

DRAFT
ENVIRONMENTAL ASSESSMENT FOR THE
KEYSTONE DAM AND RESERVOIR MASTER PLAN
SUPPLEMENT

SEAX-202-00-M50-1753345663



Arkansas River
Creek, Osage, Pawnee, Payne, and Tulsa Counties, Oklahoma

January 2026



US Army Corps
of Engineers®
Tulsa District

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**FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT FOR THE
KEYSTONE DAM AND RESERVOIR MASTER PLAN SUPPLEMENT
ARKANSAS RIVER
CREEK, OSAGE, PAWNEE, PAYNE, AND TULSA COUNTIES, OKLAHOMA**

The U.S. Army Corps of Engineers (USACE), Tulsa District has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended (42 United States Code [USC] § 4321 *et seq.*), as amended by the Fiscal Responsibility Act, and U.S. Army Corps of Engineers (USACE) regulations at 33 CFR Part 230: Procedures for Implementing NEPA. The Environmental Assessment (EA) dated January 2026, evaluated potential impacts to biological and cultural resources from implementing the 2026 Keystone Dam and Reservoir (referred to as Keystone Lake) Master Plan Supplement.

The EA, incorporated herein by reference, was prepared to evaluate existing conditions and potential impacts of reclassifying 30 acres of USACE-owned property from High Density Recreation (HDR) to Environmentally Sensitive Area (ESA). This reclassification was inadvertently missed during the 2016 Master Plan Revision and is necessary to provide resource protections and to reflect the current and future management strategy for these acres.

In addition to a “no action” plan, one alternative that fully meets the project purpose was evaluated (Proposed Plan). Chapter 2.0 of the EA discusses the purpose and need for the project and the alternative formulation and selection. The Proposed Action is to implement the 2026 Keystone Lake Master Plan Supplement.

SUMMARY OF POTENTIAL EFFECTS:

For all alternatives, the potential effects were evaluated, as appropriate. A detailed discussion of effects is included in the EA under each resource category. A summary assessment of the potential effects of the Proposed Action are listed in Table 1:

Table 1: Summary of Potential Effects of the Proposed Plan

Resource	Insignificant effects	Insignificant effects as a result of mitigation	Resource unaffected by action
Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aquatic resources/wetlands	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Climate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural, Historical & Archaeological resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hazardous, toxic & radioactive waste	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Health and Safety	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Invasive species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Land use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Socioeconomics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Threatened/Endangered species/critical habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Resource	Insignificant effects	Insignificant effects as a result of mitigation	Resource unaffected by action
Topography, Geology & Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wildlife resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

All practicable and appropriate means to avoid or minimize adverse environmental effects have been analyzed and incorporated into the Proposed Action. The proposed plan will not entail any ground-disturbing activities. Future ground-disturbing activities on USACE property will be subject to all necessary environmental evaluations and compliance regulations.

The Proposed Action does not involve any ground disturbing activities or vegetation removal; therefore, no compensatory mitigation is required.

Public review of the draft Master Plan Supplement, draft EA, and draft Finding of No Significant Impact (FONSI) will be completed on February 16, 2026. All comments submitted during the public review period will be addressed in the final Master Plan Supplement, as necessary.

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the USACE has determined that implementation of the Proposed Action would have No Effect on federally listed species or their designated critical habitat, and would Not Jeopardize the Continued Existence of any species proposed for federal listing.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, the USACE has determined that implementation of the Proposed Action would have No Potential to Affect Historic Properties, as no ground disturbing or other activities would occur as part of the plan.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on the draft 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 implementation of the Supplement to the 2016 Keystone Lake Master Plan would not cause significant adverse impacts on the quality of the human environment, therefore, preparation of an Environmental Impact Statement is not required.

Date

Jessica D. Goffena
Colonel, U.S. Army
District Commander

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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the effects of revising the Master Plan for Keystone Dam and Reservoir. This EA will facilitate the decision-making process regarding the Proposed Action and alternatives.

- SECTION 1* *INTRODUCTION* of the Proposed Action summarizes the purpose of and need for the Proposed Action, provides relevant background information, and describes the scope of the EA.
- SECTION 2* *PROPOSED ACTION AND ALTERNATIVES* examines alternatives for implementing the Proposed Action and describes the recommended alternative.
- SECTION 3* *AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES* describes the existing environmental and socioeconomic setting, and identifies the potential environmental and socioeconomic effects of implementing the Proposed Action and alternatives.
- SECTION 4* *COMPLIANCE WITH ENVIRONMENTAL LAWS* provides a listing of environmental protection statutes and other environmental requirements.
- SECTION 5* *IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES* identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented.
- SECTION 6* *PUBLIC AND AGENCY COORDINATION* provides a listing of individuals and agencies consulted during preparation of the EA.
- SECTION 7* *REFERENCES* provides bibliographical information for cited sources.
- SECTION 8* *LIST OF PREPARERS* identifies persons who prepared the document and their areas of expertise.
- APPENDIX A* NEPA Coordination and Scoping
- APPENDIX B* USFWS IPaC Report

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TABLE OF CONTENTS

1.	INTRODUCTION.....	1
1.1	PROJECT LOCATION AND SETTING.....	1
1.2	PURPOSE OF AND NEED FOR THE ACTION.....	1
1.3	SCOPE OF THE ACTION.....	2
2.	PROPOSED ACTION AND ALTERNATIVES.....	3
2.1	ALTERNATIVE 1: NO ACTION ALTERNATIVE.....	3
2.2	ALTERNATIVE 2: PROPOSED ACTION.....	3
3.	AFFECTED ENVIRONMENT AND CONSEQUENCES.....	5
3.1	LAND USE.....	5
3.1.1	Alternative 1: No Action Alternative.....	6
3.1.2	Alternative 2: Proposed Action.....	6
3.2	WATER RESOURCES.....	6
3.2.1	Hydrology and Groundwater.....	6
3.2.2	Wetlands.....	6
3.2.3	Water Quality.....	7
3.2.4	Floodplains.....	8
3.2.5	Alternative 1: No Action Alternative.....	8
3.2.6	Alternative 2: Proposed Action.....	8
3.3	CLIMATE / CLIMATE PREPARDNESS AND RESILIENCE.....	8
3.3.1	Alternative 1: No Action Alternative.....	9
3.3.2	Alternative 2: Proposed Action.....	9
3.4	AIR QUALITY.....	9
3.4.1	Alternative 1: No Action Alternative.....	9
3.4.2	Alternative 2: Proposed Action.....	10
3.5	TOPOGRAPHY, GEOLOGY, AND SOILS.....	10
3.5.1	Topography.....	10
3.5.2	Geology.....	10
3.5.3	Soils.....	10
3.5.4	Prime Farmland.....	10
3.5.5	Alternative 1: No Action Alternative.....	12
3.5.6	Alternative 2: Proposed Action.....	12
3.6	NATURAL RESOURCES.....	12
3.6.1	Fisheries and Aquatic Resources.....	12
3.6.2	Wildlife.....	13
3.6.3	Vegetative Resources.....	13
3.6.4	Alternative 1: No Action Alternative.....	14
3.6.5	Alternative 2: Proposed Action.....	14
3.7	THREATENED AND ENDANGERED SPECIES.....	14
3.7.1	Alternative 1: No Action Alternative.....	16
3.7.2	Alternative 2: Proposed Action.....	17
3.8	INVASIVE SPECIES.....	17
3.8.1	Alternative 1: No Action Alternative.....	18
3.8.2	Alternative 2: Proposed Action.....	18

3.9	CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES.....	18
3.9.1	Alternative 1: No Action Alternative.....	18
3.9.2	Alternative 2: Proposed Action.....	18
3.10	SOCIOECONOMICS	19
3.10.1	Population	19
3.10.2	Education and Employment.....	20
3.10.3	Households and Income.....	20
3.10.4	Alternative 1: No Action Alternative.....	21
3.10.5	Alternative 2: Proposed Action.....	21
3.11	HEALTH AND SAFETY.....	21
3.11.1	Alternative 1: No Action Alternative.....	21
3.11.2	Alternative 2: Proposed Action.....	21
3.12	RECREATION	21
3.12.1	Alternative 1: No Action Alternative.....	21
3.12.2	Alternative 2: Proposed Action.....	22
4.	COMPLIANCE WITH ENVIRONMENTAL LAWS	23
5.	IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES .	25
6.	PUBLIC AND AGENCY COORDINATION	26
7.	REFERENCES.....	27
8.	LIST OF PREPARERS.....	28

LIST OF TABLES

	Page
Table 2-1	Reclassification Proposal 3
Table 2-2	Updated Land Use Classifications 3
Table 3-1	Wetland Classes 7
Table 3-2	Threatened, Endangered, and Candidate Species 14
Table 3-3	Invasive Species 17
Table 3-4	2020 Population Estimates and 2060 Projections 19
Table 3-5	2020 Percent of Population Estimate by Gender 19
Table 3-6	2020 Population Estimate by Race or Hispanic Origin 20
Table 3-7	Households and Income 20

LIST OF FIGURES

Figure 1-1	Proposed ESA Classification – 30 Acres 2
Figure 3-1	National Wetlands Inventory Wetlands 7
Figure 3-2	Topographic Elevations of Project Area 8
Figure 3-3	NRCS Web Soil Survey Types 12

LIST OF APPENDICES

A	NEPA Coordination and Scoping (placeholder) A-1
B	USFWS IPaC Report B-1

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DRAFT ENVIRONMENTAL ASSESSMENT

Master Plan Supplement

Keystone Dam and Reservoir Arkansas River

Creek, Osage, Pawnee, Payne, and Tulsa Counties, Oklahoma

1. INTRODUCTION

The Master Plan is the strategic land use management document that guides the comprehensive management and development actions related to all project recreational, natural, and cultural resources throughout the life of the water resource project. The Master Plan guides the execution of efficient and cost-effective management, development, and use of project lands. The Master Plan is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations.

1.1 PROJECT LOCATION AND SETTING

Keystone Dam is located approximately 2 miles downstream from the confluence of the Arkansas and Cimarron Rivers, at mile 538.8 of the Arkansas River, and about 15 miles west of Tulsa, Oklahoma. Keystone Lake extends westward from the dam near the Tulsa-Creek County line to the vicinity of Blackburn, Oklahoma, on the Arkansas River and the Payne-Creek County line on the Cimarron River.

The site-specific project location for this EA includes 30 acres of USACE fee-owned property on the north side of the Appalachia Bay Recreation Area (Figure 1). The site is currently categorized as High Density Recreation with a recommendation to change to Environmentally Sensitive Area.

1.2 PURPOSE OF AND NEED FOR THE ACTION

The Master Plan for Keystone Lake was last approved in May 2016. At that time, 30 acres of High Density Recreation (HDR) property on the north side of the Appalachia Bay Recreation Area was inadvertently left out of the land use reclassification process. These acres are frequently flooded with changes in the lake elevation, which makes them unsuitable for recreational development as defined for the HDR classification (See Section 5.3 of the 2016 Master Plan Revision). A review of the resource capabilities of these acres determined that the appropriate land use classification would be Environmentally Sensitive Area (ESA). Such a reclassification accurately describes the current management strategy and provides the needed resource protection.

To ensure compliance with USACE regulations and guidance, a supplement to the 2016 Master Plan is necessary. The remaining land classifications identified in the 2016 MP remain unchanged.

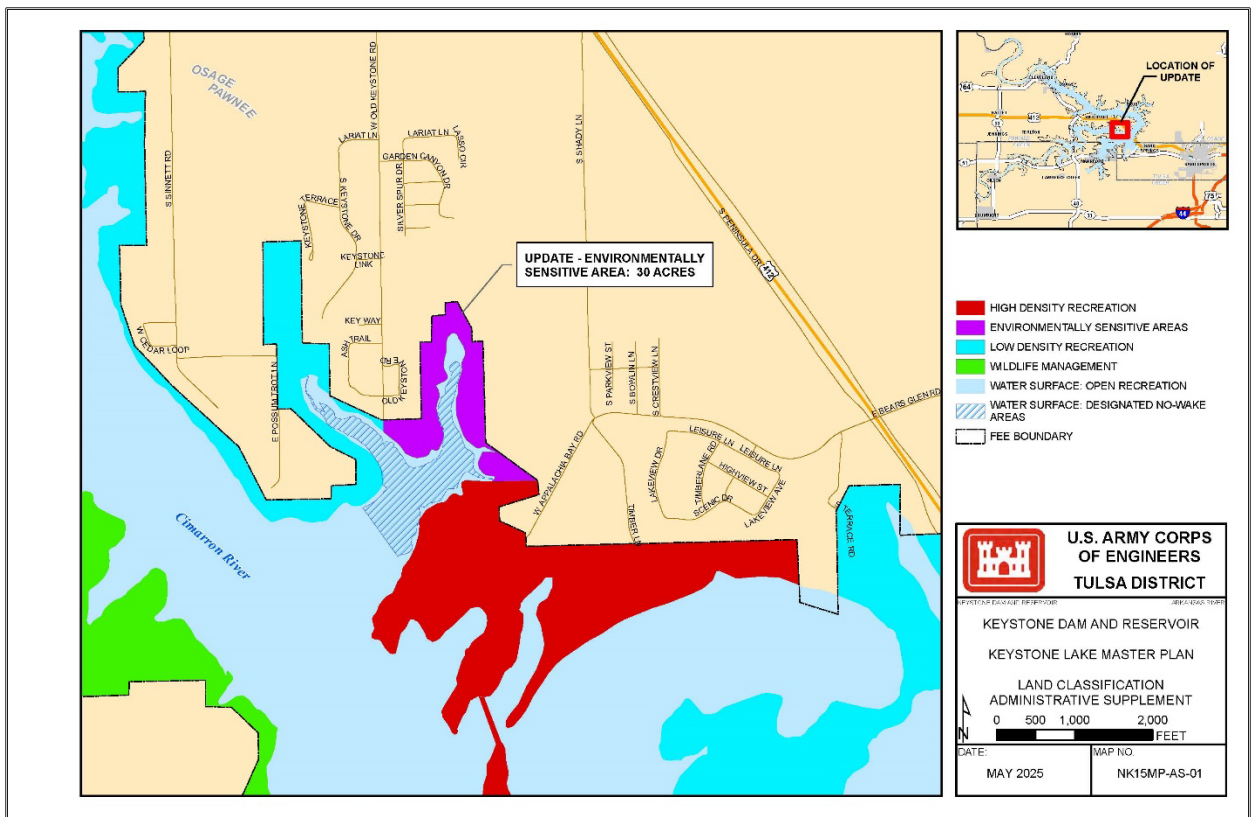


Figure 1-1 Proposed ESA Classification – 30 Acres

1.3 SCOPE OF THE ACTION

This EA was prepared to evaluate existing conditions and potential impacts of reclassifying 30 acres of USACE-owned property from HDR to ESA. This reclassification was inadvertently missed during the 2016 Master Plan Revision and is necessary to provide resource protections and to reflect the current and future management strategy for these acres.

This EA was prepared pursuant to the National Environmental Policy Act ([NEPA] 42 U.S.C. 4321 et seq.), as amended by the Fiscal Responsibility Act (FRA of 2023), and the USACE implementing regulation, Policy and Procedures for Implementing NEPA, at 33 CFR Part 230.

2. PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to supplement the current 2016 Keystone Lake Master Plan to reclassify 30 acres of USACE-owned property on the north side of the Appalachia Bay Recreation Area from HDR to ESA. Utilizing the resource goals and objectives developed for the 2016 Master Plan Revision, it was determined that this reclassification more accurately defines management objectives for this area and provides habitat protection. The area is considered sensitive and needs to be protected as such.

As part of this process, which includes public outreach and comment, two alternatives were developed for evaluation. In addition to the Proposed Action Alternative, a No Action Alternative was developed to evaluate impacts that could occur by leaving the current land classification in place.

2.1 ALTERNATIVE 1: NO ACTION ALTERNATIVE

The No Action Alternative serves as a basis for comparison to the anticipated effects of the other action alternatives, and its inclusion in this EA is required by NEPA. Under the No Action Alternative, the USACE would take no action and would not supplement the 2016 Master Plan (USACE 2016). The operation and management of Keystone Lake would continue as outlined in the current Master Plan. The subject acres would continue to be classified as HDR.

2.2 ALTERNATIVE 2: PROPOSED ACTION

Under this alternative, the 2016 Keystone Lake Master Plan would be supplemented to make the needed land management classification change. This change would ensure that the Master Plan fully complies with USACE regulations and guidance. This action would result in the following land and water surface reclassification (Table 2-1):

Table 2-1 Reclassification Proposal

PROPOSAL	DESCRIPTION	RESPONSE
Reclassification Proposal 1	Reclassify 30 acres north of the Appalachia Bay Recreational Area from High Density Recreation to Environmental Sensitive Area.	The reclassification more accurately defines management objectives for this area and provides habitat protection. Area is considered sensitive and needs to be protected as such.

The Proposed Action would supplement the 2016 Keystone Lake Master Plan to reflect the following land classifications (Table 2-2):

Table 2-2 Updated Land Use Classifications

LAND USE CLASSIFICATION	2016 ACRES	2026 MASTER PLAN SUPPLEMENT REVISED ACRES	CHANGE FROM 2016 MASTER PLAN
Project Operations	601	601	No Change
High Density Recreation	4,223	4,193	- 30 acres
Environmentally Sensitive Area	166	196	+ 30 acres
Low Density Recreation	7,128	7,128	No Change

LAND USE CLASSIFICATION	2016 ACRES	2026 MASTER PLAN SUPPLEMENT REVISED ACRES	CHANGE FROM 2016 MASTER PLAN
Wildlife Management	19,389	19,389	No Change
Water Surface: Restricted	37	37	No Change
Water Surface: Designated No-Wake	681	681	No Change
Water Surface: Fish and Wildlife Sanctuary	47	47	No Change
Water Surface: Open Recreation	26,815	26,815	No Change
TOTAL ACRES	59,087	59,087	NO CHANGE

The Proposed Action would meet regional goals associated with good stewardship of land and water resources and would allow for continued use and development of project lands without violating national policies or public laws. Therefore, this alternative is the Preferred Alternative and will carry forward as the Proposed Action.

3. AFFECTED ENVIRONMENT AND CONSEQUENCES

This section describes the natural and human environments that exist on the acres proposed for reclassification and the potential impacts of the No Action Alternative (Alternative 1) and Proposed Action (Alternative 2), outlined in Section 2.0 of this document. Detailed descriptions of the resources analyzed in this section can be found in Appendix C of the 2016 Keystone Dam and Reservoir Master Plan (NEPA Documentation), and is incorporated herein by reference. Some topics are limited in scope due to the lack of direct effect from either alternative on the resource or because that particular resource is not located within the project area. For example, no body of water in the Keystone Lake watershed is designated as a Federally Wild or Scenic River and no hazardous materials or solid waste sites are present at Keystone Lake, so these resources will not be discussed (USACE, 2016).

Impacts (consequence or effect) 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. Indirect effects are caused by the action and are later in time or further removed in distance but are still reasonably foreseeable. As discussed in this section, the alternatives may create temporary (less than 1 year), short-term (up to 3 years), long-term (3 to 10 years following the Master Plan supplement), or permanent effects.

Whether an impact is significant depends on the context in which the impact occurs and the intensity of the impact. The context refers to the setting in which the impact occurs and may include society as a whole, the affected region, the affected interests, and the locality. Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of impacts would be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- **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, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- **Major:** Effects on a resource would be obvious and long-term, and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse effects would be required and extensive, and success of the mitigation measures would not be guaranteed.

3.1 LAND USE

Land uses associated with Keystone Lake are designated to support the overall goal of providing good stewardship of land and water resources while providing safe recreation opportunities and economic uses to the public. The lands within Keystone Lake include infrastructure to support hydroelectric power and navigation activities, and various parks, campgrounds, and marinas to support recreation.

3.1.1 Alternative 1: No Action Alternative

The No Action Alternative for Keystone Lake is defined as the USACE taking no action, which means the 2016 Master Plan would not be supplemented, and the 30 acres of HDR would remain in that land use classification. The operation and management of Keystone Lake would continue as outlined in the existing 2016 Master Plan. Although this alternative does not result in a Master Plan that meets current guidance, there would be no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on the land use of the subject acres.

3.1.2 Alternative 2: Proposed Action

The objective for supplementing the Keystone Lake Master Plan is to reclassify 30 acres of USACE lands to a more appropriate land use classification that describes the current management strategy and provides the needed resource protection. Implementation of the Proposed Action would not result in any reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on the land use of the subject acres, as they are currently being managed as environmentally sensitive.

3.2 WATER RESOURCES

3.2.1 Hydrology and Groundwater

Keystone Lake has two major tributaries; the Arkansas and Cimarron Rivers. The Cimarron River, with its headwaters in northeastern New Mexico, extends 698 miles across New Mexico, Colorado, and Kansas, with the majority of its length in Oklahoma. The 1,469 mile Arkansas River, with its headwaters in the high Colorado Rocky Mountains, flows through Colorado, Kansas, and Oklahoma, finally emptying into the Mississippi River in Arkansas. The Cimarron River enters the confluence from the west-southwest, while the Arkansas River enters the confluence from the northwest. Other tributaries, such as the Salt Fork, also feed the lake, affecting the lake levels, sedimentation, pollution, minerals, and nutrients in the reservoir.

During normal reservoir operations, floodplains lying below the flood control surcharge pool (756.0 msl) are inundated at varying frequencies depending on elevation. The lower portions of these floodplains typically lie within fee-owned federal lands administered by USACE while the higher portions are located on private land where USACE acquired a flowage easement to allow for periodic inundation.

A more detailed discussion of the hydrology and groundwater associated with Keystone Lake is contained in Section 2.2 of the 2016 Master Plan Revision, and is incorporated by reference.

3.2.2 Wetlands

In accordance with standard USACE natural resources inventory requirements, wetlands are inventoried using the United States Fish and Wildlife Service (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States*. The USFWS National Wetlands Inventory Mapper (USFWS-WIM) was accessed on February 25, 2025, to determine whether wetlands exist on the 30 acres proposed for reclassification. The USFWS-WIM identified 0.45 acres of Palustrine Emergent Wetland on the project site (Table 3-1). The 2016 Keystone Lake Master Plan Revision lists the wetland types and acreages retrieved from the FY2014 Project Wetland Classes Records reported in the Operations and Maintenance Business Information Link (OMBIL). The 0.45 acres depicted in Figure 3-1 are part of the total 994 acres of Palustrine Emergent Wetlands identified at Keystone Reservoir.

Table 3-1 Wetland Classes

System	Sub-System	Class	Class Acres
Palustrine	No Sub-System	Emergent Wetland	0.45

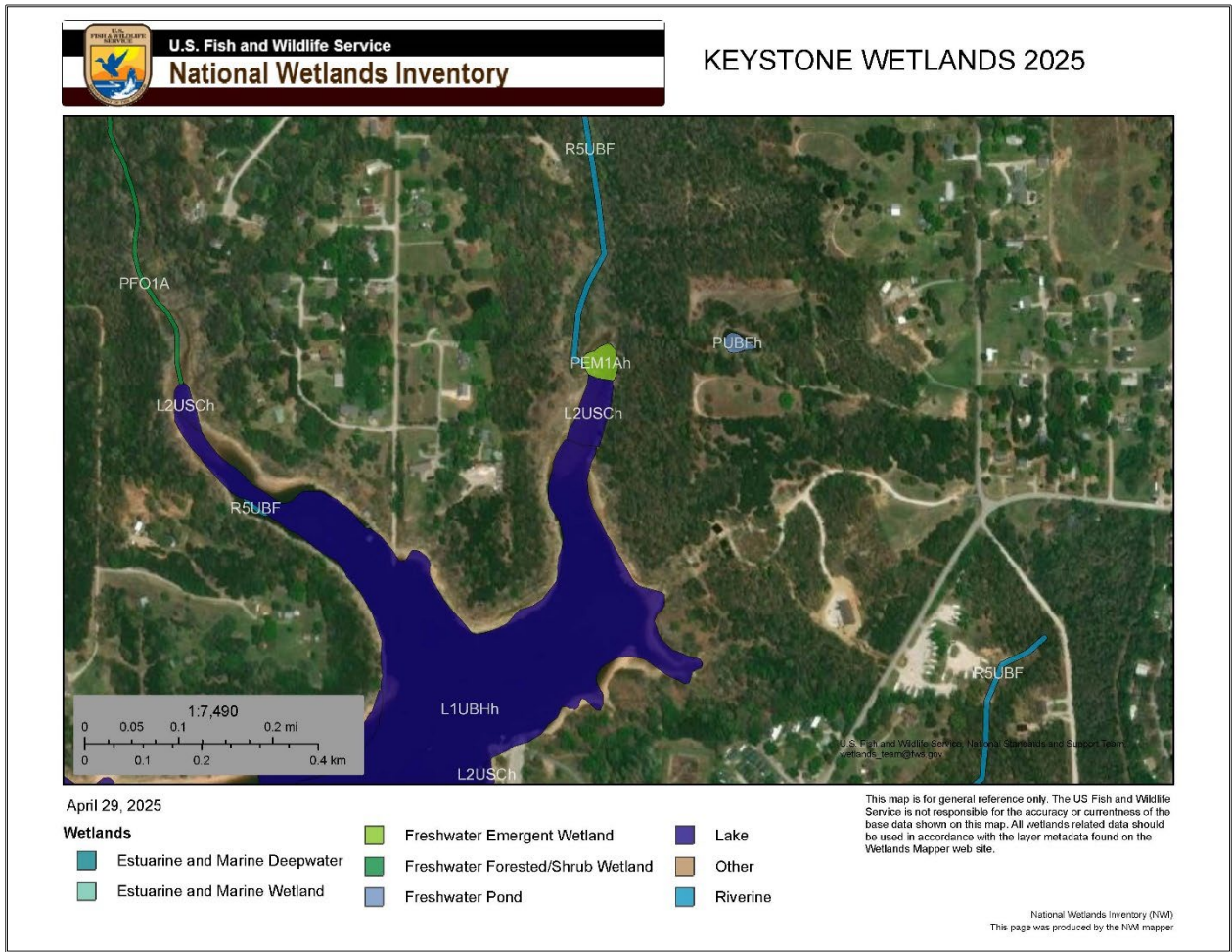


Figure 3-1 National Wetlands Inventory Wetlands

3.2.3 Water Quality

The USACE conducted a water quality study for Keystone Lake between April and October 1996 and found that waters impounded by the reservoir are too highly mineralized to be suitable for municipal and industrial uses without extensive treatment. Keystone Lake presents an unusual situation in that the Cimarron River carries significantly higher dissolved salts to the lake than the Arkansas River. Higher specific conductance and chloride levels were consistently observed at depth at lacustrine stations. The water in Keystone Lake was classified as very hard, and total dissolved solids levels in the lake exceed levels acceptable for domestic uses.

A detailed discussion of water quality associated with Keystone Lake is contained in Section 2.4 of the 2016 Master Plan Revision and incorporated by reference.

3.2.4 Floodplains

As discussed in Section 2.2 of the 2016 Master Plan, the floodplains around Keystone Lake were inundated by the construction. The floodplains within the conservation pool elevation of 723.0 feet msl are permanently inundated. The floodplains along the Arkansas River and its tributaries between the conservation pool and top of the flood control surcharge pool (756.0 feet msl) may become inundated at various frequencies. As shown in Figure 3-2, the majority of the Project Area lies below elevation 756.0.

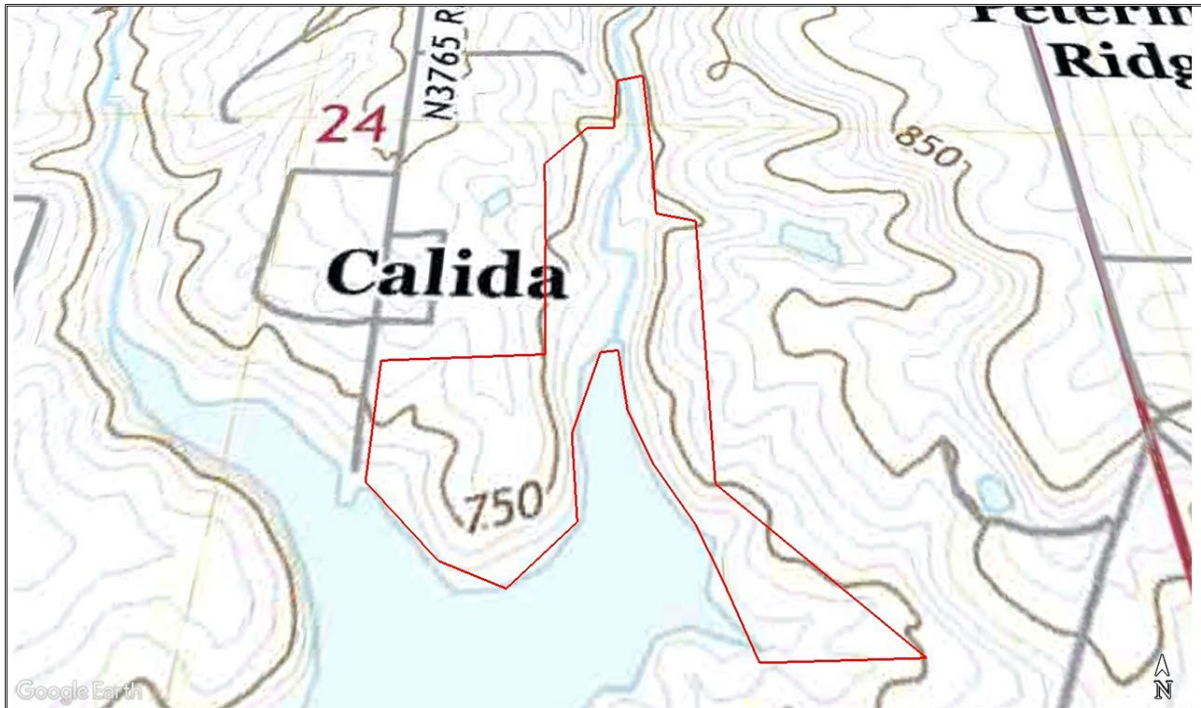


Figure 3-2 Topographic Elevations of Project Area

3.2.5 Alternative 1: No Action Alternative

There would be no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on water resources as a result of implementing the No Action Alternative, since there would be no change to the existing Master Plan.

3.2.6 Alternative 2: Proposed Action

The reclassification required for the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of water resources. Management of the 30 acres proposed for reclassification would not change from the current condition; therefore, there would be no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on water resources.

3.3 CLIMATE / CLIMATE PREPARDNESS AND RESILIENCE

Keystone Lake lies in a region characterized by moderate winters and comparatively long summers with relatively high temperatures. The summer rains usually occur as thunderstorms of short duration and limited extent but with intense rainfall. The winter rains are generally of low intensities but cover large areas and are several days in duration. Normal annual precipitation over the watershed is about 37.1 inches. May is normally the wettest month and December the

driest; however major storms may occur at any time during the year. Nearly two-thirds of the precipitation occurs during the growing season, April through September. Annual snowfall averages around 8.9 inches per year. The mean temperature for the area is around 60°F with record extremes ranging from a minus 26°F to a plus 115°F. The Keystone Lake watershed is in an area of prevailing southerly winds with greatest wind movements occurring in the spring months.

A detailed discussion of climatic conditions associated with Keystone Lake is contained in Section 2.6 of the 2016 Master Plan Revision and incorporated by reference.

Current policy (Executive Orders [EO] 13834 and 13783, and related USACE policy) requires project lands and recreational programs be managed in a way that advances broad national changing conditions mitigation goals including, but not limited to, changing conditions resilience and carbon sequestration.

3.3.1 Alternative 1: No Action Alternative

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. There would be no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on climate as a result of implementing the No Action Alternative.

Changing conditions were not evaluated in the 2016 MP, as such the 2016 MP does not align with current laws and regulations. This non-compliance has no impact on climate or changing conditions because the 2016 MP does not have any action that impacts existing conditions.

3.3.2 Alternative 2: Proposed Action

Revision of the Keystone Lake Master Plan would have no impact on the climate of the project area. There would be no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on climate as a result of the Proposed Action Alternative.

Management under the 2026 MP will follow current USACE policy to meet changing conditions goals as described for the No Action Alternative. Any ground disturbing activities considered under the 2026 MP will be evaluated and analyzed for impacts to climate under NEPA and design processes prior to implementation.

3.4 AIR QUALITY

The USEPA published a Conformity Rule on 30 November 1993, requiring all Federal actions to conform to appropriate State Implementation Plans that were established to improve ambient air quality. At this time, the Conformity Rule only applies to Federal actions in non-attainment areas. A non-attainment area is an area which does not meet one or more of the National Air Quality Standards for the criteria pollutants designated in the Clean Air Act (CAA).

To comply with this rule, a conformity determination based on air emission analysis is required for each proposed Federal action within a non-attainment area. This geographical region is in attainment and meets the National Air Quality Standards for the criteria pollutants designated in the CAA. Consequently, a conformity determination is not required.

3.4.1 Alternative 1: No Action Alternative

Existing operation and management of Keystone Lake is compliant with the CAA. There would be no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on air quality as a result of implementing the No Action Alternative, since there would be no change to the existing Master Plan.

3.4.2 Alternative 2: Proposed Action

Existing operation and management of Keystone Lake is compliant with the CAA and would not change with the Master Plan supplement. No reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on air quality would occur as a result of reclassifying the 30 acres proposed for the supplement to the Keystone Lake Master Plan.

3.5 TOPOGRAPHY, GEOLOGY, AND SOILS

3.5.1 Topography

The lake is located in the Eastern Sandstone Cuesta Plains subdivision of the Interior Central Lowland physiographic province. Land forms surrounding Keystone Lake range from strongly sloping hills around the dam and lower reaches of the lake to gently sloping grasslands at the upper reaches. The topography of the 30 acres proposed for reclassification is flat and is frequently flooded.

3.5.2 Geology

The geology of the area is dominated by materials of the Pennsylvanian system. The principal geologic formations found in the project area are Vamoosa, Barnsdall, Tallant, Wann and Ada.

3.5.3 Soils

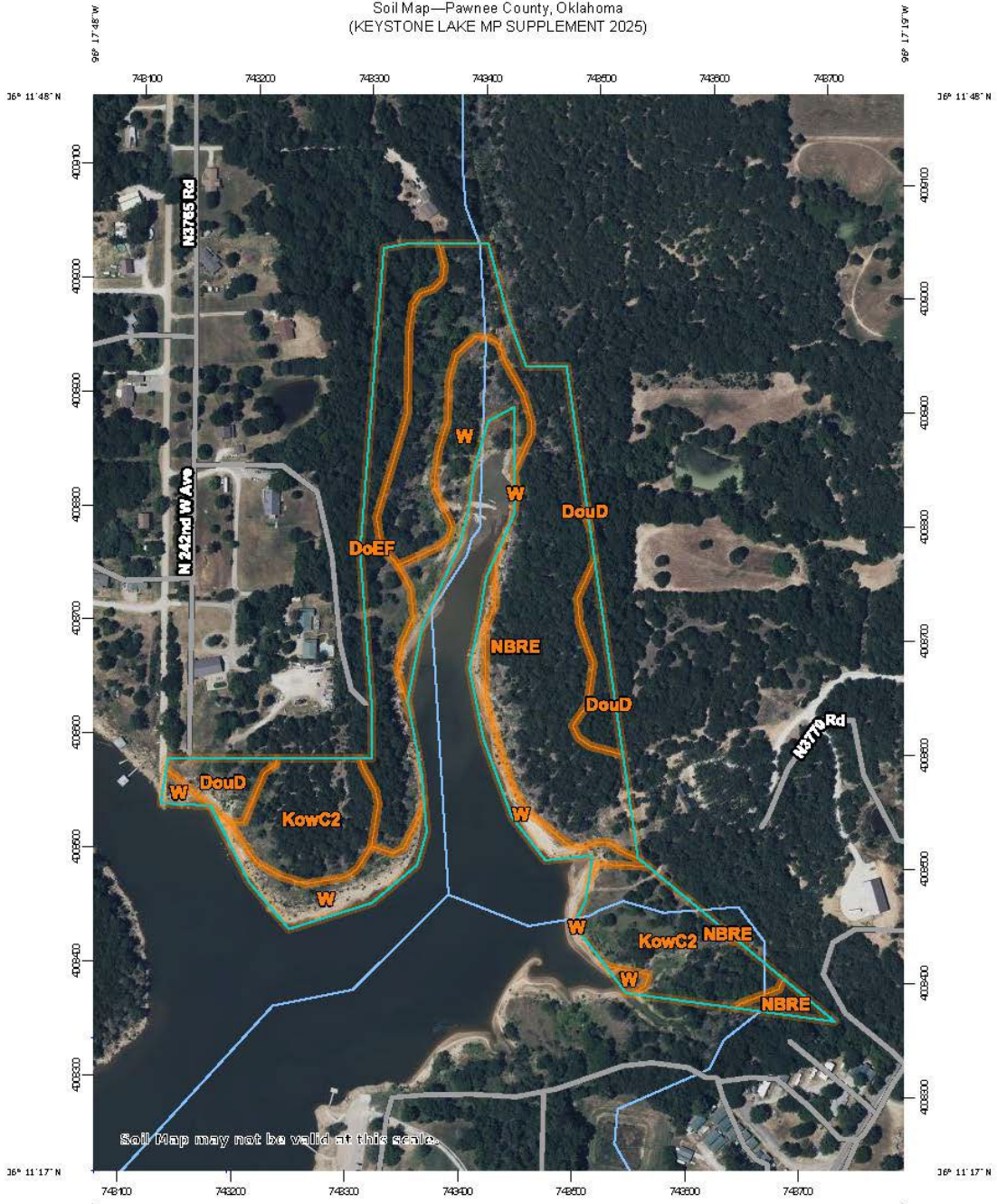
As discussed in the 2016 Master Plan, the predominant soil type surrounding Keystone Lake is the Niotaze-Darnell complex (See 2016 Master Plan, Section 2.7.3). Soil types within the 30 acres proposed for reclassification are mostly Niotaze-Bigheart-Rock outcrop complex located on the east side of the proposed area (~40%), and the remainder consisting of fine to deep sandy loam soils of the Dougherty and Konawa complexes (Figure 3-3).

The Niotaze-Bigheart-Rock soil complex forms on side slopes of uplands and is considered very to extremely stony. Conversely, the Dougherty and Konawa complexes are found on shallower slopes and are predominantly sandy loams.

3.5.4 Prime Farmland

Prime Farmland is one of several kinds of important farmland defined by the USDA. Unique Farmland is defined by USDA as land other than Prime Farmland that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods.

Soil Map—Pawnee County, Oklahoma
(KEYSTONE LAKE MP SUPPLEMENT 2025)



Map Scale: 1:4,600 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 200 400 600 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

USDA
**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

5/14/2025
Page 1 of 3

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DoEF	Dougherty-Eufaula complex, 8 to 20 percent slopes	4.3	15.0%
DouD	Dougherty loamy fine sand, 3 to 8 percent slopes	1.7	5.9%
KowC2	Konawa fine sandy loam, 3 to 8 percent slopes, eroded	5.9	20.5%
NBRE	Niotaze-Bigheart-Rock outcrop complex, 3 to 15 percent slopes, extremely stony	11.6	40.4%
W	Water	5.2	18.2%
Totals for Area of Interest		28.7	100.0%

Figure 3-3 NRCS Web Soil Survey Types

Further detailed information on all soil types surrounding Keystone Lake is available on websites maintained by the NRCS.

3.5.5 Alternative 1: No Action Alternative

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions, so there would be no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on topography, geology, soils, or Prime or Unique Farmlands as a result of implementing the No Action Alternative.

3.5.6 Alternative 2: Proposed Action

No intrusive actions are proposed for the 30 acres, and Keystone Lake project resource management plans would not be changed, as the intent of the Proposed Action is to reflect current land uses. Therefore, there would be no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on topography, geology, or soils as a result of implementing the proposed land use reclassification to the Keystone Lake Master Plan.

The 30 acres proposed for reclassification in this supplement does not contain any soils identified as Prime or Unique Farmlands. As such, there would be no impacts on Prime or Unique Farmlands as a result of implementing the Proposed Action.

3.6 NATURAL RESOURCES

Natural resources include the fisheries and aquatic resources, wetland, vegetation, and wildlife, present in the vicinity of Keystone Lake. The protection and enhancement of natural and man-made resources will receive equal consideration to other project purposes. Proper resource management is imperative to the long life and use of project resources.

3.6.1 Fisheries and Aquatic Resources

The waters of Keystone Lake provide habitat for many warm-water fish species. Recreational fishing is and will continue to be an important aspect of the overall recreational program enjoyed by visitors to the lake. Native species commonly sought by fisherman are channel catfish

(*Ictalurus punctatus*), flathead catfish (*Pylodictis olivaris*), blue catfish (*Ictalurus furcatus*), crappie (*Pomoxis spp.*), white bass (*Morone chrysops*), largemouth bass (*Micropterus salmoides*), spotted bass (*Micropterus punctulatus*), and various sunfish species (*Lepomis spp.*). Keystone Lake also supports an extremely active striped bass fishery that was artificially introduced in the 1960s. Forage for the sport fish population is provided by gizzard shad (*Dorosoma cepedianum*) and various minnows, shiners, and chubs (family Cyprinidae).

3.6.2 Wildlife

The major wildlife habitats surrounding Keystone Lake are upland hardwood forests (Post Oak/Blackjack Oak/Hickory Woodland and Forest [PO-BO-H]), Oak/Hickory Bottomland Hardwood Forest (BLH), and tallgrass prairie. Both PO-BO-H and BHF habitat types are found in the Project Area. Principal wildlife species likely found within these habitat types include grey and fox squirrels (*Sciurus carolinensis* and *Sciurus niger*), raccoons (*Procyon lotor*), white-tailed deer (*Odocoileus virginianus*), and a variety of songbirds and waterfowl. Given the small size of the Project Area, there would be limited space for nesting (migratory birds), but could provide important stopover habitat during spring and fall migrations.

A request for information on the possible presence of elements of biological significance in or near the project area was submitted to the Oklahoma Biological Survey (OBS) on June 16, 2025. The OBS found records of the Arkansas River Shiner and Arkansas River Speckled Chub (Peppered Chub) occurring within 2 miles of the project area.

The Arkansas River Shiner was once widespread throughout the southern Great Plains, and historically inhabited large sand bed rivers like the Arkansas River in Kansas, Oklahoma and Arkansas. They also historically inhabited the Cimarron River, which runs through Kansas and Oklahoma, as well as the North Canadian and Salt Fork of the Arkansas River in Oklahoma. Today, the shiner is known only to occur in the South Canadian River, from far eastern New Mexico, through the Texas panhandle and downstream into Oklahoma, with only 17% of its historic range remaining. Given the present distribution of the Arkansas River Shiner, it is unlikely to occur near the Project Area.

Discussion on the Arkansas River Speckled Chub (Peppered Chub) is included in Section 3.8 below.

3.6.3 Vegetative Resources

Two basic vegetation zones can be found in the project area. The upland forest vegetation type, (Post Oak-Blackjack) can be found on the east side of the project area where the land is more sloped. This vegetation type is characteristic of most of the lake shoreline and recreation areas. The remainder of the project area consists of bottomland hardwood forest tree species such as northern red oak (*Quercus rubra*), black oak (*Quercus velutina*), chinquapin oak (*Quercus muehlenbergi*), overcup oak (*Quercus lyrata*), sycamore (*Platanus occidentalis*), cottonwood (*Populus deltoides*), black willow (*Salix nigra*), black walnut (*Juglans nigra*), pecan (*Carya illinoensis*), river birch (*Betula nigra*), winged elm (*Ulmus alata*), slippery elm (*Ulmus rubra*), hackberry (*Celtis laevigata*), sassafras (*Sassafras albidum*), hawthorn (*Crataegus sp.*), redbud (*Cercis canadensis*), honey locust (*Gleditsia triacanthus*), red maple (*Acer rubrum*), box elder (*Acer negundo*), flowering dogwood (*Cornus florida*), white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), swamp privet (*Forestiera acuminata*), and button bush (*Cephalanthus occidentalis*).

A detailed description of the vegetative, fishery and wildlife (including species of greatest conservation need) resources can be found in Section 2.8 of the 2016 Master Plan, and are incorporated by reference.

3.6.4 Alternative 1: No Action Alternative

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; therefore, no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on natural resources would be anticipated as a result of implementing the No Action Alternative.

3.6.5 Alternative 2: Proposed Action

The reclassification required for the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of natural resources. Reclassification of the 30 acres of HDR to ESA would allow project lands to continue supporting the USFWS and the ODWC missions associated with wildlife conservation and implementation of operational practices that would protect and enhance wildlife and fishery populations. There would be no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on natural resources.

3.7 THREATENED AND ENDANGERED SPECIES

Section 7(a)(2) of the ESA requires Federal agencies to ensure that any action authorized, funded, or carried out by such agency is not likely to 1) jeopardize the continued existence of any endangered or threatened species, or 2) result in the destruction or adverse modification of critical habitat. The term "jeopardize the continued existence of" means to appreciably reduce the likelihood of both the survival and recovery of listed species in the wild by reducing the species' reproduction, numbers, or distribution. Jeopardy opinions must present reasonable evidence that the project will jeopardize the continued existence of the listed species or result in destruction or adverse modification of critical habitat.

An official list of federally listed or proposed species possibly occurring in the Project Area was obtained utilizing the USFWS Information for Planning and Consultation tool (IPaC) on January 21, 2026. These species, as well as Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Act (BGEA) species, are also included on the IPaC report (Appendix B). The IPaC Report lists six federally listed or proposed species that have potential to occur in the Keystone Lake project area (Table 3-2).

Table 3-2 Threatened, Endangered, and Candidate Species

	Status	Federal and State List	Has Critical Habitat in Project Area
Birds			
Piping Plover <i>Charadrius melodus</i>	Threatened	Federal	No
Red Knot <i>Calidris canutus</i>	Threatened	Federal	No
Reptiles			
Alligator Snapping Turtle	Proposed Threatened	Federal	No
Fishes			
Peppered Chub <i>Macrhybopsis tetranema</i>	Endangered	Federal	No
Insects			

	Status	Federal and State List	Has Critical Habitat in Project Area
American Burying Beetle <i>Nicrophorus americanus</i>	Endangered	Federal	No
Monarch Butterfly <i>Danaus plexippus</i>	Proposed Threatened	Federal	No

Source: USFWS IPaC Website. Accessed January 21, 2026

Piping Plover and Red Knot

As discussed in Section 3.7.3, the Project Area consists largely of upland and bottomland hardwood forests. Such habitats are unsuitable for Piping Plovers and Red Knots. Both species utilize sand bars and mud flats to forage. The shoreline of Keystone Lake within the Project Area may provide limited suitable habitat, however much more suitable sites can be found along the Arkansas River.

Monarch Butterfly

Given the lack of open land within the Project Area suitable for growing flowering herbaceous plants, it is unlikely that the Monarch Butterfly would be found within the Project Area.

Peppered Chub

The Peppered Chub inhabits the main channels of wide, shallow, sandy bottom rivers and larger streams of the Arkansas River basin. Adult Peppered Chubs prefer shallow channels where currents flow over clean fine sand, avoid calm waters and silted stream bottoms, and appear more adapted for headwaters of streams than do other members of the (former) genus (USFWS, 2025).

The Peppered Chub has been extirpated from the majority of the Arkansas River basin. It's current distribution is limited to the South Canadian River between Ute Reservoir in New Mexico and Lake Meredith in the Texas panhandle represents only 6 percent of its historical range (USFWS, 2018). Given the species current distribution, it is unlikely that the Peppered Chub would be found within the Project Area.

American Burying Beetle

The American Burying Beetle (ABB) will utilize forested habitats that contain suitable soil types. As discussed in Section 3.6.3 – Soils, approximately 40% of the soils in the Project Area consist of Niotaze-Bigheart-Rock outcrop soils. This soil type consists of cobbles, stones, or boulders – all of which would be unsuitable for ABBs due to their inability to dig and bury food. The remaining approximately 60% of the Project Area consists of a mixture of loamy and sandy soils, which are considered suitable soils for ABB life requisite needs. That said, it's likely that the majority of these soils flood frequently, thereby making them unavailable at times through the year. Information included in Section 2.2 of the 2016 Master Plan (Hydrology and Groundwater) states that during normal reservoir operations, floodplains lying below the flood control surcharge pool (756.0 msl) are inundated at varying frequencies depending on elevation. As shown in Figure 3-2, most, if not all, of the Project Area lies below elevation 756.0 msl. The periodic flooding of the Project Area likely makes it unsuitable habitat necessary for the life requisites of the ABB.

Alligator Snapping Turtle

Given the existing habitat conditions, the Alligator Snapping Turtle (AST) is likely the only species on the IPaC list that has the potential to occur in the Project Area. The AST is not federally listed, but a petition to list the species as threatened or endangered was submitted to USFWS on July 11, 2012. On July 1, 2017, the USFWS issued a 90-day finding that the petition presented credible evidence that listing may be warranted. The USFWS proposed listing the AST as a threatened species with a rule issued under section 4(d) of the ESA on November 9, 2021.

The AST is the largest freshwater turtle in North America, and is characterized as having a large head, a long tail, and an upper jaw with a strongly hooked beak. They have three raised keels with posterior elevations on the scutes of the carapace upper shell), which is dark brown and often has algal growth that adds to their camouflage. The eyes are positioned on the side of the head and are surrounded by small, fleshy, pointed projections that are unique to the genus.

ASTs are associated with deeper water (usually large rivers, major tributaries, bayous, canals, swamps, lakes, ponds, and oxbows), with shallower water occupied in early summer and deeper depths in late summer and mid-winter. The species selects areas with more aquatic structures (e.g., tree root masses, stumps, submerged trees, etc.) than open water. Woody debris, undercut banks, and large rocks provide important habitat during low water levels. Riparian canopy cover is also an important habitat feature, as ASTs select sites with a high percentage of canopy cover.

Juveniles require small streams with mud and gravel bottoms that have submerged structures, such as tree root masses, stumps, and submerged live and dead trees, that allow for foraging and protection from predators.

As discussed in Section 3.7.3, the Project Area consists largely of upland and bottomland hardwood forests. Such habitats are unsuitable for Piping Plovers and Red Knots. Both species utilize sand bars and mud flats to forage. The shoreline of Keystone Lake within the Project Area may provide limited suitable habitat, however much more suitable sites can be found along the Arkansas River.

Given the lack of open land within the Project Area suitable for growing flowering herbaceous plants, it is unlikely that the Monarch Butterfly would be found within the area.

While the American Burying Beetle (ABB) will utilize forested habitats that contain suitable soil types, the frequent flooding of the Project Area likely makes it unsuitable for ABBs.

The Peppered Shiner inhabits slow-moving, moderately deep (0.6-1.2 m or deeper) pool areas bordered by American water willow (*Justicia americana*) in medium-sized, warmwater streams. It is intolerant of reservoirs and impoundments, thus is unlikely to be found within the Project Area.

Considerations for Federally listed threatened and endangered species at Keystone Lake are in accordance with the USACE Tulsa District's current Biological Opinion (BO) issued by the USFWS. Should Federally listed species change in the future, associated requirements will be reflected in a revised BO from the USFWS. Natural resources needs and management for listed species at Keystone Lake would change accordingly.

3.7.1 Alternative 1: No Action Alternative

The No Action Alternative for the Keystone Lake Master Plan Supplement does not involve any activities that would contribute to changes in existing conditions. The USACE has

determined that there would be No Effect on any federally listed species, and would not jeopardize the continued existence of species proposed for Federal listing.

3.7.2 Alternative 2: Proposed Action

The reclassification required for the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of natural resources. Reclassification of the 30 acres of HDR to ESA would allow project lands to continue to provide protected habitats for federally listed species. The resource objectives associated with ESA classifications will require that threatened and endangered species are managed by various ecosystem management principles, which will further help those species. Any future activities that could potentially result in impacts to Federally listed species will be coordinated with USFWS through Section 7 of the Endangered Species Act (ESA). Within the context of the ESA, the USACE has determined that the implementation of the Proposed Action will have No Effect on any federally listed species, and would Not Jeopardize the Continued Existence of species proposed for Federal listing that may occur within the Proposed Action Area at Keystone Lake.

3.8 INVASIVE SPECIES

The Arkansas River basin has been identified as a major pathway for the introduction of aquatic nuisance species. Numerous vegetative species are considered special concerns in Oklahoma, including alligator weed (*Alternanthera philoxeroides*), Eurasian watermilfoil (*Myriophyllum spicatum*), hydrilla (*Hydrilla verticillata*), purple loosestrife (*Lythrum salicaria*), salvinia (*Salvinia molesta*), and water hyacinth (*Eichhornia crassipes*). Due to its proximity to the McClellan-Kerr Arkansas River Navigation System, Keystone Lake is particularly vulnerable to the transport by boaters of these invasive plants, as well as some invasive animal species.

In addition to aquatic invasive plants, Oklahoma has a total of 22 invasive plant species on the Oklahoma Invasive Plant Council problem list. Invasive terrestrial plants known to occur on Keystone Lake lands include Japanese honeysuckle (*Lonicera japonica*), Chinese lespedeza (*Lespedeza cuneata*), Japanese climbing fern (*Lygodium japonicum*), kudzu (*Pueraria lobata*), and autumn olive (*Elaeagnus umbellata*).

Table 3-3 lists the invasive species that occur on Keystone Lake fee lands. Data was retrieved from the FY2025 Project Site Invasive Species Records reported in OMBIL (USACE 2025).

Table 3-3 Invasive Species

Species Group	Common Name	Type of Occurrence	Acreage Impacted	Percent Acreage Impacted	Acreage Treated
Aquatic and Wetlands	Zebra mussel (<i>Dreissena polymorpha</i>)	Significant/Major	23,610	40.24%	0
Terrestrial Animals	Wild Boar (<i>Sus scrofa</i>)	Moderate	100	0.17	0
Terrestrial Plants	Kudzu (<i>Pueraria lobata</i>)	Moderate	100	0.17%	0
Terrestrial Plants	Red cedar (<i>Juniperus virginiana</i>)	Significant/Major	15,000	25.57%	0
Terrestrial Plants	Sericea Lespedeza (<i>Lespedeza cuneata</i>)	Significant/Major	8,000	13.64%	0
Terrestrial Plants	Johnson Grass (<i>Sorghum halepense</i>)	Moderate	1,000	1.70	0

3.8.1 Alternative 1: No Action Alternative

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; thus, so the Keystone Lake would continue to be managed according to the existing invasive species management practices. There would be no short- or long-term; minor, moderate, or major; or beneficial or adverse impacts from invasive species as a result of implementing the No Action Alternative.

3.8.2 Alternative 2: Proposed Action

The land reclassifications required to revise the Master Plan are compatible with Keystone Lake invasive species management practices. Therefore, invasive species would continue to be managed on the 30 acres of ESA, as needed. No reasonably foreseeable significant adverse impacts on resources would occur as a result of implementing revisions to the Master Plan.

3.9 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Cultural resources preservation and management is an equal and integral part of all resource management at Civil Works operating projects. The term “cultural resources” is a broad term meant to include anything that is of cultural significance to humans and that has some historical value, and generally includes, but is not limited to, the following categories of resources: archaeological sites (historic and prehistoric), historic standing structures, traditional cultural properties, and sacred sites. There are approximately 400 known archaeological sites located on project lands associated with Keystone Lake. Twenty-five of these sites are documented as completely inundated. Some archaeological sites have high sensitivity because of past recoveries of human remains and associated funerary objects.

Numerous cultural resources laws establish the importance of cultural resources to our Nation’s heritage. With the passage of these laws, the historical intent of Congress has been to ensure that the Federal government protects cultural resources. Stewardship of cultural resources on USACE Civil Works water resources projects is an important part of the overall Federal responsibility.

Section 2.10 of the 2016 Keystone Dam and Reservoir Master Plan provides a detailed discussion of the cultural history of the Keystone Lake region and past archaeological investigations that have occurred.

3.9.1 Alternative 1: No Action Alternative

There would be no additional short- or long-term, minor, moderate or major, beneficial or adverse impacts on cultural, historical, and archaeological resources as a result of implementing the No Action Alternative, as there would be no changes to the existing Master Plan.

3.9.2 Alternative 2: Proposed Action

The reclassification of the 30 acres of HDR to ESA would not change current cultural resource management plans or alter areas where these resources exist. A classification of ESA has the potential to provide increased protection for any cultural resources that might occur there. Typically, ESA designations do not allow for any development for public use, or possibly only limited use if the area is needed for a specific resource management benefit (e.g. prairie restoration, Endangered Species habitat development, etc.). The Proposed Action only changes the land use classification; it does not propose any ground disturbing activities. Any future ground disturbing activities would be evaluated for the potential to impact cultural, historical,

and archaeological resources that might occur there. There would be No Potential to Affect Historic Properties by changing the land use classification.

3.10 SOCIOECONOMICS

The region of interest utilized in the 2016 Master Plan revision for the socioeconomic analysis consists of Creek, Osage, Pawnee, Payne, and Tulsa Counties in Oklahoma. These counties are part of the Tulsa Metropolitan Statistical Area and include approximately 20% of the state’s Native American population.

3.10.1 Population

Population estimates for the region are 883,809 for 2020 as shown in Table 3-4. From 2020 to 2060, regional population is expected to increase to 1,012,634. The population of Oklahoma is also projected to increase at an annual rate of 0.6% per year. The distribution of the gender in the population of interest is approximately 50% male and 50% female (Table 3-5).

Table 3-4 2020 Population Estimates and 2060 Projections

Geographical Region	2020 Population Estimate	2060 Projection
Oklahoma	3,959,353	5,140,129
Creek County	71,754	72,997
Osage County	45,818	39,920
Pawnee County	15,553	14,161
Payne County	81,646	100,611
Tulsa County	669,279	784,945
Region of Interest Totals	883,809	1,012,634

Source: “Oklahoma Population Projection2020-2070” Oklahoma Department of Commerce, U.S. Bureau of the Census, American Fact Finder (March 2023)

Table 3-5 2020 Percent of Population Estimate by Gender

Geographical Region	Male	Female
Creek	49.6%	50.4%
Osage	50.5%	49.5%
Pawnee	50.1%	49.9%
Payne	51.3%	48.7%
Tulsa	49.0%	51.0%
Region of Interest Totals	50.1%	49.9%

Source: U.S. Bureau of the Census, American Fact Finder (2020 Estimate)

Population by race or Hispanic origin is displayed in Table 3-6. For the region of interest, approximately 61.4% of the population is White alone. American Indian or Native Alaskan account for 6.7% of the inhabitants of the region. Two or more races make up 13.8% of the total, Hispanic or Latino makes up approximately 6% and Black makes up almost 9% of the region’s population. The remainder of the races makes up less than 2% of the total regional population. By comparison, for the State of Oklahoma, 63.5% of the population is White alone, 5.4% Hispanic, 8.4% American Indian/Native Alaskan, 7.3% Black, 12.8% two or more races, and 2.3% Asian.

Table 3-6 2020 Population Estimate by Race or Hispanic Origin

Region	White Alone	Black Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Two or more races	Hispanic or Latino
Oklahoma	2,514,885	289,961	332,791	90,949	8,608	508,158	214,001
Creek County	52,436	1,480	7,188	309	67	9,038	1,236
Osage County	27,903	4,842	6,555	128	19	5,637	734
Pawnee County	11,702	79	1,960	50	0	1,595	167
Payne County	60,654	3,195	3,797	2,673	59	9,352	1,916
Tulsa County	390,702	67,414	40,047	25,122	1,099	96,880	48,015
Region of Interest Totals	543,397	77,010	59,547	28,282	1,244	122,502	52,068

Source: U.S. Census Bureau, Census Data Quick Facts (2020)

3.10.2 Education and Employment

In the zone of interest, 79% of the population 25 years old and older have received a high school diploma or equivalent. Twenty-six percent have a bachelor's degree or higher. For Oklahoma, 89% of the population aged 25 and over have at least a high school diploma while almost 28% have a bachelor's degree or higher.

3.10.3 Households and Income

There are 1.54 million households with an average size of 2.51 in Oklahoma. There are approximately 352,000 total households in the region of interest where the average household size is 2.5. As shown in Table 3-7, income in all counties in the Region of Interest, with the exception of Tulsa County, are lower than the state average of \$63,603 per year. approximately \$48,000 per year. County per capita income follows the same pattern as median household income.

Table 3-7 Households and Income

Region	Total Number of Households	Average household size	Median Household Income	Per Capita Income
Oklahoma	1,542,780	2.51	63,603	34,859
Creek County	27,830	2.57	61,849	31,986
Osage County	17,074	2.6	60,482	32,096
Pawnee County	6,002	2.58	57,551	28,960
Payne County	32,341	2.25	48,937	28,980
Tulsa County	268,530	2.47	67,317	39,673
Region of Interest Totals	351,777	2.5	NA	NA

Source: U.S. Census Bureau, Census Data Quick Facts (2020)

The number of persons whose income was below the poverty level was slightly higher in the region of interest (16.8%) as compared to Oklahoma (15.9%). All counties in the region of interest showed poverty levels between 14.2% and 22.0%.

3.10.4 Alternative 1: No Action Alternative

There would be no beneficial or adverse impacts on socioeconomic resources as a result of implementing the No Action Alternative, as there would be no changes to the existing Master Plan.

3.10.5 Alternative 2: Proposed Action

The reclassification of the 30 acres of HDR to ESA would not have an impact on the demographics of the area. The acres will continue to be managed as they have been in the current master plan. There would be no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on socioeconomic resources as a result of implementing the Proposed Action Alternative.

3.11 HEALTH AND SAFETY

As mentioned earlier in this document, Keystone Lake authorized purposes include flood control, water supply, water quality, and recreation. Compatible uses incorporated in project operation management plans include conservation and fish and wildlife habitat management components. The Keystone Lake has established public outreach programs to educate the public on water safety and conservation of natural resources. In addition to the water safety outreach programs, the project has established recreation management practices in place to protect the public. These include safe boating and swimming regulations, safe hunting regulations, and speed limit and pedestrian signs for park roads. Keystone Lake also has solid waste management plans in place for camping and day-use areas. Keystone Lake has personnel in place to enforce these policies, rules, and regulations during normal park hours.

3.11.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the 2016 Master Plan would not be revised. No significant adverse impacts on human health or safety would be anticipated.

3.11.2 Alternative 2: Proposed Action

Implementation of the Proposed Action would have no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on public health and safety. Existing regulations and safety programs throughout the Keystone Lake area would continue to be enforced to ensure public safety.

3.12 RECREATION

The recreational opportunities and potential of Keystone Lake are considered to be of great importance within the project's region of interest. The Keystone Lake project area offers many recreational activities such as swimming, boating, water skiing, fishing, hunting, picnicking, and camping, as well as multiple trails for hiking and biking. There are 12 High Density Recreation Areas on Keystone Lake, numerous boat ramps, four marinas, a yacht club, and one sailing club. Section 2.12 of the current Master Plan has a detailed description of recreational opportunities at Keystone Lake.

3.12.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the 2016 Master Plan would not be revised. No significant adverse impacts on recreational opportunities would be anticipated.

3.12.2 Alternative 2: Proposed Action

While the Proposed Action would reduce the HDR land classification by 30 acres, there would be no impact to the existing recreational resources at Keystone Lake. The 30 acres would be converted to ESA, which is how the acres are currently being managed due to being frequently flooded and unsuitable for any future recreational developments. There would be no reasonably foreseeable short- or long-term; minor, moderate, or major; or beneficial or adverse impacts on recreational opportunities as a result of implementing the Proposed Action.

4. COMPLIANCE WITH ENVIRONMENTAL LAWS

This EA has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the CEQ's implementing regulations for NEPA, 40 C.F.R. Parts 1500 – 1508, and the USACE's regulations at 33 CFR Part 230: *Procedures for Implementing NEPA*. The revision of the Master Plan is consistent with the USACE's Environmental Operating Principles. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

Fish and Wildlife Coordination Act of 1958, as amended – Because no construction or change in operation of the reservoir is proposed, there is no plan to coordinate under the Act; however, information provided by USFWS and the ODWC on fish and wildlife resources has been utilized in the development of this assessment.

ESA of 1973, as amended – Current lists of threatened or endangered species were compiled for the revision of the Master Plan. There will be no impact on threatened or endangered species resulting from the revision of the Master Plan.

EO 13186 (Migratory Bird Habitat Protection) – Sections 3a and 3e of EO 13186 directs Federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative impacts on migratory birds. The Master Plan revision will not result in impacts on migratory bird habitat.

Migratory Bird Treaty Act of 1918 (MBTA) – The MBTA of 1918 extends Federal protection to migratory bird species. The nonregulated “take” of migratory birds is prohibited under this act in a manner similar to the prohibition of “take” of threatened and endangered species under the ESA. The timing of resource management activities would be coordinated to avoid impacts on migratory and nesting birds.

Clean Water Act of 1977 – The Proposed Action is in compliance with all state and Federal Clean Water Act regulations and requirements and is regularly monitored by the USACE for water quality. A state water quality certification pursuant to Section 401 of the Clean Water Act is not required for the Master Plan revision. There will be no change in the existing management of the reservoir that would impact water quality.

NHPA of 1966, as amended – Compliance with the NHPA of 1966, as amended, requires identification of all properties in the project area listed in, or eligible for listing in, the National Register of Historic Places. All surveys and site salvages were coordinated with the Oklahoma SHPO. Known sites are mapped and avoided by maintenance activities. Areas that have not undergone cultural resources surveys and/or evaluations will need to do so prior to any earth-moving or other potentially impactful activities.

CAA of 1977 – The USEPA established nationwide air quality standards to protect public health and welfare. Existing operation and management of the reservoir is compliant with the CAA and will not change with the Master Plan revision.

Farmland Protection Policy Act (FPPA) of 1980 and 1995 – The FPPA's purpose is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. Prime Farmland is present on Keystone Lake project lands. The Proposed Action would not impact Prime Farmland present on Keystone Lake project lands.

EO 11990, Protection of Wetlands – Executive Order 11990 requires Federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in executing Federal projects. The Proposed Action complies with EO 11990.

EO 11988, Floodplain Management – This Order directs Federal agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and management of the existing project complies with EO 11988.

CEQ Memorandum dated August 11, 1980, Prime or Unique Farmlands – Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and that is also available for these uses. The Proposed Action would not result in significant impacts on Prime Farmland present on Keystone Lake project lands.

5. IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

NEPA requires that Federal agencies identify “any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented” (42 U.S.C. § 4332). An irreversible commitment of resources occurs when the primary or secondary impacts of an action result in the loss of future options for a resource. Usually, this is when the action affects the use of a nonrenewable resource, or it affects a renewable resource that takes a long time to renew. The impacts for this project from the reclassification of land would not be considered an irreversible commitment because much of the land could be converted back to prior use at a future date. An irretrievable commitment of resources is typically associated with the loss of productivity or use of a natural resource (e.g., loss of production or harvest). No irreversible or irretrievable impacts on Federally protected species or their habitat is anticipated from implementing revisions to the Keystone Lake Master Plan.

6. PUBLIC AND AGENCY COORDINATION

In accordance with 33 Code of Federal Regulations, Part 230, the USACE initiated public involvement and agency scoping activities to solicit input on the proposed Master Plan Supplement. A two-week public comment period (February 2 – February 16, 2026) will be advertised on the USACE Tulsa District webpage and social media sites notifying the public of the availability of the draft Master Plan Supplement, draft Environmental Assessment, and draft Finding of No Significant Impact, dates of the comment period, and instructions for providing comments. The EA will be coordinated with agencies having legislative and administrative responsibilities for environmental protection.

Appendix A will include copies of the media releases, agency coordination letters and their distribution list, as well as a summary of comments received during the comment period upon completion.

7. REFERENCES

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- Moore, Bruce M. 1980. A Cultural Assessment of the Archaeological Resources in the Keystone Lake Project Area, North-Central Oklahoma. Report submitted to USACE, Tulsa District, under Contract No. DACW56-79-C-0259. Archeological Research Associates.
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- USACE. 2013. Transmittal of USFWS Biological Opinion to USFWS, Tulsa District, in reply to FWS/R2/OKES/2012-F-0391, 2013-F-0935. April 10, 2013.
- USACE. 2016. Keystone Dam and Reservoir, Oklahoma Master Plan Revision. May 2016.
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- USFWS 2018. U.S. Fish and Wildlife Service. 2018. Species status assessment report for the Arkansas River shiner (*Notropis girardi*) and peppered chub (*Macrhybopsis tetranema*), version 1.0, with appendices. October 2018. Albuquerque, NM. 172 pp.
- USFWS. 2026. U.S. Fish and Wildlife Service Information for Planning and Consultation Web Tool. Accessed January 21, 2026.
- USFWS 2025. U.S. Fish and Wildlife Service. ECOS. Species Profile: Peppered Chub (*Macrhybopsis tetranema*). Retrieved from <https://ecos.fws.gov/ecp/species/532> on April 12, 2025.

8. LIST OF PREPARERS

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Elizabeth Knapp – Biologist; Regional Planning and Environmental Center, USACE; 4 years of experience



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
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Tulsa, OK 74129-1428
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In Reply Refer To:

01/21/2026 17:05:21 UTC

Project Code: 2025-0056195

Project Name: KEYSTONE LAKE MASTER PLAN UPDATE ADD ESA ACRES PROJECT
SITE

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oklahoma Ecological Services Field Office

9014 East 21st Street

Tulsa, OK 74129-1428

(918) 581-7458

PROJECT SUMMARY

Project Code: 2025-0056195

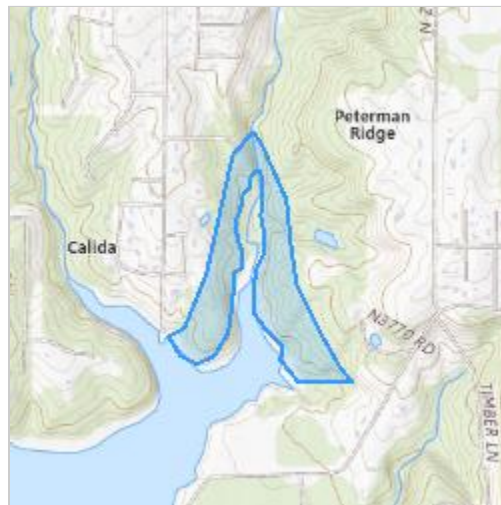
Project Name: KEYSTONE LAKE MASTER PLAN UPDATE ADD ESA ACRES
PROJECT SITE

Project Type: Land Preservation

Project Description: This project entails a minor revision to the 2016 Keystone Lake Master Plan to add 30 acres of previously unclassified lands to the Environmentally Sensitive Area (ESA) land classification. This addition will increase the total ESA acreage on Keystone Lake to 196 acres. ESA land classifications are areas where scientific, ecological, cultural, and aesthetic features have been identified. Designation of these lands is not limited to lands that are otherwise protected by laws, such as the Endangered Species Act, the NHPA, or applicable State statutes. These areas must be considered by management to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@36.1930878,-96.29235604847756,14z>



Counties: Pawnee County, Oklahoma

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [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.

BIRDS

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
Alligator Snapping Turtle <i>Macrochelys temminckii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

FISHES

NAME	STATUS
Peppered Chub <i>Macrhybopsis tetranema</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/532	Endangered

INSECTS

NAME	STATUS
American Burying Beetle <i>Nicrophorus americanus</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	Threatened
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

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 OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

-
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
 2. The [Migratory Birds Treaty Act](#) of 1918.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information](#)

[on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>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.</p> <p>https://ecos.fws.gov/ecp/species/1626</p>	<p>Breeds Sep 1 to Jul 31</p>

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 "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

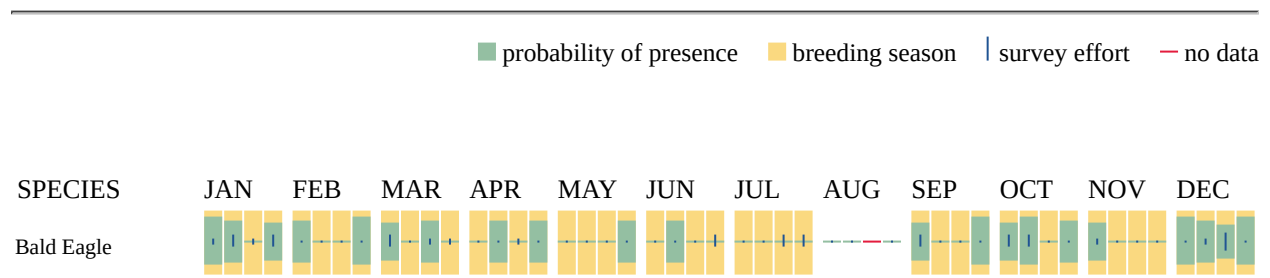
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)

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



Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>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.</p> <p>https://ecos.fws.gov/ecp/species/1626</p>	Breeds Sep 1 to Jul 31
<p>Chimney Swift <i>Chaetura pelagica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9406</p>	Breeds Mar 15 to Aug 25

NAME	BREEDING SEASON
Least Tern <i>Sternula antillarum antillarum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Little Blue Heron <i>Egretta caerulea</i> 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/9477	Breeds Mar 10 to Oct 15
Prairie Loggerhead Shrike <i>Lanius ludovicianus excubitorides</i> 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/8833	Breeds Feb 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10

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 "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

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

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.

LAKE

- L2USCh
- L1UBHh

RIVERINE

- R5UBF

FRESHWATER EMERGENT WETLAND

- PEM1Ah

IPAC USER CONTACT INFORMATION

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