# RAYSTOWN LAKE PROJECT

## MASTER PLAN REVISION

# EXECUTIVE SUMMARY

The Raystown Lake Master Plan (Plan or MP) is a strategic land use management document that guides the comprehensive management and development of all project recreational, natural, and cultural resources. It provides a framework built collaboratively to guide efficient and cost-effective management, development, and use of project lands. The Plan articulates and implements responsible stewardship and sustainability commitments toward project resources for the benefit of present and future generations. The Plan has been prepared for an effective lifespan of 15-25 years.

This revision of the Raystown Lake MP was developed in accordance with current USACE regulations and guidance. Additionally, the plan was prepared under the guidance provided to USACE in Section 1309 of "The Water Infrastructure Improvements for the Nation Act of 2016 (WIIN)" - P.L. 114-322.

A critical component to the revision of this MP was the involvement of the public and stakeholders to ensure that future management actions are both environmentally sustainable and responsive to public outdoor recreation needs subject to the Project's authorized missions. Existing reports, inventories, and assessments were a significant source of information. All natural, cultural, environmental and recreation resources have been evaluated using the most current technology and data available. Additionally, two significant study efforts were initiated and conducted in order to obtain the necessary information to guide revision decisions and future management of the Raystown Lake Project (Project). These efforts included a boating carrying capacity study and biological inventories.

The boating carrying capacity study was performed through the USACE Institute for Water Resources, under a contract with CDM Federal Programs Corporation. All study results indicate that the carrying capacity at Raystown Lake has been reached and exceeded. The observed peak density at Raystown Lake reached 5.7 acres per boat, which is well beyond recommended standards established for the Project by this study. A recommended boating capacity range identified for Raystown Lake was calculated at 10 to 20 acres per boat. Compared to results of the 1988 study, more than 300 additional boats were found to be using the reservoir during peak summer use, an increase of 28%. The Raystown Lake Boating Carrying Capacity Study can be found in its entirety in Appendix G.

Biological inventories were conducted by USACE's Engineering Research and Development Center to support the MP Project Delivery Team (PDT) in analysis of resource objectives and land use classifications. These studies were designed to determine the existence of special status species populations on project lands, including species of regional concern, as well as determine if significant changes in existing species populations have occurred. The resulting report enabled the team to refine the boundaries of environmentally sensitive areas and validate future and existing management initiatives. The report in its entirety can be found in Appendix H.

USACE manages project lands and waters in accordance with the land and water use classifications determined in the MP process. A summary of recommendations is provided as Chapter 8 of this MP. Overall, this revised MP for the Raystown Lake Project recommends the provision of enhanced recreational opportunities for the public through various forms of low-impact, passive recreation, while respecting the scenic and aesthetic values of the public land surrounding the lake. The Plan further embraces and fosters the environmental sustainability of the Project's natural and cultural resources.

An Environmental Assessment (EA) analyzing alternative management scenarios for the Raystown Lake MP has been prepared in accordance with National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality, and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA. Additionally, the EA addressed the implementation of the revised Master Plan with special attention given to revised land classifications and the conceptual resource plan for each land classification category. To ensure that future environmental consequences are identified and documented as accurately as possible, additional NEPA coordination will be conducted, as appropriate, for future projects that are the result of the implementation of the Plan. The EA is a separate document that informs this MP and can be found in its entirety in Appendix A.

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## LIST OF COMMONLY USED ACRONYMS AND ABBREVIATIONS

ACF – American Chestnut Foundation

ADA – Americans with Disabilities Act

BCAs – Bat Conservation Areas

BMP – Best Management Practices

BO – Biological Opinion

BP – Before Present

CFS – Cubic Feet per Second

CRMP – Cultural Resources Management Plan

DM – Design Manual

DU – Ducks Unlimited

EA – Environmental Assessment

EC – Engineering Circular

EO – Executive Order

EOPs – Environmental Operating Principles

EP – Engineering Pamphlet

EPA – Environmental Protection Agency

ER – Engineering Regulation

ERDC – Engineering Research and Development Center

ESAs – Environmentally Sensitive Areas

FERC – Federal Energy Regulatory Commission

FONSI – Finding of No Significant Impact

FRL – Friends of Raystown Lake

GIS – Geographic Information System

HCVB – Huntingdon County Visitors Bureau

HQ – Headquarters (USACE)

Ma – Mega-annum

MP – Master Plan

MOU – Memorandum of Understanding

MVFD – Marklesburg Volunteer Fire Department

NAB – North Atlantic Baltimore

NEPA – National Environmental Policy Act

NGVD – National Geodetic Vertical Datum

NHPA – National Historic Preservation Act

NRHP – National Register of Historic Places

NVCS – National Vegetation Classification System

NWTF – National Wild Turkey Federation

OMP – Operational Management Plan

PAC – Primary Area Counties

PADEP – Pennsylvania Department of Environmental Protection

PDT – Project Delivery Team

PFBC – Pennsylvania Fish and Boat Commission

PGC – Pennsylvania Game Commission

PL – Public Law

PSBA – Pennsylvania Striped Bass Association

RLP – Raystown Lake Project

SAV – Submerged Aquatic Vegetation

SCORP – Statewide Comprehensive Outdoor Recreation Plan

USACE – US Army Corps of Engineers

USCGA – US Coast Guard Auxiliary

USFS – US Forest Service

USFWS – US Fish and Wildlife Service

WALROS – Water and Land Recreation Opportunity Spectrum

WIIN – Water Infrastructure Improvements for the Nation Act

# CHAPTER 1 - INTRODUCTION

## 1.1 Overview

Raystown Lake is a multipurpose water resources project constructed and operated by the U.S. Army Corps of Engineers, Baltimore District (USACE). The dam and associated infrastructure, as well as all land acquired for the Raystown Lake Project, are federally owned and are administered by USACE. The Project is located on the Raystown Branch of the Juniata River in Huntingdon and Bedford Counties, Pennsylvania.

The Raystown Lake Master Plan, hereafter referred to as Plan or Master Plan (MP), is intended to serve as a comprehensive land and recreation management plan with an effective life of approximately 15-25 years. The focus of this Plan is to articulate USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources of the Raystown Lake Project. USACE manages project lands and waters in accordance with the classifications as determined in the Plan.

This plan does not address other project purposes such as flood risk management or hydroelectric power.

## 1.2 Project Authorization

The Raystown Lake Project was authorized by the Flood Control Act of 1962 (P.L. 87-874), in accordance with the recommendations of the Chief of Engineers as presented in House Document No.565, 87th Congress, 2nd Session. Construction of the dam and outlet works began in 1968 and was completed in 1973.

## 1.3 Project Purpose

The operation of Raystown Lake provides for:

- Flood risk management,
- Hydroelectric power,
- Recreation,
- Fish and wildlife conservation and mitigation, and
- Downstream low-flow augmentation for water quality improvement.

Raystown Lake is one of 15 federal flood risk management projects under direction of the USACE Baltimore District, to provide flood risk management. The Raystown Lake Project offers flood protection to communities along the Juniata River including Mount Union, Lewistown, Mifflin, and Newport. Reducing flows on the Juniata River will result in the reduction of peak flows on the Susquehanna River at Harrisburg and below.

## 1.4 Purpose and Scope of Master Plan

In accordance with Engineering Regulation (ER) 1130-2-550 Change 07, dated 30 January 2013 and Engineering Pamphlet (EP) 1130-2-550 Change 05, dated 30 January 2013, lake project MPs are required for civil works projects operated and

maintained by USACE.

The MP is the strategic land use management document that guides the comprehensive management and development of all project recreational, natural, and cultural resources throughout the life of the USACE project. The MP guides efficient and cost-effective management, development, and use of project lands. It is a vital tool for the responsible stewardship and sustainability of the project's natural and cultural resources, and the provision of outdoor recreation facilities and opportunities on federal land associated with Raystown Lake for the benefit of present and future generations.

The MP revision for Raystown Lake was prioritized by the Water Infrastructure Improvements for the Nation (WIIN) Act, P.L. 114-322, Sec. 1309 December 5, 2016.

Huntingdon County, Pennsylvania.

*(a) In General.-The Secretary shall-*

*(1) Prioritize the updating of the master plan for the Juniata River and tributaries project, Huntingdon County, Pennsylvania, authorized by section 203 of the Flood Control Act of 1962 (Public Law 87-874; 76 Stat.1182); and*

*(2) Ensure that alternatives for additional recreation access and development at the project are fully assessed, evaluated, and incorporated as a part of the update.*

*(b) Participation.-The update referred to in sub-section (a) shall be done in coordination with all appropriate Federal agencies, elected officials, and members of the public.*

*(c) Inventory.-In carrying out the update under subsection (a), the Secretary shall include an inventory of those lands that are not necessary to carry out the authorized purposes of the project.*

It is important to note what the MP does not address. Details of design, management, administration, and program implementation are fully addressed in the Raystown Lake Operational Management Plan (OMP), and are not intended to be addressed within the scope of a MP. Additionally, MPs are not intended to address the specifics of regional water quality, shoreline management, or water level management.

The master planning process encompassed a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational and socioeconomic conditions and trends. Utilizing a generalized conceptual framework, the process, as intended, focused on four primary components as directed by ER 1130-2-550:

- Regional and ecosystem needs,
- Project resource capabilities and suitability,
- Expressed public interests that are compatible with Raystown Lake's authorized purposes, and
- Environmental sustainability elements.

### 1.4.1 Previous Project Master Plans

Raystown's first MP was competed in 1976. That plan was utilized until 1994 when the first revision of the MP was completed. Many of the decisions underpinning the 1994 Plan grew from a 1988 Boating Capacity Study that concluded that the density of boat traffic on the lake was very high. The desire to restrict further increases in boating density on peak use days guided decisions to limit additional opportunities for boating access to the lake, including floating slips, dry storage, and parking spaces at launching ramps.

In addition, the 1994 Plan acknowledged that some of the originally envisioned recreation development from earlier plans was not economically or environmentally reasonable, nor desired through public comment. It also recognized the evolving public perception of the land surrounding the lake as a valuable aesthetic resource deserving of a degree of protection. As a result, the 1994 Plan used the land use classifications of the time to define and limit future development, propose fewer future recreation sites, concentrate future recreation opportunities in a development node concept, and afford protection to large expanses of shoreline.

### 1.4.2 National Environmental Policy Act Coordination

The MP includes an Environmental Assessment (EA) which has been prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality; and USACE regulations, including ER 200-2-2: Procedures for Implementing NEPA. The EA informs this MP and can be found in Appendix A.

NEPA documents prepared concurrently with a MP revision can evaluate and inform strategic land use decisions, whereas NEPA documents prepared after a MP has been revised would have little influence on strategic decision already included in the Plan. The intention of the revised land use classifications is to develop management goals and objectives that will guide the sustainable development of resources with the Raystown Lake Project. The EA evaluated two alternatives as follows: 1) No Action Alternative, and 2) Proposed Action. The EA analyzed the potential impacts these alternatives would have on the natural, cultural, and human environments. The proposed action is an optimization of all factors considered and was arrived at through a thorough deliberative process.

The MP is conceptual and broad in nature and any action proposed in the Plan that would result in significant disturbance to natural resources or result in significant public interest would require additional NEPA documentation at the time the action takes place.

## 1.5 Brief Watershed and Project Description

The Raystown Dam is located on the Raystown Branch of the Juniata River, Susquehanna River Basin, about 5.5 miles above the confluence of the mainstream of the Juniata River and 92 miles above the confluence of the Juniata River with the Susquehanna River. It is located in the south central portion of the Commonwealth of Pennsylvania in Huntingdon and Bedford Counties, about 35 miles east of Altoona, Pennsylvania.

*Figure 1.1 View of the Rayştown Dam and Outlet Works.*

The Raystown Lake Project maintains a conservation pool of approximately 8,300 acres surrounded by approximately 21,000 acres of land. The reservoir is roughly 30 river miles long. Project lands provide a diversity of habitats, including wetlands, moderate to steeply sloped forests, ravines, and shale barrens. The lake and surrounding projects lands are popular for boating, fishing, hunting, camping, and other outdoor recreation activities.

The watershed above the dam site drains an area of 960 square miles and is approximately 57 miles long with a maximum width of 35 miles. It is bounded by the drainage divide of the Frankstown Branch on the north, the Allegheny Front on the west, the Potomac River divide on the south, and the Aughwick Creek divide on the east. The watershed is mostly wooded with only a small portion in cultivation due to the difficult terrain. The streambed descends from an elevation of about 2,720 feet National Geodetic Vertical Datum (NGVD) at its upper end to an elevation of 601 feet NGVD at the dam site.

## 1.6 Listing of Prior Design Memoranda

Listed below are the primary design documents and reports associated with the initial construction and land acquisition, as well as relevant related studies and reports to the MP revision.

- Definite Project Report, published as House Document No. 565, 87th Congress, Dated 1961
- Report of U.S. Fish and Wildlife Service, Appendix to General Design Memorandum 3, Dated 1966
- DM (Design Manual) No. 4a, Preliminary Master Plan, Dated 1966
- DM No. 14, Public Use Plan, Dated 1969
- Environmental Impact Statement, Dated 1973
- DM No. 16, Raystown Lake Master Plan, Dated 1976
- Hydroelectric Power Study, Dated 1978
- Boating Capacity Study, Dated 1988
- Operational Management Plan, Dated 1991
- Reallocation Study, Feasibility Report and Environmental Impact Statement, Dated 1992
- Raystown Lake Master Plan Update, Dated 1994
- Juniata River Basin Study, Dated 1995
- Susquehanna River Basin Water Management Study, Dated 1996
- Raystown Lake Boating Capacity Study, Dated 2019
- Shale Barren Mapping and Threatened and Endangered Species Surveys for Raystown Lake, PA: U.S. Army Corps of Engineers, Baltimore District. Engineer Research and Development Center, Dated 2019

### 1.7 Listing of Pertinent Project Information

Construction of the dam, outlet works, and spillway began in October 1968 and was completed in October 1973. Impoundment began in 1972 during Hurricane Agnes. Raystown Lake is designed to operate with a stable conservation pool of 786 feet NGVD. At this level, the lake covers an area of 8,300 acres and contains 513,000-acre feet of water. Only on a few occasions has the lake been purposely drawn down (generally between 0-8 feet) for the purpose of outlet work maintenance or shoreline stabilization. Full flood control pool (elevation 812 feet NGVD) reaches upstream 34 miles from the dam. At flood level, the lake covers an additional 2,500 acres, for a total area of 10,800 acres with 761,000-acre feet of water storage.

The current high water pool of record was reached on 3 April 1993 when the floodwater peaked at 802.89 feet NGVD. The current low water pool of record was reached in March 2002 when it dropped to 774.04 feet NGVD.

Raystown Dam has the ability to release water from four different regulated outlets from the reservoir: the gated spillway, the warm water outlet through the spillway, the low pool outlet in the diversion tunnel, and the hydroelectric plant.

The gated spillway is located in the right abutment and consists of two 45’ by 45’ tainter gates separated by a 12-foot wide pier. The ogee shaped spillway crest is 90 feet long at elevation 768.6 ft NGVD. The design discharge capacity of the spillway, at maximum

pool elevation 821.5 ft NGVD, is 89,000 cubic feet per second (cfs). To date, maximum spillway flow has not occurred.

The warm water outlet system is comprised of a 4’9” by 6’9” hydraulically operated slide gate served by inlet ports at three levels. The slide gate releases into a rectangular conduit with invert at elevation 732 ft NGVD. The conduit extends through the 12-foot wide center pier of the spillway and discharges into the warm water chute, which lies on the centerline of the spillway chute. The multilevel entrance allows some measure of control over the water temperature in the river downstream of the dam.

The low level outlet tunnel provides for emergency reservoir drawdowns and for minimum project releases should the pool elevation drop below elevation 756 ft NGVD due to conservation drawdown. This outlet was created by forming two 5’6” by 10’ rectangular passages in the diversion tunnel after that tunnel was no longer needed for river diversion. Each passage is controlled by tandem 5’6” by 10’ gates with invert at elevation 614 ft NGVD. The minimum overall release from Raystown Dam from 15 May to 15 November is 200 cfs. The rest of the year the minimum overall release is 480 cfs.

Allegheny Electric Cooperative, Inc. operates the Raystown Hydroelectric Project – William F. Matson Generating Station at Raystown Lake. This is a run-of-river project with a rated capacity of 21 megawatts. All flows up to 1700 cfs are normally passed through the hydroelectric plant, with flows in excess of 1700 cfs passed through USACE facilities.

More detailed information regarding reservoir operations is referenced in the Reservoir Regulation Manual for Raystown Lake available from the Water Management Section of the Baltimore District Corps of Engineers.

Information on the dam, outlet works, hydropower, spillway and discharges are as follows in Table 1.1.

**Table 1.1 Tabular Listing of Pertinent Project Information.**

| | | |
|---|---|---|
| DAM | Dam Type: | Earthfill Embankment |
| | Length: | 1,700 feet |
| | Height above streambed: | 225 feet |
| | Top Width: | 24 feet |
| | Base Width: | 1,550 feet |
| DRAINAGE AREA | Raystown Branch; Saxton, PA: | 756 square miles |
| | Raystown Branch; Raystown Dam: | 960 square miles |
| | Juniata River; Mapleton Depot, PA: | 2,030 square miles |
| | Juniata River; Newport, PA: | 3,354 square miles |
| ELEVATIONS | Normal Recreation Pool: | 786 feet NGVD |
| | Flood Pool (Maximum): | 812 feet NGVD |
| SPILLWAY: UNGATED | Type: | Flat-crested Weir w/ Erodible Fuse Plug |
| | Crest Length: | 1,630 feet |
| | Design Discharge: | 212,000 cfs |
| SPILLWAY: GATED | Type: | Ogee-crested Weir w/ Flip Bucket At Base |
| | Crest Length: | 90 feet |
| | Design Discharge: | 89,000 cfs |
| OUTLET WORKS | Size of Warmwater Gate (1): | 4.75' x 6.75' |
| | Invert Elevation of Warmwater Gate: | 732 feet NGVD |
| | Size of Low Pool Gates (2): | 5.5' x 10' |
| | Invert Elevation of Low Pool Gates: | 614 feet NGVD |
| LAND ACQUISITION | Acquired in fee*: | 28,132.803 acres |
| | Acquired in easement*: | 687.26 acres |
| RESERVOIR CHARACTERISTICS | Shoreline of Recreation Lake: | 118 miles |
| | Recreation Lake Area: | 8,300 surface acres |
| | Area of Pool at Spillway Crest: | 10,800 surface acres |
| | Maximum Pool Area (Spillway Design Flood): | 11,750 surface acres |

*This total represents lands acquired both in fee and as flowage easement, following disposal actions from original acquisitions. The Realty Control Summary Audit (BALT-2-0027) of the Raystown Lake Project (RLP) was completed on 17 October 1997 and is regarded as the official land ownership and cost data information.

# CHAPTER 2 - PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

## 2.1 Description of Reservoir

Raystown Lake is located on the Raystown Branch of the Juniata River about 5.5 miles upstream from its confluence with the Juniata River and 92 miles above the confluence of the Juniata River with the Susquehanna River. The project is located in south central Pennsylvania in Huntingdon County, near the borough of Huntingdon.

The watershed above Raystown Lake has a drainage area of 960 square miles. The watershed is about 57 miles long by 35 miles wide at the maximum section. It is bounded by the Allegheny Front on the west, the drainage divide of the Frankstown branch of the Juniata River on the north, the Aughwick Creek divide on the east, and the Potomac River divide on the south.

Raystown Lake lies in a long, narrow valley with heavily wooded slopes. Most of the watershed consists of wooded areas (69% forest cover) with only small areas of land under cultivation. Development in the basin is limited due to the generally rugged terrain; most improvements are located in the valleys along streambanks with only a few farms located on the upper slopes.

## 2.2 Hydrology

Raystown Lake is the largest lake entirely within Pennsylvania, and the lake is over 30 river miles long at recreation pool. The reservoir's thalweg is composed of the flooded main channel and numerous tributaries are also inundated at recreation pool. At the recreation pool elevation Raystown Lake is almost 200 feet deep near the dam, and slowly decreases in depth towards the inflow to the lake. Depths exceeding 100 feet are common throughout the lake.

The primary purpose of Raystown Lake is to mitigate flood risk downstream along the Juniata River below Huntingdon. Secondary project purposes include water quality control, low flow augmentation for warm water fisheries, recreation, and hydropower. During non-flood periods, the normal conservation pool is elevation 786.0 ft NGVD. The normal operating range is 786.0 +/- 1.0'. The lake covers 8,300 acres at normal pool elevation (786' NGVD) and stores 513,000 acre-feet of water. At full flood control pool (812' NGVD) the lake covers 10,800 acres and stores 761,000 acre-feet of water (see Table 1.1). While the lake elevation is normally maintained within the operating range of 786.0 +/- 1.0', during flood conditions releases are limited by downstream river stages and excess flow into the reservoir is stored. Flood conditions can cause the lake elevation to rise until river stages downstream fall and inflow to the project decreases.

Raystown Dam has the ability to release water from four different regulated outlets from the reservoir: the gated spillway, the warm water outlet through the spillway, the low pool outlet in the diversion tunnel, and the hydroelectric plant. During regular operations releases from the Project are continuously adjusted to match inflows to the Project and maintain the lake elevation within its normal operating range of 786.0 +/- 1.0'. During periods of low flow, minimum releases of 480 cfs are maintained from 15 November to 15 May and 200 cfs from 15 May to 15 November even if inflow is less. These minimum releases were developed through coordination with state resource agencies.

## 2.3 Sedimentation and Shoreline Erosion

### 2.3.1 Sedimentation

Suspended sediments enter Raystown Lake via runoff, with coarser materials deposited near the upper end of the reservoir and finer materials deposited closer to the dam and outlet works. At low and moderate stream flows, the Raystown Branch and other smaller tributaries such as Trough Creek do not carry much sediment. The low overall sedimentation rate of the reservoir can likely be attributed to the low erosion rate of the forested and rural areas of the watershed. The tributaries do, however, carry large sediment loads during floods.

Because Raystown Lake is a flood control structure, it may store sediment-rich floodwaters for a considerable time, allowing much of the sediment to settle. The trap efficiency was estimated during the design phase at 48%. Projections of sediment deposition were contained in Design Manual #15 – Sedimentation Ranges and Investigations (June 1970). The projected average annual sediment yield for the Raystown Branch at Saxton was estimated to be about 521 acre-feet per year.

In 1983, a cursory sedimentation survey was conducted in the upper end of Raystown Lake in response to citizen concerns about sedimentation. The survey concluded that some sediment was accumulating in the upper end of the lake, but at a rate well below the originally projected rate.

A more detailed hydrographic survey of the entire lake bottom was completed in October 1996. Instead of using sedimentation ranges at widely spaced intervals, this hydrographic survey used GPS equipment for horizontal control and advanced sounding equipment for vertical measurements. The product of the survey was a set of bathymetry maps showing elevation contours beneath the lake surface throughout the reservoir. Results of the hydrographic survey indicate that about 980 acre-feet, or 0.2%, of the reservoir's conservation pool was lost to sedimentation between 1972 and 1996.

Sedimentation at Raystown Lake is not seen as a significant issue because of the minimal amount of storage lost to sedimentation throughout the life of the Project.

### 2.3.2 Shoreline Erosion

Shoreline erosion at Raystown Lake is caused by a combination of factors; predominately waves created by wind and boat action. Supporting factors include fluctuations in lake level and erodible soil classifications. In some areas of the Project's shoreline, significant soil loss has occurred which threaten both the environment and infrastructure associated with recreation facilities.

USACE, including its outgrant facilities, have and shall continue to implement best management practices (BMPs) and Erosion and Sediment Control Plans in an effort to reduce soil erosion and run-off. Such practices have included minimizing soil disturbance activities, utilization of vegetative buffers, and shoreline stabilization using gabion baskets and structures designed by the Pennsylvania Fish and Boat Commission (PFBC) such as the Pennsylvania Style Stone Framed Deflectors.

These efforts will preserve the maximum water storage capacity of the lake for flood control, maintain water quality, preserve and enhance the lake's fishery, and support recreational opportunities through good water quality.

## 2.4 Water Quality

Water quality monitoring is conducted to fulfill four major responsibilities that drive the Baltimore District's water quality program:

- To compare existing conditions with state and federal water quality regulations,
- To provide support to water control managers,
- To document the condition of the District's water quality and identify significant trends,
- To evaluate the effectiveness of the Water Control Plan where applicable to manage for water quality concerns.

These objectives are in compliance with the guidance of ER 1110-2-8154 – Water Quality Management.

Each year between May and September two water quality sampling trips are completed at Raystown Lake. Raystown has sampling stations at the reservoir's inflow, at eight in-lake stations, and at the outflow. These stations have been consistently monitored, giving the District around 30 years of historical data. At each station, a depth profile is taken with a multi-probe sonde (an instrument probe that automatically transmits information about its surroundings) that records the temperature, specific conductance,

dissolved oxygen, pH, and chlorophyll A. Chlorophyll A readings are not quantitatively compared year to year but used as an indicator, along with other observations, of the presence of an algae bloom. Also at each station, a point sample is collected at the surface, bottom, and midpoint when a thermocline is present, unless specified to be a profile station only. A point sample is also taken at the inflow and outflow. These point samples are taken back to the laboratory where the alkalinity, acidity, phosphate, ammonia, and nitrate levels are measured. Sulfate and iron levels are measured at specific stations where there has historically been a high level of these analytes. Benthic macroinvertebrate sampling surveys are also completed periodically. These surveys support any observed physical water quality trends and are used to monitor impacts of water quality to the biota.

The water quality of Raystown Lake ranges from fair in upstream reaches to excellent near the dam. Nutrient loading (specifically phosphorous) in the upper end of the reservoir is moderately high compared to the Environmental Protection Agency (EPA) standard due to upstream municipalities and agricultural runoff. However, the long retention time of the reservoir results in a significant reduction of the nutrients with distance downstream in the lake. Algae blooms occasionally occur in the upstream portion of the lake and in some of the coves and bays due to the minor nutrient loading issues. The downstream end of the lake, the release water, and the tailwater are usually low in nutrients. The lake is eutrophic in the upper headwater region, mesotrophic in the middle region, and oligotrophic near the dam. Raystown Lake is operated to provide temperature control and low-flow augmentation to promote the warm-water fishery in the Raytown Branch below the dam.

The lake develops a strong stratification by June, with a 10 to 20 foot epilimnion and a 23 to 33 foot metalimnion. The lake is clear, cold, and deep, with a well oxygenated hypolimnion during the warm months. Lake waters are generally characterized as soft and slightly alkaline, with oxygen levels capable of sustaining fish life to the bottom of the lake. Pollutants entering the lake are minimal.

Eutrophic conditions occur during late summer to early fall, and are pronounced in the shallow embayments and along the main stem of the lake upstream of Trough Creek.

Over the past 10 years, the outflow from Raystown Lake has been sampled and analyzed 21 times. The only analyte that does not meet EPA standards consistently is phosphorous. Of the 21 sampling events, 10 instances had phosphorous readings higher than the EPA maximum standard of 0.05 mg/l.

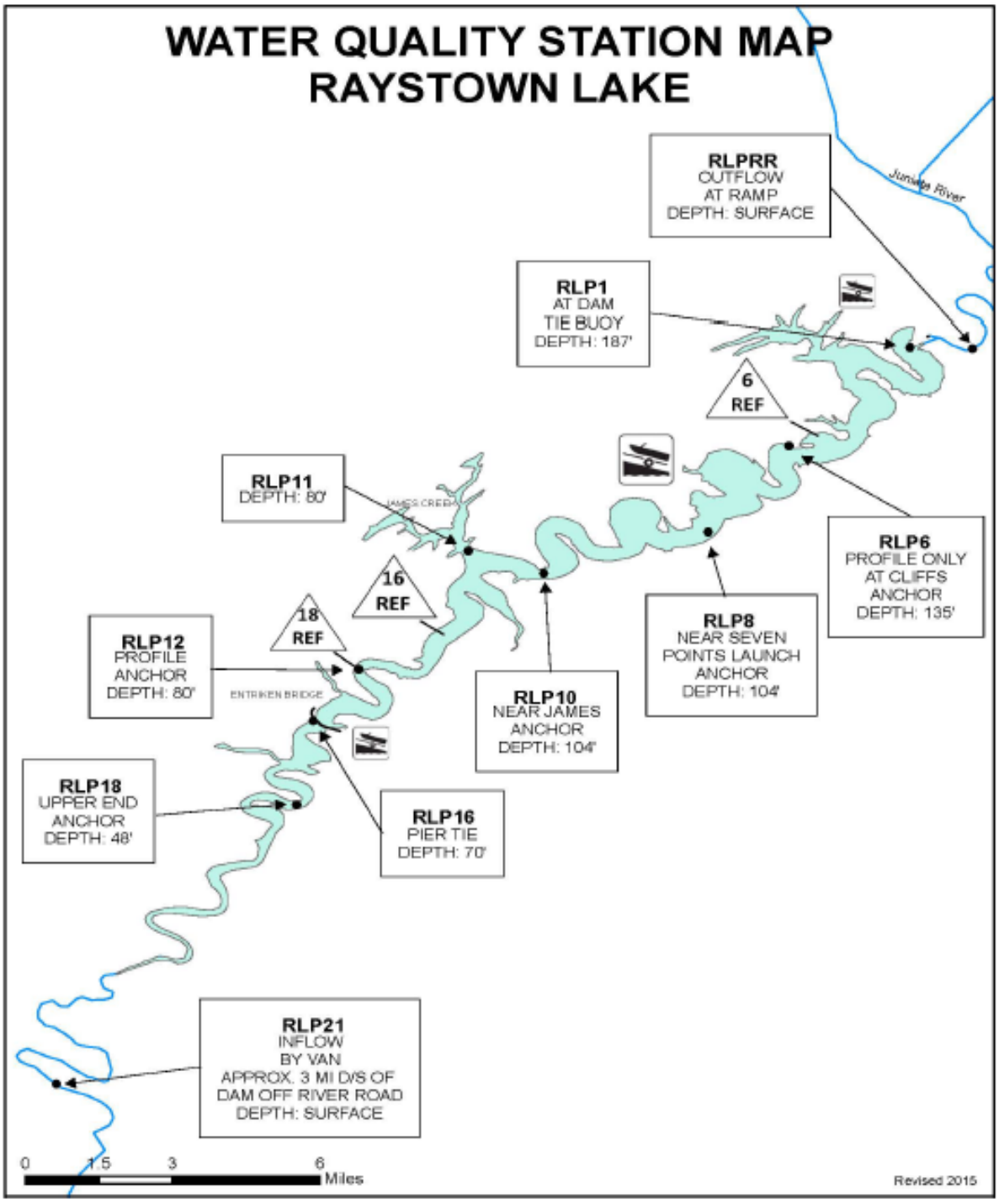


*Figure 2.1 Raystown Water Quality Station Location Map*

Water quality data is collected to provide a snapshot view of conditions at the time of sampling. Repeated, long-term sampling and monitoring of water quality conditions build a solid base of knowledge, guiding improved water management practices and enabling a better understanding of the consequences of various water control actions.

Additionally, the Pennsylvania Department of Environmental Protection (PADEP) is required to conduct assessments of Pennsylvania's waters per the Clean Water Act for Section 303(d) listing. Assessment determinations fall into three general statuses (i.e. attaining, impaired, or unassessed). For example, a body of water is considered "impaired" if it fails to meet one or more water quality standards. A total of five categories are established with Category 1 described as waters that attain all uses and Category 5 described as waters that are impaired for one or more uses by a pollutant that requires the development of Total Maximum Daily Load. USACE recognizes the assessments conducted by PADEP and the subsequent results. These have been taken into consideration for potential impacts to the lake as part of a regional analysis. It should be noted that several tributaries (both named and unnamed) are listed as Category 5 waters for impairments caused by agricultural related activities or abandoned mine drainage. USACE also recognizes that discharges from recreational vessels that are not regulated by the EPA or PADEP, through the Clean Water Act and other regulations, or those as the result of a boating accident, be considered in management plans.

## 2.5 Project Access

Raystown Lake is located geographically in the south central region of Pennsylvania, within the ridge and valley province. The Project is situated in a rural area comprised mainly of farmlands and small towns.

Raystown Lake parallels PA-26 as both lie in a north-south direction. The primary access to Raystown Lake Recreation Areas depend upon using PA-26 as the final access route. The Project area, including recreation features, are not accessible via public transportation.

If travelling from Pittsburgh or other areas west of Raystown Lake, visitors use the PA Turnpike and US Highway 22 for access to connect to PA-26 in either Huntingdon or Bedford. If travelling from Harrisburg, Philadelphia, and other areas directly east of Raystown Lake, access is via the Pennsylvania Turnpike and US 22 for access to PA-26. Baltimore and Washington, DC lie more to the south and are accessible using I-70 and US-30 to eventually connect to PA-26. Visitors travelling from the north connect to PA-26 and travel south to access Raystown Lake.

The Project Office and Visitor Center is located in Seven Points Recreation Area. Travelling by roadway, the offices are approximately 6 miles south of Huntingdon, Pennsylvania and 17.5 miles north of Saxton, Pennsylvania. When travelling along PA-26, signage provides directions for Hesston and Seven Points.

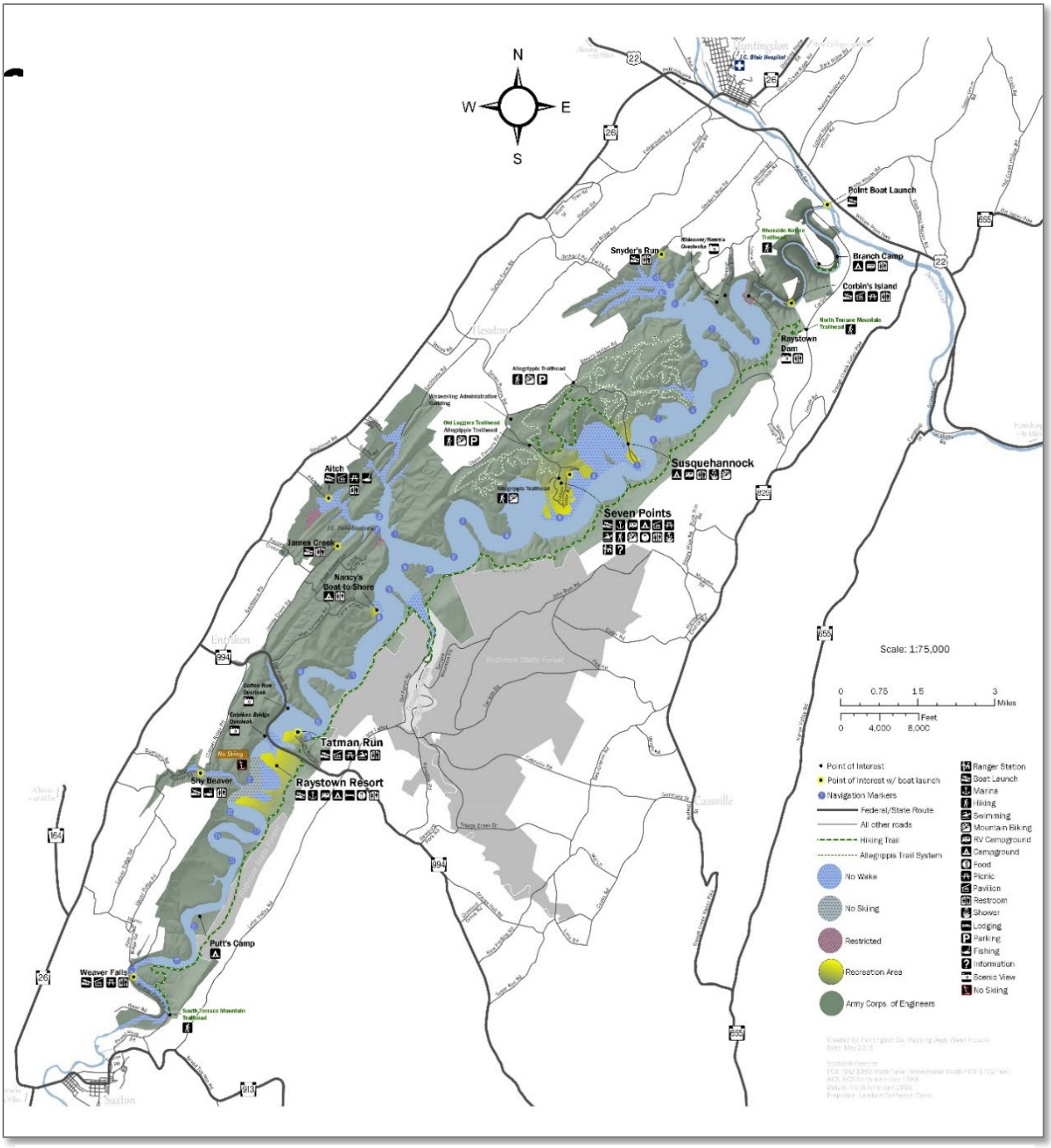


*Figure 2.2 Raystown Lake Project Access Map.*

Public access to the eastern side of the Raystown Lake Project is limited due to the steep terrain associated with Terrace Mountain, a limited and rural highway network, and large tracts of land with limited infrastructure owned by the Commonwealth (Rothrock State Forest). The two significant high density recreation areas (Tatman Run Recreation Area and Lake Raystown Resort and Conference Center) are accessible via PA-994. Figure 2.2 above is provided for general awareness of Project orientation and access. A full size map is provided in Appendix D.

## 2.6 Climate

The Raystown Lake Project is located within the humid continental climate subregion. This climatic subtype is characterized by a great variety in temperature and precipitation. Air masses, chilled by arctic ice and snow, flow south frequently colliding with tropical air masses causing changing weather conditions. The topographic relief of the region, which is known for ridges and valleys, has localized influence on air movements. The region has four distinct seasons with few prolonged periods of extreme heat or cold. The climate averages for Raystown Lake are depicted in Figures 2.3 and 2.4.

Raystown Climate Table

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average annual high temperature | | | | 61.3°F | | Average annual precipitation (rainfall) | | | | 38.59 Inches | | |
| Average annual low temperature | | | | 41.8°F | | Average Annual temperature | | | | 51.7°F | | |
| | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| Average High in ° F | 37 | 40 | 49 | 61 | 71 | 80 | 84 | 83 | 75 | 64 | 52 | 40 |
| Average Low in ° F | 21 | 22 | 29 | 40 | 49 | 58 | 63 | 61 | 54 | 43 | 35 | 26 |
| Average Rainfall Precipitation (Inches) | 2.56 | 2.2 | 3.07 | 3.35 | 4.33 | 3.7 | 3.35 | 3.27 | 3.43 | 3.19 | 3.31 | 2.83 |
| Average Snowfall Precipitation (Inches) | 8 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Climate data for Raystown Lake, Longitude: -78.075, Latitude: 40.3814, Average Weather, Hesston,PA -16647 (1981-2010 Normals) U.S. Climate Data | | | | | | | | | | | | |

*Figure 2.3 Raystown Climate Averages.*

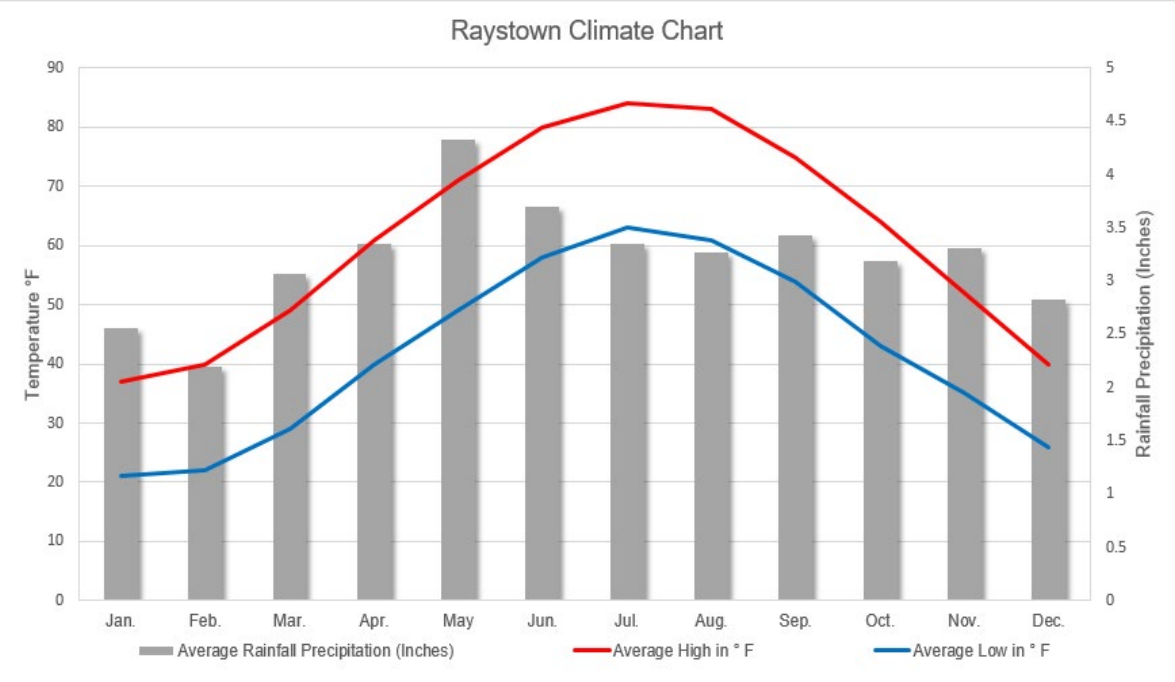


*Figure 2.4 Raystown Climate Chart*

The impacts of climate change, including an increase in periods of excessively high temperatures, more frequent heavy downpours, an increase in wildfires, and more severe droughts will affect communities, natural resources, ecosystems, and other facets. Figure 2.5 provides a climate impact map depicting potential increases in the number of days over 95°F throughout the 21st century for Pennsylvania.

An Executive Order (EO), 13693, Planning for Federal Sustainability in the Next Decade, sets forth requirements to be met by federal agencies. These requirements range from preparing general preparedness plans to meeting specific goals to conserve energy and reduce greenhouse gas emissions. USACE HQ has prepared an Adaptation Plan in response to the EOs and Climate Action Plan. The Adaptation Plan includes the following USACE HQ policy statement: "*It is the policy of USACE to integrate climate change preparedness and resilience planning and actions in all activities for the purpose of enhancing the resilience of our built and natural water-resource infrastructure and the effectiveness of our military support mission, and to reduce the potential vulnerabilities of that infrastructure and those missions to the effects of climate change and variability*."

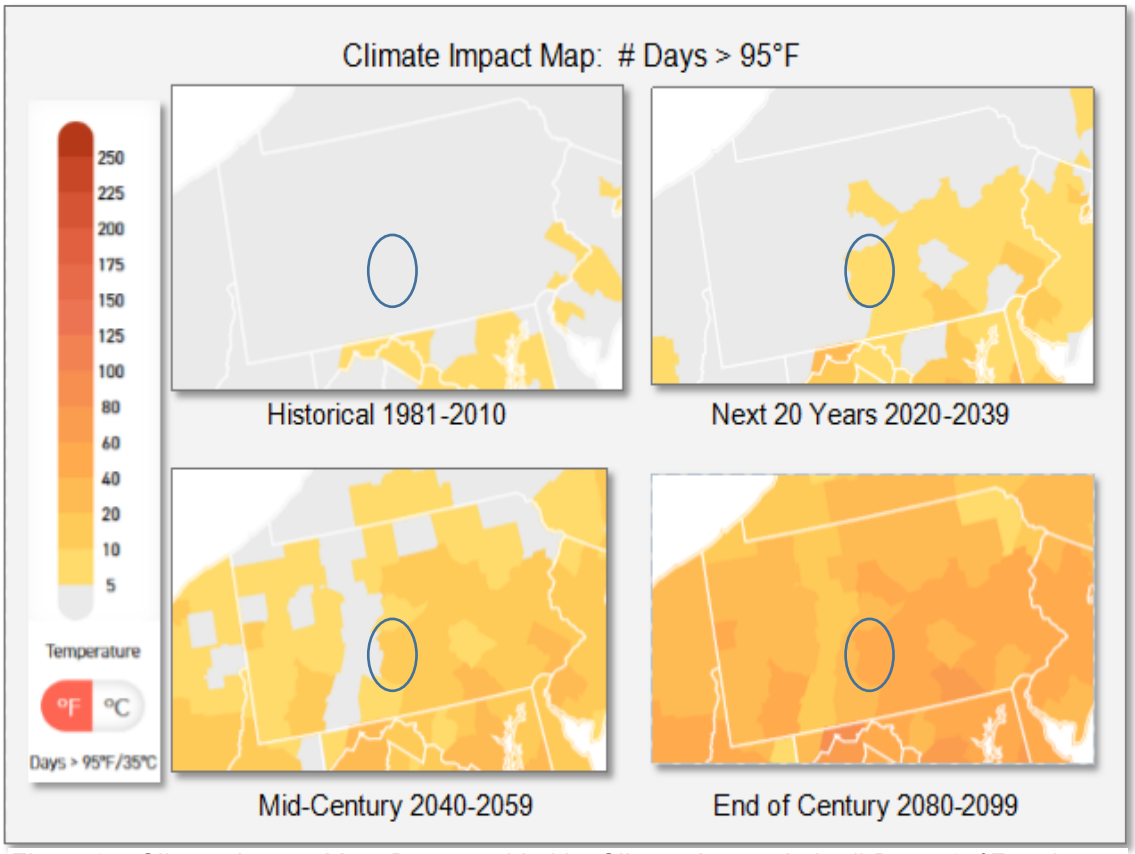


*Figure 2.5 Climate Impact Map. Data provided by Climate Impact Lab. # Days>95°F under High Emissions (RCP 8.5) with a median probability.*

## 2.7 Topography, Geology, and Soils

### 2.7.1 Physical Geography

The Project is located in the Appalachian Mountain Section of the Ridge and Valley physiographic province of Pennsylvania which is named so for the sub-parallel long, narrow ridges and broad to narrow valleys which trend northeast southwest through Pennsylvania.

The stratified sedimentary rocks of this region have been severely folded. The principal structural features thus produced are a series of anticlines and synclines trending from about N 25° E in southwestern Pennsylvania to about N 75° E along the Susquehanna River. Truncation of the folds, and differential weathering and erosion of less resistant shale and limestone are indicative of the valleys and more resistant sandstones have formed the ridges and valleys of the province.

### 2.7.2 Topography

The area surrounding Raystown Lake ranges in elevation from 601 feet NGVD at the dam site to 2,940 feet NGVD. Access from one valley to another is generally through notches or gaps that have been eroded through the mountains by cross-cutting streams.

### 2.7.3 Geology

The Project is characterized by the Raystown Branch of the Juniata River having cut its channel almost entirely in the rocks of the Catskill formation. This valley is composed of level floodplain areas and the hills of Catskill rocks which occupy the areas enclosed by bends. The hills and adjacent local stream valleys on the northwest side of the valley are underlain by basal Catskill rocks and those of the Foreknobs Formation (reclassified from the Chemung Formation). The rock formations of the Foreknobs and Brallier formations make up those areas along the western boundary of the Project. The high ground of Terrace Mountain to the southeast is formed by rocks of the Pocono and Pottsville formations, and the hills that form the slopes between the valley and the mountain are underlain by the upper part of the Catskill. The exposed bedrock range in geologic age from Cambrian (540-485 Mega-annum) to Pennsylvanian (323-299 Ma). The lithologies include most sedimentary types. The Cambrian and Ordovician rocks are predominantly limestone and dolomites; Silurian rocks are carbonate, shale, and sandstone. Devonian rocks are mostly detrital sedimentary types (shale and sandstone) as are those of the Mississippian and Pennsylvanian.

The majority of the Project is underlain by three geologic formations. They are the Pocono of Mississippian age, the Catskill of upper Devonian age, and the Foreknobs formation of upper Devonian age. These layered sequences of

sedimentary strata have been folded such that strike varies from N 25°-35°E in the southwestern portion of the Project to N 30°-40° E in the northeastern part of the Project. Dip varies from 25°-50° SE in the southwestern portion of the Project to 15°-25° SSE in the northeastern part. A general line between Marklesburg and Trough Creek State Park marks the change in strike and dip. A traverse southeast-northwest along this line takes one across strike, down stratigraphic section and, of course, across outcrops of rocks of increasing age. Therefore, the younger rocks occur on the southeast border of the area. These are rocks of the Pocono formation.

The Pocono formation rests conformably on the underlying Devonian rocks. The uppermost sandstone member of the Pocono is called the Burgoon Sandstone. This Lithologic unit acts as a cap rock for Terrace Mountain. It is a gray to green, coarsely grained, thick bedded sandstone, which occurs locally as a conglomerate and has thin beds of shale (Lohman, 1938). Thicknesses of the Burgoon range from 50 to 240 feet. Approximately 800 feet of green shales and gray sandstones with some conglomerate, red shale, and small amounts of coal underly the Burgoon member. This accounts for a total Pocono thickness of 450 to 1,175 feet (Lohman, 1938).

The Catskill formation consists mainly of red to brown shale, but also contains red, brown, green and gray sandstone and gray and greenish shale. Some of the sandstones are cross-bedded and the formation ranges in thickness from 1,200 to 5,500 feet (Lohman, 1938). Much of the shale found in this formation is a lumpy mudrock. Its softness as compared to that of adjacent units in the area and the fact that it makes up some two-thirds of the formation accounts in part for the Raystown Branch cutting its channel in rocks of this type rather than in those adjacent to it.

The Foreknobs Formation is mainly drab green, brown, and chocolate colored shaley sandstone, but contains some thin siltstones, sandstones, and conglomerates and ranges in thickness from 0 to 3,500 feet (Lohman,1938). The remaining formations of the Devonian of central Pennsylvania and the two uppermost Silurian formations occur in the areas of the Project where the lake has a large cove extending towards Marklesburg.

The area of the Project at Hawns Run Inlet is underlain along its northwestern boundary by the Brallier formation and the area of the Project at Shy Beaver Cove is underlain along its northwestern boundary by the Brallier, Harrell, and Mahantango formations (Ellison, 1965).

The relation of geologic structure to geomorphology is seen in topography where the major ridges and valleys are aligned along strike. Breaks in the ridges occur

where tributary streams to the Raystown Branch have cut valleys across dip. These hills and ridges have dip slopes facing to the southeast and up-dip facing slopes (northwest) often occurring as escarpments. The geomorphology of the Raystown Branch valley proper can be explained with this same use of structural geology and lithology of bedrock. The difference in the steepness between the northwest and southeast banks is a vivid example of structural control. The gentler slopes on the northwest bank are formed on the dip slope of the bedrock and the steeper slopes on the southeast bank on the reverse slope. In the case of the portion of the Project occupied by Terrace Mountain as the southeastern valley wall, the resistant rock units act as cap rocks.

There are no known or suspect occurrences of faulting within the Project area, but the higher ridges bounding the Project to the east and to the west are faulted predominantly along strike of the formational bedding planes, where strike is the direction of the line formed by the intersection along a planar feature and a horizontal plane.

The geology of Raystown Lake Project area directly affects the existence of many ecosystems at the site. Shale barrens, a particularly unique ecosystem to the Ridge and Valley Province, are distributed in Maryland, Virginia, West Virginia, and south-central Pennsylvania. The shale barrens are characterized by a collection of rare and endemic plants and animals that would not exist without a specific combination of variable features including; geology, topography, exposure, and climate. “Factors primarily responsible for the origin and continuation of the shale barrens are based on unusual lithological character of a single shale formation of the Upper Devonian, the Brallier” (Platt). However, in the Raystown Project area shale barrens also occur where outcrops of the Upper Devonian aged Scherr, Foreknobs, and Catskill Formations occur. Specific to the Brallier Formation, but not exclusive of the others, resistance of the formation to weathering (physical, chemical, and biological) is the one characteristic that stands out as the driving factor of geology to the formation of these barrens. Resistance to weathering is responsible for the numerous rock outcrops as well as for the mantle of thin rock flakes which cover the soil on the shale barrens. This resistance is significant in maintaining their barren nature in a stable condition (Platt). The resistance of these shales to weathering are also a controlling factor on topography and relief of the formations responsible for these ecosystems.

Broad-Top Mountain - located off of the southeast boundary of the Project area and east of the town of Saxton - supported deep-mining and surface mining of bituminous coal from the early 1900s into the 1980s. As a result of mining activities, natural minerals once locked in the makeup of the rock formation were exposed to oxygen and groundwater flow leading to the formation of acid mine

drainage from pyrite and to the mobility of heavy metals through groundwater, which have had an adverse effect on the ecology of headwaters that feed into the Juniata River Basin at Raystown Lake. Active management on the headwaters occurs; therefore quantities reaching the lake are not of sufficient concern for management implications.

### 2.7.4 Soils

A soil association is "a group of defined and named soil units that occur together in a particular geographic pattern. The soils may be derived from the same kind of parent material or different kinds of parent material" (USDA,1972). A soil association is named for the major soils, but may also contain other minor soils.

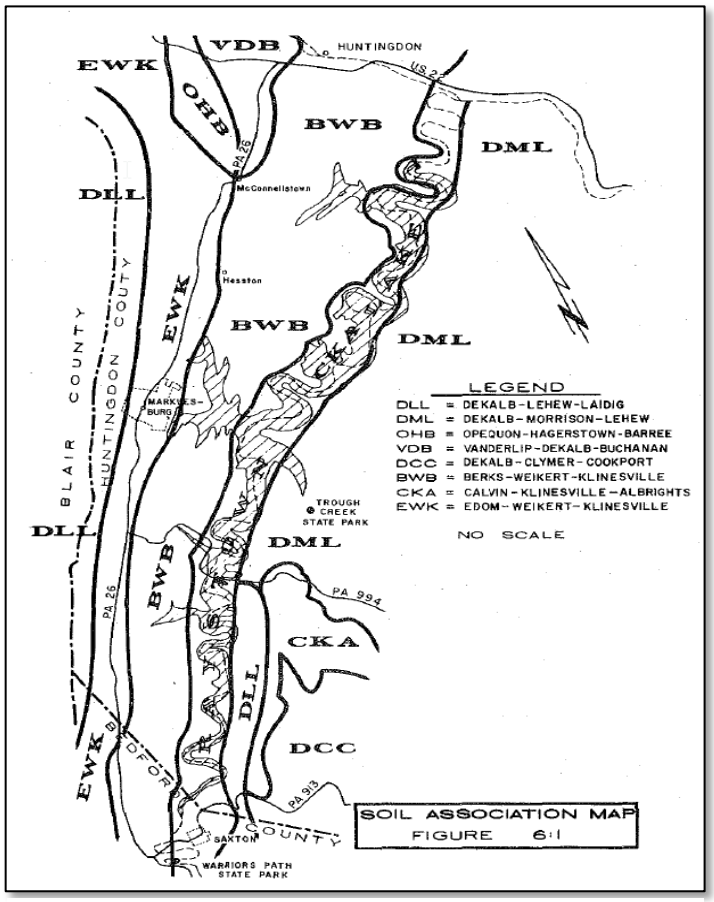


*Figure 2.6 Soil Association Map. Source: General Soils map for Huntingdon and Bedford Counties.*

The soils of Huntingdon County range from extremely shallow and rocky in the mountains to moderately deep and well-drained in the valleys. Structural properties of the soils along with physical and chemical properties of the soil components that constitute the soils effect how the land can be used and how it can be classified. An example of such effects is seen in the shale barrens (see section 2.8). The basin soils are dominated by the Berks-Weikert-Ernest and Calvin-Klinesville-Albrights associations, with the latter making up most of the general area. This soil association is found in hilly areas where the bedrock is siltstone and red shale. The soils in these associations are generally shallow to moderately deep and well drained. Figure 2.6, Soil Association Map, indicates that the dominant soil association for the Project area proper is the Calvin-Klinesville-Albrights Association. This soil association is bounded on the northwest by the Berks-Weikert-Brinkerton Association and on the southeast by the Dekalb-Lehew-Laidig and Dekalb-Morrison-Lehew Association.

The following descriptions of the dominant associations are taken from the 1972 USDA “Soil Survey of Huntingdon County, Pennsylvania” report: “The Berks-Weiker-Ernest association consists of soils that formed in material weathered from acid brown, yellow, and olive shale. It is on rolling hills that have steep sided, narrow valleys and ridges in intermountain valley areas throughout the county.” This association makes up 25% of the county. It is about 52% Berks soils, 20% Weikert soils, 6% Ernest soils, and 22% soils of minor extent.

The Berks soils are gently sloping to steep and are on ridges. These soils are moderately deep and well drained. They have a shaley, medium textured subsoil. The Weikert soils are gently sloping to steep and are on hills and valley sides. These soils are shallow and well drained. They have a shaley, medium textured subsoil. The gently sloping to sloping Ernest soils formed in colluvium that accumulated at the base of steep slopes. These soils are deep and moderately well drained. They have a moderately fine textured subsoil and a fragipan. Minor in this association are Bedington, Blairton, and Brinkerton soils on foot slopes and in valleys and Atkins, Philo, and Basher soils along streams.

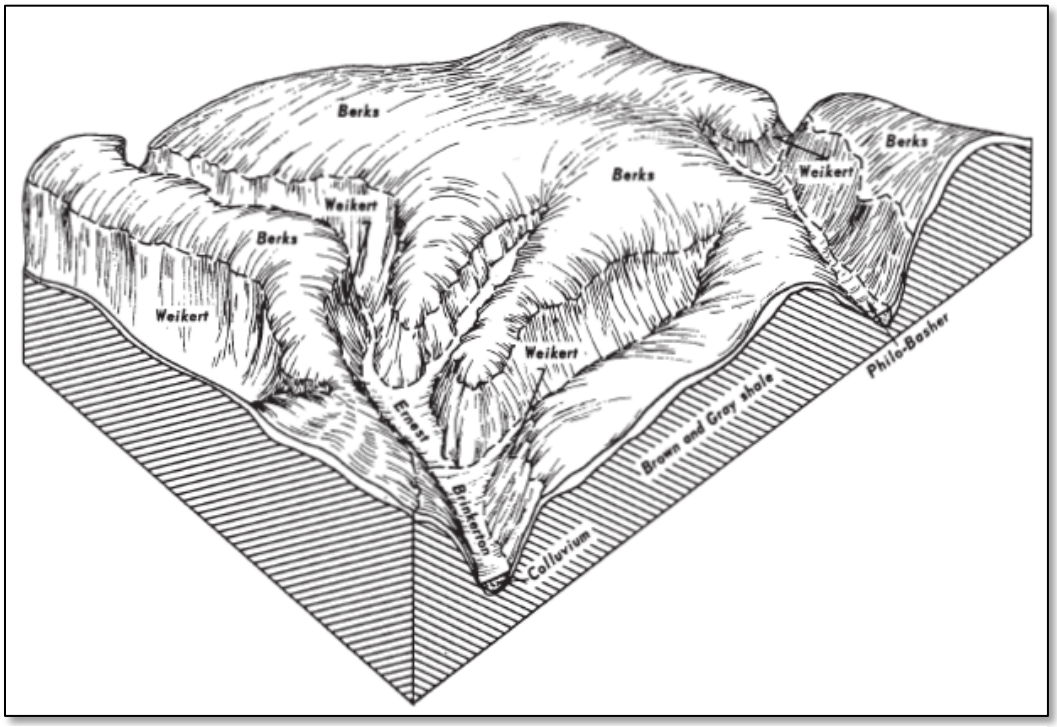


*Figure 2.7. Berks-Weiker-Ernest Association. Figure taken from the 1978 USDA "Soil Survey of Huntingdon County, Pennsylvania" report.*

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The Berks-Weiker-Ernest association is mainly wooded or idle. Many of the areas were cleared and cultivated at one time, but small fields, steep slopes, and droughtiness of the soils made most farming operations uneconomical. The main limitations for town and country uses are depth to bedrock, slope, a seasonal high water table, and moderately rapid permeability.

*Calvin-Klinesville-Albrights association* - consists of soils that formed in material weathered from shale and sandstone. It is in several relatively narrow bands in the southwestern part of the county. The landscape consists of highly dissected rolling hills and steep-walled narrow valleys. The ridges in these areas are between higher mountains.

This association makes up 9 percent of the county. It is about 35 percent Calvin soils, 15 percent Klinesville soils, 9 percent Albrights soils, and 41 percent soils of minor extent. The gently sloping to moderately steep Calvin soils are on ridges. These soils are moderately deep and well drained. They have a shaley, medium textured subsoil. The gently sloping to steep Klinesville soils are on ridges. These soils are shallow and well drained. They have a shaley medium textured subsoil.

The gently sloping and moderately steep Albrights soils formed mostly in colluvium that accumulated at the base of steep slopes and in drainage ways. These soils are deep, and moderately well drained to somewhat poorly drained. They have a medium textured to moderately fine textured subsoil and a fragipan.

Minor in this association are Meckesville soils on uplands, and Barbour and Basher soils along streams.

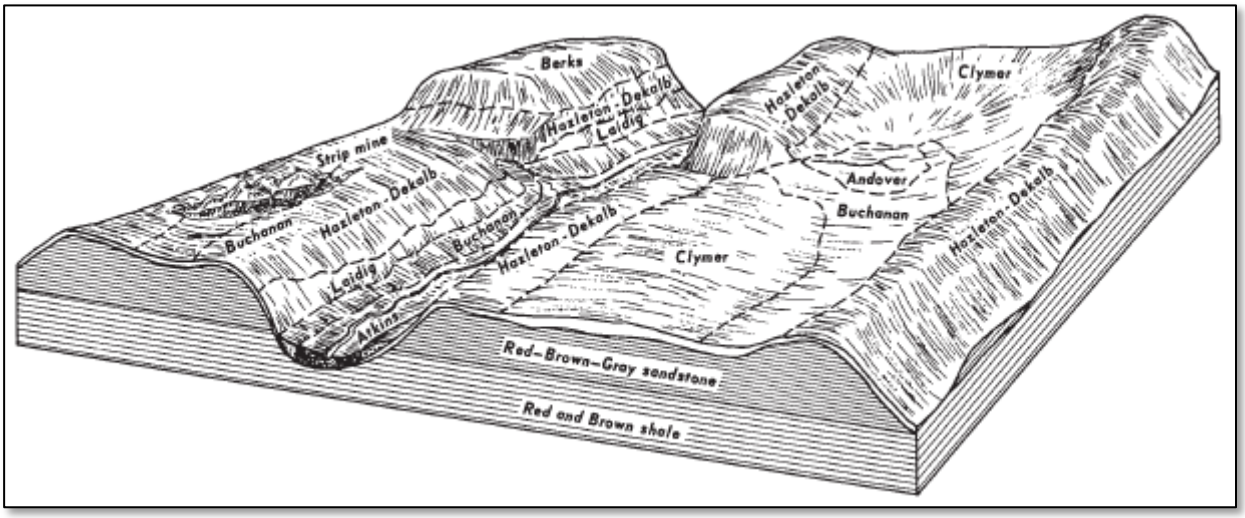


*Figure 2.8 Hazelton-Clymer-Buchanan Association. This figure illustrates soil associations as they relate to the Juniata River Basin within the Project area. Source: 1978 USDA "Soil Survey of Huntingdon County, Pennsylvania" report.*

The Calvin-Klinesville-Albright association is mainly wooded because the steep slopes limit the suitability of the soils for other uses. Some of the wooded areas were farmed but have reverted to woodland. Most of the association is well suited to trees, wildlife habitat, and recreational uses. A few scattered areas are used for farming, but draughtiness is a limitation for most farm crops. The main limitations for town and country uses are depth to bedrock, slope, a seasonal high water table, and moderately rapid permeability.

The Project is characterized by generally shallow depth to bedrock and a general lack of thick residual soils. The effect of geologic structure and resultant topography on soil development is seen in the large amounts of soils developed on colluvium. These accumulations of weathered colluvium are largely caused by soil creep on the steep slopes and the long span of geologic time that has allowed such events to occur.

Certain rock slides or accumulations of talus occur in the valley. These tend to be local and are composed dominantly of sandstone or conglomerate boulders, although related features occur on steep slopes in shale and interbedded sandstone in areas along both sides of the valley.

The existence of the Raystown Branch over a long time span has resulted in many variegated fluviatile surface deposits throughout the valley proper.

The general relationship then, between geology and soils on the site can be seen where soils are developed on bedrock, colluvium and fluvial deposits. Those soils developed on materials weathered from bedrock are those of the Calvin, Klinesville, Edom, Hagerstown and Lehew Series. The soils developed on materials weathered from colluvium are those of the Ernest, Meckesville, Laidig, Albrights, Clarksburg and Murrill Series. The soils developed on fluvial deposits are those of the Raritan, Philo, Basher, and Barbour Series (USDA, 1972).

The Calvin, Lehew and Klinesville soils are to be found in areas underlain by rocks of the Foreknobs and Catskill formations. The red beds of the Catskill formation yield red soils of the moderately deep Calvin and Lehew Series. Both soils are coarse grained and known to contain fair amounts of cobbles (particles larger than 3 inches). The reddish brown rocks of the Foreknobs yield the shallow Klinesville Series which is also coarse grained and contains fair amounts of cobbles. The Edom and Hagerstown Series are to be found in areas underlain by limestone, such as the area of the Project near Marklesburg where the Helderberg limestone occurs.

The accumulation and weathering of colluvium from the Pocono, Catskill and Foreknobs formations has yielded the Ernest, Meckesville, Laidig and Albrights soils. The soils are loams and silt loams with gravelly, very stony and extremely stony variations. The accumulation and weathering of colluvium containing limestone, sandstone and shale has resulted in the development of the Clarksburg soils, and the accumulation and weathering of colluvium containing sandstone and shale over limestone bedrock has resulted in the development of the Murrill soils. The Clarksburg Series are silt loams and gravelly silt loams and the Murrill Series are gravelly loams.

The Raystown Branch and its tributaries have deposited numerous fluvial deposits both on present day floodplains and on those of the past such as terraces. The Philo and Basher soils are gray and red silt loams, respectively, developed on fluvial deposits of floodplains. The Barbour soils are red fine sandy silt loams developed on fluvial deposits of floodplains.

## 2.8 Resource Analysis

The Raystown Lake Project provides habitat to a variety of aquatic and terrestrial species. Management of those species is conducted through implementation of numerous federal and state laws and in partnership with other federal, state, local, and non-profit organizations. Biological sampling is conducted as needed for species management by USACE and other organizations such as the US Fish and Wildlife Service (USFWS), Pennsylvania Game Commission (PGC), PFBC, Juniata College, and the Western Pennsylvania Conservancy.

### 2.8.1 Aquatic Resources

As previously mentioned, Raystown Lake lies on the Raystown Branch of the Juniata River. In addition to the primary source of flow from the Raystown Branch, the lake receives water from many perennial and intermittent, named and un-named, tributaries. Some notable tributary streams include: the Great Trough Creek, Coffee Run, Tatman Run, and James Creek. The lake itself is an 8,300 acre reservoir that provides both warm, cool, and cold water fish habitat. The PFBC manages the lake fishery, which includes stocking several game fish species such as lake trout, striped bass and walleye.

The lake develops a strong stratification by June, with a 10 to 20 foot epilimnion and a 23 to 33 foot metalimnion. The lake is clear, cold, and deep, with a well oxygenated hypolimnion during the warm months. Lake waters are generally characterized as soft and slightly alkaline, with oxygen levels capable of sustaining fish life to the bottom of the lake. Pollutants entering the lake are minimal.

Eutrophic conditions occur during late summer to early fall, and are pronounced in the shallow embayments and along the main stem of the lake upstream of Trough Creek. During those months and due to the limiting dissolved oxygen concentrations and temperature preferences, these areas amount to approximately 58% of the lake which is either uninhabitable or marginally inhabitable for cold water fish, including trout, striped bass, and smelt. With a lack of nutrients in this large portion of the lake, low primary production inhibits many fish species from reaching their maximum potential.

The reservoir provides a diverse habitat for a variety of fish and other aquatic animals. Samples of benthic invertebrates, which can be used to assess general water quality and available habitat, were collected upstream and downstream of Raystown Lake in 2003, 2004, and 2005. Overall, fifty-five different orders, families, and genus' were represented in the collected sample. Additionally, invertebrate surveys of aquatic insects and fresh water mussels in the headwaters, tributaries, and tail water portions of the Project were surveyed in 2018 as part of the biological inventories conducted by USACE's Engineering Research and Development Center. The full listed of organisms sampled during this effort are included in Appendix G.

Historically, because of the lake's steep shoreline and low proportion of suitable substrate, submerged aquatic vegetation (SAV) was not abundant. Over the past 10 years, two invasive aquatic plants, hydrilla (*Hydrilla verticillata*) and Eurasian watermilfoil (*Myriophyllum spicatum*) have become dominantly established within suitable portions of the water-body. USACE's Buffalo District, with the support of USACE's Engineering Research and Development Center (ERDC), have completed lake-wide surveys (2017 and 2018) of all SAV to map location and density. A third, non-native SAV, brittle naiad (*Najas minor*), is also present, although in low frequency. Native species present, while in low abundance, include: coontail (*Ceratophyllum demersum*), water stargrass (*Zosterella dubia*), and pondweed (*Potamogeton spe*.).

The presence and availability of non-vegetative cover (e.g., logs, stumps, boulders) in relatively shallow water is scarce. The lack of snags and debris for structure in near shore shallows limits the area available for fish to spawn, forage, and hide from predators. The lack of physical structures along much of the lakeshore is one of the limiting factors in the quality of the lake fishery. Artificial structures are constructed and placed in the lake to provide additional fish habitat. These structures are developed in coordination with the PFBC, and include felled logs on the shoreline, wood and rock structures, black bass nesting structures, among others (PFBC 2019), and are further discussed in Chapter 6, Special Topics.

### 2.8.2 Wildlife at Raystown Lake

The PGC and the PFBC work with USACE to manage wildlife at Raystown Lake. The lake and surrounding lands host a variety of species throughout the year including the bald eagle, numerous migratory birds, large and small game species, and other non-game mammals. USACE works with state and federal agencies to ensure that habitat requirements for many of these species are being met. Focus is given to creation of scarce early successional habitat and retention of large contiguous tracts for forest interior dwelling species. Significant management efforts regarding the Project's white-tail deer population have and will continue to occur.

The wetland areas surrounding the lake provide habitat for green heron, willow flycatchers, red-winged blackbirds, as well as many waterfowl species in migration (PGC 2019). Several no-wake areas exist throughout the lake which allow migrating ducks to rest and feed.

### 2.8.3 Vegetative Resources

Land surrounding Raystown Lake is primarily forested (roughly 18,000 acres). The primary forest types are mixed oak, northern hardwoods, and hard/soft pine (USACE 2011a). The vegetation on Raystown Lake has been classified through utilization of the National Vegetation Classification Standard (NVCS). Furthermore, a condition index identifying the state of vegetation in terms of sustainable, transitioning, or degraded has been assigned. Sustainable lands are those identified as meeting a desired state. Sustainable lands are not significantly impacted by any factors that can be managed and do not require intensive management. Sustainable lands also meet operational goals and objectives set out in project OMPs or other applicable management documents. Sustainable lands are considered healthy and viable for future generations with only minor management practices required to maintain the health. Transitioning lands are those identified as being managed to meet desired goals. Transitioning lands are impacted by human or other environmental factors that require management of the acreage to meet goals and objectives outlined in the project OMP or other applicable management documents. Degraded lands are those identified as not meeting desired goals. Degraded lands are significantly impacted by human or other environmental factors that prevent the acreage from meeting desired goals outlined in the project OMP or other management documents. Degraded lands are not considered healthy. Intense management may be required to meet desired goals.

The current vegetation conditions on Project lands are generally described in Table 2.1 below.

**Table 2.1 Vegetation Condition Acres.** Source: Raystown Lake Project, Level One Inventory Data. (USACE 2011a).

| Vegetation Type | Sustainable Acres | Transitioning Acres | Degraded Acres | Total Sub-Class Acreage | % of Project Lands |
|---|---|---|---|---|---|
| Herb Dominated | 222 | 679 | 260 | 1,161 | 5.64% |
| Shrub Dominated | 0 | 27 | 19 | 46 | 0.22% |
| Tree Dominated-Deciduous | 3910 | 2845 | 2594 | 9,349 | 45.38% |
| Tree Dominated – Evergreen | 903 | 643 | 296 | 1,842 | 8.94% |
| Tree Dominated – Mixed Evergreen/Deciduous | 964 | 1441 | 5800 | 8,205 | 39.82% |

**Acreages are estimated and derived from multiple sources and do not reflect Project acquisition or mapping acreages.*

The geology that Raystown Lake lies on provides the basis for numerous distinct types of vegetation. A portion of the area is comprised of shale barrens that offer a unique subset of plant species. Shale barrens are naturally difficult for plant establishment due to their lack of stable substrate, potential for high surface temperature, and limited, shallow soil capabilities. The shale barrens at Raystown Lake are typically occupied by trees such as eastern red cedar (*Juniperus virginiana*), chestnut oak (*Quercus montana*), Virginia pine (*Pinus virginiana*), pignut hickory (*Carya glabra*), red oak (*Q. rubra*), and table-mountain pine (*P. pungens*). Shrubs are often absent entirely, patchy, or primarily line the perimeter of the barrens where they transition to other forest types. The herbaceous layer tends to be highly variable and can be extremely sparse or have moderate to high cover (USACE 2019). A number of herbaceous plants are endemic to shale barrens and are listed in Table 2.2 as special status species.

### 2.8.4 Threatened and Endangered Species

Raystown Lake hosts multiple state and federally listed threatened and endangered species. Table 2.2 shows species as well as their classification.

**Table 2.2 State and Federally Listed Species at Raystown Lake.** Source: Western Pennsylvania Conservancy 2004, PNHP 2019, and USACE 2019.

| Species | Common Name | Classification |
|---|---|---|
| *Myotis sodalist* | Indiana bat | Federally Endangered |
| *Myotis septentrionalis* | Northern Long-Eared Bat | Federally Threatened |
| *Xestia elimata* | Southern Variable Dart Moth | State Imperiled |
| *Cisthene packardii* | Packard's Lichen Moth | State Critically Imperiled |
| *Calopteryx dimidiate* | Sparkling Jewelwing | State Possibly Extinct |
| *Boyeria grafiana* | Ocellated Darner | State Vulnerable |
| *Cordulegaster erronea* | Tiger Spiketail Dragonfly | State Vulnerable |
| *Antennaria virginica* | Shale Barren Pussytoes | State Threatened |
| *Oenothera argillicola* | Shale Barren Evening Primrose | State Imperiled |
| *Solidago argute var. harrisii* | Harris' Golden-Rod | State Critically Imperiled |
| *Trifolium virginicum* | Kate's Mountain Clover | State Imperiled |
| *Potamogeton illinoensis* | Illinois Pondweed | State Rare |
| *Sida hermaphrodita* | Virginia Mallow | State Imperiled |
| *Haliaeetus leucocephalus* | Bald Eagle | State Rare |
| *Neotoma magister* | Allegheny Woodrat | State Rare |
| *Calopteryx angustipennis* | Appalachian Jewelwing | State Possibly Imperiled |
| *Caripetra aretaria* | Southern Pine Looper Moth | State Critically Imperiled |
| *Semiothisa promiscuata* | Promiscuous Angle | State Critically Imperiled |
| *Properigea sp.* | Noctuid Moth | State Critically Imperiled |
| *Pyrgus Wyandot* | Southern Grizzled Skipper | State Critically Imperiled |
| *Thalictrum coriaceum* | Thick-leaved Meadow Rue | State Imperiled |
| *Solidago curtisii* | Curtis's Goldenrod | State Critically Imperiled |

### 2.8.5 Invasive Species

Invasive species that occur at Raystown Lake are typical of those found throughout the region. An invasive species is typically an exotic species whose introduction into an ecosystem, in which the species is not native, causes or is likely to cause environmental or economic harm, or harm to human health. Additionally, native species must sometimes be managed as an invasive species as their growth or population size for the particular ecosystem may be detrimental to the growth and success of other native species. Once such example of this on Raystown Lake lands is the presence and dominance of hay-scented fern in the forest understory.

Project staff utilize an Integrated Pest Management Program in which current, comprehensive information on the life cycle of pests and their interaction with the environment is used to determine appropriate treatment methodologies. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

The Project contains various categories of invasive species to include terrestrial plants, aquatic plants, terrestrial pests, aquatic pests, and disease that potentially pose serious threats to wildlife, vegetation, aquatic resources, and human health. They have and will continue to impose enormous costs for detection, management, and control efforts. USACE embraces the principle concepts of early detection and rapid response; noting that early detection is a key goal in managing invasive species populations.

Terrestrial plants include, but are not limited to, oriental bittersweet (*Celastrus orbiculatus),* tree of heaven *(Ailanthus altissima),* stringy stonecrop *(Sedum sarmentosum),* german knotweed *(Scleranthus annuus),* crown vetch *(Securigera varia),* spotted knapweed *(Centaurea stoebe),* bush honeysuckle *(Lonicera maackii*), Japanese honeysuckle *(Lonicera japonica),* asiatic tearthumb *(Persicaria perfoliata),* yellow toadflax *(Linaria vulgaris)*, hay-scented fern (*Dennstaedtia punctilobula*), Japanese stiltgrass (*Microstegium vimineum*), mile-a-minute (*Persicaria perfoliata*) and princess tree (*Paulownia tomentosa*). As funding permits, the Project annually conducts invasive species treatments to minimize the spread of numerous species.

Aquatic plants as discussed above include hydrilla (*Hydrilla verticillata*), Eurasian watermilfoil (*Myriophyllum spicatum*), and brittle naiad (*Najas minor*).

Terrestrial pests have had a notable presence and impact on the landscape of Raystown Lake requiring intensive management activities and funding support. Specifically, the gypsy moth (*Lymantria dispar*), emerald ash borer (*Agrilus planipennis*), and hemlock woolly adelgid (*Adelges tsugae*) have had significant

impacts on the vegetative resources. The Raystown Lake Project has sought and received funding through the U.S. Forest Service totaling over $1.1 million (1983-2018) to treat both gypsy moth and hemlock woolly adelgid infestations. The effects of the emerald ash borer have been devastating to the ash population within the region. Over 99% of ash trees within developed recreation areas have been removed as hazardous trees due to tree mortality. Although they have not yet been found at Raystown Lake, heightened awareness has been placed on detecting the presence of spotted lanternfly (*Lycorma delicatula*) and Asian longhorned beetle (*Anoplophora glabripennis*) which could have devastating effects on the ecosystem if the current population cannot be contained and eradicated.

The presence of aquatic pests has not been significantly noted within the waterbody of Raystown Lake. Sampling efforts should be conducted routinely for various pests such as zebra and quagga mussels which have been found in other reservoirs and bodies of water within Pennsylvania and nearby states.

Terrestrial diseases of concern at Raystown Lake include chestnut blight (*Castanea dentata*) and Dutch elm disease. The chestnut blight of the early 1900s dramatically altered the vegetation composition of the northeast. The Project has been heavily involved in a partnership with The American Chestnut Foundation in their efforts to restore the presence of the species across the landscape. Dutch elm disease is caused by pathogens belonging to the genus *Ophiostoma* that are vectored by various species of elm bark beetles. Although it has not yet been found at Raystown Lake, staff are surveying for thousand cankers disease which is caused by the fungus *Geosmithia morbida* and vectored by walnut twig beetles.

### 2.8.6 Ecological Setting

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources; they are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. Raystown Lake sits among three ridge and valley eco regions; Northern limestone/dolomite valleys (67a), Northern dissected ridges (67d), and forested hills and mountains (69a) as depicted in Figure 2.9.

The northern limestone/dolomite valleys ecoregion is a lowland characterized by broad, level to undulating, fertile valleys that are extensively farmed. Sinkholes, underground streams, and other karst features have developed on the underlying limestone/dolomite, and as a result, the drainage density is low. Where streams occur, they tend to have gentle gradients, plentiful year-round flow, and distinctive fish assemblages.

Northern dissected ridges are composed of broken, dissected, almost hummocky ridges underlain by interbedded sedimentary rocks including siltstones. The soils developed from this interbedded rock are mostly Inceptisols (Dystrochrepts). Forests cover most of this ecoregion, and shale barrens occur on steep west and south facing slopes. The shale barren habitat type is one of the rarest in Pennsylvania.

Forested hills and mountains occupy the highest and most rugged part of the central Appalachian ecoregion. This ecoregion consists of dissected hills, mountains, and ridges that are steep sided and have narrow valleys.

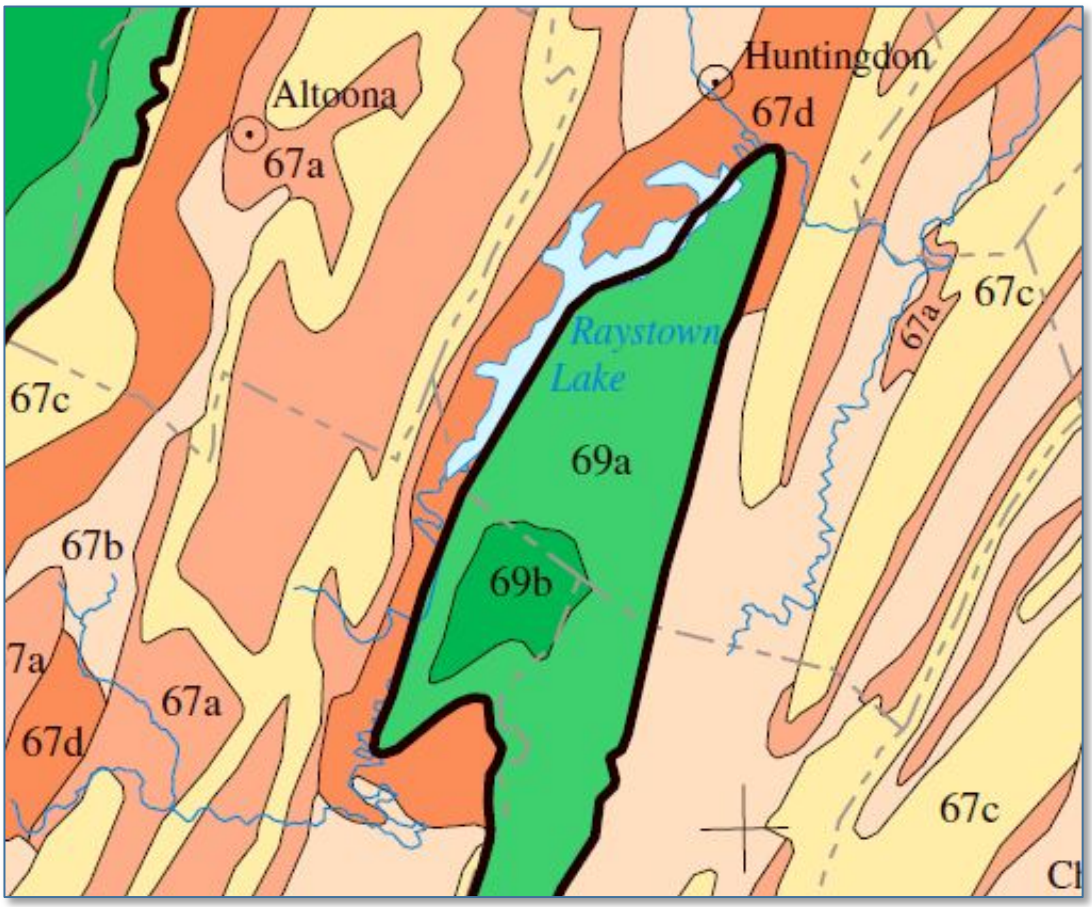


*Figure 2.9 Ecoregions. Source: USEPA Ecoregions of Pennsylvania.*

### 2.8.7 Wetlands

According to USACE policy, wetlands at operational projects are inventoried using the protocol established by the U.S. Fish and Wildlife Service (USFWS) in their Classification of Wetlands and Deepwater Habitats of the United States. Excluding the lake, which is classified as lacustrine, there are roughly 26 acres of wetlands within the Raystown Lake Project. These mainly consist of small

emergent or forested wetland patches bordering the lake, as the majority of the terrestrial cover is forested. In 2002, USACE partnered with the PGC, Ducks Unlimited (DU) and the USFWS to construct and manage five wetland complexes at Raystown Lake. Continued management of these wetlands provides valuable habitat to many wildlife species, protects the shoreline, and offers other ecosystem services.

## 2.9 Borrow Areas and Utilities

### 2.9.1 Borrow Areas

Borrow areas are typically defined as an area where material (usually soil, gravel, or sand) has been removed for use at another location. Various borrow sites were utilized for the construction of the Raystown Dam and associated infrastructure. These historically disturbed areas could have some bearing on their suitability for various uses. Currently (2019), there are four open and active borrow areas for USACE use only. These are located in the vicinity of Gate 5 (Baker's Hollow), Seven Points Maintenance Compound, James Creek Road access, and behind Gate 35. The borrow areas identified are used for shale in minor construction projects and road re-habilitation/maintenance. When use of the borrow area is completed, sites will be graded and re-vegetated as appropriate. No new borrow areas are anticipated; however should the need arise, all attempts will be made to procure the needed material through off-site vendors. Should it be determined that on-site material in a new location is the most cost effective and environmentally sound option, the borrow area shall be created in compliance with applicable federal and state regulations. The material will be made available for USACE use only.

*Figure 2.10 Construction of the Mariner 2 Pipeline on the Raystown Lake Project.*

### 2.9.2 Utilities

There are seven locations within the Raystown Lake Project boundary in which utilities cross the landscape. Maps of these locations are provided in Appendix E. Three of the seven locations are active in transporting natural gas and petroleum products and are identified by the National Pipeline Mapping System. Products being transported across the Raystown Lake Project are identified in Table 2.3 below. Two of the locations were prior petroleum transportation lines that have either been removed from active service or have been altered for other uses such as communication lines. The remaining

locations serve as an active electric transmission line. The establishment of utility corridors to designate placement of future line requests is defined in Chapter 6, Special Topics.

**Table 2.3 Active Natural Gas/Petroleum Products Transported Across the Raystown Lake Project.** Source: 5/30/2019, National Pipeline Mapping System.

| Operator ID | Operator Name | Pipeline ID | Commodity Category |
|---|---|---|---|
| 18718 | Sunoco Pipeline, LP | 18639 | Other HVLs** |
| 1845 | Buckeye Partners, LP | 21915 | Non-HVL Product |
| 1845 | Buckeye Partners, LP | 21752 | Non-HVL Product |
| 31618 | Enterprise Products Operating LLC | A3 | Liquefied Petroleum Gas |
| 19235 | Texas Eastern Transmission | 27-Aux-1 | Natural Gas |
| ***HVLs: Highly Volatile Liquids* | | | |

## 2.10 Timber Resources

### 2.10.1 Introduction

The Raystown Lake Project is comprised of over 29,000 acres of land and water, of which 18,000 acres are forested. These forested lands provide many benefits, including aesthetics, outdoor recreation, wildlife habitat, commercially valuable timber and serving as a filter for stormwater runoff immediately adjacent to the lake. The forest resource will be managed to ensure the long-term sustainability of these important benefits. Ongoing and future management of the forest at Raystown Lake will provide a diverse forest landscape comprised of several successional habitats including grasslands, shrub thickets, young forests, maturing forests and mature, late successional forests that will meet the needs of a wide variety of indigenous wildlife species.

The original forest in the region was predominantly comprised of the mixed oak-chestnut and white pine-hemlock forest type. Due to past land use practices the forest species composition has changed to predominantly mixed oak. Historically, the forests surrounding the Project were heavily harvested and allowed to naturally regenerate. The result has been a forest comprised of mostly oak species and a loss of much of the white pine, hemlock and spruce forests. The American chestnut disappeared when the chestnut blight fungus was unintentionally introduced into North America in the early 1900's. The invasion of the gypsy moth in the early 1980's caused massive mortality of mixed oak forests resulting in a major change in forest composition by allowing less desirable and invasive vegetation to become established.

The lack of silviculturally sound forest management has led to a homogeneous forest of pole to small sawtimber sized trees of marginal to low commercial

quality and lacks the diverse habitats needed by many wildlife species. Abandoned agricultural areas have been replaced with less desirable forested stands and the established presence of nuisance and invasive species. Much of the Virginia pine at Raystown is reaching its maximum age and is naturally dying out; causing some concern that thermal winter cover for wildlife is in decline in a region where conifer cover is naturally low. The current forest condition and increase of negative impacts presents many challenges for forest management.

### 2.10.2 Authorities

ER 1130-2-540 sets forth a framework for managing most USACE lands under an environmental stewardship concept. Forest management, in particular, is supported by the Forest Cover Act of 1960 (Public Law 86-717). This public law provides broad discretionary authority for USACE to manage the forested lands administered by the Chief of Engineers and encourages implementation of sustained yield forest management as well as other conservation practices on project lands to the extent that such management is compatible with resource use objectives in the MP. EP 1130-2-540 and EP 1130-2-550 each specify that USACE shall prepare OMPs which shall include a section on management of natural resources. The OMP shall be consistent with the MP and shall address all natural resources at project. It is within the OMP that specific prescriptions, including estimated costs are set forth for the management of all project natural resources including forests and woodlands. Federal policy in 16 USC 580m states:

*"It is declared to be the policy of the United States to provide that reservoir areas of projects for flood control, navigation, hydroelectric power development, and other related purposes owned in fee and under the jurisdiction of the Secretary of the Army and the Chief of Engineers shall be developed and maintained so as to encourage, promote, and assure fully adequate and dependable future resources of readily available timber, through sustained yield programs, reforestation, and accepted conservation practices, and to increase the value of such areas for conservation, recreation, and other beneficial uses: Provided, that such development and management shall be accomplished to the extent practicable and compatible with other uses of the project."*

### 2.10.3 Guidance

The sale of wood products from a civil works facility is a real property action and must follow real estate regulations under ER 405-1-12 - Section XII Timber Disposal.

The District Engineer is authorized to dispose of standing timber or other forest products required to be removed incidental to construction and operational requirements of the project; that which is generated incident to recreational

development or the management of public park and recreational areas or wildlife management areas; or that which is generated is accordance with approved forest management supplements to the approved MP.

Guidance for use and management of forest resources is found within ER 1130-2-540 Project Operations Environmental Stewardship Operations and Maintenance Guidance and Procedures. This guidance provides all civil works projects with details concerning the stewardship of Corps lands and waters.

At the Project level, the following are critical documents that provide guidance and requirements for forest management activities:

- **Environmental Assessment, Raystown Lake Forest Management Activities.** In compliance with NEPA, the EA covers forest management activities on approximately 2,500 acres at the Raystown Lake Project over a ten year period, from 2011 - 2020. Objectives for the overall forest management program are to conduct 250 acres of commercial forest management per year. A finding of no significant impact (FONSI) was signed by Colonel Anderson on March 10, 2011. A new EA shall be prepared to cover commercial forest management activities after 2020.

- **Biological Opinion.** The biological opinion entitled "*Effects to the Indiana Bat and Northern Long-eared Bat from Activities on the Raystown Lake Project, U.S. Army Corps of Engineers*", issued from the U.S. Fish and Wildlife Service on February, 24, 2016 include the effects of forest management activities. This document has specific restrictions that shall be followed for all commercial forest management implemented on the Project.

- **Operations Management Plan, Forest and Wildlife Management.** This document outlines specific silvicultural practices and locations for forest management across Raystown Lake. The OMP breaks down all eighteen compartments and provides a brief description, soils information, recommended plan for forest management, table of all forest types present and maps. The OMP forms the basis of forest management recommendations.

### 2.10.4 Completed Forest Management

Depending on the current stand condition and goals, a mixture of even-age (seed tree, shelterwood, clearcut or border harvest) and uneven-age (thinning or single/group tree selection) silvicultural practices have been implemented. From 1994 – 2018 a total of 3,433 acres have been managed, resulting in the harvest of 5,750,608 board feet of sawtimber and 101,468 tons of pulpwood, and generating $1,663,369.83 in revenue. Revenue generated from the sale of timber

at Raystown is returned back to the Project as funding for the environmental stewardship program.

The acres of management, volume of timber harvested, and revenue generated from the sale of timber can vary considerably. Factors such as timber quality, timber markets, weather conditions, accessibility and staff workload all impact timber sales. Management of the timber resources at Raystown involves numerous tasks including, but not limited to, prescribed fire, invasive pest management, gravel road maintenance, reforestation, wildlife management, threatened and endangered species management, timber sale preparation, and sales contract oversight.

*Figure 2.11 Timber Management – log landing, overstory removal harvest.*

*Figure 2.12 Timber Management – site retirement.*

*Figure 2.13 Timber Management - prescribed fire before timber harvest.*

*Figure 2.14 Timber Management - prescribed fire before timber harvest.*

**2.10.5 Future Management.**

Per Raystown's Forest Management EA, the objectives of the overall forest management program are to conduct approximately 250 acres of forest management per year as broken down into the following management activities:

- 60 acres of regeneration cuts through even age, shelterwood, and seed tree harvest
- 40 acres of uneven age management
- 50 acres of wildlife specific forest management including grouse cuts or forest openings
- 100 acres of commercial and non-commercial thinning, sanitation or salvage cuts

Raystown's OMP breaks the land base down into 18 management compartments. Forest and wildlife management as detailed in the OMP provide a plan for specific management activities and locations. Each compartment has a description, soils information, recommendations for forest management/wildlife management and mapping. Raystown's future forest management activities will utilize a combination of traditional forest management, creation of early successional habitat for important but declining wildlife species, and retention of continuous forested areas for forest interior dwelling wildlife species.

## 2.11 Cultural Resources

General consensus places the first settlement of the Pennsylvania region during the Paleo-Indian Period (? – 8,000 B.C.), although the date of the first inhabitants is debated. Various studies have dated it to anywhere between 10,500 years B.C. to as early as 14,000 B.C. The prehistory of the Raystown Lake area generally conforms to that of the Mid-Atlantic region, and is divided into three main time periods: Paleo-Indian (? – 8,000 B.C.), Archaic (8,000 B.C. – 1,000 B.C.), and Woodland (1,000 B.C. – A.D. 1600) (USACE 2011).

There is limited information about the Paleo-Indian Period in the Raystown Branch region and Upper Juniata Sub-Basin. Site information has been obtained mostly from documenting the collections of local artifact collectors. These sites are all located within the floodplain of the Juniata River or its branches, or on immediately adjacent territories. They were identified as open habitation or isolated flute point find locations, suggestive of short-term camp occupations (GAI 2002:49).

The Archaic Period is divided into the Early (8,000 B.C. – 6,500 B.C.), Middle (6,500 B.C. – 3,000 B.C.), and Late (3,000 B.C. – 1,800 B.C.) Periods, with a Transitional Period (1,800 B.C. – 800 B.C.) immediately preceding the Woodland Period. Population groups during this time practiced increased sedentary hunting and gathering routines, ultimately establishing base camps with special purpose camps located around them (GAI 2002:65). Base camps were typically located on broad terraces along major streams, with smaller satellite sites situated along tributaries. As population increased through time, so did the utilization of locally available resources such as hickory, chestnut, walnut, hazelnut, and acorn.

Archaic Period sites are well-represented in the Raystown Branch region (USACE 2011).

The Transitional Period represents the change from the Late Archaic to the Early Woodland, and is characterized by an increase in sedentism, intensification of food procurement and processing, and distinctive technological changes, such as rhyolite importation and the change to broad spear point types (USACE 1998a:4). An increased use in steatite bowls is also noted during this period, indicating a desire to collect and store seasonally available foods (USACE 2011).

The Woodland Period is marked by the presence of pottery and can be divided into the Early (1,000 B.C. – 300 B.C.), Middle (300 B.C. – A.D. 1,000), and Late (A.D. 1,000 – A.D. 1600) Periods. The frequency of upland sites increases during this time, as groups became increasingly more sedentary. Settlement continued to rely on more permanent base camps, with specialized camps for hunting or lithic collection and reduction. By the Late Woodland, there is an increased use and development of agricultural resources such as maize, squash, and beans. Woodland sites in the Raystown Branch region are not as well-represented as previous periods (USACE 2011).

### 2.11.1 Historic Context

The Contact Period refers to the early European exploration of North America and interaction with Native Americans. There are no known Contact Period sites within the Raystown Branch of the Juniata River. In the 1680s through the early 1700s, central Pennsylvania was a refuge for various tribes of displaced Native American groups, including the Delaware, Shawnee, Nanticoke, and Tuscarora, which were forced to move during the Euro-American colonization of the East Coast.

The earliest Euro-Americans to reach present-day Huntingdon County during the 1730s were probably trappers and traders moving along the Juniata River. The area was visited regularly throughout the next two decades, culminating in the 1754 purchase of lands by the Proprietary government of Pennsylvania, also known as the 1754 Albany Treaty. The Albany Treaty was cited as a legal right for the Euro-American settlement and land acquisition in the Allegheny frontier (Lytle 1876).

Early English settlement in the Raystown Branch Valley was discouraged due to frequent conflict with Native Americans in the 1750s, especially throughout the duration of the French and Indian War. However, by 1767, it was believed that all good lands in valleys and river bottoms had been occupied. Conflict with Native Americans continued into the 1770s as settlers were fortifying their homes and constructing forts to guard the frontier. Hartsock's Fort, established near Marklesburg, is one such example (Lytle 1876).

Initial attempts at settlement were also slowed by the lack of suitable inland roads. It was not until the end of the eighteenth century that a roadway was developed between Huntingdon and Bedford (present day SR 26) that supported permanent settlement within this region (Africa 1883) By 1832, the Juniata Division of the Main Line Canal opened, but faced heavy competition from the construction of the Pennsylvania Railroad in 1851. These transportation networks proved useful in connecting this area to main centers of commerce such as Philadelphia and Pittsburgh (Shank 1965).

The established canals and railroads also contributed to the industrial growth of the region. By the beginning of the nineteenth century, large quantities of limestone and high grade iron ore were discovered in the Juniata River Valley, leading to the founding of 16 furnaces, 24 forges, and a rolling mill in the area (Africa 1883). By the end of the 1800s, however, the iron industry diminished and agriculture became the primary means of economic growth.

After having suffered from a devastating flood in 1889, the region became the focus of a plan to harness the power of the river and to use the surrounding valley for more semi-permanent or seasonal pursuits. This led to the first dam being built across the Raystown Branch in 1912. After this time, summer cottages were built at Snydertown and small resort camps and church retreats were constructed along the banks of the lake. Another devastating flood in 1936, and a subsequent lack of development throughout the area, convinced the Federal government to develop the modern Raystown Lake (USACE 1966). The present-day Raystown Dam was completed in 1973.

### 2.11.2 Previous Investigations

Raystown Lake has been subjected to various cultural resource investigations throughout its operation. Prior to the inception of the lake, the Raystown Branch was a favorite area for local collectors, who documented the numerous floodplain sites and rock shelters found throughout the area. Since the lake has been operational, all cultural resource investigations have been associated with specific undertakings. Table 2.4 lists known cultural resource surveys and their findings. To date, a majority of the Federal property above the flood pool has never been archaeologically investigated.

**Table 2.4 Previous Cultural Resource Surveys.**

| Date | Name | Acres Surveyed | Findings |
|---|---|---|---|
| 1960's | None | Unknown | Numerous artifact collectors surveyed different sites throughout the valley. |
| 1965 | Raystown Lake Survey | 500 | Pennsylvania State Museum surveyed 30 miles of floodplains and identified 35 prehistoric sites. Significant Sheep Rock Shelter and Workmen Sites excavated prior to inundation. |

| Date | Name | Acres Surveyed | Findings |
|---|---|---|---|
| 1970s | Upper Corners Survey | 3 | One site, 36Hu55, located on the northern side of Raystown Lake, contained a variety of lithic fragments and was deemed potentially eligible for NRHP listing. |
| 1977 | Upper Trough Creek Survey | 770 | Hatch surveyed the Upper Trough Creek and identified several upland sites adjacent to Upper Little Trough Creek. |
| 1982 | T-430 Widening Project | 10 | Survey located site 36Hu87, an 1840's barn site. No other resources reported. |
| 1995 | Minor Recreation Improvements at Weaver Falls, Seven Points and Tatman Run | 2 acres | All three sites were highly disturbed and no evidence of any cultural resources were identified. |
| 1995 | Minor Recreation Improvements at Seven Points and Nancy's Camp | 10 | No sites found and no further work recommended. |
| 1995 | Recreation Partnership Initiative (RPI) | 137 | Following this investigation, it was recommended that the Grubb, Park and Anderson Farms were tenant farms that were not historically significant, but that the Brumbaugh Farm, German Church, School and Cemetery Sites, and the Weight Mill and five other sites should be subjected to Phase IB investigations. |
| 1998 | Modifications to Rhode's Farmhouse | 1 | Alteration to historically significant Rhodes Farmhouse at Lake Raystown Resort. |
| 1998 | Patt's Cabins, Lake Raystown Resort | 10 | Site was the location of the J. Reed Farm. but no evidence was found. There was evidence of a 1930's YMCA Camp, which was considered potentially significant. The proposed activity was relocated to the current Pine Camp Site. |
| 1998 | Pine Camp Cabins, Lake Raystown Resort | 10 | Area was surveyed and no evidence of cultural resources was identified. |
| 1998 | Lake Raystown Resort | 1 | Several small artifact clusters identified, including a Middle Archaic Lecroy point. |
| 1998 | Senoia Campground, Seven Points Recreation Area | 20 | One prehistoric site, 36Hu173, was found, but testing documented that it was not eligible for NRHP listing due to a lack of significance and integrity. |
| 1999 | RPI – Phase Ib/II | 30 | Testing at Upper Corners Farm, School, Church determined that none were eligible for NRHP listing. Testing at prehistoric site 36Hu55 determined the site was eligible for NRHP listing. |
| 2001 | Juniata College Field Station Expansion | 10 | No prehistoric archaeological sites were found. The survey documented the location of a historic farm site, 36Hu183, which was recommended for avoidance. |
| 2001 | RPI- Upper Corners Cemetery | 1 | Upper Corners cemetery excavated and relocated out of RPI Project area. |
| 2001 | Wright Campground | 10 | Phase I survey of the area, no cultural resources identified. |

| Date | Name | Acres Surveyed | Findings |
|---|---|---|---|
| 2002 | Corbin's Island Wetland Creation | 2.5 | Phase I investigations conducted and no sites identified. |
| 2005 | Conference Center | 28 | Phase I archeological survey identified prehistoric site 36Hu180. This area was avoided by construction, and the rest of the area was found to be disturbed. |
| 2006 | Allegrippis Trail System | 10 linear acres | Because of the minor impact of the project, and the use of existing logging roads, the project was determined to have no impact on cultural resources. |

### 2.11.3 Existing Resources

Within the Raystown Lake Project area are approximately 40 known prehistoric archaeological sites, but most of them have been destroyed by inundation. Two sites remain above the flood pool and are potentially eligible for the National Register of Historic Places (NRHP), but have not been formally evaluated. Approximately 200 potential historic period site locations can be found in the Project area. One building, the Brumbaugh House, is currently listed on the NRHP, but has lost its historic integrity due to fire and deterioration. Two additional buildings at Raystown Lake, the Grove House and the Rhodes House (also known as the Trading Post), are potentially eligible for listing in the NRHP.

### 2.11.4 Cultural Resources Management at Raystown Lake

A Cultural Resources Management Plan (CRMP) for Raystown Lake was developed in 2012. The CRMP was created to provide a comprehensive guide to the management and preservation of cultural resources on Federal property. A long-term objective of this MP is to update the current CRMP with recently documented cultural resources, or those that have become 50 years or older since its last iteration. Completion of a full inventory of cultural resources at Raystown Lake, another long-term objective, is necessary for compliance with Section 110 of the National Historic Preservation Act (NHPA).

Any Federal undertakings with the potential to affect historic properties will be subject to review under Section 106 of NHPA.

## 2.12 Interpretation/Visual Qualities

Interpretive programming is a systematic approach to providing information and education services to Project visitors. The primary objective is to tell the USACE story, inform visitors of the park rules, and to provide educational opportunities for visitors to develop intellectual and emotional connections to the resources found at Raystown Lake. A variety of interpretive techniques are used including personal visitor contacts, public speaking engagements, hosting primary, secondary, and college groups, and presenting approximately 30 amphitheater programs per year. In addition, the staff effectively uses print and video media and various forms of social media to keep the visiting public informed.

Interpretive programming also includes the management of public affairs, community relations, marketing, publications, special events, and cooperation with civic groups and resources partners. A variety of physical components are used to enhance the interpretive programming effectiveness. Wayside exhibits are planned or in place on all six trails and the two USACE operated overlooks. Water safety information is found at life jacket loaner stations. Most notably, the Raystown Lake Visitor Center provides an opportunity to present various themes using the multiple delivery techniques mentioned above.

The Raystown Lake Visitor Center is currently managed by USACE with a cooperative partnership agreement with the Huntingdon County Visitors Bureau (HCVB). The facility includes exhibits, a multipurpose room for meetings and audio visual presentations, a large viewing deck, and a rain/pollinator garden. The HCVB is responsible for greeting the public and operating a gift store. The Visitor Center is strategically placed between the Seven Points Amphitheater and the Hillside Nature Trail. This area is day-use only and open to the public year round. Interpretive programming and visitor information is provided in the Visitor Center. Interpretive displays and programs currently highlight the following subjects:

- USACE Mission
- History of Raystown Lake and the Huntingdon County Region
- Recreation Opportunities
- Environmental Stewardship Program
- Water Safety

USACE plans to create a Long Range Interpretive Plan that will identify the most effective techniques for executing interpretive programming in the future. Future improvements are planned to upgrade the Visitor Center exhibits to provide an interactive learning environment that will effectively relate the visitor to the USACE environmental stewardship mission. Interpretive services will continue to increase utilization of social media tools as an effective way to communicate with the public. This will include the use of websites, cell phone technology, and the use of social media platforms.

## 2.13 Demographics

The region of demographic significance being considered is the general market area in which the Raystown Lake Project is situated. This is referred to as the Primary Area Counties (PAC). The Primary Area consists of Bedford and Huntingdon counties in Pennsylvania.

Population growth for the Primary Counties (4%) was slightly behind the State of Pennsylvania and was considerably behind the Nation as a whole (19%) from 1990 thru 2010. It is estimated that the Primary Counties will experience meagre growth between 2017 and 2030, while the State of Pennsylvania will grow at 6% for that time period.

**Table 2.5 Historic and Projected Populations for Primary Area Counties.** Source U.S. Census Bureau.

| County | 1990 | 2000 | 2010 | 2017 | 2030 | % Change *from 1990-2010* |
|---|---|---|---|---|---|---|
| Bedford County, PA | 47,919 | 49,976 | 49,762 | 48,480 | 50,025 | 4% |
| Huntingdon County, PA | 44,164 | 45,586 | 45,913 | 45,491 | 52,306 | 4% |
| State of PA | 11,881,643 | 12,281,054 | 12,702,379 | 12,805,537 | 13,759,594 | 6% |
| The Nation | 249,600,000 | 282,200,000 | 309,300,000 | 333,896,000 | 358,471,000 | 19% |

Table 2.6 displays the historic population of the Primary Cities within the Primary Counties. As shown, the growth rate in these cities is somewhat stagnant.

**Table 2.6 Primary City Population Data.** Source U.S. Census Bureau.

| City | 1990 | 2000 | 2010 | 2016 |
|---|---|---|---|---|
| Bedford, PA | 3,137 | 3,141 | 2,841 | 2,721 |
| Saxton, PA | 838 | 803 | 736 | 701 |
| Everett, PA | 1,777 | 1,905 | 1,834 | 1,745 |
| Huntingdon, PA | 6,843 | 6,918 | 6,953 | 6,990 |
| Mount Union, PA | 2,878 | 2,504 | 2,447 | 2,393 |

The three charts below display the proportion of urban dwellers versus rural dwellers. As shown, the Primary Area County's population is predominately rural based on where their residence is located. Huntingdon County, Pennsylvania has more urban dwellers than Bedford County, Pennsylvania; however both differ greatly from the State of Pennsylvania.

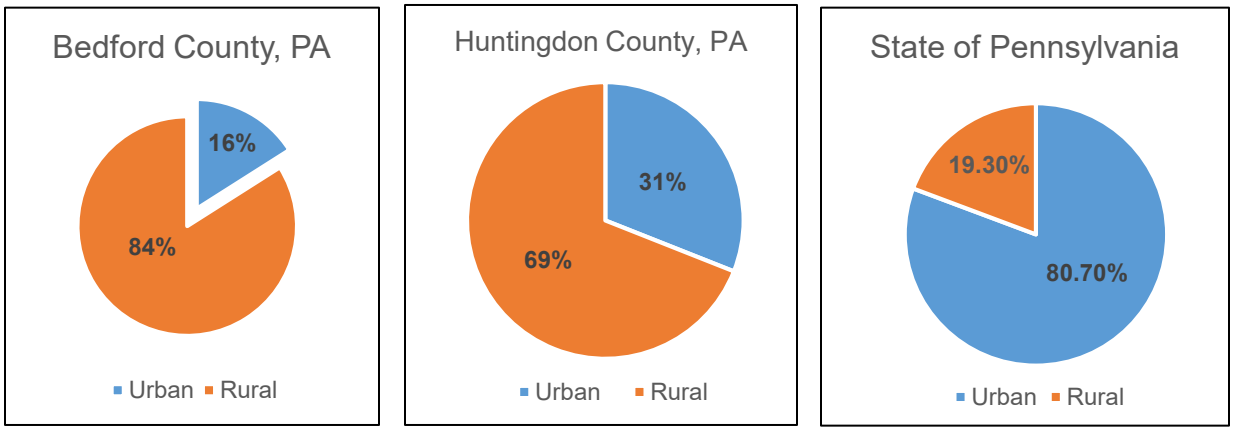


*Figure 2.15 Proportion of Urban and Rural Populations - Bedford County, PA. Source City-Data 2016. Figure 2.16 Proportion of Urban and Rural Populations – Huntingdon County, PA. Source City-Data 2016. Figure 2.17 Proportion of Urban and Rural Populations – State of Pennsylvania. Source City-Data 2016.*

The PAC population is primarily white. Of the just over 93,900 people living in the PAC approximately 89,500 or 95.2% are white. Table 2.7, below, displays the population makeup of the PAC.

**Table 2.7 Primary Area County Population Diversity**. Source: U.S. Census Bureau, American Fact Finder.

| County | Race | | | | |
|---|---|---|---|---|---|
| | White | Hispanic / Latino | Black | American Indian / Alaska Native | Two or More Races |
| Bedford County, PA | 98.0% | 0.5% | 0.5% | 0.2% | 0.8% |
| Huntingdon County, PA | 92.5% | 1.3% | 5.2% | 0.1% | 0.9% |
| State of Pennsylvania | 81.9% | 5.2% | 10.8% | 0.2% | 1.9% |

The PAC population by age is presented in Figure 2.18 by percentage. Both Bedford and Huntingdon County's age distribution mirrors that of the State of Pennsylvania.

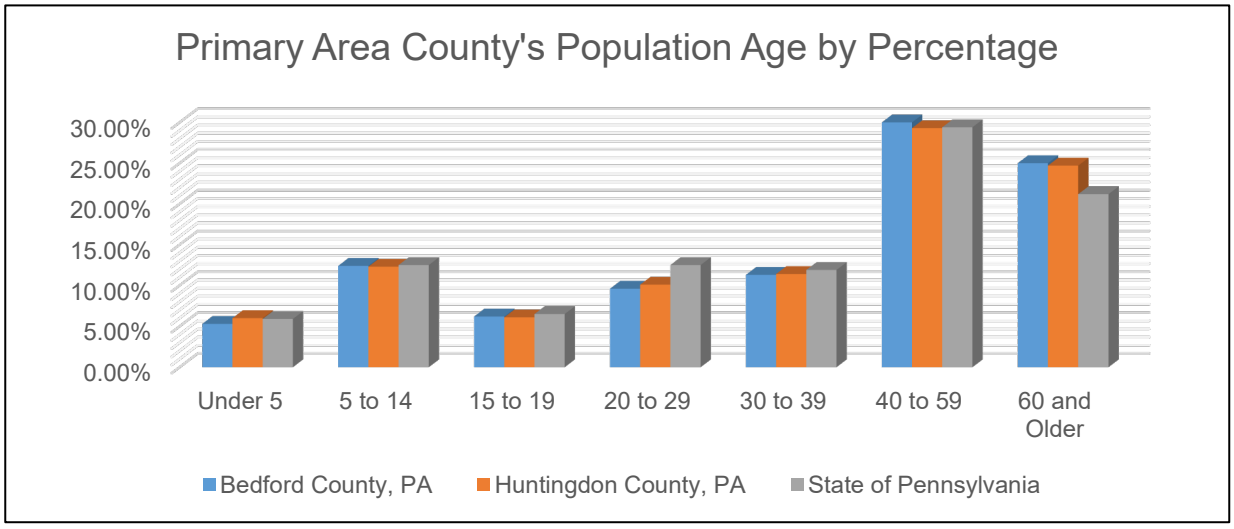


*Figure 2.18 Primary Area County's Population Age by Percentage. Source: City-Data.*

Nearly 90% of the PAC's residents have achieved a high school diploma or higher, which nearly mirrors that of the State of Pennsylvania's high school graduation rate of 90%. Bedford and Huntingdon County's residents completing a bachelor's degree or higher is 14.4% and 15.5% respectively, which trails the State of Pennsylvania's rate of 29%. This data is represented in Figures 2.19, 2.20, and 2.21.

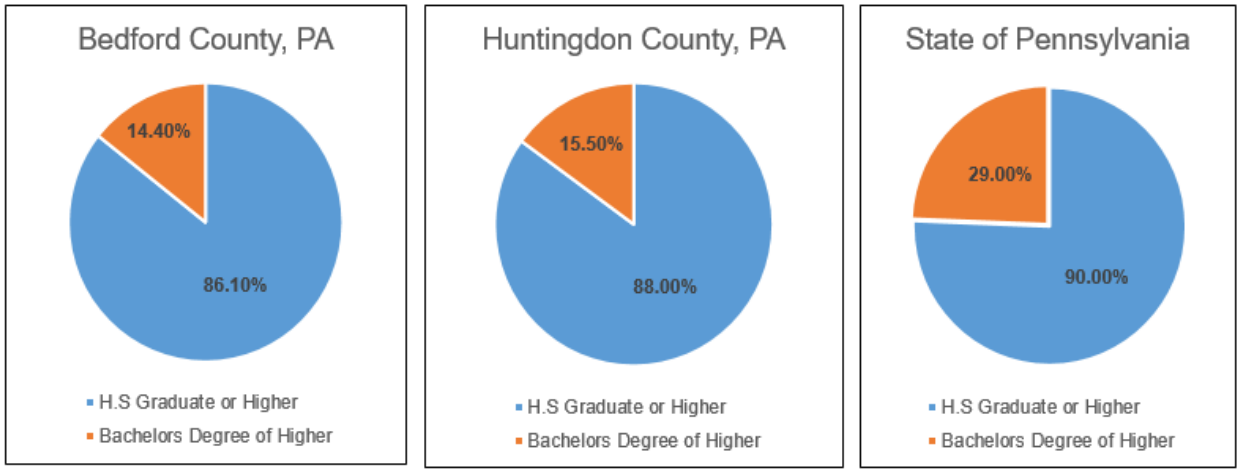


*Figure 2.19 PAC's Education Level (Percentage of People 25 Years or Older) - Bedford County. Figure 2.20 PAC's Education Level (Percentage of People 25 Years or Older) - Huntingdon County. Figure 2.21 PAC's Education Level (Percentage of People 25 Years or Older – State of Pennsylvania.*

## 2.14 Economics

Tables 2.8 and 2.9 display percentage of employment by major industry for each county in the PAC as compared to its respective state.

**Table 2.8 Bedford County, Pennsylvania 2016 Employment Percentages by Major Industry.** Source: U.S. Census Bureau, American Fact Finder. This table displays the top industries in the county, not all industries. Note: Percentages for counties may not total to 100%.

| Bedford County, Pennsylvania 2016 Employment Percentages by Major Industry | Bedford County, PA | State of PA |
|---|---|---|
| Civilian employed 16 years and older | 22,253 | 6,043,693 |
| Agriculture, Forestry, Fishing, Hunting, Mining | 4.8% | 1.5% |
| Construction | 9.0% | 5.7% |
| Manufacturing | 14.4% | 12.0% |
| Wholesale Trade | 2.3% | 2.8% |
| Retail Trade | 13.5% | 11.7% |
| Transportation, Warehousing, Utilities | 7.4% | 5.2% |
| Information | 1.1% | 1.7% |
| Finance, Insurance, Real Estate, Rental, Leasing | 3.0% | 6.4% |
| Professional. Scientific, Management, Admin, Waste Management | 6.7% | 10.0% |
| Educational Services, Health Care, Social Assistance | 18.7% | 25.9% |
| Arts, Entertainment, Recreation, Accommodation, Food Services | 9.7% | 8.5% |
| Other Services (except Public Administration) | 5.1% | 4.6% |
| Public Administration (Including government) | 4.4% | 4.1% |

**Table 2.9 Huntingdon County, Pennsylvania 2016 Employment Percentages by Major Industry.** Source: U.S. Census Bureau, American Fact Finder. This table displays the top industries in the county, not all industries. Note: Percentages for counties may not total to 100%.

| Huntingdon County, Pennsylvania 2016 Employment Percentages by Major Industry | Huntingdon County, PA | State of PA |
|---|---|---|
| Civilian employed 16 years and older | 18,516 | 6,043,693 |
| Agriculture, Forestry, Fishing, Hunting, Mining | 3.1% | 1.5% |
| Construction | 9.6% | 5.7% |
| Manufacturing | 13.7% | 12.0% |
| Wholesale Trade | 1.8% | 2.8% |
| Retail Trade | 10.5% | 11.7% |
| Transportation, Warehousing, Utilities | 5.4% | 5.2% |
| Information | 1.2% | 1.7% |
| Finance, Insurance, Real Estate, Rental, Leasing | 3.4% | 6.4% |
| Professional. Scientific, Management, Admin, Waste Management | 5.4% | 10.0% |
| Educational Services, Health Care, Social Assistance | 27.2% | 25.9% |
| Arts, Entertainment, Recreation, Accommodation, Food Services | 7.1% | 8.5% |
| Other Services (except Public Administration) | 3.8% | 4.6% |
| Public Administration (Including government) | 7.8% | 4.1% |

The table below displays the Primary Area County historic unemployment rates from 2005 – 2017. As shown in Table 2.10, both Bedford and Huntingdon County's historically have a higher rate of unemployment than the State of Pennsylvania. In 2010, all counties and states were still experiencing higher than normal unemployment rates due to the Nation's economic downturn, but as can be seen, all counties recovered.

**Table 2.10 Primary Area County Historic Unemployment Rates.** Source: Bureau of Labor Statistics.

| County | 2005 | 2010 | 2015 | 2017 |
|---|---|---|---|---|
| Bedford County, PA | 7.1% | 10.1% | 6.1% | 5.2% |
| Huntingdon County, PA | 6.0% | 10.7% | 7.0% | 6.0% |
| State of Pennsylvania | 5.2% | 8.7% | 5.4% | 4.8% |

Table 2.11, below presents the Primary Area County median annual income for 1999 and 2016. Between 1999 and 2016 Bedford County's median average income increased approximately 32% while Huntingdon County's median average income increased 28%. The PAC counties' median average income lagged behind the State of Pennsylvania's by an estimated 16%. The percent of population living below the poverty line is also displayed in Table 2.11. Both PAC counties have a slightly higher percentage of their population living in poverty than that of the State of Pennsylvania.

**Table 2.11 Primary Area County Median Annual Income.** Source: City-Data.

| County | 1999 | 2016 | % of Population Living in Poverty |
|---|---|---|---|
| Bedford County, PA | $32,731 | $48,459 | 14.2% |
| Huntingdon County, PA | $33,313 | $46,908 | 13.7% |
| State of Pennsylvania | NA | $56,907 | 12.9% |

USACE provides water-based recreation opportunities throughout the country which in turn provide economic benefits to the local and regional economies. To estimate the economic impact from recreation related spending at these projects, USACE, in collaboration with researchers at Michigan State University (MSU), developed the Recreation Economics Assessment System (REAS). The REAS model is an economic input-output model that was developed for all USACE projects based on recreation visits in 2016 and a set of economic ratios and multipliers for a region. During 2016 Raystown Lake accumulated 1.2 to 1.5 million visits. Using available survey data, it is estimated that visitor spending at Raystown Lake to be $32.3 million during 2016. Raystown Lake generated 391 jobs within 30-miles of the lake. It is also estimated that the reservoir was responsible for $11.0 million in labor income within 30-miles of the lake (USACE 2016).

## 2.15 Recreation Facilities, Activities and Needs

Situated in rural Huntingdon County, Pennsyvlania Raystown Lake has long been known as a summer boating destination lake. Since its construction, visitors have come during the typical summer season from Memorial Day weekend to Labor Day to participate in water sports like boating, fishing, swimming, and water skiing. But recent additions of mountain biking trails and hiking trails have expanded outdoor opportunities into the spring and fall. Raystown Lake serves as the primary source and attraction of outdoor recreation in the region, so much that the HCVB, the county's primary promoter of tourism activities, has its offices in the Raystown Lake Visitors Center. Visitors come to participate in the activities mentioned above, along with hunting, picnicking, camping, sightseeing, and simply enjoying nature and wildlife.

Recreation areas at Raystown Lake have been developed to provide both overnight and day-use opportunities. Ten recreation areas are operated by USACE, including three campgrounds and seven boat launch areas which include the infrastructure necessary to provide safe drinking water, wastewater treatment, garbage removal, and other services necessary for providing a quality recreation experience while also protecting the environment. Additional recreational facilities are provided by concessionaires through lease agreements. A description of current land use classifications and proposed recreational development is presented in Chapter 5.

### 2.15.1 Zones of Influence

Due to its relatively close proximity to urban areas like Pittsburgh, Baltimore, Washington, DC, and Philadelphia, Raystown Lake appeals to visitors from these large cities as an escape from a hectic lifestyle. Raystown Lake attracts visitors from the major metropolitan areas both for day use activities, as well as overnight visits. Visitation trends show that in Raystown Lake's profile, many of its users come from nearby. Close cities like Altoona and State College offer a steady supply of visitors. More distant populated Pennsylvania areas like Chambersburg, Harrisburg, Lancaster, and York, and Hagerstown, MD also provide a steady stream of visitation. Figure 2.22 depicts the zone of influence to the Project.

For years boating has attracted visitors from surrounding states. Visitors from Maryland, West Virginia, and Delaware visited the lake often; but the addition of the Allegrippis Mountain Biking Trails has increased the numbers of visitors travelling from other states. It is common to hear of a mountain biker travelling from Ohio, West Virginia, Virginia, New York, parts of New England, and even Canada to ride the mountain bike trails.

### 2.15.2 Visitation Profile

Most data shows that Raystown receives between 1.2 and 1.5 million visits per year. Day use areas and campsites are typically full on summer weekends and holidays, and have shown a consistent use pattern for several years. The consistency is due to the fact that parking lots and campsites fill every summer, but the numbers of parking spaces and campsites have not increased, so there is little capacity for increased visitation. Figure 2.23 depicts the average percentage of visitors to each recreation area.

The type of visitor to Raystown Lake is generally associated by the time of year in which the visit occurs. Summer visitors tend to be family oriented, stay in campgrounds or cabins around the lake, and spend the day boating or biking. Observations show that families typically use their lodging site as a "base camp", travel to other nearby attractions, then return to Raystown Lake to take advantage of the recreation opportunities. All boat launches typically reach or exceed the designed parking capacity on summer weekends. Weekday campground occupancy averages 53%, while weekend occupancy averages 80%. Additionally, beach and day use facilities reach the designed capacity most summer weekends and holidays. Nearly 60% of the entire year's visitation occurs in the 3 summer months of June, July, and August.

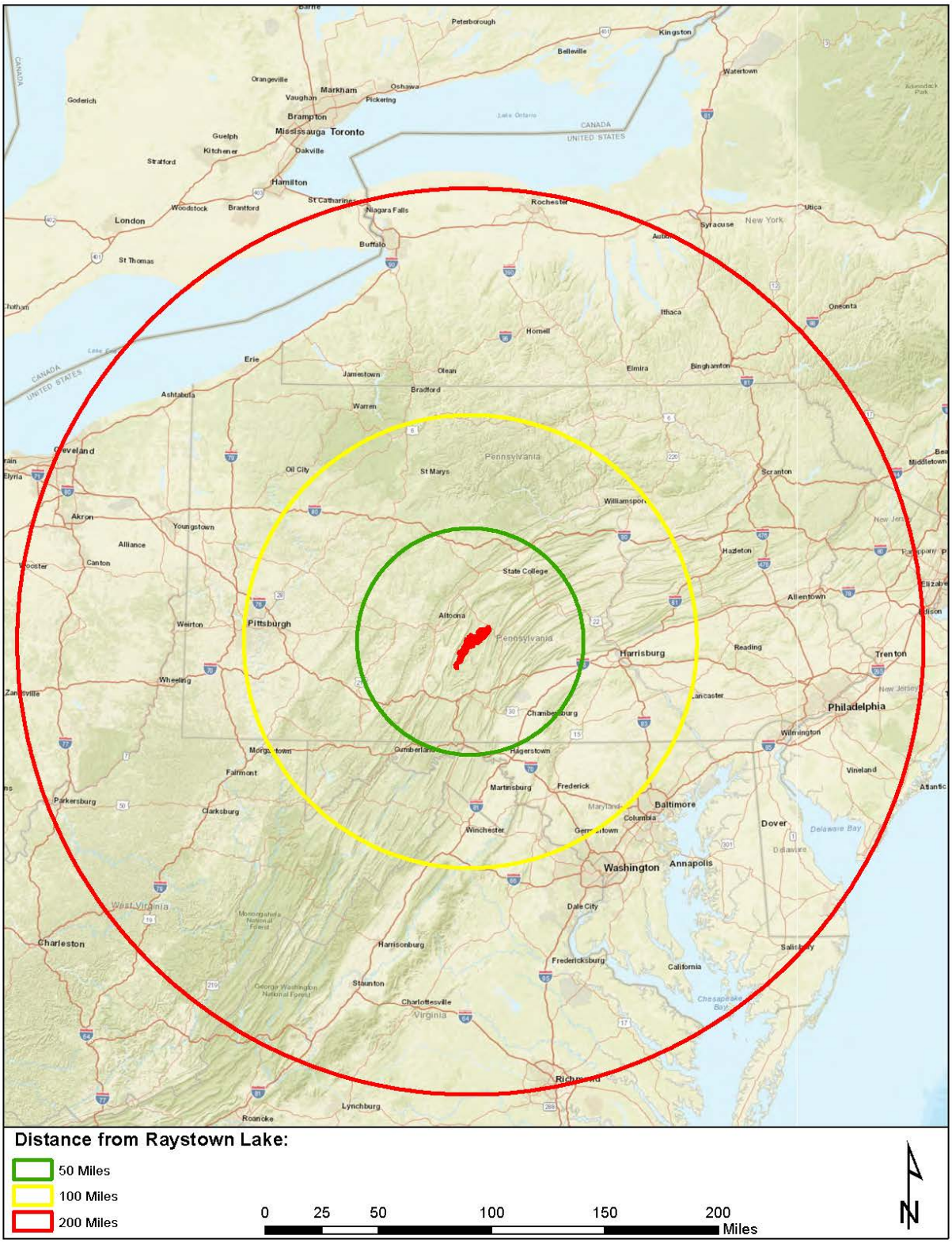


*Figure 2.22 Zone of Influence.*

Spring and fall bring significant changes to the type of visitor. The recreational boater is replaced by the diehard fisherman; the large family camping group is replaced by the retired snow bird couple, and the summer mountain biking family is replaced by the individual biker. Finally, the passerby that enjoys the scenic views is replaced by the hunter who takes advantage of the large land tracts surrounding Raystown Lake that are open to diverse hunting opportunities. These seasonal and recreational changes result in steady use of the recreational facilities, but does not utilize full capacity of the facilities. The four months of April, May, September, and October account for just under 40% of Raystown's visitation.

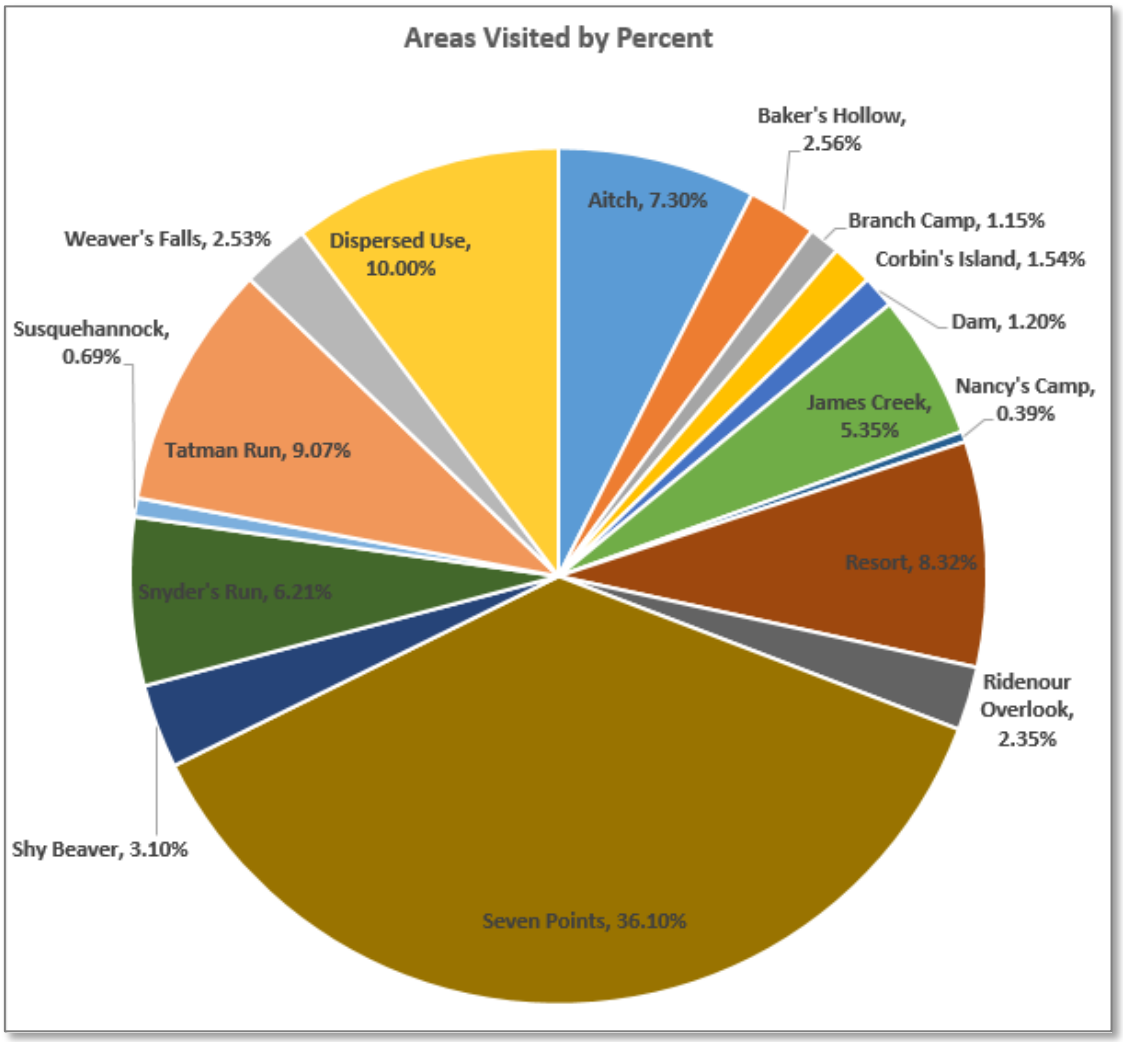


*Figure 2.23 Percent of Project Visitation. Source: USACE Visitation Estimating Reporting System.*

Typically the winter months of December, January and February see very little recreation. A small number of ice fishermen may venture out to see if the fish are biting, a cross country skier may trek through the woods on an existing trail if there is snow, or maybe a mountain biker that just can't wait for summer wanders

through the woods if there is no snow, but very little else happens with winter recreation. There are no motorized vehicle trails, so snowmobiling and ATV use doesn't occur and hunting seasons are winding down. Camping areas and day use areas are closed, and limited daylight hours greatly reduce the visitation of the winter months. Less than 10% of the Project's visitation occurs from November through March.

### 2.15.3 Recreation Analysis

The 2014 Pennsylvania Statewide Comprehensive Outdoor Recreation Plan (SCORP) identified five priority areas to help foster outdoor recreation in PA:

- Health and Wellness
- Local Parks and Recreation
- Tourism and Economic Development
- Resource Management and Stewardship
- Funding and Financial Stability

The Raystown Staff has and will continue to consider the priorities recommended within the SCORP to guide efforts in recreational development. The Greenside Pathway gives visitors a walking path inside Seven Points to safely exercise. The Allegrippis Trails and mountain bike Skills Park provide opportunities to improve health while riding through resource management areas. The 7 public boat ramps provide water based recreation access throughout the 28 mile length of Raystown Lake. The Huntingdon County Visitors Bureau works to promote tourism in "Raystown Country", bringing new visitors into the community to share in the beauty of Raystown Lake. Finally, the Raystown Lake Project is well known throughout USACE for being a leader in partnering and leveraging resources to get the best product and opportunities for visitors, both in environmental resource and recreation programs.

### 2.15.4 Recreational Carrying Capacity

Carrying capacity is a measure of the level of a particular use or activity that can occur without causing public safety issues, unacceptable social conditions, or resource degradation. The only carrying capacity evaluation completed analyzed the boating capacity of the lake. Currently, use of recreation facilities is controlled by the availability of parking. The public beaches serve as an example; even if there is room in the grassy areas near the water for additional people to lay out their towel, the limit is placed on the area by the number of parking spaces available for users to the area. Another example would involve the carrying capacity of the Allegrippis Trails. The limiting factor for bikes on the trails is that parking areas run out of room and there is no space left to gain access. Carrying capacity of a particular use can only be determined by careful examination of the resource base and by surveying users to determine their preferences and concerns. These processes should be completed as part of future development considerations and NEPA evaluations.

In the summer of 2018 CDM Federal Programs Corporation performed a boating capacity study at Raystown Lake to determine both the boating density and the public sentiment on how that density impacted their visit. This study is discussed further in Chapter 6, Special Topics with the full report attached as Appendix G. The study determined that there was a density of 5.7 acres/ boat. This represents a greater density than the Water and Land Recreation Opportunity Spectrum (WALROS) calculation maximum density of 10 acres/ boat. WALROS is covered in more detail in Chapter 6. Socially, 87% of surveyed boaters prefer that the density be less than the WALROS density of 10 acres/ boat. These results indicate that Raystown Lake has reached and exceeded its boating capacity. Based on this conclusion and the recommendations from the boating capacity study, this MP takes measures to limit the opportunity of additional motorized boating access at the lake. However, there is consideration for additional paddlecraft opportunities at a no net gain of boating access. For more information, see Chapter 5 Resource Plan and Chapter 6 Special Topics.

Campground occupancy at Raystown Lake can be measured objectively. All USACE managed campsites are included in the reservation inventory of the national reservation system. Sites typically fill on summer weekends and waterfront sites stay filled for the majority of summer. Raystown has instituted a 100% reservable sites policy for camping stays, meaning that all sites are reservable. From a carrying capacity perspective, the reservation system provides constraints on overcrowding because once the camping areas are full, there are no sites left to make a reservation, and therefore nowhere left to camp.

In 1997, Senoia Campground was built to ease the pressure on camping in the existing campsites. At that time, all sites were occupied on a first come, first served basis and the competition to get a prime site was intense. The addition of 90 campsites, many of them waterfront, did little to change the occupancy rates both on summer weekends and weekdays. Visitors would trek to Raystown in hopes of getting one of the last remaining sites, many times being turned away and sent home because all of the sites were taken. As mentioned earlier, the institution of the national reservation system helped manage the use of the campsites and improve visitor satisfaction. By requiring advanced reservations the camper is provided with verification that they have a campsite prior to arriving on site.

## 2.16 Real Estate Acquisition

The Raystown Lake Project was authorized by the Flood Control Act of 1962 (PL 87-874 87th Congress). The 28,132 acres of fee title land and the 687acres of flowage easements were acquired during from 1968 to 1978 through purchase and condemnation. The criteria used for the acquisition provided for fee taking of an entire area to the height which maintains reasonable freeboard over the spillway crest at elevation 812 NGVD. For this purpose, the fee taking guideline was established at elevation 817 NGVD or 300 feet horizontal distance from elevation 812 NGVD, whichever was greater. The taking line generally followed property lines or other

boundaries rather than the actual contour line. The 28,132 acres of fee title land includes additional lands that were acquired for flood control purposes, wildlife mitigation, and an overlook area after the initial purchases were made.

More detail is provided in Appendix F, Land Inventory and in Chapter 4. Land Allocation, Land Classification, Water Surface, and Project Easement Lands.

## 2.17 Pertinent Public Laws

Development and management of federal reservoirs for various purposes is provided under a diverse number of statutes. The following public laws are applicable to Raystown Lake:

- Public Law 59-209, Antiquities Act of 1906. – The first Federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities and Uniform Rules and Regulations.

- Public Law 74-292, Historic Sites Act of 1935. – Declares it to be a national policy to preserve for the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources.

- Public Law 78-534, Flood Control Act of 1944. – Section 4 of the act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, operate and maintain public park and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to Federal, State, or local governmental agencies.

- Public Law 85-624, Fish and Wildlife Coordination Act 1958. – This act as amended in 1965 establishes the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects of these resources shall be examined along with other purposes which might be served by water resources development.

- Public Law 86-717, Forest Conservation 1960 – This act provides for the protection of forest and other vegetative cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.

- Public Law 87-874, Rivers and Harbors Act of 1962. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

- Public Law 88-578, Land and Water Conservation Fund Act of 1965. – This act established a fund from which Congress can make appropriations for outdoor recreation.

- Public Law 89-80, The Water Resources Planning Act, as amended. – Title II of this act established the River Basin Commissions and stipulated their duties and authorities. The President of the United States signed the Susquehanna River Basin Compact into law on December 24, 1970, subsequent to its approval by Congress and the prior approval of the involved states. The Compact provided for the creation of a single administrative agency to coordinate water resources efforts and programs of federal, state, local and private interests in the basin.

- Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 1976. – This act authorized a research and development program with respect to solid waste disposal.

- Public Law 89-665, Historic Preservation Act of 1966. – This act provides for: (1) an expanded National Register of significant sites and objects: (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.

- Public Law 90-480, Architectural Barriers Act of 1969. – This act ensures that certain buildings financed or leased by Federal agencies are constructed (or renovated) so that they will be accessible to the physically disabled.

- Public Law 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages. – Section 210 restricted collection of entrance fees at Corps lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

- Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). – NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "*continuing policy of the Federal Government….to use all practicable means and measures….to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans*." Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations, and public law of the United States shall be interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts

associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

- Public Law 91-611, River and Harbor and Flood Control Act of 1970. – Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.

- Public Law 92-347, Golden Eagle Passbook and Special Recreation User Fees. – This act revises Public Law 88-578, the Public Land and Water Conservation Act of 1965, to require Federal agencies to collect special recreation user fees from the use of specialized sites developed at Federal expense and to prohibit the Corps of Engineers from collecting entrance fees to projects.

- Public Law 92-463, Federal Advisory Committee Act. – The Federal Advisory Committee Act became law in 1972 and is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.

- Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972. – The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965, and 1970 (PL 91-224), established the basic tenet of uniform State standards for water quality.

- Public Law 92-516, Federal Environmental Pesticide Control Act of 1972. – This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

- Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities (1973). – This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.

- Public Law 93-112, Rehabilitation Act of 1973, as amended. – The Corps responsibility to provide access to programs and activities for persons with disabilities is identified in the Rehabilitation Act of 1973 and its subsequent amendments, entitled the "*Rehabilitation, Comprehensive Services and Development Disabilities Amendment of 1978*."

- Public Law 93-303, Recreation Use Fees (1974). – This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which Federal agencies may charge fees for the use of campgrounds developed and operated at Federal areas under their control.

- Public Law 93-523, Safe Drinking Water Act (1974). – The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish Federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint Federal-State system for assuring compliance with these standards and for protecting underground sources of drinking water.

- Public Law 94-422, Amendment of the Land and Water Conservation Fund Act of 1965 (1976). – Expands the role of the Advisory Council. Title 2 – Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.

- Public Law 99-662, The Water Resources Development Act (1986). – Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

- Public Law 101-336, Americans With Disabilities Act of 1990 (42 U.S. C 12, 101-12, 213). –The purpose of the Act was to extend the rights, privileges, and protection that had been made available to the disabled on federal projects for many years prior to the ADA, to the private sector.

- Public Law 102-580, Water Resources Development Act of 1992, Section 318. – Authorizes the Secretary to revise the MP for Raystown Lake Project, Pennsylvania, and requires Congressional approval of any proposed changes that significantly change the uses of the lake, the surrounding land resources, or any facilities located thereon.

- Public Law 103-66, Section 500. – Omnibus Budget Reconciliation Act of 1993. This act authorizes USACE to expand its recreation user fee program.

# CHAPTER 3 – RESOURCE OBJECTIVES

## 3.1 Raystown Lake Master Plan Background Information

The following are Raystown's congressionally authorized project purposes as designated in the Flood Control Act of 1962:

- Flood Risk Management
- Hydroelectric Power
- Recreation
- Fish and Wildlife Conservation and Mitigation

ER 1130-2-550 Chapter 3-2 g. states, "*master plans will focus on four primary components: (1) regional and ecosystem needs, (2) project resource capabilities and suitability, (3) expressed public interests that are compatible with authorized purposes, and (4) environmental sustainability elements. The MP will ensure that natural and cultural resource mandates and considerations are incorporated. The MP also will ensure that economy, quality, need, and appropriate scale be given equal attention in the management of resources and facilities*". Chapter 3 of EP 1130-2-550 shall be referenced for specific guidance on the format and content of a MP.

EP 1130-2-550 Chapter 3-6, requires "*Clearly written statements that set forth measurable and attainable current and future management and development activities that support the stated goals of the MP, Environmental Operating Principles (EOPs), and applicable national performance measures. They must be consistent with authorized project purposes, Federal laws and directives, regional needs, resource capabilities, and take public input into account as well as State Comprehensive Recreation Plans (SCORP). These objectives must maximize project benefits, meet public needs, and foster environmental sustainability*."

## 3.2 Environmental Operating Principles (EOPs)

USACE has reaffirmed its commitment to the environment by formalizing a set of "Environmental Operating Principles" (EOPs) applicable to all its decision-making and programs. These principles foster unity of purpose on environmental issues, reflect a new tone and direction for dialogue on environmental matters, and ensure that employees consider conservation, environmental preservation, and restoration in all USACE activities.

By implementing these principles, USACE will continue its efforts to develop the scientific, economic, and sociological measures to judge the effects of its project on the environment and to seek better ways of achieving environmental sustainable solutions. The principles are being integrated into all project management processes throughout USACE.

The principles are consistent with NEPA, the Army Strategy for the Environment, other environmental statutes, and the Water Resources Development Acts that govern USACE activities. They require USACE to*:*

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all USACE activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the USACE, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic and social knowledge to understand the environmental context and effects of USACE actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in USACE activities.

### 3.3 Primary Goals

The terms “goal” and “objective” are often defined as synonymous, but in the context of this MP, goals express the overall desired end state of the Plan, whereas resource objectives are the specific, task-oriented actions necessary to achieve the overall MP goals.

The primary goals of the MP are to prescribe an overall land use management plan, resource objectives and associated design and management concepts. The following excerpt from EP 1130-2-550 Chapter 3-3, expresses the goals for the Raystown Lake MP:

- Goal A: Provide the best management practices to respond to regional needs, resource capabilities and suitability, and expressed public interests consistent with authorized project purposes.
- Goal B: Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.
- Goal C: Provide public outdoor recreation opportunities that support project purposes and public demands created by the project itself while sustaining project natural resources.
- Goal D: Recognize the particular qualities, characteristics, and potentials of the project.
- Goal E: Provide consistency and compatibility with national objectives and other state and regional goals and programs.

## 3.4 Resource Objectives

Resource objectives are defined as clearly written statements that respond to identified issues and that specify measureable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Baltimore District's Raystown Lake Project Office. The objectives stated in this document support the goals of the MP, EOPs, and applicable national performance measures. They are consistent with authorized Project purposes, federal laws and directives, regional needs, resource capabilities, and take public input into consideration. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this MP. The Pennsylvania SCORP was considered as well. The objectives in this MP, to the best extent possible, aim to maximize Project benefits, meet public needs, and foster environmental sustainability for Raystown Lake.

Raystown MP Objectives:

- Conduct the revision of the Raystown Lake MP in coordination with all appropriate Federal agencies, elected officials, and members of the public.

General Management Objectives:

- Identify, evaluate, and provide to the extent possible increased opportunities for education and outreach on the missions of the Raystown Lake Project.
- Balance economic and environmental interests with future recreation development and non-recreation outgrant requests in Bedford and Huntingdon Counties.
- Foster community and public involvement through partnerships to assist in the development and implementation of recreation and environmental stewardship planning.
- Preserve the unique scenic beauty and aesthetics of the Project by controlling development and maintaining the undisturbed natural buffer between the shoreline and all future development.
- Evaluate Project resources and capabilities in the establishment of land classifications utilizing the concept of development nodes and utility corridors for future development and other actions to limit environmental disturbance.

Recreation Objectives:

- Evaluate the demand for improved recreation facilities (*i.e. campsites, picnic facilities, overlooks, all types of trails, boat ramps, courtesy docks, interpretive signs/exhibits, and parking lots*), including universal access, and additional public access on USACE-managed public lands and water for recreational activities (*i.e. camping, walking, hiking, biking, boating, hunting, fishing, wildlife viewing, etc.)*. Identify potential development nodes to address these demands.

- Ensure that alternatives for additional recreation access and development at the Project are fully assessed, evaluated, and incorporated.
- Formulate a long term plan for the renovation of aging facilities and infrastructure.
- Evaluate current public use levels and impacts from overuse and crowding. Identify actions and facility modifications to prevent overuse, conflict, and public safety concerns.
- Ensure consistency in achieving recreation goals with the USACE Recreation Strategic Plan and the Pennsylvania SCORP.

Natural Resource Management Objectives:

- Actively manage and conserve fish, wildlife, and special status species by implementing ecosystem management principles, best management practices, and improvement projects to ensure sustainability and enhance biodiversity.
- Optimize resources and partnerships for protection, restoration, and enhancement of fish and wildlife habitats including the prevention of the establishment of and management of invasive species.
- Promote forest health and diversity through sustainable forest management practices.
- Identify, evaluate, and protect environmentally sensitive areas including unique or sensitive habitat areas and the species that inhabit them.
- Evaluate the impacts of future recreation and environmental stewardship activities and development on cultural resources.
- Prevent the inadvertent loss of the Project's cultural resources from natural or human causes through a program of evaluation and protective or mitigating measures.

Environmental Compliance Objectives:

- Manage activities on Project lands and water to avoid negative effects to public water supply, ensuring public health and safety.
- Consider both point and non-point sources of water quality problems during decision making including the evaluation of erosion and sedimentation control.

# CHAPTER 4 – LAND AND WATER USE CLASSIFICATIONS

## 4.1 Land Allocation

All project lands at USACE water resource development projects are allocated by USACE into one of four categories in accordance with the congressionally authorized purpose for which the projects lands were acquired. The four land allocation categories applicable to USACE projects are:

- **Operations.** Lands acquired for the congressionally authorized purpose of operating the project. Raystown Lake has 25,114 acres authorized for this purpose – which includes all lands, other than those authorized for Mitigation, as discussed below.
- **Recreation.** Lands acquired for the congressionally authorized purpose of recreation. These are referred to as separable recreation lands. Raystown Lake does not have any lands specifically authorized for this purpose.
- **Fish and Wildlife.** Land acquired specifically for the congressionally authorized purpose of fish and wildlife management. These are referred to as separable fish and wildlife management lands. Raystown Lake does not have any lands specifically authorized for this purpose.
- **Mitigation.** Lands acquired or designated specifically for the congressionally authorized purpose of offsetting losses associated with development of the project. These are referred to as separable mitigation lands. Raystown Lake has 3,018 acres authorized for this purpose. These lands are operated and maintained under a license with the PGC.

As summarized in Table 4.1 Raystown Lake Project Land Allocation, the only applicable land allocation categories that apply are Operations and Mitigation. The remaining allocations of Recreation and Fish and Wildlife would apply only if lands had been acquired specifically for these purposes. A map delineating land according to the allocations is included as Appendix C.

**Table 4.1 Raystown Lake Project Land Allocation.**

| Land Allocation Category | Allocation Acres |
|---|---|
| Operations | 25,114.803 |
| Recreation | 0.00 |
| Fish and Wildlife | 0.00 |
| Mitigation | 3,018.00 |
| Total | 28,132.803 |

USACE recognizes that some lands were acquired that lie above the elevation required for operation of the project for flood risk management. These lands are not considered "separable" lands in that the acquisition of separable lands normally requires a cost sharing sponsor, a non-federal operator, or were acquired by separate congressional authorization. Further information is provided in Appendix F, Land Inventory.

### 4.2 Land and Water Surface Classification

The objective of classifying projects lands and waters is to identify the primary use for which project lands are managed. Land and water classification is a central component of this plan, and once a particular classification is established, any significant change to that classification would require a formal process including public review and comment. Project lands are zoned for development and resource management consistent with authorized project purposes, NEPA, and other federal laws.

In previous Raystown Lake MPs, similar land classification categories were utilized as those required under current USACE regulations. Current USACE regulations require project lands to be classified in accordance with the primary use for which project lands are managed. There are six categories of classification identified in USACE regulations including:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management Lands (Sub classified into Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas)
- Water Surface

A standardized process was developed to ensure that all acres of both land and water surface were evaluated using the same criteria. The land and water surface classifications for Raystown Lake were established after taking into account a multitude of factors including public comments, input from stakeholders, including elected officials, municipal and county governments, and analysis of management plans and scientific studies. Additionally, classification determinations, and therefore subsequent management of project lands and waters, were evaluated for incorporation of regional and ecosystem needs. Landscape level conservation efforts identified in plans such as the Huntingdon County Natural Heritage Inventory and the Pennsylvania State Wildlife Action Plan highlighted regional and statewide efforts that could be incorporated as part of this MP. See additional information in Chapter 8, Summary of Recommendations.

It is important to recognize that land and water surface classifications were defined at normal pool elevation (786 feet NGVD). Additionally, the land and water classification acreages were derived using geographic information system (GIS) technology that was not available during the 1994 classifications. These totals do not reflect the official land acquisition records, no additional acres have been acquired. Therefore, acreages represented as land classification and the resulting totals will differ from official land acquisition and allocation. Maps delineating Project lands and waters into each of the categories is provided in Appendix C. Acreages for each classification are summarized in Table 4.2 Raystown Lake Land Classification and further described as follows.

**Table 4.2 Raystown Lake Land Classification Summary.**

| Classification | Acres |
|---|---|
| Project Operations | **241.71** |
| High Density Recreation | **1,067.03** |
| Mitigation | **2,653.77** |
| Environmentally Sensitive Areas | **507.82** |
| Multiple Resource Management Lands: Low Density Recreation | **2,694.36** |
| Multiple Resource Management Lands: Wildlife Management | **7,012.26** |
| Multiple Resource Management Lands: Vegetative Management | **5,466.96** |
| Multiple Resource Management Lands: Future/Inactive Recreation | **1,698.85** |
| Water Surface: Restricted | **236.39** |
| Water Surface: Designated No-Wake | **1,908.35** |
| Water Surface: Fish and Wildlife Sanctuary | **43.70** |
| Water Surface: Open Recreation | **6,144.05** |

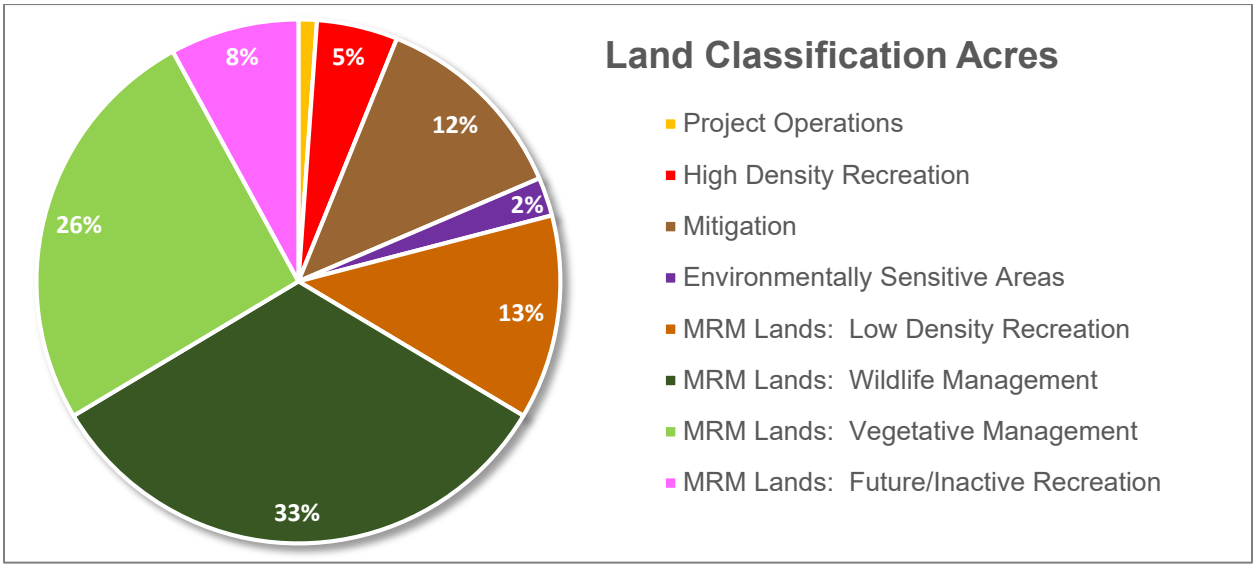


*Figure 4.1 Raystown Lake Project Land Classification Acres by Percentage.*

### 4.2.1 Project Operations

This classification category includes those lands that are required and used solely for the operation of the projects. Such examples include lands required

for: the dam, spillway, levees, offices, and maintenance facilities. In addition to the operational activities taking place on the lands, limited recreational use may be allowed for activities such as public fishing access. Regardless of any limited recreation use allowed on these lands, the primary classification of Project Operations will take precedent over other uses. There are 241 acres specifically classified as Project Operations on Raystown Lake.

### 4.2.2 High Density Recreation

This classification category includes those lands that are developed for intensive recreational activities for the visiting public including day use areas, campgrounds, marinas, and related concession areas. There are 1,067 acres specifically classified as High Density Recreation at Raystown Lake.

### 4.2.3 Mitigation

This classification category is only utilized for lands acquired specifically for the purpose of offsetting losses associated with development of the project. There are 2,653 acres specifically classified as Mitigation at Raystown Lake. As previously noted, the land and water classification acreages were derived using geographic information system (GIS) technology and do not reflect the official land acquisition records (3, 018 allocated as mitigation). Therefore, acreages represented as land classification and the resulting totals will differ from official land acquisition and allocation.

### 4.2.4 Environmentally Sensitive Areas

This classification category includes areas where scientific, ecological, cultural or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act, or applicable State statutes. These areas must be considered by management to ensure they are not adversely impacted. Typically, limited or no development or public use is allowed on these lands. These areas are typically distinct parcels located within another, and perhaps larger, land classification, area. There are 507 acres specifically classified as Environmentally Sensitive Areas (ESAs) at Raystown Lake.

### 4.2.5 Multiple Resource Management Lands

This classification is divided into four sub-classifications identified as: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. A primary sub classification that reflects the dominant use of the land must be designated, understanding that other compatible uses may also occur on these lands (i.e. a trail through an area designated as Wildlife Management). Typically, Multiple Resource Management Lands support only passive, non-intrusive uses with very limited facilities or

infrastructure. There are 16,872 acres specifically classified as Multiple Resource Management Lands at Raystown Lake.

- **Low Density Recreation.** Lands with minimal development or infrastructure that support passive public recreation use (e.g. primitive camping, fishing, hunting, trails, wildlife viewing, etc.). Of the 16,872 acres classified as Multiple Resource Management Lands, 2,694 acres are identified as Low Density Recreation.
- **Wildlife Management.** Lands designated for stewardship of fish and wildlife resources. Of the 16,872 acres classified as Multiple Resource Management Lands, 7,012 acres are identified as Wildlife Management.
- **Vegetative Management.** Lands designated for stewardship of forest, prairie, and other native vegetative cover. Of the 16,872 acres classified as Multiple Resource Management Lands, 5,466 acres are identified as Vegetative Management.
- **Future or Inactive Recreation Areas.** Areas with site characteristics compatible with potential future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources. Of the 16,872 acres classified as Multiple Resource Management Lands, 1,698 acres are identified as Future or Inactive Recreation Areas.

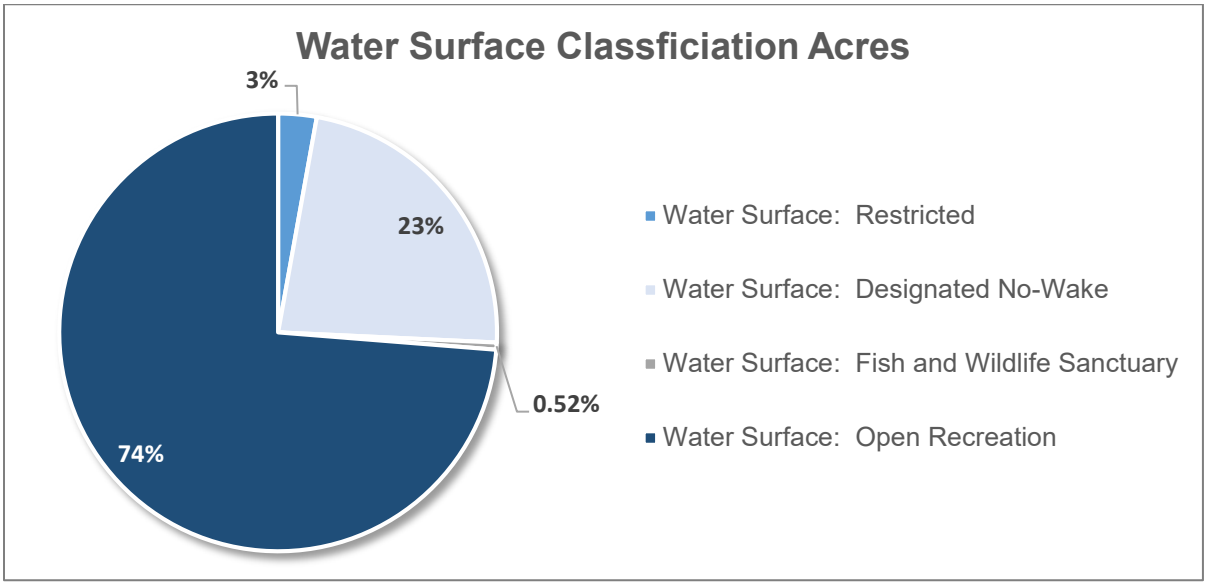


*Figure 4.2 Raystown Lake Project Water Surface Classification Acres by Percentage.*

### 4.2.6 Water Surface

Since Raystown Lake administers a surface water zoning program, USACE regulations require designation of water surface into four possible sub-categories. These classifications are intended to promote public safety, protect resources, or protect project operational features. These areas are typically

marked by USACE or lessees with navigational buoys, information buoys, signs, and may be denoted on public maps and brochures. A total of 8,332 acres are identified as water surface. The four sub-categories of water surface classification include:

- **Restricted.** These areas are restricted for project operations, safety, and/or security purposes. There are 236 acres identified as restricted.
- **Designated No-Wake.** Water areas are designated for operation at a no-wake speed to protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and for public safety. There are 1,908.35 acres identified as no-wake.
- **Fish and Wildlife Sanctuary.** Water areas that have annual or seasonal restrictions to protect fish and wildlife species during periods of migrations, resting, feeding, nesting, and/or spawning. There are 43 acres identified as fish and wildlife sanctuary.
- **Open Recreation.** Those waters available for year round or seasonal water-based recreational use. There are 6,144 acres identified as open recreation.

### 4.3 Project Easement Lands

These are lands on which USACE holds an easement interest, but not fee title. The lands were acquired for specific purposes and do not convey the same rights or ownership to USACE as other lands. Planned use and management of easement lands are in strict accordance with the terms and conditions of the easement estate acquired for the project. Typically, easements are categorized into one of the following:

- **Operations Easement.** USACE retains rights to these lands necessary for project operations (access, etc.). There are no operations easements at Raystown Lake.
- **Flowage Easement.** USACE retains the right to inundate these lands for project operations. There are 687 acres of flowage easement lands at Raystown Lake.
- **Conservation Easement.** USACE retains rights to lands for aesthetic, recreation, and environmental benefits. There are no conservation easements at Raystown Lake.

**Table 4.3 Raystown Lake Project Acres Classified as Project Easement Lands.**

| Easement Category | Acres |
|---|---|
| Operations Easement | 0.00 |
| Flowage Easement | 687.26 |
| Conservation Easement | 0.00 |

# CHAPTER 5 – RESOURCE PLAN

The Raystown Lake MP provides guidance for the orderly development, use and management of Project resources. This chapter sets forth a Resource Plan describing in broad terms how each land classification within the MP will be managed.

Resource planning takes into consideration:

- Authorized Project purposes
- Public input and interests
- Regional needs, opportunities, and constraints

Management of all lands, recreation facilities, and related infrastructure must take into consideration the effects of pool fluctuation associated with the authorized flood risk management mission. Management actions are dependent on congressional appropriations, the financial capability of lessees, and the contributions of labor and other resources by volunteers. Additionally, management actions will consider and reflect larger regional and landscape level efforts that are identified in planning documents such as the Pennsylvania SCORP and State Wildlife Action Plan.

Overall, this revised MP for the Raystown Lake Project recommends the provision of enhanced recreational opportunities for the public through various forms of low-impact, passive recreation. Based on the conclusion of the Boating Carrying Capacity Study (Appendix G) that Raystown Lake has reached and exceeded its boating capacity. This Plan does not include additional motorized boat access opportunities.

Proposed future recreation and existing recreation areas that include the development of non-motorized boating opportunities shall be implemented at a no net gain of boating access. The consideration of developing non-motorized boating access is the result of public demands for safe access and a quality recreation experience. The decision to consider future development of non-motorized boating access at a no net gain of overall boating access opportunities is cognizant of the results of the boating carrying capacity study. The no net gain will be implemented by reallocating existing boat (parking) opportunities. Additionally, the literature suggests that non-motorized vessels require significantly less acreage than the 10 to 20 acres per boat recommended for motorized vessels. For example, one study recommended a density of 1.3 acres per boat for canoes and kayaks.

Most Project Operations and High Density Recreation Area classifications include the recommendation to modernize existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements. Sustainability is an umbrella concept that encompasses energy, climate change, and the environment to ensure that the actions of today do not negatively impact tomorrow. Modernization of

facilities can include, but is not limited to, practices such as renovations that improve the energy efficiency of buildings, the utilization of environmental friendly or recycled products, or the implementation of natural resource management practices that appropriately position project lands and waters for climate change resilience.

All proposed development is designed to be compatible with the Project's natural and cultural resources. Project planning takes into consideration many factors such as:

- Pool fluctuation
- Soils
- Ecological conditions
- Existing and projected recreation demand
- State and local interests
- Applicable law, regulations, and policies
- Operations and maintenance funding, present and future

Some proposed actions in this plan will require separate NEPA review and evaluation. When required, NEPA evaluation and documentation will be obtained before the proposed action is implemented.

A more descriptive and detailed plan for managing project lands can be found in the Raystown Lake OMP. The OMP is an annually-updated, task oriented plan that implements the guiding concepts of the MP.

This chapter (Resource Plan) of the MP provides basic information and data for the parcels that comprise each land use classification including:

- Area name (if appropriate)
- Basic information and data about the area
- General listing of existing facilities with a brief discussion
- General listing of recommended future actions

Maps delineating project lands and waters into each parcel is included in the land classification maps provided in Appendix C.

### 5.1 Project Operations Areas

Project Operations Areas include those lands, totaling 241 acres, which are required and used solely for the operation of the Project. These areas are entirely managed by USACE, with the exception of the William F. Matson Generating Station below the Raystown Dam, and are designated as two distinct parcels, which include:

- **1001: Raystown Dam.** This parcel encompasses approximately 172 acres and includes all restricted access zones around the Raystown Dam, spillway, emergency spillway, outlet works, and hydroelectric power plant. The William F. Matson Generating Station is operated and maintained by Allegheny Electric Cooperative through a FERC (Federal Energy Regulating Commission) License (#2769-PA, Pursuant to Article 44). Figure 5.1 depicts the construction of the Raystown Lake spillway.

- **1002: Maintenance Compound and Administration Building.** This parcel encompasses approximately 69 acres and includes the Raystown Lake Administration Building and Maintenance Compounds. The Administration Building serves as the project headquarters and houses all official correspondence. The Maintenance Compound provides office space for the maintenance staff and storage facilities for the majority of the equipment used for the operations and maintenance of the Raystown Lake Project. Three additional buildings are located within the complex and are operated and maintained by the Pennsylvania Game Commission (per MOU agreement), the Pennsylvania Fish and Boat Commission (per MOU agreement), and the Pennsylvania Striped Bass Association (per license agreement).

  The management goal for these areas are to provide basic safety and security of USACE facilities to protect and insure proper operations of the Project.

  Recommended future actions for these areas include facility upgrades to meet USACE sustainability objectives. Opportunities to incorporate environmental stewardship objectives for land management such as invasive species control and wildlife management through use of food or pollinator plots will be implemented as appropriate.

*Figure 5.1 Construction of Raystown Lake Spillway, early 1970s (USACE Photo).*

## 5.2 High Density Recreation Areas

High Density Recreation Areas includes those lands, totaling 1,067 acres, which are currently developed and managed for intensive recreational activities including campgrounds, day use facilities, boat launches, overlooks, commercial concessions, and non-profit lease concessions. Management of High Density Recreation Areas is carried out by USACE or an outgrant entity. There are 15 distinct parcels designated as High Density Recreation Areas, which are individually described below.

- **2001: Branch Camp.** Branch Camp, a small riverside campground encompassing 10 acres downstream of the Raystown Dam was constructed and operated by USACE until 1982. At that time, it was closed as part of a national recreation area closure program. In January 1991, it was re-opened as a concession area and expanded for continued operation as a riverfront family campground. The facility, which is typically open from early spring through late fall, currently includes 31 campsites with electricity, 1 restroom with flush toilet capability, and an outside shower.

  The 1994 MP identified expansion of the campground by approximately 20 drive-to campsites. When reopened in 1991, the concessionaire added 11 additional campsites and converted the existing vault toilet to a waterborne restroom facility.

Future expansion or development actions are the responsibility of the concessionaire in accordance with their approved lease agreement. Additional recommended actions as funds and personnel resources allow include:

- Continued operation and management of the facility as a family campground by concession lease.
- Expansion of the facility as recommended in the 1994 plan to include the addition of the remaining campsites. It is recognized that this action may be limited due to presence of special status species.
- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements as desired by the concessionaire and approved by USACE.

A map depicting this High Density Recreation Area is included in Appendix D, Map 1.

- **2002: Corbin's Island.** Corbin's Island provides the only USACE operated and maintained recreation area downstream of the Raystown Dam. Encompassing 8 acres, this facility opened in 1976, is available for public use year round and includes a vault-type (no water provided) restroom with electricity, an information bulletin board, utility lighting, picnic tables, grills, picnic shelter with electricity, 40 paved parking spaces, and a trash dumpster. A paved, single lane, boat launch provides small vessel access to the Juniata River. While peak visitation occurs on the 3 major summer holiday weekends, increased use for non-motorized water sports (tubing, canoeing, kayaking) access has been observed throughout the summer season, with parking facilities utilized beyond designed capacity.

  The former project construction office site, located across the road, functioned for a time as a supplemental area to Corbin's Island. However, in 2011, the site was closed to public use. The well, picnic tables, parking bumpers, and all additional support facilities were removed and the access road blocked.

  The 1994 MP identified an upgrade to Corbin's Island through the addition of a picnic shelter and a universal access fishing pier. As noted above, the picnic shelter, with electricity, was completed in the mid 90's; the fishing pier has not been added to date.

  Recommended future actions as funds and personnel resources allow include:
  - Elimination of the 1994 proposed fishing pier at Corbin's Island due to the addition of a similar public fishing pier in close proximity (<1 mile) associated with the William F. Matson Generating Station.
  - Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.
  - Expansion of parking opportunities.

A map depicting this High Density Recreation Area is included in Appendix D, Map 2.

- **2003: Raystown Dam – Pagoda.** The public area at the Raystown Dam, operated by USACE, encompasses approximately 3 acres and was made available for public use in 1973 under the general construction program. The area was closed following the terrorist actions on September 11, 2001, and did not re-open for public access until July of 2006. The facility includes an overlook of the lake, an architecturally unique open-air pavilion, known as the Pagoda, information displays, and benches. Additional features in this area include a waterborne comfort station with electricity, a drinking fountain, an information exhibit interpreting the hydroelectric power plant, and a 43 single car paved parking area.

  The 1994 MP did not recommend any proposed actions for this recreation area.

  Recommended future actions as funds and personnel resources allow include:
  - Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

  A map depicting this High Density Recreation Area is included in Appendix D, Map 3.

- **2004: Ridenour and Hawn's Overlooks.** Ridenour and Hawn's Overlooks, operated by USACE, encompass approximately 3 acres and were made available for public use during the general construction of the project. The main view from Ridenour Overlook is to the northeast overlooking the dam, the hydroelectric intake, the spillway, and the river valley below the dam. Hawn's Overlook, located southeast of Ridenour Overlook is reached by walking a 1/4 mile improved footpath. It offers a southwest view of the lake framed by Terrace Mountain on the east and Piney Ridge on the west. The overlook area is closed during the winter (Dec-Apr) by a metal gate at the roadway entrance. During the remainder of the year the area is open from daylight to dusk. Upgrades to both facilities were completed to include improved trail surfaces, wayside exhibits, benches, trash receptacles, and a 19 space gravel parking area.

  All of the improvements recommended in the 1994 MP were completed.

  Recommended future actions as funds and personnel resources allow include:
  - Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

- Incorporation and continuation of specific environmental stewardship objectives for land management such as native landscape plantings, invasive species control, and wildlife management through use of food or pollinator plots as appropriate.

A map depicting this High Density Recreation Area is included in Appendix D, Map 4.

- **2005: Snyder's Run Boat Launch.** Snyder's Run Boat Launch, operated by USACE, encompasses approximately 6 acres and was made available for public use in 1974 under the general construction program. Operating at capacity most weekends during the summer season, this year-round facility provides boating access to the northernmost sections of the lake. The popularity of this launch is likely due to its close proximity to Huntingdon and access for visitors coming to the region from northeast areas along SR22. Snyder's Run Boat Launch provides a total of 102 (83 trailered, 18 single, 1 authorized personnel only) paved parking spaces. The parking lot was expanded in 1993 with the addition of 65 spaces, then paved in 2007. The originally designed 3 lane launch was reduced to a 2 lane launch in 2018 due to a spatial conflict with the associated concrete courtesy pier and floating loading dock. The hand pump well from the facility's origin has been removed from service. Potable water service is no longer provided. Additional facilities include a vault-type comfort station with electricity, an information bulletin board, and trash dumpster.

  The 1994 MP did not recommended any proposed actions for this recreation area.

  Recommended future actions as funds and personnel resources allow include:
  - Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.
  - Alteration of courtesy dock components necessary to accommodate lake fluctuations and provide appropriate, safe, and universal loading and unloading. Concrete structure redesign may be required.

  A map depicting this High Density Recreation Area is included in Appendix D, Map 5.

- **2006: Susquehannock Campground.** The Susquehannock Campground, operated by USACE, encompasses approximately 60 acres and was made available for public use in 1976 under the Title X Program (U.S. Code Title 10, Chapter 159). Designed as a Class B (as defined at EP1130-2-550), primitive campground, which is open from mid-May through mid-September, the facility provides 62 sites with support features typically associated with the intended use

such as parking and restrooms. The campground has undergone a series of renovations and improvements. In 1997, a permanent entrance station and park host site were constructed. In 2003, the access road and visitor parking areas were paved. In 2010, the shoreline was stabilized from further wind and wave erosion by utilizing a design by the PFBC. In 2015, the last of the 4 restroom facilities were replaced to provide upgraded vault comfort stations. In 2016, the Friends of Raystown Lake provided funding for the drilling of a new well with a chlorination system near the Entrance Station.

It has long been recognized that all of the campsites within the campground are in need of rehabilitation to align USACE standards and to correct significant erosion associated with the facility. Currently, campsite improvements occur as funding and environmental requirements allow. Improvements have included the correction of drainage and traffic flow concerns, created level parking and living spaces, and incorporated other campsite amenities.

The use of the Susquehannock Campground has changed significantly over recent years. The addition of contract park attendants, use of local law enforcement patrols, and a change to 100% reservable sites have greatly improved the quality of the camping experience. Additionally, the Susquehannock Campground serves as a popular accommodation for those who utilize the Allegrippis Trail System, which opened in 2009.

The 1994 MP identified proposed actions to the existing infrastructure which included improvements to the potable water supply, comfort stations, and road network. All of the proposed actions were completed as noted above.

Recommended future actions as funds and personnel resources allow include:

- Completion of campsite renovations to align with USACE standards.
- Alleviation of traffic flow concerns and the provision of adequate parking.
- Construction of playground facilities.
- Provision of waterborne sanitary facilities (showers, flush toilets).
- Multi-use trail expansion.
- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.
- Implementation of specific environmental stewardship objectives for land management such as native landscape plantings, invasive species control, and wildlife management through use of food or pollinator plots as appropriate.

A map depicting this High Density Recreation Area is included in Appendix D, Map 6.

- **2007: Seven Points Recreation Area.** The Seven Points Recreation Area encompasses approximately 563 acres and was made available for public use in 1976 under the general construction program. All of the facilities are operated by USACE with the exception of the Seven Points Marina as discussed below. Visitation to this area has been heavy since its opening and thus has resulted in significant changes to the facility from initial construction. The Seven Points Recreation Area is an intensely developed area that provides the following:

    - **Visitor Center.** In 1999, the Raystown Lake Visitor Center, designated as a Class A facility, opened for year round use. The facility contains a large multi-purpose room for meeting and visitor programs and a display area with historic and interactive exhibits. The large lobby and reception area is adjacent to a retail store operated by the Huntingdon County Visitors Bureau under a Cooperating Association Agreement. The downstairs provides offices for the ranger staff and Huntingdon County Visitors Bureau staff in addition to storage areas. Adjacent to the Visitor Center is an amphitheater (constructed in 2003) for interpretive and entertainment programming.
    - **Camping.** Due to the heavy demand for campsites, additional camping loops and campsites have been added to the facility since initial construction. Details on improvement history are located within the OMP. Currently, the facility provides a total of 261 Class A (as defined at EP1130-2-550), campsites (all but 6 provide 30 or 50 amp electrical service) located in 7 different camping loops; 6 of the camping loops are available to the public (Ridge Camp, Meadow Camp which includes a Group Camp facility, Valley Camp, Point Camp, Senoia Camp, and Bay Camp) and 1 is utilized solely for long-stay volunteer use (Volunteer Village). With the exception of Volunteer Village, each of the camping loops provide waterborne restrooms (Valley and Bay Camps do not provide showering facilities), visitor parking, playgrounds, trash dumpsters, water hydrants, security lighting, and information bulletin boards. Camping is available from the beginning of April through the end of October.
    - **Day Use.** A variety of day use opportunities are provided within the recreation area. Various picnic areas with tables, grills, trash dumpsters, and waterborne comfort stations with electricity are located throughout the area. Five picnic shelters are available for reservation which include: Pine, Allegheny, Oak, Redbud, and Dogwood Shelters. Each shelter has an associated restroom, playground, horse-shoe pit, and parking area. Pine and Oak Shelters have grass volleyball courts, while a sand volleyball court is shared by Redbud and Dogwood Shelters. Approximately 1,121 public parking spaces (the majority are gravel) are

provided throughout the recreation area to access each of the facilities. USACE also provides and operates a swim beach with restroom, change facility, and courtesy dock.

- **Boat Launching.** A 3 lane public use boat launch with a modular floating courtesy dock is provided along with 93 paved parking spaces, 67 overflow parking spaces in nearby parking areas, and 2 restroom facilities. Because parking is often filled to capacity Memorial Day through Labor Day weekend, restrictions are placed on parking non-trailered vehicles in the lots on weekends.
- **Trails.** Four trails are provided within the recreation area. Maps depicting trail locations are provided in Appendix D and further discussed in Chapter 6, Special Topics. The Hillside Nature Trail (a ½ mile self-guided trail) starts at the Visitor Center (or Redbud Shelter) and is managed by USACE to attract songbirds. The Jim Bashline/Old Loggers Trail (5 miles long) is managed by USACE for ruffed grouse habitat and links Seven Points with the Susquehannock Campground. The Allegrippis Trail System, a 36 mile trail system designed for mountain bike use is operated under a lease agreement by the Friends of Raystown Lake. The Allegrippis Skills Park, operated by USACE and maintained through a MOU with the Friends of Raystown Lake provides an opportunity for users of the Allegrippis trails to safely enhance their riding skills. The Greenside Pathway, a 3 mile loop, provides a partially universal accessible rubberized pathway that connects each of the main recreation facilities within Seven Points Recreation Area.
- **Operational Infrastructure.** USACE operates a water and wastewater treatment plant, along with a camper dump station, within the Seven Points Recreation Area to provide potable water for USACE operations, visitors, and concessionaire use (payment provided for service). A series of upgrades have been done to each of the facilities to meet use demand and state treatment requirements.

The 1994 MP proposed the development of a Visitor Center, Group Camp, sanitary facilities for Valley Camp, and additional drive to camping. Upgrades to the Amphitheater and Point Camp were also proposed. All recommended actions were completed as noted above, with the exception of the Group Camp facility. Rather than constructing the originally proposed Group Camp facility, 90 individual sites were constructed in the proposed location to meet the demand for waterfront campsites.

Recommended future actions as funds and personnel resources allow include:

- Relocation of the 2 restrooms on Bay Drive to provide universal access.
- Expansion of group camping opportunities.

- Visitor Center exhibit improvements.
- Expanded biking opportunities.
- Renovation of the Twin Hollows area.
- Expansion of water and sewer facilities.
- Development of a fishing pier, non-motorized launch (implemented at no net gain of boating access opportunities), and picnic areas.
- Development of fitness/wellness trail opportunities. Additional trail development and improvement are discussed further in Chapter 6.
- Development of boat cleaning stations.
- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.
- Incorporation and continuation of specific environmental stewardship objectives for land management such as native landscape plantings, invasive species control, and wildlife management through use of food or pollinator plots as appropriate.

A map depicting this High Density Recreation Area is included in Appendix D, Map 7.

Two concession lease facilities operate within the Seven Points Recreation Area in addition to the facilities operated and maintained by USACE. Lease facilities include:

- **Seven Points Marina.** The Seven Points Marina, depicted in Figure 5.2, encompasses approximately 26 acres within the Seven Points Recreation Area. The facility is generally open to the public April through October, providing a total of 946 dock slips. The Marina operates out of a 2 story building known as the Oar House which provides equipment/retail sales on the bottom floor and offices on the second floor. Additionally, the Marina provides parking for nearly 500 vehicles, boat rentals, fuel purchase, and a 3 lane boat ramp. The Marina operates a restaurant and non-motorized sport rentals through two different sub-lease agreements. Notable improvements have been conducted over the years within the Marina complex which includes the construction of a new Oar House following a fire in the late 1990's, a breakwater, and continual dock replacement. The Marina utilizes and pays for water and waste water treatment services provided by USACE.

  There were no improvements recommended in the 1994 MP.
  Future expansion or development actions are the responsibility of the concessionaire in accordance with their approved lease agreement.
  Additional recommended actions include:

- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

*Figure 5.2 The Seven Points Marina, a leased facility (USACE Photo).*

- **The Lighthouse.** The Lighthouse operates under a lease that grants the lessee food concession rights for the Seven Points Recreation Area. The Lighthouse (located at the Seven Points beach area) is a snack food and ice cream facility, which operates in conjunction with the operation of the Seven Points beach. The concessionaire also operates two floating trampolines adjacent to the Seven Points beach and provides catering services within Seven Points.

  There were no improvements recommended in the 1994 MP.

  Future expansion or development actions are the responsibility of the concessionaire in accordance with their approved lease agreement. Additional recommended future actions include:

  - Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements as desired by the concessionaire and approved by the USACE.

- **2008: Aitch Recreation Area.** The Aitch Recreation Area, operated by USACE, is surrounded by lands classified for mitigation, encompasses approximately 7 acres, and was made available for public use in 1976 under the Title X (U.S. Code Title 10, Chapter 159) Program. Due to its location mid-lake, Aitch is one of the project's most popular access facilities and is used by picnickers, boaters, and fishermen. Hunting is a particularly noteworthy and popular activity due to its location within the mitigation area. The mitigation area is further described in Chapter 5.3. Parking facilities are routinely utilized beyond designed capacity during peak visitation periods.

  Since its construction, a number of additions and renovation have occurred. The Aitch Recreation Area provides 76 gravel parking spaces at the boat launch (64 trailered, 11 single, and 1 authorized use only). In 1990, a picnic shelter with electricity, was constructed along with parking for 11 additional vehicles. This portion of the recreation area was further improved in 2007 by increasing the parking capacity to 36 paved single vehicles. In 1996, an old railroad bed adjacent to the south of the boat launch was converted into a 445 foot universal access fishing pier with railings and wheelchair surfacing. The original vault comfort station was replaced in 2006 to provide an upgraded vault restroom. Additionally, the facility provides a single lane boat launch, a small concrete fishing pier north of the boat launch, an artesian well supplying potable water, picnic tables, grills, an information bulletin board, trash dumpster, and utility lighting.

  The 1994 MP identified improvements to the comfort station, boat launch, and the addition of a universal access pier. All of those improvements were completed as noted above.

  Recommended future actions as funds and personnel resources allow include:

  - Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

  A map depicting this High Density Recreation Area is included in Appendix D, Map 8.

- **2009: James Creek Boat Launch.** The James Creek Boat Launch, operated by USACE, encompasses approximately 19 acres and was made available for public use in 1974 under the general construction program. The facility was further enlarged in 1975 under the Title X Program (U.S. Code Title 10, Chapter 159). Like the Aitch Recreation Area, the location of the James Creek Boat Launch as a mid-lake facility results in use beyond the designed capacity on peak season days. While open year round, during the spring and fall, the area is

the site of many fishing tournaments. Additionally, the boat launch is utilized by many of the campers wishing to stay at the Nancy's Boat-to-Shore Campground. Consisting of 2 separate gravel parking areas, the James Creek Boat Launch provides parking for a total of 148 vehicles. A paved 3 lane boat launch with a permanent concrete pier and modular floating courtesy dock is the primary facility for this recreation area. Additionally, a vault-type comfort station with electricity, an information bulletin board, utility lighting, and trash dumpster are provided. Few upgrades have been completed in this recreation area. The modular courtesy dock was added in 1997, and in 2014 the universal access parking spaces were paved. The hand well pump has been removed from service. Potable water service is no longer provided.

There were no improvements recommended in the 1994 MP.

Recommended future actions as funds and personnel resources allow include:

- Modernization of existing facilities in order to be compliant with environmental concerns, sustainability initiatives, and universal access requirements.
- Correction of courtesy dock components necessary to accommodate lake fluctuations and provide appropriate, safe, and universal loading and unloading. Concrete structure redesign may be required.

A map depicting this High Density Recreation Area is included in Appendix D, Map 9.

- **2010: Nancy's Boat-to-Shore Campground.** Nancy's Boat-to-Shore Campground, a Class C campground facility (as defined at EP1130-2-550) operated by USACE, encompasses approximately 5 acres and was made available for public use in 1974 under the general construction program providing 12 campsites. After the lake was impounded in 1975, the area became very popular and often contained 100-200 camping units during peak periods. In 1988, 50 individual sites were created to reduce the overcrowding on weekends and holidays and the resulting negative environmental impacts. From 1974 until 1988, Nancy's Camp provided free camping and all sites were available to the public on a first come-first serve basis. Beginning in 1988, an honor system was put in place requiring campers to pay for use, but sites remained available on a first come-first served basis.

  In 2016, due to changes in USACE fee processing regulations, the Raystown staff implemented a change in which all campsites became available by reservation only. Shortly following in 2017-2018, improvements were conducted within the facility to create organized, uniform campsites for ease in making

reservations and also to correct drainage concerns. Providing sufficient potable water continues to be a challenge, with the most recent well installed in 2018. The facility includes a vault restroom with solar lighting, dumpsters, information bulletin board, and boat mooring tie-ups. While the public can only access the area by boat or foot, USACE maintains a 5 mile unpaved access road into the area for maintenance purposes and ranger patrol.

The 1994 MP identified the need for additional campsites and sanitary facilities. Neither of these actions have been completed at this time.

Recommended future actions as funds and personnel resources allow include:

- Expansion of the facility as recommended in the 1994 MP to include the addition of campsites and sanitary facilities.
- Modernization of existing facilities in order to be compliant with environmental concerns, sustainability initiatives, and universal access requirements.

A map depicting this High Density Recreation Area is included in Appendix D, Map 10.

- **2011: Tatman Run Recreation Area.** The Tatman Run Recreation Area, operated by USACE, encompasses approximately 28 acres and was made available for public use in 1975 under the Title X Program (U.S. Code Title 10, Chapter 159). Due to its location on the eastern side of Raystown Lake and immediate access to the main channel, the Tatman Run Recreation Area is a popular facility used by a variety of day visitors including picnickers, beach users, and boaters, notably those operating a personal watercraft. Parking facilities are routinely utilized beyond designed capacity during peak visitation periods. The Tatman Run Recreation Area is typically not available for use year round due to weather. The beach and shelter area generally are closed after Labor Day. Additionally, when road access conditions deteriorate due to winter weather, the main access gate to the facility is closed until safe road conditions exist.

  The current facility includes three separate gravel parking areas to service different features of the recreation area: (1) a small paved parking area for 7 vehicles is located on the hill overlooking the day-use area and provides scenic opportunities along with access to the Terrace Mountain Trail; (2) a gravel boat launch parking area with a total of 80 spaces (57 trailered and 23 single) is primarily used to access the 2 lane boat launch with modular floating dock; and (3) a gravel beach and shelter parking area with 140 total spaces (64 single spaces at the shelter, 64 single spaces at the beach, and 12 trailered spaces for pwc users) is utilized for day use type activities.

The majority of the renovations to the recreation area occurred in 1995 when the following were constructed: (1) the boat launch was expanded to the current 2 lanes; (2) the old beach area was converted to a personal watercraft staging area; (3) a new beach and lawn area to include a composting restroom and change facility were developed; and (4) a picnic shelter with parking facility were added. In 1997, a playground adjacent to the picnic shelter was constructed. Bulletin boards, security lighting, and trash receptacles are available within the recreation area. The facility does not provide electricity or potable water. The Texas Eastern Pipeline intersects the recreation area but does not interfere with the recreation facilities.

All proposed actions of the 1994 MP were completed, including boat ramp and parking improvements, a new picnic shelter, and relocated swim beach.

Recommended future actions as funds and personnel resources allow include:

- The consideration and implementation of alternatives to the current boat launch location due to the slope of the ramp.
- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

A map depicting this High Density Recreation Area is included in Appendix D, Map 11.

- **2012: Lake Raystown Resort.** Lake Raystown Resort, formerly known as the Rothrock Campground, encompasses approximately 293 acres. The area was completed in 1978 and operated by USACE until 1984 when it was leased to RRP Recreation for further development and renamed Lake Raystown Resort and then later changed again to Lake Raystown Resort Lodge & Convention Center (LRRL&CC). The Resort is an intensely developed leased area that provides the following:

  - **Boat Launches.** There are 2 boat launches within the Resort facility which include a 3 lane public boat launch at the marina and a 2 lane camper boat launch with courtesy pier.
  - **Marina.** The Rothrock Marina provides 650 floating dock slips for rent on a seasonal basis and is fully operational from April through October.
  - **Restaurant.** The Resort restaurant operates 7 days a week throughout the recreation season and provides indoor and outdoor sit-down dining. In addition, a small informal restaurant is located below the main restaurant.

- **Conference Center.** Constructed in 2006-2007, the Conference Center at the Resort is a 19,000 square foot complex that provides meeting spaces and serves as an event venue.
- **Water Park.** The Resort operates a water park daily from Memorial Day through Labor Day. These facilities are available on a fee-for-use basis to the general public and private groups.
- **Overnight Accommodations.** Various styles of overnight accommodations are provided. The Resort Lodge encompasses 3 separate buildings, of which each house approximately 18 rooms for rent. Since 1990, the Resort has constructed nearly 80 overnight private cabins of various sizes and design.
- **Campgrounds.** The Resort has 6 camping loops that offer a total of 220 campsites. Most campsites have hookups for water, 30 or 50 amp electrical service, and cable TV. Each camp loop provides a waterborne comfort station, water fountain and hydrant(s), and information bulletin board. A dump station is located near the marina area for campers with self-contained camping units.
- **Day-use Facilities.** Day use facilities include a beach, picnic shelters, and playground areas.
- **Infrastructure.** The Resort operating infrastructure includes a visitor/registration center, water and wastewater treatment plants, and 2 maintenance complex areas.
- **Trading Post.** The Trading Post, formerly known as the Rhodes House, is separately identified and discussed as an ESA due its eligibility for listing on the National Register of Historic Properties. The building is utilized by the Resort as a Camp Store.

The 1994 MP encouraged the concessionaire to increase lodging facilities according to their accepted development plan. This action was implemented with the construction of the villas (cabins) in 2004-2005.

Future expansion or development actions are the responsibility of the concessionaire in accordance with their approved lease agreement. Additional recommended actions include:

- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

A map depicting this High Density Recreation Area is included in Appendix D, Map 12.

- **2013: Shy Beaver Boat Launch.** The Shy Beaver Boat Launch, operated by USACE, encompasses approximately 24 acres and was made available for public use in 1974 under the general construction program. The facility was

further enlarged in 1975 under the Title X Program (U.S. Code Title 10, Chapter 159). Three private campgrounds offering seasonal/permanent campsites and the Shy Beaver Estates, a vacation housing development, are all located within a mile and a half of the boat launch. Open year round, peak visitation and at-capacity use of the facilities occurs on most Saturdays, Sundays, and holidays from mid-June thru mid-August.

Utilizing a very similar design as the James Creek Boat Launch, this facility provides two separate gravel parking areas with a total of 147 spaces. A paved three lane boat launch with a permanent concrete pier and modular floating courtesy dock is the primary feature of this facility. Additionally, a vault-type comfort station with electricity, an information bulletin board, utility lighting, and trash dumpster are provided. Few upgrades have been completed in this recreation area. The modular courtesy dock was added in 1997, and in 2014, the universal access parking spaces were paved. The hand well pump has been removed from service. Potable water service is no longer provided.

The 1994 MP did not propose any changes to the existing facilities; but recommended the construction of a universal access fishing pier. The fishing pier was constructed, but later removed due to poor location and accessibility.

Recommended future actions as funds and personnel resources allow include:

- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.
- Construct a universal access fishing pier.
- Correction of courtesy dock components necessary to accommodate lake fluctuations and provide appropriate, safe, and universal loading and unloading. Concrete structure redesign may be required.

- **2014: Putts Camp.** This small campground, located on the eastern shoreline in the area of Lake Mile Marker 25, originally encompassed 107 acres. Built and operated by USACE until 1982, Putts Camp also closed under the same program as Branch Camp. In January 1993, USACE entered into a lease agreement with the Boy Scouts of America which continued until 2017. At that time, the Boy Scouts terminated their lease due to re-organization. In 2017, the Friends of Raystown Lake entered into a non-profit lease agreement and assumed operation and maintenance of the facility. The lease area was reduced to 20 acres.

  The facility, which is typically open from late spring through early fall, currently includes 20 campsites, 3 Adirondack shelters, a picnic shelter with stone-fireplace, hand pump well, and a single vault restroom.

The 1994 MP did not include specific proposed actions for the Putts Camp area. Future expansion or development actions are the responsibility of the lessee in accordance with their approved lease agreement. Additional recommended actions include:

- Continued operation and management of the facility as a non-profit group campground by lease agreement.
- Modernization of existing facilities in order comply with environmental concerns, sustainability initiatives, and universal access requirements.
- Implementation of land management initiatives such as native landscape plantings, nesting structures, and invasive species control.

A map depicting this High Density Recreation Area is included in Appendix D, Map 14.

- **2015: Weaver Falls Recreation Area.** The Weaver Falls Recreation Area, operated by USACE, encompasses approximately 9 acres and was made available for public use in 1975 under the Title X Program (U.S. Code Title 10, Chapter 159). Representing the southernmost USACE operated facility on the lake, the Weaver Falls Recreation Area receives peak visitation on weekends between Memorial Day and Labor Day. The facility is popular with fishermen early in the spring when striped bass are found in the upper end of the lake. During the remainder of the year, the primary users are from the local area and include fishermen, boaters, and picnickers. While the facility was typically open year round for use, staff have recently implemented a winter closure season due to poor road conditions, minimal use, and past vandalism.

  The recreation area includes 2 separate parking areas, totaling 63 spaces (26 single and 37 trailer length) to service the main features of the facility: (1) a 2 lane boat launch with modular courtesy dock and vault restroom; and (2) a picnic shelter, playground, and 4 picnic pads. Two separate improvement efforts have occurred at the Weaver Falls Recreation Area. In 1995, utilizing special appropriations, the boat launch was expanded to the current 2 lanes, additional parking was created near the launch, and a composting restroom, picnic shelter, and playground were constructed. Vandalism has been notable within this area due to the remote location. The restroom adjacent to the picnic shelter was burned, replaced, and burned again and subsequently not replaced. In 2013, a series of accessible picnic pads which included tables and grills, along with a connecting accessible route were constructed to encourage day use of the facility.

Many of the proposed actions from the 1994 MP have been implemented which include the expansion of the boat launch, construction of the picnic shelter and improvements to the exit design. The only action not completed was the construction of a beach facility.

Recommended future actions as funds and personnel resources allow include:

- Remove the proposed beach and associated changing shelter from future development due to currents associated with high water events.
- Provide non-motorized boating access opportunities (implemented at no net gain of boating access opportunities).
- Modernization of existing facilities in order to comply with environmental concerns, sustainability initiatives, and universal access requirements.

A map depicting this High Density Recreation Area is included in Appendix D, Map 15.

### 5.3 Mitigation Area

The land use classification for Mitigation Areas, per ER 1130-2-550, is only utilized for lands acquired specifically for the purpose of offsetting environmental losses associated with development of the project. There are 2,653 acres classified as Mitigation at Raystown Lake. In 1979, a real estate license and MOU were completed to establish the Pennsylvania Game Commission as the responsible entity for those lands designated as Mitigation.

The Pennsylvania Game Commission recognizes and manages the mitigation lands as Wildlife Management Area 420. Per the real estate license and MOU, the Pennsylvania Game Commission is required to maintain a Comprehensive Management Plan for the lands. This plan identifies the resources existing within the area as well as long term management goals and objectives.

### 5.4 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs), totaling 507 acres, include those lands that have been determined to contain unique ecological, cultural or aesthetic features worthy of protection from adverse impacts. These areas are entirely managed by USACE, with the exception of the Trading Post at Lake Raystown Resort and the Grove Farm House and shale barrens at the Juniata College Field Station. Forty distinct parcels have been identified as ESAs which are grouped into 2 general categories related to shale barren habitat (37 parcels) and historic sites (3 parcels), which are further described below.

- **Shale Barren Habitat.** During the land classification and mapping process for this Plan, all “shale barrens” were identified as ESAs. Shale barrens are a globally rare community as they support many uncommon (endemic) plant and

insect species that are uniquely adapted to the harsh conditions that define this habitat. A shale barren is depicted in Figure 5.3.

Classification and subsequent mapping of shale barrens as ESAs include a recommended buffer, which is necessary to protect the habitat and associated species. The buffer, as stated in the *ERDC Report: Shale Barren Mapping and Threatened and Endangered Species Survey for Raystown Lake, PA*, creates a zone from the crest of the ridge above the shale barren to the toe of the slope below the shale barren and that extends laterally into the woodland/forest transitional zone. The lateral extent was defined by a change in aspect or a visible forest type change via aerial imagery. This study is further discussed in Chapter 6, Special Topics with the full report attached as Appendix H. A total of 505 acres have been classified as shale barren habitat.

In several instances it is recognized that adjacent land use classifications have been designated as Future/Inactive Recreation Areas. The revised land classification and mapping appropriately define the shale barren ESAs to depict the full extent of the barrens, to include the area necessary for protection. This will ensure that any proposed development applicants are shown the full extent of areas protected from development as depicted on the MP maps.

Additionally, it shall be noted that there are areas within the buffer where development or activities by USACE exist. In areas where the buffer and development coexist, improvements to existing features may occur, but shall be limited to the footprint of the current impact area. No new impacts are permitted within the buffer.

In terms of future management, shale barrens are generally considered self-sustaining with little landscape-level processes such as fire or grazing required for their continued existence. However, as documented on existing Raystown Lake shale barren communities, the greatest threat to collapse of these micro-ecosystems and loss of species communities (state listed and species of concerns) are anthropogenic impacts. Such impacts from human interference include the introduction of invasive species, species collection (removal), species take (stepping on fragile plants – crushing or disturbance of insects), soil disturbance (loss of species, loss of seed, loss of habitat), etc. Continued education on the presence and ecological significance of the shale barrens present at Raystown Lake will aid in sustaining the current quality. Monitoring and surveys for endemic species presence as well as invasive presence shall be conducted as part of active management.

*Figure 5.3 ESA 4008, Ridenour Overlook Shale Barren (USACE Photo).*

**Architectural Resources.** Historic properties can be buildings, structures, objects, sites, or districts significant for their historical or architectural associations. Such properties may be (1) listed in the NRHP, or; (2) eligible for listing in the NRHP through a determination of eligibility, or; (3) possess sufficient significance to be potentially eligible for listing in the NRHP. During the land classification and mapping process of this Plan revision, 3 architectural resource sites were identified as ESAs. Those 3 sites, accounting for 2 acres, are identified as the Brumbaugh House, the Rhodes House (commonly referred to as the Trading Post under Lake Raystown Resort lease), and the Grove House (under Juniata College Field Station lease). Under Section 106 of the NHPA, as amended, all Federal agencies are mandated to take into account how their undertakings affect, or have the potential to affect, historic properties.

## 5.5 Multiple Resource Management Areas

Multiple Resource Management Areas are those lands that serve multiple purposes, but that are sub-classified and managed for a predominant use. The following paragraphs describe the various sub-classifications and the general management plan for those lands.

### 5.5.1 Low Density Recreation Areas

Low Density Recreation Areas are lands with minimal development or infrastructure that support passive public recreation use (e.g. primitive camping, fishing, hunting, trails, wildlife viewing, etc.). Of the 16,872 acres classified as Multiple Resource Management Lands, 2,694 acres are identified in 22 distinct parcels as Low Density Recreation. These lands are generally grouped into overlooks, trail access points, islands, and narrow parcels of land that are adjacent to private residential areas, portions of the river below the dam and in the headwater regions of the lake. Also included as low density recreation areas are those lands that are identified as potential excess lands (Parcels 5514-5122). These lands are further described in Chapter 6 and Appendix F, Land Inventory.

- **Parcels 5110 and 5111.** These 2 parcels are designated as overlooks and are managed as an outgrant facility by the Pennsylvania Department of Transportation. These lands are typically open to the public year round. Future expansion or development actions are the responsibility of the lessee in accordance with their approved lease agreement. Additional recommended actions include:

    - Maintenance of the current viewshed.
    - Incorporation of wayside interpretive exhibits.

- **Parcels 5104, 5105, 5108.** These 3 parcels include the Allegrippis Trail System, Old Logger's Trail, and associated trail access points (Parcel 5108). Parcel 5104 – Allegrippis and Old Loggers Trails (1,636 acres) and Parcel 5105- Allegrippis Trails (658 acres) comprise a significant total of the lands designated as Low Density Recreation. These areas truly represent the classification of Multiple Resource Management as significant efforts occur to sustain a balanced, healthy landscape. Management objectives and recommended future actions for the trails and associated access points are further described in Chapter 6 Special Topics. Management objectives and recommended future actions for the surrounding lands include the continuation and expansion of wildlife and vegetative practices, which are further described in the Raystown Lake OMP.

- **Parcels 5102, 5103, 5106, 5107, 5109.** Five islands are located on Raystown Lake and were classified as Low Density Recreation. The primary users of these islands are boaters who desire a location to temporarily moor, picnic, and enjoy the scenic beauty of the project. Visitors are not allowed to overnight camp on the islands. In most cases, the southern portion of these islands are identified as ESAs due to the presence of shale barren habitat. Management objectives for these areas

have identified the need for: (1) continued enforcement of Title 36 regarding camping and fires, (2) vegetation management to limit the introduction and spread of invasive species that would negatively affect the shale barren habitat, (3) vegetation management to limit erosion due to foot traffic, wind and wave action, (4) education and interpretation to visitors on the ecological sensitivity associated with shale barren habitat.

- **Parcels 5101, 5112, 5113.** The remaining parcels identified as Low Density Recreation Areas are characterized as narrow pieces of land that are adjacent to private residential areas, portions of the river below the dam and in the headwater regions of the lake. Management objectives for these areas have identified the need for: (1) Continued monitoring and boundary maintenance to prevent unauthorized use such as trespass or encroachments, (2) continued management for control of invasive species, (3) restoration of bottom and upland riverine habitat, (4) continued availability and management as low density recreation areas.

### 5.5.2 Wildlife Management Areas

Wildlife Management Areas are those lands designated for stewardship of fish and wildlife resources. Of the 16,872 acres classified as Multiple Resource Management Lands, 7,012 acres are identified in 10 distinct parcels as Wildlife Management. These lands are generally medium to large parcels ranging from 51 acres to over 2,000 acres of contiguous habitat.

The primary objectives for Raystown Lake's wildlife management program are to maintain or enhance habitat components such as conifer cover, grassland habitat, riparian buffers, and early successional forest that have been declining since the Project was developed while providing large blocks of quality contiguous diverse forest for a variety of wildlife species across the landscape.

All 10 parcels classified as Wildlife Management Areas will be managed according to the objectives established in the Raystown Lake Wildlife and Habitat Management Plan. Management includes, but is not limited to, control of invasive species, fruit/evergreen tree plantings, nesting box installation/maintenance, field management, prescribed fire, and population surveys. The continuation of this type of management is vital to the continued existence of multiple wildlife species. Fragmentation of these parcels would be detrimental to the wildlife that utilize these lands.

Priority in all parcels will be provided to special status species including those federally and state listed, those identified as species of concern, and those afforded special protections in other federal regulations such as the Bald and Golden Eagle Act and the Migratory Bird Act.

Special parcel considerations are noted below:

- **Parcels 5203, 5204, 5206, 5209.** These 4 parcels were established in agreement with the USFWS as part of the Endangered Species Act Section 7: Interagency Consultation process as Bat Conservation Areas (BCAs). Federal agencies are directed under section 7(a)(1) of the Endangered Species Act to, "*utilize their authorities to carry out programs for the conservation of threatened and endangered species. Conservation measures are those actions taken to benefit or promote the recovery of the species…. These actions taken by the federal agency serve to minimize or compensate for project effects on the species*". Per the Biological Assessment submitted to the USFWS 26 August 2015, and the subsequently issued Biological Opinion, dated 24 February 2016, USACE established 3 bat conservation areas (BCAs) that total 2,492 acres of suitable roosting and foraging habitat for northern long-eared bats and Indiana bats. Roost tree protection, creation of additional habitat (tree plantings, artificial roosts, etc.), vegetation maintenance, recreation (non-intrusive or existing), and natural resource management are management objectives of these parcels.

- **Parcel 5207.** This parcel is under lease to The Board of Trustees of Juniata College. Management and research within this area is the responsibility of Juniata College. Students who stay at the Field Station facility conduct numerous studies to include large mammal (white-tail deer), reptile, amphibian, and aquatic vegetation research. USACE will continue to work cooperatively with college staff on educational projects and wildlife management practices.

  The Juniata College Field Station area is closed to the general public unless otherwise posted. The College maintains several buildings/facilities within the study area, which include: (1) the former Grove residence, which is classified as an ESA, as a dormitory/laboratory for students; (2) a "sugar shack" for maple syrup production and environmental education, (3) Shuster Hall, which serves as a dining facility, classroom/meeting room, and laboratory, (4) 2 dormitories for student housing, (5) maintenance, water treatment, and storage sheds, (6) floating courtesy dock, located in a restricted access cove (Parcel 6107).

  Future expansion or development actions are the responsibility of the lease in accordance with their approved lease agreement.

- **Parcels 5208 and 5210.** These 2 parcels contain 2,318 and 1,060 acres respectively. Both parcels contain a diverse landscape that is intensely managed for the primary purpose of wildlife benefit. Parcel 5208 contains 35 acres of field habitat that is planted by USACE with a variety of crops, all of which are left standing for wildlife use. Parcel 5210 contains 75 acres of field habitat that is managed via agricultural lease with offsets for wildlife benefit. Both parcels utilize frequent active vegetative management techniques where the primary goal is directly related to wildlife species. Parcel 5210 is of particular importance as this area is primarily managed utilizing even-age vegetative management to create early successional habitat, which is in decline across the region. The creation of early successional habitat benefits multiple species of concern such as the ruffed grouse, American woodcock, and golden-winged warbler. All active vegetative management implemented within these 2 parcels are directly linked to wildlife.

- **Parcels 5201, 5202, 5205.** All 3 parcels are at the northern end of the Raystown Project and present excellent wildlife management opportunities due to their proximity to adjacent unique lands such as riparian zones, shale barrens and bat conservation areas. Parcel 5202, contains a series of wetlands that were constructed through a partnership with Ducks Unlimited. These wetlands were a proposed action of the 1994 MP. Additionally, these parcels are part of larger tracts of continuous forest that should be kept intact to reduce fragmentation and the negative impacts on wildlife species that result from it. A portion (88 acres) of parcel 5201 has been identified for potential excess.

### 5.5.3 Vegetative Management Areas

Vegetative Management Areas are those lands designated for stewardship of forest, prairie, and other native vegetative cover. Of the 16,872 acres classified as Multiple Resource Management Lands, 5,466 acres are identified in 10 distinct parcels as Vegetative Management. A portion (83 acres) of parcel 5302 has been identified for potential excess.

Forest management is recognized as an integral element in managing the natural environment. The primary goal of Raystown Lake's forest management program is to insure the long term sustainability of a healthy forest for public recreation, aesthetic value, and to support ecosystem and regional biodiversity. The continuation of active forest management will provide a diverse landscape of different age forest that provides both young forest to support rapidly declining early successional wildlife and mature late successional forest for forest interior dwelling wildlife species.

All 10 parcels classified as Vegetative Management Areas will be managed according to the objectives established in the Raystown Lake OMP and Forest Management Environmental Assessment. The management plan provides for the continued production and harvest of forest products through proper silvicultural techniques, sustained yield programs, reforestation, and implementation of accepted conservation practices. Although not the primary goal, all vegetative management actions also contain an aspect of wildlife management. The Pennsylvania Department of Conservation of Natural Resources Bureau of Forestry and the PGC are valuable partners in the preparation and implementation of forest management activities.

*Figure 5.4 Tree plantings following a timber sale and prescribed fire (USACE Photo).*

### 5.5.4 Future/Inactive Recreation Areas

Future/Inactive Recreation Areas are those lands with site characteristics compatible with potential future recreational development or recreation areas that are closed. Of the 16,872 acres classified as Multiple Resource Management Lands, 1,698 acres are identified in 7 distinct parcels as Future or Inactive Recreation Areas; specifically Future Recreation Areas. No lands have been identified as Inactive Recreation Areas.

Although there may not be an immediate need for additional recreation facilities within the location of these areas, it is impossible to accurately predict future recreational trends or population growth within any given area. It is recognized that federal recreation funding is limited. These sites could be potentially leased to other agencies or local governments, or they could be advertised as potential commercial sites.

Recreation development by lessees operating on USACE lands must follow policy guidance contained in USACE regulations at ER 1130-2-550, Chapter 16.

That policy includes the following statement:
*"The primary rationale for any future recreation development must be dependent on the project's natural or other resources. This dependency is typically reflected in facilities that accommodate or support water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps, and comprehensive resort facilities. Examples that do not rely on the project's natural or other resources include theme parks or ride-type attractions, sports or concert stadiums, and standalone facilities such as restaurants, bars, motels, hotels, non-transient trailers, and golf courses. Normally, the recreation facilities that are dependent on the project's natural or other resources, and accommodate or support water-based activities, overnight use, and day use, are approved first as primary facilities followed by those facilities that support them. Any support facilities (e.g. playgrounds, multipurpose sports fields, overnight facilities, restaurants, camp stores, bait shops, comfort stations, and boat repair facilities) must also enhance the recreation experience, be dependent on the resource-based facilities, be secondary to the original intent of the recreation development…"*

Until there is an opportunity to develop these areas, they will be managed for multiple resources including low density recreation, wildlife and vegetative management. Each of the designated future recreation areas are further described below. The recommendations for these areas have been summarized based on a multitude of factors such as: proposed actions of the 1994 Raystown Lake MP, expressed public desires, stakeholder input, regional needs, study information, and ecological conditions.

Proposed future recreation areas identified in this plan will require separate NEPA review and evaluation. When required, NEPA evaluation and documentation will be obtained before the proposed action is implemented.

- **Parcel 5401: Corbin's Bridge River Access.** Due to the popularity of non-motorized recreation as demonstrated through the receipt of public comment and the lack of designated river access on USACE operated lands, it is recommended to establish a low impact 6 acre area that provides:

    - An access road
    - Parking
    - Soft launching access

    This site was selected as a Future Recreation Area due to its suitable quantity of acreage and relatively flat topography for the intended use.

Additionally, the site is adjacent and can connect to existing infrastructure in terms of state and township roadways and utilities. Considerations for development of the site should include the impact of high water releases as the area is currently undeveloped wooded river bottom habitat. This facility development was not identified in the 1994 MP.

A map depicting this Future Recreation Area is included in Appendix D, Map 16.

- **Parcel 5402: Moonbeam Paddle Access.** Due to the popularity of non-motorized boating recreation and the lack of designated lake access, it is recommended to establish a low impact 6 acre area that provides:

    - An access road
    - Parking
    - Sanitation facility
    - Non-motorized launching access (implemented at no net gain of boating access opportunities)
    - Fishing pier
    - Wildlife viewing opportunities

  This site was selected as a Future Recreation Area due to its suitable quantity of acreage and an existing USACE access road which connects to state infrastructure. Additionally, the site is routinely used by the public as an access point for non-motorized boating and fishing due to its location in an inlet of the lake. Development of this site will provide a designated access point that incorporates safe access and environmental sustainability. Considerations for development of the site should include the impacts of high water events. This facility development was not identified in the 1994 MP.

  A map depicting this Future Recreation Area is included in Appendix D, Map 17.

- **Parcel 5403: Susquehannock North.** The 1994 MP identified this area as both “Seven Points North” and “Susquehannock North” and proposed expanded development of the Susquehannock Camping area. At that time the following was recommended; 76 campsites, 5 group camping areas, vault toilets, trails, and potable water.

  The revised recommended future actions within this 523 acre parcel include:

- Parking
- Sanitary facilities (shower, toilets)
- Additional campsites
- Group camping with shelter facilities
- Playground additions
- Trail expansion
- Expanded recreation opportunities (high adventure, etc.)

A review of this site as a Future Recreation Area determined that the need for recreational opportunities at this site are still valid. Additionally, the site in terms of land access, topography, and connection to existing recreational opportunities remain appropriate for development. The area currently is undeveloped wooded habitat that include portions of the Allegrippis Trails, a leased facility. The area is also actively managed for timber and wildlife.

A map depicting this Future Recreation Area is included in Appendix D, Map 18.

- **Parcel 5404: Upper Corners.** The 1994 MP called for construction of a conference center, cabins, lodge, health spa, and associated facilities.

  A review of this site as a Future Recreation Area determined that the need for recreational opportunities at this site is still valid. The recommended future actions within this 1,048 acre parcel include all of the recommended actions from the 1994 MP with the exception of the conference center and courtesy dock. The need for a conference center was already met by LRRL&CC, and the addition of a courtesy dock would contradict the findings of the 2018 boating study.

  Proposed development facilities should be carefully placed to minimize cultural and environmental disturbances. Additionally, proposed facility placement should incorporate the aesthetics of the landscape and view shed by maintaining a natural buffer. The area currently is undeveloped wooded habitat that includes portions of the Allegrippis Trails, a leased facility. The area is also actively managed for timber and wildlife.

  A map depicting this Future Recreation Area is included in Appendix D, Map 19.

- **Parcel 5405: Coffee Run Recreation Area.** The proposed actions in the 1994 MP identified multiple trail and woodland access points for hiking, mountain biking, cross country skiing, and additional hunting opportunities

from Aitch to High Germany Road. The recommended future action is to consolidate those ideas into one 20 acre recreation area providing:

- Parking
- Non-motorized launching access (implemented at no net gain of boating access opportunities)
- Sanitary facilities
- Trailhead with multi-use trail additions focused on equestrian use. The trails associated with the recreation area may expand into adjacent lands classified as multiple resource management.

This site was selected as a Future Recreation Area due to the ability to consolidate multiple small access points that were identified in the 1994 MP and meet newly identified recreational demands. The location capitalizes on the adjacent state highway for public access. The site provides a suitable quantity of acreage and relatively flat topography for the intended use. Additionally, this designated access point is adjacent to large tracts of land suitable for activities such as hunting, wildlife watching, low impact trail use, and can connect to existing state roadways. This facility development was not identified in the 1994 MP.

A map depicting this Future Recreation Area is included in Appendix D, Map 20.

- **Parcel 5406: Headwaters Camp.** Recognized as "Peninsula 1," the 1994 MP called for the addition of a boat-in camping area with mooring opportunities, fishing access, and sanitary facilities in this area.

  The recommended future action within this 92 acre parcel includes all of the recommended actions from the 1994 MP and expands camping opportunities beyond boat-in and hike-in camping.

  A review of this site as a Future Recreation Area determined that the need for recreational opportunities at this site are still valid. Additionally, the site remains suitable for the intended primitive use. It is noteworthy that this camping area would exist adjacent to the Terrace Mountain Trail. The area currently is undeveloped wooded habitat that is actively managed for timber and wildlife.

  A map depicting this Future Recreation Area is included in Appendix D, Map 21.

- **Parcel 5407: Weaver's Bridge Access.** Due to the popularity of fishing, non-motorized boating recreation, and the lack of designated lake access, it is recommended to establish a low impact 1 acre area that provides:

    - Parking
    - Improved shoreline access
    - Non-motorized launching access (implemented at no net gain of boating access opportunities)
    - Low-impact picnicking

    This site was selected as a Future Recreation Area to provide the necessary infrastructure and facilities to meet current recreational uses and needs. The site is routinely used by the public as a fishing access point due its location in the headwater region of the lake as well as ease of public access via the state roadway. Additionally, the location is experiencing environmental degradation that can be corrected by providing proper, safe, and environmentally sustainable, facilities. Considerations for development of the site should include the impact of high water events in terms of access and shoreline stabilization. This facility development was not identified in the 1994 MP.

    A map depicting this Future Recreation Area is included in Appendix D, Map 22.

## 5.6 Water Surface Areas

Water surface, as noted in Chapter 4, must be classified using the designations of: Restricted, Designated No-Wake, Fish and Wildlife Sanctuary, and Open Recreation. The PFBC, as mandated by State law, has the primary responsibility for management of regulatory markers. These responsibilities are also delineated in the MOUs dated 11 October 1974 and 16 September 2005 between the Raystown Lake Project (USACE) and the PFBC. Under the current MOU, USACE and PFBC must jointly agree upon any major alterations to the buoy placement plan before implementation. Therefore, while the MP identifies water surface classifications, these classifications must also be jointly agreed upon by the PFBC. These changes do not occur in a concurrent process. The MP may reflect water surface classifications that are not implemented until approved by the PFBC. Maintenance of regulatory buoy markers on Raystown Lake is the responsibility of the USACE, except where permitted by the PFBC to a lease holder. Water surface classifications are depicted in the Land and Water Classification Maps in Appendix C.

### 5.6.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety and security purposes. A total of 236 acres identified in 10 distinct parcels are classified as restricted.

- **Parcels 6101, 6102, 6103, 6104, 6105. Restricted Area.** These five parcels are restricted from public entry and use due to operational and security requirements.
- **Parcels 6106, 6108, and 6110. Keep Out**. These 3 parcels surround the designated swimming beaches. Boat access is prohibited.
- **Parcel 6107. Keep Out.** This parcel restricts public use to personnel associated with the Juniata College Field Station only.
- **Parcel 6109. No-Ski**. This parcel allows public use to include boating, but for the protection of the user, restricts recreational activities that include towing (water-skiing, tubing, wakeboarding, etc)

These areas are marked with standard US Coast Guard (USCG) regulatory buoys and/or shoreline signage.

### 5.6.2 Designated No-Wake

Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve visitor safety near key recreational water access areas such as boat ramps, swim beaches and marina. A total of 1,908 acres identified in 18 parcels are classified as Designated No-Wake. These areas are marked with standard USCG regulatory buoys and/or shoreline signage.

### 5.6.3 Fish and Wildlife Sanctuary

The designation of water surface as Fish and Wildlife Sanctuary applies to areas with annual or seasonal restriction to protect fish and wildlife species during period of migration, resting, feeding, nesting, and/or spawning. There are 43 acres identified as Fish and Wildlife Sanctuary in 1 parcel. This is commonly known as the “Propagation Area” and is part of the mitigation area managed by the Pennsylvania Game Commission. Public entry and use is restricted year-round.

### 5.6.4 Open Recreation

The classification of Open Recreation identifies those waters available for year round or seasonal water-based recreational use. There are 6,144 acres identified as open recreation in 4 distinct parcels.

*Figure 5.5 Ranger kayak program at Sheep Rock (USACE Photo).*

- **Recreational Seaplane Operations**. Many USACE-administered reservoirs, including Raystown Lake, have areas where recreational seaplane operations are allowed. Areas where recreational landings and takeoffs are permitted were determined by USACE through a public process separate from the MP in 1998. These areas are consistent with those classified as Open Recreation. Once a seaplane has landed it is considered a vessel, must follow water-craft rules and regulations, and may taxi in locations where boating traffic is not otherwise restricted.

## 5.7 Project Easement Lands

Future management of the 687 acres of flowage easement lands at Raystown Lake includes routine inspection of these areas to ensure that the Government's rights specified in the easement deeds are protected. In almost all cases, the Government acquired the right to prevent placement of fill or habitable structures on the easement area due to the potential interference with the flood risk management mission. Within the flowage easement properties, there are 2 notable recreation facilities operated by other entities:

- Heritage Cove Resort is a privately operated camping resort located on the western shore upstream of the Weaver's Falls Bridge in the headwaters of Raystown Lake. The resort includes permanent and overnight camping, cabins, a pool, camp store, boat launch, courtesy dock, parking, sewer treatment facility, and potable water. A portion of USACE fee property is leased to Heritage Cove for the boat launch, courtesy dock, and parking. The remaining areas all exist on private property, with some of the camping areas on flowage easement lands.

- Warriors Path State Park is a state operated day use park located on the eastern shore upstream of Saxton, PA on the Raystown Branch. The park includes shelters, picnicking, and trails for day use activities. There is no

USACE fee property associated with Warriors Path State Park. However, portions of the park that exist adjacent to the river include flowage easement interests. There are no permanent facilities located in these flowage easement areas.

# CHAPTER 6 – SPECIAL TOPICS

## 6.1 Introduction

The purpose of this chapter is to set forth topics of special interest that are important to the overall future management of Raystown Lake. These topics generally involve multiple land classifications and resource management objectives. Some of these topics are the subject of high public and/or stakeholder interest warranting additional discussion.

## 6.2 Land Inventory

The Water Infrastructure Improvements for the Nation of 2016 (WIIN) includes the following provision at P.L. 113-322. Sect. 1309, Huntingdon County, Pennsylvania.

> *(d) In General.-The Secretary shall-*
>
> *(3) Prioritize the updating of the master plan for the Juniata River and tributaries project, Huntingdon County, Pennsylvania, authorized by section 203 of the Flood Control Act of 1962 (Public Law 87-874; 76 Stat.1182); and*
>
> *(4) Ensure that alternatives for additional recreation access and development at the project are fully assessed, evaluated, and incorporated as a part of the update.*
>
> *(e) Participation.-The update referred to in sub-section (a) shall be done in coordination with all appropriate Federal agencies, elected officials, and members of the public.*
>
> *(f) Inventory.-In carrying out the update under subsection (a), the Secretary shall include an inventory of those lands that are not necessary to carry out the authorized purposes of the project.*

This Land Inventory Report portion of the MP responds to the final requirement in §1309, the inventory of those lands that are not necessary to carry out the authorized purposes of the project. No further interpretation or guidance was furnished to the Baltimore District pertaining to this provision.

The report concludes that two tracts downstream of Raystown Dam, previously identified as excess, are not necessary to carry out the authorized purposes of the project. In addition, the report concludes that fee interest in a number of tracts in the Saxton area is not needed to carry out project purposes and may be disposed of, retaining a flowage easement on the portion of each subject to flooding.

The Land Inventory Report and additional discussion are attached as Appendix F.

## 6.3 Boat Capacity Study

### 6.3.1 Introduction

In the summer of 2018, a Recreational Boating Carrying Capacity Study was conducted on Raystown Lake, Pennsylvania, for the Baltimore District USACE. This study characterized peak boating use and boaters' perceptions of safety and crowding at the lake. The primary focus of the study was to evaluate existing recreational use and users' perspectives against carrying capacity ranges researched and developed specifically for the Raystown Lake setting. Additional information regarding facility carrying capacity was collected and presented to assist in future lake management decisions. All results indicate that carrying capacity at Raystown Lake has been reached and exceeded. The observed peak boating density at Raystown Lake during this study was 5.7 acres per boat, which was well beyond recommended standards established by this study for boating density and the preferences of lake users.

For study purposes, Raystown Lake was delineated into five study zones. Data was collected, analyzed, and reported according to study zone and the lake as a whole, as appropriate. The surface area of the lake usable for boating activities was calculated by study zone, providing the basis for estimating observed boat density (usable acres per boat). Over three high-use summer weekends, field data was collected on recreational boating use. Data about boat use on the water was collected via aerial flyovers. Simultaneously, ground crews conducted counts of empty boat trailers at public boat launch parking lots and campgrounds. Empty marina slip counts were tabulated utilizing aerial photography. Field data was utilized to determine the number and types of boats using the lake at any given time and, ultimately, the observed boat density. The collected information provides insights into boat origin and existing utilization levels of lake access facilities and infrastructure during peak times.

A user survey targeting boaters at Raystown Lake was administered following the summer boating period in the fall of 2018. The survey provided information on user characteristics, on-water activities, and perceptions of safety, crowding, displacement, and preferred boat density. This information was used to define an acceptable range of social boating carrying capacity at Raystown Lake and to assess the impact of existing boating density on the quality of the recreational experience and boating safety. The survey, approved by the U.S. Office of Management and Budget, followed the requirements and guidelines for federally sponsored data collections. The survey had a response rate of 38%, which is a statistically valid sample.

### 6.3.2 Changes in Boating Since 1988

Over the summer of 1987, a study was conducted on Raystown Lake to understand peak boat use patterns and their effect on boating quality on the lake (Graefe et al. 1988). It is useful to compare boating conditions, facility counts and use, and boater perceptions as recorded in that study to the current conditions

characterized in this study to assess any major changes in conditions over the past 30 years. More than 300 additional boats were found to be using the reservoir during peak summer use, an increase of 28%. At the same time, the number of access opportunities (marina slips and car/trailer spaces) increased by the same percentage for a total of 500 additional measurable access opportunities added.

In terms of the type of boats utilized on Raystown Lake, there were changes from 1988 to 2018. In the 1988 study, pontoon boats made up only 6% of total boaters surveyed. This increased to 33% of current users. The size of boats has increased over time as well, with 69%of boats measuring greater than 20 feet in 1988 compared to 93% in 2018.

Over half of current users reported feeling moderately to extremely crowded on the water, compared to 36% of survey respondents in the 1988 study. Perceptions on displacement have significantly increased as well. On the questions that are directly comparable, boaters report more displacement and perceptions of feeling less safe on all accounts.

### 6.3.3 Study Conclusions

The 2018 study collected comprehensive data regarding boat use levels, facility impacts, crowding, and safety. All study results indicate that carrying capacity at Raystown Lake has been reached and exceeded. Numerous boating capacity studies across the nation recommend densities around 12.5 acres per boat, and the WALROS calculation for Raystown recommends a maximum density of 10 acres per boat. The WALROS system is a tool initially developed by the USDA Forest Service and the Bureau of Reclamation. The methodology is used to systematically classify recreational opportunities, capturing both social preferences and physical capacity of the reservoir. The observed density at Raystown Lake peaked at 5.7 acres per boat (single day, lakewide), with one area having an even higher density, well beyond recommended standards established by this study. Over the past 30 years, the boating density at Raystown Lake has increased nearly proportional to the additional number of access opportunities added over that period. Over 500 access opportunities have been added and the peak boating increased by 300 additional boats on the water. It is reasonable to assume that future increases in access opportunities will proportionally increase the number of boats utilizing the reservoir during peak boating days and further increase boating density.

In light of these conclusions, this MP does not include additional motorized boat access opportunities.  New boat access facilities are limited to improvements for non-motorized launching, in response to public demand. Proposed future recreation and existing recreation areas that include the development of non-motorized boating opportunities shall be implemented at a no net gain of boating access.

Should peak boating numbers persist, management activities could be implemented to mitigate areas of high congestion, with the goal of reducing boater conflict.

The report is provided as Appendix G.

## 6.4 Biological Inventories

As part of the MP effort a series of biological inventories were conducted to support the project delivery team in analysis of resource objectives and land use classifications. These studies were necessary to determine the existence of special status species populations, including species of regional concern, occurring on project lands as well as determine if significant changes in existing populations have occurred. This effort was conducted by USACE's ERDC, Environmental Laboratory and included 4 primary components: (1) survey and map shale barren plant communities; (2) survey shale barrens for the presence of endemic Noctuid moth species; (3) conduct acoustic bat surveys with a focus on continued documentation of the presence or absence of federally and state listed species; (4) invertebrate surveys of aquatic insects and fresh water mussels in the headwaters, tributaries, and tail water portions of Raystown Lake.

The report is provided as Appendix H. Specific species location identified within the report have been redacted in an effort to afford necessary protections.

## 6.5 Aesthetic Resources

### 6.5.1 Regional Context

The general landscape character of South Central Pennsylvania is one of steep mountains and valleys intersected with numerous ravines, creeks, and runs. Elevations around Raystown Lake range from 600 to 2,000 feet NGVD. Most of the area is covered with a deciduous hardwood (oak-hickory) forest, with associated understory. Interspersed into this natural system are manmade or created landscape elements, including large and small towns, rural farmsteads, commercial development, roads, abandoned railroads, an operating railroad along the Little Juniata River, agricultural fields, the flood control dam, parks, and cemeteries. The landscape character of the Raystown Lake Project is consistent with the primarily natural, mixed character of the surrounding area. The land surrounding the project continues to remain rural although the lake acts as a catalyst for development. Much of the region remains in agriculture; however, many small businesses have appeared in association with the lake.

### 6.5.2 Raystown Lake Project Lands

The high visual quality of Raystown Lake makes it a scenic attraction in the region. The large body of water, the striking topographic changes, the curvilinear character of the lake, and the mixed deciduous and evergreen forests are a testimony to this statement. Visitors often cite the natural beauty of the project as an important part of their recreation experience.

The lake is located between Terrace Mountain and Allegrippis Ridge, which accounts for many of the steep shorelines. The long, narrow lake follows the valley of the old river bed and encompasses 8,300 acres. The surrounding project lands are primarily forested, interspersed with wetlands and fields. Much of the project land is visible by boat because of the steeply sloping hillsides surrounding the lake.

The man-made dam is a strong nonconforming element, which is visible from Ridenour Overlook and a road pull-off immediately below the dam. The reservoir shoreline is somewhat mixed in character, but is mostly forested with many of the recreation areas scattered along the shoreline. The abandoned railroad beds, which were located at a few recreation and natural areas, are largely free of vegetation and create a visual and physical path adjacent to the lake.

Existing reservoir operations can cause periodic changes in the aesthetic conditions of the lake and project lands. Occasional drawdowns during low flow conditions can expose areas of bare shoreline which add several feet of vertical clearance to the demarcation between the reservoir shoreline and the forested uplands. The aesthetics of the project lands immediately adjacent to the lake also change during flood events when reservoir operations increase the height, length, and width of the reservoir. The stored flood control water inundates portions of the recreation and upland areas, primarily in the coves. This temporary rise in lake elevation usually occurs during the winter and spring months and may last several days to one week.

Raystown Lake Project has a reputation for its beautiful undeveloped scenery and abundant wildlife viewing opportunities; this makes it a popular destination for outdoor recreation. USACE manages nearly 22,000 acres of land surrounding Raystown Lake, on which there are no private exclusive uses, and there is minimal pool fluctuation. Recreation has been developed in nodes to increase the efficiency of operation and to minimize disturbance of the shoreline. USACE has maintained an undisturbed natural buffer between the shoreline and all future non water dependent development to reduce visual pollution. Protecting the undeveloped scenery afforded by the lake is strongly supported by public comment. It is recommended that for any major development, a viewshed analysis be included as part of the environmental review process.

## 6.6 Partnerships

In an era of declining fiscal resources, partnering is an essential tool that allows USACE to effectively manage recreation and environmental resources. Raystown staff have actively sought and implemented a multitude of partnerships to meet the Project's recreation and stewardship missions, as it is recognized that partnering helps to pool scarce resources, resolve common problems, leverage federal dollars, and avoid duplication of effort. Partners have included federal, state, and local government

agencies. A significant focus has been placed on seeking new and strengthening existing public-private partnerships with local businesses and non-profit organizations.

Much of the success that Raystown has achieved can be traced back to the partnerships that have been formed and nourished at the lake. From its origin in the 1960's, the community supported the creation of Raystown Lake to supplement the young tourism industry in Huntingdon County. Over many years, Raystown Lake Project staff have used that connection, through a balance of recreation and stewardship partners, to build programs, facilities, and relationships that have provided the public with a multitude of opportunities.

Raystown thrives because of groups like:

- **The Friends of Raystown Lake (FRL).** As a 501(c)3 non-profit organization, the Friends of Raystown Lake support the missions of the USACE as both a cooperating association and lessee. The FRL has a license to operate and maintain the Allegrippis Trail System and works with other partners like the Raystown Mountain Biking Association (RMBA) and Southern Alleghenies Planning & Development Commission (SAP&DC) to fund and execute trail construction and maintenance. They sponsor the annual lake cleanup to recruit volunteers to share in a spring beautification project. They support projects like campground operations, provide lake navigation lights, coordinate environmental education programming through the Raystown Conservation Education Partnership (RAYCEP), and they are directly or indirectly involved in nearly every program at Raystown Lake.

- **The Huntingdon County Visitors Bureau (HCVB).** A 501(c)6 non-profit organization, the HCVB provides visitor services to the thousands of visitors that enter the Raystown Lake Visitor Center every year at no cost to USACE. As a tradeoff for the visitor services, USACE provides office space in the Visitor Center so the HCVB can associate directly with the lake's visitors, and promote tourism in the center of Raystown Country. The HCVB also works with USACE and other partners to provide educational programming to school groups, helping USACE spread the water safety message and other mission related programs.

- **The National Wild Turkey Federation (NWTF).** The Terrace Mountain Chapter of the NWTF provide funds and expertise to further wildlife management goals by providing wildlife food crops. They also assist in the funding and coordination of the Annual Chris Bowser Wheelin' Sportsmen Hunt, which is designed to provide disabled hunters the opportunity to enjoy the outdoors while assisting Project staff in maintaining desired deer population levels in select areas.


*Figure 6.1 Participants and volunteers of the Annual Chris Bowser Wheelin' Sportsmen Hunt (USACE Photo).*

- **The Ruffed Grouse Society and Pheasants Forever.** Both of these groups partner with USACE to provide wildlife management support by improving habitat.

- **The American Chestnut Foundation (ACF).** The ACF partners with the Raystown Lake Project to further research and reintroduction of the American Chestnut into Pennsylvania forests. There are currently 6 chestnut orchards at Raystown where various stages of backcrossed trees continue to grow and provide information to the ACF with the goal of producing blight resistant American chestnut trees.

- **The US Coast Guard Auxiliary (USCGA).** The USCGA provides safety patrols, conducts boat operation classes and supports numerous water safety special events all in support of the goal to make Raystown Lake a safer place to boat.

- **The Pennsylvania Striped Bass Association (PSBA).** The PSBA serves as the primary partner to both the Raystown Project and PFBC in all aspects related to fisheries management. They provide support to artificial habitat construction and installation, lake-cleanup efforts, assist the FRL in maintaining lake navigation lights, and perhaps most notably operate a striped bass nursery to help maintain and improve striped bass populations.

- **The Marklesburg Volunteer Fire Department**. The MVFD has the primary responsibility to respond to all accidents for the major portion of the lake. The fire

department provides ambulance transports for injured mountain bikers and is equipped and trained to conduct rescue, search and recovery services. In addition, they provide safety training for the project staff.

It is noteworthy that both the Friends of Raystown Lake and the Marklesburg Volunteer Fire Department have been recognized by USACE as the national partner of the year; the FRL in 2010 and the MVFD in 2015.

There are many other groups that are involved helping to further Raystown Lake's partnership ethic. Many of them focus on a single project or effort that closely matches the group's interest, so they are not mentioned here, but their contribution should not be overlooked. Those groups typically are part of Challenge Partnership Agreements that have a shorter duration. Many of these projects were part of USACE's Headquarters (HQ) supported Handshake Partnership Program. Raystown Lake has been very successful in its use of this program. Its proposals have been approved seven times since its inception in 2004. That is the most of any lake project in the nation at this time. During that time Raystown has partnered with 23 different groups and leveraged $389,000 in partnership value, while receiving $126,600 in HQ funding to match $117,000 in RLP funds. Overall, the Handshake Program has benefitted the lake by adding wayside exhibits, adding critical wildlife habitat, supporting conservation education programming, supporting chestnut research, beautifying the Visitor Center, advancing striper research through the nursery, and building the mountain bike Skills Park. The total value to the public exceeds $630,000.

Raystown Lake's national reputation within USACE's Natural Resource Management community as a partnering project shows that partners play a critical role in making Raystown Lake successful. For the past several years, Raystown has seen its partnership value exceed $1.5 million in annual contribution value. Raystown has formed new partnerships that provided the expertise needed to complete construction projects, fostered existing partnerships that provided the foundation to improve fisheries habitats, and strengthened key partnerships to complete environmentally significant service projects, improve public safety, and improve access to project facilities. Partnerships are what makes Raystown successful.

Future recommendations regarding active partnering include:

- Nourish existing partnerships while continuing to seek others who may have a specific interest in offering benefits for public lands;
- Focus effort on school-aged groups to build community interest, ownership, and foster a desire in youth to engage in life-long civic duty;
- Reward and recognize existing partners as Raystown Lake would not be what it is today without them.

## 6.7 Fisheries Management

### 6.7.1 General Description

Raystown Lake is a destination sport fishery supported by numerous public boat ramps, marinas, private boat retail businesses and bait/tackle shops. The lake provides a quality fishery for both the boater and the bank angler. The PFBC manages the fisheries of Raystown Lake in accordance with a MOU.

### 6.7.2 Fishery Management Objectives

The objectives of the fishery management plan at Raystown Lake were established in cooperation with the PFBC to include:

- Create and maintain a lake fishery that is ecologically desirable, and equally favorable to game and non-game fish species.
- Regulate outflows, as directed by the Water Control Management Section of USACE, for flood control purposes and to maintain and improve the warm water fishery conditions in the Raystown Branch downstream of the dam. Outflows maintain and improve warm water fishery conditions downstream of the dam by providing sufficient flow in the river through required minimum releases, and by releasing water that best matches desirable temperatures through the outlet works.
- Inform visitors about the management programs and their place within the overall resource management program.
- Provide an optimum fishing opportunity in the lake, rivers, and streams for project visitors.

### 6.7.3 Fish Stocking

The PFBC began stocking the lake in 1973 in an effort to establish a “two story” fishery unique to the Northeast. The Raystown Lake fisheries management objectives are to develop a warm water fishery for bass, muskellunge, panfish, and striped bass, and a cold water fishery for trout species, notably brown and lake trout. The species sought by anglers include tiger muskellunge, largemouth bass, black and white crappie, bluegill, striped bass, yellow perch, channel catfish, and brown bullhead. Pumpkinseed, carp, white sucker, rock bass, and several species of minnows are also present. Additionally, the PFBC is the responsible agency for stocking tributaries to and the tail water of Raystown Lake. The Great Trough Creek is stocked with mixed trout species (which generally include brook trout, brown trout, and rainbow trout). The Raystown Branch of the Juniata River, below the Raystown Dam is stocked with mixed trout species (which generally include brown and rainbow trout).

Generally, a stocking management plan is developed every four to five years based on the PFBC census of fish populations. Currently, populations of lake

*Figure 6.2 Placement of Porcupine Crib Juniors by USACE staff and volunteers to improve aquatic habitat (USACE Photo).*

trout, striped bass, walleye, muskellunge, and tiger muskellunge are maintained and supplemented by the PFBC through routine stockings of juvenile fish. Annually, the PFBC stocks over 100,000 striped bass fingerlings and fry. In addition to PFBC stockings, the Pennsylvania Striped Bass Association (PSBA) also stock juvenile Striped Bass in Raystown Lake in an effort to sustain the population. Other sport fish populations such as largemouth bass, smallmouth bass, black crappie, white crappie, bluegill, yellow perch, brown bullhead, and channel catfish are sustained through natural reproduction. With the exception of trout and rainbow smelt, which are managed with special regulations, Raystown Lake's fisheries are managed with Commonwealth Inland Waters angling regulations.

The Raystown Lake Cooperative Striped Bass Nursery was created in 2015 in cooperation between the PFBC, PSBA, and USACE. This striped bass nursery is located at the Seven Points Maintenance Compound. The nursery's purpose is to spawn and raise striped bass to be released into Raystown Lake. The goal of this project is to aid the striped bass stocking efforts of the PFBC to ensure a sustainable population of the species within the Raystown Lake fishery. The nursery is managed under a real estate license and challenge partnership agreement with USACE.

### 6.7.3 Habitat Management

The Raystown fisheries habitat structure improvement program was born out of the desire by local fishermen to improve the habitat and create a better fishery at Raystown Lake. In 1986 the first plan was created to place PFBC approved

structures in the lake using volunteer labor at the direction and supervision of USACE. The program became official when USACE signed an "Adopt-a-Stream" agreement in February 1989 with the habitat management section of the PFBC. The program was later renamed the "Adopt-A-Lake" program and now exists as the Cooperative Habitat Improvement Program. The agreement allows the Raystown program to be eligible for state funding and state assistance in procurement of materials, construction, and placement of habitat improvement structures.

In conjunction with PFBC and USACE, numerous sportsmen and civic groups have contributed both time and funding to construct and place fish habitat structures. More than 1,500 structures have been placed. According to the PFBC, the fisheries habitat management plan from 2016 report concluded that artificial habitats (refuge, spawning, nesting and nursery) are designed to be effective, long lasting structures that allow fish to accomplish their daily and seasonal behaviors with greater efficiency. Some artificial habitats have dual purposes and may also provide increased opportunities for anglers to catch and harvest fish. They also provide increased surface areas for algae attachment, aquatic insect colonization and other food organisms, which may increase the health of the fishery.

### 6.7.4. Submerged Aquatic Vegetation

As discussed briefly in the resource analysis, the presence of SAV has historically been sparse within the water body of Raystown Lake due to the steep shoreline and the low proportion of suitable substrate. Over the past 10 years, two invasive aquatic plants, hydrilla (*Hydrilla verticillata*) and Eurasian watermilfoil (*Myriophyllum spicatum*), have become dominantly established within suitable portions of the water-body ranging in depths from approximately 0 to 30 feet. USACE's Buffalo District, with the support of USACE ERDC, have completed lake-wide surveys (2017 and 2018) of all SAV to map location (point data) and density. A third non-native SAV, brittle naiad (*Najas minor*), is also present, although in low frequency.

Due to the extent of the current aquatic invasive populations and the use of Raystown Lake as a boating and fishing destination, the following recommendations are provided:

- Continued monitoring and mapping of species presence, distribution, and density.
- Potential invasive species treatment should occur to prevent adverse impacts to the aquatic environment and recreation facilities.
- Expand education on the transportation of invasive species by the boating and fishing community.

## 6.8 Trail Management

There are six recognized trails managed for public use at Raystown Lake. Public comment received during preparation of this Plan supports development of new trails and expansion of existing trails. Adding to this support, the 2014 Pennsylvania SCORP recognized that trails provide a significant impact in achieving the state initiatives for improving health & wellness.

The trails at Raystown Lake offer opportunities for hiking, biking, trail running, hunting access, wildlife viewing, and photography. The trails are all classified as multi-use. Maps depicting trail locations are provided in Appendix D.

- **Old Logger's Trail -** The 5 mile hiking trail offers hikers the chance to see how forests develop, and how they can be managed to improve wildlife habitats. The main trail follows old logging roads, farm roads and deer paths and connects the Seven Points Recreation Area with the Susquehannock Campground. Through a partnership with the Ruffed Grouse Society, 500 acres surrounding the Old Loggers Trail area are being managed to improve the habitat for ruffed grouse, woodcock and other wildlife species. Management of the trail includes timber cuts, bridge improvements, tree plantings, wetland enhancements, and installation of trailside exhibits and tree identification signs. The trail area is used to show, in small scale, management techniques that are being duplicated on a larger scale elsewhere on Raystown Lake lands. The Sheep Rock Spur of this trail travels above the old site of the historically significant Sheep Rock Shelter, a Native American camp used during travels along the Raystown Branch.

- **Riverside Nature Trail –** This ½ mile trail parallels the Raystown Branch and offers a rare opportunity to observe four distinct ecological communities, which include riverine, wetland, successional forest, and meadow. The trail begins near the parking lot of the "Old Schoolhouse" and terminates at Branch Camp.

- **Hillside Nature Trail –** This ½ mile trail immediately behind the Visitor Center in Seven Points meanders through naturalized bird habitat. Its close proximity to the Visitor Center provides an ideal opportunity for educational programming, while its short length makes it attractive to the passive hiker. A portion of the trail also includes a wheelchair accessible loop. Management of the first portion of the trail focuses on wildlife forage and cover tree species. The second part of the trail is focused on forest dwelling bird species. Recommended improvements to this trail include surfacing, drainage, signage, and construction of wildlife observation areas.

- **Terrace Mountain Wilderness Trail -** The 27 mile Terrace Mountain Trail traverses the entire eastern side of Raystown Lake, providing an opportunity for challenging day and overnight hikes through remote and rugged terrain. The trail can be accessed at 7 locations. Overnight camping is available at Lake Raystown Resort (miles 4.5 and 5.5) and Trough Creek State Park (mile 11.9);

primitive camping is permitted in designated locations along the trail. The trail is marked with blue blazes and mileposts. This rugged trail traverses steep mountainsides providing spectacular views, relatively undisturbed wild areas, and travels through the Rothrock State Forest and the Trough Creek State Park. Public comment for this trail supported improvements to the trail surface, signage, overnight shelters, and improved maintenance. Successful partnering efforts are needed to accomplish these goals.

- **Allegrippis Mountain Biking Trail –** The Allegrippis Trail System consists of 36 miles of constructed mountain biking trails designed in a stacked loop configuration. The trails have gained popularity and national recognition because of their buttery smooth feeling and the roller coaster effect riders enjoy. The trails are located on the western side of Raystown Lake traveling through forested rolling topography providing scenic vistas and other outdoor recreational opportunities. The majority of the trail system lies north east of the Susquehannock Campground in a location locally known as Bowser's Orchard, but also travels south of Seven Points and connects directly to the Visitor Center. The main access to the trail is available from a shared parking lot with the Old Logger's Trail area near the entrance to Susquehannock Campground. The following is a summary of major activities relating to the creation and existence of the Allegrippis Trail System and its associated components.

  - In September, 2002, USACE and the International Mountain Biking Association (IMBA) signed a National MOU for development of mountain biking opportunities on USACE projects.
  - In 2006 the Friends of Raystown Lake received $150,000.00 Growing Greener funds (Pennslyvania-DCNR) and $170,000.00 Appalachian Regional Commission funds for construction of the Raystown Mountain Biking Trail. Supplemental grants were received from additional partners later to assist with the construction activities.
  - In 2007 the Friends of Raystown was issued a lease agreement by USACE for the construction and maintenance of a trail corridor at Raystown Lake.
  - Construction activities began on December 17, 2007, conducted by an IMBA Trail Solutions construction crew contracted by the Friends of Raystown Lake.
  - A ribbon cutting ceremony hosted by the Friends of Raystown Lake officially opened the Allegrippis Trails at Raystown Lake on May 9, 2009.
  - On July 1, 2016 the Raystown Mountain Bike Skills Park was opened in an old borrow area adjacent to the Visitor Center in Seven Points.

  The areas surrounding the trail system have potential for expansion, as does the skills park, but without an expanded workforce and additional resources, any possible expansion would be uncertain.

*Figure 6.3 Users of the Allegrippis Trail System (USACE Photo).*

- **Greenside Pathway Walking Trail** – This 3 mile sustainable walking trail provides park visitors a safe alternative to using the existing congested roadways. In August 2012, USACE received an $854,000 grant from the Federal Transportation Administration to design and construct a post-consumer (recycled) product pathway to circumnavigate the Seven Points Recreation Area. The pathway connects 19 recreation areas in Seven Points and gives staff the opportunity to interpret the missions of USACE by using wayside panels strategically placed along the trail. An estimated 38,000 recycled tires were used in the construction of the pathway to provide a soft walking surface with a very porous material that allows precipitation to percolate through the trail surface. The trail was designed to be visible yet provide for an enjoyable "walk through the park", but has turned into a destination recreation facility. The Greenside Pathway opened to the public in 2013.

- **New development -** Recent additions of the walking trail, mountain biking trails, and hiking trails have expanded outdoor opportunities into the spring and fall, which demonstrates a proven need for trail growth and enhancements. This further supports public desire for expanded trail opportunities and priorities of the Pennsylvania SCORP.

## 6.9 Utility Corridors

In accordance with USACE policy established in Chapter 17 of EP 1130-2-550, Non-Recreation Outgrant Policy, placement of utility lines on USACE land will be avoided unless there is no reasonable alternative to the activity, route, or structure. The intent of USACE is to "*meet legitimate needs for the use of projects lands and waters operated and maintained by the Corps while sustaining natural resources and protecting authorized project purposes*". The establishment of designated corridors on projects lands, to serve as the preferred location for future outgrants, such as easements for roads or utility lines, is encouraged.

This MP will address and provide specifications for utility corridor establishment only. While project lands will generally be available for roads that are considered regional

arteries or freeways, no current regional and county mobility plans express a need for regional arteries to cross USACE administered lands at Raystown Lake. Additionally, requests for the placement of towers shall be required to abide by federal regulations in addition to the Non-Recreation Outgrant Policy.

A total of seven utility corridors are established on the Raystown Lake Project as a result of existing utility lines including both pipeline and electric transmission lines. The established corridors are provided in Appendix E. The following requirements shall be applied in the future use of the existing corridors. These requirements apply to utility requests such as pipelines, non-USACE water intake/supply, and electric transmission lines. Electric service distribution lines are not addressed.

- Requests for utility placement must utilize existing corridors. Access to corridors for inspection, monitoring, and repairs must use existing project roads; some of which are considered secondary roads and not open to routine public use. Utility placement outside corridors designated here will require supplementation to this MP.
- Requests for utility placement will require coordination under the provisions of the National Environmental Policy Act in addition to any applicable USACE requirements such as Section 408.
- Efficient use of the designated corridor space is required to allow the maximum number of utilities possible to occupy the space. Reduced cost is not a reason to occupy additional space.
- The maximum total expansion of each corridor cannot exceed 100 feet horizontally in either direction from the existing edge. This is a cumulative total for the corridor, not a per request limitation.
- Underground utilities shall be installed by boring at all aquatic interfaces, and where feasible, across the full extent of designated corridors.
- Overhead electric and communication lines must meet minimum sag height requirements to be specified by USACE.
- Natural resources damaged or destroyed within corridors shall be mitigated per USACE requirements.
- Current and future cultural resources will be protected.

# CHAPTER 7 – AGENCY AND PUBLIC COORDINATION

## 7.1 Public and Agency Coordination Overview

USACE policy requires thorough public involvement and agency coordination throughout the MP revision process, including involvement in any associated National Environmental Policy Act coordination. Additionally, as stated in the WIIN Act of 2016 Sec. 1309 (b) Participation. "*The update referred to in sub-section (a) shall be done in coordination with all appropriate Federal agencies, elected officials, and members of the public*". It was imperative in the revision process that public and stakeholder input be incorporated into the MP to ensure that future management actions are both environmentally sustainable and responsive to public outdoor recreation needs. The following milestones provide a brief look at the process of public involvement during the revision of the Raystown Lake MP.

- **February 8, 2018:** Stakeholder Kick-off Meeting, Raystown Lake Project
- **April 25 & 26, 2018:** Public Meetings, Saxton & Huntingdon, Pennsylvania
- **August 11 & 12, 2018:** Open House, Raystown Lake Project
- **September 30, 2018:** End of first public comment period
- **Fall 2019:** Draft MP and EA ready for public review, open houses for public input
- **Winter 2019-2020:** End of second public comment period
- **Summer 2020:** Final MP and EA

## 7.2 Public and Agency Coordination

Guided by a Public Involvement Plan, an extensive public involvement effort was initiated in early 2018. Various methods were utilized to obtain public and agency input into the master planning process by the broadest means possible. These included:

- **Public Website.** Previous MPs, boating studies, meeting presentations, relevant information and other resources were posted for public access at any time to the Raystown MP Revision website. A digital comment form was also included on the website to better engage regional visitors and community members.

- **Social Media.** Utilized both the Baltimore District Headquarters and Raystown Lake Facebook pages to announce public meetings and new project updates.

- **News Releases.** News releases to announce the revision of the MP, the public input process, and the schedule of public meetings were sent to local and regional newspapers, television, and radio stations.

- **Stakeholder Meeting.** A preliminary stakeholder meeting was held on February 8, 2018 to answer initial stakeholder questions and better inform community leaders as to the upcoming project process.

- **Public Meetings.** USACE hosted multiple public meetings in both the north and

south areas of the lake community to ensure easy access for locals to the meeting.

- **Stakeholder Email List.** RaystownMPRevision@usace.army.mil email was created specifically for public input. The public was invited to sign up for email updates regarding project milestones and the newest information.

### 7.2.1 Stakeholder Meeting

An initial stakeholder meeting was held on February 8, 2018, at the Raystown Lake Visitor Center. The meeting was held for elected officials, county employees, agency personnel, and lessees operating on USACE land. The purpose of this meeting was to inform Raystown Lake stakeholders and community leaders of the upcoming process and answer any preliminary questions. The following agencies and organizations were invited to send a representative by letter of invitation.

**Table 7.1 Stakeholder Meeting – Organization Invitation List.**

| Agency/Organization | Contact Person |
|---|---|
| **Federal Elected Officials** | |
| United States Congressman | Glenn Thompson |
| United States Congressman | Bill Shuster |
| **State Elected Officials** | |
| Pennsylvania State Representative | Rich Irvin & Walter Russel |
| Pennsylvania State Senator | John Eichelberger Jr. |
| **Local Elected Officials** | |
| Huntingdon County Commissioners | Scott Walls |
| | Jeff Thomas |
| | Mark Sather |
| Penn Township Supervisors | Regina Hileman |
| Juniata Township Supervisors | Leslie McDermott |
| Hopewell Township Supervisors | Wendy Melius |
| Walker Township Supervisors | Steve Felton |
| Lincoln Township Supervisor | Cheryl J. Russell |
| **Federal, State, and Local Regulating Agency/Organizations** | |
| USDA Natural Resource Conservation Service | Jim Steward |
| U.S. Fish and Wildlife Service, Pennsylvania Field Office | Robert Anderson |
| Pennsylvania Game Commission | Pete Sussenbach |
| | Robert Einodshofer |
| | Christopher Skipper |
| Pennsylvania Fish & Boat Commission | Ben Page |
| | Alan Robinson |
| | Anthony Quarricino |

| | |
|---|---|
| Pennsylvania Department of Conservation and Natural Resources | Rachel Reyna |
| **Agency/Organization** | **Contact Person** |
| Pennsylvania Historical Museum Commission | Nancy Moses |
| Director, Natural Heritage Program | Thomas Saunders |
| Office of Program Integration | Aneca Atkinson |
| Pennsylvania DCNR Bureau of Forestry | Jody Skipper & Mark Potter |
| Bureau of State Parks | John Hallas |
| Pennsylvania Department of Parks | Joseph Basil |
| Huntingdon County – Pennsylvania Department of Transportation | Michael Peachey |
| Huntingdon County Planning Commission | Mark Colussy |
| Huntingdon County Emergency Management Director | Joe Thompson |
| Huntingdon County Conservation District | Celina Seftas |
| Bedford County Planning Commission | Dan Schwartz |
| Bedford County Emergency Management Director | David Cubbison |
| Southern Allegheny Conservancy | Susan Llewellyn |
| **Raystown Lake Project – Partnership and Lease Organizations (Official Agreement)** | |
| Seven Points Marina | Pauline Hetrick & Pam Prosser |
| Lighthouse Concessions | Brian & Sandy Rickabaugh |
| Lake Raystown Resort | Samantha Patt-Kozak |
| | Josh Patt |
| Allegheny Electric Cooperative, Inc | Todd Sallade |
| Raystown Hydroelectric Project | William Carbaugh |
| Branch Camp | Bob Moyer |
| Pennsylvania Striped Bass Association | Nelson Wertz |
| National Wild Turkey Federation | Walt Bingaman |
| Ruffed Grouse Society | Linda Ordiway |
| Pennsylvania Chapter of the American Chestnut Foundation | Sara Fitzsimmons |
| **Adjacent Landowner Business/Organization** | |
| Heritage Cove Campground | Dick & Sandy Wright |
| Jim's Anchorage | B.J. Filson |
| Full Performance Marine | Martin Finklestine |
| Shy Beaver Boat Sales | Joe Brumbaugh |
| HCB&I | Robert Reitman |
| Penn Township | Kevin Fluke |

### 7.2.2 Public Meetings

Public coordination began in April 2018 with two public meetings held in Saxton (Tussey Mountain High School on April 25, 2018) and in Huntingdon (Huntingdon Area High School on April 26, 2018), Pennsylvania. Attendance consisted of 85 people at the Saxton meeting, and 165 people at the Huntingdon meeting. The public meetings were announced in multiple formats including: social media,

local newspapers, the stakeholder email list and local television stations. During both meetings, a general introductory session was held with all meeting attendees to review the MP revision process. A small group question and answer component during this portion of the meeting allowed the public an opportunity to state their comments, and USACE to record these concerns and comments. Following the introductory session of the meetings, attendees were divided into small groups for the purpose of facilitated discussion (brainstorming) session. During the facilitated sessions, the project was divided into five zones (mirroring those of the boating carrying capacity study), and members of the public were asked four questions regarding each zone. These questions were:

- **Question 1:** What RECREATION Opportunities (ie. camping, boat ramp parking, hiking trails, etc.) would you like to see in this ZONE?
- **Question 2:** What ENVIRONMENTAL STEWARDSHIP Opportunities (ie. protection and enhancement, hunting and fishing opportunities, land management initiatives, etc.) would you like to see in this ZONE?
- **Question 3:** Do you have a major CONCERN about this ZONE?
- **Question 4:** What do you VALUE about this ZONE?

A USACE representative led the discussion with a designated recorder for capturing the discussion and all comments, suggestions, and concerns. Each attendee was given a comment card and had until 30 September, 2018 to return them to USACE. A website, mailing address, and email address were also provided with which to receive comments, also until 30 September, 2018. The target audience for these public meetings were members of the local community.


*Figure 7.1 (Left) Park Ranger Allen Gwinn leads a brainstorming session during the public meeting held in Saxton, Pennsylvania (USACE Photo).*

*Figure 7.2 (Right) Raystown Lake MP Project Manager, Ms. Avis Kennedy provides information regarding the MP revision process to attendees during the August open house, held at the Raystown Lake Visitor (USACE Photo).*

Public coordination continued with a two day open house style public meeting. The meetings were held at the Raystown Lake Visitors Center on August 10th and 11th, 2018 from 10:00am until 6:00pm. Approximately 318 people came to the open house during the two day session to discuss opportunities and ask questions with project team members. This provided yet another opportunity for

face-to-face public involvement before the end of the first public comment period. The open house was advertised through social media, the Baltimore District's website, and a news release sent to multiple local television, newspaper and online publications as well as was sent to all those on the stakeholder email list. Each attendee was given a comment card, and had until 30 September, 2018 to return them to USACE. A website, mailing address, and email address were also provided with which to receive comments, also until 30 September, 2018. The target audience for these public meetings was visitors to the region in addition to local community members who were unable to participate in the first round of public meetings.

### 7.3 NEPA Coordination

Coordination letters were sent in August, 2018 to inform local governments, non-governmental agencies, organizations, state, and federal agencies that an Environmental Assessment was being drafted for the MP revision. A study initiation notice was sent to the public in August, 2018. Responses received directly as part of the NEPA processes are included in Appendix A (Environmental Assessment).

### 7.4 Comment Analysis

During the initial comment period, which ended on September 30, 2018, nearly 1,000 public comments were received.

A significant proportion of public comments expressed the value placed on the scenic viewsheds of the public land surrounding the lake. They also expressed a desire for the preservation of the natural landscape and the protection of wildlife. Additionally, a large number of comments expressed the desire to halt any future increases in boat traffic on the lake. Many valuable comments requested specific recreation improvements, some of which have been included in the revision and others that will be included as part of the Raystown Lake OMP.

As further summarized in Chapter 8, Summary of Recommendations, a substantial number of comments received during the public comment period were related to the land use classification of an area of Raystown Lake known as Hawn's Bridge area. Of those comments requesting a change to high density recreation, many presented economic development in the region as the only factor in favor of development in this area. Decisions to reclassify land for high density recreation are based upon providing public outdoor recreation opportunities that support project purposes and public demands while sustaining the Project's natural resources. Requests for additional public recreation opportunities in this area were very limited.

Figure 7.3 depicts the methods in which public comments were received and analyzed. All comments were analyzed independently as well as grouped for trend discovery.

Appendix B of the MP contains the following:

- Public Meeting (April 25 & 26) – Brainstorming session notes
- Public Comments – Comments submitted on forms during public meetings, deposited at the Raystown Lake Project Office, Web comments (emailed and digital form)
- Mailed Letters

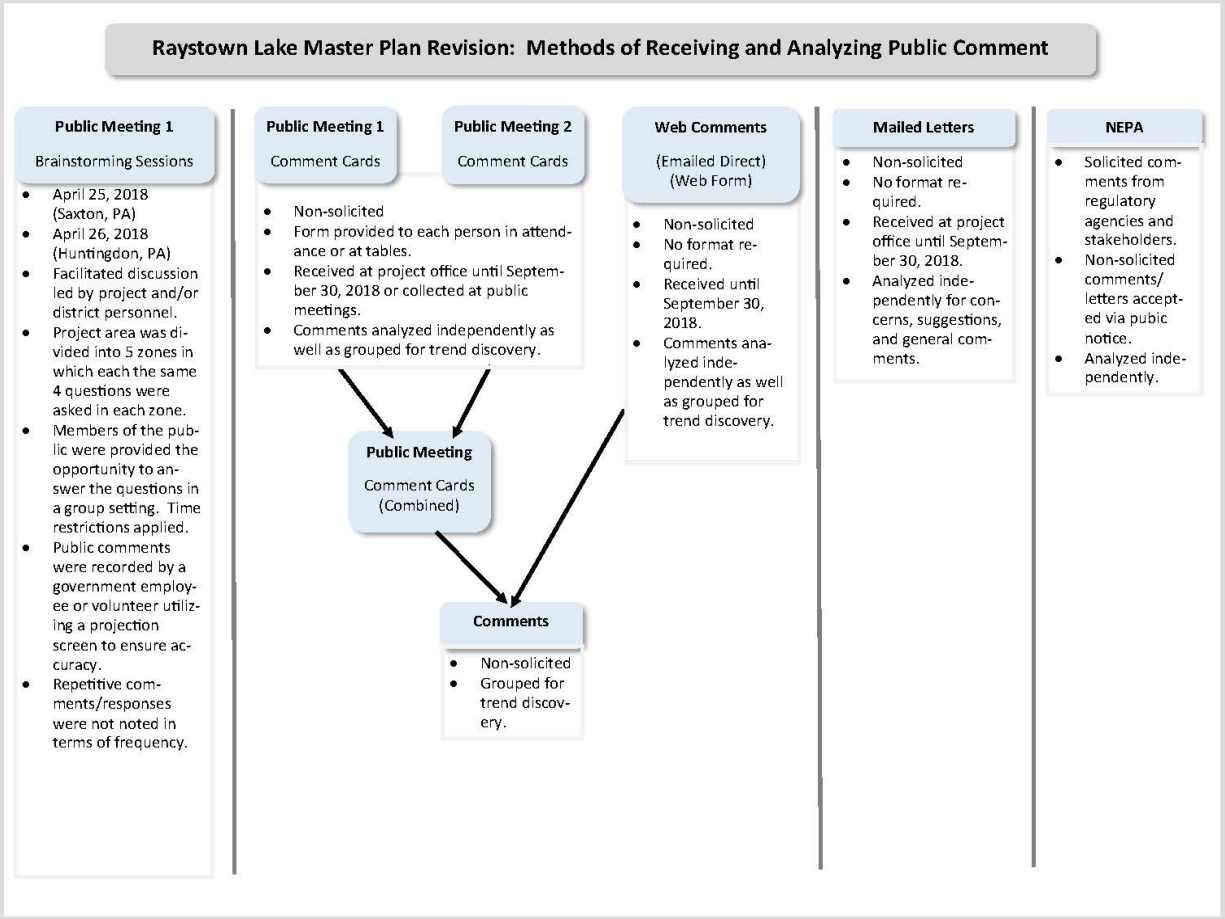


*Figure 7.3 Methods of Receiving and Analyzing Public Comment*

## 7.5 Public and Agency Review of Draft MP, EA, and FONSI

*This will be completed following Public and Agency review of the draft* MP *and Environmental Assessment/Draft Finding of No Significance.*

# CHAPTER 8 – SUMMARY OF RECOMMENDATIONS

## 8.1 Summary Overview

The preparation of this MP for Raystown Lake followed current USACE Master Planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 13 January 2013. Three major requirements set forth in the guidance include the preparation of contemporary Resource Objectives (included in this MP as Chapter 3), classification of project lands using approved classification standards (included in this MP as Chapter 4), and the preparation of a Resource Plan (included in this MP as Chapter 5) describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include rigorous public involvement throughout the process, and consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities. Throughout the revision process it was recognized that management actions and initiatives implemented on Raystown Lake lands and waters can cumulatively aid in actions and efforts taken by state, non-profit, and private landowners in regard to regional and landscape level recreation and conservation needs.

The Project Delivery Team followed this guidance to prepare a MP that will provide for enhanced recreational opportunities for the public, foster environmental sustainability, and deliver a long-term management concept compatible with projected USACE budget and staff levels. Factors considered in the development of the MP were identified through public involvement, new biological inventories (Appendix H), the boating carrying capacity study (Appendix G), and the Pennsylvania State Comprehensive Outdoor Recreation Plan.

## 8.2 Land Reclassification Proposals

A key component in preparing this MP was examining prior land classifications and addressing the needed transition to the current land classification standards. During the public involvement process USACE received public input into whether, besides the simple change in nomenclature, a shift in land classification was desired.
The Land Use Classifications presented in this plan were formulated by the Raystown Lake Project staff, NAB Operations (Flood Risk Management Branch) staff, and the Project Manager.

Prior to initiating the revision process, USACE received at least one request to reclassify some lands from Multiple Resource Management to High Density Recreation. The requested reclassification was prominent during the public involvement process, as described in Chapter 7 Agency and Public Coordination, Section 7.4. This proposal was considered along with all acreage at Raystown Lake, using the process as further described.

## 8.3 Land Classification Determination Process

To determine land classification for the Raystown Lake MP Revision, the items listed below were evaluated for all acreage. Both project land and water surface were evaluated using the same criteria and question process. The process applied a series of evaluation criteria, listed below, to each parcel of land at Raystown. The first principle used was "Is there a compelling justification to change from the current classification?"

Following the application of this measure, the process used a generalized conceptual framework, which focused on the four primary components described in EP 1130-2-550 Chapter 3, paragraph 3-5a, described below, with examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions and trends. The MP objectives were individually evaluated to determine benefits and detriments in potential re-classification of USACE lands and water surface.

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with Raystown Lake's authorized purposes,
- Environmental sustainability elements

The following process and evaluation criteria were applied to all acreage encompassing Raystown Lake:

1. ***Review current land classification (1994 MP).***
    a. Have there been changes since the 1994 plan?
    b. Does this classification meet the current public and resource needs?
    c. Is there a compelling justification to change from the current classification?
2. ***Review current features (recreation/stewardship/operations).***
    a. Have there been changes since the 1994 plan?
    b. Do the current features meet the current public and resource needs?
    c. Is there a compelling justification to change (reduce/increase/rehabilitate) features?
3. ***Review proposed development identified in the 1994 MP.***
    a. Have there been changes to future development proposed in the 1994 MP?
    b. What has been accomplished?
    c. What is still needed?
    d. What is no longer appropriate or needed?
    e. Does the proposed development meet the current public and resource needs?
    f. Is there a compelling justification to change (reduce/increase/rehabilitate) features?

4. ***Review ERDC Biological Inventory (Shale Barren Plants/Shale Barren Moths/Special Status Species Bats/Freshwater Invertebrates/Moths/Damselflies).***
    a. Do the presence/absence of these species require a change in land classification?
    b. Do the presence/absence of these species require specific management?
5. ***Review Boating Study.*** Although the study was in draft at the time the classifications were drafted, there were no substantive changes to the study conclusions or recommendations.
    a. Do the capacity results require safety consideration in land use classification changes and water surface classifications?
    b. Do the capacity results require consideration of boating capacity that would influence the development of additional recreation opportunities?
    c. Do the public survey results require consideration of land classification, water surface classification, identify a need for additional recreation features, or a limitation on new recreation features?
6. ***Review Public Comments (evaluate from the position of the four questions asked to the public). Refers to Zones 1-5 developed for use at public meetings and for other public input. See Chapter 7, Agency and Public Comments, for more information.***
    a. Did the public identify the need for new recreation opportunities in this zone/land tract?
    b. Did the public identify the need for new environmental stewardship opportunities in this zone/land tract?
    c. Did the public express concerns related to this zone/land tract?
    d. Did the public identify a value in this zone/land tract?
7. ***Review public brainstorm session comments (four questions asked to the public).***
    a. Did the public identify the need for new recreation opportunities in this zone/land tract?
    b. Did the public identify the need for new environmental stewardship opportunities in this zone/land tract?
    c. Did the public express concerns related to this zone/land tract?
    d. Did the public identify a value in this zone/land tract?
8. ***Review Raystown Lake Forest Management EA & Forest Management as discussed in the OMP.***
    a. Review current land management practices conducted and planned.
9. ***Review Raystown Lake Biological Opinion for Forest Dwelling Bat Species.***
    a. Review Biological Opinion requirements.
10. ***Review other submitted or existing research.***

a. Do the results or submitted information in any of these documents indicate special considerations of land classification?
   - Juniata College Field Station Plan
   - Turtles of the Raystown Lake Project
   - Pennsylvania Striped Bass Association – Comments on the Raystown MP Revision, Boat Study, and Boating Safety Considerations
   - Pennsylvania Striped Bass Association – Comments and Concerns
   - Huntingdon County Heritage Inventory
   - Pennsylvania Statewide Comprehensive Outdoor Recreation Plan (SCORP)

***11. Additional References Utilized.***

a. 1976 MP (Note: The PDT agreed that the 1994 MP superseded the 1976 MP. The 1994 MP was developed after 20 years of operation of the project – it was felt that it included the practical operation and maintenance that may not have been considered during initial MP development. Additionally, the 1994 MP included extensive public comment, input, and evaluation that resulted in changes from the original MP. The 1976 MP was not evaluated – simply used as a reference.)
b. RLP Design Memoranda
c. Water Infrastructure Improvements for the Nation Act, 2016
d. 1988 Boat Capacity Study

**8.4 Hawn's Bridge Area**

In 2016, USACE received an unsolicited proposal for development, including a marina, campground, beach, and lodging, in an area known as Hawn's Bridge. The proposal was not accepted for a number of reasons, primarily the fact that it did not conform to the land use classifications set forth in the 1994 Plan.

During this MP revision, USACE recognized the sensitivity of public sentiment and political interest in the land classification of the Hawn's Bridge area. The Project Delivery Team used the criteria noted above with specific focus and additional analysis regarding public comment, the biological inventories, and the 2018 Raystown Lake Boating Carrying Capacity Study, none of which supported a land classification change to high density recreation. While a number of public and elected official comments requested changes to the land use classification of the Hawn's Bridge area, nearly all of these cited economic development as the only or primary benefit. Economic development, while important, is not an authorized project purpose for Raystown Lake.

While the interest in the reclassification of the Hawn's Bridge area did receive support for economic development and recreation, it was not supported by a number of other criteria. The following factors were determined to be negative, or potentially negative, regarding reclassification of Hawn's Bridge area as high density recreation:

- Proximity to Bat Conservation Area
- Proximity to Shale Barren area
- Impact on timber resources or tree cover
- Impact on fisheries
- Impact on hunting
- Topographic impacts to infrastructure construction

Appropriate MP Objectives were applied in the classification analysis with the following results:

- The proposal would support the objective to identify and evaluate increased opportunities to provide and implement education and outreach on the missions of the RLP.
- It would not preserve the unique scenic beauty and aesthetics of the project by minimizing development and maintaining the undisturbed natural buffer between the shoreline and all future development.
- It would not achieve recreation goals in conjunction with the USACE Recreation Strategic Plan and the Pennsylvania SCORP.
- It would not actively manage and conserve fish, wildlife, and special status species or enhance biodiversity.
- In addition, it would not support goals to manage invasive species, promote forest health, or prevent erosion and sedimentation.

The proportion of public comments received specifically opposing the proposal to develop and/or reclassify the Hawn's Bridge area was significant. This indicates that expressed public desires at this time do not support the reclassification to High Density Recreation.

The final determination resulted in classification of the area of interest as an ESA (Parcel 4013) and Multiple Resource Management, sub classified as Wildlife Management (Parcel 5205 and 5206) and Vegetative Management (Parcel 5303).

### 8.5 Summary of Changes

A summary of the acreage changes from prior land classification to the current classifications is provided in Table 8.1 below, with water surface classifications reflected in Table 8.2. A summary of individual land classification changes and related justifications for the new land classifications is provided in Table 8.3.

Land classification acreages were derived using geographic information system technology that was not available during the 1994 classifications. These totals do not reflect the official land acquisition records – no additional acres have been acquired. The total land classification acres listed in the 1994 Raystown Lake MP were 20,240. The current land classification acres in the 2020 MP are 21,342.

**Table 8.1 Change from Prior Land Classification to New Land Classification.**

| Land Use Classification | 1994 (acres) | 2020 (acres) |
|---|---|---|
| Project Operations | 4,000 | 241.71 |
| Recreation-Intensive Use | 1,740 | N/A |
| High Density Recreation | N/A | 1,067.03 |
| Mitigation | 3,000 | 2,653.77 |
| Environmentally Sensitive Areas | 2,300 | 507.82 |
| Multiple Resource Management (MRM) | 9,200 | [16,872.43] listed below: |
| MRM – Low Density Recreation | | 2,694.36 |
| MRM – Wildlife Management | | 7,012.26 |
| MRM – Vegetative Management | | 5,466.96 |
| MRM – Future & Inactive Recreation | | 1,698.85 |
| **Total** | 20,240 | 21,342.76 |

Water surface classification acreages were derived using geographic information system technology and do not reflect the official land acquisition records. The total water surface classification in the 2020 MP is 8,332. Water surface was not classified in the 1994 plan.

**Table 8.2 Proposed Raystown Lake Water Surface Classifications.**

| Water Classification | Acres |
|---|---|
| Water Surface: Restricted | 236.39 |
| Water Surface: Designated No-Wake | 1,908.35 |
| Water Surface: Fish and Wildlife Sanctuary | 43.70 |
| Water Surface: Open Recreation | 6,144.05 |

**Table 8.3 Justification for the Proposed Reclassification.**

| Land Classification | Proposed Action Description | Justification |
|---|---|---|
| Project Operations | Decrease in Project Operations from 4,000 acres to 241.71 acres. | The decrease in Project Operations is due to a number of different factors, including an error in the 1994 Plan and improvements in geographical measurement technology. These lands are used in support of critical operation and maintenance activities. These include lands around Raystown's Dam, Administration Building, and Maintenance Compound. |
| High Density Recreation | Lands under the prior classification of Recreation were converted to the new and similar | Changes to the High Density Recreation land classification acreages were the result of |

| Land Classification | Proposed Action Description | Justification |
|---|---|---|
| | classification of High Density Recreation. | improvements in geographical measurements and alignment with current use. While there is a net reduction in measured lands, no High Density Recreation Areas were removed. The relabeling of these lands will have no effect on current or projected public use. |
| Mitigation | Mitigation lands are managed by the Pennsylvania Game Commission and have not changed. | Acreage differences are due to use of GIS technology and do not reflect the official land acquisition records. |
| Environmentally Sensitive Areas | The decrease in ESAs from 3,000 acres to 507.82 acres resulted from the following actions:<br>• The Juniata College lease area was removed from this classification and was classified as MRM – Wildlife Management.<br>• Historic shale barren habitats were surveyed by the USACE Research and Developmental team (ERDC). | These classification changes were necessary for the following reasons:<br>• The Juniata College Field Station does not meet the definition of ESA. This land is primarily used for education and research. This resulted in a reduction of about 362 acres.<br>• Historic shale barrens that were surveyed and determined to not be shale barren habitat were removed from this classification. Historic shale barrens that were not surveyed remained within this classification. Historic shale barrens that were identified as shale barren habitat were more accurately identified and their boundaries refined. |
| MRM – Low Density Recreation | The 1994 MP did not identify specific polygons or acreages for MRM - Low Density Recreation. | Lands that are predominately used for passive public recreation were identified. These lands include trail systems, trailheads, islands and overlooks. |
| MRM – Wildlife Management | The 1994 MP did not identify specific polygons or acreages for MRM – Wildlife Management. | Lands that are designated for stewardship of fish and wildlife resources were identified. These lands include 3 Bat Conservation Areas; as well as the Gate 35, High Germany and Bowsers |

| Land Classification | Proposed Action Description | Justification |
|---|---|---|
| | | Orchard Wildlife Management areas. |
| MRM – Vegetative Management | The 1994 MP did not identify specific polygons or acreages for MRM – Vegetative Management. | Lands that are designated for stewardship of forest and other native vegetative cover were identified. These lands include forest management polygons identified in Raystown's Forest Management EA. |
| MRM – Future or Inactive Recreation Areas | The 1994 MP did not identify specific polygons or acreages for MRM - Future or Inactive Recreation Areas. | Lands that have site characteristics compatible with potential future recreational development were identified. Seven polygons are within this classification. |
| Water Surface | The 1994 MP did not classify water surface acreage. The classification of 8,332.49 acres of water surface of the lake at the conservation pool elevation is as follows:<br>• 236.39 acres of Restricted water surface at Raystown Lake include water upstream and downstream of the dam, Juniata College inlet, the existing no-ski area, USACE Boat House and 3 swimming areas.<br>• 1,908.35 acres of Designated No-Wake areas are in place to include water surface near the dam, boat launches, multiple inlets and marinas.<br>• 43.70 acres of Fish and Wildlife Sanctuary are identified in one location to the south of the Aitch recreation area.<br>• There are 6,144.05 acres of Open Recreation water surface at Raystown Lake. | Restricted water surface includes areas where recreational boating is prohibited or restricted for project operations, safety and security purposes.<br><br>Designated No-Wake areas are intended to protect environmentally sensitive shorelines, improve boating safety near key recreational features such as boat ramps and shoreline camp sites, and be responsive to public comments.<br><br>Open Recreation areas encompass the majority of the lake water surface and are open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps and marinas, that navigational hazards may be present at any time and at any location in these areas.<br><br>Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy. |

## 8.6 Proposed Actions Not Carried Forward from 1994 Master Plan

The following areas, as summarized below, were proposed for recreation development in the 1994 MP. These areas were evaluated using the criteria described above and were determined inconsistent with future management of the Project.

- **Hopewell-Site 7.** This site was envisioned to include an American Heritage Park, with exhibits showing the social, cultural, economic and natural landscape of the Raystown region. An arboretum with native plants would be established, and bed and breakfast style lodging were to be developed with streets or lands connecting the structured area to the lake.

  This site was removed from further development consideration due to several primary factors which included a lack of public desire for intensive recreational development and the use of intensive resource management efforts within the area focused on the creation of early successional habitat.

- **Trough Creek- Site 18.** This site was envisioned to include a courtesy boat dock provided by the Bureau of State Parks.

  This site was removed from the 1994 MP due to the limited amount of USACE fee owned land for support facilities associated with a courtesy boat dock/water access point. Should the state determine that such a facility is necessary USACE would evaluate the proposal in accordance with current policy.

- **Brumbaugh House-Site 19.** The 1994 MP envisioned restoration of the Brumbaugh House as an interpretation site for the exhibition of significant Raystown artifacts such as a Sheep Rock exhibit.

  This site was removed from further development consideration due to the deterioration of the facility from vandalism beyond historic repair.

- **Peninsula 2 – Fish Tournament Area & Small Boat Marina – Site 29.** This site was envisioned as a facility that provided a 2 lane boat ramp, trailered and single car parking, a 100 boat slip marina, a fish cleaning area, and office space.

  This site was removed from further development consideration due to the capacity results of the Boating Study.

- **Peninsula 2 – Boat-to-Camping Area – Site 30.** This site was envisioned as a facility that provided a boat dock, camp sites, comfort station, and water supply.

  This site was removed from further development consideration due to: availability in existing boat to shore camping facilities, proposed development of similar facilities at the southern end of the lake (Parcel 5406: Headwaters Camp), and

limited public desire.

- **Hawn's Bay Inlet – Site 33.** This site was envisioned as a boat to shore camping facility with boat mooring docks.

  This site was removed from further development consideration due to: availability of existing boat to shore camping facilities, proposed development of similar facilities at the southern end of the lake (Parcel 5406: Headwaters Camp), and limited public desire.

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