

# Environmental Assessment

Stonewall Jackson Lake 2021 Master Plan



February 2021

# Table of Contents

<b>1</b>	<b><i>Introduction</i></b> .....	<b>3</b>
<b>2</b>	<b><i>Purpose and Need</i></b> .....	<b>5</b>
<b>3</b>	<b><i>Alternatives</i></b> .....	<b>6</b>
<b>4</b>	<b><i>Affected Environment/Environmental Consequences</i></b> .....	<b>10</b>
<b>5</b>	<b><i>Summary of Environmental Effects</i></b> .....	<b>25</b>
<b>6</b>	<b><i>Compliance with Environmental Laws</i></b> .....	<b>26</b>
<b>7</b>	<b><i>Public Involvement</i></b> .....	<b>30</b>
<b>8</b>	<b><i>References</i></b> .....	<b>31</b>

DRAFT

## 1 Introduction

A Master Plan (MP) is required for each Civil Works Project and all fee-owned lands for which the U.S. Army Corps of Engineers (Corps) has administrative responsibility. The MP serves as a strategic land-use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the Stonewall Jackson Lake Project (Project). The existing Project MP was completed in 1982 but has not been comprehensively revised since then.

The purpose of this Environmental Assessment (EA) is to assess the impact of proposed updates to the Project MP and to ensure compliance with the National Environmental Policy Act (NEPA) and other environmental laws. The EA will also provide an opportunity for public involvement in the decision-making process. This EA has been prepared in accordance with NEPA and the Council on Environmental Quality's (CEQ) Regulations (40 CFR §1500-1508), and the Corps Engineer Regulation (ER) 200-2-2, Procedures for Implementing NEPA.

### 1.1 Project Location

The Stonewall Jackson Lake Project is located in the north-central portion of West Virginia and lies entirely within Lewis County. The dam site is located at the northern end of the Project on the West Fork River in Brownsville, WV, three miles south of the county seat of Weston and 73 miles upstream from the mouth of the West Fork River where it joins the Tygart River to form the Monongahela River.

Primary access to the project is via U.S. Interstate 79 and U.S. Route 19. Figure 1 displays the location of the Project and its proximity to Pittsburgh, PA and Charleston, WV.



**Figure 1.** Project vicinity map.

## **1.2 Project Overview**

The Stonewall Jackson Dam is a concrete gravity structure with an uncontrolled center spillway. The dam is 95 feet in height above the streambed, 620 feet in length, and 133 feet in width. The dam structures include three flood control sluices and two water quality control sluices. The Project's visitor center is located adjacent to the downstream face of the dam.

The Project consists of 20,493 acres of fee land and 707 acres of flowage and road easements. The drainage area above the dam is 101.8 square miles. The dam has the capability to store the equivalent run-off of 7.1 inches of precipitation. The Corps leases 20,089 acres of Project lands to the West Virginia Division of Natural Resources (WVDNR). A map of the project and the surrounding area is in Appendix B, Plate 2 of the MP. Project lands, as referred to throughout this EA, include those lands acquired by the Corps for the Project and are depicted within the red "Fee Boundary" outline shown in Plate 2 of the MP.

## **1.3 Authorization and Project Description**

The Project was authorized by the United States Congress as part of the Flood Control Act of 1966. The authorized purposes of the Project are flood protection, water quality, water supply, fish and wildlife enhancement, and recreation. Construction of the Project was completed in 1990. The Corps retains 309.7 acres of land at the dam site for operation of the dam and support facilities. All remaining federal lands are leased to the state of West Virginia. These consist of roughly 1,800 acres managed by the WVDNR, Parks and Recreation section as a state park, and 18,289 acres of land and water managed by the WVDNR, Wildlife Resources section for public hunting and fishing.

The Project, as one of 16 flood control facilities in the Pittsburgh District, in conjunction with other reservoirs in the District, provides flood risk reduction along the Monongahela and Ohio Rivers.

## **1.4 National Environmental Policy Act Overview**

Within NEPA, the CEQ regulations, and the Corps regulations, a process is set forth where the Corps must assess the environmental effects of proposed federal actions and consider reasonable alternatives to their proposed actions. In general, NEPA requires federal agencies to make a series of evaluations and decisions that anticipate adverse effects on environmental resources. For those actions with the greatest potential to create significant environmental effects, the consideration of the proposed action and alternatives is presented in an Environmental Impact Statement (EIS). Where the potential effects of the proposed action are determined to be not significant, the agencies prepare an EA. The revision to the Stonewall Jackson Lake Project Master Plan is accompanied by an EA to support the decision making.

The CEQ's NEPA Regulations do not contain a detailed discussion regarding the format and content of an EA, but an EA must briefly discuss the need for the proposed action, the proposed action and alternatives, probable environmental effects of the proposed action and alternatives, and agencies and persons consulted in the preparation of the EA.

## **2 Purpose and Need**

### **2.1 Master Plan Overview**

A MP was developed for the Project in 1982. It is Corps policy that each MP shall be reviewed on a periodic basis and be revised as required. ER 1130-2-550 establishes the policy for the management of recreation programs and activities, and for the operation and maintenance of Corps of Engineers recreation facilities and related structures, at civil works water resource projects.

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 Project. The MP guides efficient and cost-effective management, development, and use of project lands. The MP also guides and articulates Corps responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources. The MP is a dynamic operational document projecting what could and should happen over the life of the Project and is flexible based upon changing conditions. The MP deals in concepts, not in details of design or administration. Detailed management and administration functions are addressed in the Operational Management Plan (OMP), which implements the concepts of the MP into operational actions.

MPs are required for civil works projects and other fee-owned lands for which the Corps has administrative responsibility for management of natural and manmade resources. Engineer Pamphlet (EP) 1130-2-550 establishes guidance for the preparation of MPs. As stated therein, the primary goals of the MPs are to prescribe an overall land and water management plan, resource objectives, and associated design and management concepts, which:

1. Provide the best management practices to respond to regional needs, resource capabilities and suitabilities, and expressed public interests and desires consistent with authorized project purposes;
2. Protect and manage project natural and cultural resources through sustainable environmental stewardship programs;
3. Provide public outdoor recreation opportunities that support project purposes and public demands created by the project itself while sustaining project natural resources;
4. Recognize the particular qualities, characteristics, and potentials of the project; and
5. Provide consistency and compatibility with national objectives and other state and regional goals and programs.

### **2.2 Purpose and Need for the Updated Master Plan**

It is Corps policy that each MP shall be reviewed on a periodic basis and be revised as required (ER 1130-2-550). The existing Project MP was approved in 1982, and there has been no revision to the MP in nearly 40 years. As such, the current MP provides an inadequate basis with which to evaluate contemporary proposals. There have been changes in demand for recreation which dictate the need to update the MP.

The newly drafted, Stonewall Jackson Lake 2021 Master Plan (2021 MP) provides a comprehensive description of the project, a discussion of factors influencing resource management and development, an identification and discussion of special problems, a

synopsis of public involvement and input to the planning process, and descriptions of past, present, and proposed development.

### **3 Alternatives**

When preparing an EA, the Corps should develop a range of alternatives that could reasonably achieve the need that the proposed action is intended to address. The alternatives being considered in this EA are a no action alternative of continuing to operate the Project under the 1982 MP, and the proposed action of operating the Project consistent with a new MP. The preparation of an environmental assessment, with only two alternatives (continuing to operate the Project without a new MP and operating the Project with a new MP) is appropriate because there are no other reasonable alternatives to consider for evaluation; there has been no comprehensive revision to the MP in nearly 40 years.

#### **3.1 No Action**

NEPA requires that federal agencies describe and analyze a no action alternative. The no action alternative considers what would happen if the Corps continued operating and managing the Project under the 1982 MP and the MP would not be revised or updated. The no action alternative provides a baseline from which other alternatives can be compared and evaluated.

Under the no action alternative, the 1982 MP would continue to be the document used for management of the Project. The 1982 MP does not account for any changes at the Project or in the surrounding areas that occurred after 1982. The 1982 MP does not include the revised land classifications (see MP Section 3.2) and is out of date with current Corps regulations. Without an updated MP, future development decisions would therefore be assessed on an *ad hoc* basis without the benefit of a comprehensive assessment of recreation and natural resource conditions and opportunities at the Project.

#### **3.2 Proposed Action – Adoption of the 2021 MP**

Under this alternative, the 2021 MP would be approved for the Project and would replace the 1982 document. The 2021 MP addresses important updates due to recreation demand, amenities within the project, current environmental conditions, and pertinent laws and policies. The 2021 MP changes the land classification nomenclature and lays out future recommendations for management of both recreation and natural resources. While the nomenclature has changed, the uses of those lands will remain similar to their current uses. The existing land use classification acreages were estimated prior to the construction of the dam, which is noted in Table EA-1. The scope of the 2021 MP and this EA are limited to actions on the Corps property. The only exception being the consideration of potential cumulative effects associated with actions off Corps property.

#### ***Scope and Objectives of the 2021 MP***

The 2021 MP provides guidelines and direction for future project development and use and is based on authorized project purposes, Corps policies and regulations on the operation of Corps projects, responses to regional and local needs, resource capabilities and suitable uses, and expressed public interests consistent with authorized project purposes and pertinent

legislation. The 2021 MP provides a District-level policy consistent with national objectives and other state and regional goals and programs.

**Land Allocation, Land Classifications, and Resource Objectives**

Land allocations at all Corps Civil Works water resource projects are based on the Congressionally authorized purpose for which the project lands were acquired. Since the 1982 MP, the Corps has changed the land classification nomenclature, which is concurrent with new land surveys. Land classification categories as defined by EP 1130-2-550, change 5, dated 30 January 2013, are as follows:

1. Project Operations
2. High Density Recreation
3. Mitigation
4. Environmentally Sensitive Areas
5. Multiple Resource Management
  - a. Low Density Recreation
  - b. Wildlife Management
  - c. Vegetative Management
  - d. Future Recreation
6. Water Surface
  - a. Restricted
  - b. Designated No-Wake
  - c. Fish and Wildlife Sanctuary
  - d. Open Recreation

See the 2021 MP Section 3.2 for a description of each land classification.

The land classification and land use changes are outlined below in Table EA-1.

**Table EA-1. Land classification/land use changes proposed.**

1982 Master Plan		2021 Master Plan	
Existing	Existing Acreage	Proposed	Proposed Acreage
Public Hunting and Fishing (Wildlife and Mitigation Lands)	13,000.5	Wildlife Management Areas Environmentally Sensitive Areas	15,452.7 300.6
Project Operations	344.4	Project Operations	309.7
Intensive Recreation	1,810.6	High Density Recreation	1,775.6
Low Density Recreation	2,184.5	Low Density Recreation	53.5
n/a	n/a	Future Recreation	4.2
Unclassified	556.2	Unclassified	149.4
Restricted Use	17	Restricted	14.5
Unrestricted Boating	1,230	Open Recreation	1,005.6

No Wake Fishery Development and Management Zone	45 1,151	Designated No-Wake	1,427.2
---	-------------	--------------------	---------

\*Note: Acreage numbers for historical land use classifications were calculated in GIS software by scanning, georeferencing, and digitizing the 1982 Land Use Classification Map. Due to the scale and other limitations of the original hand-drawn map, acreages should be considered approximate.

***Proposed Recommendations***

The 2021 MP provides specific management recommendations including: coordinating partnerships with state and federal agencies, stakeholders and the community; modernizing facilities within existing footprints and prioritizing actions that improve visitor safety and experience; updating land classifications; development proposals including a new conference room at the Project office and implementing hydroelectric power capabilities; conserving wildlife management and environmentally sensitive areas through continued coordination with resource agency partners, developing survey methods to identify sensitive habitats, and enhancing natural areas and restoring sensitive habitats through native vegetation plantings, removal of invasive species along with other efforts targeted at non-game species habitat; and managing threatened and endangered species through U.S. Fish & Wildlife Service Recovery Plans (see MP Sections 4, 5, and 7).

Notable changes in land classification include a decrease in acreage classified under Low Density Recreation and an increase in acreage under the proposed Wildlife Management Areas. While the nomenclature has changed, the uses of those lands will remain similar to their current uses. Low Density Recreation areas are those that are managed for passive public recreational use, with minimal development and infrastructure. Activities such as primitive camping, fishing, hunting, trail use, and wildlife viewing are permitted. Wildlife Management Areas are managed for many of the same activities as Low Density Recreation including sightseeing, wildlife viewing, nature study, hunting, and hiking. Therefore, while the classification has changed under the new nomenclature the current and proposed uses of those lands remain the same.

Updates are proposed for the Project office, which was constructed in the 1990s. The proposed updates include interior renovations within the existing office footprint to add an employee restroom in addition to upgrades within the information/visitor center to include an electronic information display, other educational and informative displays, and an interactive reservoir model.

The Stonewall Resort State Park is on Corps owned Project lands which are leased to the WVDNR. The WVDNR sub-leases the land to a private developer. The Stonewall Resort State Park provides lodging and other amenities. Proposed development requests at the park from the private developer include relocating the existing maintenance facility to another area within the park, adding full hook-up camping in the area where the existing maintenance facility is located, adding fishing and observation platforms and courtesy docks along the reservoir edge, and increasing trails. Other development ideas proposed by the private developer include increasing outdoor adventure activities such as developing an observation tower, creating an outdoor adventure center, a bicycle learning and certification center, a bicycle pump park, a skateboard center, and constructing a pedestrian suspension bridge walkway from the campground across the reservoir.

Recommendations in the 2021 MP that will have no environmental impacts include coordinating partnerships with state and federal agencies, stakeholders and the community; prioritizing actions that improve visitor safety and experience; conserving wildlife management and environmentally sensitive areas through continued coordination with resource agency partners, developing survey methods to identify sensitive habitats, and managing threatened and endangered species through U.S. Fish & Wildlife Service Recovery Plans.

Enhancing natural areas and restoring sensitive habitats through native vegetation plantings, and removal of invasive species along with other efforts targeted at non-game species habitat will provide minor benefits to fish and wildlife habitats.

Modernization of facilities within existing footprints will need to be evaluated for environmental compliance if earth disturbance or construction activities are proposed once plan details are available (e.g., road improvement projects as mentioned in the MP).

While all of the recommendations listed in the 2021 MP were considered in this EA, there are not enough details available to fully evaluate the environmental impacts of all of the recommendations. Table EA-2 details the proposed recommendations and lists whether the recommendations have been fully or partially evaluated for environmental impacts in this EA.

When specific plans and details are available in the future, the development requests at Stonewall Resort State Park will need to be evaluated for environmental compliance (Clean Water Act, Endangered Species Act, National Historic Preservation Act, and other environmental laws as applicable).

The Project has capabilities for hydropower; however, the existing infrastructure has not been used since the early 2000's. Hydropower development will need to be analyzed separately once specific plans and details are developed and will not be analyzed or discussed further in this EA.

**Table EA-2. Recommendations and level of environmental compliance evaluation.**

<b>Recommendation</b>	<b>Full Compliance</b>	<b>Partial Compliance</b>
Coordinating partnerships	Yes	
Modernizing Facilities	No	No – a separate evaluation for compliance with environmental laws will need to be completed once specific plans are developed.
Updating land classifications	Yes	
Project Office Improvements	Yes	
Implementing Hydropower	No	No – a separate evaluation for compliance with environmental laws will need to be completed once specific plans are developed.

Conservation of wildlife management and ESAs	Yes	
Surveys, native plantings, and invasive species removal	Yes	
Managing T&E species with USFWS recovery plans	Yes	
Stonewall Resort State Park Development	No	No – a separate evaluation for compliance with environmental laws will need to be completed once specific plans are developed.

#### 4 Affected Environment/Environmental Consequences

NEPA and the CEQ’s NEPA Implementing Regulations require that an EA identify the likely environmental effects of a proposed project and that the agency determine whether those impacts may be significant. The determination of whether an impact significantly affects the quality of the human environment must consider the potentially affected environment and the degree of the effects of the impacts (40 CFR 1501.3).

The potentially affected environment is the area in which the proposed action would take place and is based on the specific location of the proposed action(s) and takes into account the entire affected region, the affected interests, and the locality.

The term “degree” refers to the intensity or severity of impact that would result if the proposed action were implemented. Some examples of factors considered when evaluating the degree of an impact include: the extent of both beneficial (positive) and adverse (negative) effects, the extent to which the proposed project affects public health or safety, the extent of impacts to unique characteristics of the geographic area (some examples include proximity to historic or cultural resources, wetlands, or ecologically critical areas), the extent to which the action may adversely affect an endangered or threatened species or its habitat, and whether the action is related to other actions that combined may cause long-term or short-term effects.

This section describes the existing environmental conditions within the Project (affected environment) providing a baseline for measuring expected changes that would result from adopting the proposed 2021 MP.

This section provides a discussion of any beneficial or adverse environmental effects of the Proposed Action alternative and the No Action alternative. The terms “impact” and “effect” are used interchangeably in this section. Effects may occur at the same time and place, or may occur at a later time or a distance away from an action but have a reasonably close causal relationship to a proposed action. The section also describes whether effects are temporary (short-term and occurring during the period of construction or implementation) or permanent (long-term and remaining for years into the future). The term “significant” means that an effect would result in a substantial change to the environment or resource. Minor effects do not substantially change the environment or resource.

## **4.1 Reservoir and Pool Operation**

### **4.1.1 Existing Condition**

The primary purpose of the Project is flood control. The reservoir was designed to temporarily store floodwaters and then slowly release it downstream thereby reducing flood risk in the Monongahela and Ohio River Valleys. The Project is also authorized for water quality, water supply, fish and wildlife enhancement, and recreation. The dam is a concrete gravity structure with an uncontrolled center spillway. It contains three flood control sluices and two water quality control sluices. The drainage area above the dam totals 101.8 square miles. The length of the reservoir at summer pool is 26 miles with 82 miles of shoreline. The maximum reservoir area (when the reservoir is at maximum flood storage) is 3,470 acres. Reservoir acreage at summer pool is 2,650 acres. The streambed elevation at the dam is 1,007 feet. Summer pool elevation is 1,072.5 feet, winter pool is 1067.5 feet, and maximum flood storage pool is 1,081.3 feet.

### **4.1.2 Environmental Consequences**

#### *4.1.2.1 No Action*

Under the no action alternative, there would be no changes to the Project's reservoir operations. Operations are controlled by the Project's Operational Management Plan. The MP does not affect reservoir operations.

#### *4.1.2.2 Proposed Action*

Implementation of the 2021 MP would result in no changes to the Project's reservoir operations. Operations are controlled by the project's Operational Management Plan; the 2021 MP does not change reservoir operations.

## **4.2 Climate**

### **4.2.1 Existing Condition**

West Virginia's climate is characterized by warm, humid summers and moderately cold winters with January being the coldest month (temperatures ranging from highs in the low 40's and lows in the low 20's) and July being the warmest month (temperatures ranging from highs in the mid-80's to lows in the low 60's). Average yearly precipitation is approximately 50 inches in the central part of the state and approximately 40 inches in the western part of the state near the Ohio River (Runkle et al, 2017). It is projected that annual precipitation amounts will increase over this century primarily during the winter and spring months along with an increase in the intensity of extreme precipitation events (Runkle et al., 2017).

Climate change is expected to continue to warm the region throughout the 21st century, with temperature increases projected to occur relatively evenly throughout the year (Drum et al., 2017). Intolerant flora and fauna, as well as species currently existing on the edge of their range, are at greatest risk of local extirpation as a result of altered environmental conditions expected under climate change. There is potential for water management and water quality difficulties, such as not being able to make summer pool in time for the recreation season. There is also the possibility of increased storm runoff, due to climate change, which could potentially result in greater inputs of pollution, which in turn can affect water quality of the reservoir and the river downstream of the Project. Increased runoff may alter rates of

sedimentation within the reservoir and reduce the lifetime of the reservoir. Ecosystems and associated species impacted by pre-existing anthropogenic stressors are also at greater risk.

#### 4.2.2 Environmental Consequences

##### 4.2.2.1 No Action

Under the no action alternative, the Project would continue to be operated under the existing MP. No changes to climate would occur under the no action alternative.

##### 4.2.2.2 Proposed Action

There would be no environmental consequences of implementing the 2021 MP or future actions within the 2021 MP on the climate in the project vicinity.

### 4.3 Air Quality

#### 4.3.1 Existing Condition

The Clean Air Act requires the United States Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants, known as criteria air pollutants. These pollutants include lead, sulfur dioxide, particulate matter (PM-2.5 and PM-10), ozone, carbon monoxide, and nitrogen dioxide (USEPA, 2020a). The NAAQS are the concentrations of these principal pollutants, above which, adverse effects on human health may occur. Areas that persistently exceed the standards are designated as nonattainment areas. Federal actions must not cause or contribute to new violations, worsen existing violations, or delay attainment of NAAQS.

The Project is located in the Central West Virginia Intrastate Air Quality Control Region (40 CFR 81.231) and is in attainment for all the NAAQS (USEPA, 2020b). The Project is located within a rural area and de minimis emissions likely occur from gasoline vapors, motor vehicle exhaust, and lawn care equipment exhaust on a regular basis, and construction equipment exhaust during construction work.

The USEPA index for reporting air quality is the U.S. Air Quality Index (AQI). Values range from 0 to 500 (Airnow, 2020). As AQI values increase, air pollution levels increase. An AQI value range between 0-50 is considered "good" with little to no risk of air pollution causing health problems. AQI values ranging from 51-100 are considered "moderate" where air quality is acceptable, but populations sensitive to air pollution may have an increased risk of health problems. AQI values greater than 100 are considered unhealthy. Daily AQI values are not available for Lewis County, but in the adjacent counties of Gilmer and Harrison, values generally range between good to moderate (Figures 1 and 2).

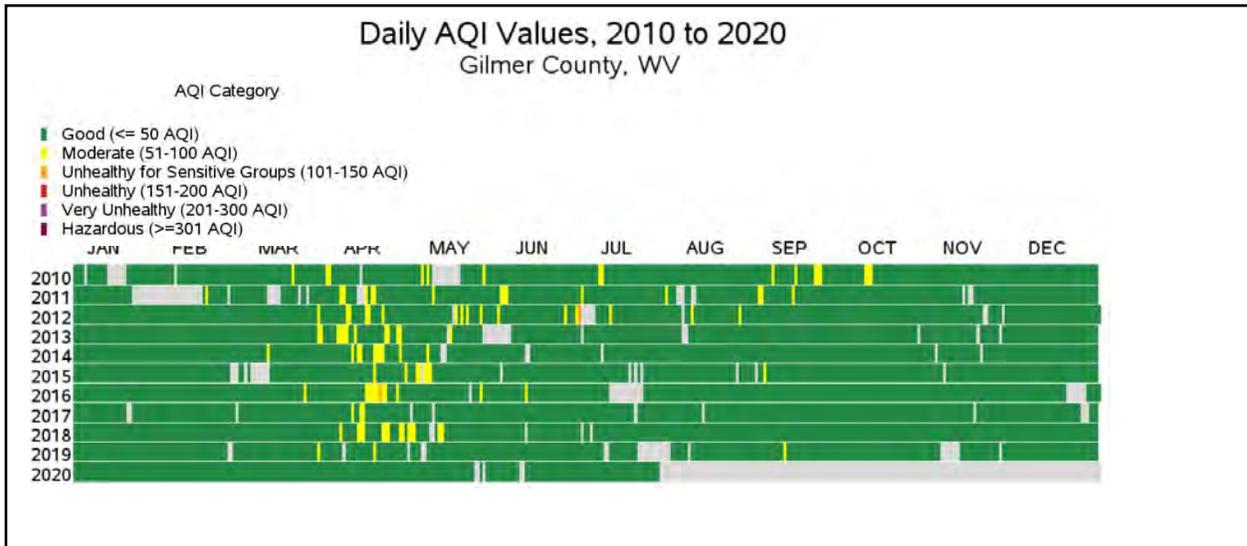


Figure 1 – Daily AQI values from Jan 2010 to July 2020 for Gilmer County (USEPA, 2020c)

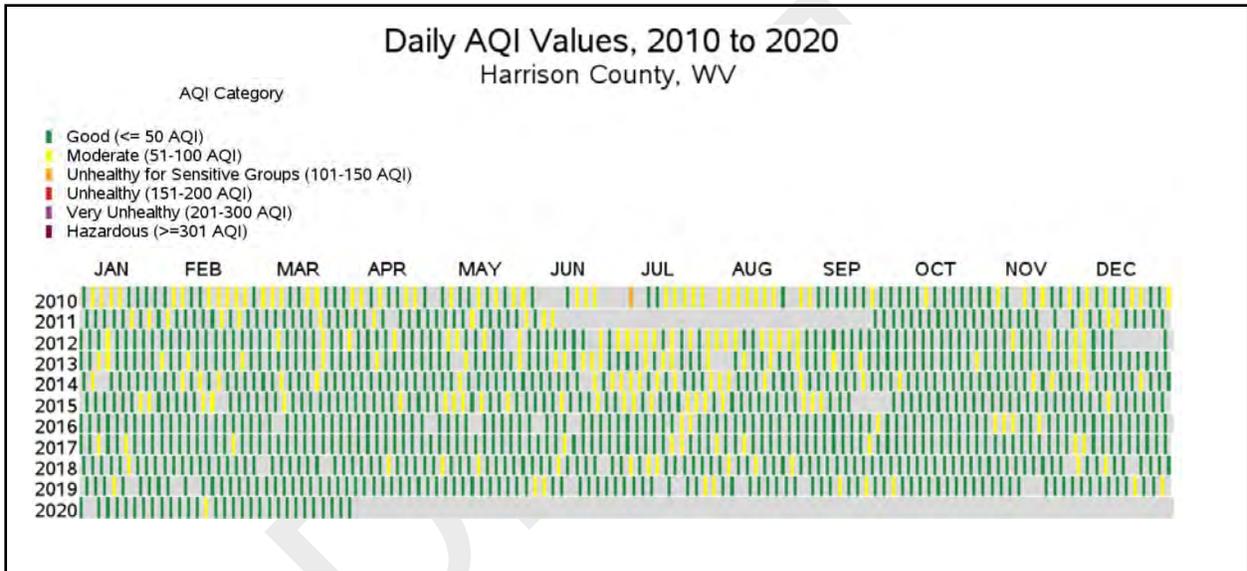


Figure 2 – Daily AQI values from Jan 2010 to July 2020 for Harrison County (USEPA, 2020c)

#### 4.3.2 Environmental Consequences

##### 4.3.2.1 No Action

Under the no action alternative, an updated master plan would not be approved for the Project. The Project would continue to be managed under the 1982 MP. Temporary and minor impacts to air quality would still occur from construction activities, vehicle exhaust, boat exhaust, and the use of grills and firepits; however, these impacts are de minimis due to their temporary and localized nature.

##### 4.3.2.2 Proposed Action

Air quality would not be predicted to change from existing conditions as the effects of implementing the 2021 MP including the future development actions on air quality would be minimal. There would be some localized and temporary emissions associated with construction of new or improved amenities (e.g., construction equipment exhaust). The emissions associated with equipment operation and construction would be considered de minimis as they would be

localized, of relatively short duration, and would occur when constructing any new or improved future development features. Temporary and minor impacts to air quality would occur from typical recreation use at the Project (e.g., vehicle exhaust, boat exhaust, and the use of grills and firepits); however, these impacts are de minimis due to their temporary and localized nature.

#### **4.4 Topography, Geology, and Soils**

##### 4.4.1 Existing Condition

The Project is located within the Allegheny Plateau physiographic province, which rises gradually from the lowland region in the western part of West Virginia (WVGES, 2020a). The terrain is characterized by rounded ridge tops which are surrounded by steep side slopes and gently sloping valleys. The difference in elevation from valley floor to ridgetop in any given location ranges from 200 to 550 feet. The total project relief ranges from an elevation of approximately 1,008 feet directly below the dam to approximately 1,920 feet on the ridgetops surrounding the upper reaches of the reservoir (USACE, 1982).

The geologic series within the Project consist of the Dunkard Series (Permian Period), and the Monongahela and Conemaugh Series of the Pennsylvanian Period. These series generally consist of sandstone, indurated clays, and shales interspersed with several coal seams and minor amounts of limestone (WVGES, 2020b). The clays inhibit internal drainage, create more surface runoff, and create seepage zones along hillsides, which can lead to a higher potential for soil slides, especially on slopes greater than 15% (USACE, 1982).

Project soils include upland soils (sandstone, gray shale, red indurated clays, and limy siltstone) that belong primarily to the Gilpin or Upshur Series (NRCS, 2020). Remaining upland soils belong to the Wharton and Westmoreland soil series. Terrace soils are also present at the Project and consist of old colluvium derived from soil erosion that occurred above the terraces that formed when streams cut through the hard sandstone stratum. The terrace soils are primarily in the Vandalia series with small areas of soils from the Allegheny, Monongahela, Tygart, Hackers, Zoar, and Chavies series. These soils are deep, well-drained, clay soils that are subject to flooding, severe erosion, and hillside slippage. The third type of soils at the Project are recent alluvial soils found in the floodplains of the West Fork River and its tributaries. The soils are made up of eroded materials from the upland and terrace soils. They are moderately deep soils with a high water table and high flooding potential. The primary soil series include Philo, Atkins, and Senecaville series (USACE, 1982).

##### 4.4.2 Environmental Consequences

###### 4.4.2.1 *No Action*

Under the no action alternative, an updated master plan would not be approved for the Project. The Project would continue to be managed under the 1982 MP and best management practices would be deployed (e.g., use of silt fences) to minimize soil loss, when appropriate. Any construction-related effects to topography, geology, and soils would occur under no action as they would under the proposed action, but significant effects are not expected.

###### 4.4.2.2 *Proposed Action*

Prior to construction of any of the new or improved future development features, best

management practices would be deployed (e.g., use of silt fences) to minimize erosion and soil loss, when appropriate. As a result of the reasonable use of best management practices, minimal effects would be predicted to topography, geology, and soils from implementing the new master plan or future actions within the new master plan.

## **4.5 Aquatic Resources, Surface Water Hydrology, Groundwater, and Floodplains**

### 4.5.1 Existing Condition

The Project is located within the West Fork River basin. The dam is located on West Fork River and the three largest tributaries above the dam are Skin Creek, Sand Fork, and Right Fork having drainage areas of 33.1, 12.3, and 11.7 square miles, respectively. These three tributaries comprise 56% of the total reservoir drainage area. The total drainage area above the dam is 101.8 square miles. West Fork River flows northward to Fairmont, West Virginia where it joins the Tygart River to form the Monongahela River. The Monongahela River continues northward to Pittsburgh, Pennsylvania, where it joins the Allegheny River to form the Ohio River. Floodplains are present adjacent to areas along the reservoir.

Groundwater in the basin is available in sufficient quantities to support farm and domestic usage and low intensity recreational development; however, it is not believed that large supplies of groundwater are available. The presence of impervious shales and clays inhibit internal drainage reducing the yield of aquifers. (USACE, 1982).

### 4.5.2 Environmental Consequences

#### 4.5.2.1 *No Action*

Continued management of the Project under the 1982 MP would have no effects on aquatic resources, surface water hydrology, groundwater, or floodplains.

#### 4.5.2.2 *Proposed Action*

There would be no environmental consequences of implementing the 2021 MP or potential future actions within the new master plan expected on aquatic resources, surface water hydrology, groundwater, or floodplains at the Project.

## **4.6 Water Quality**

### 4.6.1 Existing Condition

Water quality standards are the provisions that describe the desired condition of a water body and the means by which that condition will be achieved (USEPA, 2020e). Water quality standards for waters in West Virginia are developed by West Virginia, and approved by EPA, and form the legal basis for controlling pollutants entering waters of the United States (WOTUS). Water quality standards consist of three core elements which are designated uses (recreation, water supply, aquatic life), criteria (numeric concentrations of chemical constituents and/or a narrative describing a condition), and antidegradation requirements (maintenance and protection of existing uses and high quality waters). West Virginia's water quality standards also contain one other element for general policies addressing implementation issues that include mixing zones, low flow policies, and variances (WVDEP, 2020). States assess waters based on water quality standards to determine if waters are meeting designated uses, meeting water quality standard criteria and meeting degradation

requirements. Streams that do not meet these standards are considered impaired.

Under current water quality standards, the reservoir is considered to be impaired with regard to methylmercury. Mercury in the air can settle into bodies of water where it may be changed into methylmercury by microorganisms (USEPA, 2020f). Other water quality impairments within the West Fork River watershed include fecal coliform, iron, and biological impairments. In 2014, a Total Maximum Daily Load (TMDL) report was prepared for the WVDEP by the consulting firm, Tetra Tech, Inc. The report, which was approved by EPA addressed multiple impairments identified in the West Fork River watershed; however, the Project was not included in the modeling efforts for that report. The reported impairments are related to factors occurring outside of Project lands and generally are addressed by state resource and regulatory agencies.

Water quality monitoring at the reservoir has been performed by the Corps regularly since 1990. Data collected includes chemical, physical, and biological samples. Project staff take biweekly samples from the dam outflow. Corps water quality staff conduct yearly limnology surveys of the reservoir. Also, every ten years, monthly intensive limnology surveys are conducted from March through November to document long-term changes within the reservoir.

The reservoir develops thermal and chemical stratification patterns from early summer through late fall, with high concentrations of iron, manganese, nutrients, and hydrogen sulfide accumulating within the reservoir. Blue-green algae blooms have occurred during late summer in the reservoir, but to date have not reached nuisance level concentrations. Increases in nutrient loading to the reservoir from future recreational and residential development could result in eutrophication problems in the reservoir.

#### 4.6.2 Environmental Consequences

##### 4.6.2.1 No Action

Under the no action alternative, an updated MP would not be approved for the Project. The Project would continue to be managed under the 1982 MP. There are no known extensive development plans in the area that would be expected to cause water quality degradation in the reservoir. Continued water quality monitoring would occur with the No Action alternative to track any changes caused by local development, allowing corrective measures to be considered if needed. No impact to water quality would occur.

##### 4.6.2.2 Proposed Action

Under the proposed action, future development under the proposed master plan would occur without adverse effects to the water quality of the reservoir or its tributaries. Construction activities would result in ground-surface disturbances that could increase runoff, but best management practices during construction would be expected to minimize the potential for adverse water quality impacts. After construction is completed, disturbed areas would be revegetated to minimize erosion and sedimentation, and to protect surface soils. The existing water quality in the reservoir is a result of factors substantially unrelated to the management actions on Project lands and results from land use and discharges to the watershed upstream from the Project. Future development in areas surrounding the reservoir would require the use of appropriate best management practices to avoid adverse impacts to water quality. Those developments would be evaluated for water quality impacts and Clean Water Act permits would be obtained, as needed, once project specific plans and details are available. No

impact to water quality is expected to occur under this alternative.

## 4.7 Fish and Wildlife Habitats, Wetlands

### 4.7.1 Existing Condition

Fish and wildlife habitats at the Project consist of forested habitat, scrub-shrub uplands, wetlands, streams, the West Fork River, and the reservoir. Much of the Project has been timbered and most has been grazed or farmed since European settlement in the eighteenth century. Forest cover is currently comprised of second and third growth stands, which dominate the Project land cover. Mixed mesophytic and northern hardwood forest habitats are present in the area immediately adjacent to the reservoir. For further details, see MP Section 2.1.2.

Much of the Project consists of open water that contains a diverse array of fish species including smallmouth bass (*Micropterus dolomieu*), muskellunge (*Esox masquinongy*), walleye (*Sander vitreus*), bluegill (*Lepomis macrochirus*), white bass (*Morone chrysops*), rock bass (*Ambloplites rupestris*), yellow perch (*Perca flavescens*), catfish (*Ictalurus punctatus*, *Ameiurus catus*, etc.), carp (*Cyprinus carpio*), crappie (*Pomoxis sp.*), and golden rainbow trout (*Oncorhynchus mykiss aguabonita*) which are stocked in the tailwaters below the dam. Northern pike (*Esox Lucius*), muskellunge, walleye, and bass (*Micropterus sp.*) are also periodically stocked in the reservoir.

Common wildlife species found at the Project include the bald eagle (*Haliaeetus leucocephalus*), turkey (*Meleagris gallopavo*), red-winged blackbirds (*Agelaius phoeniceus*), robins (*Turdus migratorius*), song sparrows (*Melospiza melodia*), common mergansers (*Mergus merganser*), mallards (*Anas platyrhynchos*), red fox (*Vulpes vulpes*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), squirrel (*Sciurus carolinensis*), coyote (*Canis latrans*), grey fox (*Urocyon cinereoargenteus*), black bear (*Ursus americanus*), cardinals (*Cardinalis cardinalis*), osprey (*Pandion haliaetus*), red-tailed hawk (*Buteo jamaicensis*), and opossum (*Didelphis virginiana*). Frog, turtle, salamander, and snake species are also present.

Approximately 110.7 acres of wetlands are identified at the Project on the US Fish and Wildlife Service's National Wetland Inventory map. Approximately 2.9 acres are freshwater emergent wetlands, 1.6 acres are freshwater forested/shrub wetlands, 15.7 acres are freshwater pond, and 90.5 acres are riverine.

### 4.7.2 Environmental Consequences

#### 4.7.2.1 No Action

Continued use of the 1982 MP would not have a significant effect on wetlands or habitat. There would be no change in the status quo expected.

#### 4.7.2.2 Proposed Action

Proposed development actions on the Project must comply with the NEPA and all other laws pertaining to the conservation of natural and cultural resources. Prior to implementation of any development activity that could adversely impact wetlands, terrestrial habitats, or aquatic habitats, field surveys and all appropriate coordination with state and/or federal agencies will be conducted by the Corps of Engineers. As such, future development would occur with minimal effects to the habitats of the Project. No significant impacts to fish and wildlife habitat or

wetlands are expected.

#### **4.8 Threatened and Endangered Species**

Under the Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531-1544), endangered species are defined as any species in danger of extinction throughout all or portions of its range. A threatened species is any species likely to become endangered in the foreseeable future. The ESA defines critical habitat of the above species as a geographic area that contains the physical or biological features that are essential to the conservation of a particular species and that may need special management or protection. This section also covers birds listed under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C §§ 703-712) as birds of conservation concern and birds listed under the Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d).

##### 4.8.1 Existing Condition

The USFWS Information for Planning and Consultation website provides site specific information regarding whether or not threatened or endangered species may be present in a particular location. The species information is made available through an official species list. An official species list from the USFWS, dated April 16, 2020, for the Project included four species: the Indiana bat (*Myotis sodalis*), the northern long-eared bat (*Myotis septentrionalis*), the snuffbox mussel (*Epioblasma triquetra*), and the clubshell mussel (*Pleurobema clava*).

Potentially occupied habitat exists for the endangered Indiana bat at the Project. The Indiana bat roosts under the peeling bark of dead and dying trees during the summer months and hibernates during the winter months in caves or abandoned mines (USFWS, 2020a).

Potentially occupied habitat exists for the threatened northern long-eared bat at the Project. During the summer months, the northern long-eared bat resides underneath bark, in cavities or crevices of both live trees and snags (dead trees) and hibernates during winter months in caves and mines (USFWS, 2020b).

The snuffbox mussel is typically found buried in sand or gravel substrates and inhabits small to medium sized creeks with swift currents, while the clubshell mussel inhabits coarse sand and gravel areas of runs and riffles within streams and small rivers (USFWS, 2020c).

The area below the dam surrounding the access road bridge to the Project office was surveyed for mussels in September 2020 for a proposed repair project. No federally listed mussel species were found in the vicinity of the bridge, though they could exist in other tributary streams in the Project.

Bald eagles are known to nest within the Project and are regularly sighted in the vicinity of the reservoir. These birds are protected under the MBTA and the Bald and Golden Eagle Protection Act.

##### 4.8.2 Environmental Consequences

###### 4.8.2.1 No Action

The no action alternative would not affect federally listed threatened and endangered species.

###### 4.8.2.2 Proposed Action

The Proposed Action will not affect the Indiana bat, northern long-eared bat, snuffbox mussel,

or the clubshell mussel.

Best management practices, to include seasonal restrictions on tree and vegetation removal, would ensure that no impact would occur. These restrictions would be species specific, based on recovery plans. Once site specific details are available for proposed development at the Stonewall Resort State Park, those plans will be reviewed to determine compliance with the Endangered Species Act (ESA). Consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act will be initiated if it is determined that those activities may affect ESA-listed species. Prior to any clearing of vegetation or construction activities, coordination with the U.S. Fish & Wildlife Service will be performed and surveys for Indiana bats, northern long-eared bats, and snuffbox and clubshell mussels, would be conducted as necessary to ensure compliance. By avoiding sensitive areas and sensitive seasons (April-October for trees equal to or greater than 3-inches diameter at breast height (dbh) that may be used as bat habitats) and using adaptive management as needed to correct any unforeseen impacts, no significant impact to threatened or endangered species is expected.

#### **4.9 Demographics and Environmental Justice**

##### 4.9.1 Existing Condition

The Project was constructed on the West Fork River and is located in Lewis County West Virginia, three miles south of the county seat at Weston, WV. The Project receives visitors primarily from Lewis County and these neighboring counties: Braxton, Doddridge, Gilmer, Harrison, Upshur, Webster. It is predicted that recreation at the Project will decrease through 2030 as a result of projected population decreases in Lewis County and the surrounding counties. See MP Section 2.3.2.

The median household income in Lewis County in 2017 was \$39,793, with a poverty rate of 19.8%. Median household incomes in the surrounding counties ranged from \$33,390 (Webster) to \$48,315 (Harrison), while poverty rates ranged from 14.9% (Doddridge) to 26.7% (Webster). See MP Section 2.4.1.

The median household income of the state of West Virginia is \$48,850 compared to the US median household income of \$65,712 (Census.gov, 2020a and Census.gov, 2020b). The estimated population of Lewis County (as of 2019) is 15,907 with approximately 96.1% of the population identified as white alone, not Hispanic or Latino (Census.gov, 2020c). The population of Lewis County documented in the 2010 census was 16,372 (see MP Section 2.3.6).

It is likely that a sizable portion of the local population will choose to recreate at the Project based on proximity and relatively lower costs compared to traveling further away for vacation.

##### 4.9.2 Environmental Justice

Executive Order 12898, dated February 11, 1994, directs each federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

The CEQ has oversight of the federal government’s compliance with EO 12898 and NEPA. CEQ, in consultation with the USEPA and other affected agencies, developed NEPA guidance for

addressing requirements of the EO (CEQ, 1997). This guidance was developed to further assist federal agencies with their NEPA procedures so that environmental justice (EJ) concerns are effectively identified and addressed.

The CEQ has also identified six general principles for consideration in identifying and addressing EJ in the NEPA process which include: (1) area composition (demographics); (2) data (concerning cumulative exposure to human health or environmental hazards); (3) interrelated factors (recognize the interrelated cultural, social, occupational, or economic factors); (4) public participation; (5) community representation; and (6) tribal representation.

The following definitions are used by the CEQ in guidance on key terms of the EO:

- **Low-income population:** Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.
- **Minority:** Individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.
- **Minority population:** Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American ), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.
- **Disproportionately high and adverse human health effects:** When determining whether human health effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:
  - Whether the health effects, which may be measured in risks and rates, are significant (as employed by NEPA), or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death.
  - Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed

the risk or rate to the general population or other appropriate comparison group.

- Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.
- Disproportionally high and adverse environmental effects: When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:
  - Whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment.
  - Whether environmental effects are significant (as employed by NEPA) and are or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group.
  - Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards. (Ibid. Appendix A, pp. 25-27).

#### *4.9.2.1 No Action*

Under the no action alternative, an updated master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. Under the no action alternative, the trends of a decline in population observed in the recent years surrounding the Project would be expected to continue. There would also be no disproportionate adverse effects to minority or low-income communities as a result of implementing the no action alternative.

#### *4.9.2.2 Proposed Action*

The changes in population have occurred while the Corps of Engineers has managed the Project. Implementing the 2021 MP would be expected to have no effect on the demographic trends of the surrounding communities. Implementing the 2021 MP would not cause disproportionate adverse effect to minority or low-income communities.

## **4.10 Recreation and Land Use**

### **4.10.1 Existing Condition**

The Project provides a wide variety of recreational opportunities including golfing, angling, paddlecraft, boating, fishing, camping, hunting, bird watching, and hiking. The Stonewall Resort State Park, leased to WVDNR State Parks, and operated by a private developer, offers lodging and other amenities. The Project also contains seven boat launches. See MP Section 2.5.

Land use classification changes are described in Section 3.2, Table EA-1 and in the MP, Section 7.3.

#### *4.10.2.1 No Action*

Under the no action alternative, an updated master plan would not be approved for the Project in the foreseeable future. Recreation and visitation would likely continue. No impacts to recreation and visitation are expected under the no action alternative. The continued use of the existing MP would not accurately reflect existing or future recreational needs with regards to land use. The Corps would continue to operate the Project but without the benefit of an updated MP as guidance for management decisions. Without an updated MP, it is possible that Project-wide consideration of individual actions may be lost.

#### *4.10.2.2 Proposed Action*

Recreational use of the Project would not be predicted to change appreciably from existing use patterns as a result of implementing the proposed action. Future development at the Stonewall Jackson Lake Resort may provide a minor benefit by offering additional recreational activities to visitors. During construction activities, localized and temporary impacts to recreational users (e.g., noise, fugitive dust, trails closed) may occur, but these would be relatively short-term and would not result in significant impacts.

The recreational needs of the public would be better accommodated through the implementation of the proposed action and is reflective of the changes in land usage. Notable changes in land classification include a decrease in acreage classified under Low Density Recreation and an increase in acreage under the proposed Wildlife Management Areas. While the nomenclature has changed, the uses of those lands will remain similar to their current uses. Potential beneficial impacts are expected with the designation of environmentally sensitive areas. No recreational capacity, facilities, or lands are lost on account of this reclassification.

### **4.11 Cultural Resources**

#### *4.11.1 Existing Condition*

The Project is one of rich cultural history. A total of six cultural resources surveys, covering approximately 10.6% of the Project lands, have been conducted within the Project. Most of the surveys were site specific and only focused on areas proposed to be modified or disturbed by construction and other ground disturbing activities. A total of 42 cultural resources have been identified within the Project. These resources include prehistoric and historic archaeological sites, historic structures, and historic districts. Additional research has identified five of these resources as eligible for the National Register of Historic Places (NRHP). The remaining resources have yet to be evaluated for the NRHP.

#### *4.11.2 Environmental Consequences*

##### *4.11.2.1 No Action*

Under the no action alternative, an updated master plan would not be approved for the Project in the foreseeable future. Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800) require Federal agencies to take into account the effect of an undertaking on historic and archeological resources if that project is under the direct or indirect jurisdiction of the agency or has been licensed or assisted by that agency. Compliance with the NHPA is required for any future development. The no action alternative will not impact cultural resources.

#### 4.11.2.2 *Proposed Action*

Implementing the 2021 MP with future development actions would be expected to have no effect on the cultural resources of the Project as all proposed development actions would still be required to comply with the NHPA. Prior to implementation of any ground disturbing activity, including any of the future development proposed at the Stonewall Resort State Park, field surveys and Section 106 NHPA coordination with the West Virginia State Historic Preservation Office (SHPO) will be conducted by the Corps. Federal and state laws require federal agencies to minimize or mitigate adverse impacts to historic properties (36 CFR Part 800.13). Should unanticipated historic or prehistoric resources be discovered during ground disturbing activities, work must cease immediately, and the Corps will contact the West Virginia SHPO.

The interior renovations at the Project office would not cause an effect to historic properties, as the building, which is less than 50 years old, is not eligible for listing in the National Register of Historic Places.

### **4.12 Hazardous, Toxic, and Radioactive Waste Materials (HTRW)**

#### 4.12.1 Existing Condition

Hazardous materials are regulated by the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Oil Pollution Act, Toxic Substances Control Act, and related guidelines established by the Corps and the state of West Virginia. There are no permitted hazardous waste disposal facilities in proximity to the Project and there are no known sites of hazardous, toxic, or radioactive materials on Project lands.

While petroleum is not regulated under CERCLA, there are areas within the Project where petroleum products are present and pose the potential for leaks and/or discharges. At the Stonewall Jackson Lake Resort, there is a marina that provides refueling. Petroleum products are stored in underground/aboveground storage tanks. A search of U.S. EPA's envirofacts database shows a number of National Pollutant Discharge Elimination System (NPDES) permits, including some belonging to oil and gas companies within the vicinity of the Project (USEPA, 2020d). The West Virginia Department of Environmental Protection (WVDEP) database shows a well pad for natural gas extraction located less than a mile south of the dam (WVDEP, 2020). Abandoned mine lands are located within and surrounding the Project where previous coal mining occurred. There are numerous oil and gas wells located throughout Project lands.

#### 4.12.2 Environmental Consequences

##### 4.12.2.1 *No Action*

Under the no action alternative, an updated MP would not be approved for the Project. Future development would likely still occur without the benefit of a comprehensive planning document. Regardless, there would be no environmental consequences related to HTRW because these substances are not found on Project lands. If any developments on the Corps property are proposed, Federal law requires site-specific environmental due diligence on a case-by-case basis before development can occur. Any change in the storage or use of hazardous materials must comply with federal regulations.

#### 4.12.2.2 Proposed Action

Implementing the 2021 MP would be expected to have no effect on HTRW materials as these substances are not found on Project lands. Any future development proposed requires site-specific environmental due diligence. Any change in the storage or use of HTRW materials must comply with federal regulations, and as such the implementation of the 2021 MP would not cause any environmental consequences.

### 4.13 Aesthetics

#### 4.13.1 Existing Condition

The Project includes diverse scenic and natural resources. Existing habitat within the Project offers the opportunities for wildlife viewing. The reservoir's 82-miles of shoreline also offers scenic views and wildlife viewing throughout the Project.

#### 4.13.2 Environmental Consequences

##### 4.13.2.1 No Action

Under the no action alternative, an updated MP would not be approved for the Project. No impacts to aesthetics would occur.

##### 4.13.2.2 Proposed Action

Implementing the 2021 MP would be expected to have no long-term effect on the aesthetic character of the Project. Future development may cause temporary changes in aesthetics during construction; however, these effects would be localized and not permanent.

### 4.14 Invasive Species

#### 4.14.1 Existing Condition

The most common invasive terrestrial plant species occurring at the Project are: Japanese honeysuckle (*Lonicera japonica*), Japanese knotweed (*Polygonum cuspidatum*), autumn olive (*Elaeagnus umbellata*), buckthorns (*Rhamnus frangula*, *R. cathartica*), purple loosestrife (*Lythrum salicaria*), common reed or phragmites (*Phragmites australis*), reed canarygrass (*Phalaris arundinacea*), garlic mustard (*Alliaria petiolata*), multiflora rose (*Rosa multiflora*), giant hogweed (*Heracleum mantegazzianum*), and bush honeysuckles (*Lonicera maackii*, *L. tatarica*, *L. morrowii*). The most common invasive insects are: emerald ash borer (*Agilus planipennis*), gypsy moth (*Lymantria dispar*), and the hemlock woolly adelgid (*Adelges tsugae*). The most common aquatic invasive species are: hydrilla (*Hydrilla verticillata*), parrot feather milfoil (*Myriophyllum aquaticum*), Asian clam (*Corbicula fluminea*), zebra mussel (*Dreissena polymorpha*), virile crayfish (*Orconectes virilis*), and rusty crayfish (*Orconectes rusticus*).

#### 4.14.2 Environmental Consequences

##### 4.14.2.1 No Action

The original MP does not address invasive species and is out of date with current laws and regulations. However, under the No-Action alternative, the District would continue to implement best management practices with regards to invasive species management. No impact to invasive species is expected under the No Action alternative.

##### 4.14.2.2 Proposed Action

The 2021 MP proactively addresses invasive species issues and will follow current District policy by using a formalized process of adaptive and best management practices in prevention, education, early

detection, rapid response, and containment to try to control and manage invasive species. It is expected that there will be a minor beneficial impact as a result of the control and reduction of invasive species at the Project.

#### 4.15 Noise

##### 4.15.1 Existing Condition

Noise levels are measured in units of sound pressure levels called decibels (USDL, 2020). A-weighted sound levels, abbreviated as dBA, describe how the human ear perceives relative loudness. Typical noise sources at the Project such as those described in Table EA-3, would include commercial and residential vehicle traffic, lawn care, motorboats and jet skis, and temporary construction projects (USDL, 2020 and CDC, 2020). Noise levels above 85 decibels can damage hearing depending upon the length of time that someone is exposed to the noise.

**Table EA-3. Typical Noise Sources and Levels.**

Noise Source/Activity	Typical Noise Level (dBA)
Silent Room	20
Residence	50
Normal Conversation	60
City Traffic	85
Lawn Mower	85
Motorboat and Jet Ski	90
Motorcycle	95
Car Horn (at 16 feet)	100
Construction Activities (Operating Heavy Equipment)	120

##### 4.15.2 Environmental Consequences

###### 4.15.2.1 No Action

Under the No Action alternative, an updated MP would not be approved for the Project. No effects related to noise are expected with the No Action alternative.

###### 4.15.2.2 Proposed Action

Implementing the 2021 MP would be expected to have no long-term effect on the level of background or ambient noise character of the Project. Temporary increases in noise would be expected during future construction, but best management practices would be implemented to minimize noise from construction equipment and activities. Noise levels would be expected to return to typical levels once construction activities are complete.

## 5 Summary of Environmental Effects

The 2021 MP provides guidelines and direction for future Project development and use, and is based on authorized Project purposes, Corps of Engineers policies and regulations on the operation of Corps of Engineers projects, responses to regional and local needs, resource capabilities and suitable uses, and expressed public interests consistent with authorized Project purposes and pertinent legislation.

Careful planning, sound engineering, appropriate coordination with resource agencies and

effective execution have developed the recreational resources at the Project while protecting and enhancing the important environmental resources; these practices would be expected to continue.

If and when future development projects were implemented, localized and temporary construction-related effects (e.g., diesel/gasoline engine emissions, noise, fugitive dust, minor earth-moving) would be the extent of the environmental consequences. Compliance with the CWA, ESA, NHPA, and other environmental laws as applicable, would be completed prior to future development projects to ensure that no significant environmental effects occur.

## **6 Compliance with Environmental Laws**

Acceptance of the 2021 Stonewall Jackson Lake MP and the subsequent construction of the potential future modifications to existing infrastructure as well as new features would not commence until the proposed actions achieve environmental compliance with the applicable laws and regulations, as described below. Environmental compliance for any proposed actions would be achieved upon coordination of this Environmental Assessment with appropriate agencies, organizations, and individuals for their review and comments.

### Bald and Golden Eagle Protection Act, 16 U.S.C. Sec. 668-668d.

#### *In compliance.*

The Bald and Golden Eagle Protection Act prohibits the taking, possession or commerce of bald and golden eagles, except under certain circumstances. Amendments in 1972 added penalties for violations of the Act or related regulations. Adopting the 2021 MP would not adversely affect bald or golden eagles, or their habitat.

### Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq.

#### *In compliance.*

The purpose of this Act is to protect public health and welfare by the control of air pollution at its source, and to set forth primary and secondary National Ambient Air Quality Standards to establish criteria for States to attain or maintain. Minor and temporary releases would occur during construction activities for actions to maintain or improve facilities at the Project; however, these emissions would be short-term, small-scale, and would be considered de minimis. No significant impacts to air quality are expected with the proposed updates to the MP.

### Clean Water Act, as amended, (Federal Water Pollution Control Act) 33 U.S.C. 1251, et seq.

#### *In compliance.*

The Clean Water Act (CWA) is the primary legislative vehicle for federal water pollution control programs and the basic structure for regulating discharges of pollutants into WOTUS, which includes navigable waters, rivers, streams, and wetlands. The CWA was established to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment. The Corps regulates discharges of dredge or fill material into WOTUS pursuant to Section 404 of the CWA. Section 404 authorization is required to place dredge or fill material into WOTUS. If authorization under Section 404 is required, then Section 401 water quality certification is required

from the state of West Virginia. A National Pollutant Discharge Elimination System (NPDES) permit would be required under Section 402 of the CWA if proposed construction activities would disturb greater than one acre of land.

The proposed projects considered in the MP would not result in the placement of dredge or fill material into WOTUS. If future development projects at the Project, including those developments within the Stonewall Resort State Park, would result in a discharge of dredge or fill material into WOTUS, then the appropriate authorizations under the CWA (Sections 404/401/402) would need to be obtained prior to the placement of dredge or fill material.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

*Not applicable.*

CERCLA was passed in response to numerous abandoned, leaking hazardous waste sites, discovered in the late 1970's, which posed serious threats to human health and the environment. CERCLA was designed to impose cleanup and reporting requirements on the private sector, as well as federal facilities, by identifying those sites where releases of hazardous substances had occurred or might occur, and pose a serious threat to human health, welfare or the environment; taking appropriate action to remedy those releases; and seeking that the parties responsible for the releases pay for the cleanup activities. CERCLA authorizes cleanup responses when there is a release or threat of a release of a hazardous substance into the environment and sets a framework for accomplishing those actions. To the extent such knowledge is available, 40 CFR Part 373 requires notification of CERCLA hazardous substances in a land transfer. The implementation of the 2021 MP would not involve real estate transactions.

Endangered Species Act, as amended. 16 U.S.C. 1531, et seq.

*In compliance.*

The Endangered Species Act establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat upon which they depend. Section 7(a) of the Endangered Species Act requires that federal agencies consult with the USFWS to ensure that proposed actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy designated critical habitats.

The adoption of the updated MP would not affect threatened or endangered species. Future development at the Stonewall Resort State Park will be evaluated for compliance with the ESA once specific plans and details are developed. Agency consultations, if necessary, will be conducted for future developments once plans are established.

Environmental Justice (E.O. 12898).

*In compliance.*

E.O. 12898 mandates that "each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." The proposed updates to the MP do not disproportionately affect minority or low-income populations.

Federal Water Project Recreation Act, 16 U.S.C. 460(l)(12), et. seq.

*In compliance.*

In the planning of any federal navigation, flood control, reclamation, or water resources project, the Federal Water Project Recreation Act, as amended, requires that full consideration be given to opportunities that the Project affords for outdoor recreation and fish and wildlife enhancement. The Act requires planning with respect to development of recreation potential. Projects must be constructed, maintained, and operated in such a manner if recreational opportunities are consistent with the purpose of the Project. The proposed updates to the MP include development of recreational opportunities, and fish and wildlife enhancement.

Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661, et seq.

*In compliance.*

The Fish and Wildlife Coordination Act requires governmental agencies, including the Corps, to coordinate activities so that adverse effects on fish and wildlife would be minimized when water bodies are proposed for modification. No modifications are proposed in association with the proposed update to the MP.

Migratory Bird Treaty Act

*In compliance.*

The Migratory Bird Treaty Act of 1918 (MBTA) is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of any migratory bird is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over utilization. Executive Order 13186 (2001) directs agencies to take certain actions to implement the act. The Corps of Engineers will consult with the USFWS with regard to their consideration of the effects of the actions identified in the master plan revision for potential effects on migratory birds for future development projects once specific plans and details are available. No effects are anticipated from the adoption of the 2021 MP.

National Historic Preservation Act, as amended, 16 U.S.C. 470a, et seq.

*In compliance.*

Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations (36 CFR 800) require federal agencies to identify and resolve adverse effects to historic properties within the Area of Potential Effects (APE) of projects, activities, or programs funded in whole or in part under direct or indirect jurisdiction of a federal agency. Historic properties include buildings, structures, objects, sites, and historic districts worthy of preservation due to historic significance. This process is carried out in consultation with Advisory Council on Historic Preservation, SHPO, Certified Local Governments, Indian Tribes, and the interested public.

The Pittsburgh District has made the determination that the actions identified in the proposed MP revision and update (coordinating partnerships, updating land classifications, Project office improvements, conservation of wildlife management and ESAs, surveys, native plantings, and invasive species removal, management of T&E species with USFWS recovery plans) do not have

the potential to adversely impact cultural resources. Future development at the Stonewall Resort State Park and modernization of facilities will require further evaluation and consultation with the WV SHPO once specific plan details are developed.

National Environmental Policy Act (NEPA), as amended, 42 U.S.C. 4321, et seq.

*In compliance.*

This EA and Finding of No Significant Impact (FONSI) have been prepared in accordance with the CEQ's NEPA Implementing Regulations (40 CFR 1500-1508). An Environmental Impact Statement (EIS) is not required.

Noise Control Act of 1972, 42 U.S.C. Sec. 4901 to 4918.

*In compliance.*

This Act establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. Federal agencies are required to limit noise emissions to within compliance levels. Noise emission levels at the Project site would increase above current levels temporarily due to construction of improvements or features identified in the proposed MP revision. Appropriate measures would be taken to keep the noise level within the compliance levels.

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)

*In compliance.*

This law prohibits the unauthorized obstruction or alteration of any navigable water of the United States. This section provides that the construction of any structure in or over any navigable water of the United States, or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The actions identified in the proposed 2021 MP would not involve the construction of structures within the reservoir.

Floodplain Management (E.O. 11988).

*In compliance.*

Executive Order 11988 requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy of the floodplain, and to avoid direct and indirect support of floodplain development where there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by flood plains." The actions identified in the proposed MP revision would not affect the flood holding capacity or flood surface profiles of the reservoir.

Invasive Species (E.O. 13312).

*In compliance.*

Federal agencies shall not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and

made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. No invasive species will be introduced to the Project as a result of the proposed updates to the MP. Invasive species will continue to be managed and controlled at the Project through invasive species removal and the development of control methods.

#### Protection of Wetlands (E.O. 11990).

##### *In compliance.*

Executive Order 11990 encourages federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands when undertaking federal activities and programs. Each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands, which may result from such use. The actions identified in the proposed MP revision would not involve construction in, or effects to, wetlands. Future development at the Stonewall Resort State Park will be evaluated for compliance under the CWA once specific plans and details are developed.

## **7 Public Involvement**

A scoping meeting was held on October 10, 2019 with Corps staff, Project partners and key stakeholders. A public meeting was also held on October 10, 2019. In compliance with 40 CFR 1501.4(e)(2), this EA is being circulated for a 30-day review to concerned agencies, organizations, and the interested public. All comments received during this review period will be evaluated and appropriate changes to the EA will be implemented and addressed in the FONSI. The EA and FONSI will be retained in the Pittsburgh District's administrative files for future reference and as a record of NEPA compliance.

## 8 References

- Airnow.gov. 2020. <https://www.airnow.gov/aqi/aqi-basics>. Accessed 10 July 2020.
- Census.gov. 2020a. <https://data.census.gov/cedsci/profile?g=0400000US54>. Accessed 29 October 2020.
- Census.gov. 2020b. <https://data.census.gov/cedsci/profile?g=0100000US#>. Accessed 15 December 2020.
- Census.gov. 2020c. <https://www.census.gov/quickfacts/fact/table/lewiscountywestvirginia>. Accessed 29 October 2020.
- Centers for Disease Control and Prevention (CDC). What Noises Cause Hearing Loss? [https://www.cdc.gov/nceh/hearing\\_loss/what\\_noises\\_cause\\_hearing\\_loss.html](https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html). Accessed 13 August 2020.
- Drum, R. G., J. Noel, J. Kovatch, L. Yeghiazarian, H. Stone, J. Stark, P. Kirshen, E. Best, E. Emery, J. Trimboli, J. Arnold, and D. Raff (2017), Ohio River Basin—Formulating Climate Change Mitigation/Adaptation Strategies Through Regional Collaboration with the ORB Alliance, May 2017. Civil Works Technical Report, CWTS 2017-01, U.S. Army Corps of Engineers, Institute for Water Resources: Alexandria, VA
- Natural Resources Conservation Service (NRCS). 2020. <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed 15 December 2020.
- Runkle, J., K. Kunkel, R. Frankson, and B. Stewart, 2017: West Virginia State Climate Summary. NOAA Technical Report NESDIS 149-WV, 4 pp. <https://statesummaries.ncics.org/chapter/wv/>. Accessed 19 November 2020.
- United States Army Corps of Engineers (USACE). 1982. Stonewall Jackson Lake Master Plan. Design Memorandum No. 7. U.S. Army Corps of Engineers, Pittsburgh District, July 1982.
- United States Army Corps of Engineers (USACE). 2013. *Engineer Pamphlet 1130-2-550: Recreation Operations and Maintenance Guidance and Procedures*. [https://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP\\_1130-2-550.pdf](https://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP_1130-2-550.pdf).
- United States Department of Labor (USDOL). Occupational and Safety Health Administration. Occupational Noise Exposure. <https://www.osha.gov/SLTC/noise/hearingconservation/loud.html>. Accessed 13 August 2020.
- United States Environmental Protection Agency (USEPA) 2020a. Criteria Air Pollutants website. <https://www.epa.gov/criteria-air-pollutants>. Accessed 10 July 2020.

United States Environmental Protection Agency (USEPA) 2020b. Green Book.  
<https://www.epa.gov/green-book>. Accessed 24 November 2020.

United States Environmental Protection Agency (USEPA) 2020c.  
<https://www.epa.gov/outdoor-air-quality-data/air-data-multiyear-tile-plot>.  
Accessed 10 July 2020.

United States Environmental Protection Agency (USEPA). 2020d. Envirofacts database.  
<https://enviro.epa.gov/>. Accessed 21 August 2020.

United States Environmental Protection Agency (USEPA). 2020e.  
<https://www.epa.gov/standards-water-body-health/what-are-water-quality-standards>. Accessed 24 August 2020.

United States Environmental Protection Agency (USEPA). 2020f.  
<https://www.epa.gov/mercury/how-people-are-exposed-mercury>. Accessed 24 August 2020.

United States Fish and Wildlife Service (USFWS). 2020a.  
<https://www.fws.gov/midwest/Ohio/EndangeredSpecies/indianabat.html>. Accessed 14 December 2020.

United States Fish and Wildlife Service (USFWS). 2020b.  
<https://www.fws.gov/midwest/endangered/mammals/nleb/index.html>. Accessed 14 December 2020.

United States Fish and Wildlife Service (USFWS). 2020c.  
<https://www.fws.gov/midwest/Ohio/EndangeredSpecies/index.html>. Accessed 26 October 2020.

West Virginia Department of Environmental Protection (WVDEP). GIS Viewer.  
[https://tagis.dep.wv.gov/wvdep\\_gis\\_viewer/](https://tagis.dep.wv.gov/wvdep_gis_viewer/). Accessed 21 August 2020.

West Virginia Department of Environmental Protection (WVDEP).  
<https://dep.wv.gov/WWE/Programs/wqs/Pages/default.aspx>. Accessed 24 August 2020.

West Virginia Geological and Economic Survey (WVGES). 2020a.  
<http://www.wvgs.wvnet.edu/www/maps/pprovinces.htm>. Accessed 15 December 2020.

West Virginia Geological and Economic Survey (WVGES). 2020b. *Geologic Map of West Virginia*.  
[https://www.wvgs.wvnet.edu/www/maps/GeologicMap\\_PageSize\\_USGS\\_SeparateErasPds.pdf](https://www.wvgs.wvnet.edu/www/maps/GeologicMap_PageSize_USGS_SeparateErasPds.pdf). Accessed 15 December 2020.