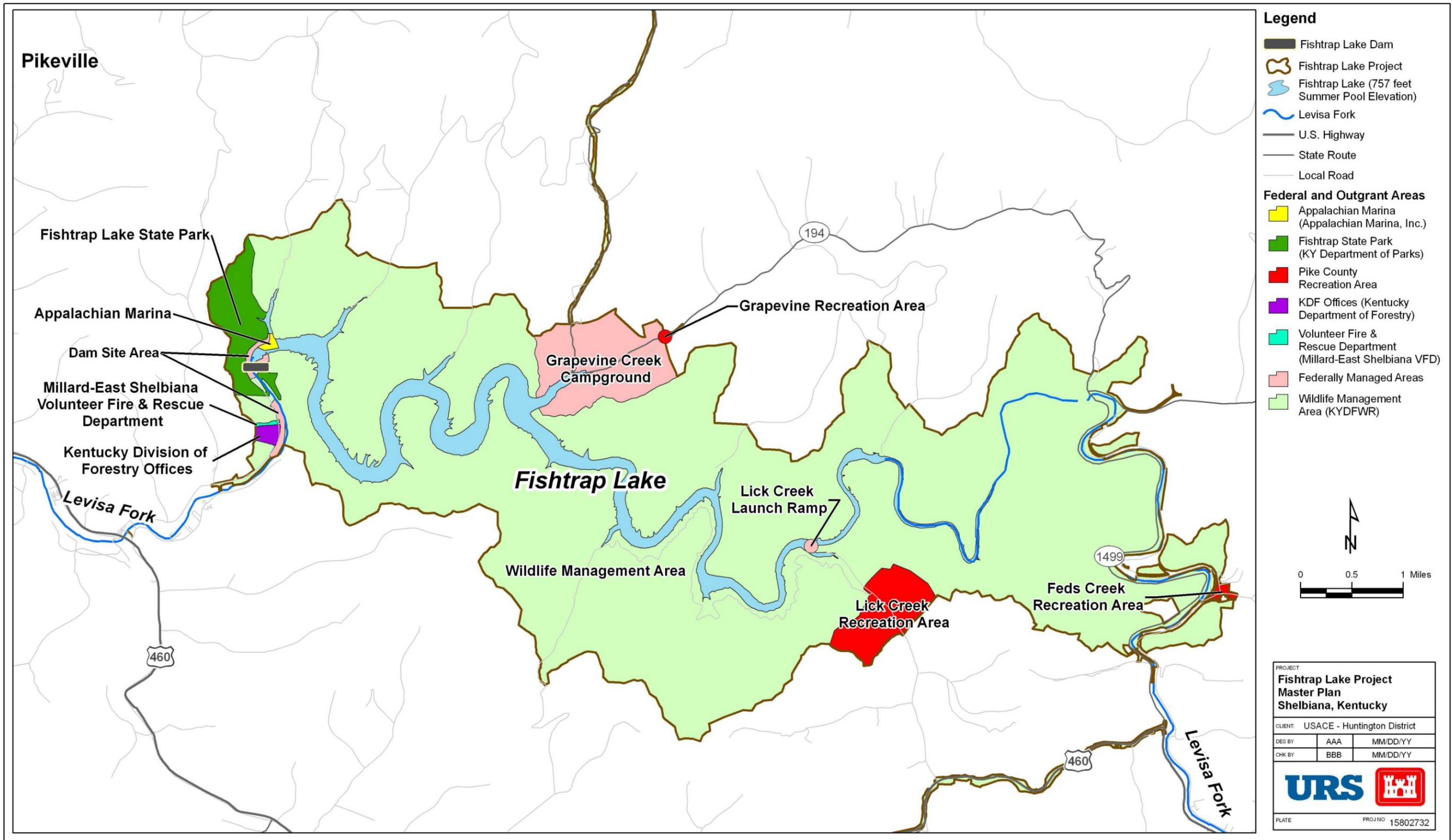


Figure 3-9: Recreational Areas in the Fishtrap Lake Project

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3.4 Cultural Resources

The National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. §§ 470 et seq.) outlines Federal policy to protect historic properties and promote historic preservation in cooperation with states, tribal governments, local governments, and other consulting parties. The NHPA established the National Register of Historic Places (NRHP) and designated the State Historic Preservation Office as the entity responsible for administering State-level programs. Section 106 of the NHPA and its implementing regulations (36 CFR Part 800) outline the procedures for Federal agencies to follow to take into account the effect of their actions on historic properties. The Section 106 process applies to any Federal undertaking that has the potential to affect historic properties, defined in the NHPA as properties that are listed in or eligible for listing in the NRHP. As defined by the Advisory Council on Historic Preservation, a historic property is defined as a prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the NRHP. A historic property includes artifacts, records, and remains that are related to and located within NRHP properties.

A Historic Properties Management Plan (HPMP) was completed for the Project area in 1998 (Cultural Resource Analysts, Inc., 1998). The HPMP contains a summary of the 86 archeological sites that were identified in the Project area from 1962 and to 1998. Sites were identified through studies completed as part of the initial reservoir studies, systematic surveys of the entire reservoir, or site-specific surveys in the Project area. The previous surveys account for 100 percent of the Project area. Fifty-one of the identified sites are primarily of historic Euro-American affiliation while the remaining 35 sites are prehistoric dating from the Late Archaic (4000 to 1000 B.C.) through the Fort Ancient (A.D. 1000 to 1750) temporal periods.

In the HPMP, the Project area was divided into three zones based on inundation by the lake:

- Conservation pool: below 725 feet AMSL; permanently inundated
- Littoral zone: 725 to 757 feet AMSL; affected by seasonal fluctuations between the winter and summer pools
- Upland zone: above 757 feet AMSL; includes all remaining land in the Project area

Three of the archeological sites are in the conservation pool, 44 are in the littoral zone, and 39 are in the upland zone.

None of the sites listed in the HPMP have been determined eligible for the NRHP but nine sites have been determined potentially eligible for the NRHP. The 9 sites are 15Pi7, 15Pi8, 15Pi11,

15Pi12, 15Pi13, 15Pi15, 15Pi16, 15Pi21, and 15Pi23. Two of the sites are in the conservation pool, 6 are in the littoral zone, and 1 is in the upland zone. All 9 sites are prehistoric and described as open-air habitations or villages. Two of the sites were subject to large scale investigations.

According to the HPMP, further investigation has been proposed for the following 17 sites to determine whether they meet NRHP eligibility criteria: 15Pi17, 15Pi18, 15Pi20, 15Pi22, 15Pi24, 15Pi25, 15Pi26, 15Pi27, 15Pi28, 15Pi29, 15Pi31, 15Pi32, 15Pi33, 15Pi34, 15Pi38, 15Pi41, and 15Pi45. Of the 17 sites, none are in the conversation pool, 13 are in the littoral zone, and 4 are in the upland zone. All 17 sites are prehistoric and described predominantly as camps and/or villages. There is also one rock shelter and one mound. The remaining 60 sites were determined to be ineligible for the NRHP and no further work is required.

Two systematic surveys have been completed in the Project since the 1998 HPMP. The first survey is a 2008 mine survey conducted partially within the Project area; in this survey, one site was re-identified that had been previously determined to require further investigation and recommended site avoidance (Cultural Resource Analysts, Inc., 2008). The second survey was conducted in 2011 and was limited to the Dam Site Area, Grapevine Recreation Area, and Lick Creek Recreation Area (ASC Group, Inc., 2011). Five previously recorded sites were identified in the 2011 survey, 4 of which were previously determined to be ineligible for the NRHP and 1 that was previously determined to require further investigation. No new sites were identified in the 2011 survey.

3.4.1 Aesthetics

The topography of the Project area is characterized by hilly and mountainous terrain dissected by steep valleys and cliffs in the upper reaches of the lake. This terrain, in combination with the lake and forested landscape, creates an overall scenic environment with opportunities for scenic vistas and viewsheds. View distances range from relatively confined views to panoramic views that fade out of sight. The forests have a combination of older growth trees and understory trees (such as redbud and dogwood), creating a visually appealing environment. The vegetation of the Project offers changes in color, texture, and size that vary by topography, vegetation type, and season. River birch, willow, and sycamore trees flourish in lowlands adjacent to streams and the lake, providing an attractive contrast in color to the vegetation on adjacent slopes, ridges, and ravines such as post oak, Virginia pine, red oak, hemlock, and birch trees.

3.5 Land Use

Land use in the Project area is primarily recreational or focused on wildlife management areas. As discussed in Section 3.3.4, the Project area has nine distinct recreational areas. Although the Project area is surrounded by rural land use such as forestry and agriculture, no agriculture occurs within the Project boundary. No industrial sites occur within the site boundary.

The Project is in the Appalachian Mountains and is part of a region that contains coal deposits and oil and gas reserves. Coal mining and oil and gas extraction in Pike County has been ongoing for many decades. One active coal mine is located in the WMA in the Island Creek area, and approximately 15 miles of active coal haul roads in the Island Creek and Biggs areas are used by a private mineral extraction company.

Oil and gas extraction is common in the Project area. According to the Kentucky Division of Oil and Gas Conservation (2010), 126 oil and/or gas wells exist within the Project boundaries (Figure 3-10). There are 95 active gas wells, 14 dry and abandoned gas wells, 2 gas wells categorized as “not drilled,” 7 active oil and gas wells, and 8 oil and gas wells categorized as “not complete.” Some of the subsurface mineral rights at the Project are owned by the federal government; however, large areas occur where the mineral rights are not owned by the federal government (Figure 3-10).

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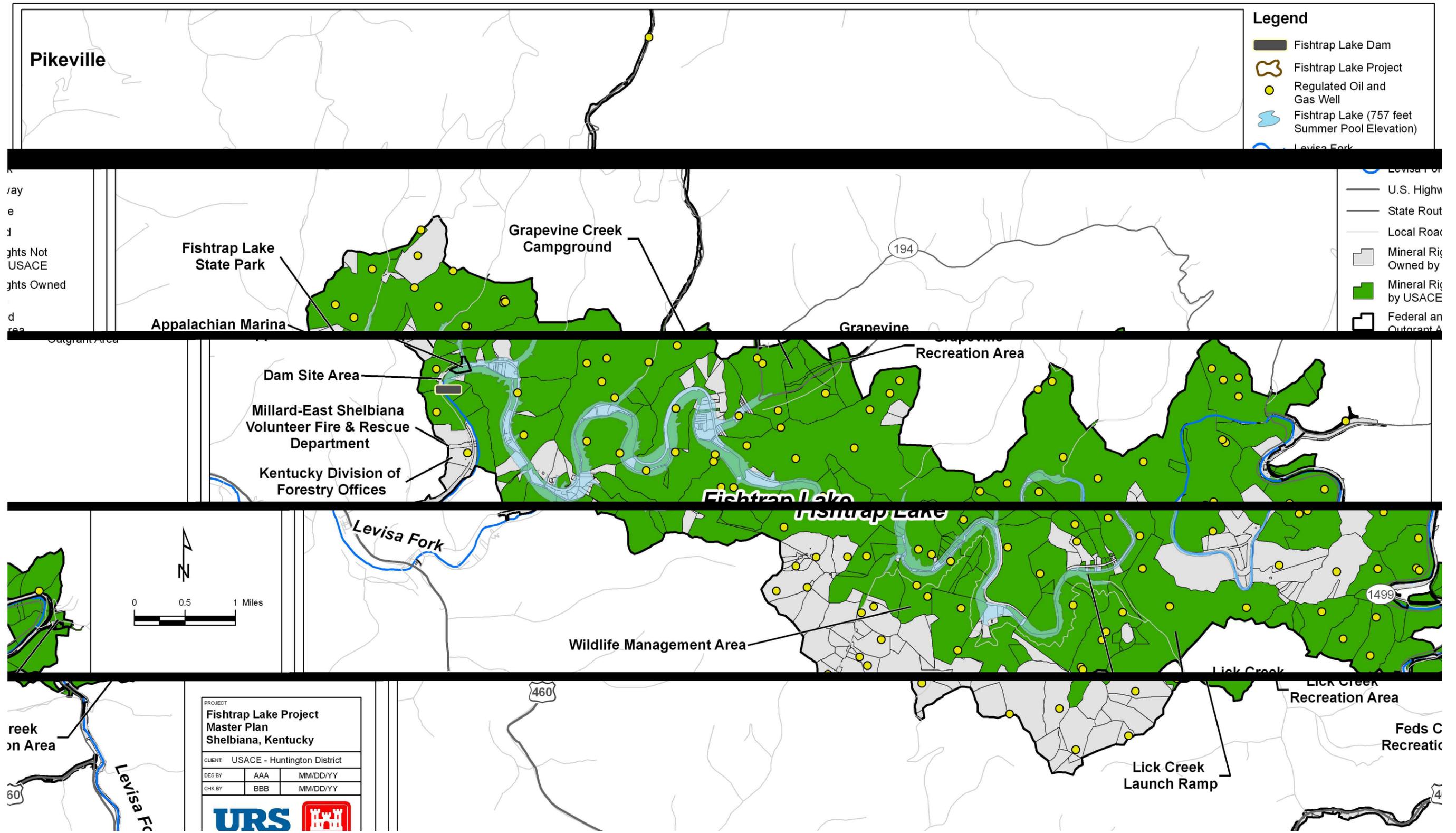


Figure 3-10: Project Lands with Mineral Rights and Oil and/or Gas Wells

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4.0 ENVIRONMENTAL IMPACTS OF ALTERNATIVES

This section identifies and assesses the potential environmental impacts from the No Action and Proposed Action Alternatives.

4.1 Physical Environment

4.1.1 Topography, Geology, and Soils

4.1.1.1 No Action

Under the No Action Alternative, no new proposed facilities or measures recommended in the Master Plan Update would be implemented. The USACE and other resource agencies responsible for outgrants would monitor areas that are susceptible to erosion from people trying to access less congested areas (potentially resulting from the development of social trails, trampling of vegetation on the edges of existing campgrounds, or overuse of existing trails), therefore minimizing the potential for increased erosion. To minimize potential adverse impacts on soils, the USACE and other resource agencies responsible for outgrants would implement protective measures such as closing off eroded areas and using erosion controls as needed. No impacts on topography or geology would occur.

Best management practices (BMPs) to minimize erosion during construction of new facilities would be implemented. For construction that would disturb more than 1 acre, the agency responsible for the action would obtain coverage under the KPDES by applying for a General Permit for Stormwater Discharges Associated with Construction Activities from the Kentucky Division of Water and would develop construction site erosion control and stormwater management plans as required.

4.1.1.2 Proposed Action

Under the Proposed Action, no impacts on topography would occur. Geotechnical evaluations would be performed to determine the risk of construction in areas of geologic concern such as highly erodible or unstable slopes.

Soils in the Project area on steep sloping terrain are generally prone to severe erosion and therefore have limited development potential for roadways, trails, small buildings, camping, and picnicking. Maintaining steep slopes (i.e., greater than 15 percent slope) in a forested condition would minimize erosion potential. Areas with slopes of less than 15 percent have less potential for erosion than steeper areas and are more suitable for recreational use. The areas proposed for

the construction of facilities (e.g., cabins, picnic shelters, camping sites) would occur primarily on slopes of less than 15 percent and close to existing development.

Implementation of temporary erosion and sediment control BMPs during construction (e.g., mulching bare areas, installing silt fences) along with permanent BMPs post-construction (e.g., managing the flow of stormwater runoff from impervious areas such as buildings and parking lots, establishing permanent vegetation) would occur for all proposed activities that would disturb the ground surface. For construction that would disturb more than 1 acre, the USACE would obtain coverage under the KPDES by applying for a General Permit for Stormwater Discharges Associated with Construction Activities from the Kentucky Division of Water and would develop construction site erosion control and stormwater management plans as required.

To more thoroughly evaluate impacts, the USACE would consider soil suitability, slope, and potential for geologic instability during site-specific project planning. Site-specific mitigation measures would be determined prior to construction and implemented as needed.

4.1.2 Water Resources

4.1.2.1 No Action

Under the No Action Alternative, the measures recommended in the Master Plan Update would not be implemented. The USACE would monitor areas that are susceptible to erosion from increased usage and people trying to access new or less congested areas (potentially resulting in the development of social trails, trampling of vegetation on the edges of existing campgrounds, or overuse of existing trails), therefore minimizing the potential for increased sedimentation of the lake. The USACE would mitigate any adverse impacts by closing off eroded areas and implementing erosion and sediment controls as needed. Additionally, to minimize adverse impacts on water quality, the USACE would implement measures to account for any trash and debris left behind from visitors by providing adequate trash receptacles and implementing temporary and permanent stormwater runoff BMPs in the construction of new facilities.

4.1.2.2 Proposed Action

Under the Proposed Action, an increase in impervious surface area would occur from new development such as parking areas, facilities, and new trails and would result in concentrated and increased stormwater runoff from these areas. BMPs to minimize the stormwater runoff from impervious surfaces would be required, and runoff would be directed away from nearby surface waters, minimizing the risk of water pollution from spilled or water-transported materials.

Adverse short-term impacts on surface water quality could occur from sedimentation that is the result of ground disturbances during construction, especially in construction areas close to the shoreline or water bodies. With multiple areas being considered for new or updated facilities, there is increased potential for this additional nonpoint source pollution. Implementing erosion and sediment control BMPs during construction and implementing permanent stormwater runoff controls would minimize potential adverse impacts. For example, disturbed or bare areas remaining after construction would be vegetated to reduce the potential for erosion.

Adverse short- and long-term impacts on water quality may result in adverse impacts on other resources such as recreation (fishing and swimming), water treatment systems, aquatic biological resources and wildlife. Impacts on water quality may occur from trash/debris entering water bodies, from sewage, and from spills and leaks of contaminants from both land- and water-based vehicles. Stormwater runoff from additional impervious surfaces such as parking areas could carry additional pollutants into Fishtrap Lake. Mitigation such as setting limits for boating carrying capacity, providing adequately sized parking areas designed to appropriately handle stormwater runoff, providing adequate trash and sewage facilities for the amount of use, and including stormwater runoff measures during the design of redeveloped or new facilities would minimize adverse impacts. These measures would potentially result in an increase in water quality compared to existing conditions.

Temporary and localized turbidity in the nearshore lake environment would increase during the the placement of footings or a buried cable in the lake for a utility corridor. Turbidity impacts during construction would be related directly to the amount of silt and clay on the lake bottom. Impacts would be short-term and limited to the vicinity of the work, especially with implementation of mitigation measures to minimize turbidity. Because the USACE would not be constructing the utility corridor projects, CWA permits (Section 401 and Section 404) for utility corridor construction would be obtained by the utility corridor project owners and the projects overseen by FERC.

Groundwater resources are a potential source of water for enhancing or developing additional wetlands, for irrigating maintained landscape areas, or for providing potable water for Project development in remote areas. To protect water resources, existing unused wells (both groundwater and oil/gas wells) would be examined; if the unused wells have not been properly plugged and abandoned and are determined to be unusable for future recreational development, they would be abandoned in accordance with State regulations. Wells deemed potentially usable would be identified and secured. Because any new groundwater wells would be dispersed throughout the Project area, their effect on the local water table is expected to be negligible, but

the amount of water proposed for withdrawal from new wells would be evaluated for impacts on the groundwater supply, and permits would be obtained from the Kentucky Division of Water if necessary. New potable water wells would be drilled and installed according to State and Federal regulations, effectively minimizing any risk of groundwater contamination.

4.1.3 Floodplains

4.1.3.1 No Action

Under the No Action Alternative, new construction could occur within areas subject to inundation from fluctuation in lake levels. The USACE would follow existing guidance regarding development in a floodplain. USACE (2004), Sections 2.2.1 and 5.2.2, state that seasonal fluctuations in water levels shall be taken into consideration when designing and developing lake and riverside facilities to avoid the placement of facilities in hazardous or high maintenance areas, and that the 5-year flood frequency is a good general guideline when planning lakeside development.

4.1.3.2 Proposed Action

Because flat areas are conducive to development, existing facilities are located in stream valleys and adjacent to the lake shoreline, and new facilities are primarily proposed for the same areas although some may occur on bluffs or hilltops. Additionally, many recreational activities require direct access to the lake. Therefore, most of the recommended measures in the Proposed Action would take place within areas subject to inundation from fluctuation in lake levels. Because of topography constraints and the nature of water-based activities such as swimming and boating, no practicable alternative locations exist. The USACE would follow existing agency guidance described under the No Action Alternative regarding development within areas subject to inundation.

The functionality of the floodplain would not be reduced by Project activities. The USACE would ensure that its actions complied with USACE's guidance on development in a floodplain (USACE, 2004), EO 11988 (Floodplain Management), and USACE's guidance on implementation of EO 11988 (USACE, 1984), and would implement BMPs such as secondary containment and/or elevation of hazardous materials above base flood elevations to the maximum extent possible. Additionally, USACE and the State would ensure the safety of visitors by monitoring flood levels at areas and facilities used by the public and taking actions such as closing facilities as necessary. The USACE would ensure that actions would be in compliance EO 11988.

4.1.4 Air Quality

4.1.4.1 No Action

Under the No Action Alternative, new construction could result in short-term impacts on air quality from fugitive dust and construction vehicle emissions. To reduce temporary impacts on air quality from fugitive dust, the construction areas would be watered down when necessary to minimize particulate matter and dust. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment, earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO₂, O₃, particulate matter 10 microns or greater in diameter, and non-criteria pollutants such as volatile organic compounds. To reduce the emission of criteria pollutants, running times of fuel-burning equipment would be minimized, and engines would be properly maintained. Vehicles traveling in the Project area cause limited, local air quality impacts, but impacts are temporary and negligible.

4.1.4.2 Proposed Action

Impacts on air quality and mitigation measures to reduce potential impacts would be the same as described under the No Action Alternative. However, there would likely be more temporary construction-related emissions compared to the No Action Alternative because more construction is likely to occur under the Proposed Action.

4.1.5 Noise

4.1.5.1 No Action

Construction noise from capital improvements such as campground construction, vegetation management, and other development activities could have a moderate and temporary impact on visitors, employees, and wildlife. To reduce noise impacts, construction would occur during normal business hours, would not occur on Sundays or Federal holidays to the extent possible, and would be scheduled during the off season to the extent possible. Equipment and machinery on construction sites would meet all local, state, and Federal noise regulations.

Visitation at the Project creates additional noise above natural conditions such as noise from boats on the lake that may have temporary adverse impacts on wildlife, day users, and lakeside campers. However, with the exception of boat ramps and marinas where boating noise is concentrated, boating-related noise is not expected to be loud or of long duration and would therefore have a minor impact on wildlife and visitors.

4.1.5.2 Proposed Action

Noise and mitigation measures to reduce potential noise impacts would be the same as described under the No Action Alternative except that temporary construction-related noise would be greater because more construction is likely under the Proposed Action.

4.2 Biological Environment

4.2.1 Vegetation

4.2.1.1 No Action

Under the No Action Alternative, the KYDFWR and the USACE would continue to monitor, manage, and protect grassland and forestland in the Fishtrap Lake Project area. Activities would include limited cutting of overstocked areas, native seeding and planting, and monitoring and removal of invasive species. Littering and trampling of vegetation could occur from informal use areas and social trails. The USACE would monitor for impacts on vegetation and implement restrictions or restoration as needed.

4.2.1.2 Proposed Action

Under the Proposed Action, minor adverse impacts on vegetation would occur as a result of the expansion of parking areas, construction of recreational facilities and trails, and creation of utility corridors. Other impacts on vegetation could occur from foot traffic on social trails, informal use of picnic or camping areas, littering, or the collection of woody material for fuel. Park ranger supervision would help mitigate these impacts.

Construction-related impacts, which would involve primarily removing vegetation prior to construction, would range from minimal impacts, such as clearing and leveling camping sites at a campground, to larger impacts related to the construction of parking areas and infrastructure. Many of the areas that would be affected by construction are adjacent to areas that have been developed or disturbed. Construction BMPs, such as revegetating disturbed areas and mitigating permanently lost vegetation by planting in other areas or restoring equivalent habitats, would be implemented as appropriate.

Some elements of the Proposed Action would result in long-term beneficial impacts on vegetation by consolidating activities to more central areas, allowing the recovery of discontinued areas, or reducing the number of social trails by constructing new trails. Hazardous trees in campgrounds, along roadways, and in day-use areas would be removed as appropriate and replaced with indigenous plant species as possible.

Because of the regional decline and unique ecology of eastern hemlocks, these trees and their habitat may be identified, preserved, and managed to ensure that the species remains in its current form. Proactive management of open areas, such as meadows and clearings, and more densely vegetated areas would be initiated to achieve the optimal balance for wildlife and recreational use. Finally, a more aggressive approach to managing invasive species would occur in order to encourage the viability of native species.

Bottomland hardwood habitats are becoming scarcer and consequently more valuable. Loss of this valuable habitat continues because of changes in land use and development. Because bottomland hardwood habitats support a variety of plant and animal species that can adapt to both flood conditions and dry periods and also support wildlife that does not thrive in other environments, this habitat would be protected and any impacts mitigated to the extent practicable. Management of these areas would yield a high-quality habitat for wildlife that would also be beneficial for many recreational activities, including hunting and wildlife viewing. Systematic harvesting of timber, which would result in long-term beneficial impacts on the ecosystem, would be considered in some areas to yield a more balanced forest in terms of desirable habitat to support target game and non-game species, as well as a diversity of wildlife and recreational use.

4.2.2 Wetlands

4.2.2.1 No Action

Under the No Action Alternative, the USACE and the KYDFWR would continue to preserve and enhance wetland resources within the Fishtrap Lake Project area as outlined in EO 11990 and the 1989 Master Plan.

4.2.2.2 Proposed Action

Under the Proposed Action, updated wetland delineations in focused areas of the Project and regular monitoring of wetlands for changes in size and health would be considered. Wetlands would be designated as environmentally sensitive resources. Restrictions on the development of wetlands would be incorporated into any plans for construction or recreational activities.

Wetlands would be both a constraint and an opportunity in the development of recreational facilities and activities. Development opportunities for high-intensity recreational facilities and activities (e.g., cabins, lodge, restaurant, campsites, picnic sites) would be limited or not allowed in wetlands. However, the wetlands would also provide recreational opportunities such as

wildlife viewing, bird watching, and interpretive and educational activities. Wetlands would also support target game species and waterfowl, thereby supporting consumptive recreational uses.

The USACE would obtain all appropriate permits as required by Section 401 of the CWA for construction that would impact any waters of the US or Commonwealth of Kentucky. The USACE would require other agencies and developers to obtain CWA Section 404 permits prior to implementation of projects that would result in impacts on wetlands.

4.2.3 Terrestrial Wildlife

4.2.3.1 No Action

Under the No Action Alternative, use of the shoreline and areas not designated for recreational purposes could result in habitat degradation, especially in more heavily used areas. The KYDFWR and the USACE would continue to monitor and manage wildlife in the same manner as outlined in the 1989 Master Plan. Wildlife viewing, birding, and opportunities to hunt game in portions of the Project area would continue. Impacts on vegetation from construction (e.g. removal of vegetation) would be avoided or minimized to the extent possible.

4.2.3.2 Proposed Action

Under the Proposed Action, maximizing the diversity of habitats in the Project area, including grasslands, meadows, forest, wetlands, and open areas, to support a wide variety of wildlife species is a key objective of the KYDFWR and the USACE. Other key objectives are to identify and delineate the location, size, and extent of ecosystems and enhance management to conserve and protect wildlife and habitat. Terrestrial wildlife resources that support both recreational activities (e.g., white-tailed deer, wild turkey, doves, waterfowl, various small game species) would be managed to allow hunting while maintaining population viability. The USACE and the KYDFWR would consider preserving particular areas of forest that attract neotropical migratory birds such as the cerulean warbler, which requires a dense and unbroken canopy, to provide habitat for declining species and also to attract birdwatchers. Wildlife management would also provide opportunities for stewardship, support for species that are in decline, and preservation of habitat in accordance with the USACE's *Environmental Stewardship and Maintenance Guidance and Procedures* (USACE, 1996).

Adverse impacts on wildlife could occur from construction- and human-related noise, loss of habitat, increased number of people in existing recreational areas, or new development in previously undisturbed areas. The increase in recreational facilities would increase visitation

concentrated in those areas and potential visitor damage to wildlife habitat. However, user impacts would be mitigated by expanding and upgrading various day-use facilities and trails. Littering, trampling of vegetation, vandalism, and other problems associated with visitor use could occur. Park ranger supervision would help mitigate these impacts. Mitigation such as timing of construction to avoid sensitive periods to some populations (i.e., nesting season) and consideration of wildlife corridors and impacts on species prior to development would minimize impacts.

Because additional trash could attract wildlife, which could then become a nuisance and necessitate removal, proper waste removal would continue. However, because the majority of proposed actions would occur in areas that have been previously developed and have a relatively low habitat value compared to most of the undeveloped Project area, adverse impacts would be minimal.

4.2.4 Aquatic Life

4.2.4.1 No Action

Under the No Action Alternative, the KYDFWR and the USACE would continue to monitor and manage aquatic resources in the same manner as described in the 1989 Master Plan and under current programs and management goals. The KYDFWR would continue to stock the Tailwater Area and lake.

Excess deposition of sediment as a result of stormwater runoff during land-based construction could adversely affect aquatic life, including the food chain, spawning and rearing habitat, in-stream cover, water temperature extremes, and other structural and functional components. Sedimentation from construction in areas adjacent to water bodies would be minimized by implementing erosion and sediment control measures, and any sedimentation increases would therefore be minor, short-term, and localized. Implementation of construction BMPs such as erosion and sediment controls and permanent stormwater runoff BMPs would minimize adverse impacts.

The effect of the No Action Alternative on fish populations would be a continuation of the existing conditions. Over time, visitation and demands on fish populations are expected to increase. To maintain the current quality and makeup of fish communities, current fishery management practices may need to be modified (e.g., stocking, catch limits).

4.2.4.2 Proposed Action

Construction in the water (e.g., footings or cable burial for a utility corridor) could result in short-term adverse impacts on the aquatic environment. Additionally, excess deposition of sediment as a result of stormwater runoff during land-based construction could adversely affect aquatic life, including the food chain, spawning and rearing habitat, in-stream cover, water temperature extremes, and other structural and functional components. Sedimentation from construction in areas adjacent to water bodies would be minimized by implementing erosion and sediment control measures, and any sedimentation increases would therefore be minor, short-term, and localized.

As impervious surfaces increase (from roads and parking areas), the amount of runoff increases and the quality of stormwater runoff may be reduced from sediment, oils, and other pollutants. Impacts would be concentrated adjacent to the shoreline because this area has the largest number of visitors and most of the development. With designated land uses and development corridors, potential water quality impacts would be minimized. Implementation of construction BMPs such as erosion and sediment controls and permanent stormwater runoff BMPs would minimize adverse impacts.

Because visitation is anticipated to decline in the future, fishing pressure could be reduced, which could lead to decreased harvests that may benefit some species populations. Continued recreational uses could result in indirect impacts from boating (noise disturbances and potential for spills and/or leaks of pollutants), trash or sewage entering water bodies, and stream bank or lakeside habitat destruction from overuse of some areas that could result in sedimentation of water or loss of riparian habitat. Protection or conservation of the riparian area around the lake would have positive impacts on aquatic resources by providing canopy cover, thereby reducing temperatures around the water's edge and providing a source of detritus, and by having tree roots that would maintain the banks. In addition, a wider riparian corridor with mature trees would filter runoff before reaching the lake.

4.2.5 Threatened and Endangered Species

4.2.5.1 No Action

Because no federally listed threatened or endangered species have been identified as living within Pike County, federally threatened or endangered species should not limit development of recreational activities at the Project. Habitat for State-listed threatened or endangered species

should be preserved. In addition, the current practice of restricting tree cutting from October 15 to March 31 in the WMA would be continued in order to protect State-listed species.

4.2.5.2 Proposed Action

Surveys for federally listed species would be conducted if potential habitat for a federally listed species is identified during a pre-construction review of a Proposed Action area. Although no federally listed species or designated critical habitat in the Project area has been confirmed, the USACE would coordinate with the USFWS under Section 7 of the ESA prior to implementation of any element of the Proposed Action. The USACE would follow mitigation measures required by USFWS for federally protected species. The current practice of restricting tree cutting from October 15 to March 31 in the WMA would be continued in order to protect State-listed species.

4.3 Socioeconomic Environment

4.3.1 Population and Employment

4.3.1.1 No Action

Existing programs, operation and maintenance activities that would continue under the No Action Alternative and construction could result in short-term beneficial impacts on the local economy by increasing employment opportunities for local construction workers and increasing the number of workers in the Fishtrap Lake area during business hours. No impacts on population are anticipated.

4.3.1.2 Proposed Action

Short-term beneficial impacts from any new construction would be the same as described under the No Action Alternative. No impacts on population are anticipated.

4.3.2 Environmental Justice

4.3.2.1 No Action

Existing programs and operation and maintenance activities that would continue under the No Action Alternative would be implemented within the boundaries of the project and at a distance from local population centers. As a result, any environmental justice populations that may reside around the project would not be directly impacted by these actions and no disproportionately high or adverse impacts on low-income or minority would occur under the No Action Alternative. Construction would provide greater employment opportunities for all local residents.

4.3.2.2 Proposed Action

As discussed in section 3.3.2, there is some probability of minority and low-income persons residing in areas surrounding the project. For purposes of this programmatic environmental assessment, generalizations about potential environmental justice populations using available data are acceptable, but more specific evaluations that will be required as part of any future supplementary project-specific NEPA documentation should be based on the more accurate data from the 2010 Census. At the time that specific actions are planned for implementation and it is determined that additional NEPA documentation will be needed for these actions, 2010 Census block group and block data should be available for use in determining whether minority and low income populations may be disproportionately impacted by the proposed actions.

The locations within the Project where Resource Plan recommendations would be implemented are generally far removed from populated areas. As a result, local residents would be unlikely to experience direct impacts from implementing these recommendations, whether disproportionate or otherwise. The direct and indirect impacts resulting from the proposed Resource Plan recommendations on local communities are not expected to be substantial, and it is unlikely that such impacts could likely be considered as disproportionate if environmental justice populations were determined to exist in any affected community. Final determination will be made when the impacts of individual recommendations planned for implementation are analyzed as part of any supplementary NEPA evaluations that may be required for these actions.

4.3.3 Transportation/Traffic

4.3.3.1 No Action

Some areas of the Project are already congested, especially during holidays. The USACE would consider additional parking areas to reduce adverse impacts on traffic congestion.

4.3.3.2 Proposed Action

Increased traffic from construction and worker vehicles during construction could result in minor temporary impacts on traffic and transportation, but in most areas, the impact would likely be negligible. The expansion of parking areas would have long-term beneficial impacts on vehicular traffic, and the addition of courtesy docks would have long-term beneficial impacts on boat traffic. The USACE would continue to consider additional parking areas to reduce potential impacts on traffic congestion.

4.3.4 Recreation

4.3.4.1 No Action

The provision of recreational facilities and services would continue under the No Action Alternative, but the 1989 Master Plan, which the resource manager and staff operate under, would not accurately reflect the current status of Project facilities. In addition, there would be limited new measures such as trail corridors and additional land use designations to better accommodate recreational needs while protecting natural resources.

4.3.4.2 Proposed Action

Needs related to recreational activities such as reduced congestion and better traffic flow at facilities would be better accommodated by implementing the Proposed Action. The Proposed Action is based on a review of the existing facilities, resource suitability, and discussions with stakeholders. Expanding the camping experience with modern facilities would also complement the existing campsites, and the expansion of parking would accommodate additional people. A potential utility corridor could disrupt recreational areas or facilities, but the USACE would avoid or minimize adverse impacts prior to consent of utility corridor construction.

Implementing the Proposed Action would require that proposals consider potential impacts on existing recreational facilities from construction and include avoidance and minimization measures and mitigation as necessary. Trailheads would be located to accommodate visitor experience while protecting and conserving the natural resources and limiting possible environmental impacts. In addition, hunting would be enhanced by inventory and management of wildlife habitats.

4.3.5 Cultural Resources

4.3.5.1 No Action

Recreational activities and construction could be implemented individually under the No Action Alternative. The process for identifying sites prior to project implementation and the required consultations under Section 106 of the NHPA would be the same as under the Proposed Action.

4.3.5.2 Proposed Action

Cultural resources in the conservation pool were originally situated in open field environments that were subject to deforestation, plowing, and clearing for the reservoir. These cultural resources have been continuously inundated since the dam was constructed. The effect if the

inundation of these resources is unknown, but if the sites were not eroded prior to the establishment of silt caps, the inundation may have preserved them.

Cultural resources in the littoral zone were also originally situated in open field environments that were subject to deforestation and plowing. These sites are difficult to relocate because of the silting that occurs when the sites are submerged during normal summer pool and exposed during winter pool. If large enough silt caps are formed, the sites may have been preserved, but the alternating wet-dry cycle of the littoral zone increases decay rates for organic materials in the sites. If these sites are exposed during the winter pool, there is potential for looting.

Cultural resources in the upland zone are susceptible to mechanical and biochemical processes and human activities that are not associated with inundation. The sites in the upland zone constitute most of the recorded sites and are commonly affected by erosion, development, agricultural practices, and looting.

Site distribution tendencies in the Project area are based on the distribution of recorded sites in the Project area. Distributions have an inherent bias since most of the studies have been confined to the modern shoreline and bluffs as opposed to the adjacent ridge tops and hillsides. Alluvial landforms have a high potential to contain buried sites. The colluvial apron is also considered a potential location for deeply buried sites.

Proposed development actions should take into account previously identified sites and their treatment recommendations. Sites that are eligible or potentially eligible for the NRHP should be avoided or mitigated prior to any undertaking that has the potential to affect those sites. Avoidance measures and/or mitigation would be coordinated by the USACE Huntington District archeologist (District archaeologist). Actions proposed for areas not previously surveyed would require coordination with the District archeologist to determine whether a cultural resource survey is required.

Once the USACE inventories real estate actions that have been cleared internally, these smaller projects need to be catalogued and mapped using Geographical Information Systems (GIS) to ensure that areas are not subject to repeated surveys. In the absence of mapping, coordination with the District archeologist would ensure that real estate actions are not subject to unnecessary resurveying. Cultural resource research, evaluation, and reporting must comply with all applicable Federal and State laws and regulations.

Priorities for cultural resources at the Project are as follows:

1. Stabilizing and evaluating recorded sites that have been previously listed as potentially eligible or needing further evaluation for their NRHP eligibility.
2. Assessing the dam and associated structures for their NRHP eligibility.
3. Accessing artifact collections recovered from the Project according to the guidelines established in 36 CFR Part 79.
4. Improving consultation and education efforts including outreach to Native American tribes, coordination with the Kentucky Heritage Council, training of project personnel, and site interpretation.
5. Updating the HPMP to include the GIS georeferenced boundary delineations and metadata for all surveyed areas and identified resources in the Project.
6. Producing GIS boundary delineations for previously evaluated as well as all future real estate actions.

Prior to development/construction, the USACE would evaluate the potential for the Proposed Action to adversely affect cultural resources and would consult with the Kentucky State Historic Preservation Officer under Section 106 of the NHPA before implementing any actions that have a potential to affect the sites that are eligible or potentially eligible for the NRHP. Actions that are proposed in areas that have not been surveyed require coordination with the USACE archeologist to determine whether a cultural resources survey is required.

4.3.6 Aesthetics

4.3.6.1 No Action

Under the No Action Alternative, there would be a potential for increased adverse impacts on the aesthetics of the Project area. If outgrants are not concentrated in a designated area, there is additional likelihood of land disturbance, which could negatively affect aesthetic qualities. Continued congestion in some recreational areas could result in littering, trash, or trampled vegetation that would adversely affect the aesthetics of the Project area. The USACE would monitor Project areas and implement measures such as additional trash receptacles, restoration of affected areas, or restrictions as needed to avoid or minimize impacts.

4.3.6.2 Proposed Action

The Proposed Action would reduce the potential impacts to the aesthetics in the Project area by concentrating development in designated areas. However, aboveground utility lines from implementation of the a utility corridor could affect the viewshed. By developing corridors for activities such as trails, greenways, and utility lines, activities would be concentrated, and there

would be less potential for land disturbance, which often reduces the aesthetic quality of natural areas. In addition, an updated inventory and resource analysis would more accurately identify the areas that provide high-quality aesthetics. A decrease in the congestion of some recreational areas due to implementation of the Proposed Action could reduce the potential for littering, trash, or trampled vegetation which would result in long-term benefits on the aesthetics of the Project area. The USACE would monitor Project areas and implement measures such as additional trash receptacles, restoration of affected areas, or restrictions as needed to avoid or minimize impacts.

4.4 Land Use

4.4.1.1 No Action

No changes in existing land use would occur under the No Action Alternative. Under existing conditions, the public and private uses of Fishtrap Lake do not affect industrial areas or local industry.

4.4.1.2 Proposed Action

For Project lands where the federal government owns all subsurface mineral rights, any future resource extraction would proceed through the Bureau of Land Management. The Bureau of Land Management would coordinate any new leases with the USACE to avoid or minimize impacts to recreational, natural, or sensitive resources associated with access road and extraction site development. For Project lands where the federal government does not own the subsurface mineral rights, the owner of the mineral rights would apply to the Kentucky Division of Mine Permits for approval and permitting of the extraction process and amounts. Because mineral extraction can cause disturbances, the federal government would be allowed to review and comment on the application. The Proposed Action would not affect industrial areas or local industry.

4.5 Cumulative Impacts

Cumulative impacts would result from the incremental impact of the Proposed Action added to impacts from other past, present, or reasonably foreseeable future actions in the local area. Geographical boundaries for this discussion of cumulative impacts are the Fishtrap Lake Project area and Pike County. Temporal boundaries are the reservoir impoundment (1968) to 50 years after the Master Plan Update (2041).

4.5.1 Past and Present Actions

The Levisa Fork was impounded for the creation of Fishtrap Lake, which occurred in 1968. Authorized purposes for construction were flood risk management, recreation, and water quality improvement. Recreation and associated natural resource management are the focus of the Master Plan Update. Fishtrap Lake contributes to the local economy through visitor spending and by providing local jobs. Recreational facilities are associated with the high volume of visitation. Some areas reach and sometimes exceed capacities for parking, camping, and picnicking facilities.

4.5.2 Reasonably Foreseeable Future Actions

Pressure on the lake's resources is expected to continue from existing levels of visitor use. Requests for outgrants and encroachments on public lands are also expected to continue. Drilling of additional gas wells and mining in new areas may occur along with construction of associated access roads.

4.5.3 Impacts

If the area around Fishtrap Lake experiences additional mineral extraction (coal mining and oil/gas wells) or development, terrestrial resources surrounding the lake will become even more limited. With the loss of vegetated land outside USACE boundaries, wildlife is likely to be concentrated in the remaining forested lands. In addition, more pressure will be placed on the public lands for the facilities and activities that are provided. Land development and stormwater runoff from developed, agricultural, logging, and mining areas upstream of the lake within the watershed are the primary sources of water quality pollution in the lake. Demands for recreational facilities will continue and facilities will need continual repair and upgrade to meet visitor expectations. In addition, there may be conflicting demands for recreational opportunities on the lake and Project lands. Although the continued request for uses of Project lands by various interests will also add more demands on the limited Project lands and waters, the USACE would not allow development to exceed the carrying capacity of the Project's environmental resources; development would be limited to a sustainable level.

Implementation of the Proposed Action (implementation of the Master Plan Update) would provide a tool for the resource staff of Fishtrap Lake to ensure that natural resources and Project facilities are being used to the greatest extent possible without degrading resources. Designating areas for existing and future outgrants of Project lands would limit locality and severity of potential impacts while expediting evaluation period for requests.

4.6 Summary of Mitigation Measures and Agency Consultation Requirements

The following measures would be implemented as appropriate to avoid or minimize adverse impacts on resources:

- Implementing erosion and sediment control BMPs for all projects and obtaining an NPDES General Permit for Stormwater Discharges Associated with Construction Activities from the Kentucky Division of Water for any project that would disturb more than 1 acre of ground
- Obtaining Section 401 Water Quality Certification from the Kentucky Division of Water for work in waters of the United States, including the nearshore environment of the lake and wetlands
- Coordination with the USFWS under Section 7 of the ESA where there is a potential to adversely affect Federally listed threatened and endangered species
- Avoiding tree removal between October 15 and March 31 in the WMA to protect some State-listed species
- Compliance with Section 106 of the NHPA prior to construction

In addition, the USACE would consult with the following agencies prior to implementation of the Proposed Action:

- USFWS under Section 7 of the ESA and Bald and Golden Eagle Protection Act
- Kentucky State Historic Preservation Officer under Section 106 of the NHPA and other Consulting Parties including Native American tribes as appropriate

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Appendix A
Fishtrap Lake Project Master Plan (2011)

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Appendix B
Distribution List for the
Draft Programmatic Environmental Assessment

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List of persons invited to review the Draft PEA	
<i>Name</i>	<i>Affiliation</i>
Mr. Mark R. Holbrook	USACE Fishtrap Lake
Mr. Johnny Thacker	Fishtrap Lake Marina
Mr. Chris Garland	Kentucky Department of Fish and Wildlife Resources
Ms. Monica Conrad	Kentucky Tourism, Arts & Heritage Cabinet
Mr. Richard Mauro	Kentucky Department of Fish and Wildlife Resources
Mr. John Doug Hays	Pike County Judge Executive

Note: The SEA was also submitted to the Kentucky State Clearinghouse for interagency review and comment.

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