

United States Army Corps of Engineers
Louisville District

Caesar Creek Master Plan Update

2020

Appendix B

Notice of Availability, Environmental Assessment and Finding of No Significant Impact



**US Army Corps
of Engineers**
Louisville District

Finding of No Significant Impact for the **Master Plan Update for Caesar Creek Lake**

Little Miami River Basin, Ohio

The U.S. Army Corps of Engineers, Louisville District (Corps) has conducted an Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969, as amended (NEPA), and Engineering Regulation (ER) 200-2-2, *Policy and Procedures for Implementing the NEPA*. The EA dated July 2020, for the Caesar Creek Lake Master Plan evaluated alternatives to update the Master Plan in compliance with guidance in Engineering Regulation 1130-2-550 and Engineering Pamphlet 1130-2-550, to include revised land classifications and updated resource objectives.

The EA evaluated potential impacts to natural, cultural, and socioeconomic resources from the proposed alternative. The recommended plan is:

- Implementation of the Updated Caesar Creek Lake Master Plan

In addition to the recommended plan, a “no action” plan was evaluated. The no action plan would entail the continued use of the 1991 Master Plan and would result in no change from current management direction or level of management intensity.

For both alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

Resource/Area of Concern	Insignificant Adverse Effects	Insignificant Effects as a Result of Mitigation	No or Negligible Effects	Beneficial Effect
Aesthetics and Visual Qualities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Climate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Cultural Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Demographics and Environmental Justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Habitats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HTRW Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Listed Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation and Visitation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reservoir, Pool, and Lake Operation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Surface Water Hydrology and Groundwater	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Topography, Geology, and Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

All practical means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. The recommended plan does not include major development of new facilities or other construction activities that could negatively impact the environment. Best management practices (BMPs) as detailed in the EA will be implemented during continued maintenance activities to minimize impacts.

No compensatory mitigation is required as part of the recommended plan.

Public review of the EA was completed on [PENDING]. All comments submitted during the public comment period were responded to in the Final EA. A 30-day state and agency review of the Report and EA was also completed on [PENDING]. Comments from state and Federal agency review did not result in significant changes to the EA. [PENDING].

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the recommended plan will have no effect on federally listed species or their designated critical habitat.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that the recommended plan has no potential to cause adverse effects on historic properties.

There is no discharge of dredged or fill material or any other discharge into waters of the U.S. associated with the recommended plan. Therefore, a Section 404(B)(1) evaluation, pursuant to the Clean Water Act of 1972, as amended, was not conducted and a water quality certification pursuant to Section 401 of the Clean Water Act is not required.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not significantly affect the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date

Eric D. Crispino
Colonel, U.S. Army
District Commander



**US Army Corps
of Engineers**
Louisville District

Environmental Assessment
for the
Caesar Creek Lake Master Plan
Little Miami River Basin, Ohio

July 2020

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Executive Summary

The U.S. Army Corps of Engineers' (USACE) Caesar Creek Lake Project (Project) is located in portions of Warren, Clinton, and Greene counties in southwestern Ohio, approximately 35 miles northeast of Cincinnati. The Project furnishes flood risk management to the Little Miami River and reduces stages at all points downstream along the Ohio River as a unit in the comprehensive plan for the Ohio River Basin. The Project also operates for the storage of water for water supply and water quality control, and for recreation and fish and wildlife activities.

The Caesar Creek Lake Master Plan (Master Plan) is the strategic land use management document that guides the comprehensive management, development, and use for recreation, natural resources, and cultural resources that is efficient and cost-effective throughout the life of the Caesar Creek Lake project. It is a vital tool for responsible stewardship and sustainability of the facility's resources for the benefit of present and future generations. This Master Plan guides and articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is dynamic and flexible based on changing conditions.

The Master Plan is distinct from the project-level implementation emphasis of the Operational Management Plan (OMP). The Master Plan also does not address details of design, management and administration, and implementation. These are specifically addressed in the Caesar Creek Lake OMP. In addition, the Master Plan does not address the specifics of regional water quality, shoreline management with respect to private actions conducted by adjoining landowners such as vegetation modification. The operation and maintenance of primary project operations facilities, including but not limited to the dam, spillway, and gate-controlled outlet, are also not included in this Master Plan.

Neither the USACE nor the ODNR currently have plans for development of new major recreational amenities. The proposed updated Master Plan includes changes in land classifications and several resource objectives that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Louisville District, Caesar Creek Lake Project Office. The continued maintenance of existing facilities, improvement of some existing facilities, and protection the project's natural areas and natural resources would involve a number of small-scale actions that are recommended under the updated Master Plan. This Environmental Assessment (EA) describes the existing environmental conditions at the Project (affected environment), providing a baseline for measuring expected changes that could result from adoption of the proposed updated Master Plan.

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List of Acronyms

BMPs - Best Management Practices
CEQ – Council on Environmental Quality
CFR - Code of Federal Regulations
CFS – Cubic Feet Per Second
EA – Environmental Assessment
EIS – Environmental Impact Statement
EJ - Environmental Justice
EP – Engineering Pamphlet
ER – Engineering Regulation
FONSI - Finding of No Significant Impact
GRCHA – George Rogers Clark Heritage Association
MBTA – Migratory Bird Treaty Act
NEPA – National Environmental Policy Act of 1969
NAAQS - National Ambient Air Quality Standards
O&M – Operation and Maintenance
OAC - Ohio Administrative Code
ODNR – Ohio Department of Natural Resources
Project – Clarence J. Brown Lake Project
SCORP – Statewide Comprehensive Outdoor Recreation Plan
USACE – United States Army Corps of Engineers
USFWS – United States Fish and Wildlife Service
VOC – Volatile Organic Compounds

1 INTRODUCTION

The U.S. Army Corps of Engineers (USACE) produces and operates under master plans to guide the responsible stewardship of USACE-administered lands and resources. A master plan presents an inventory and analysis of land resources, resource management objectives, land use classifications, resource use plans for each land use classification, current and projected facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. USACE land use classifications provide for development and resource management consistent with authorized purposes and other Federal laws.

The existing Master Plan for the Caesar Creek Lake Project (the Project) was completed in 1991, and has not been comprehensively updated since then. The USACE is proposing adoption of a new Master Plan at Caesar Creek Lake to reflect changes that have occurred to the Project, the region, overall recreation trends, and USACE policy directives since the adoption of the 1991 Master Plan. The Updated Master Plan has been prepared pursuant to Engineer Regulation (ER) 1130-2-550 and Engineering Pamphlet (EP) 1130-2-550.

The purpose of this Environmental Assessment (EA) is to identify the potential impacts to the natural and human environment from implementation of the 2020 Clarence J. Brown Lake Master Plan, and to determine whether the environmental effects of the action have the potential to be significant.

1.1 Project location

The Project is located on Caesar Creek, a tributary of the Little Miami River, in the southwestern part of Ohio, about 30 miles northeast of Cincinnati (Figure 1). The dam site in Warren County is about three miles upstream of the confluence of Caesar Creek and the Little Miami River. Although the flood pool elevation extends about 13 miles above the dam, most of the lake area is in Warren County with extremity areas in Clinton County and Greene County.

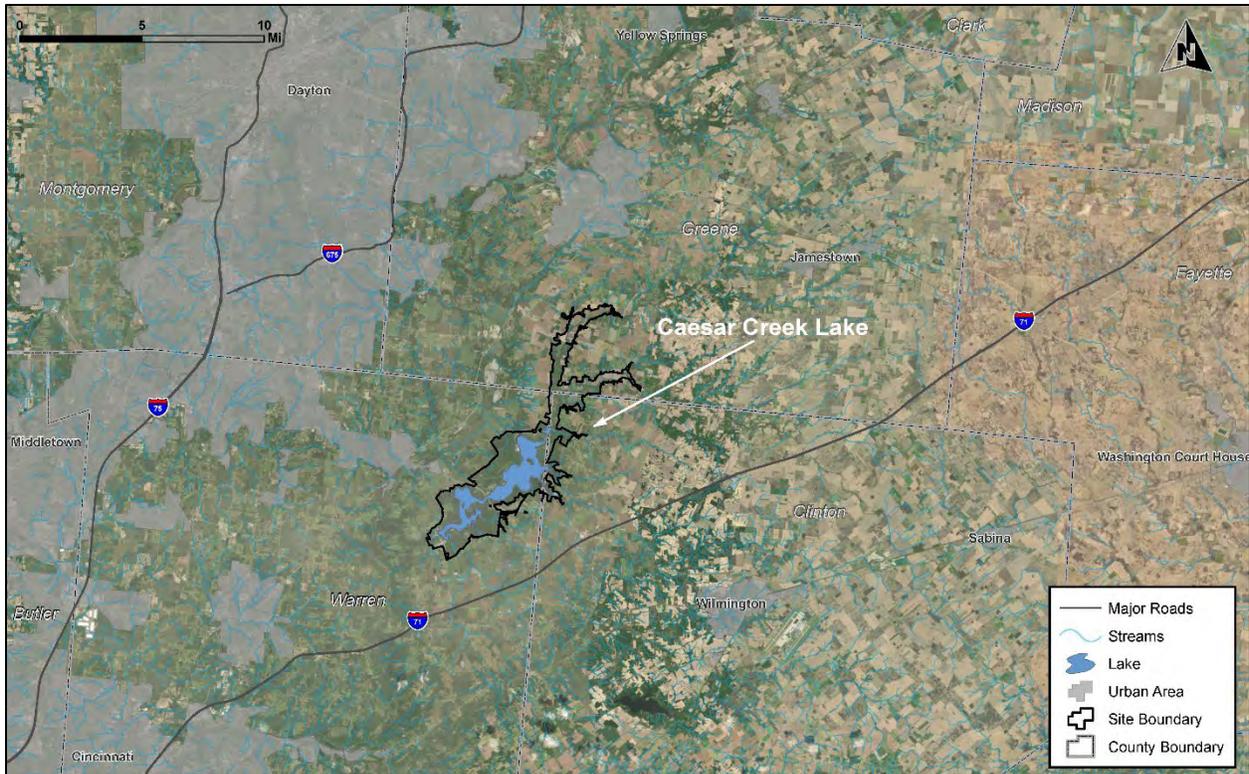


Figure 1. Caesar Creek Lake vicinity map.

1.2 Authorization and Project Description

The Congress of the United States authorized the Project as part of the Flood Control Act, approved 28 June 1938 (Public Law 761, 75th Congress, 1st session). Post authorization changes include water supply and water quality control as project purposes within the purview of the Water Supply Act of 1958, as amended (Public Law 87 88). Construction on the project began October 1971 and lake impoundment occurred in January 1978.

Caesar Creek Lake furnishes flood protection to the Little Miami River and reduces stages at all points downstream along the Ohio River as a unit in the comprehensive plan for the Ohio River Basin. The lake also operates for water supply storage and water quality control, and for recreation and fish and wildlife activities. Located at the Project is the Miami River Area Office and Regional Visitor Center.

The Project has an earthen dam that is 6,600 feet long and 72 feet high at the highest point. An open-cut spillway allows the release of excess water to prevent flow over the dam. The maximum water depth is 50 feet at the dam. The control tower on the upstream side of the dam has inlets at the bottom which allow the water to pass through a conduit under the dam. The eastern shore slopes more gently than the western shore, which drops off rapidly to 30 feet. The upper end of the reservoir, north of the Buck Creek Lane crossing, is very shallow.

Standing trees in some of the coves along the western shoreline provide most of the fish cover in the lake.

1.3 National Environmental Policy Act Overview

This Environmental Assessment has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ) Regulations [40 Code of Federal Regulations (C.F.R.) §§ 1500-1508], as reflected in the USACE Engineering Regulation (ER) 200-2-2. ER 200-2-2 supplements, and applies in conjunction with, the CEQ regulations.

The regulations set forth a process whereby the USACE assesses the environmental effects of proposed major federal actions, and considers reasonable alternatives to these proposed actions. In general, federal agencies prepare an Environmental Assessment (EA) to evaluate whether or not a federal action has the potential to cause significant environmental effects. If the agency determines that the action would significantly affect the quality of the human environment, the agency prepares an Environmental Impact Statement (EIS) to evaluate the proposed action and alternatives in greater detail. If the EA concludes that the action will not have significant environmental impacts, the agency will issue a Finding of No Significant Impact (FONSI) to document the basis for that conclusion. Certain federal actions are "categorically excluded" from NEPA documentation requirements because the action does not "individually or cumulatively have a significant effect on the human environment." The Categorical Exclusions applicable to USACE actions include routine operations and maintenance (O&M) activities at completed USACE projects [ER 200-2-2; 33 Code of Federal Regulations (CFR) § 230.9].

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;
- Proposed action and alternatives (when there is an unresolved conflict concerning alternative uses of available resources);
- Environmental effects of the proposed action and alternatives; and
- Agencies and persons consulted in the preparation of the EA.

1.4 Scope of the EA

NEPA requires federal agencies to review potential environmental effects of federal actions which include the adoption of formal plans, such as master plans, approved by federal agencies upon which future agency actions will be based. Pursuant to ER 1130-2-550, this EA has been prepared to fulfill USACE's regulatory requirements under NEPA and provide USACE with the information needed to make an informed decision about the potential effects to the natural and human environment from the proposed adoption of the 2020 Clarence J. Brown Master Plan.

The intent of the proposed Master Plan update is to develop land classifications that will guide the sustainable development of resources within the Project in the future. It is not feasible to define the exact nature of potential impacts for all potential future actions prior to the development of specific project proposals. Accordingly, this EA does not consider implementation of specific projects recommended within the 2020 Master Plan, as those projects are conceptual in nature. To ensure future environmental consequences are identified and documented as accurately as possible, additional NEPA analysis will be conducted, as appropriate, for future projects that are proposed to be carried out in accordance with this Master Plan update (including those identified within the Master Plan update), once funding is available and detailed project planning and design occur.

The scope of the revised Master Plan and Environmental Assessment are limited to actions on USACE property, with the exception of the consideration of potential cumulative effects associated with actions that have taken place or are proposed to take place in the surrounding area.

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2 PURPOSE AND NEED FOR CORPS OF ENGINEERS ACTION

2.1 Master Plan Overview

Master plans are required for civil works projects and other fee-owned lands for which the Corps of Engineers has administrative responsibility for management of natural and manmade resources. The master plan is the basic document guiding Corps of Engineers responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources. The master plan is a dynamic planning document that deals in concepts, not in details of design or administration. Detailed management and administration functions are handled in a separate Operational Management Plan (OMP), which translates the concepts of the master plan into operational terms.

Engineering Regulation (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. Engineering Pamphlet (EP) 1130-2-550 establishes guidance for the preparation of master plans. As stated therein, the primary goals of the master plan are to prescribe an overall land and water management plan, resource objectives, and associated design and management concepts, which:

- 1) Provide the best possible combination of responses to regional needs, resource capabilities and suitability, and expressed public interests and desires consistent with authorized project purposes;*
- 2) Contribute towards providing a high degree of recreation diversity within the region;*
- 3) Emphasize the particular qualities, characteristics, and potentials of the project; and*
- 4) Exhibit consistency and compatibility with national objectives and other state and regional goals and programs.*

2.2 Purpose and Need for the Updated Master Plan

Two previous master plans (1973 and 1991) were developed for Caesar Creek Lake. Both of these plans reflect changes in outdoor recreation trends, regional land use, population, legislative requirements, and USACE management policy at the time of their creation. It is Corps of Engineers policy that each master plan shall be reviewed on a periodic basis and be revised as required (ER 1130-2-550). The existing Project master plan was approved in 1971, and there has been no revision to the master plan in 49 years. There have been changes in demand for recreation, adjacent population growth, and new concerns with threatened and endangered species and sensitive habitats, which dictate the need to update the Master Plan for the Project. Because the current Master Plan does not reflect these changes, it is being revised to provide an up-to-date basis upon which to evaluate contemporary proposals.

The purpose of the Proposed Action is to ensure that the conservation and sustainability of the land, water, and recreational resources at the Project comply with applicable environmental laws and regulations and to maintain quality land for future use. The Master Plan is intended to serve as a comprehensive land and recreation management plan for the next 15 to 25 years, which reflects changes that have occurred since 1991 in outdoor recreation trends, regional land use, population, legislative requirements, USACE management policy, and wildlife habitat at the Project.

Accordingly, the need for the Proposed Action is to update the Caesar Creek Lake Master Plan pursuant to the January 2013 updates to ER and EP 1130-2-550.

3 ALTERNATIVES

When preparing an EA, federal agencies must consider a range of alternatives that could reasonably achieve the purpose and need that the proposed action is intended to address. The alternatives to be evaluated in this EA are a No Action Alternative of continuing to operate the Project under the 1991 Master Plan, and the Proposed Action Alternative of implementing and operating the Project consistent with the 2020 Caesar Creek Lake Master Plan that is proposed for adoption. USACE initially considered other alternatives to the Proposed Action as part of the scoping process for the master plan and this EA. During this process, the District and other management partners have worked to develop options for classifying project lands and identifying Resource Objectives (Master Plan, Chapter 4) for these lands. The data collection, public comments, and findings of the planning team revealed that there was only one action alternative that would meet the purpose, need, and objectives of the master planning process. As such, no other alternatives beyond the No Action and Proposed Action Alternative (the Preferred Alternative) are being carried forward for analysis in this EA.

3.1 No Action

Inclusion of the No Action Alternative is required by CEQ regulations and serves as a basis for comparison against which the effects of the Proposed Action can be evaluated. Under the No Action Alternative, USACE would take no action and would not adopt the 2020 Master Plan. The 1991 Master Plan would remain in effect, and the No Action Alternative would result in "no change" from current management direction or level of management intensity. Master plans provide the basis for evaluating contemporary proposals, and the 1991 document does not account for the many substantial changes that have occurred since then. The existing master plan is capable of providing only minimal support to development and management of the project. 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.

Under the No Action Alternative, development and management of the Project area would likely take the same general direction outlined in the proposed updated master plan and therefore, would generally share the same environmental consequences. However, future developments or resource management policies would require approval on a case-by-case basis without the benefit of evaluation in the context of a revised overall plan.

3.2 Proposed Action Alternative (Preferred Alternative)

Under this alternative, USACE would adopt and implement the updated 2020 Caesar Creek Lake Master Plan for the Project, which would replace the 1991 Master Plan. The revised master plan addresses important updates due to the considerable changes in the demographics,

recreation demand, amenities within the project, amenities on adjacent properties, current environmental conditions, and pertinent laws and policies. This alternative is the Agency Preferred Alternative because it would meet the need for sustainable management and conservation of natural resources within the Project while also providing for current and future quality outdoor recreational needs of the public, and would satisfy USACE regulations governing master planning for civil works projects.

3.2.1 Scope and Objectives of the Updated Master Plan

The Master Plan 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 (USACE, 1996; USACE, 1996a; USACE, 1999), responses to regional and local needs, resource capabilities and suitable uses, and expressed public interests consistent with authorized project purposes and pertinent legislation. The Master Plan provides a District-level policy consistent with national objectives and other state and regional goals and programs.

3.2.2 Summary of Changes in the Updated Master Plan

The preparation of the Caesar Creek Lake Master Plan followed the new 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 new guidance include (1) preparation of contemporary Resource Objectives (2) classification of project lands using the newly approved classification standards, and (3) preparation of a Resource Plan 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.

The study team endeavored to follow this guidance to prepare a Master Plan that will provide for enhanced recreational opportunities for the public, improve environmental quality, and foster a management philosophy conducive to existing and projected staff levels at Caesar Creek Lake. Factors considered in the Plan were identified through public involvement and review of statewide planning documents including the 2018 Ohio Statewide Comprehensive Outdoor Recreation Plan (SCORP). This Master Plan will ensure the long-term sustainability of the USACE managed recreation program and natural resources associated with Caesar Creek Lake.

A key component in preparing this Master Plan was examining prior land classifications and addressing the needed transition to the new land classification standards. During the public involvement process, USACE sought public input into whether a shift in land classification was desired (for example, should lands with a recreation classification be reclassified to a wildlife classification or vice versa.). Chapter 7 of the Master Plan describes the public input process.

The land classifications presented in the Plan were formulated based on these public comments as well as the first-hand experience, professional training, and knowledge of the USACE Caesar Creek Lake Project staff, Operations Division Staff, the ODNR, and the USACE project delivery team.

3.2.2.1 Land Classification Changes

Land allocations at all Corps of Engineers Civil Works water resource projects are based on the Congressionally-authorized purpose for which the project lands were acquired. Land classification categories as defined by EP 1130-2-550 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 High Density Recreation
 - e. Future Low Density Recreation

There were 6,754 acres reclassified or updated to the new land classification name. All changes reflect historic and projected public use and new guidance from ER 1130-2-550 and EP 1130-2-550. A summary of acreage changes from prior land classifications to the current classifications is provided in Table 1. Figure 1 is a map of the proposed classifications.

Table 1. Changes in Land Classification from 1991 to 2020 Master Plan.

Classification	2020 Master Plan Acres	1991 Master Plan Acres
Project Operations	340	1,070

Recreation*		1,500
High Density Recreation	814	
Mitigation	0	
Environmentally Sensitive Areas	458	210
Multiple Resource Management Lands*		2,810
Multiple Resource Management Lands: Low Density Recreation	2,775	
Multiple Resource Management Lands: Wildlife Management	3,418	
Multiple Resource Management Lands: Vegetative Management	179	
Multiple Resource Management Lands: Future/Inactive Recreation	0	
Water Surface: Restricted**	70	
Water Surface: Designated No-Wake**	596	
Water Surface: Fish and Wildlife Sanctuary**	0	
Water Surface: Open Recreation**	1,956	

*Classifications are now obsolete based ER 1130-2-550 and EP 1130-2 550

**Water zoning was established in 1991 Master Plan, but acreages were not calculated

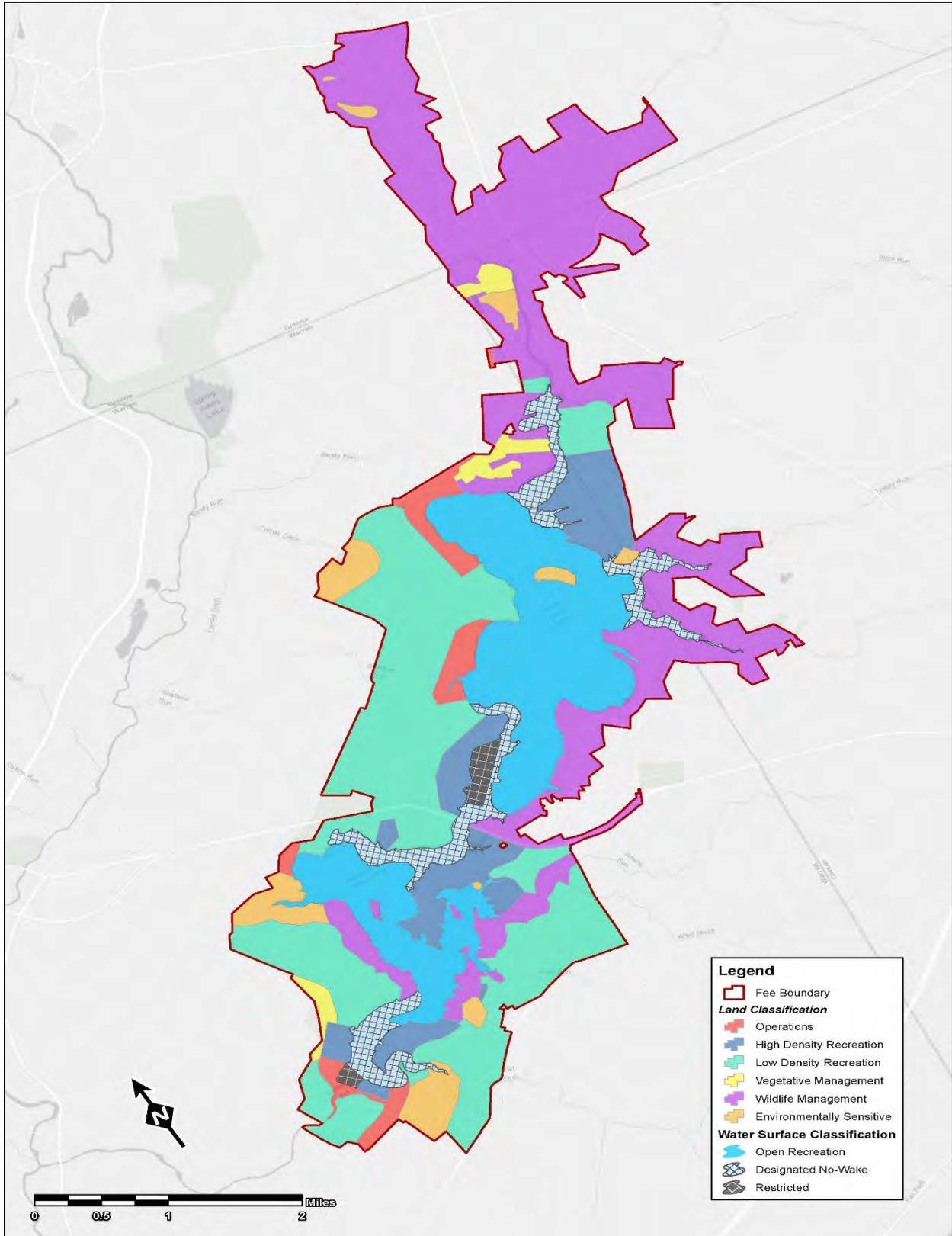


Figure 2. Proposed land classifications at Caesar Creek Lake.

4 AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act and the Council on Environmental Quality's NEPA Implementing Regulations require that an Environmental Assessment identify the likely environmental effects of a proposed project and that the agency determine whether those impacts may be significant. Impacts can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. Direct effects are caused by the action and occur at the same time and place (40 CFR § 1508.8[a]). Indirect effects are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR § 1508.8[b]).

The determination of whether an impact significantly affects the quality of the human environment must consider the context of an action and the intensity of the impacts (40 CFR § 1508.27).

The term "context" refers to the affected environment in which the proposed action would take place and is based on the specific location of the proposed action, taking into account the entire affected region, the affected interests, and the locality. The term "intensity" refers to the magnitude of change that would result if the proposed action were implemented.

Determining whether an effect significantly affects the quality of the human environment also requires an examination of the relationship between context and intensity. In general, the more sensitive the context (i.e., the specific resource in the proposed action's affected area), the less intense an impact needs to be in order for the action to be considered significant. Conversely, the less intense of an impact, the less scrutiny even sensitive resources need because of the overt inability of an action to effect change to the physical environment. The consideration of context and intensity also must account for the indirect and cumulative effects from a proposed action. This section describes the existing environmental conditions in the project area (affected environment), providing a baseline for measuring expected changes that would result from implementation of the proposed updated Master Plan.

This Section presents the adverse and beneficial environmental effects (direct and indirect) of the Proposed Action and the No Action Alternative. The section is organized by resource topic, with the effects of alternatives discussed under each resource topic. Impacts are quantified whenever possible. Qualitative descriptions of impacts are explained by accompanying text where used.

Qualitative definitions/descriptions of impacts as used in this section of the EA include:

Intensity:

- No Effect, or Negligible – a resource would not be affected, or the effects would be at or below the level of detection, and changes would not be of any measurable or perceptible consequence.

Minor – effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.

- Moderate – effects on a resource would be readily detectable, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.

- Significant – effects on a resource would be obvious and would have substantial consequences. The resource would be severely impaired so that it is no longer functional in the project area. Mitigation measures to offset the adverse effects would be extensive, and success of the mitigation measures would not be guaranteed.

Duration:

- Short term – temporary effects caused by the construction and/or implementation of a selected alternative; and
- Long term – caused by an alternative and remain after the action has been completed and/or after it is in full and complete operation.

All potentially relevant resource areas were initially considered for analysis in this EA. Consistent with NEPA implementing regulations and guidance (40 CFR § 1502.2[b]), some resource topics are not discussed, or the discussion is limited in scope, due to the lack of direct effect from the Proposed Action on the resource or because that resource is not located within the Project.

4.1 Scope of Effects Discussion

The effects of any actions, including construction activities, implemented to achieve the goals and objectives outlined in the updated Master Plan, are outside the scope of this EA. The USACE would continue to perform actions in the future to maintain and improve environmental and recreational resources at the Project. Future actions could possibly generate short term and minor adverse impacts to human environment. However, analysis of future unplanned actions is not feasible and is outside of the scope of this EA. All future actions taken by USACE, recommended in the updated Master Plan or otherwise, would require appropriate environmental review and NEPA compliance. As such, the effects to the human environment caused by potential future actions would not be expected to be significant at the local, regional, or global level.

4.2 Reservoir, Pool, and Lake Operation

4.2.1 Existing Condition

Construction of the operating tower and outlet works began in August 1972 and completed in July 1976. Construction of the dam and spillway began in July 1973 and was completed late in

August 1975. Project filling began on 3 January 1978 with the lake reaching the water supply-water quality level of 845.4 ft-NAVD88 in early July 1978. The project reached summer pool level of 848.4 ft-NAVD88 the summer of 1979. Table 2 provides characteristics of the project including physical data, hydrology and operating levels.

Table 2. Pertinent project information.

Physical Data		
Main Dam:		
Dam Type	Compacted earth and random rockfill	
Maximum Height	179 feet	
Length	2,750 feet	
Top Elevation	902.4 feet NAVD88 used for modeling. However, a 0'-6" low spot may be present based on settlement markers.	
Spillway Type	Uncontrolled open cut	
Spillway Crest Elevation	882.4 feet NAVD88	
Spillway Base Width	500 feet	
Outlet Works	Two 4 x 12 feet slide gates in an 8 x 12 feet oblong concrete conduit. 5 multilevel bypasses: two 6 x 6 feet and three 6 x 4 feet.	
Conduit Inlet Invert Elevation	739.96 feet NAVD88	
Bypass Inlet Invert Elevation	6 x 4 foot gates at elevations 786.4, 806.4, and 821.4 feet NAVD88 and two 6 x 6 foot gates at elevation 835.4 feet NAVD88	
Hydrology		
Drainage Area	237 mi ²	
Basin Average Rainfall from PMP	24.13 inches (CCK WCM 1981)	
Probable Maximum Flood (PMF) Peak Inflow	230,200 cfs (CCK WCM 1981)	
Max. PMF Pool Elevation	899.4 feet NAVD88 (CCK WCM 1981)	
Maximum 6-Hour Inflow	14,409 cfs; 16 April 1998*	
Maximum Period-of-Record Release	3,157 cfs; 18 July 1990*	
Maximum Period-of-Record Pool Elevation	870.73 feet NAVD88; 19 January 2005***	
Average Discharge from Dam site	265 cfs*	
Operating Levels		
	<i>Elevation (feet NAVD88)</i>	<i>Storage** (acre-ft)</i>
<i>Pool</i>		
Top of Dam	902.4	419,299
Top of Flood Control Pool (spillway crest elevation)	882.4	242,200
Seasonal Pool (April 14 – November 30)	848.4	102,000
Water Quality and Water Supply Pool	845.4	93,700
Minimal Pool	799.4	13,300
Upstream projects, River Mile, and Drainage Area		
Not applicable		
*Values from district provided database.		
**Storage above seasonal pool calculated as part of the hydrologic model development using the elevation storage curve developed using the Caesar Creek water control manual (figure 5.1).		
***From most recent Inspection Report		

The primary function of Caesar Creek Reservoir is flood control, and it is operated as a unit in the system of reservoirs in the Ohio River Basin. The spillway flood control regulation as provided in the Caesar Creek Reservoir Regulation Plan is summarized in Table 3. The current

maximum allowable release of this project during normal operation is 2,600 cubic feet per second (cfs), while the minimum release during normal operation is 15 cfs. Mean annual discharge is 265 cfs. The maximum design discharge capacity of the conduit and outlet works is 5,000 cfs. The discharge capacity of the bypass system with the reservoir at seasonal pool is 600 cfs. During flood operation, stages experienced at and forecasts for Milford, Ohio and Spring Valley, Ohio on the Little Miami River and Cincinnati, Ohio on the Ohio River control releases. These controlling stages are observed until the pool reaches spillway crest at elevation 882.4 ft-NAVD88; beyond this point, gate and spillway outflow is regulated up to channel capacity of 2,600 cfs.

Table 3. Spillway Flood Control Regulation Schedule.

Pool Elevation (ft-NAVD88)	Pool Conditions	Regulation
Below 882.4.0	Rising	A constant release rate of 100 cfs will be maintained until the top of flood control (spillway crest) is reached.
Above 882.4.0 & Below 884	Rising	Regulate conduit gates to release inflow up to 2,600 cfs (conduit plus spillway).
Above 884	Rising	Open conduit gates until outflow equals inflow.
Below 882.4	Falling	Once the pool falls below the spillway crest elevation (top of flood control), the conduit gates will be adjusted to pass inflows only until outflows return to maximum allowable releases.

4.2.2 Environmental Consequences

4.2.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, and current Operational Management Plan, no significant effects to the reservoir, pool, or lake operation are anticipated.

4.2.2.2 Proposed Action

Implementation of the ongoing project management under the revised master plan would result in no changes to the Project reservoir or lake operations. Operations are controlled by

the project's Operational Management Plan; the revised master plan does not change lake operations.

4.3 Climate

4.3.1 Existing Condition

The climate of the Caesar Creek area is temperate continental with hot, humid summers and moderately cold dry winters. Large daily and annual variations in temperature and precipitation are characteristic. The average annual temperature is approximately 54 degrees, with extreme temperatures of -30 degrees Fahrenheit and 109 degrees Fahrenheit having been recorded.

Weather conditions change every few days from the passing of cold or warm fronts and their associated centers of high and low pressure. Summers are moderately hot and humid with an average of 33 days with temperature of 90 degrees Fahrenheit or higher. Winters are reasonably mild with an average temperature of about 34 degrees Fahrenheit, and only 2 days with temperatures less than zero. The fall season of the year is very pleasant with an abundance of sunshine and comfortable temperatures.

Normally, rainfall is abundant and well distributed throughout the year, with showers and thunderstorms furnishing much of the growing season precipitation. Thunderstorms occur frequently from April through August. Winters are reasonably cold and cloudy with weather changes occurring frequently due to the passing for cold or warm fronts. Annual snowfall varies widely from year to year but averages between 20 and 25 inches.

Storms having a quasi-stationary front oriented from west-southwest to east-northeast have produced the most serious flooding in the Little Miami River and its tributaries. Storms of this type have historically occurred from late winter to early spring when the ground conditions are conducive to high runoff due to freezing temperatures. The most significant floods on record were January 1937, January 1959, March 1963, and March 1964.

Based on the climate in the region, the probable maximum precipitation event will likely be driven by a significant rainfall event that impacts the entire Caesar Creek Basin and will be preceded by wet antecedent conditions.

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 in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to climate are anticipated.

4.3.2.2 *Proposed Action*

Changes to land use classifications and other changes proposed under the Proposed Action would have a negligible effect on greenhouse gas emissions and climate.

4.4 Air Quality

4.4.1 Existing Condition

The U.S. Environmental Protection Agency (USEPA) Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, called “criteria” pollutants. They are carbon monoxide, nitrogen dioxide, ozone, lead, particulates of microns or less in size (PM-10 and PM-2.5), and sulfur dioxide. Ozone is the only parameter not directly emitted into the air, but that forms in the atmosphere when three atoms of oxygen (O₃) are combined by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOC, also known as ozone precursors. Strong sunlight and hot weather can cause ground-level ozone to form in harmful concentrations in the air.

Warren County, in which most of the Project is located, is in nonattainment for 8-Hour Ozone (2015 standard). The USEPA classifies the violation of standards as “marginal”, meaning the area has an ozone value of between 0.076 and 0.086 ppm. Clinton and Greene counties are in attainment for all criteria pollutants (U.S. Environmental Protection Agency, 2020). Because of these violations of the NAAQS, actions taken by federal agencies within Warren County are subject to the General Conformity rule, which ensures that those actions do not interfere with the state’s plans to attain and maintain national standards for air quality. Under the rule, federal agencies must work with state, tribal and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable state or tribal implementation plan.

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 in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to air quality are anticipated.

4.4.2.2 *Proposed Action*

This alternative would result in an updated land use classification for the project and management of the project under the updated Project Master Plan, which would have no effect on air quality.

4.5 Topography, Geology, and Soils

4.5.1 Existing Condition

Starting at the dam tailwaters, Caesar Creek has formed a gorge about 300 feet deep downstream to the confluence with the Little Miami River. There are several excellent areas for recreation development including scenic overlooks, launching ramps, and swimming beaches. Most of the shoreline north of State Highway 73 is gently sloping. South of Highway 73 the valley sides slope steeply into the lake. Caesar Creek lies in a glaciated area of Ohio. At the dam site Caesar Creek marks the southern limit of the Wisconsin deposits. Glacial deposits on the right bank are Wisconsin, and those on the left bank are Illinoian.

Caesar Creek flows over bedrock at the dam site with a valley width of about 300 feet. Bedrock in the valley is about elevation 724, and bedrock extends above spillway crest elevation 883 in both abutments. Bedrock is the Richmond Formation of interbedded limestone and shale, Ordovician in age.

Approximately 2.5 miles above the dam, Caesar Creek flows in a broad, meandering valley of glacial deposits. The general topography is one of broad, relatively flat drainage divides, which have been dissected by streams such as the Little Miami River, Caesar Creek, and tributaries. A dendritic drainage pattern has developed. Prior to the Illinoian glaciation, the drainage pattern was quite different from that of today.

A southward flowing river, referred to as the "Hamilton River," cut a deep bedrock channel through Greene, Warren, and Clinton Counties. This preglacial river split between New Burlington and Harveysburg. The west arm of the river flowed in a southeast direction toward Ogden until it reached the present Todd Fork Valley, where it turned southwest, following the present Todd Fork Valley. Both arms of the river are now buried valleys. The arm does cross the reservoir about 5 miles upstream from the dam. Approximate top of bedrock in the buried valley is elevation 750. The drainage divide between Caesar Creek and the Little Miami River is located in the old Hamilton river bedrock channel. The drainage divide is a Wisconsin end moraine that was deposited as hills and ridges at the edges of the glacier. The ridges are more or less well defined belts. The drainage divide is composed of clay till with interbedded sand and gravel.

The Caesar Creek area is mostly in the Wisconsin High-Lime Till Soil Region, which is gently undulating to rolling glacial till plain. Lower reaches of the creek are located in the Illinoian-age glacial till plain with deeply weathered soils. In general, most soils have severe limitations to the operation of septic tanks, and present low to moderate erosion hazards. The Genesee-Eel-Sloan soil association consists of light colored silty loams developed in active flood plains. The soils have inadequate local drainage.

Soils of the Russell-Xenia-Fincastle association are dark, silty loams developed in loess-covered Wisconsin till in upland areas and have a moderate erosion hazard. The Clermont-Avonburg and Rossmoyne-Edenton associations include silty loam upland soils developed on Illinoian till.

Soils found on steep valley wall slopes include the Russell-Wynn association and Fairmount soils developed on limestone and shale.

4.5.2 Environmental Consequences

4.5.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, and actions would still be addressed under appropriate NEPA and environmental compliance reviews, no significant effects to the topography, geology, or soils are anticipated.

4.5.2.2 Proposed Action

No additional development or ground disturbing activities are proposed in the updated Master Plan. For this reason, implementation of the updated Master Plan would have no effect to topography, geology, and soils.

4.6 Surface Water Hydrology and Groundwater

4.6.1 Existing Condition

The contributing drainage area upstream of the dam is approximately 237 square miles. From Caesar Creek's headwaters in Green County, the stream meanders 33 miles until its confluence with the Little Miami River. Caesar Creek Dam is located approximately 3 miles upstream of the confluence with the Little Miami River and controls a majority of the drainage in the Caesar Creek watershed. The general topography of the area is characterized by broad, relatively flat drainage divides which have been dissected by streams, thus developing a dendritic drainage pattern. Tributary streams are fed from springs high on the drainage divide between Caesar Creek and the Little Miami River and flow along gentle gradients to the mouth of the river. Maximum relief across the watershed is 300 feet. The average bed slope of Caesar Creek is 10 feet per mile.

Shoreline erosion at Caesar Creek 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. 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 other structures. 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.

Accounting for sedimentation was included in the design and management of the reservoir. It is recommended that an updated sedimentation study be completed to characterize current sedimentation and potential impacts on the projects authorized purposes.

Groundwater resources are dictated by the geology of the area. The Project area is mostly comprised of end moraine consisting of clay with sand and gravel layers. Depth to rock in this area may range from 100 to 200 feet. Groundwater wells encountering coarse sands and gravels may obtain yields of 10 to 15 gallons per minute from properly developed screened wells. Shale bedrock in the area is a poor water source (Walker, 1986).

4.6.2 Environmental Consequences

4.6.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, and actions would still be addressed under appropriate NEPA and environmental compliance reviews, no significant effects to surface water hydrology or groundwater are anticipated.

4.6.2.2 Proposed Action

There would be no environmental consequences of implementing the new master plan expected to the surface water hydrology or groundwater of the Project. The land reclassifications and updated resource objectives in the updated Master Plan would allow land management and land uses to be compatible with the goals of good stewardship of water resources. Any future actions implemented to achieve the resource objectives outlined in updated Master Plan are outside the scope of this EA, but would still be subject to all appropriate NEPA and environmental compliance reviews.

4.7 Water Quality

4.7.1 Existing Condition

The water quality management authority of USACE is founded on the Federal Water Pollution Control Act (FWPCA) of 1948 and its amendments including the Clean Water Act of 1977 and the Water Quality Act of 1987. Executive Order 12088, Federal Compliance with Pollution Control Standards (1978), requires Federal facilities to comply with applicable pollution control standards in the same manner as any non-Federal entity. ER 1110-2-8154 stipulates that it is Corps policy to develop and implement a holistic, environmentally sound water quality management strategy for all projects. Furthermore, it is USACE's goal to responsibly manage our projects to maximize environmental compliance. USACE is also mandated to comply with State regulations and standards including the Indiana Administrative Code Title 327, Article 2 – Water Quality Standards.

Water quality monitoring at the lake is performed by the USACE which is done in coordination with the state of Indiana. USACE Project personnel also conduct water quality monitoring in which biweekly measurements are collected from spring to fall during lake stratification to monitor temperature and dissolved oxygen levels. Data collected via the Louisville District Water Quality Program is assessed annually. Water quality in the tailwater is also assessed by analyzing data for exceedances of water quality standards and criteria. Data is compared and if any exceedances of established water quality criteria occur, the Louisville District Water Quality Team reports this to the Ohio EPA.

According to Ohio Administrative Code (OAC) 3745-1, the Caesar Creek tailwater is designated for multiple uses that include: exceptional warmwater habitat, agricultural water supply, industrial water supply, and primary contact recreation. Nutrient criteria for total nitrogen, total phosphorus, and turbidity is based on the USEPA Ambient Water Quality Criteria Recommendations, Rivers and Streams (2000). In 2019, the Caesar Creek Lake tailwater exceeded the total phosphorus criteria and met criteria for total nitrogen and turbidity.

The trophic state index of multiple sites within the lake were calculated data collected in 2018. The results suggested that the lake is eutrophic (TSI score from 51-69). This means that the lake has a high concentration of nutrients, which can be detrimental to the lake in multiple ways, including from causing the proliferation of harmful algal blooms (HABs). HABs in Ohio are addressed by the ODNR as they are the lead agency for HAB response. The ODNR works with the Ohio EPA and Ohio Department of Health to sample for cyanobacteria and cyanotoxins at designated swimming beaches and to post recreational advisories. The Louisville District supports the state agencies by reporting any visual HAB indicators and by communicating HAB potential to the visiting public.

4.7.2 Environmental Consequences

4.7.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to water quality are anticipated.

4.7.2.2 Proposed Action

No new development or activities that may negatively impact water quality of the Project or its tributaries are proposed in the updated Master Plan. The updated Master Plan does include recommendations to improve the health of the watershed and its water quality. The resource objective of evaluating shoreline erosion and sedimentation and developing alternatives to mitigate was added to the updated Master Plan. Water quality monitoring would continue with goals of reducing *E. coli* and HABs to ensure health of aquatic system and for public health concerns. Project staff would continue coordination, reporting and data collection for the

Louisville District Water Quality Team, the Ohio EPA, and the ODNR. For these reasons, implementation of the updated Master Plan would have beneficial effects to water quality.

4.8 Habitats

4.8.1 Existing Condition

The forests of the area are comprised of over 65 species of plants. Several major communities thrive in the area. A northern flood plain forest is found in the valley, while mixed associations of oak-hickory and beech-maple woodlands clothe the ridges and hillsides.

The project area is within the Beech Maple and the Western Mesophytic forest regions. The associations of the first mentioned region are characterized by dominance of the American beech (*Fagus grandiflora*) and sugar maple (*Acer saccharum*). Typical subdominants are various oaks, sassafras, honey locust, black walnut, wild cherry, black locust, and tulip tree. The Western Mesophytic Forest Region and the oak-hickory prairie communities of more westerly vegetative locales. Dominance is shared by a number of species and reflected in the existence of various climax communities. Typical dominant species include Beech, hemlock, tuliptree, red oak, and white oak. According to the National Land Cover Database, nearly 50 percent of the land cover of the project area is deciduous forest (Figure 2).

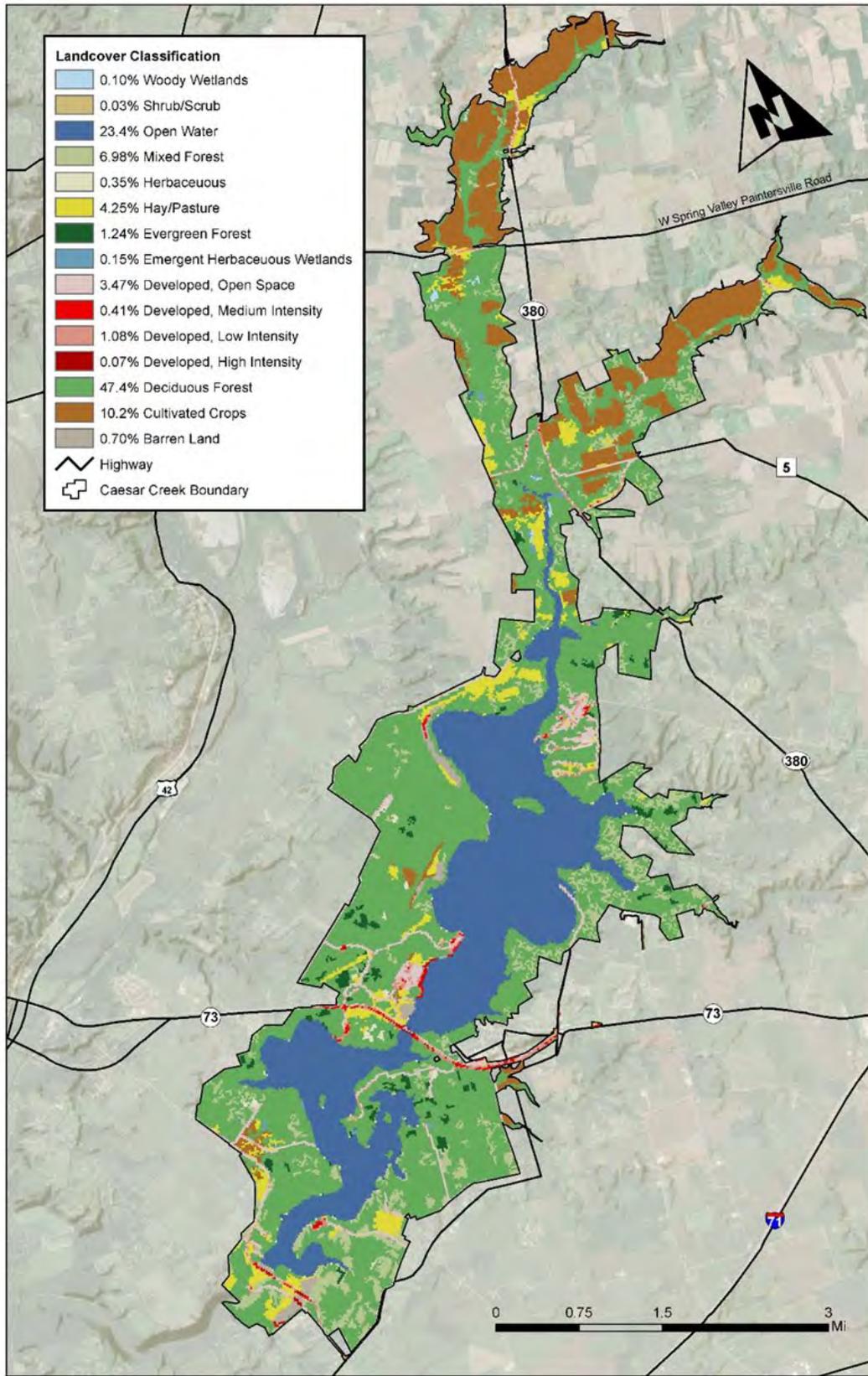


Figure 3. Land cover of the project according to the National Land Cover Database (2016).

The biology of the area may be generally interpreted as a very rich representation of midwestern flora and fauna generated by various current factors. This diversity is generally has been impacted by habitat changes from develop around the lake and impoundment of the lake. Since construction of the dam, plant and animal species which have a low tolerance for slack water situations have either disappeared, or persist as a remnant or peripheral populations. There are various stages of vegetative succession present around the project, however, mature deciduous forest is the dominant stage. This abundance of forested land provides habitat for numerous species of plants and animals. The project area is within the contemporary range of about 45 species of mammals. Of these, the following species can be considered as game species in the sense that they are sought for sport or profit - cottontail rabbit, woodchuck, gray squirrel, fox squirrel, red fox, gray fox, raccoon, long-tailed weasel, least weasel, mink, and deer. Also there have been sightings of 13-lined ground squirrels and badgers in the area. The project area is within the ranges of about 28 species of reptiles and 25 species of amphibians. One species of snake, the copperhead, is venomous. The bird life of the project area may be categorized as follows:

Status	Approx. # of Species
Permanent Residents	44
Winter Resident or Winter Visitor	28
Summer Resident	64
Migrants	114

Several of these species are considered to be game birds. These include the Bobwhite quail (permanent resident), Ring-neck pheasant (permanent resident), American Woodcock (summer resident), mourning dove (summer resident), and various migratory waterfowl. In 1988, wild turkeys were introduced to the Caesar Creek Gorge.

Prior to lake construction, Caesar Creek was known as a good smallmouth bass and rock bass stream. In addition to the basses mentioned above, other game and panfish present were channel catfish, flathead catfish, spotted bass, bluegill, and crappie. Nongame species included various suckers, minnows, and darters. Many of these stream fish have been extirpated or reduced in population from those inundated reaches of stream. Within the project, the stream fishery has been replaced by a lake and tailwater fishery managed by the Ohio Division of Wildlife. Largemouth bass, white bass, walleye, and sauger now predominate in the lake and gizzard shad are also present.

Some isolated, small freshwater emergent wetlands and ponds exist scattered within the project boundary. The largest of the wetlands are located in the northern vicinity of the project, near the confluence of Caesar Creek and Anderson Fork, where there exists approximately 23

acres of forested/shrub wetland and 10.5 acres of emergent wetland. Figure 3 shows existing wetlands within the project boundary, according to the USFWS National Wetland Inventory.

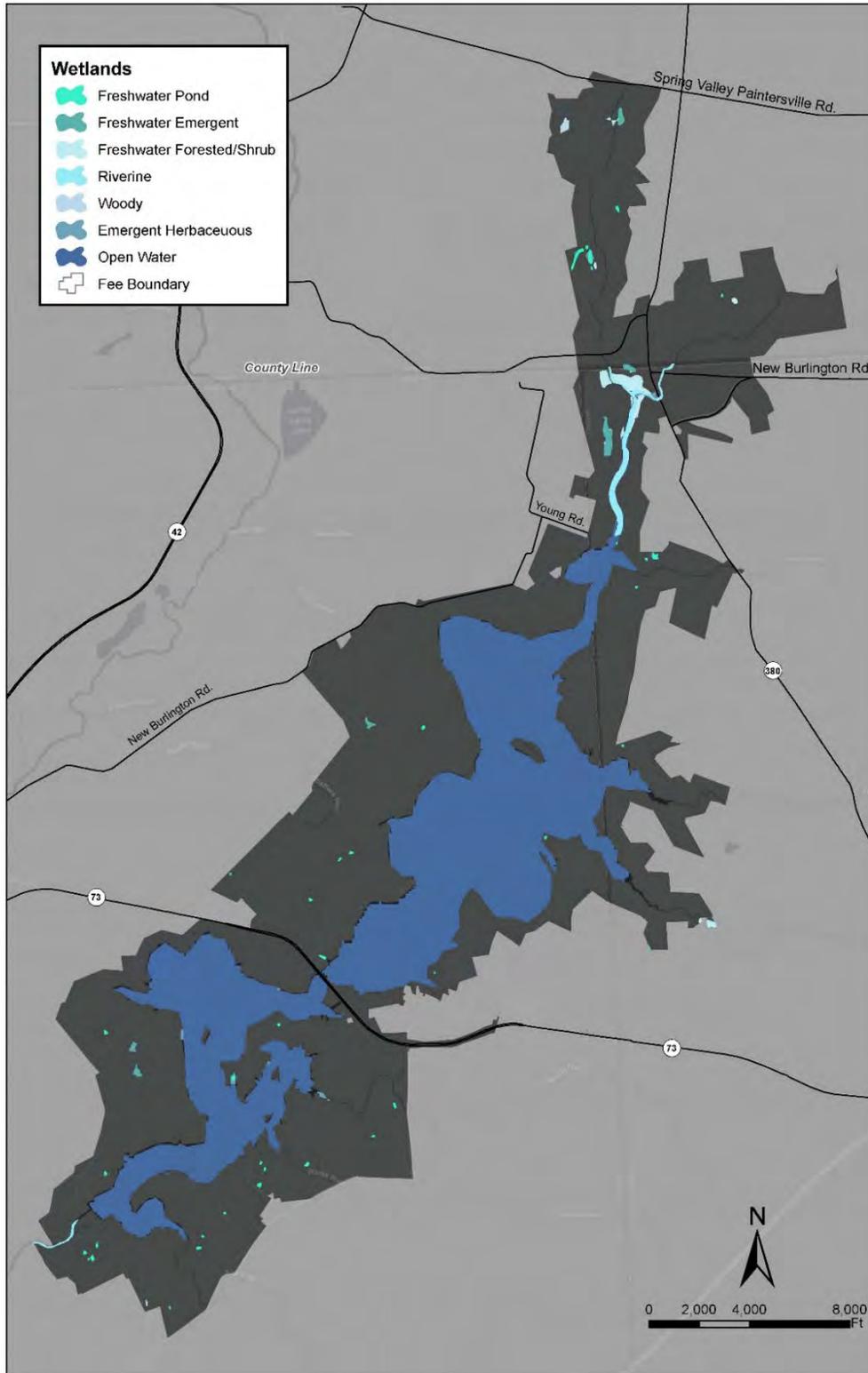


Figure 4. Wetlands within the project boundary (USFWS National Wetland Inventory).

4.8.2 Environmental Consequences

4.8.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to existing habitats are anticipated.

4.8.2.2 Proposed Action

The updated Master Plan includes numerous natural resource management objectives that would greatly benefit the existing habitats of the Project (Table 4). Management of the project under the updated Master Plan would be expected to improve the quality of the existing habitats and create additional habitat on Project lands.

Table 4. Natural resource management objectives in proposed updated Master Plan.

Natural Resource Management Objectives in Updated Master Plan
Minimize fragmentation of habitats and edge effects, and continue to work towards connecting fragmented woodlots and prairies.
Continue to expand, connect and manage the tallgrass prairies. Management includes removal of shrubby growth, invasive control and controlled burns. Controlled burns help maintain a healthy vigorous grassland by encouraging fire adapted grasses and wildflowers, improves seedbed conditions, enhances wildlife habitat, controls undesirable brush, and reduces damage from uncontrollable wildfire.
Timber stand improvement is required for endangered species considerations. Emphasis on linking larger tracts of forested areas and improving composition of trees with effort to produce mast producing trees. Active monitoring of invasive species plus removal of damaged and infested trees, invasive control, and public safety considerations.
Implement shoreline seeding & mechanical control to reduce erosion as funding allows.
Continue to provide active wildlife management program which includes erecting wildlife nesting boxes, planting food plots, monitoring threatened and endangered species, removal of non-native species, selective stocking and conduct inventory of species and evaluation of habitat.
Park Staff is continuing to work with the Cardinal Land Trust and Warren County Park Districts to identify adjacent land that can be utilized as additional green space, act as wildlife corridor, and improve water quality. Continue joint partnership with Hisey Park – Warren County Park district – adjacent to Caesar Creek Nature Preserve.
Continue to foster the on-going partnership between the Ohio Department of Transportation (ODOT), the Ohio Department of Natural Resources and the USACE. ODOT provides heavy equipment and operators to perform back-logged maintenance jobs each summer as a means of certifying equipment operators.

4.9 Listed Species

4.9.1 Existing Condition

Lists of threatened, endangered and species of special concern are maintained by the USFWS and the State of Ohio. 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.

An official threatened and endangered species list from the USFWS, dated May 21, 2020, for the Project area included seven species: the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), eastern massasauga (*Sistrurus catenatus*), clubshell mussel (*Pleurobema clava*), rayed bean mussel (*Villosa fabalis*), snuffbox mussel (*Epioblasma triquetra*), and running buffalo clover (*Trifolium stoloniferum*). No critical habitats are known to exist within the boundaries of the project.

The Indiana bat has a range that intersects with the Project. In the spring, bats emerge from hibernation and migrate to summer roost sites. During the summer months, female Indiana bats establish maternity colonies of up to 100 bats under the loose bark of trees and in tree cavities. Loss and fragmentation of forest habitat are among the major threats to Indiana bat populations. Other threats include white-nose syndrome, winter disturbance, and environmental contaminants (USFWS 2006).

The northern long-eared bat has a range that intersects with the Project. It was listed as threatened in 2015 due to declines mostly associated with white-nose syndrome. The bats spend winter hibernating in caves and mines. During the summer the bats roost singly or in colonies underneath bark or in cavities of both snags and live trees.

The eastern massasauga was listed as threatened in 2016. Its habitat is primarily open prairie wetlands. Massasaugas also use the adjacent uplands around wetlands for part of the year. In the winter they hibernate in crayfish or small mammal burrows. Loss of wetland habitat as well as invasion of wetland habitat by invasive woody shrubs is a major threat. Mowing and prescribed burning are recommended for the prairies they occur on, however the timing should be prior to their emergence from hibernation (USFWS 2016).

The clubshell mussel prefers clean, loose sand and gravel in medium to small rivers and streams. This mussel will bury itself in the bottom substrate to depths of up to four inches. Reproduction requires a stable, undisturbed habitat and a sufficient population of fish hosts to complete the mussel's larval development. Once found in large portions of the eastern United States, the clubshell occurs today in only 12 streams. Reasons for its decline in the upper Ohio and Wabash watersheds have been principally due to pollution from agricultural run-off and industrial wastes, and extensive impoundments for navigation. The clubshell is thought to be

extirpated from the project area due to the impoundment of Caesar Creek and decline in water quality.

The snuffbox mussel was listed as an endangered species in 2012. The snuffbox is a small- to medium-sized mussel with a triangular shaped shells in females and oblong or ovate in males. Historically the snuffbox was widespread, occurring in 210 streams and lakes, but the population has been reduced to 79 streams, representing a 62 percent decline. Most existing populations are small and geographically isolated from one another, further increasing their risk of extinction. The snuffbox is usually found in small- to medium-sized creeks, inhabiting areas with a swift current. Adults often burrow deep in sand, gravel or cobble substrates, except when they are spawning or the females are attempting to attract host fish. They are suspension feeders, typically feeding on algae, bacteria, detritus, microscopic animals, and dissolved organic material. The snuffbox has likely been extirpated from the project area.

The rayed bean is a small (less than 1.5 inches) freshwater mussel that can be found in smaller headwater streams, but may also be found in larger rivers or wave-washed areas of glacial lakes. It prefers gravel or sand substrate, and is often found around roots of aquatic vegetation. The rayed bean is threatened by dams and altered flow regimes, pollution from agricultural and private septic runoff, sedimentation, and invasive species (USFWS 2012).

The running buffalo clover was listed as a federally endangered species in 1987. It is a perennial species with leaves divided into three leaflets. It is called running buffalo clover because it produces runners that extend from the base of erect stems and run along the surface of the ground. These runners are capable of rooting at nodes and expanding the size of small clumps of clover into larger ones. The flower heads are about one inch wide, white, and grow on stems that are 2 to 8 inches long. Each flower head has two large opposite leaves below it on the flowering stem. Running buffalo clover flowers from late spring to early summer and can be found in Indiana, Kentucky, Missouri, Ohio, and West Virginia. It has been extirpated from Arkansas, Illinois, and Kansas. Running buffalo requires periodic disturbance and a somewhat open habitat to successfully flourish, but it cannot tolerate full-sun, full-shade, or severe disturbance. Historically running buffalo clover was found in rich soils in the ecotone between open forest and prairie. Those areas were probably maintained by the disturbance caused by bison. Today, the species is found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails. The decline in bison population, increase of habitat loss, competition from non-native plants, unfavorable land management have all likely contributed to the decline of the species.

4.9.2 Environmental Consequences

4.9.2.1 No Action

No changes to the listed species resources of the project would be predicted as a result of implementing the no action alternative.

4.9.2.2 Proposed Action

Changes to the land classifications and updated resource objectives for the Project as part of the proposed master plan would be expected to have no effects to the Indiana bat, northern long-eared bat, eastern massasauga, clubshell mussel, rayed bean mussel, snuffbox mussel, and running buffalo clover. No ESA Section 7 consultation with the USFWS is required for a “no effect” determination. Under the proposed action, future development action will still be subject to the required seasonal restrictions on timber clearing to protect roosting bats. Tree harvests over five inches in diameter at breast height are restricted from April 1 through September 30. Future developmental actions on the Project will also be assessed individually to determine potential impacts to listed species, in compliance with the ESA.

4.10 Demographics and Environmental Justice

4.10.1 Existing Condition

The USEPA EJScreen tool was utilized to evaluate the demographics and environmental justice variables for the area encompassing the Project that are no more than a 30-minute drive from the lake (Figure 4). Table 5 shows how the state of Ohio compares to the USEPA Region 5, and the United States.

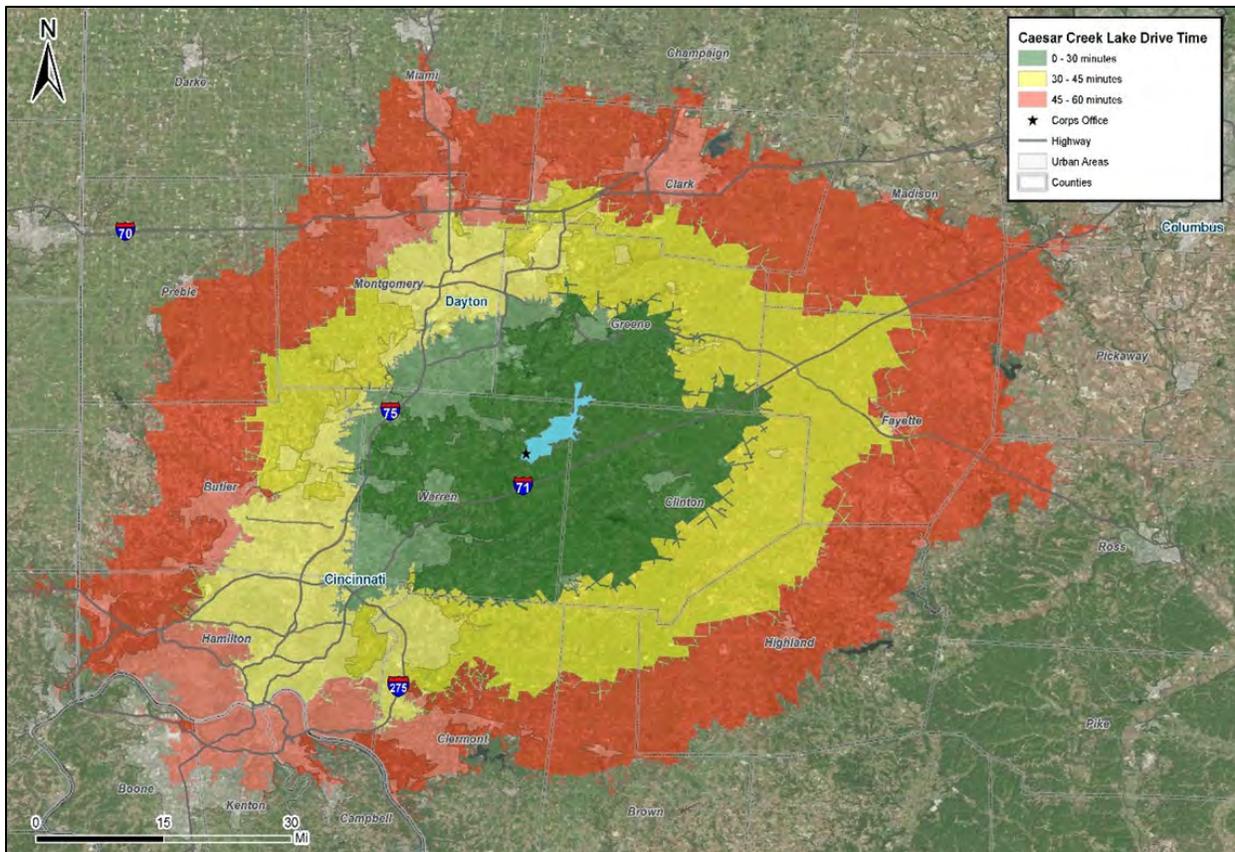


Figure 5. Zones of influence by driving time to Caesar Creek Lake.

Table 5. Comparison of percentile ranks for various EJ Indexes among Ohio the EPA Region 5, and the U.S.A.

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	23	19	13
EJ Index for Ozone	22	18	14
EJ Index for NATA* Diesel PM	18	17	13
EJ Index for NATA* Air Toxics Cancer Risk	19	18	17
EJ Index for NATA* Respiratory Hazard Index	19	18	18
EJ Index for Traffic Proximity and Volume	18	20	16
EJ Index for Lead Paint Indicator	43	37	21
EJ Index for Superfund Proximity	7	9	6
EJ Index for RMP Proximity	18	20	13
EJ Index for Hazardous Waste Proximity	15	14	9
EJ Index for Wastewater Discharge Indicator	17	15	9

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations (Executive Order, 1994), directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority population and low-income populations. When conducting NEPA evaluations, the Corps of Engineers incorporates Environmental Justice (EJ) considerations into both the technical analyses and the public involvement in accordance with the USEPA and the Council on Environmental Quality guidance (CEQ, 1997). The CEQ guidance defines “minority” as individual(s) who are members of the following population groups: American Indian or Alaskan native, Asian or Pacific Islander, Black, not of Hispanic origin, and Hispanic. The Council defines these groups as minority populations when either the minority population of the affected area exceeds 50-percent of the total population, or the percentage of minority population in the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis.

Table 6 shows environmental and demographic indicators of zone of the area within a 30-minute drive from Caesar Creek Lake (“Value” column), and how those indicators compare to the state, regional, and national averages.

Table 6. Environmental and demographic indicators of the area within a 30-minute drive from Caesar Creek Lake.

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	9.52	9.09	78	8.63	80	8.3	81
Ozone (ppb)	48.9	46	95	43.4	99	43	88
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.507	0.416	73	0.446	60-70th	0.479	60-70th
NATA* Cancer Risk (lifetime risk per million)	29	26	84	26	70-80th	32	<50th
NATA* Respiratory Hazard Index	0.38	0.34	79	0.34	70-80th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	420	400	74	530	70	750	64
Lead Paint Indicator (% Pre-1960 Housing)	0.29	0.41	43	0.38	47	0.28	61
Superfund Proximity (site count/km distance)	0.16	0.095	87	0.13	83	0.13	80
RMP Proximity (facility count/km distance)	0.65	0.7	66	0.82	61	0.74	66
Hazardous Waste Proximity (facility count/km distance)	1.8	1.6	72	1.5	73	4	75
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.014	0.23	75	0.82	75	14	81
Demographic Indicators							
Demographic Index	19%	26%	45	28%	42	36%	27
Minority Population	17%	20%	63	25%	55	39%	33
Low Income Population	21%	33%	35	31%	37	33%	34
Linguistically Isolated Population	1%	1%	75	2%	66	4%	51
Population With Less Than High School Education	7%	10%	42	10%	43	13%	37
Population Under 5 years of age	6%	6%	55	6%	53	6%	51
Population over 64 years of age	16%	16%	54	15%	58	15%	62

When compared to the national average, these data indicate the assessed area contains a higher concentration of the following environmental indicators: particulate matter (PM), ozone, diesel PM, lead paint indicator, and proximity to superfund sites.

When compared to the national average, these data indicate that the assessed area contains a smaller percentage of minority population, low-income population, linguistically isolated population, and population with less than high school education. The percentage of population under 5 years of age and over 64 years of age are similar to the national averages.

4.10.2 Environmental Consequences

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 and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to the surrounding demographics, including minority or low income populations are anticipated.

4.10.2.2 Proposed Action

The changes in population and associated stresses on the municipal resources and services over the past 30 years have occurred while the USACE has managed the Project. Implementing the updated Master Plan would be expected to have no effect on the demographic trends of the

surrounding communities. The Proposed Action would not result in any appreciable effects to the local or regional socioeconomic environment. Changes to land use classification would have no impact on socioeconomics or to minority or low income communities. Construction of future projects consistent with the updated Master Plan would be expected to have minor beneficial effects associated with temporary employment of construction personnel and transportation of goods and materials to the construction sites. There would be no disproportionate adverse effects to minority or low income communities since the Proposed Action would be located within federal lands and projects would benefit local residents by enhancing recreational opportunities.

4.11 Recreation and Visitation

4.11.1 Existing Condition

The Project offers a wide variety of recreational facilities including campgrounds, day use and picnic areas, boat ramps, information center, hunting and multi-use trails provided by USACE and partners. The lake provides facilities for water-based recreation, such as boating and kayaking, and multi-use trail users, such as cyclists and hikers.

The existing recreational opportunities and future potential of Caesar Creek Lake is considered to be of great importance within the project's zone of influence. The objective of the Corps park management program is to provide quality outdoor recreation opportunities on Corps lands and waters, to provide a safe and healthy environment for project visitors and to protect the natural resources to insure their continued availability. The Corps maintains trails, picnic sites, fishing platforms, playgrounds, shelter houses, restrooms and a Visitor Center for the public. The Corps also offers interpretive programming for the public and educational opportunities for local schools.

ODNR, Division of Parks and Recreation maintains a wider variety of amenities over a much larger land area. They manage campgrounds, primitive camping areas, group camping areas, a day lodge, beaches, five boat ramps, horseback riding, mountain biking, hiking and cross-country ski trails, shelter houses, Nature Center and Pioneer Village historic site.

Table 7 lists the various recreational facilities collectively provided at Caesar Creek Lake through governmental agencies as well as commercial concessions. Table 8 describes total facilities across the nine recreation areas that are available at Caesar Creek Lake.

Table 7. Available activities by recreation area.

Recreation Area	Swim Beach	Drinking Water	Restrooms	Playground	Picnic Facilities	Group Picnic Shelters	Camping - Primitive	Camping - Electric	Showers	Hiking / Nature Trails	Mountain Biking	Horseback Riding	Fishing Dock / Pier	Shoreline Fishing	Boat Ramp	Courtesy Boat Dock	Marina	Observation Platform / Blind	Hunting	Archery Range	Snack Bar / Concessions	Interpretive Signs	Educational Facilities	Operating Agency	
Flat Fork																								USACE	
Furnas Shores																									Ohio
Caesar Creek Gorge																									USACE
Lake View																									Ohio
Mound Ridge																									Ohio
Pioneer Village																									Ohio
Visitor Center																									USACE
Wellman Meadows																									Ohio
Wildlife Area Access																									Ohio

Table 8. Total number of facilities available across recreation areas.

Facilities in FY 2016	Facilities in FY 2019
<ul style="list-style-type: none"> · 9 recreation areas · 115 picnic sites · 337 camping sites · 16 playgrounds · 2 swimming areas · 28 number of trails · 79 trail miles · 1 fishing docks · 5 boat ramps · 112 marina slips 	<ul style="list-style-type: none"> · 9 recreation areas · 101 picnic sites · 342 camping sites · 18 playgrounds · 2 swimming areas · 48 number of trails · 65 trail miles · 6 fishing docks and piers · 5 boat ramps · 112 marina slips

The majority of visitors to Caesar Creek Lake are within a 60 minute drive of the reservoir. These visitors are a diverse group of people with a wide variety of interests. Examples of visitors include campers who utilize the campgrounds around the reservoir and in the county and federally operated parks; adjacent residents; hunters and anglers who utilize hunting grounds and participate in fishing tournaments; marina customers who utilize the marinas on the reservoir; and day users who picnic, hike, bird watch, bicycle and ride horses. Caesar Creek Lake is the primary location for water-related recreation, providing the public with a location for boating, sailing, canoeing/kayaking, paddle boarding, and swimming in the area. Periodically,

USACE estimates visitation to Caesar Creek Lake by activity. Table 9 presents counts from 2016 and 2019 with well over a half million visitors estimated each year. In 2019 swimming was estimated to be the most popular activity at the lake followed by sightseeing, picnicking and boating.

Table 9. Activity participation by visitor (2016 & 2019).

Visits (person-trips) in FY 2016	Visits (person-days/nights) in FY 2019
· 570,701 in total	· 699,385 in total
· 53,787 picnickers	· 156,802 picnickers
· 8,743 campers	· 63,444 campers
· 66,110 swimmers	· 212,261 swimmers
· 8,908 water skiers	· 102,259 walkers/hikers/joggers
· 32,734 boaters	· 140,036 boaters
· 292,325 sightseers	· 180,434 sightseers
· 88,347 anglers	· 102,468 anglers
· 5,029 hunters	· 40,297 special event attendees
· 31,325 others	· 33,517 others

4.11.1.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to recreation or visitation are anticipated.

4.11.1.2 Proposed Action

The updated Master Plan adds the recreational objective to 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., walking, hiking, biking, boating, hunting, fishing, wildlife viewing, etc.), and to identify potential development nodes to address these demands.

Because there are no major new recreational amenities currently planned in the future, and most of the development at the Project involves minor improvements, replacements-in-kind, and facility improvements; none of these would be expected to substantially increase visitation.

The updated Master Plan does recommend a continued effort to identify opportunities and potential partnerships with those responsible for supporting local and regional recreational trails that are near or intersect with the Project to improve the visitor experience. While the effects on recreation and visitation from any specific opportunity or partnership that may be identified are outside the scope of this EA, USACE would continue to identify possible causes and effects of overcrowding and overuse and apply appropriate best management practices including: site management, regulating visitor behavior, and modifying visitor behavior. For these reasons, no adverse impact to recreation or visitation at the Project would be anticipated from implementation of them. .

4.12 Cultural Resources

4.12.1 Existing Condition

The earliest archaeological investigation at Caesar Creek Lake was conducted in 1976. In 1976, Fredrick Chapman and Martha Potter Otto conducted an archaeological reconnaissance of Caesar Creek Lake. The reconnaissance was conducted to assess the possible archaeological resources and how those resources could be impacted by the construction of the reservoir. A total of 37 archaeological resources were identified during the survey. These consisted of an earth mound, an undetermined prehistoric/historic site and an undetermined historic site. Artifacts collected from these sites consisted of historic ceramics, a flint core, side scraper and a grinding tool. Two of the mound sites (E.L. Anderlee and Shaffer mounds) are eligible for the National Register of Historic Places.

Brose et al (1977) conducted a Phase II archaeological investigation of the Caesar Creek Lake Project. Twenty six sites were identified during the investigation. Seven of those sites required additional testing. The sites represent the Late Archaic and Early to Middle Woodland period; as well as a historic component dating to the 19th century.

Based on the survey results for the Chapman and Otto (1976) and Brose et al. (1977) excavation, a phase III archaeological data recovery was conducted on eight sites at Caesar Creek Lake (Brose and White 1979). The eight sites for additional testing, dated to the Woodland and/or For Ancient periods. The Louisville District, contracted the Interagency Archaeological Service-Atlanta and the Archaeology Department, Cleveland Museum of Natural History for the data collection. Eight sites (33WA78, 82, 83, 87, 92, 112 and 33CN7 and 32) were determined eligible for the listing to the NRHP.

In 1997, Sparenberg et al. conducted a pedestrian survey and literature review of 436 acres of the uplands around Caesar Creek Lake. A total of 22 archaeological sites were documented during the survey. These sites consisted of 11 prehistoric sites, two historic sites, seven complex multi component sites, and 12 isolated finds. Thirteen of these sites were preliminary significant meeting criteria for the NRHP and recommend further work to assess NRHP eligibility.

Donald Ball (1999) conducted a shoreline archaeological reconnaissance of Caesar Creek Lake in 1985. The survey resulted in the identification of 24 previously unrecorded sites and revisited one known site (Ball 1999). Four of the prehistoric sites have the temporal components of the Paleo-Indian, Early to Middle Archaic, Woodland and Fort Ancient periods. The majority of the historic sites are described as light filed scatters; also homesteads dating of 19th to 20th century sites.

In 2000, Parson Corporation conducted a Section 110 archaeological investigation at the Bog Island Site (WA0695), Caesar Creek Lake (Stevens and Shield 2000). The archaeological investigation was conducted under contract number DACW-27-98-D0010, DO No. 17) to determine the presence or distribution of any intact cultural deposits at the site. Based on the relative integrity of the site deposits and the presence of both diagnostic artifacts and activity areas, the Big Island Site (33WA0695) is recommended eligible for the NRHP. Additional Phase II testing is recommend for this site.

In 2003, Keeney conducted a cultural resources survey within Pioneer Village at Caesar Creek Lake for the proposed placement of electrical lines and drainage pipes. He identified material from one 19th Century site within two kilometers of the current project area. These were associated with the Luken Farmstead house and barn that date to the early 1807's and not with Pioneer Village as a whole. Other structures that belong to Pioneer Village were relocated from other areas. Artifacts collected from this site include redware, whiteware, stoneware, porcelain, glass, and metal associated with machine cut nails and wire nails. The portion of the site located within the area to be impacted by the electrical lines and drainage pipe placement were deemed to lack integrity.

The structure sites that surround the current two kilometer project area are located in Caesar Creek Lake Pioneer Village. Caesar Creek Pioneer Village is owned by Caesar Creek Pioneer Village Association, which is leased by the Army Corps of Engineers Louisville District (US Army Corps of Engineers 2002). The seven structures were built by Quakers in the late 1700's were relocated to this known reconstruction area. These sites were recommended eligible for the National Register of Historic Places.

Biehl (2006) conducted a Phase I Archaeological survey of a proposed archery range facility in Caesar Creek State Park. One site was recorded during this survey. The site identified was an unassigned prehistoric isolated find. This site contained only a flint flake. Due to the lack of artifacts and no intact cultural deposits, the site is not eligible for the NRHP.

Additional archaeological investigations have occurred around since 2006. These surveys were conducted with operation and maintenance activities of the Visitor Center, marina's, campgrounds, and other developments.

Currently, there are 130 archeological sites have been recorded at Caesar Creek Lake. Sixteen properties are considered potentially eligible for listing to the National Register Historic Places (Table 10), however they have not being formally evaluated. Three cemeteries are also located within the boundaries of the lake: Spring’s Valley, Old Pioneer, and Lukens cemeteries.

Six mounds sites are recorded within the Lake boundaries: Thompson mound (33CWA33), Smith mound (33WA47), Bunnell mound (33CN08) are Woodland mounds. The Bunnell mound/Esker cemetery site (33CN07) is unidentified prehistoric. The Big Island Site (33WA695) is a mound/cemetery dating to the Late Archaic. The Watson mound (33WA49) is a Woodland earthen mound. Lastly, the James T. Robinson mound is an Early Woodland mound. In addition to all the mounds sites, there are 96 known archaeological sites within the reservoir boundaries of Caesar Creek Lake.

Table 10. Structures and sites potentially eligible for listing on the NRHP.

Property/Site number	Name
WAR0146304	Log House Pioneer Village
WAR0054404	Taylor-Mills House
WAR0054304	Hawkins House
WAR0146504	Log House Pioneer Village
WAR0146104	Log Barn
WAR0054504	Furnas House
WAR0146204	Log House Pioneer Village
WAR0054604	Harris House
WAR0054704	Caesar Creek Friends Meeting Hall
WAR0146404	Log Toll House Pioneer Village
WAR0054004	Lukens House
WAR0054104	Elan House
WAR0054204	Smokehouse
WA0048	E.L. Anderlee Mound
WA0050	Shaffer Mound
WA0695	Big Island Site Cemetery

4.12.2 Environmental Consequences

4.12.2.1 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. Future actions could possibly generate negative effects to cultural resources. However, analysis of future unplanned actions is not feasible and is outside of the scope of this EA. All future actions taken by USACE, while operating under the NAA, would require appropriate

environmental review as well as NEPA and NHPA compliance. As such, the effects to cultural resources caused by potential future actions would not be expected to be significant.

4.12.2.2 Proposed Action

The MP update would designate areas as ESAs and thus protect them from development and incompatible uses, which would be a beneficial effect to cultural resources. Within the updated Master Plan there are future actions that are recommended to meet goals outlined for the Project. Future actions could possibly generate negative effects to cultural resources through construction activities. However, analysis of future unplanned actions is not feasible and is outside of the scope of this EA. All future actions taken by USACE, recommended in the updated Master Plan or otherwise, would require appropriate environmental review and NEPA compliance. Prior to implementation of any ground disturbing activity, field surveys and Section 106 NHPA coordination with the Ohio State Historic Preservation Office (SHPO) will be conducted by the USACE. 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 USACE will contact the SHPO. As such, the effects to cultural resources caused by potential future actions, would not be expected to be significant. Prior to implementation of any ground disturbing activity, field surveys and Section 106 NHPA coordination with the Ohio Historic Preservation Office (SHPO) will be conducted by the USACE, as required. 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 USACE will contact the Ohio SHPO.

4.13 Hazardous, Toxic, and Radioactive Waste Materials (HTRW)

4.13.1 Existing Condition

The USEPA Envirofacts database was queried to identify HTRW sources within a five-mile radius of the Project boundaries. A total of 24 USEPA regulated facilities were identified within the radius; however, none were identified within the USACE property boundary. A complete list of those facilities is located in the appendix of this EA.

4.13.2 Environmental Consequences

4.13.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to HTRW materials are anticipated.

4.13.2.2 Proposed Action

Implementing the revised master plan would be expected to have no effect on HTRW materials as there are no known pre-existing sources at the Project.

Within the updated Master Plan there are future actions that are recommended to meet goals outlined for the Project. Future actions have the potential to create HTRW materials as a result of equipment malfunction or failure during the construction process exists (e.g., fluid leaks from heavy equipment). However, analysis of future unplanned actions is not feasible and is outside of the scope of this EA. All future actions taken by USACE, recommended in the updated Master Plan or otherwise, would require appropriate environmental review and NEPA compliance. As such, the effects on or to HTRW from potential future actions would not be expected to be significant.

4.14 Aesthetics/Visual Qualities

4.14.1 Existing Condition

The Caesar Creek Lake dam is located in a narrow meandering stream. The lower 5 miles of the stream flows through a narrow valley. The portion of this valley immediately below the dam is known as the "Caesar Creek Gorge." This unique natural feature is a narrow wooded gorge of Ordovician limestone and shale formed by glacial diversion, and is preserved as a natural area. Forest cover of this area is in excellent condition and has a high potential for use as a natural sanctuary and study area. The wooded slopes above the stream are of a mixed mesophytic nature, containing beech, sugar maple, basswood, ash, and oak.

Above the dam the gently rolling topography and general agricultural use create a less dramatic visual impact. Generally, vegetation exists only on a few of the steeper valley sides and in a few scattered wood lots. Areas of note include the Sugar Shack area of the Lake View Site, the woodlands north of the Horse Camp in the Furnas Shores Site, and the Pioneer Village and Flat Fork areas of the Wellman Meadows Site. Aside from the gorge area, the main scenic attraction in the project area is the lake itself.

4.14.2 Environmental Consequences

4.14.2.1 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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to aesthetics or visual properties are anticipated.

4.14.2.2 Proposed Action

Implementing the revised master plan would be expected to have no long-term effect on the aesthetic character of the Project. Comprehensive planning under the new master plan could potentially facilitate improved construction planning, minimizing the temporary aesthetic effects during construction.

4.15 Noise

4.15.1 Existing Condition

Changes in noise are typically measured and reported in units of dBA, a weighted measure of sound level. The primary sources of noise within the Project area include everyday vehicular traffic along the adjacent highways (typically between 50 and 60 dBA at 100 feet) and human-generated recreational activities at the Project. Noise ranging from about 10 dBA for the rustling of leaves to as much as 115 dBA (the upper limit for unprotected hearing exposure established by the Occupational Safety and Health Administration) is common in areas where there are sources of recreational activities, construction activities, and vehicular traffic.

4.15.2 Environmental Consequences

4.15.2.1 *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. As this alternative would result in the operation and management of the Project continuing as outlined in the 1991 Master Plan, no significant effects to noise are anticipated.

4.15.2.2 *Proposed Action*

Implementing the revised master plan, including changes to land use classifications, would be expected to have no effect on the level of background or ambient noise character of the Project.

5 CUMULATIVE EFFECTS

NEPA requires a Federal agency to consider not only the direct and indirect impacts of a proposed action, but also the cumulative impact of the action. A cumulative impact is defined as *“the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR§ 1508.7)*” Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. These actions include on- or off-site projects or activities conducted by government agencies, businesses, or individuals that are within the spatial and temporal boundaries of the proposed action being considered.

As previously discussed, it is anticipated that the Proposed Action will have no effect or negligible effects on the following resource types and subjects of concern: reservoir operation, air quality, topography, geology, soils, surface water hydrology, groundwater, water quality, habitats, listed species, demographics and environmental justice, recreation and visitation, cultural resources, HTRW materials, aesthetics and visual resources, and noise. Thus, there would be no cumulative effects of the Proposed Action on these resources when added to the impacts of other past, present, and reasonably foreseeable future actions in the region.

6 SUMMARY OF ENVIRONMENTAL EFFECTS

The revised master plan provides guidelines and direction for future Project development and use and is based on authorized Project purposes, USACE policies and regulations on the operation of USACE 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. Within the updated Master Plan, there are future actions that are recommended to meet goals outlined for the Project. Future actions have the potential to cause negative effects to all environmental resources analyzed. However, analysis of future unplanned actions is not feasible and is outside of the scope of this EA. All future actions taken by USACE, recommended in the updated Master Plan or otherwise, would require appropriate environmental review and NEPA compliance. As such, the effects caused by potential future actions would not be expected to be significant. Table 11 provides a summary of anticipated effects from implementation of the updated Master Plan to the resources evaluated in this EA.

Table 11. Summary of environmental effects from the Proposed Action.

Resource Evaluated	Effect
Reservoir, Pool, and Lake Operation	No effect
Climate	No effect
Air Quality	No effect
Topography, Geology, and Soils	No effect
Surface Water Hydrology and Groundwater	No effect
Water Quality	No effect
Habitats	Beneficial effect
Listed Species	No effect
Demographics and Environmental Justice	No effect
Recreation and Visitation	Beneficial effect
Cultural Resources	Beneficial effect
HTRW Materials	No effect
Aesthetics and Visual Qualities	No effect
Noise	No effect

7 COMPLIANCE WITH ENVIRONMENTAL LAWS

Update of the Caesar Creek Lake Master Plan and the subsequent adoption of revised land classifications and resource objectives would not commence until the proposed actions achieve environmental compliance with the applicable laws and regulations, as described below.

Bald Eagle Protection Act, 16 U.S.C. Sec. 668, 668 note, 668a-668d. *In compliance.* The Bald Eagle Protection Act imposes requirements on Corps of Engineers projects concerning bald eagles. Approval and implementation of the revised master plan would not adversely affect bald eagles or their habitat.

Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq. *In compliance.* The purpose of the Clean Air 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. The updated Master Plan does not include major development of new facilities or other construction activities that could impact air quality from increased emissions. Negligible and temporary emissions would be expected to occur during continued maintenance activities of facilities at the Project; however, these emissions would be short term, small-scale, and air quality would not be affected to any measurable degree. Actions taken by the Corps within Warren County that may impact air quality are subject to compliance with the General Conformity rule, which ensures that those actions do not interfere with the state's plans to attain and maintain national standards for air quality.

Clean Water Act, as amended, (Federal Water Pollution Control Act) 33 U.S.C. 1251, et seq. *In compliance.* The objective of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters (33 U.S.C. 1251). The Corps of Engineers regulates discharges of dredged or fill material into waters of the United States pursuant to Section 404 of the Clean Water Act. This permitting authority applies to all waters of the United States including navigable waters and wetlands. Section 404 requires authorization to place dredged or fill material into waters of the United States. If a Section 404 authorization is required, a Section 401 water quality certification from the state in which the discharge originates is also needed. Implementation of the updated Master Plan would not be expected to result in the placement of dredged or fill material into water bodies or wetlands. Any future actions at the Project which would result in the placement of dredged or fill material into waters of the United States would be undertaken in compliance with Section 404 and Section 401 of the Clean Water Act.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). *Not applicable.* CERCLA governs (1) the release or substantial threat of a release of a hazardous substance into the environment; or (2) the release or substantial threat of a release of any pollutant or contaminant into the environment that presents an imminent threat to the public health and welfare. 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

updated Master Plan would not involve real estate transactions, and no release or threatened release of hazardous substances into the environment at the Project is known.

Endangered Species Act, as amended. 16 U.S.C. 1531, et seq. *In compliance.* Section 7 of the Endangered Species Act (16 U.S.C. 1536) states that all Federal departments and agencies shall, in consultation with and with the assistance of the Secretary of the Interior (Secretary), insure that any actions authorized, funded, or carried out by them do not jeopardize the continued existence of any threatened or endangered (T&E) species, or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary to be critical. This Environmental Assessment represents the assessment and findings regarding the proposed revised master plan and serves as the Biological Assessment with a determination of no effect to the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), eastern massasauga (*Sistrurus catenatus*), clubshell mussel (*Pleurobema clava*), rayed bean mussel (*Villosa fabalis*), snuffbox mussel (*Epioblasma triquetra*), or running buffalo clover (*Trifolium stoloniferum*). No critical habitats are known to exist within the boundaries of the project.

Environmental Justice (E.O. 12898). *In compliance.* The Executive Order governing environmental justice directs that every 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 in the United States. Implementation of the updated Master Plan would not disproportionately affect minority or low-income populations.

Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661, et seq (FWCA). *In compliance.* The FWCA requires governmental agencies, including the Corps of Engineers, to coordinate activities so that adverse effects on fish and wildlife would be minimized when water bodies are proposed for modification. No modifications to water bodies are proposed in association with the proposed update to the Master Plan. Any comments received from resource agencies are located in the Appendix of this EA.

Migratory Bird Treaty Act of 1918 (MBTA). *In compliance.* The 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 all migratory birds 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 (through their review of the draft EA) with regard to their consideration of the effects of the actions identified in the updated Master Plan for potential effects on migratory birds. No effects are anticipated.

National Historic Preservation Act, as amended, 16 U.S.C. 470a, et seq (NHPA). *In compliance.*

The NHPA requires that Federal agencies having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking take into account the effect of the undertaking on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). The Louisville District has made the determination in accordance with 36CFR Part 800.3 (a)(1) of the NHPA that adoption of the proposed master plan revision is not a type of activity with the potential to adversely impact cultural resources or historic properties. The District coordinated the proposed action with the Ohio State Historic Preservation Office (SHPO) on May 21, 2020 and the District is awaiting the OH-SHPO concurrence on the concurred District's determination. The District also coordinated with Tribal Nations on March 17, 2020. The Osage Nation responded that the proposed action will not adversely affect any sacred properties and/or properties of cultural significance to the Osage Nation. All correspondence will be included in the Appendix of this EA.

National Environmental Policy Act (NEPA), as amended, 42 U.S.C. 4321, et seq. *In progress.* This Environmental Assessment and Finding of No Significant Impact (FONSI) has been prepared in accordance with the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR §§ 1500-1508). An Environmental Impact Statement (EIS) is not required. Signing of the FONSI will conclude compliance with the NEPA.

Noise Control Act of 1972, 42 U.S.C. Sec. 4901 to 4918. *In compliance.* The Noise Control 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 may increase above current levels temporarily if construction of improvements or features identified in the proposed master plan revision is undertaken. Appropriate measures would be taken during those activities 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.* Section 10 of the Rivers and Harbors Act 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 master plan update would not involve the construction of structures within Caesar Creek Lake.

Floodplain Management (E.O. 11988). *In compliance.* Section 1 of the Executive Order on floodplain management requires each agency to provide leadership and 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 in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and

(3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. The actions identified in the proposed master plan update would not affect the flood holding capacity or flood surface profiles of the Project.

Protection of Wetlands (E.O. 11990). *In compliance.* The Executive Order on protection of wetlands directs that Federal agencies shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies responsibilities. 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 proposed action classifies the land use of all known wetlands as environmentally sensitive areas, which prohibits construction or agriculture and therefore gives added protection to the wetlands on the project. The actions identified in the proposed master plan revision would not involve construction in, or effects to, wetlands.

8 PUBLIC INVOLVEMENT

In compliance with 40 CFR § 1501.4(e)(2), this EA has been circulated for a 30-day review to concerned agencies, organizations, and the interested public, along with a copy of the Draft Updated Master Plan. All comments received during this review period will be evaluated and appropriate changes to the EA and FONSI will be made if necessary. All received comments will be included in the Appendix of the Final EA. The Final EA and FONSI will be retained in the Louisville District's administrative files for future reference and as a record of NEPA compliance.

9 REFERENCES

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https://www.fws.gov/midwest/endangered/clams/clubshell/clubs_fc.html. Accessed 20 May 2020.
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<https://www.fws.gov/midwest/endangered/clams/rayedbean/RayedBeanFactSheet.html>. Accessed 14 March 2020.
- USFWS. 2016. Fact Sheet for the Eastern Massasuga Rattlesnake (*Sistrurus catenatus*).
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- USFWS. 2019a. Fact Sheet for the Snuffbox (*Epioblasma triquetra*).
<https://www.fws.gov/midwest/Endangered/clams/snuffbox/SnuffboxFactSheet.html>. Accessed 20 May 2020.
- USFWS. 2019b. Fact Sheet for the Running Buffalo Clover (*Trifolium stoloniferum*).
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- USFWS. 2006. Fact Sheet Indiana Bat (*Myotis sodalist*).
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USFWS. 2015. Fact Sheet Northern Long-Eared Bat (*Myotis septentrionalis*).
<https://www.fws.gov/Midwest/endangered/mammals/nleb/nlebFactSheet.html>.
Accessed 20 May 2020

Walker, Alfred C. 1986. Ground-water Resources of Warren County. ODNR.

APPENDIX

EJSCREEN Report (Version 2019)



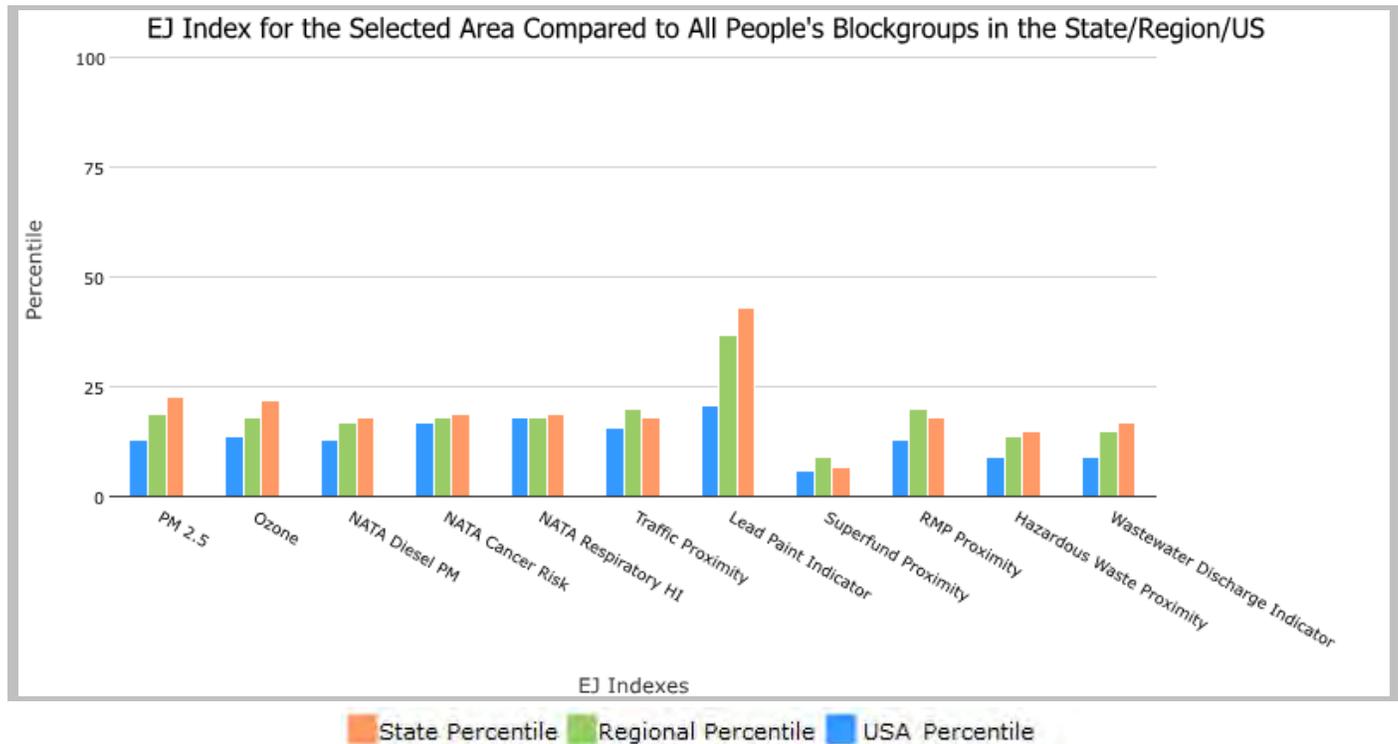
the User Specified Area, OHIO, EPA Region 5

Approximate Population: 708,340

Input Area (sq. miles): 1172.57

CC 30-min Drive

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	23	19	13
EJ Index for Ozone	22	18	14
EJ Index for NATA* Diesel PM	18	17	13
EJ Index for NATA* Air Toxics Cancer Risk	19	18	17
EJ Index for NATA* Respiratory Hazard Index	19	18	18
EJ Index for Traffic Proximity and Volume	18	20	16
EJ Index for Lead Paint Indicator	43	37	21
EJ Index for Superfund Proximity	7	9	6
EJ Index for RMP Proximity	18	20	13
EJ Index for Hazardous Waste Proximity	15	14	9
EJ Index for Wastewater Discharge Indicator	17	15	9



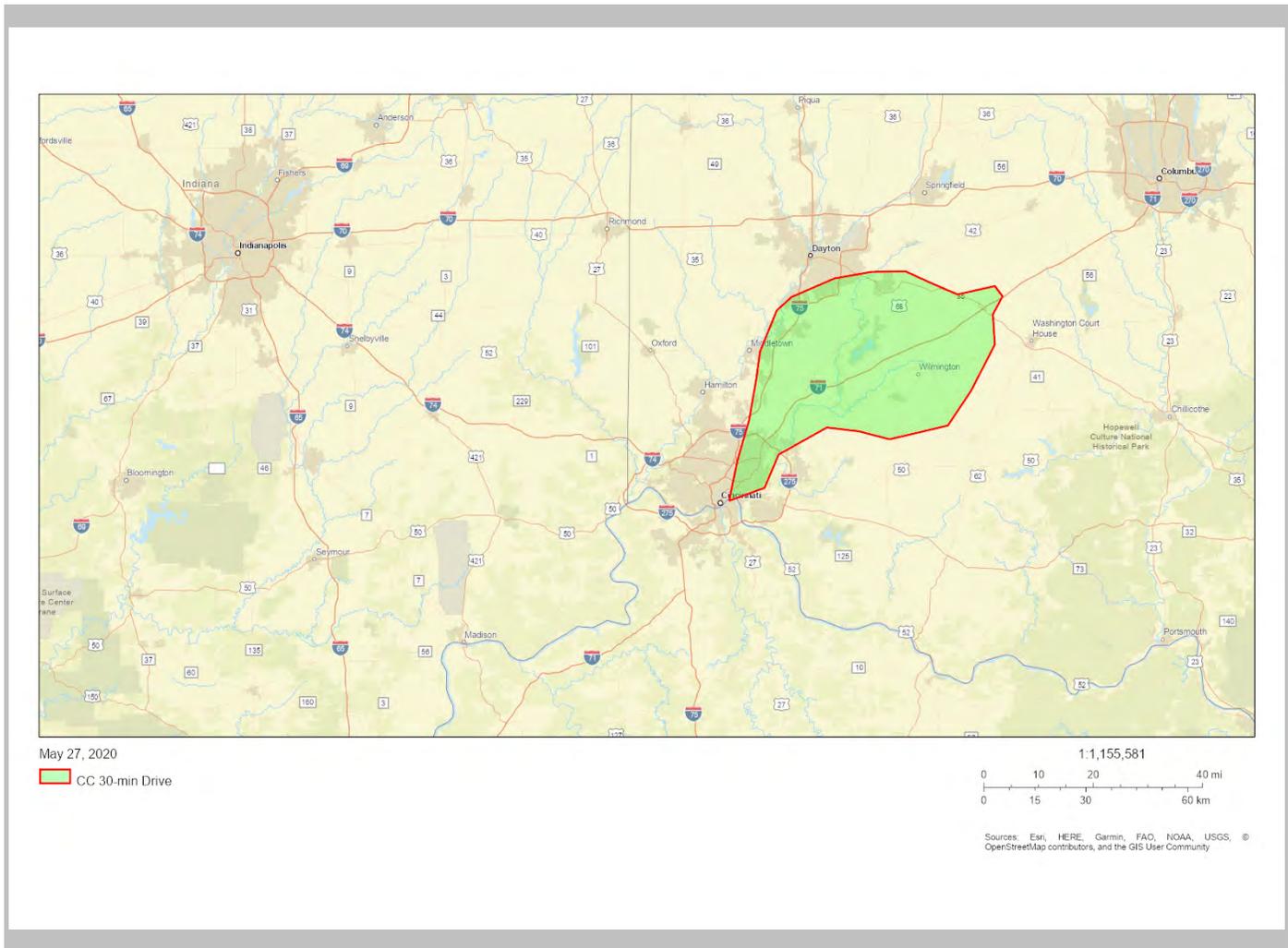
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

the User Specified Area, OHIO, EPA Region 5

Approximate Population: 708,340

Input Area (sq. miles): 1172.57

CC 30-min Drive



Sites reporting to EPA	
Superfund NPL	4
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	57

EJSCREEN Report (Version 2019)

the User Specified Area, OHIO, EPA Region 5
 Approximate Population: 708,340
 Input Area (sq. miles): 1172.57
 CC 30-min Drive

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	9.52	9.09	78	8.63	80	8.3	81
Ozone (ppb)	48.9	46	95	43.4	99	43	88
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.507	0.416	73	0.446	60-70th	0.479	60-70th
NATA* Cancer Risk (lifetime risk per million)	29	26	84	26	70-80th	32	<50th
NATA* Respiratory Hazard Index	0.38	0.34	79	0.34	70-80th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	420	400	74	530	70	750	64
Lead Paint Indicator (% Pre-1960 Housing)	0.29	0.41	43	0.38	47	0.28	61
Superfund Proximity (site count/km distance)	0.16	0.095	87	0.13	83	0.13	80
RMP Proximity (facility count/km distance)	0.65	0.7	66	0.82	61	0.74	66
Hazardous Waste Proximity (facility count/km distance)	1.8	1.6	72	1.5	73	4	75
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.014	0.23	75	0.82	75	14	81
Demographic Indicators							
Demographic Index	19%	26%	45	28%	42	36%	27
Minority Population	17%	20%	63	25%	55	39%	33
Low Income Population	21%	33%	35	31%	37	33%	34
Linguistically Isolated Population	1%	1%	75	2%	66	4%	51
Population With Less Than High School Education	7%	10%	42	10%	43	13%	37
Population Under 5 years of age	6%	6%	55	6%	53	6%	51
Population over 64 years of age	16%	16%	54	15%	58	15%	62

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

The facility list below is based upon the facilities that are visible with the map above. To refine your search to a more targeted area of interest, please visit the . To search Envirofacts via an interactive map, please view your results in

FACILITY INFORMATION	AFS	ACRES	BR	SEMS	GHG	PCS/ICIS	RADInfo	RCRAInfo	TRI	TSCA
<p>AEROTECH TRANSPARENCIES INC 184 N MAIN ST CORWIN, OH 45068 Latitude: 39.52647 Longitude: -84.0739</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>BARRETT PAVING - SPRING VALLEY ASPHALT 2225 ROXANNE NEW BURLINGTON ROAD SPRING VALLEY, OH 45370 Latitude: 39.583504 Longitude: -84.0296</p> <p>Summary Report Facility Report Compliance Report</p>	View Report							View Report		
<p>BP OIL CO 7126 ST RTE 73 WILMINGTON, OH 45177-1494 Latitude: 39.483816 Longitude: -83.931032</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>BP OIL CO SITE 09340 400 S MAIN ST WAYNESVILLE, OH 45068 Latitude: 39.52639 Longitude: -84.09005</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>CAESAR CREEK FLEA MARKET 7763 SR 73 WILMINGTON, OH 45177-1498 Latitude: 39.48504 Longitude: -83.95335</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				
<p>CARYCO INC 9754 N CINCINNATI-COLUMBUS RD WAYNESVILLE, OH 45068-8991 Latitude: 39.569647 Longitude: -84.03214</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>CLINTON MASSIE LOCAL SCHOOL DISTRICT 2556 LEBANON RD CLARKSVILLE, OH 45113 Latitude: 39.44588 Longitude: -83.98302</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>COAL CITY TANKER RELEASE I-71 MILE MARKER 49 WILMINGTON, OH 45177-9998 Latitude: 39.5075 Longitude: -83.8758</p> <p>Summary Report Facility Report Compliance Report</p>				View Report						
<p>FRONTIER CAMPGROUND 9580 COLLETT RD WAYNESVILLE, OH 45068 Latitude: 39.565416 Longitude: -84.012846</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				
<p>KIRKWOOD CAMPGROUND 5719 S.R. 73 WEST WILMINGTON, OH 45177 Latitude: 39.473126 Longitude: -83.910874</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				
<p>MARTIN MARIETTA MATERIALS INC - SPRING V 2330 ROXANNA-NEW BURLINGTON SPRING VALLEY, OH 45068 Latitude: 39.583168 Longitude: -84.02556</p> <p>Summary Report Facility Report Compliance Report</p>	View Report									
<p>PINE HILLS MHP 2730 STATE RTE 22 & US RTE 3 W WILMINGTON, OH 45177 Latitude: 39.444031 Longitude: -83.875177</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				

FACILITY INFORMATION	AFS ⁱ	ACRES ⁱ	BR ⁱ	SEMS ⁱ	GHG ⁱ	PCS/ICIS ⁱ	RADInfo ⁱ	RCRAInfo ⁱ	TRI ⁱ	TSCA ⁱ
<p>PURKEY PROPERTIES INC 184 N MAIN ST CORWIN, OH 45068 Latitude: 39.52647 Longitude: -84.0739</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>R AND L TRANSFER INC 2483 ST RTE 3 W WILMINGTON, OH 45177 Latitude: 39.444945 Longitude: -83.873126</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>R&L TRANSFER, INC. - TRACTOR BODY SHOP 2483 STATE ROUTE 22/3 WEST WILMINGTON, OH 451770271 Latitude: 39.44417 Longitude: -83.87361</p> <p>Summary Report Facility Report Compliance Report</p>	View Report									
<p>ROBERT BEEDLE TRUCKING 2783 ST RTE 3 W WILMINGTON, OH 45177 Latitude: 39.445298 Longitude: -83.879047</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>S & S ENGINES 3020 LYTLE RD WAYNESVILLE, OH 45068 Latitude: 39.560864 Longitude: -84.134448</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>SPRING VALLEY WILDLIFE AREA HQ 1863 ROXANNA NEW BURLINGTON RD WAYNESVILLE, OH 45068 Latitude: 39.57877 Longitude: -84.01173</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>STOLLE RESEARCH & DEVELOPMENT CORP 2099 N WAYNESVILLE RD OREGONIA, OH 45054 Latitude: 39.46467 Longitude: -84.12467</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>WAYNE LOCAL SCHOOLS 659 DAYTON RD WAYNESVILLE, OH 45068 Latitude: 39.53752 Longitude: -84.0911</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>WAYNE MOBILE INC 5434 NORTH WAYNESVILLE ROAD WAYNESVILLE, OH 45068 Latitude: 39.510254 Longitude: -84.102064</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				
<p>WAYNESVILLE BODY SHOP 137 N US RTE 42 WAYNESVILLE, OH 45068 Latitude: 39.530214 Longitude: -84.084936</p> <p>Summary Report Facility Report Compliance Report</p>								View Report		
<p>WAYNESVILLE REGIONAL WWTP 444 US RT 42 NORTH WAYNESVILLE, OH 45068 Latitude: 39.52448 Longitude: -84.08939</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				
<p>WILMINGTON PRESERVE WWTP 295 TODD FORK RD WILMINGTON, OH 45177 Latitude: 39.45222 Longitude: -83.9359</p> <p>Summary Report Facility Report Compliance Report</p>						View Report				

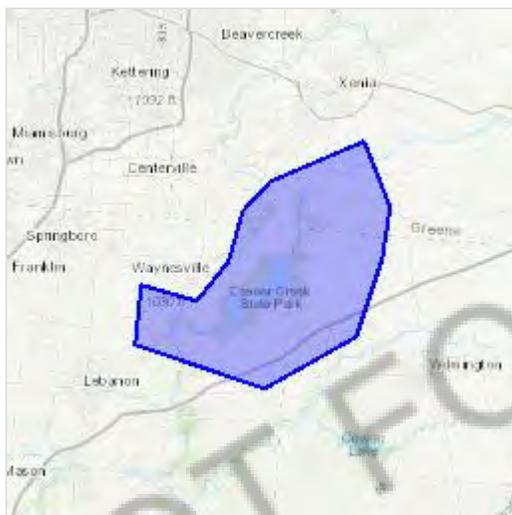
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Clinton, Greene and Warren counties, Ohio



Local office

Ohio Ecological Services Field Office

☎ (614) 416-8993

📅 (614) 416-8994

4625 Morse Road, Suite 104
Columbus, OH 43230-8355

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> This species only needs to be considered if the following condition applies: <ul style="list-style-type: none"> • Incidental take of the northern long-eared bat is not prohibited at this location. Federal action agencies may conclude consultation using the streamlined process described at https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2202	Threatened

Clams

NAME	STATUS
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Clubshell *Pleurobema clava*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3789>**Rayed Bean** *Villosa fabalis*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/5862>**Snuffbox Mussel** *Epioblasma triquetra*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4135>

Flowering Plants

NAME

STATUS

Running Buffalo Clover *Trifolium stoloniferum*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2529>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE

TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

American Bittern *Botaurus lentiginosus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/6582>

Breeds Apr 1 to Aug 31

American Golden-plover *Pluvialis dominica*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Oct 15 to Aug 31

Black-billed Cuckoo *Coccyzus erythrophthalmus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9399>

Breeds May 15 to Oct 10

Bobolink *Dolichonyx oryzivorus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 20 to Jul 31

Cerulean Warbler *Dendroica cerulea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/2974>

Breeds Apr 21 to Jul 20

Dunlin *Calidris alpina arctica*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds elsewhere

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds elsewhere

Kentucky Warbler *Oporornis formosus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 20 to Aug 20

Least Bittern *Ixobrychus exilis*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/6175>

Breeds Aug 16 to Oct 31

Lesser Yellowlegs *Tringa flavipes*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

Breeds elsewhere

Prothonotary Warbler *Protonotaria citrea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 1 to Jul 31

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Sep 10

Rusty Blackbird *Euphagus carolinus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Semipalmated Sandpiper *Calidris pusilla*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Short-billed Dowitcher *Limnodromus griseus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

Wood Thrush *Hyllocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

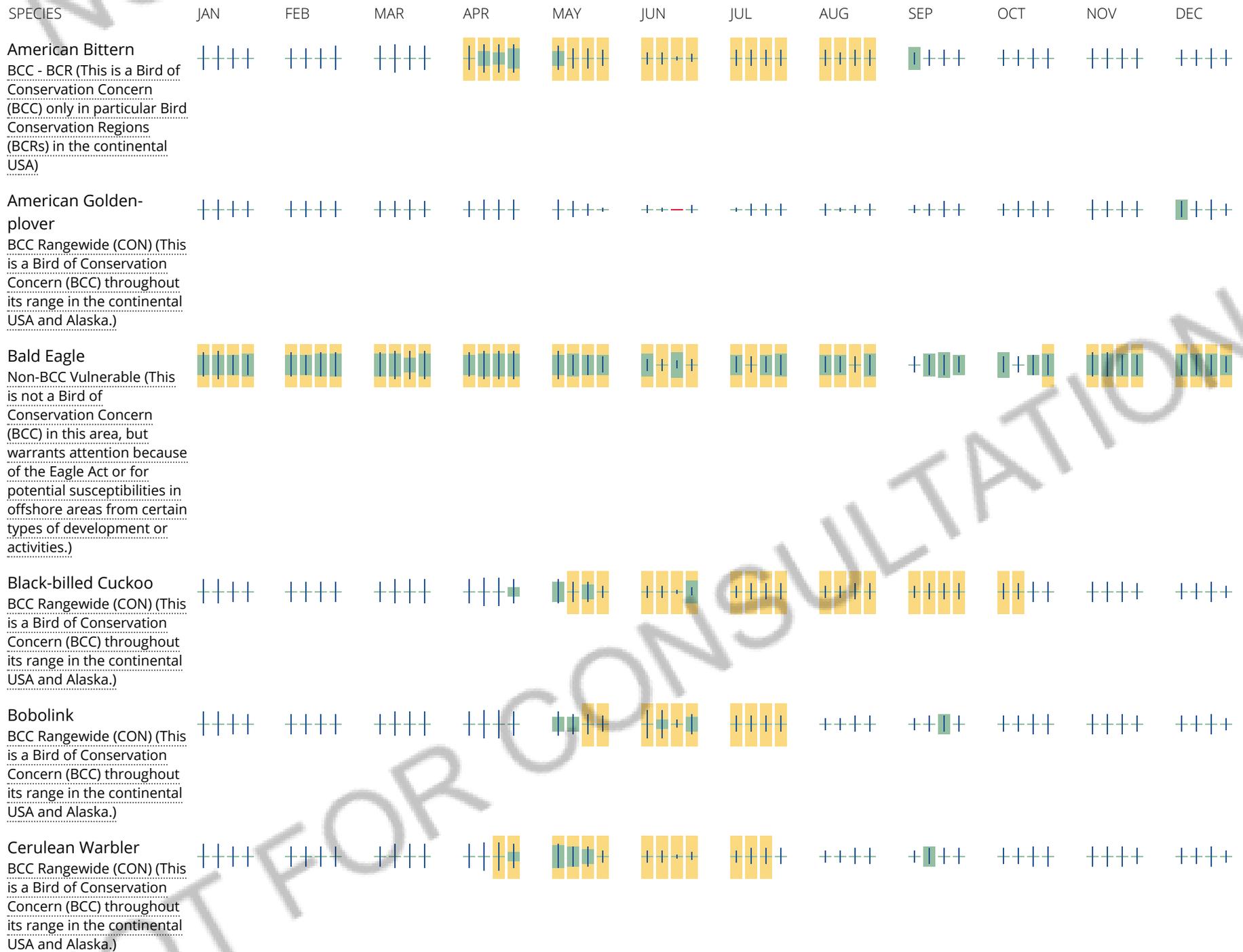
No Data (-)

A week is marked as having no data if there were no survey events for that week.

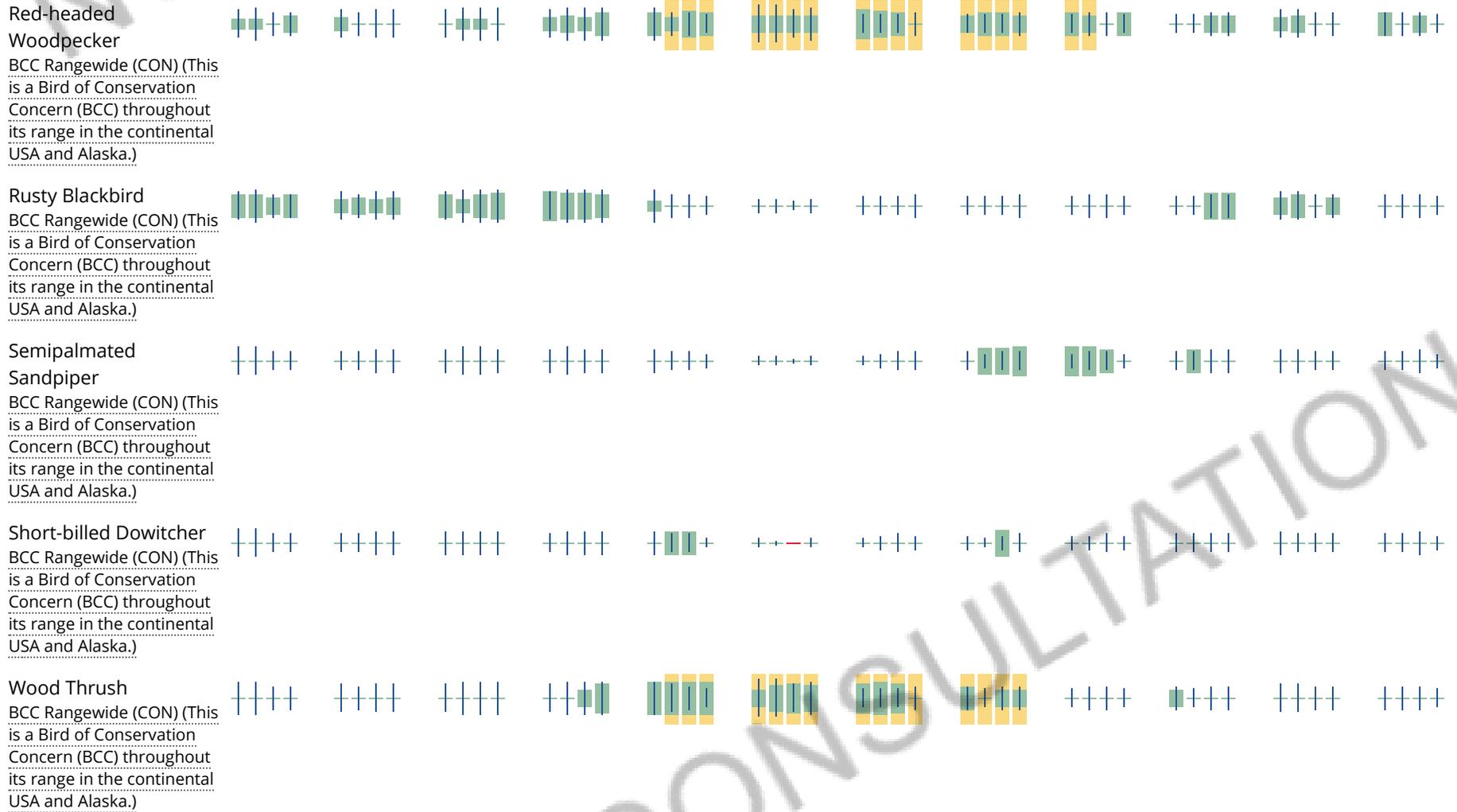
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort - no data



SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Dunlin BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)	++++	++++	++++	+++█	+++█	++++	++++	++++	++++	+++█	+++█	+++█
Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)	++++	++++	++++	+++█	++++	++++	++++	++++	++++	+++█	++++	++++
Kentucky Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	++++	++++	+++█	+++█	+++█	+++█	+++█	++++	++++	++++	++++
Least Bittern BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)	++++	++++	++++	++++	+++█	++++	++++	+++█	+++█	+++█	++++	++++
Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	++++	+++█	+++█	+++█	++++	+++█	+++█	+++█	+++█	++++	++++
Prothonotary Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	++++	++++	+++█	+++█	+++█	+++█	+++█	++++	++++	++++	++++



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

The area of this project is too large for IPaC to load all NWI wetlands in the area. The list below may be incomplete. Please contact the local U.S. Fish and Wildlife Service office or visit the [NWI map](#) for a full list.

FRESHWATER EMERGENT WETLAND

[PEM1Fd](#)[PEM1A](#)[PEM1C](#)[PEM1Ch](#)[PEM1F](#)[PEM1Fh](#)[PEM1Cd](#)[PEM1Ad](#)[PEM1Fx](#)[PEM1B](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1A](#)[PFO1C](#)[PFO1/SS1Cd](#)[PSS1Cd](#)[PFO1Ad](#)[PSS1C](#)[PFO1/EM1C](#)[PSS1A](#)[PSS1Ch](#)[PSS1F](#)

FRESHWATER POND

[PUBGh](#)[PUBGx](#)[PUBF](#)[PABG](#)[PUBG](#)[PABGh](#)[PABGx](#)[PABF](#)[PUBFx](#)

[PABFh](#)[PUBFh](#)

LAKE

[L1UBH](#)[L2UBHh](#)[L1UBHx](#)[L2UBFh](#)

RIVERINE

[R5UBH](#)[R4SBC](#)[R2UBH](#)[R2USA](#)[R5UBFx](#)[R2UBG](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and

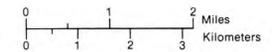
subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

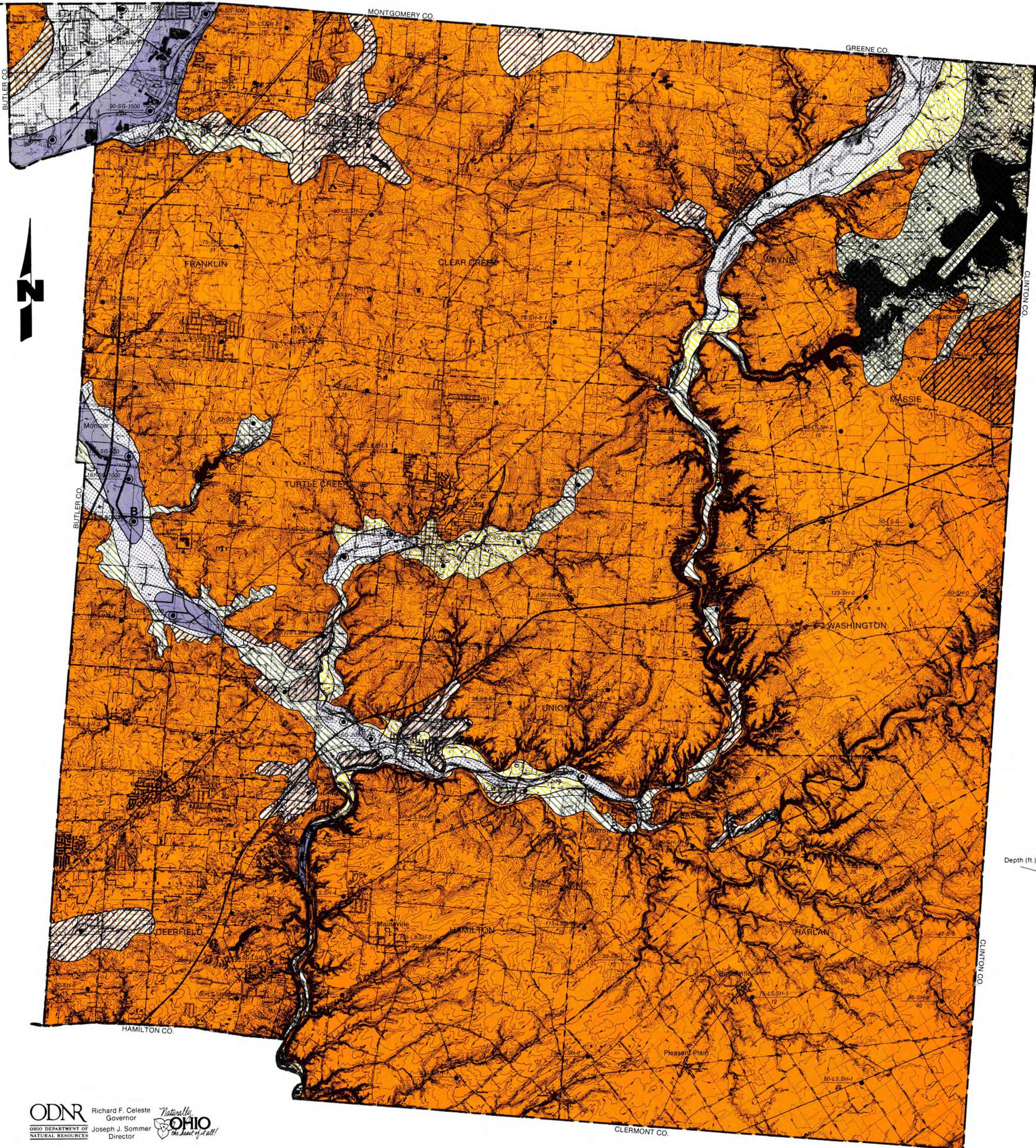
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Ground-Water Resources of WARREN COUNTY

by
Alfred C. Walker



1:62,500



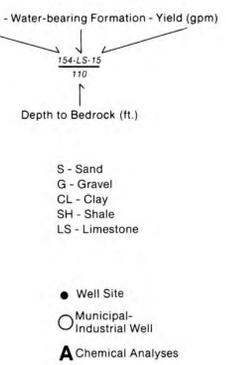
Well Yields

- AREAS IN WHICH YIELDS OF MORE THAN 500 GALLONS PER MINUTE CAN BE DEVELOPED.**
Best ground-water areas in Warren County. Permeable sand and gravel deposits in ancient stream channels. Wells may yield more than 1000 gallons per minute. Suitable for large industrial well field development.
- AREAS IN WHICH YIELDS OF 100 TO 500 GALLONS PER MINUTE CAN BE DEVELOPED.**
Sand and gravel deposits, generally well sorted, yield several hundred gallons per minute. Highest yields are reported where recharge is available from nearby streams. Exploratory drilling may be necessary to locate coarser materials.
- AREAS IN WHICH YIELDS OF 25 TO 100 GALLONS PER MINUTE CAN BE DEVELOPED.**
Valley fill contains thick local deposits of sand and gravel. Wells encountering permeable deposits may yield as much as 100 gallons per minute. Small diameter domestic wells may only produce 15 to 25 gallons per minute. Shale bedrock will yield very limited supplies.
- AREAS IN WHICH YIELDS OF 10 TO 25 GALLONS PER MINUTE CAN BE DEVELOPED.**
Valley fill containing sand and gravel deposits of limited thickness and extent. Thicker sand and gravel zones may yield up to 25 gallons per minute. Wells drilled into underlying bedrock generally yield less than 3 gallons per minute.
End moraine consisting of clay with sand and gravel layers. Depth to rock may range from 100 to 200 feet. Wells encountering coarse sands and gravels may obtain yields of 10 to 15 gallons per minute from properly developed screened wells. Shale bedrock is a poor water source.
- AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED.**
Thick deposits of clay with thin lenses of sand and gravel may yield as much as 10 gallons per minute to screened wells. With few exceptions (mainly in the Springboro area) depth to bedrock is less than 100 feet. Wells not encountering sand and gravel produce less than 3 gallons per minute from the underlying limey shale.
- AREAS IN WHICH YIELDS SELDOM EXCEED 3 GALLONS PER MINUTE.**
Poor source of ground water. Bedrock consists of interbedded plastic shales and thin limestone layers. If water is present in the rock, it usually occurs in the upper few feet where the strata have been somewhat weathered and broken. Overlying glacial cover is generally less than 50 feet thick and consists largely of clay. Occasional lenses of sand and gravel will supply small yields. Wells seldom produce more than 3 gallons per minute.
Little or no ground water available from thin silt and clay deposits overlying shale bedrock. Depth to rock may exceed 200 feet.

Note

The ground-water characteristics have been mapped regionally, based upon interpretations of water well records and the area's geology and hydrology. Well sites mapped were selected as typical for the areas shown. Information regarding specific sites may be obtained from the Division of Water.

Well Site Symbols



Chemical Analysis Table

Well Site	A	B	C
Depth (ft.)	90	129	75
Aquifer	SG	SG	SG
Hardness as CaCO ₃	292.0	400.	360.
pH	7.6	7.2	7.1
Nitrate (N)	1.1	0.05	3.1
Sulfate (SO ₄)	38.0	15.0	54.0
Chloride (Cl)	1.7	30.0	44.0
Fluoride (F)	0.23	0.56	0.14
Iron (Fe)	0.29	2.82	0.15
Manganese (Mn)	0.15	0.03	0.03

Chemical constituents as milligrams per liter (mg/l).

ODNR Richard F. Celeste Governor
OHIO DEPARTMENT OF NATURAL RESOURCES Joseph J. Sommer Director



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