

T E N N E S S E E V A L L E Y A U T H O R I T Y



FORT PATRICK HENRY RESERVOIR
FINAL RESERVOIR LAND MANAGEMENT PLAN

Volume IV

NORTHEASTERN TRIBUTARY RESERVOIRS
LAND MANAGEMENT PLAN

FINAL ENVIRONMENTAL IMPACT STATEMENT

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NORTHEASTERN TRIBUTARY RESERVOIRS LAND MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

VOLUME IV

Fort Patrick Henry Reservoir

PREPARED BY:
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MARCH 2010

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ACRONYMS AND ABBREVIATIONS

EO(s)	Executive Orders
EIS	Environmental Impact Statement
ESA	<i>Endangered Species Act</i>
LAC	Limits of Acceptable Change
MSC	Maximum Shoreline Contour
msl	Mean Sea Level
NEPA	<i>National Environmental Policy Act</i>
NTRLMP	Northeastern Tributary Reservoirs Land Management Plan
NTRs	Northeastern Tributary Reservoirs
RFAI	Reservoir Fish Assemblage Index
RLMP(s)	Reservoir Land Management Plan(s)
RM	River Mile
RVSMP	Reservoir Vital Signs Monitoring Program
SFI	Sport Fishing Index
SMI	Shoreline Management Initiative
SMP	Shoreline Management Policy
TWRA	Tennessee Wildlife Resources Agency
TVA	Tennessee Valley Authority
USA	United States of America
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
WPSP	Warriors Path State Park

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1.0 INTRODUCTION

The Fort Patrick Henry Reservoir Land Management Plan is a study of the Tennessee Valley Authority (TVA)-managed public land surrounding Fort Patrick Henry Reservoir. It is one of five reservoir land management plans (RLMPs) associated with an environmental impact statement (EIS) for the northeastern tributary reservoirs (NTRs). The EIS, Volume I, contains information on the scoping process, allocation process, alternatives, comparison of the alternatives, and analysis of impacts. In addition, the EIS contains a summary, an index, and appendices.

This document provides background information about TVA land management throughout its history and specifically TVA management of public land surrounding Fort Patrick Henry Reservoir. It explains the purpose of this RLMP and describes the process used in its development. The RLMP includes the planning process, which lists the objectives around which the RLMP was developed and a summary of the allocation process. The Fort Patrick Henry Reservoir Regional Overview describes the natural and social development of the reservoir and the surrounding area. The Parcel Descriptions include total acreage and parcel descriptions documenting land management allocations. The allocation map is stored in the pocket on the back cover of this RLMP.

1.1. Background

TVA has been charged by Congress with improving navigation, controlling floods, providing for the proper use of marginal lands, providing for industrial development, and providing power at rates as low as is feasible, all for the general purpose of fostering the physical, economic, and social development of the Tennessee Valley region. The lands that TVA holds as steward in the name of the United States of America (USA) are some of the most important resources of the region. These lands have provided the foundation for the dams and reservoirs that protect the region from flooding and secure for its residents the benefits of a navigable waterway and low-cost electricity.

TVA's public lands are the sites for its power generating system and arteries for delivering power to those that need it. Many of the region's parks, recreation areas, and wildlife refuges that are so important for the region's quality of life are on lands TVA made available. TVA public lands often have been the catalyst for public and private economic development that supports all of these activities.

The USA, through TVA, originally acquired approximately 1.3 million acres of land in the Tennessee River Valley. The construction and operation of the reservoir system inundated approximately 470,000 acres. Approximately 508,000 acres have been transferred to other federal and state agencies for public uses or sold for private uses. The USA owns approximately 293,000 acres that TVA manages pursuant to the *TVA Act of 1933*.

TVA originally acquired a total of 10,952 acres of land above normal summer pool for the seven NTRs and associated hydroelectric generating facilities. Over the years, TVA has transferred the majority of this land to other public agencies, primarily the U.S. Forest Service (USFS), or sold it to various public and private entities. TVA presently manages a total of 4,933 acres of land on these reservoirs that is the subject of the Northeastern Tributary Reservoirs Land Management Plan (NTRLMP).

As stewards of this important resource, TVA's policy is to manage its lands to protect the integrated operation of the TVA reservoir and power systems, to provide for appropriate public use and enjoyment of the reservoir system, and to provide for continuing economic growth in the Tennessee Valley region. TVA recognizes that historical land transfers have contributed substantially to meeting these multipurpose objectives, and it is TVA's policy to preserve reservoir lands remaining in public ownership under its control except in rare instances when the benefits to the public will be so significant that transferring the land is justified.

1.2. Purpose

TVA's Land Policy (Volume I, Appendix A) was approved by the TVA Board of Directors on November 30, 2006. This policy governs how land is planned, including whether it is disposed of or retained. To systematically manage TVA public land around its reservoirs, TVA develops RLMPs, which seek to integrate land and water program goals, provide for the optimum public benefit, and balance competing and sometimes conflicting resource uses.

By providing a clear statement of how TVA intends to manage land and by identifying each parcel for specific purposes, TVA hopes to facilitate decision-making for the use of the public land in its care. Land planning guides TVA in the management of resources and property administration decisions on land under its control. RLMPs are approved by the TVA Board of Directors and adopted as agency policy, providing for long-term land stewardship and accomplishment of TVA responsibilities under the TVA Act.

TVA's integrated resource management approach focuses on balancing flood control, navigation, power generation, water quality, recreation, and land use needs to obtain the optimum benefit for the whole system. Land planning supports TVA's vision of generating prosperity in the Valley by addressing the goals of supporting a thriving river system and stimulating economic growth. To that end, the NTRLMP provides a framework for deciding the optimum use of TVA public land and promotes the efficient operation of the TVA reservoir system.

This RLMP will guide resource management and administration decisions on approximately 283 acres around Fort Patrick Henry Reservoir, which are publicly owned and managed by TVA. It identifies the most suitable uses for 34 parcels of project land by providing areas for Project Operations, Sensitive Resource Management, Natural Resource Conservation,

Industrial, Developed Recreation, and Shoreline Access. The 283 acres of TVA public land account for approximately 18 miles of reservoir shoreline.

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2.0 PLANNING PROCESS

Under the *TVA Act of 1933*, TVA is responsible for the control and use of the Tennessee River and its tributaries and the development and use of the resources in the Tennessee Valley. TVA has managed the public reservoir land under its stewardship to meet a wide range of regional and local resource development needs and to improve the quality of life, both within specific reservoir areas and throughout the Tennessee Valley. Reservoir properties, together with adjoining private lands, have been used for public parks, industrial development, commercial recreation, residential development, tourism development, and forest and wildlife management areas. These areas also meet a variety of other needs associated with local communities.

An increasing demand for and use of reservoir land sometimes results in conflicting and uneconomical land use patterns between public and private use. These competing interests and development pressures, coupled with today's environmental awareness, underscore the need for a planned approach to the management of reservoir land and related resources.

The land planning process is subject to the *National Environmental Policy Act (NEPA)* and its implementing regulations, which require environmental review of federal actions having the potential to impact the environment. Land planning supports state and federal goals to be environmentally responsible, stakeholder-driven, and growth-oriented by providing a framework for deciding the best use of TVA-managed public land.

The reservoir land management planning process involves allocation of TVA fee-owned land to seven defined land use zones. The term *land use zone* refers to a descriptive set of criteria given to distinct areas of land based on location, features, and characteristics (see Table 1 for land use zone definitions). The process includes resource data, computer analysis, and input from the public, other agencies, and knowledgeable TVA staff. The definition of a land use zone provides a clear statement of how TVA will manage public land, and allocation of a parcel to a particular land use zone identifies that land for specific uses. Implementation of an RLMP minimizes conflicting land uses and makes it easier to handle requests for use of public land.

This RLMP was developed by a team of land managers and technical experts from TVA, knowledgeable about the reservoir and its resources. The planning team made land use decisions by integrating public needs, environmental conditions, economic benefits, state and federal policies, and the original congressional intent of the Fort Patrick Henry Reservoir project.

Table 1. Land Use Zone Definitions

Zone		Definition
1	Non-TVA Shoreland	<p>Shoreland that TVA does not own in fee or land never purchased by TVA. Non-TVA Shoreland allocations are based on deeded rights and, therefore, will not change as a result of the land planning process. This category is provided to assist in comprehensive evaluation of potential environmental impacts of TVA’s allocation decision. Non-TVA shoreland includes:</p> <ul style="list-style-type: none"> • Flowage easement land—Privately or publicly owned land where TVA has purchased the right to flood and/or limit structures. Flowage easement rights are generally purchased to a contour elevation. Since construction on flowage easement land is subject to TVA’s Section 26a permitting requirements, the SMP guidelines discussed in the definition of Zone 7 would apply to the construction of residential water use facilities fronting flowage easement land. SMP guidelines addressing land-based structures and vegetation management do not apply. • Privately owned reservoir land—This was land never purchased by TVA and may include, but is not limited to, residential, industrial, commercial, or agricultural land. This land, lying below the 500-year flood elevation, is subject to TVA’s Section 26a approvals for structures.
2	Project Operations	<p>All TVA reservoir land currently used for TVA operations and public works projects, including:</p> <ul style="list-style-type: none"> • Land adjacent to established navigation operations—Locks, lock operations and maintenance facilities, and the navigation work boat dock and bases. • Land used for TVA power projects operations—Generation facilities, switchyards, and transmission facilities and rights-of-way. • Dam reservation land—Areas acquired and managed for the primary purpose of supporting the operation and maintenance of TVA dams and associated infrastructure; secondary uses may also include developed and dispersed recreation, maintenance facilities, watershed team offices, research areas, and visitor centers. • Navigation safety harbors/landings—Areas used for tying off commercial barge tows and recreational boats during adverse weather conditions or equipment malfunctions. • Navigation dayboards and beacons—Areas with structures placed on the shoreline to facilitate navigation. • Public works projects—Includes public utility infrastructure, such as substations and rights-of-way for sewer lines, water lines, transmission lines, and major highway projects. • Land planned for any of the above uses in the future.
3	Sensitive Resource Management	<p>Land managed for protection and enhancement of sensitive resources. Sensitive resources, as defined by TVA, include resources protected by state or federal law or executive order and other land features/natural resources TVA considers important to the area viewscape or natural environment.</p> <p>Recreational natural resource activities, such as hunting, wildlife observation, and camping on undeveloped sites, may occur in this zone, but the overriding focus is protecting and enhancing the sensitive resource the site supports. Areas included are:</p> <ul style="list-style-type: none"> • TVA-designated sites with potentially significant archaeological resources.

	Zone	Definition
		<ul style="list-style-type: none"> • TVA public land with sites/structures listed in or eligible for listing in the National Register of Historic Places. • Wetlands—Aquatic bed, emergent, forested, and scrub-shrub wetlands as defined by TVA. • TVA public land under easement, lease, or license to other agencies/individuals for resource protection purposes. • TVA public land fronting land owned by other agencies/individuals for resource protection purposes. • Habitat Protection Areas—These TVA Natural Areas are managed to protect populations of species identified as threatened or endangered by the U.S. Fish and Wildlife Service, state-listed species, and any unusual or exemplary biological communities/geological features. • Ecological Study Areas—These TVA Natural Areas are designated as suitable for ecological research and environmental education by a recognized authority or agency. They typically contain plant or animal populations of scientific interest or are of interest to an educational institution that would utilize the area. • Small Wild Areas—These TVA Natural Areas are managed by TVA or in cooperation with other public agencies or private conservation organizations to protect exceptional natural, scenic, or aesthetic qualities that can also support dispersed, low-impact types of outdoor recreation. • River Corridor with sensitive resources—A River Corridor is a segment of a river and the adjacent land along the banks. River Corridors often consist of a linear green space of TVA land serving as a buffer to tributary rivers entering a reservoir. These areas will be included in Zone 3 when identified sensitive resources are present. • Significant scenic areas—Areas designated for visual protection because of their unique vistas or particularly scenic qualities. • Champion tree site—Areas designated by TVA as sites that contain the largest known individual tree of its species in that state. The state forestry agency “Champion Tree Program” designates the tree, while TVA designates the area of the sites for those located on TVA public land. • Other sensitive ecological areas—Examples of these areas include heron rookeries, uncommon plant and animal communities, and unique cave or karst formations. • Land planned for any of the above uses in the future.
4	Natural Resource Conservation	<p>Land managed for the enhancement of natural resources for human use and appreciation. Management of resources is the primary focus of this zone. Appropriate activities in this zone include hunting, timber management to promote forest health, wildlife observation, and camping on undeveloped sites. Areas included are:</p> <ul style="list-style-type: none"> • TVA public land under easement, lease, or license to other agencies for wildlife or forest management purposes. • TVA public land fronting land owned by other agencies for wildlife or forest management purposes. • TVA public land managed for wildlife or forest management projects. • Dispersed recreation areas maintained for passive, dispersed recreation activities, such as hunting, hiking, bird watching, photography, primitive camping, bank fishing, and picnicking.

Zone		Definition
		<ul style="list-style-type: none"> • Shoreline Conservation Areas—Narrow riparian strips of vegetation between the water's edge and TVA's back-lying property that are managed for wildlife, water quality, or visual qualities. • Wildlife Observation Areas—TVA Natural Areas with unique concentrations of easily observed wildlife that are managed as public wildlife observation areas. • River Corridor without sensitive resources present—A River Corridor is a linear green space along both stream banks of selected tributaries entering a reservoir managed for light boat access at specific sites, riverside trails, and interpretive activities. River Corridors will be included in Zone 4 unless sensitive resources are present (see Zone 3). • Islands of 10 acres or less. • Land planned for any of the above uses in the future.
5	Industrial	<p>Land managed for economic development, including businesses in distribution/processing/assembly and light manufacturing. Preference will be given for businesses requiring water access. There are two primary types of uses for TVA land allocated for Industrial: (1) Access for water supply or structures associated with navigation such as barge terminals, mooring cells, etc., or (2) Land-based development potential.</p> <p>Areas included are:</p> <ul style="list-style-type: none"> • TVA public land under easement, lease, or license to other agencies/individuals for purposes described above. • TVA public land fronting land owned by other agencies/individuals for industrial purposes described above. • Land planned for any of the above uses in the future. <p>In some cases, TVA land allocated to industrial use would be declared surplus and sold at public auction.</p> <p>Types of development that can occur on this land are:</p> <ul style="list-style-type: none"> • Light Industrial—TVA waterfront land that would support businesses and light manufacturing activities. Industrial parks should not include retail, service-based businesses like assisted living, retirement centers, or walk-in-type businesses (excluding retail use). • Industrial Access—Access to the waterfront by back-lying property owners across TVA property for water intakes, wastewater discharge, or conveyance of commodities (i.e., pipelines, rail, or road). Barge terminals are associated with industrial access corridors. • Barge Terminal Sites—Public or private facilities used for the transfer, loading, and unloading of commodities between barges and trucks, trains, storage areas, or industrial plants. • Fleeting Areas—Sites used by the towing industry to switch barges between tows or barge terminals that have both offshore and onshore facilities. • Minor Commercial Landing—A temporary or intermittent activity that takes place without permanent improvements to the property. These sites can be used for transferring pulpwood, sand, gravel, and other natural resource commodities between barges and trucks.
6	Developed Recreation	<p>The designations below are based on levels of development and the facilities available to the public. Parcel descriptions should describe the primary type of use and identify access potential for infrastructure and potential for development:</p>

Zone	Definition
	<p>Water Access—Small parcels of land, generally less than 10 acres, and typically shoreline areas conveyed to public agencies for public access.</p> <p>Public—More recreational opportunities, some facilities, more than a parking lot and boat ramp. This includes areas conveyed for public recreation.</p> <p>Commercial—Property suitable and capable to support commercial water-based operations. This includes areas conveyed for commercial recreation.</p> <p>Land managed for concentrated, active recreational activities that require capital improvement and maintenance, including:</p> <ul style="list-style-type: none"> • TVA public land under easement, lease, or license to other agencies/individuals for recreational purposes. • TVA public land fronting land owned by other agencies/individuals for recreational purposes. • TVA public land developed for recreational purposes, such as campgrounds, day use areas, etc. • Land planned for any of the above uses in the future. <p>Types of development that can occur on this land are:</p> <ul style="list-style-type: none"> • Water access, e.g., areas that tend to have limited development and can include a launching ramp, courtesy piers, canoe access, parking areas, picnic areas, trails, etc. • Public Recreation—recreation on publicly owned land. These areas typically have facilities or uses developed by a public agency and provide amenities open to the general public. Facilities at “public recreation” areas could include playgrounds/play structures, picnic facilities, tennis courts, horseshoe areas, play courts, recreation centers, athletic fields, trails, natural areas, amphitheaters, food concessions (vending, snack bar), access to water for fishing and boating, swimming areas and swimming pools, marina facilities owned by the public entity, parking, and campgrounds. <p>Public recreation, time-forward, will not include residential use, cabins, or other overnight accommodations (other than campgrounds), except if a recreation area is owned by a state or state agency and operated as a component of a state park system, in which case cabins and other overnight accommodations will be permitted.</p> <p>Public recreation uses typically include areas and facilities owned and operated by the federal, state, county, or local government (municipalities/communities). However, private entities may operate recreation facilities on public property as concessionaires under agreement with the public entity controlling the property. The use of the facilities may be offered free or for a fee. This does not allow for public-private partnership where facilities are owned by private investors. All structures and facilities should be owned by the agreement holder.</p> <ul style="list-style-type: none"> • Commercial Recreation—is defined as recreation amenities that are provided for a fee to the public intending to produce a profit for the owner/operator. These primarily water-based facilities typically include marinas and affiliated support facilities like restaurants and lodges, campgrounds, cabins, military vessel attractions, and excursion tour vessels (restaurant on the water). These uses and activities can be accommodated through changes in existing conveyance agreements.

Zone		Definition
		<p>These areas do not include residential use, long-term accommodations or individually owned units. Where applicable, TVA will request appropriate compensation for the use of the property.</p> <ul style="list-style-type: none"> • Greenways—Linear parks or developed trails located along natural features, such as lakes or ridges, or along man-made features, including abandoned railways or utility rights-of-way, which link people and resources together.
7	Shoreline Access	<p>TVA-owned land where Section 26a applications and other land use approvals for residential shoreline alterations are considered. Requests for residential shoreline alterations are considered on parcels identified in this zone where such use was previously considered and where the proposed use would not conflict with the interests of the general public. Types of development/management that may be permitted on this land are:</p> <ul style="list-style-type: none"> • Residential water use facilities, e.g., docks, piers, launching ramps/driveways, marine railways, boathouses, enclosed storage space, and nonpotable water intakes. • Shoreline access corridors, e.g., pathways, wooden steps, walkways, or mulched paths that can include portable picnic tables and utility lines. • Shoreline stabilization, e.g., bioengineering, riprap and gabions, and retaining walls. • Shoreline vegetation management.

2.1. Planning Goals

The goals of this RLMP, listed below, are designed to implement TVA’s mission.

Goal 1: Apply a systematic method of evaluating and identifying the most suitable uses of TVA public lands using resource data, stakeholder input, suitability and capability analyses, and TVA staff input.

Goal 2: Identify land use zone allocations to optimize public benefit and balance competing demands for the use of public lands.

Goal 3: Identify land use zone allocations to support TVA’s broad regional resource development mission. TVA reservoir properties are managed to provide multiple public benefits, including recreation, conservation, and economic development.

Goal 4: Provide a clear process by which TVA will respond to requests for use of TVA public land.

Goal 5: Comply with federal regulations and executive orders (EOs).

Goal 6: Ensure the protection of significant resources, including threatened and endangered species, cultural resources, wetlands, unique habitats, natural areas, water quality, and the visual character of the reservoir.

Goal 7: Provide a mechanism that allows local, state, and federal infrastructure projects when the use is compatible with the zone allocation.

2.2. Allocation Process

Prior to allocating parcels, the TVA planning team reviewed the characteristics of each parcel (i.e., location and existing conditions). TVA also reviewed deeds of selected tracts previously sold to private entities to identify existing shoreline access rights. In addition, the planning team honored all existing commitments—that is, existing leases, licenses, and easements. No sensitive resources surveys were conducted on committed land. The need for field reviews for uncommitted parcels was determined based on data from the TVA Natural Heritage database. Land with identified sensitive resources was placed in the Sensitive Resource Management Zone. The remaining parcels were allocated based on reservoir planning objectives and public input. Decisions were made by consensus among the TVA planning team. During the allocation process, the planning team allocated the reservoir land to one of seven planning zones using the standard zone definitions for all TVA reservoirs (Table 1).

2.3. Committed Land

Land currently committed to a specific use was allocated to a zone compatible with that use unless there was an overriding need to change the use. Some committed land uses are determined by the covenants and provisions of easements, leases, licenses, and sale and transfer agreements. Committed lands include the following: properties where TVA has granted landrights (easements, leases, etc.) for specific uses, properties where TVA has previously identified resources in need of protection, TVA Project Operations lands (transmission lines, dam reservations, etc.), and lands fronting national forest properties. Possible reasons to change a committed land use would be to prevent or remedy ongoing adverse impacts resulting from the actions of a license or easement holder.

Approximately 165 acres (58 percent) of the TVA land surrounding Fort Patrick Henry Reservoir are committed due to existing TVA or other public infrastructure projects. Agricultural licenses are not considered as committed uses because they are an interim use of TVA land.

In the allocation process, if sensitive resources were identified on a committed parcel, that parcel remained zoned for the committed use unless an ongoing adverse impact was found. However, TVA approval would be required prior to future activities that could impact the identified sensitive resources.

2.4. Uncommitted Land

Approximately 118 acres (42 percent) of the TVA land surrounding Fort Patrick Henry Reservoir are uncommitted. Technical specialists collected field data on many uncommitted parcels to identify areas containing sensitive resources. Representatives from

TVA organizations including Power Generation, Land and Water Stewardship, Recreation, and Economic Development met to allocate the parcels of TVA public land into the seven planning zones. Maps that identified the location of known and potential sensitive resources (e.g., cultural resources, wetlands, and threatened and endangered species) were used in determining the capability and suitability for potential uses of each parcel.

2.5. Property Administration

In the Fort Patrick Henry RLMP, TVA identifies the suitable uses for each tract of TVA-managed land around the Fort Patrick Henry Reservoir, consistent with TVA policy and guidelines and applicable laws and regulations. As administrators of TVA land, the Holston-Cherokee-Douglas Watershed Team will use the Fort Patrick Henry RLMP (Volume IV) and the NTRLMP EIS (Volume I), along with TVA policies and guidelines, to manage resources and to respond to requests for the use of TVA land. All inquiries about, or requests for, the use of TVA land on the NTRs should be made to the TVA Environmental Information Center at 1-800-882-5263.

Pursuant to the TVA Land Policy (Volume I, Appendix A), TVA would consider changing a land use designation outside of the normal planning process only for water access purposes for industrial or commercial recreation operations on privately owned back-lying land or to implement TVA's Shoreline Management Policy (SMP).

The SMP is based on the Shoreline Management Initiative (SMI), by which TVA, with public input, examined its system for granting permits for docks and other shoreline development. The primary goal was to establish a Valleywide policy that would improve the protection of shoreline and aquatic resources while allowing reasonable access to the water.

Public works/utility projects such as easements for pipelines, power or communication wires, roads or other public infrastructure proposed on any TVA public land that do not affect the zoned land use or sensitive resources would not require an allocation change as long as such projects would be compatible with the use of the allocated zone. Proposed public works/utility projects would be subject to a site-specific environmental review. Any other requests involving a departure from the planned uses would require the approval of the TVA Board of Directors.

Proposals consistent with TVA's policies and the allocated use, and otherwise acceptable to TVA, will be reviewed in accordance with NEPA and must conform to the requirements of other applicable environmental regulations and other legal authorities.

3.0 FORT PATRICK HENRY RESERVOIR REGIONAL OVERVIEW

Within the portion of the Tennessee River Valley known as the Upper Holston area are seven reservoirs: Beaver Creek, Boone, Clear Creek, Fort Patrick Henry, South Holston, Watauga, and Wilbur. Beaver Creek, Boone, Clear Creek, Fort Patrick Henry, and South Holston reservoirs, and a small portion of Wilbur Reservoir, are located in the Ridge and Valley ecoregion of Tennessee and Virginia. This region occurs between the Blue Ridge Mountains on the east and the Cumberland Plateau on the west. The region is a relatively low-lying area made of roughly parallel ridges and valleys that were formed through extreme folding and faulting events in past geologic time (Griffith et al. 1998).

3.1. The Past

According to archaeologists, humans first occupied this land around 12,000 years ago. This early population was initially nomadic, but later developed a seasonal subsistence based on the region's plant and animal resources. These abundant natural resources provided a diverse source of food, which included deer, nuts, fruits, and a variety of small animals, fish, and shellfish. Between 8000 B.C. and about 500 B.C., there were signs of population growth, settlement, and interregional trade. By 500 B.C. stable villages had developed, which are evidenced by cultivated plants, dwelling structures, pottery, and burial mounds. By A.D. 1500, there is evidence of an increasingly sophisticated society, with town centers, fortified villages, an elite class, as well as smaller and scattered hamlets or communities. The Cherokee Nation eventually occupied this area of Southern Appalachia. Cherokee territory extended throughout Southern Appalachia and included parts of Virginia, North Carolina, Kentucky, Tennessee, Georgia, and South Carolina. There is record of at least 43 towns just before the outbreak of the Revolutionary War. Their society was gradually penetrated, constrained, and eventually removed by white Europeans whose livelihood was based on capitalistic trade, manufacturing, and agricultural production.

Many early routes used by these indigenous peoples are still in use today and were originally based on early migration patterns. By instinct, herds of buffalo would find their way through this territory by selecting the lines of least resistance. One of their routes was through the mountain gap between present-day Zionville, North Carolina, and Trade, Tennessee, and into the upper part of the area drained by the Watauga River. They followed the creeks and the river itself, around Buffalo Mountain—near today's Johnson City—and into the valley near where the Watauga flows into the South Fork Holston River—the site of today's Boone Reservoir. These buffalo trails became roads followed by hunters, then pioneers, and later became routes for stagecoaches and railroads.

The first European visitors to the area followed these paths through the mountain gaps and along the waterways and settled near the rivers. During the 1760s, Daniel Boone came through the gap, followed the buffalo trail, and visited the Watauga area as a hunter. In 1768, William Bean settled at the mouth of Boone's Creek, to be followed by friends and others from Virginia and North Carolina. Still others came down the Holston Valley out of

Virginia. In 1772, these first white settlers formed the Watauga Association, believed to be the first independent governmental body constituted west of the mountains and by American-born freeman. The Watauga Association and others from North Carolina acquired land from the Cherokees at the famous treaty site at Sycamore Shoals on the Watauga.

The immigration of European white settlers into this frontier led to new territorial claims, conflicts, and adjustments. Disagreement and disputes over boundaries were inevitable, and the Holston and Watauga valleys were centers of activity. Skirmishes between the Cherokees and the new settlers occurred. Land claims were complicated by land grants from Virginia, claims for settling and clearing virgin acres, and Lord Granville's North Carolina grants. Both Virginia and North Carolina formed counties in an area they each claimed. Settlers formed the State of Franklin, which existed between 1784 and 1788, with its capitol in Jonesborough. Those who followed John Tipton in opposing the Franklinites were known as "Tiptonites" and made their seat of government at Buffalo. North Carolina ceded its western lands in 1790 to the USA, and those lands became the Southwest Territory and later Tennessee. The temporary seat of government was located at Rocky Mount, home of William Cobb near the Watauga River. Even though the Virginia-Tennessee boundary was set in 1803, as it remains today, the legal jurisdiction dispute was not put to rest until a U.S. Supreme Court decision in 1903.

This upper east Tennessee area served as an important point of departure for expeditions for both opening up new lands and protecting settled territory. From Long Island on the Holston, Daniel Boone departed in 1775, marking the trail for pioneers to follow, eventually through the Cumberland Gap and into Kentucky. In the fall of 1780, the men of the region marched from Sycamore Shoals to the upper reaches of the Watauga watershed and through Carver's Gap of Roan Mountain to fight and defeat the British troops under Colonel Patrick Ferguson at Kings Mountain. During the last years of the 18th century, two separate expeditions left Long Island to settle middle Tennessee and Nashville. The James Robertson party went overland while the Donelson party traveled by rivers.

The early 1800s saw the extension of commerce, growing settlements, and the development of transportation systems. Area farmers grew wheat, rye, corn, barley, oats, and tobacco, and they raised cattle and swine. While the Long Island area served as a crossroads for migratory settlers and for Cherokee trails, it also was the head of navigation for the Tennessee River system. Salt, iron, and tobacco from southwest Virginia, brought by packhorse and wagon to the Holston River, were loaded on flatboats and floated as far as Nashville or New Orleans. Retail, wholesale, and shipping businesses grew around William King's Boatyard, which served as an important distribution and transfer point. In 1822, the City of Kingsport was formed there. In 1825, the first stage line was established connecting Nashville and Salem, North Carolina, via Knoxville, Johnson City, Elizabethton, and Boone Gap. In 1831, a cotton-spinning factory began operation on Boone's Creek, 9 to 10 miles from Jonesborough—the first factory of its kind in this part of east Tennessee.

In 1858, the East Tennessee and Virginia Railroad was completed between Knoxville and Bristol. It traveled through Johnson City but bypassed Kingsport. The railroad connection from Richmond and Lynchburg through southwest Virginia to Bristol also was completed in the mid-1800s.

During the Civil War, while the area was not affected by major battles, mixed loyalties among residents and alienation among families took a heavy toll. After the war, reconstruction was difficult and progress slowed. During the latter part of the 19th century, the growth of railroads helped towns regain momentum and prosper. Signs of progress in upper east Tennessee were occurring throughout the region. Changes in Johnson City exemplified this progress. New churches and schools were built, and a newspaper was established. The first real estate company was founded, as were other industries such as a tannery, foundry, and machine works. Railroad branches such as the Virginia Creeper at Abingdon linked Bristol with areas rich in timber and coal resources.

Industrialization continued into the new century, and by 1915, the Clinchfield Railroad from Spartanburg, South Carolina, to Elkhorn City, Kentucky, was completed. City planner John Nolen was hired by area leadership and drew up plans for a new industrial city of 50,000. In 1917, the new City of Kingsport was incorporated. While some industries were successfully recruited before World War I, it was after the war that Kingsport's new industrial base took shape. Eastman Kodak Company, *Kingsport Press*, Mead Fiber Company, Holliston Mills, Blue Ridge Glass, The Borden Company, and others became established there during the 1920s. Kingsport grew dramatically during the Great Depression—largely due to new product lines at Tennessee Eastman Corporation. Industrial employment quintupled between 1935 and 1945, partly due to national defense work associated with World War II. The U.S. Census of 1950 gives the following population data for the industrial cities of the upper Holston: Johnson City, 27,864; Kingsport, 19,571; Bristol, Tennessee, 16,771; Bristol, Virginia, 15,954; and Elizabethton, 10,754.

The post-World War II economy of the Upper Holston area rapidly changed from one predominantly rural in character to one more equally divided between agriculture and industry. This change provided larger incomes for families of the area and made additional demands for trained personnel in business, industry, and agriculture. The wartime baby boom created need for more schools in the 1950s and 1960s. In the late 1970s, completion of interstate highways through the area linking the east coast with points west not only improved accessibility for travelers, business persons, and local residents, but stimulated more development. Homes “out in the county,” neighborhood shopping centers, fast food outlets, shopping plazas, office parks, and scattered residential subdivisions became more accessible and demanded even better roads.

While the Upper Holston reservoirs were envisioned to provide flood control and electricity, they also provided new sources of recreation. The management of water levels by TVA provides seasonal recreation opportunities. Conveniently accessible to area residents,

these reservoirs provided an attractive site for second-home development and lake cottages. By the year 2000, tremendous population growth in the area expanded populations in the following cities: Johnson City, 55,469 people; Kingsport, 44,905 people; Bristol, Tennessee, 24,821 people; Bristol, Virginia, 17,367 people; Blountville, 2,959 people; Bluff City, 1,559 people; and Elizabethton, 13,372 people.

3.2. The Project

Fort Patrick Henry Dam, situated on the South Fork Holston River, 2.5 miles upstream from Kingsport, Tennessee, is a concrete gravity structure. Its maximum height is 95 feet and its total length along the top is 737 feet. The powerhouse, a part of the dam, has an installed capacity of 59,400 kilowatts of electricity. The reservoir extends 10.4 miles to Boone Dam.

Fort Patrick Henry was proposed, along with Boone Dam, in 1949 to help meet normal peacetime growth occurring after World War II; control and prevent floods in the industrial city of Kingsport; and add to the TVA power system at a critical time when there were deficiencies in operating reserves. Work on Fort Patrick Henry Dam began on May 14, 1951. Construction was completed on October 27, 1953, and the first unit went into commercial operation December 5, 1953. Both units were generating electricity by February 1954. Fort Patrick Henry Dam added to the power base for essential defense industries in Kingsport.

Twenty-two families were displaced by Fort Patrick Henry (11 owned; 11 tenant; five farm; 17 nonfarm). No schools, churches, or other community buildings were impacted. Two residencies were moved intact.

3.3. The Present Shoreland

3.3.1. *Physiographic Overview*

The Fort Patrick Henry Reservoir is located within the Ridge and Valley ecoregion of Tennessee. This region occurs between the Blue Ridge Mountains on the east and the Cumberland Plateau on the west and is a relatively low-lying area made up of roughly parallel ridges and valleys that were formed through extreme folding and faulting events in past geologic time (Griffith et al. 1998).

Fort Patrick Henry Reservoir is located within the Southern Limestone/Dolomite Valleys and Rolling Hills subregion. This is a heterogeneous region composed predominantly of limestone and cherty dolomite. Landforms are mostly undulating valleys and rounded ridges and hills, with many caves and springs. Soils vary in their productivity, and land cover includes oak-hickory and oak-pine forests, pasture, intensive agriculture, urban, and industrial land uses.

3.3.2. Land Use and Prime Farmland

The percent of developed residential shoreland is approximately 43 percent on Fort Patrick Henry Reservoir. The shoreland of Fort Patrick Henry Reservoir is composed of a variety of land uses, such as residential development, suburban areas, state park property, and a few small farms. Approximately half of the shoreland on Fort Patrick Henry provides the opportunity to access the reservoir. Of this shoreland, half is TVA-owned and managed shoreland, and half is private ownership.

Fort Patrick Henry Reservoir has about 27 miles of shoreline. Of the 27 miles of total shoreline, 32 percent is privately owned flowage easement land, 15 percent is owned and managed by TVA, 32 percent is owned by TVA and jointly managed, and 19 percent is TVA-owned shoreland access shoreland. TVA owns approximately 283 acres of Fort Patrick Henry Reservoir shoreland, which total about 18 miles of shoreline. These 283 acres consist of property that is below the 1,268.0 maximum shoreline contour (MSC), TVA-owned islands, and those properties extending to a back-lying severance line that separates private property from TVA property.

Figure 1 represents the percent of land acreage on Fort Patrick Henry Reservoir that is allocated to each land use zone. Natural Resource Conservation (Zone 4) comprised the largest portion (39 percent) of all zones allocated for Fort Patrick Henry Reservoir. The second-largest zone allocation was for Project Operations (Zone 2) at 24 percent. Sensitive Resource Management (Zone 3), Shoreline Access (Zone 7), and Developed Recreation (Zone 6) ranged from 6 to 13 percent; while no shoreland was allocated to Industrial (Zone 5). Privately owned, Non-TVA Shoreland comprised 9 percent. No new reservoir land was allocated to Zone 1.

TVA has a flowage easement to the 1,268.0 MSC on approximately 28 acres of Fort Patrick Henry shoreland. Any structures placed below the 1,268.0 MSC are subject to Section 26a of the *TVA Act*. Section 26a is designed to ensure that construction along the shoreline and in waters of the Tennessee River system and the TVA reservoirs does not adversely impact TVA's responsibility for managing the river system and for achieving "Unified Development and Regulation of the Tennessee River." For more information on TVA's SMP, see Section 2.5 of this RLMP.

Zone 2 (Project Operations) is all TVA reservoir land currently used for TVA operations and public works projects. There are 75.6 acres allocated to Zone 2 (Project Operations). The largest parcel allocated as Zone 2 being the Fort Patrick Henry Dam Reservation. The dam reservation contains several buildings associated with power production from Fort Patrick Henry Reservoir—for instance, the Fort Patrick Henry Dam, the control building, the powerhouse, switchyard, and regional hydropower production maintenance building, as well as numerous power transmission lines. Additional facilities located on the dam reservation are the Fort Patrick Henry Dam Visitors Center, a picnic area, public restrooms, and maintenance facilities.

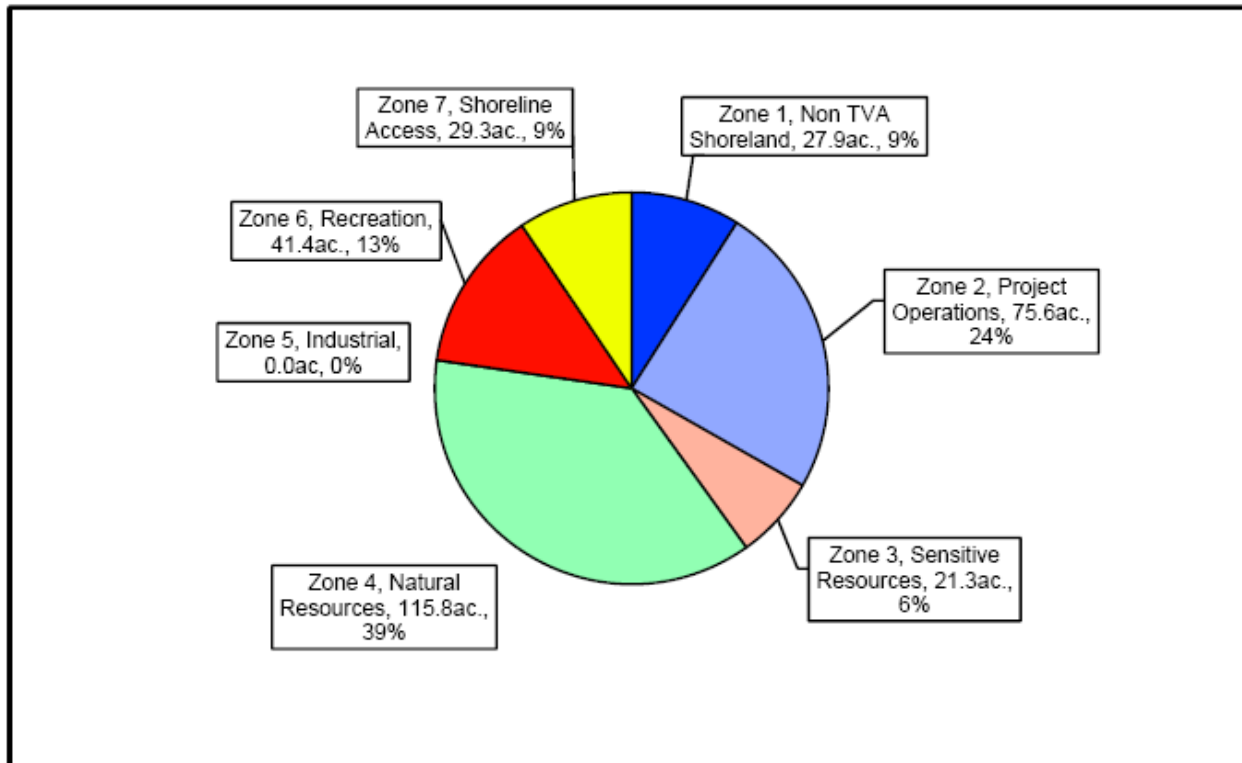


Figure 1. Percent of Fort Patrick Henry Reservoir Acreage Allocated by Zone

Zone 3 (Sensitive Resource Management) is land managed for protection and enhancement of sensitive resources. Sensitive resources, as defined by TVA, include resources protected by state or federal law or EO and other land features/natural resources TVA considers important to the area viewscape or natural environment. Only two parcels (1 and 27) are allocated to Zone 3 on Fort Patrick Henry. Parcel 1 is comprised of three noncontiguous areas along the tailwater shoreline below the Highway 36 bridge. One is an island, and the other two are shoreline strips on the left and right banks. The right bank is steep with limited access and is occupied by mixed hardwood species and an open, mowed field, which comprises about one-third of the area. The left bank varies in slope. The steep slopes are occupied by upland and cove hardwood species, while the flatter areas are primarily bottomland hardwood species. Parcel 27 is a 1- acre area known as Smitty's Cemetery. The cemetery is completely surrounded by Parcel 10, which is allocated to Zone 4.

Almost 116 acres of the 283 acres of TVA-owned property is allocated as Zone 4 (Natural Resource Conservation). Zone 4 is the largest acreage of TVA fee-owned property on Fort Patrick Henry Reservoir. Zone 4 lands are managed for the enhancement of natural resources for human use and appreciation. Parcels 10 and 21 (Interstate 81 and Sinking Creek) are the largest parcels allocated to Zone 4. Parcel 10, Interstate 81, is a 69-acre

parcel adjacent to Warriors Path State Park on the upstream side of Interstate 81. This parcel has two portions, one on each side of the channel. Both portions of this parcel provide access for hunting, fishing, and other recreation activities associated with dispersed recreation. Parcel 21, Sinking Creek, is a 42-acre parcel located on the northern side of Lakewood Subdivision. This parcel provides access for hunting, fishing, and other recreation activities associated with dispersed recreation; however, limited road access precludes most recreation uses, unless accessed by boat.

Zone 6 (Developed Recreation) consists of TVA lands that have been developed for recreational purposes, such as public launching ramps or county parks. TVA has transferred areas of Fort Patrick Henry Reservoir shoreline to the Tennessee Wildlife Resources Agency (TWRA) for public recreation and reservoir access. TWRA has developed the sites with concrete launching ramps and parking lots. The TWRA has a permanent easement on these areas. Additionally, there are several marginal strips of shoreline, which have been transferred to the State of Tennessee for public recreation or are under a license agreement to be managed in conjunction with the back-lying use, such as Warriors Path State Park (WPSP). WPSP is approximately 950 acres with developed recreation facilities such as a marina, launching ramp, picnic pavilions, fishing pier, athletic fields, all-accessible playground, and disc golf.

Zone 7 (Shoreline Access) comprises 29 acres of the total 283 acres on Fort Patrick Henry Reservoir. Zone 7 lands are TVA-owned lands where Section 26a applications and other land use approvals for private shoreline alterations are considered. Requests for private shoreline alterations are considered on parcels identified in this zone where such use was previously considered, and/or where the back-lying landowner possesses deeded rights of access, and where the proposed use would not conflict with the interests of the public.

The Fort Patrick Henry Reservoir contains approximately 49.6 acres of prime farmland. Prime farmland has the best combination of soil physical and chemical characteristics for producing food and fiber and is protected from conversion to industrial and nonagricultural uses by the U.S. Department of Agriculture (USDA). These 49.6 acres occur in Zones 2 (Project Operations), 3 (Sensitive Resource Management), 4 (Natural Resource Conservation), 6 (Developed Recreation), and 7 (Shoreline Access). Approximately 33 acres occur in Zones 3 and 4, which by their function have little or no soil disturbance and would have no adverse impacts to prime farmlands. The remainder of the acreage ranges from 0.8-3.4 acres in the other land use zones and would be subject to minor soil disturbances. For more information on land use and prime farmland, see Volume I, Sections 3.2 and 3.4.

3.3.3. Recreation

TVA's recreation vision seeks to enhance recreation opportunities and address unmet recreation needs while managing resources on Fort Patrick Henry Reservoir. Developed recreation provides modern facilities and amenities on shoreline properties such as

campgrounds, marinas, developed boat launches/ramps, and a myriad of day use facilities (picnic areas, swimming beaches, and fishing piers). These TVA lands are primarily allocated as Zone 6 (Developed Recreation) and Zone 2 (Project Operations) as the Fort Patrick Henry Dam Reservation has developed recreation facilities (see Table 1 for land use zone definitions).

Dispersed recreation areas provide passive, unconfined opportunities that are predominantly nature-based. In general, areas that provide dispersed recreation amenities contain one or more of the following: rustic trails for fishing access/walking/hiking/horseback riding, primitive campsites, primitive swimming and launching sites, and hunting and fishing areas. The TVA areas that provide dispersed recreation opportunities on TVA lands include many proposed Zone 2 parcels such as substations and dam reservations, Zones 3 and 4 parcels, and undeveloped Zone 6 parcels (see Table 1 for land use zone definitions).

Developed recreation facilities and amenities on Fort Patrick Henry Reservoir include one marina, two developed boat launches/ramps, and a myriad of day use facilities (two picnic areas, one fishing pier, and a variety of ball fields). Fort Patrick Henry Reservoir parcel descriptions (see Section 4.0) further describe the management entity and management prescription of recreation facilities on these lands managed either by TVA or under contractual agreement to another government entity or commercial operator. Table 2 itemizes developed recreation area lands that are managed by TVA or are under contractual agreement for recreation purposes, their managing agency/entity, and their locations by parcel number. Table 2 does not itemize privately owned/operated recreation facilities that are adjacent to Fort Patrick Henry Reservoir shoreline, because they are private and beyond the scope of this RLMP.

Table 2. Developed Recreation Areas on TVA Lands on Fort Patrick Henry Reservoir

Recreation Area	Managing Entity	Location
Dam Reservation	TVA	Parcel 4
Cooks Valley Ramp	TWRA	Parcel 6
WPSP	State of Tennessee	Parcels 7 and 28-34
Fordtown Bridge Ramp	TWRA	Parcel 14

TVA manages two dispersed recreation areas with seven sites on Fort Patrick Henry Reservoir. A site is defined as an area of impact where a recreation activity occurs; an area is the sum of the sites near one another on a TVA parcel. These areas are located on Parcel 10. For further description of this parcel, see Section 4.0.

Dispersed recreation areas on Fort Patrick Henry Reservoir were assessed and analysis of the data qualified two areas as beyond the biophysical “Limits of Acceptable Change” (LAC). Areas that exceeded the LAC may be prioritized by the watershed team and proposed for improvements. None of the dispersed recreation areas exceeded the LAC on Fort Patrick Henry Reservoir. For more information on recreation, see Volume I, Section 3.3.

3.3.4. Terrestrial Ecology

The Ridge and Valley ecoregion contains long stretches of ridges with adjacent valleys that run in a southwestern-to-northeastern direction. The variety of landforms, soils, climate, and geology across the Ridge and Valley have allowed for an extremely diverse assemblage of animals. Deciduous forests and mixed evergreen-deciduous forests provide wildlife habitat among the intense agriculture and urban sprawl.

Oak-hickory forest is the most abundant forest type in the eastern U.S. (Flather et al. 1999) and is prevalent in the Fort Patrick Henry Reservoir region. Numerous bird species nest in deciduous forests, for example wild turkey, whip-poor-will, ruby-throated hummingbird, red-eyed vireo, blue-headed vireo, wood thrush, gray catbird, black-throated green warbler, black-and-white warbler, ovenbird, hooded warbler, and the scarlet tanager. A heron colony exists in the tailwater of Fort Patrick Henry. The colony originally occurred on the island downstream of the dam, but recently moved into the hillside on the left-descending bank.

Evergreen and evergreen-deciduous forests provide nesting habitat for woodland birds including pine and yellow-throated warblers, great crested flycatcher, and chuck-will’s-widow. Birds that winter in this forest type include red-breasted nuthatch, red crossbill, and pine siskin. Other animals that inhabit evergreen and evergreen-deciduous forests but are not restricted to them include white-tailed deer, wild turkey, black bear, eastern mole, southern bog lemming, eastern kingsnake, smooth earth snake, eastern fence lizard, and six-lined racerunner. Additionally, streams, wetlands, and other seasonally wet areas in this forest type provide habitat for a variety of salamanders, frogs, and toads. The riparian zones along streams within deciduous forests provide nesting habitat for Acadian flycatcher, northern parula, and Louisiana waterthrush. Many additional bird species migrate through and winter in the area. Common mammal species of deciduous forests include black bear, white-tailed deer, red bat, eastern chipmunk, eastern gray and southern flying squirrels, white-footed mouse, southern red-backed and woodland voles, short-tailed shrews, gray fox, least weasel, and bobcat. For more information on terrestrial ecology, see Volume I, Section 3.5.

3.3.5. Invasive Nonnative Species

Most of the planned TVA parcels around Fort Patrick Henry Reservoir contain a substantial amount of invasive nonnative species. EO 13112 defines an invasive nonnative species as any species, including its seeds, eggs, spores, or other biological material capable of

propagating that species, that is not native to that ecosystem and whose introduction does or is likely to cause economic or environmental harm or harm to human health (USDA 2007).

According to the Federal Noxious Weed List of 2006 (USDA 2007), there are no known federal noxious weeds reported from the lands around Fort Patrick Henry Reservoir and the other NTRs. In addition, the Southeastern Exotic Plant Pest Council (2006) provides a list of nonnative invasive species that could pose potential threats to native ecosystems and human health for each southeastern state. In reviewing the Tennessee exotic plant pest list (Tennessee Exotic Plant Pest Council 2001), there were 15 (Rank 1) species that pose a severe threat to native ecosystems observed in the NTRs region. Plants listed as a severe threat include the following: autumn olive, bush honeysuckle, Chinese lespedeza, Chinese privet, English ivy, garlic mustard, Japanese honeysuckle, Japanese stiltgrass, Johnson grass, kudzu, mimosa, multiflora rose, oriental bittersweet, princess tree and tree of heaven. Other nonnative species such as crown vetch, tall fescue, shrubby bushclover, Queen Anne's lace, periwinkle, and small carpet grass were also referenced. All of these species have the potential to adversely impact the native plant communities because of their potential to spread rapidly and displace native vegetation. All of the Rank 1 (severe threat) species are considered to be of high priority to TVA (James, 2002).

3.3.6. *Endangered and Threatened Species*

TVA biologists and natural resource specialists used the TVA Natural Heritage database to assess the endangered and threatened species within and around each of the NTRs. The TVA Natural Heritage database was created to ensure that environmental compliance activities are conducted in a consistent manner across the TVA region and that these activities meet the requirements of NEPA and the *Endangered Species Act* (ESA). Database searches are based on the following criteria: (1) distance, (2) presence/absence of suitable habitats, (3) element occurrence rank values, and (4) species or type of element present. Accordingly, plants are assessed within a 5-mile radius, aquatic species within 10 miles, and terrestrial species within 3 miles. Federally listed and state-listed species identified during field reviews and/or results from the TVA Natural Heritage database searches are presented in Table 3.

Table 3. Federally Listed and State-listed Species Within and Near Fort Patrick Henry Reservoir

Common Name	Scientific Name	Federal Status	State Status*	State Rank
Common Raven	<i>Corvus corax</i>	--	THR	S2
Gray Bat	<i>Myotis grisescens</i>	LE	END	S2
Highfin Carpsucker**	<i>Carpionodes velifer</i>	--	NMGT	S2/S3
Spotfin Chub	<i>Cyprinella monacha</i>	LT	THR	S1
Tangerine Darter	<i>Percina aurantiaca</i>	--	NMGT	S3
Spiny Riversnail**	<i>Io fluviialis</i>	--	TRKD	S2
Branching Whitlow-Wort	<i>Draba ramosissima</i>	--	END	S2
Meehanian Mint	<i>Meehanian cordata</i>	--	THR	S2
Starflower Solomon's Seal	<i>Maianthemum stellatum</i>	--	END	S1

Federal status abbreviations: LE = Listed endangered; LT = Listed threatened

State status abbreviations: END = Endangered; NMGT = In need of management; THR = Threatened

State rank abbreviations: S1 = Critically imperiled, often with 5 or fewer occurrences; S2 = Imperiled, often with <20 occurrences; S3 = Rare or uncommon, often with <80 occurrences; S#/S# = Occurrence numbers are uncertain

*Tennessee record unless otherwise specified

**historic record

3.3.6.1. Plants

Field surveys and reviews of the TVA Natural Heritage database did not indicate any federally listed endangered or threatened plant species within 5 miles of Fort Patrick Henry Reservoir. During field surveys, previously undocumented populations of branching whitlow-wort were found on Fort Patrick Henry (Parcel 10a) in Sullivan County, Tennessee. For more information on plant communities, see Volume I, Section 3.6.

3.3.6.2. Terrestrial Wildlife

Field surveys and reviews of the TVA Natural Heritage database indicated that one federally listed endangered species, and one Tennessee state-listed terrestrial species occur within and near Fort Patrick Henry. For more information on terrestrial wildlife, see Volume I, Section 3.6.

3.3.6.3. Aquatic Wildlife

A total of four federally and/or state-listed aquatic species are known from downstream of Fort Patrick Henry Dam. These include the highfin carpsucker, tangerine darter, spotfin chub, and spiny riversnail. Both the highfin carpsucker and spiny riversnail are historic records and most likely no longer occur in the tailwater. Although the spotfin chub and tangerine darter are currently known from the tailwater of Fort Patrick Henry, the cold, hypolimnetic discharges from the dam would not provide suitable habitat for either species near parcels located in the tailwater. For more information on aquatic wildlife, see Volume I, Section 3.6.

3.3.7. Wetlands

Wetlands are transitional ecosystems between terrestrial and aquatic communities, where saturation with water is the dominant factor in determining the types of plants and animals present. Wetlands are ecologically important because of their beneficial effect on water quality, their moderation of flow regimes by retaining and gradually releasing water, their value as wildlife habitat, and as areas of botanical diversity. Wetlands exist within and adjacent to TVA reservoirs, and are influenced by surface water and groundwater connections to the water levels in these reservoirs.

Field surveys were conducted to determine types and locations of wetlands on plannable parcels on each reservoir. Wetlands on plannable parcels were also categorized by their functions, sensitivity to disturbance, rarity, and irreplaceability. Based on estimates from the U.S. Fish and Wildlife Service National Wetlands Inventory maps combined with data sets developed for TVA's 2004 *Reservoir Operations Study*, Fort Patrick Henry Reservoir has approximately 42 acres of wetland habitat.

On Fort Patrick Henry, six plannable parcels were surveyed for wetlands. Forested wetlands are present on Parcels 21 and 23, in the floodplain of Sinking Creek. Common vegetation includes box elder, sycamore, and spicebush. A small (<.10 acre) emergent wetland is present along the shoreline of Parcel 10; vegetation associated with this includes smartweed, soft rush, and yellow iris. All three of these wetlands were rated as Category 2 (moderate quality) wetlands. For more information on wetland resources, see Volume I, Section 3.7.

3.3.8. Floodplains

The area impacted by the RLMP extends from the lower limit of TVA's property, at approximate South Fork Holston River Mile (RM) 7.4, upstream to about South Fork Holston RM 17.9, Fort Patrick Henry Reservoir. Fort Patrick Henry Dam is located at South Fork Holston RM 8.2. The 100-year floodplain is the area that would be inundated by the 100-year flood.

The 100-year flood elevations for the South Fork Holston River downstream of Fort Patrick Henry Dam vary from 1,205.4 feet mean sea level (msl) at RM 7.4, to elevation 1,209.6 feet msl at the downstream side of Fort Patrick Henry Dam. The 500-year flood elevations for the South Fork Holston River downstream of Fort Patrick Henry Dam vary from 1,211.4 feet msl at RM 7.4 to elevation 1,215.5 feet msl at the downstream side of Fort Patrick Henry Dam.

In Fort Patrick Henry Reservoir, the 100- and 500-year flood elevations for the South Fork Holston River are 1,263.8 feet msl at Fort Patrick Henry Dam upstream to RM 13.6. Flood information upstream of South Fork Holston RM 13.6 is currently unavailable. Tabulations of the 100- and 500-year flood elevations are included in Volume I, Appendix G.

All msl measurements are according to the National Geodetic Vertical Datum model of 1929.

3.3.9. Cultural and Historic Resources

Archaeological research within the Fort Patrick Henry Reservoir area has included avocational excavations at the Eastman Rockshelter (Faulkner 1983; Faulkner and Dean 1982; Manzano 1986) and Baker Bluff Cave (Faulkner 1978; Guilday et al. 1978). A reservoirwide survey was conducted by S.D. Dean in 1986 and reported by Richard Polhemus (Polhemus 2000). The survey resulted in the identification of 65 historic and prehistoric archaeological sites in the now inundated river bottoms. For more information on cultural and historic resource review process, see Volume I, Section 3.9.

3.3.10. Managed Areas and Sensitive Ecological Sites

Natural areas include managed areas, ecologically significant sites, and Nationwide Rivers Inventory streams. *Managed areas* include lands held in public ownership that are managed by an entity (e.g., TVA, USFS, State of Tennessee, Sullivan County) to protect and maintain certain ecological and/or recreational features. A management plan or similar document defines what types of activities are compatible with the intended use of the managed area. *Ecologically significant sites* are tracts of privately owned land either that are recognized by resource biologists as having significant environmental resources or identified tracts on TVA lands that are ecologically significant but not specifically managed by TVA's Natural Areas Program. *Nationwide Rivers Inventory* streams are free-flowing segments of rivers recognized by the National Park Service as possessing outstandingly remarkable natural or cultural values.

The TVA Natural Heritage database indicates that there are no natural areas on Fort Patrick Henry Reservoir. Natural areas adjacent to Fort Patrick Henry Reservoir include TWRA lands, city parks, and state parks. Zone allocations of the TVA land parcels are in agreement with the management objectives of these back-lying public lands. The Warriors Path State Park, administered by the Tennessee Department of Environment and Conservation is near Parcels 7, 28, and 34, and is the only natural area on, adjacent to, or within 3 miles of Fort Patrick Henry Reservoir. For more information on managed areas and sensitive ecological sites, see Volume I, Section 3.10.

3.3.11. Water Quality

Fort Patrick Henry Reservoir is one of the smaller reservoirs included in the Reservoir Ecological Health Monitoring Program. It is only about 10 miles long and has a surface area of approximately 870 acres. Although it is a tributary reservoir, it essentially is a "flow-through" reservoir, rather than a storage reservoir, because the retention time is short, with an average discharge of 2,550 cubic feet per second and a hydraulic retention time of about five days.

The Reservoir Ecological Health Index is made up of several component indices [dissolved oxygen, chlorophyll, fish (i.e., Reservoir Fish Assemblage Index [RFAI]), benthos, and sediments]. The scores from these indices are totaled and then the average is taken to come up with the overall reservoir ecological health score. Figure 2 shows the reservoir ecological health scores for Fort Patrick Henry Reservoir from 1994 through 2007. Fort Patrick Henry Reservoir was sampled in the forebay area at South Fork Holston RM 8.7.

Fort Patrick Henry has received a “fair” or “poor” ecological health rating every year, except for 2003 when it rated “good,” due primarily to improved chlorophyll concentrations (Figure 2). Chlorophyll typically rates “poor”; however, average chlorophyll concentrations were their lowest to date in 2003 when high reservoir flow limited algae growth.

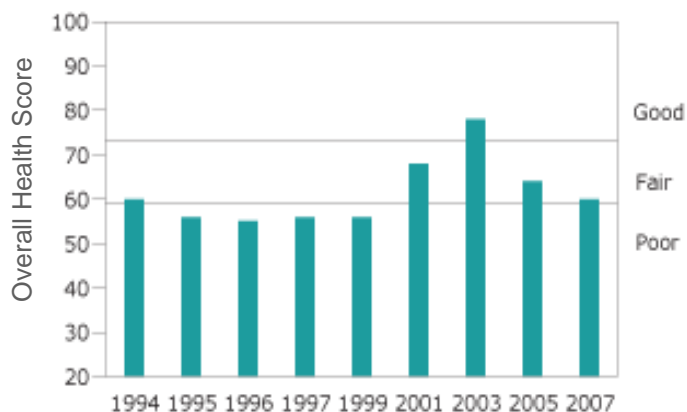


Figure 2. Fort Patrick Henry Reservoir Ecological Health Ratings, 1994-2007

The main issues in Fort Patrick Henry have been consistent from year to year—generally high chlorophyll concentrations, “fair” to “poor” ratings for fish and benthos and the presence of chlordane, and in some years, high levels of copper in the sediments. Dissolved oxygen is the only indicator to consistently rate “good.” The reservoir’s small size and short residence time (the length of time the water sits in the reservoir) prevent it from becoming thermally stratified during the summer. Sediment quality typically rates “fair” due to low levels of chlordane, a pesticide previously used to control termites and crop pests. However, sediment quality rated “good” in 1993, 2005, and 2007. For more information on water quality, see Volume I, Section 3.12.

3.3.12. Aquatic Ecology

Unimpounded rivers of the Ridge and Valley ecoregion typically consist of limestone rubble and bedrock riffles, sandy silty pools, and some extensive sand and gravel shoals (Etnier and Starnes 1993). These conditions exist in upper reaches of reservoirs where free-flowing streams transition into impounded reservoirs as well as in reservoir tailwaters. Water discharged into the tailwaters can be very cold and have low dissolved oxygen

content, impairing water quality. Subsequently, the stretch of river directly downstream of dams can have less diverse aquatic communities.

TVA has improved tailwater water quality below many of its hydroelectric facilities, including Fort Patrick Henry Reservoir. This has been accomplished by the establishment of the Reservoir Releases Improvement Program, which was begun officially in 1991 when the TVA Board of Directors approved a five-year plan to improve water releases from 16 dams by maintaining minimum flows and reaeration of dam discharges. Implementing minimum flows was accomplished via turbine pulses and dissolved oxygen levels increased in a variety of ways (e.g., turbine venting, oxygen injection, and weir dams). These techniques helped to mimic riverine conditions in TVA tailwaters that were more natural.

Fort Patrick Henry Reservoir, on the South Fork Holston River in east Tennessee, extends 10 miles upstream from Fort Patrick Henry Dam to Boone Dam. Impoundment results in species tolerant of lakelike conditions, replacing typical riverine aquatic assemblages. Often, deep tributary reservoirs stratify into temperature-distinct layers in the summer with the colder, less oxygenated water settling on the bottom. Water quality in Fort Patrick Henry Reservoir and the tailwaters is influenced by a variety of factors, such as size, geology, and land use conditions in the reservoir's upstream drainage areas, point and nonpoint discharges of pollutants, activities on lands adjacent to the reservoir, and the operation of the reservoir.

3.3.12.1. Reservoir Vital Signs

The Reservoir Vital Signs Monitoring Program (RVSMP) activities focus on (1) physical and chemical characteristics of waters; (2) physical and chemical characteristics of sediments; (3) sampling the benthic macroinvertebrate community; and (4) fish assemblage sampling. The RVSMP data include annual fish sampling on Fort Patrick Henry Reservoir from 1999-2007 (2008 data are not yet available) on a two-year rotation sampling cycle. Ratings are based primarily on fish community structure and function, using an analysis tool known as the RFAI (McDonough and Hickman 1999).

Both RFAI and benthic community samples were taken in the forebay area (near the dam) of Fort Patrick Henry Reservoir. Samples are usually taken on a two-year cycle. Fort Patrick Henry Reservoir rated fair in 2007. Fort Patrick Henry has received a fair rating every year, except for 2003 when it rated poor. Benthic community scores for the forebay have consistently rated poor/fair. Available RFAI and reservoir benthic community score results for Fort Patrick Henry Reservoir are presented below in Table 4. The RVSMP data for all NTRs are available in Volume I, Section 3.13.

Table 4. Reservoir Fish Assemblage Index and Benthic Community Scores Collected Between 1995 and 2007 in the Fort Patrick Henry Reservoir as Part of the Reservoir Vital Signs Monitoring Program

Year	RFAI Scores	Benthic Community Scores
	Forebay	Forebay
1995	-	Poor
1997	-	Poor
1999	Fair	Fair
2001	Fair	Fair
2003	Poor	Fair
2005	Fair	Fair
2007	Fair	Poor

RFAI Score	12-28	29-44	45-60
Community Condition	Poor	Fair	Good
Benthic Community Score	7-16	17-26	27-35
Community Condition	Poor	Fair	Good

3.3.12.2. Sport Fishing Index

A Sport Fishing Index (SFI) has been developed to measure sport fishing quality for various species in Tennessee and Cumberland Valley reservoirs (Hickman 2000). The SFI is based on the results of fish population sampling by TVA and state resources agencies and, when available, results of angler success as measured by state resource agencies (i.e., bass tournament results and creel surveys). The SFI score ranges from a high of 60 (excellent) to a low of 20 (very poor). SFI scores for Fort Patrick Henry Reservoir are presented in Table 5.

Table 5. 2005 Sport Fishing Index Scores for Selected Sport Fish Species on Fort Patrick Henry Reservoir

Species	Fort Patrick Henry	Valleywide Average
Black Bass	35	34
Largemouth Bass	28	34
Smallmouth Bass	30	30

Cold, hypolimnetic releases from Fort Patrick Henry Dam supports well-established, year-round trout fisheries in the tailwaters. The downstream area generally has habitats and food bases, which can support large carrying capacities and allow trout to grow larger than they normally do elsewhere. The tailwaters are typically stocked, by TWRA, with fingerlings in the early spring and adult fish (catchables) throughout the summer. Adults supplement

the catch during peak angling season, and by fall, fingerlings have begun to enter these fisheries.

3.4. The Future

The shoreland of Fort Patrick Henry Reservoir is composed of a variety of land uses, such as residential development, suburban areas, state park property, and a few small farms. As unmanaged growth and development increase, there is impact on the natural resources, which contribute to the quality of life that draws people to Fort Patrick Henry Reservoir. This quality of life will be impacted by the success or failure to achieve an appropriate balance between development and the protection of natural resources and could decrease the ecotourism and recreational value of Fort Patrick Henry Reservoir.

Trends and issues, which extend far beyond the shoreline, will affect the future of Fort Patrick Henry. Population growth within the upper east Tennessee region; land development and community planning practices; growing tourism and recreation economy; a growing diversity of recreational pursuits; as well as developments in upstream portions of the South Fork Holston watershed, all will affect the quality of experience Fort Patrick Henry Reservoir provides. Close attention must be given to protecting shorelands with unique or special qualities, properly managing and conserving the natural resources of the shoreline, and protecting different uses so the public can enjoy them.

3.5. Parcel Allocations

The parcel allocations for Fort Patrick Henry Reservoir can be found below in Table 6, which is the parcel information matrix that coincides with the Fort Patrick Henry Reservoir map. This table identifies each parcel number, allocation zone, number of acres, and brief parcel description. Non-TVA Shoreland (Zone 1) totals 27.9 acres on Fort Patrick Henry Reservoir and is not included in Table 6 because it is shoreland that TVA does not own in fee or land that TVA never purchased.

Table 6. Fort Patrick Henry Reservoir Parcel Allocations

Parcel Number	Zone Allocations							FT. PATRICK HENRY RESERVOIR Descriptions
	Acres	2	3	4	5	6	7	
1	17.6		●					Fort Patrick Tailwater
2	0.8						●	Kendrick Creek
3	2.4	●						Island below Dam
4	69.0	●						Fort Pat Dam
5	0.4						●	Crest Road
6	0.9					●		Cooks Valley Ramp
7	10.4					●		Marginal Strip (Fronting Warriors Path SP (WPSP))
7a	2.4	●						I-81 ROW (right bank)
8	0.0	●						Hammon Bridge (WPSP)
9	0.3			●				Zone 4 Fragment
10	66.8			●				I - 81
10a	2.7		●					I - 81 Sensitive
11	3.3						●	Gottland Shoals
12	3.0						●	Bakers Bluff
13	1.3			●				Wahoo Valley
14	0.9					●		Ford Town Bridge
15	5.4						●	Pitt Road
16	1.6						●	Hwy 75 Access
17	3.5			●				Smith Shoals Bluff
18	1.8					●		Smith Shoals Ramp
19	2.3						●	Smith Shoals Subdivision
20	8.4						●	Lakewood Subdivision
21	42.2			●				Sinking Creek
22	1.4	●						Sinking Creek Pump Station
23	1.8			●				Sinking Creek
24	1.4						●	Lochridge Subdivision
25	0.7						●	Cliffview Drive
26	2.0						●	Shipley Ferry
27	1.0		●					Smitty's Cemetery
28	1.9					●		Warriors Path State Park (WPSP)
28a	0.3	●						I-81 ROW (left bank)
29	17.6					●		Warriors Path State Park
30	0.7					●		Marginal Strip (Fronting Warriors Path State Park)
31	5.4					●		Marginal Strip (Fronting Warriors Path State Park)
32	0.5					●		Marginal Strip (Fronting Warriors Path State Park)
33	0.1	●						Hammon Bridge (WPSP)
34	1.4					●		Marginal Strip (Fronting Warriors Path State Park)
Total	283.3							
	Committed Land - Under current agreement, used for project operations, with sensitive resources, or fronting public recreation land.							
	Uncommitted Land - Land that is considered "Plannable".							

4.0 PARCEL DESCRIPTIONS

(See Exhibit Map)

Note: Parcel descriptions have the total acreage listed that lies above the 1,263-foot median shoreline contour. Each parcel description is discussed in four sections: General Description, Recreation, Sensitive Resources, and Easements/Lease Agreements/Licenses/Transfers. In cases where the recreation section is absent, recreation activities are not compatible with the use or allocation of the parcel.

Fort Patrick Henry Reservoir Parcel Descriptions

Parcel 1	17.6 Acres
Common Name:	Fort Patrick Henry Tailwater
Allocation:	Zone 3 (Sensitive Resource Management)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
<i>Stream:</i>	<i>South Fork Holston River Miles 7.4 – 7.9 Right and Left Banks</i>

General Description:

Parcel 1 is located on the tailwater below Fort Patrick Henry Dam and consists of three noncontiguous areas along the tailwater shoreline.

The portion of the parcel on the right bank is steep, with limited access. Mixed hardwood (upland and bottomland) and an open, mowed field, which comprises about one-third of the area, occupy it. Oaks and hickories, red maple, sycamore and box elder are the most prevalent species and are primarily saw-timber size. The shoreline vegetation provides a riparian zone to the reservoir.

The portion of the parcel on the left bank varies in slope. The steep slopes are occupied by upland and cove hardwood with oaks, hickories, yellow poplar, and white ash. The flatter areas are primarily bottomland hardwood with sycamore, box elder, red maple, and green ash. Tree size varies from pole to saw-timber. Although the area provides some riparian zone forest, much of it is young and of only fair quality. English ivy was noted growing on many of the trees on the lower portions of this property. There is unauthorized mowing of TVA property that occurs on the right bank portion of the parcel and will be dealt with as an encroachment.

The third portion of this parcel is an island that contains wetlands; vegetation on the island is dominated by sycamore, yellow poplar, and princess tree. This entire parcel has also been identified as being prime farmland.

Private water use facilities will not be considered.

Fort Patrick Henry Reservoir Land Management Plan

Recreation:

The left bank portion of the parcel provides access for hunting, fishing, and other recreation activities associated with dispersed recreation. Hunting and fishing are permitted, consistent with state regulations.

Sensitive Resources:

Parcel 1 was placed in Zone 3 to protect the high-quality wetlands and sensitive plant species. Although no colony currently exists on the island, it was once used as a nesting site for great blue herons.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: Reservoir Operations and Public Recreation

Parcel 2	0.8 Acre
Common Name:	Kendrick Creek
Allocation:	Zone 7 (Shoreline Access)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 7.8 Left</i>

General Description:

Parcel 2 is a narrow strip of shoreline located downstream of Fort Patrick Henry Dam at the confluence of Kendrick Creek and South Fork Holston River. This entire parcel has been identified as prime farmland.

Private water use facilities will be considered.

Recreation:

There is an established hunting safety zone adjacent to this parcel. This parcel has deeded rights of ingress and egress.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 3 **2.4 Acres**
Common Name: **Island Below Dam**
Allocation: **Zone 2 (Project Operations)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 7.8 – 8.2 (Islands)*

General Description:

Parcel 3 is located immediately below Fort Patrick Henry Dam. This island and a northern portion of a second island (that is, the island of Parcel 1) are committed to Project Operations (Zone 2), in keeping with the planning objective to provide for the integrity of TVA projects on TVA land. The shoreline vegetation provides a riparian zone to the reservoir, and the islands are beneficial to wildlife and water quality in the region. This entire parcel has also been identified as being prime farmland.

Private water use facilities will not be considered.

Recreation:

Recreation opportunities, associated with dispersed recreation, occur on the parcel, and all but hunting are appropriate uses on Zone 2 properties. Hunting is prohibited but fishing is permissible, consistent with state regulations.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee Highway Department has a highway easement on the south side of the parcel and north side of the adjacent island for Highway 36.

Prior Forecast: Reservoir Operations

Parcel 4 **69.0 Acres**
Common Name: **Fort Patrick Henry Dam Reservation**
Allocation: **Zone 2 (Project Operations)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 7.7 – 8.5 Right and Left Banks*

General Description:

Parcel 4 consists of Fort Patrick Henry Dam Reservation; it contains several buildings associated with power production from Fort Patrick Henry Reservoir. Fort Patrick Henry Dam, the control building, the powerhouse, switchyard, and regional hydropower production maintenance building, as well as numerous power transmission lines, and Dayboard

Number 1 are located on this parcel. The dam is equipped with two 33-megawatt power generators.

Additional facilities located on the dam reservation are the Fort Patrick Henry Dam visitor building, a picnic area, public restrooms, and the Fort Patrick Henry Dam maintenance base. This parcel is surrounded by private property; however, no shoreline access is available. This land is committed to Project Operations (Zone 2), in keeping with the planning objective to provide for the integrity of TVA projects on TVA land. This parcel contains 3.1 acres of identified prime farmland.

Request for water use facilities will not be considered.

Recreation:

Recreation opportunities associated with dispersed recreation occur on the parcel, and all but hunting are appropriate uses on Zone 2 properties. Hunting is prohibited but fishing is permissible, consistent with state regulations.

Sensitive Resources:

The parcel contains areas of high-quality, diverse wetland habitat and could be suitable habitat for many wetland mammals, wading birds, migrant waterfowl, raptors, as well as nesting habitat for wood ducks and songbirds. A small great blue heron colony occurs on this parcel, downstream of the dam on the left-descending bank.

Easements/Lease Agreements/Licenses/Transfers:

- The State of Tennessee Highway Department has a highway easement in the middle of this parcel for Highway 36.
- The City of Kingsport has a sewer easement on the north side of the dam reservation.
- The City of Kingsport has a dewatering project/pump station on the northeast side of the parcel.
- Sullivan County has a road easement on this parcel.

Prior Forecast: Reservoir Operations

Parcel 5	0.4 Acre
Common Name:	Crest Road
Allocation:	Zone 7 (Shoreline Access)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	South Fork Holston River Mile 8.6 – 9.0 Right

General Description:

Parcel 5 is a narrow strip of shoreline located upstream and adjacent to Parcel 4. The surrounding land use is residential. This parcel is a narrow strip of shoreline where bank

stabilization and various water use facilities have been permitted in the past, based on deeded rights of ingress and egress. The shoreline vegetation provides a riparian zone to the reservoir.

Private water use facilities will be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 6	0.9 Acre
Common Name:	Cooks Valley Ramp
Allocation:	Zone 6 (Developed Recreation)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
<i>Stream:</i>	<i>South Fork Holston River Mile 9.6 Right</i>

General Description:

Parcel 6 is a narrow riparian strip below Cooks Valley Road, fronting lands that TVA previously transferred to the Tennessee Wildlife Resources Agency (TWRA) for public recreation purposes.

Requests for private water use facilities will not be considered.

Recreation:

TWRA has developed the site with a concrete launching ramp and parking lot. TWRA access regulations, which include prohibition of camping, are posted. This parcel has been placed in Zone 6 to reflect the current use of developed recreation.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- TWRA has a permanent easement on this parcel and has provided access to the reservoir.

Prior Forecast: No Forecast

Parcel 7 **10.4 Acres**
Common Name: **Marginal Strip (Fronting Warriors Path State Park [WPSP])**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 10.4 – 12.6 Right*

General Description:

This parcel is a marginal strip fronting land transferred to the State of Tennessee for public recreation. The strip is under a license agreement to be managed in conjunction with the back-lying use, WPSP. This parcel is traversed by Interstate 81 and is the location of Dayboard Marker Number 3. Parcel 8, Hammon Bridge, is located within Parcel 7.

Private water use facilities will not be considered.

Recreation:

WPSP is approximately 950 acres with developed recreation facilities such as a marina, launching ramp, picnic pavilions, fishing pier, athletic fields, all-accessible playground, and disc golf. This parcel was placed in Zone 6 to reflect the back-lying use of developed recreation.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee has a permanent easement on this parcel and manages it for a state park.
- Sullivan County has a road easement for Fall Creek Road on the northern end of the parcel.
- Appalachian Electric Company has a permanent easement in the middle of this parcel for transmission power lines.

Prior Forecast: No Forecast

Parcel 7A **2.4 Acres**
Common Name: **Interstate 81 Right-of-Way (right bank)**
Allocation: **Zone 2 (Project Operations)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 12.6 Right*

General Description:

This parcel is a marginal strip fronting land transferred to the State of Tennessee for public recreation. Parcel 7A, in conjunction with a portion of the back-lying land, forms the right-of-way for Interstate 81.

Private water use facilities will not be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee (TDOT) maintains the right-of-way for Interstate 81.

Prior Forecast: No Forecast

Parcel 8 **0.04 Acre**
Common Name: **Hammon Bridge (WPSP)**
Allocation: **Zone 2 (Project Operations)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 10.7 Right*

General Description:

Parcel 8 is encompassed by a TVA-managed marginal strip, and the back-lying property is managed as WPSP in Sullivan County. Fall Creek Road crosses Fort Patrick Henry Reservoir via Hammon Bridge at this location. This parcel is located within Parcel 7.

Private water use facilities will not be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- Sullivan County has a permanent easement in the middle of the parcel for Hammon Bridge (Fall Creek Road).

Prior Forecast: No Forecast

Parcel 9 **0.3 Acre**
Common Name: **Zone 4 Fragment**
Allocation: **Zone 4 (Natural Resource Conservation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 11.4 Right*

General Description:

Parcel 9 is a fragmented parcel adjacent to WPSP. This area is heavily forested and consists of a dry creek bed. The parcel is a various-aged reverted old field, which is occupied by sapling to saw-timber-sized red cedar, redbud, black cherry, and yellow poplar. The shoreline vegetation provides a riparian zone to the reservoir.

Private water use facilities will not be considered.

Sensitive Resources:

Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 10 **66.8 Acres**
Common Name: **Interstate 81**
Allocation: **Zone 4 (Natural Resource Conservation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 12.8 – 13.2 Right and Left Banks*

General Description:

Parcel 10 is an uncommitted parcel adjacent to WPSP on the upstream side of Interstate 81. This parcel has two portions, one on each side of the channel. The right bank portion contains Dayboard Marker Number 4. The left bank portion surrounds Parcel 27. This parcel contains 15.4 acres of identified prime farmland.

The large portion of this parcel lies on the right bank and has several forest conditions. It is occupied by large saw-timber upland and cove hardwood stands that are dominated by northern red oak, white oak, black oak, beech, and hickory. This stand is well stocked with excellent quality trees, which appear to be in good condition; however, some damaged trees were noticed. It also contains a series of reverted old fields, dominated by various-aged red cedar, Virginia pine, and yellow poplar. Generally, the poorer, rocky areas are heavier to red cedar, redbud, and black cherry. The shoreline on this portion of the parcel is steep and rocky, with various-sized upland and cove hardwoods: primarily sugar maple, white oak, white ash, hickory, and several hollow beech trees. Some trees were quite large; one red maple measured a diameter of 41 dbh (diameter at breast height). The

habitat along the right-descending bank represented better quality habitat than those observed on other parcels.

The portion of the parcel that lies on the left-descending bank also contains a series of reverted old fields and at least one old home site. Vegetation varies from pole to small saw-timber size and is dominated by black locust, yellow poplar, box elder, and black cherry. The midstory and understory vegetation is very thick, with exotic invasive plants including periwinkle, Japanese stilt grass, Japanese honeysuckle, multiflora rose, privet, and bush honeysuckle. The shoreline vegetation provides a riparian zone to the reservoir and is beneficial to wildlife and water quality in the region.

Private water use facilities will not be considered.

Recreation:

Both portions of this parcel provide access for hunting, fishing, and other recreation activities associated with dispersed recreation. Hunting and fishing are permitted, consistent with state regulations. The right bank portion of the parcel was formerly used as a motor-cross and all-terrain vehicle course, and the parcel, in its entirety, has potential to be marked with mountain bike trails.

Sensitive Resources:

Sensitive plant species are located near the parcel. However, existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- Appalachian Electric Company has a permanent easement in the middle of this parcel for transmission power lines.

Prior Forecast: Reservoir Operations

Parcel 10a	2.7 Acres
Common Name:	Interstate 81 Sensitive
Allocation:	Zone 3 (Sensitive Resource Management)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 12.8 – 13.2 Right and Left Banks</i>

General Description:

Parcel 10a is a parcel adjacent to WPSP on the upstream side (left bank) of Interstate 81 and located within Parcel 10. This area contains thick midstory and understory vegetation. Many exotic invasive plants are prevalent, including periwinkle, Japanese stilt grass, Japanese honeysuckle, multiflora rose, privet, and bush honeysuckle. Riparian zone along the reservoir shoreline is of good quality with a mixture of forested bluffs and some stream corridors. The shoreline vegetation provides a riparian zone to the reservoir.

Private water use facilities will not be considered.

Recreation:

This parcel provides access for hunting, fishing, and other recreation activities associated with dispersed recreation. Hunting and fishing are permitted, consistent with state regulations.

Sensitive Resources:

Sensitive plant species were identified on this parcel near Smitty's Cemetery along the bluff portion of the parcel. No other sensitive resources on this parcel were identified.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: Reservoir Operations

Parcel 11	3.3 Acres
Common Name:	Gottland Shoals
Allocation:	Zone 7 (Shoreline Access)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 13.3 – 14.1 Right</i>

General Description:

Parcel 11 is a narrow strip of shoreline where bank stabilization and various water use facilities have been permitted in the past, based on deeded rights of ingress and egress. The parcel fronts Gottland Shoals Subdivision.

Private water use facilities will be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 12 **3.0 Acres**
Common Name: **Bakers Bluff**
Allocation: **Zone 7 (Shoreline Access)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 15.0 – 15.6 Right*

General Description:

Parcel 12 fronts Baker’s Bluff Subdivision. This parcel is a narrow strip of shoreline where bank stabilization and various water use facilities have been permitted in the past, based on deeded rights of ingress and egress.

Private water use facilities will be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 13 **1.3 Acres**
Common Name: **Wahoo Valley**
Allocation: **Zone 4 (Natural Resource Conservation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 16.3 – 16.4 Right*

General Description:

Parcel 13 is an uncommitted parcel adjacent to Smith Shoals Ramp, which is managed by TWRA. It was placed in Zone 4 to reflect river corridor and shoreline management priorities. The shoreline vegetation provides a riparian zone to the reservoir and is beneficial to wildlife and water quality in the region. A natural gas pipeline crosses this parcel.

Private water use facilities will not be considered.

Sensitive Resources:

Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- East Tennessee Natural Gas has a permanent easement on the southern end of this parcel for a natural gas pipeline.

Prior Forecast: Reservoir Operations

Fort Patrick Henry Reservoir Land Management Plan

Parcel 14 **0.9 Acre**
Common Name: **Ford Town Bridge**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 16.4 – 16.5 Right*

General Description:

Parcel 14 is a narrow strip of land fronting land that was transferred to TWRA for public recreation. The shoreline vegetation provides a riparian zone to the reservoir.

Private water use facilities will not be considered.

Recreation:

This parcel was placed in Zone 6 to reflect the back-lying use, which is managed by TWRA. No public use facilities currently exist on this parcel. TWRA access regulations are not currently posted on this parcel, but they apply.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- TWRA has a permanent recreation easement on this parcel.
- Sullivan County has a permanent road easement for Fordtown Bridge/Smith Shoals in the middle of this parcel.

Prior Forecast: No Forecast

Parcel 15 **5.4 Acres**
Common Name: **Pitt Road**
Allocation: **Zone 7 (Shoreline Access)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 16.9 – 17.8 Right*

General Description:

Parcel 15 is a narrow strip of shoreline fronting Lake Grove Subdivision, where bank stabilization and various water use facilities have been permitted in the past, based on deeded rights of ingress and egress.

Private water use facilities will be considered.

This parcel contains 5.2 acres identified as prime farmland.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 16	1.6 Acres
Common Name:	Highway 75 Access
Allocation:	Zone 7 (Shoreline Access)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 17.4 – 17.9 Left</i>

General Description:

Parcel 16 fronts private property. It is downstream of the Highway 75 bridge and the site of an old rock quarry. This parcel is a narrow strip of shoreline where bank stabilization and various water use facilities could be permitted, based on deeded rights of ingress and egress.

Private water use facilities will be considered.

Recreation:

TVA maintains a gravel road below the Highway 75 bridge for fishing access of the Boone tailwaters. There is no boat access, though a boat launch with public access occurs on adjacent private land.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 17 **3.5 Acres**
Common Name: **Smith Shoals Bluff**
Allocation: **Zone 4 (Natural Resource Conservation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 16.8 – 17.5 Left*

General Description:

Parcel 17 is a parcel upstream of Smith Shoals Subdivision fronting private property. It was placed in Zone 4 to reflect river corridor and shoreline management priorities. This narrow shoreline strip is occupied by saw-timber-sized upland and cove hardwoods, primarily oaks, yellow poplar, and sycamore. The shoreline vegetation provides a riparian zone to the reservoir and is beneficial to wildlife and water quality in the region.

Private water use facilities will not be considered.

Recreation:

This parcel is extremely steep, and it is highly unlikely to be used for most dispersed recreation activities. However, hunting and fishing are permitted, consistent with state regulations.

Sensitive Resources:

Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- A TVA transmission line permanent easement crosses in the middle of this parcel.

Prior Forecast: Reservoir Operations

Parcel 18 **1.8 Acres**
Common Name: **Smith Shoals Ramp**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 16.3 – 16.8 Left*

General Description:

Parcel 18 is a narrow strip of shoreline, fronting lands that TVA has transferred to TWRA for public recreation purposes. Portions of the parcel have steep banks and provide a wooded-vegetative buffer between the river and residential development. Fordtown Bridge/Smith Shoals Road crosses this parcel.

Private water use facilities will not be considered.

Recreation:

A launching ramp is located within this parcel, and associated parking is located on the adjacent TWRA property. TWRA access regulations, which include prohibition of camping, are posted. This parcel was allocated to Zone 6 to reflect current recreation uses.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- TWRA has a permanent recreation easement on this parcel.

Prior Forecast: No Forecast

Parcel 19	2.3 Acres
Common Name:	Smith Shoals Subdivision
Allocation:	Zone 7 (Shoreline Access)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
<i>Stream:</i>	<i>South Fork Holston River Miles 15.9 – 16.3 Left</i>

General Description:

Parcel 19 is a narrow strip of shoreline fronting Smith Shoals Subdivision, which is a TVA-developed subdivision. Lot 52 is a common use area, with 44 lots having access. The shoreline is moderately sloped with existing water use facilities. This parcel was placed in Zone 7, because it fronts residential development that has historically been considered for water use facilities, based on deeded rights of ingress and egress. This parcel contains 1.7 acres of identified prime farmland.

Private water use facilities will be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. However, existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

East Tennessee Natural Gas has a permanent easement on the southern end of this parcel for a natural gas pipeline.

Prior Forecast: No Forecast

Parcel 20 **8.4 Acres**
Common Name: **Lakewood Subdivision**
Allocation: **Zone 7 (Shoreline Access)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 15.1 – 15.7 Left*

General Description:

Parcel 20 is a narrow strip of extremely steep shoreline fronting Lakewood Subdivision. The steep terrain is not suitable for recreation use. Due to the fact that water use facilities were permitted prior to 1994, facilities are still allowed, using Shoreline Management Initiative (SMI) guidelines.

Private water use facilities will be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. However, existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: Reservoir Operations

Parcel 21 **42.2 Acres**
Common Name: **Sinking Creek**
Allocation: **Zone 4 (Natural Resource Conservation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 14.0 – 15.0 Left*

General Description:

Parcel 21 is located on the northern side of Lakewood Subdivision, a residential development.

The southern segment of this parcel is occupied by pole- and small saw-timber-sized box elder, black walnut, sycamore, yellow poplar, and black locust trees. The northern segment is dominated by various-sized upland and cove hardwoods, primarily white oak, northern red oak, chinquapin oak, basswood, hickory, black cherry, and sugar maple. Wetlands have also been identified along the shoreline of the parcel. The shoreline vegetation provides a riparian zone to the reservoir and is beneficial to wildlife and water quality in the region. Installation of wood duck boxes along the shoreline would improve nesting habitat for the species.

Private water use facilities will not be considered.

Recreation:

This parcel provides access for hunting, fishing, and other recreation activities associated with dispersed recreation. Hunting and fishing are permitted, consistent with state regulations. Limited road access precludes most recreation uses, unless accessed by boat.

Sensitive Resources:

Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: Industrial and Developed Recreation

Parcel 22	1.4 Acres
Common Name:	Sinking Creek Pump Station
Allocation:	Zone 2 (Project Operations)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 14.2 Left</i>

General Description:

Parcel 22 is located on the northwestern side of Lakewood Subdivision, a residential development. Parcel 21 is located immediately east and west of this parcel. Parcel 22 was placed in Zone 2 because of the pump station. Although, the City of Johnson City, Tennessee, has constructed a dewatering pump station at this location, an intact riparian zone is present along the creek. Riparian zones protect water quality by filtering nutrients, sediments, and other pollutants from runoff before they reach the reservoir. Trees and shrubs may also provide valuable shade, cover, and food sources for fish. In addition, vegetation preserves shoreline beauty for reservoir users. The shoreline vegetation provides a riparian zone to the reservoir.

Private water use facilities will not be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed lands. However, existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- Consolidated Gray-Fordtown Colonial Heights Utility District has a permanent easement on the parcel for a dewatering pump station.

Prior Forecast: No Forecast

Parcel 23 **1.8 Acres**
Common Name: **Sinking Creek**
Allocation: **Zone 4 (Natural Resource Conservation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 14.0 Left*

General Description:

Parcel 23 is located adjacent to Sinking Creek and Parcel 21. Although contiguous with Parcel 21, this parcel is separated because it fronts a TVA sale tract. Most of the parcel is a reverted field with pole- and saw-timber-sized sycamore, box elder, and black locust trees. The strip along the creek is an older forest with saw-timber-sized bottomland hardwoods. This riparian zone protects water quality by filtering nutrients, sediments, and other pollutants from runoff before they reach the reservoir. Trees and shrubs may also provide valuable shade, cover, and food sources for fish. In addition, vegetation preserves shoreline beauty for reservoir users. The shoreline vegetation provides a riparian zone to the reservoir.

Private water use facilities will not be considered.

Recreation:

This parcel provides access for hunting, fishing, and other recreation activities associated with dispersed recreation. Hunting and fishing are permitted, consistent with state regulations.

Sensitive Resources:

Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- Consolidated Gray-Fordtown Colonial Heights Utility District has a permanent easement on the southern end of this parcel for a water line.

Prior Forecast: No Forecast

Parcel 24 **1.4 Acres**
Common Name: **Lochridge Subdivision**
Allocation: **Zone 7 (Shoreline Access)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 13.6 – 14.0 Left*

General Description:

Parcel 20 is a narrow strip of shoreline fronting Lochridge Subdivision, a residential development. This parcel was placed in Zone 7, because it fronts residential development that has historically been considered for water use facilities, based on deeded rights of ingress and egress.

Requests for private water use facilities will be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. However, existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 25	0.7 Acre
Common Name:	Cliffview Drive
Allocation:	Zone 7 (Shoreline Access)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Miles 13.2 – 13.4 Left</i>

General Description:

Parcel 25 is a wooded narrow strip of shoreline fronting private property. This parcel was placed in Zone 7 based on deeded rights of ingress and egress. No water use facilities have been permitted on this parcel, nor has there been any development of the back-lying property. Any new development would be subject to TVA’s Shoreline Management Policy.

Private water use facilities will be considered.

Recreation:

This parcel is suitable for dispersed recreation.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Fort Patrick Henry Reservoir Land Management Plan

Parcel 26 **2.0 Acres**
Common Name: **Shipley Ferry**
Allocation: **Zone 7 (Shoreline Access)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 13.4 – 13.5 Left*

General Description:

Parcel 26 is a narrow wooded strip of steep shoreline fronting a residential development. Because water use facilities were permitted prior to 1994, facilities are still allowed, using SMI guidelines.

Private water use facilities will be considered.

Recreation:

Since the terrain is steep, this area is not very suitable for dispersed recreation.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 27 **1.0 Acre**
Common Name: **Smitty's Cemetery**
Allocation: **Zone 3 (Sensitive Resource Management)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 13.0 Left*

General Description:

This parcel was placed in Zone 3 to reflect the presence of the historic Smitty's Cemetery. It is surrounded by portions of Parcel 10, which is managed for Natural Resource Conservation.

Vegetation on the surrounding area has been heavily influenced by the former home place; there is an abundance of periwinkle, multiflora rose, Japanese honeysuckle, privet, and bush honeysuckle.

Private water use facilities will not be considered.

Recreation:

This parcel is encompassed by Parcel 10 and, jointly, these parcels provide access for hunting, fishing, and other recreation activities associated with dispersed recreation. Hunting and fishing are permitted, consistent with state regulations.

Sensitive Resources:

This parcel has been identified as a sensitive resource and placed in Zone 3 for its protection.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 28	1.9 Acres
Common Name:	Warriors Path State Park (WPSP)
Allocation:	Zone 6 (Developed Recreation)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 12.3 – 13.5 Left</i>

General Description:

Parcel 28 is a marginal strip fronting lands that TVA transferred to the State of Tennessee for public recreation purposes. The State of Tennessee has developed the back-lying as WPSP.

Private water use facilities will not be considered.

Recreation:

Parcel 28 is under a permanent recreation easement to the State of Tennessee to be managed in conjunction with the back-lying use. As such, this parcel was placed in Zone 6 to reflect the current use of developed recreation. This parcel is also suitable for recreation activities associated with dispersed recreation. Fishing is permitted, consistent with state regulations; otherwise, access regulations are posted and enforced by state park management.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee has a permanent recreation easement on this entire parcel.

Prior Forecast: No Forecast

Parcel 28a **0.3 Acre**
Common Name: **Interstate 81 Right-of-Way (left bank)**
Allocation: **Zone 2 (Project Operations)**
Hydrologic Unit: **TN-06010102-130**
County: Sullivan, Tennessee
Stream: *South Fork Holston River Mile 12.6 Left*

General Description:

This parcel is a marginal strip fronting land transferred to the State of Tennessee for public recreation. This parcel, in conjunction with a portion of the back-lying land, forms the right-of-way for Interstate 81.

Private water use facilities will not be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee (TDOT) maintains the right-of-way for Interstate 81.

Prior Forecast: No Forecast

Parcel 29 **17.6 Acres**
Common Name: **Warriors Path State Park (WPSP)**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: Sullivan, Tennessee
Stream: *South Fork Holston River Miles 11.5 – 12.3 Left*

General Description:

Parcel 29 is narrow strip of land that fronts WPSP, which is managed by the State of Tennessee. This parcel contains 3.4 acres of identified prime farmland. In 1952, a causeway was permitted to connect the mainland of the park with the Duck Island.

Private water use facilities will not be considered.

Recreation:

WPSP is approximately 950 acres with developed recreation facilities such as a marina, launching ramp, picnic pavilions, fishing pier, multiple use athletic fields, all-accessible playground, and disc golf. As such, this parcel was placed in Zone 6 to reflect the current use of developed recreation. This parcel is suitable for recreation activities associated with dispersed recreation. Fishing is permitted, consistent with state regulations.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- None

Prior Forecast: No Forecast

Parcel 30 **0.7 Acre**
Common Name: **Marginal Strip (Fronting WPSP)**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 11.5 Left*

General Description:

Parcel 30 is a narrow strip of shoreline on an island that was placed in a permanent easement to the State of Tennessee for public recreation purposes. This parcel fronts a portion of the WPSP, which is managed as a day use area. In 1952, a causeway was permitted to connect the mainland of the park with Duck Island.

Private water use facilities will not be considered.

Recreation:

This parcel was placed in Zone 6 to reflect the current back-lying use of developed recreation. Access regulations are posted and enforced by state park management.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee has a permanent recreation easement on this entire parcel.

Prior Forecast: No Forecast

Parcel 31 **5.4 Acres**
Common Name: **Marginal Strip (Fronting WPSP)**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 10.8 – 11.5 Left*

General Description:

Parcel 31 is a narrow strip of shoreline that was placed in a permanent easement to the State of Tennessee for public recreation purposes.

Private water use facilities will not be considered.

Recreation:

This parcel fronts a portion of the WPSP, which is managed to provide developed recreation opportunities associated with a campground, hiking trails, and swimming pool. As such, this parcel was placed in Zone 6 to reflect the current use of developed recreation. This parcel is suitable for recreation activities associated with dispersed recreation. Fishing is permitted, consistent with state regulations. Access regulations are posted and enforced by state park management.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee has a permanent recreation easement on this entire parcel.

Prior Forecast: No Forecast

Parcel 32	0.5 Acre
Common Name:	Marginal Strip (Fronting WPSP)
Allocation:	Zone 6 (Developed Recreation)
Hydrologic Unit:	TN-06010102-130
County:	Sullivan, Tennessee
Stream:	<i>South Fork Holston River Mile 10.7 Left</i>

General Description:

Parcel 32 is a narrow strip of shoreline that was placed in a permanent easement to the State of Tennessee for public recreation purposes. This parcel fronts a portion of the WPSP, which is managed with developed recreation facilities. This parcel includes a road right-of-way to Sullivan County for Hammon Bridge on Fall Creek Road on the southwestern side.

Private water use facilities will not be considered.

Recreation:

Parcel 32 was placed in Zone 6 to reflect the current use of developed recreation. This parcel is suitable for recreation activities associated with dispersed recreation. Fishing is permitted, consistent with state regulations. Access regulations are posted and enforced by state park management.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee has a permanent recreation easement on a portion of this parcel.
- Sullivan County has a permanent easement in the middle of the parcel for Hammon Bridge (Fall Creek Road).

Prior Forecast: No Forecast

Parcel 33 **0.1 Acre**
Common Name: **Hammon Bridge (WPSP)**
Allocation: **Zone 2 (Project Operations)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Mile 10.6 Left*

General Description:

This parcel is a narrow marginal strip of shoreline located in WPSP in Sullivan County. Fall Creek Road crosses Fork Patrick Henry Reservoir via Hammon Bridge at this location.

Private water use facilities will not be considered.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- Sullivan County has a permanent easement on the entire parcel for Hammon Bridge (Fall Creek Road).

Prior Forecast: No Forecast

Parcel 34 **1.4 Acres**
Common Name: **Marginal Strip (Fronting WPSP)**
Allocation: **Zone 6 (Developed Recreation)**
Hydrologic Unit: **TN-06010102-130**
County: **Sullivan, Tennessee**
Stream: *South Fork Holston River Miles 10.3 – 10.6 Left*

General Description:

Parcel 34 is a narrow strip of shoreline that was placed in a permanent easement to the State of Tennessee for public recreation purposes. This parcel fronts a portion of the WPSP, which is managed with developed recreation facilities.

Private water use facilities will not be considered.

Recreation:

Parcel 34 was placed in Zone 6 to reflect the current use of developed recreation. This parcel is suitable for recreation activities associated with dispersed recreation. Fishing is permitted, consistent with state regulations. Access regulations are posted and enforced by state park management.

Sensitive Resources:

No sensitive resources surveys have been conducted on committed land. Existing data did not indicate any sensitive resources at this location.

Transfers/License/Easement/Lease Agreements:

- The State of Tennessee has a permanent recreation easement on this entire parcel.
- A TVA transmission line crosses the southern portion of this parcel.

Prior Forecast: No Forecast

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6.0 GLOSSARY OF TERMS

100-year floodplain	The area inundated by the one percent annual chance (or 100-year) flood.
agricultural licensing	Some parcels or portions of parcels designated for other purposes or uses may also be suitable for interim agricultural licensing. These parcels have been identified, using the criteria contained in TVA's agriculture instruction. Normal tenure for a TVA agricultural license is five years. Land with extreme erosion potential may not be licensed for agricultural use unless erosion and sediment controls, including the use of best management practices, can be successfully implemented. Further investigation and/or mitigation of adverse impacts to natural or cultural resources may be required prior to approval of license agreements.
benthic	Refers to the bottom of a stream, river, or reservoir.
benthos	Organisms that live on the bottom of a stream, river, or reservoir.
chlordane	A pesticide previously used to control termites and crop pests until banned by the U.S. Environmental Protection Agency in 1983.
dam reservation	Lands generally maintained in a parklike setting by TVA to protect the integrity of the dam structure, hydroelectric facilities, and navigation lock. The reservation also provides for public visitor access to the TVA dam facilities and recreation opportunities, such as public boat access, bank fishing, camping, picnicking, etc.
deciduous	Vegetation that sheds leaves in autumn and produces new leaves in the spring.
dissolved oxygen	The oxygen dissolved in water, necessary to sustain aquatic life. It is usually measured in milligrams per liter or parts per million.
ecoregion	A relatively homogeneous area of similar geography, topography, climate, and soils that supports similar plant and animal life.
emergent wetland	Wetlands dominated by erect, rooted herbaceous plants, such as cattails and bulrush.
endangered species	A species in danger of extinction throughout all or significant portions of its range or territory. Endangered species recognized by the ESA or similar state legislation have special legal status for their protection and recovery.

evergreen	Vegetation with leaves that stay green and persist all year.
evergreen-deciduous	Vegetation consisting of a mixture of plants that are both evergreen and deciduous often referred to as mixed deciduous.
floodplains	Any land area susceptible to inundation by water from any source by a flood of selected frequency. For purposes of the National Flood Insurance Program, the floodplain, as a minimum, is that area subject to a 1 percent or greater chance of flooding (100-year flood) in any given year.
flowage easement land	Privately owned lakeshore properties where TVA has (1) the right to flood the land as part of its reservoir operations, (2) no rights for vegetation management, and (3) the authority to control structures, under Section 26a of the <i>TVA Act</i> .
forest	Vegetation having tree crowns overlapping, generally forming 60-100 percent cover (Grossman et al. 1998).
hydrologic units	Hydrologic Unit Codes (HUCs) are cataloging units assigned to each watershed by the U.S. Geological Survey for the purpose of assessment and management activities.
macroinvertebrates	Bottom-dwelling aquatic animals without vertebrates, such as mollusks and arthropods.
marginal strip	The narrow strip of land retained by TVA between the summer operating pool and back-lying tracts that are owned by private or other public entities.
maximum shoreline contour (MSC)	An elevation typically 5 feet above the top of the gates of a TVA dam. It is often the property boundary between TVA marginal strip property and adjoining private property.
prime farmland	Generally regarded as the best land for farming, these areas are flat or gently rolling and are usually susceptible to little or no soil erosion. Prime farmland produces the most food, feed, fiber, forage, and oil seed crops with the least amount of fuel, fertilizer, and labor. It combines favorable soil quality, growing season, and moisture supply and, under careful management, can be farmed continuously and at a high level of productivity without degrading either the environment or the resource base. Prime farmland does not include land already in or committed to urban development, roads, or water storage.
riparian	The communities of plants and animals that occur within the influence of a stream, river, or body of water.

riparian zone	An area of land that has vegetation or physical characteristics reflective of permanent water influence. Typically a streamside zone or shoreline edge.
riprap	Stones placed along the shoreline for bank stabilization and other purposes.
riverine	Having characteristics similar to a river.
Section 26a review process	Section 26a of the <i>TVA Act</i> requires TVA review and approval of plans for obstructions, such as docks, fills, bridges, outfalls, water intakes, and riprap, before they are constructed across, in or along the Tennessee River and its tributaries. Applications for this approval are coordinated appropriately with TVA programs and the U.S. Army Corps of Engineers (USACE). USACE issues a joint public notice for those applications that are not covered by a USACE nationwide, general, or regional permit. The appropriate state water pollution control agency must also certify that the effluent from outfalls meets the applicable water quality standards.
scrub-shrub	Woody vegetation less than about 20 feet tall. Species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.
shoreline/shoreland	The line where the water of a TVA reservoir meets the shore when the water level is at the normal summer pool elevation.
significant cultural resources	Some of the parcel descriptions state that “the parcel contains significant cultural resources” or that “cultural resource considerations may affect development of the parcel.” However, many of the parcel descriptions contain no reference to archaeological or other cultural resources. The lack of such references within a parcel description does not necessarily indicate that significant cultural resources do not exist. The use of any parcel for developmental purposes may require additional archaeological testing or mitigation of adverse impact to archaeological sites. The costs of required testing or mitigation would be the responsibility of the developer.
threatened species	A species threatened with extinction throughout all or significant portions of its range or territory. Threatened species recognized by the ESA or similar state legislation have special legal status for their protection and recovery.
tributary reservoirs	Impoundments created by dams constructed across streams and rivers that eventually flow into the Tennessee River.

understory	The least dominant community of trees of a forest, consisting of shade-tolerant species.
upland	The higher parts of a region, not closely associated with streams or lakes.
wetlands	As defined in <i>TVA Environmental Review Procedures</i> , "Wetlands are those areas inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances do or would support a prevalence of vegetation or aquatic life that requires saturated or seasonably saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas, such as sloughs, potholes, wet meadows, mud flats, and natural ponds.
wildlife management area	Land and/or water areas designated by state wildlife agencies, such as the Tennessee Wildlife Resources Agency, for the protection and management of wildlife. These areas typically have specific hunting and trapping regulations as well as rules regarding appropriate uses of these areas by the public.
woodland	Open stands of trees with crowns not usually touching, generally forming 25-60 percent cover (Grossman et al. 1998).