LAKE O' THE PINES, TEXAS

SHORELINE MANAGEMENT PLAN 2019

SUPPORTING THE 2019 LAKE O' THE PINES MASTER PLAN

US ARMY CORPS OF ENGINEERS

FORT WORTH DISTRICT

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APPROVED BY THE

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EXECUTIVE SUMMARY

PURPOSE

The purpose of this Shoreline Management Plan (SMP), previously known as the Lakeshore Management Plan, is to establish policies and set guidelines by which the U.S. Army Corps of Engineers manages certain private development and use of public lands and waters along the shoreline of Lake O' the Pines.

VISION

Lake O' the Pines is managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide outdoor recreation opportunities that complement overall project purposes for the benefit of present and future generations.

PUBLIC INPUT

The 2019 SMP revision included public participation with scoping meetings held 9 May 2019 in Jefferson, TX and 22 May 2019 in Longview, TX, with 42 and 32 people in attendance, respectively. The summary of comments received during the 30-day public comment period, ending 22 June 2019 can be found in Appendix G. The public meetings to review the final draft will be held in November 2019.

PRIMARY CHANGES FROM THE 1978 SHORELINE MANAGEMENT PLAN

Changes to the shoreline designation were a result of historical uses, changes in federal regulations, and public input, as well as alignment with the 2019 Lake O' the Pines Master Plan. The changes to the shoreline designations from the 1978 SMP to the 2019 SMP as are follows:

SHORELINE DESIGNATION	1978 DESIGNATED MILES	2019 DESIGNATED MILES	DIFFERENCE
Prohibited Access Area	.9	1.3	0.4
Protected Shoreline Area	151.3	163.0	11.7
Limited Development Area	10.6	10.5	-0.1
Public Recreation Area	26.4	15.5	-10.9

The primary policy and management changes to SMP are due to changes in Public Law or Engineer Regulation since the implementation of the plan, changes in land use classifications with the Master Plan update, and adopting specific dock and vegetation alteration criteria that have been in use for years. A detail description of changes from the 1978 to the 2019 SMP can be found in Appendix H of this Plan.

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LAKE O' THE PINES

SHORELINE MANAGEMENT PLAN

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SECTION 1: INTRODUCTION

1.1 PURPOSE: The purpose of this Shoreline Management Plan (SMP), previously known as the Lakeshore Management Plan, is to establish policies and set guidelines by which the U.S. Army Corps of Engineers (USACE) manages certain private development and use of public lands and waters along the shoreline of Lake O' the Pines.

1.2 OBJECTIVES: The objectives of the SMP are to administer all shoreline management actions to achieve a balance between permitted private uses and protection of natural resources and environmental quality for general public use.

1. To manage and protect shoreline under jurisdiction of the Chief of Engineers.
2. To establish, conserve, and maintain sustainable natural resources, including fish and wildlife habitat, and promote environmental sustainability and aesthetic quality.
3. To promote a reasonably safe and healthful environment for project visitors.
4. To provide pedestrian access to project lands and waters while maintaining the shoreline for general public use.
5. To manage private use of public property to the degree necessary to gain maximum benefits to the public.
6. To encourage boat owners to moor their boats at commercial marinas, utilize dry storage off project lands, or to trailer their boats to commercial or public launching ramps.
7. To ensure the SMP compliments and does not contradict the 2019 Lake O' the Pines Master Plan.

1.3 AUTHORITY: The authority to implement the SMP is Engineer Regulation (ER) 1130-2-406, Shoreline Management at Civil Works Projects, originally dated 13 December 1974, revised 31 October 1990. Two minor revisions were added to the regulation on 14 September 1992, and 28 May 1999.

1.4 APPLICABILITY: This plan is applicable to Lake O' the Pines, Texas. Within ER 1130-2-406, and this SMP, private shoreline use is described as any action that gives a special privilege to an individual or group of individuals on land or water at a USACE project that precludes use of those lands and waters by the general public. The shoreline is defined as all land along the perimeter of the lake lying between and bounded by the shoreline formed at the minimum conservation pool elevation of 228.5 feet National Geodetic Vertical Datum

(NGVD29) and the boundary of the Government fee owned land. Approximately 29,033 acres are owned in fee title for the dam site and reservoir. Approximately 16,058 acres of flowage easements are located between the fee boundary and flowage easement boundary, which is approximately the 254.5 feet NGVD29 contour. This SMP establishes what private facilities and activities will be permitted on government property along the project shoreline. No other governmental entity has jurisdiction over the administration of the SMP at Lake O' the Pines. Rules and regulations applicable to shoreline management are addressed in Title 36, Chapter III, Part 327, Code of Federal Regulations (CFR), and are enforced by the USACE.

1.5 REFERENCES: Approximately 50 Public Laws, Executive Orders and Engineer Regulations may apply to various aspects of this plan. A comprehensive listing of these references can be found in ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies. A copy of ER 1130-2-540 and ER 1130-2-406 is available electronically at the USACE website at (https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/). The following is a list of those Public Laws, Executive Orders, and Engineer Regulations that bear significantly on the USACE shoreline management program:

- Public Law (PL)91-190, National Environmental Policy Act of 1969, as amended (42 USC 4231, et seq.), 1 January 1970.
- The Clean Water Act (33 U.S.C. 1344, et seq.).
- PL 86-717, Forest Cover Act (74 Stat. 817, 16 U.S.C. 580m et seq.), 6 September 1960.
- 16 USC. 470aa - 470mm, PL 100-588; 102 Stat. 2983, Archaeological Resources Protection Act (ARPA) of 1979, as amended.
- PL 93-205, Endangered Species Act of 1973, as amended (87 Stat 884, 16 USC 1531(b)).
- Executive Order (EO) 11990, Protection of Wetlands, 24 May 1977.
- EO 13112, Invasive Species, February 3, 1999.
- EO 11644, Use of Off-Road Vehicles on Public Lands, 08 February 1972.
- Engineer Regulation (ER) 1130-2-406, Shoreline Management at Civil Works Projects, 31 October 1990.
- ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 15 November 1996.
- Engineer Pamphlet (EP) 1130-2-550, Recreation Operations and Maintenance Guidance and Procedures, 15 November 1996.
- Section 4, 1944 Flood Control Act, as amended, Public Law 87-874.

1.6 PLANNING: The overall management of project lands, water surface, and related public recreational use is guided by the 2019 Lake O' the Pines Master Plan, which is a strategic plan that establishes broad management goals, objectives, and land use classifications. Complementing the Master Plan is an Operational Management Plan, which is an implementation plan establishing a five-year projection of work items and initiatives, which support the Master Plan. This SMP, in accordance with Engineer Pamphlet (EP) 1130-2-550, is a part of the Operational Management Plan and must, to the extent possible within constraints imposed by public law and agency policy, support the goals and objectives of the Master Plan.

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SECTION 2: PROJECT DESCRIPTION

2.1 GENERAL: Lake O' the Pines was created by the construction of Ferrells Bridge Dam, a multipurpose project authorized by the Flood Control Act of 1946, Public Law 526, approved 24 July 1946. Impoundment of water began in August 1957 and the lake was fully operational in December 1959. A complete description of the environmental and socioeconomic setting, as well as a brief overview of the technical flood and water supply operational factors influencing the management of natural resources and public use at the lake can be found in the project Master Plan, dated January 2019, available at the project office and online at the USACE district website (https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/).

The dam site is located in Marion County, Texas, on Big Cypress Creek at mile 81.2 above its mouth at the Red River and approximately 9 miles west of Jefferson, Texas. The lake area extends throughout portions of Marion, Harrison, Upshur, Morris, Camp and Titus Counties, Texas. Topography of the area is generally rolling, hilly uplands with wide flat floodplains and terraces. Some hills, visible from the lake, rise as much as 200 feet above the shoreline. The major forest type of the region is short-leaf and loblolly pine. Mixed pine and oak forest types occupy shallow bottomland and hillsides, while pine is the major species occurring on hilltops and ridges. In bottoms along Big Cypress Creek and other streams, the major forest type is Oak-Gum-Cypress.

2.2 AUTHORIZED PURPOSE: Ferrells Bridge Dam was constructed for the purpose of flood risk management and water supply storage. It was authorized as part of the comprehensive plan for flood control on the Red River below Denison Dam, Oklahoma-Texas by the Flood Control Act of 1946 approved 24 July 1946 (Public Law 526, 79th Congress, 2nd Session). In addition to flood control and water supply benefits, project forest land and water resources provide for fishing, hunting, camping, picnicking and other outdoor recreation opportunities and related public benefits. Lake O' the Pines is currently managed for flood control, water supply, recreation, fish and wildlife habitat, environmental quality, and the conservation of natural resources.

2.3 OPERATIONAL CONCEPT: The authorized level of the flood control pool at elevation 249.5 feet NGVD29 covers an area of 17,767 surface acres between the conservation pool and the top of the flood control pool. The water supply pool maintained for domestic and industrial supply has a capacity of 241,363 acre-feet (2009 Texas Water Development Board (TWDB) Survey) at lake elevation 228.5 NGVD29 and covers an area of 17,638 acres, ranging for a distance of 18 miles upstream. A seasonal recreation pool of 19,780 acres at 230.0 feet NGVD29 is provided from 20 May to 15 September. As of the date of this SMP, the lowest pool elevation was 222.88 feet NGVD29 on 20 December 2006, and the highest pool elevation was 245.50 feet NGVD29 on 05 May 1966. The approved

plan of operation has minimal effect on recreation and other activities at the reservoir; the elevation difference between the regulated water supply and recreation pool is 1.5 feet.

2.4 HISTORY: At Lake O' the Pines and numerous USACE lakes across the nation, during the period between 1959 and 1970, there was a proliferation of private use of public land by adjacent private landowners. Many permits were issued for the placement of private floating facilities on federal lands and waters and to perform vegetation modification activities such as landscaping and mowing. Ultimately, the relatively unregulated rapid growth of private facilities and activities at Lake O' the Pines and similar USACE lakes caused a loss of environmental and aesthetic qualities, as well as a loss of public outdoor recreation opportunity, as portions of the shoreline became dominated by private structures and uses. After several years of intense public and political interest on the issue of private use of USACE-administered public lands, the USACE published a new regulation, ER 1130-2-406, on 13 December 1974, entitled Lakeshore Management at Civil Works Projects (later renamed Shoreline Management at Civil Works Projects when the regulation was re-published in October 1990). This new regulation, published as section 327.30 of Chapter III, Title 36 of the Code of Federal Regulations, established significant new restrictions on private uses at USACE lakes. These restrictions remain in place as of the date of this plan. Key among the mandates included in the new regulation was the prohibition of private facilities on new lakes and on operating lakes where no private facilities existed as of 13 December 1974. At operating lakes where permitted private facilities were present as of 13 December 1974, the new regulation required preparation of a SMP to describe how private facilities and activities would be managed from that date forward.

2.5 SMP REVISION: In 2019, the SMP was revised to align with the 2019 Master Plan, incorporate current terminology (such as "Shoreline Management" instead of "Lakeshore Management") and to insure compliance and compatibility with ER 1130-2-406 and ER 1130-2-540, as well as Fort Worth District policy decisions related to shoreline management. The primary reasons for the revision of the SMP was to incorporate language that supports the USACE natural resources mission statement to "manage and conserve natural resources consistent with ecosystem management principles" as set forth in ER 1130-2-540, align the SMP with the MP, while ensuring public participation in the revision process and compliance with the National Environmental Policy Act (NEPA).

2.6 PUBLIC INVOLVEMENT AND RELATED ACTIONS: Public involvement took place when the draft of ER 1130-2-406 was made available for public comment through publication in the Federal Register on 30 May 1974. Following an intensive public involvement process, the original version of the SMP for Lake O' the Pines was approved on 11 October 1978.

The 2019 SMP revision included public participation with scoping meetings held 9 May 2019 in Jefferson, TX and 22 May 2019 in Longview, TX, with 42 and 32 people in attendance, respectively. The summary of comments received during the 30-day public comment period, ending 22 June 2019 can be found in Appendix G. The public meetings to review the final draft will be held in November 2019.

Photo 1 Initial Public Scoping Meeting in Jefferson, Texas

2.6.1 MINOR CHANGES PRIOR TO 2019 REVISION: Two minor changes, spurred by public request and followed by review and public involvement comment periods, were made to the SMP in the late 1980's. In 1986, a new section of Limited Development Area was designated in the Driftwood Cove Subdivision. This change was made because the residents of the shoreline area in question had inadvertently failed to be adequately represented during preparation of the SMP. In 1989, a section of Public Recreation Area was converted to Limited Development Area in the Tejas Village area, to allow for permitting of a community dock at a location previously occupied by a commercial marina.

2.6.2 PRIMARY CHANGES AS A RESULT THE 2019 SMP REVISION: Several changes were made from the 1978 SMP. These include changes due to updates to Public Law or Engineer Regulation since the implementation of the plan, changes in land use classifications with the Master Plan update, and adopting specific dock and vegetation alteration criteria that have been in use for years. A detailed summary of all the changes that occurred as a result of the 2019 SMP revision can be found in Appendix H.

2.7 2002 WATER-RELATED RECREATION DEVELOPMENT POLICY – FORT WORTH DISTRICT: Following a comprehensive boating-use study conducted at Lewisville Lake in 1997-2000, the Fort Worth District used the findings from that study to adopt a district-wide Water-Related Recreation Development Policy on 30 April 2002. This policy sets a target boating capacity for all Fort Worth District lakes of 22 acres per boat during peak recreational periods. This policy affects decisions made regarding proposed expansion of facilities such as marinas or private docks with wet slips, community docks, and boat ramp parking lots. However, the policy should have negligible effect on private boat dock decisions at Lake O' the Pines because permanent boat storage is not permitted at individually owned docks.

2.8 2019 LAKE O' THE PINES MASTER PLAN: The Master Plan for Lake O' the Pines established broad resource use objectives and land classifications that guide future management of natural resources and recreational activities at Lake O' the Pines. As previously stated, the administration of the SMP must, to the extent possible within constraints imposed by public law and agency policy, support the goals and objectives of the Master Plan. Any future changes to the SMP that could result in substantive changes to policy or procedures would require additional public involvement.

2.9 PUBLIC USE AREAS: At present, there are ten (10) developed public-use areas around the lake, consisting of four (4) campgrounds and six (6) day-use areas (see maps in Appendix A for locations). Improvements at these areas generally include access and circulation roads, restroom facilities, bathhouses or washhouses, potable water supplies, sanitary dump stations, swimming beaches, picnic sites with tables, fire rings, trash dumpsters, shelters, parking areas, and campsites.

Earlier development of public recreation areas allowed the uncontrolled mixing of camping and day-use recreational activities. In many cases, this resulted in overcrowding, overuse and subsequent degradation of natural resources in the developed areas. Present planning and development practices provide for separation of overnight and day-use recreation activities, and for the establishment of more recreation facilities designed to optimize public benefit from recreational use of the land, while minimizing environmental impacts from such uses. In addition to the 10 developed public use areas around the lake, there are 28 boat launching ramps with 17 operated by USACE and 11 operated by Marion County. The USACE provides nine courtesy docks at ramps, while Marion County provides two. Currently, five USACE ramps may be used free of charge.

2.10 FLOWAGE EASEMENT: Flowage easements were purchased by the Government so that water could occasionally flood property owned by others in conjunction with the authorized operation of the project. Each deed should be read carefully to determine the method by which the Government acquired the flowage easement and to identify which

restrictions are included in the easement. Land acquisition for Lake O' the Pines took place under the 1953 - 1962 acquisition policy, sometimes referred to as the Eisenhower Policy, which was a very conservative land acquisition policy that applied to water resource projects administered by the Department of the Army and Department of the Interior. In general terms, this policy directed USACE to acquire fee simple interests only on lands lying below the five-year flood frequency level. Flowage easements were then obtained on lands above this level to the full pool level. Minimum additional lands were acquired in fee simple or through easements where needed for operations or for public access.

In accordance with the 1953 - 1962 Joint Acquisition Policy and pool elevation-frequency studies, the five-year flood contour was established at 236.0 feet NGVD29 at Lake O' the Pines, but in some areas the Government acquired fee simple interest up to elevation 254.5 NGVD29 (sometimes called the upper guide taking contour). Below this guide taking contour, 29,033 acres of land were acquired in fee simple, which includes land for public use areas.

In most areas lying between elevation 236.0 feet and 254.5 feet NGVD29, a perpetual flowage easement was acquired, based on the upper guide taking contour or by meets and bounds. In total, a flowage easement was acquired on 16,058 acres. The flowage easement prohibits the landowner from taking any action that might injure or destroy the easement. Construction of buildings for human habitation, alteration of the existing terrain in a way that reduces flood storage capability, or raises the elevation of the land above 254.5 feet NGVD29 is not be permitted in the flowage easement. The placement of most structures and improvements in the flowage easement requires formal written authorization from the Fort Worth District Real Estate Division.

2.11 Prospective buyers of property adjacent to Lake O' the Pines are strongly encouraged to determine the location of the flowage easement line on any property they are considering purchasing. Flowage easements may or may not be included on deeds or plats provided by seller(s). Guidelines and policy set forth in this SMP do not apply to flowage easement lands.

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SECTION 3: SHORELINE ALLOCATION AND DESCRIPTION

3.1 GENERAL: Engineer Regulation 1130-2-406, Shoreline Management at Civil Works Projects, establishes policy to manage the shoreline of Lake O' the Pines so as to maximize benefits to the visiting public, protect natural resources, and minimize the appearance of private use of the public land. During formulation of this plan the shoreline was allocated in accordance with criteria established in ER 1130-2-406. Shoreline allocations are subservient to the land classifications in the Master Plan. The following shoreline allocations have been made in accordance with the stated policy and objectives and in consideration of their relationship to the operating criteria of the lake and physical characteristics of the surrounding shoreline. Public comment was also considered in the designation of shoreline allocations. Table 3.1 details the shoreline allocation changes made from the 1978 SMP:

Table 3.1 Changes in Shoreline Designation Miles

DESIGNATION	1978 MILES	2019 MILES	DIFFERENCE
Prohibited Access Area	0.9	1.3	0.4
Protected Shoreline Area	151.3	163.0	11.7
Limited Development Area	10.6	10.5	-0.1
Public Recreation Area	26.4	15.5	-10.9

The changes in Protected Shoreline Areas and Public Recreation Areas were a result of a decrease in the High Density Recreation Areas and increase in Environmentally Sensitive Areas around the lake, which align with the 2019 Master Plan. The slight reduction in Limited Development Areas resulted from the need to reallocate small areas that are unsuitable for boat docks due to shallow water depths or wave action. The 1.1 miles reduction overall in shoreline miles is a result of erosion over the past 40 years and improved measurement technology.

3.2 LIMITED DEVELOPMENT AREAS: Limited development areas are those areas of fee-owned USACE land adjacent to private land holdings that have been developed for private homes and whose location and physical characteristics conform to the criteria established in this plan as qualifying for limited development status. The requisite criteria are as follows:

- Limited development areas must be adjacent to existing high density private residential developments.

- Limited development areas shall be located in coves, or small inlets that afford some degree of natural protection from high winds and wave action, and must

have adequate water depth to accommodate pool fluctuations. Limited development shall not be located in areas subject to severe shoreline erosion, the presence of steep bluffs, or environmentally sensitive areas.

- Limited development areas must provide a visually pleasing natural appearance when viewed from the open lake, being planted only in native trees, vines, shrubs, groundcovers, and grasses, and thus maintaining general aesthetic and environmental qualities found along the naturally vegetated shoreline. Formal landscaping practices through plantings or maintenance practices are prohibited. In addition, vegetable gardening, row cropping, and other agricultural practices are prohibited.

- Shoreline segments where only scattered or isolated private facilities or vegetation modifications exist under previous permits do not qualify for limited development status.

- A limited development area shall not be located proximate to developed or proposed public recreation areas unless a vegetative buffer can be established along the perimeter of the public use area to maintain its desired environmental characteristics and aesthetic quality.

- Existing private use facilities located on Government land and within areas zoned for limited development will, in general, be allowed to remain provided they meet the criteria established in this plan. After proper application and approval by the Lake Manager, permits may be issued for existing or new facilities located in these areas provided the density of such facilities does not exceed 50 percent of the shoreline that is suitable for the placement of floating facilities and a spacing of 75 feet between facilities is maintained. Permits may also be issued for vegetation modification such as mowing and clearing of vegetation and underbrush, in accordance with section 4.1.1 of this plan, as approved by the Lake Manager. Erosion and shoreline protection measures may also be authorized by a real estate license if permanent structures on private land are threatened by shoreline erosion. There are 10.5 miles of Limited Development shoreline, designated on the map in yellow in Appendix A.

3.3 PUBLIC RECREATION AREAS: Public recreation areas are those shoreline segments adjacent to developed or proposed public use and commercial concession areas. These areas have controlled access for the protection of the park and their users. An adequate vegetative buffer has been established around each public use area to maintain aesthetic and environmental qualities. Neither private use privileges nor facilities, nor vegetation and

landform modifications by private individuals are allowed or permitted in these areas. Activities in commercial concession areas are governed by the conditions contained in the concession lease and are not subject to the permit requirements of this plan. There are 15.5 miles of Public Recreation shoreline, designated on the map in blue in Appendix A. The reduction in shoreline miles of Public Recreation Areas depicted in Table 3.1 was to align the SMP with changes made to the land classifications in the 2019 Master Plan revision.

3.4 PROTECTED SHORELINE AREAS: Protected shoreline areas are designated primarily to protect aesthetic, environmental, cultural, and fish and wildlife resources. The shoreline may also be designated in the category for physical protection reasons, such as heavy siltation or exposure to high winds and wave action. Pedestrian access and boating are permitted along protected shorelines provided that protected resource values are not damaged or destroyed. In general, private shoreline use that existed in these areas prior to December 13, 1974, will be allowed to continue. However, no new private shoreline use, including floating facilities and major mowing or vegetation modifications, will be permitted in these areas. Although these shorelines are available for general recreational purposes, no developed public use facilities are provided. Subsequent to proper application and review, minor mowing and/or under-brushing may be permitted in these areas for the purpose of wildfire prevention. There are 163.0 miles of Protected Shoreline that are designated on the map in green in Appendix A.

3.5 PROHIBITED ACCESS AREAS: These shoreline areas are allocated for project operation facilities, protection of sensitive resources, and the physical safety of recreation visitors. This allocation includes hazardous areas that are restricted from public access near the dam embankment, outlet works, stilling basin, uncontrolled spillway, and all municipal water intake locations. Fishing is allowed at the outlet structure downstream from the dam. There are 1.3 miles of Prohibited Access shoreline, of which no private shoreline uses are permitted, designated on the map in red in Appendix A.

SECTION 4: PLAN IMPLEMENTATION

4.1 GENERAL: The objective of ER 1130-2-406 is to limit the expansion of private use of public lands, and to manage the Lake O' the Pines shoreline to maximize benefits to the visiting public while honoring past written commitments to private individuals. This SMP encourages the use of public facilities and commercial establishments, and discourages any private development that affects aesthetic quality or natural environmental conditions of the shoreline. All private shoreline use requires the issuance of a Shoreline Use Permit, ENG Form 4264R, as described below for each shoreline allocation (see Appendix B).

There are four shoreline designations at Lake O' the Pines, which include Limited Development Areas; Protected Shoreline Areas; Public Recreation Areas; Prohibited Access Areas. These designations include USACE rules and guidelines for how each type of shoreline management.

4.1.1 LIMITED DEVELOPMENT AREAS: Existing Shoreline Use Permits, in areas designated as limited development, will generally be allowed to continue when in accordance with SMP requirements and permit conditions. Applications for new permits for private use activities, in areas designated as limited development, will be accepted and reviewed by the Lake Manager. There are 10.5 miles of Limited Development Areas at Lake O' the Pines.

4.1.2 PROTECTED SHORELINE AREAS: Existing Shoreline Use Permits, in areas designated as protected shoreline will generally be allowed to continue when in accordance with SMP requirements and permit conditions. Applications for new permits for private use activities in areas designated as protected shoreline will generally be denied due to the intent of the SMP to discourage expansion of private use and to maximize benefits to the public at large. Exceptions may only be made for minor vegetation alteration for pedestrian access paths and fire hazard reduction. There are 163 miles of Protected Shoreline Areas at Lake O' the Pines.

4.1.3 PUBLIC RECREATION AREAS: No private shoreline use is allowed in public recreation areas. There are 15.5 miles of Public Recreation Areas at Lake O' the Pines.

4.1.4 PROHIBITED ACCESS AREAS: No private shoreline use is allowed in prohibited access areas. There are 1.3 miles of Prohibited Access Areas at Lake O' the Pines.

4.2 SHORELINE USE PERMITS: Private facilities and activities require a Shoreline Use Permit. Shoreline Use Permits are issued and enforced in accordance with provisions of Section 327.19, Chapter III, Title 36, Code of Federal Regulations. Permits are issued by the

Lake Manager for private shoreline uses; including minor vegetation modification including mowing and under-brushing; pedestrian access paths; fire hazard reduction and tree cutting; and private floating facilities; all described below. Permits are typically valid for five (5) years unless otherwise indicted on the Shoreline Use Permit.

4.2.1 VEGETATION ALTERATION: Vegetation alteration along the shoreline will generally be allowed where previously permitted. Applications for new permits will be accepted and reviewed in limited development areas. Applications for new permits in protected areas, at locations not previously permitted, will be considered only for pedestrian access paths and fire hazard reduction permits. Vegetation modification in the form of under-brushing and mowing may be allowed in protected areas only where such activities have been previously permitted and after proper application and permit issuance. Otherwise, vegetation other than as specifically prescribed shall not be damaged, destroyed, removed, or altered in any manner. The following conditions apply to all vegetation alteration Shoreline Use Permits:

1. Only hand-held tools and small lawn maintenance equipment may be used. No tractors, bulldozers, or heavy equipment of any kind may be used unless specifically authorized by permit conditions.

2. The size and species of trees or shrubs to be removed, as well as pruning limitations, will be specifically listed in the permit conditions.

3. The area subject to a vegetation alteration permit shall be described on the permit and accompanying map and shall be in compliance with conditions set forth in this plan as well as any special conditions required by the Lake Manager.

4.2.1.1 Mowing and Under-brushing: Vegetation alteration, in the form of mowing and clearing of underbrush, will be allowed in accordance with permit conditions. The use of herbicides for control of vegetation is prohibited. Vegetation modification permits will be issued to private individuals or groups of individuals. A vegetation modification permit does not convey any right to the permittee to discourage or prevent full and free public access and/or use of the project land.

4.2.1.2 Pedestrian Access Path: In Protected Shoreline Areas where no permits have been issued in the past, vegetation alteration may be permitted for the clearing of meandering, natural-surface trails to provide walking access to the shoreline. Applications will be considered by the Lake Manager on a case-by-case basis, and require onsite inspection to determine extent of conditions justifying a permit. Pedestrian access paths may also be permitted in limited development areas to provide access to a dock.

With exceptions as noted below, adjacent property owners may apply for a Shoreline Use Permit to clear a small, meandering path leading from their property to the shoreline. In general, existing paths are used for general pedestrian access to the shoreline, but a few existing paths are used for access to a permitted private floating facility. Areas where such paths are not allowed include areas allocated as Prohibited Access Areas and areas allocated as Public Recreation Areas where controlled public access is a necessity for security of park visitors. Requests for pedestrian access paths from individuals with special accessibility requirements will be handled on a case-by-case basis with the intent to allow reasonable access while preventing adverse impacts to natural resources. The following specific guidelines apply to pedestrian access paths, with additional guidelines in section 4.2.8 of this plan:

1. Path is for pedestrian foot traffic only and limited to 6 foot width.
2. Path blends naturally with existing topography and vegetation.
3. Precautions are taken to prevent erosion.
4. The path located on government property must be open to public traffic.
5. Neighbors living in close proximity to one another may be required to share a single path.
6. The permit does not convey the right to construct or place any structures such as steps, bridges, handrails, benches, signs, or light poles, or to make any changes in landform or topography.
7. The permit may contain other requirements deemed necessary by the Lake Manager.

4.2.1.3 Fire Hazard Reduction: In protected shoreline areas where no permits have been issued in the past, or were issued but not maintained in good standing, vegetation alteration may be permitted for limited under-brushing and mowing as required to reduce fire hazards to private homes located adjacent to the project boundary line. Applications will be considered by the Lake Manager on a case-by-case basis, and require an onsite inspection to determine extent of conditions justifying a permit and clearly delineate the limits of vegetation alterations to be allowed. If the USACE determines there is a valid need to reduce the risk of damage to private structures from wildfire, the Lake Manager will generally rely on criteria for Zone 1 "defensible space" within 30-feet of private structures as described by the Texas A&M Forest Service. In situations where 30-feet of defensible space does not exist on private property, USACE will work with the land owner to permit for a 30-foot defensible space combining both private and public space to equal 30 feet.

4.2.1.4 Tree Cutting: No living tree, bush, or shrub will be cut that has a base diameter of 2 inches or larger measured at 6 inches above the ground, without written permission from the Lake Manager in the form of a Shoreline Use Permit. Each tree that is permitted to be removed will be marked by the Lake Manager or representative. Firewood collection, for personal use only, may be authorized by the Lake Manager

under a separate permit. The sale of any cut tree is prohibited. The defacing of trees, rock, or any other natural materials along the shoreline by painting, coloring, or otherwise altering their appearance is prohibited. Grinding of stumps, within permitted mowing areas located within limited development shoreline areas, may be authorized by the Lake Manager under a separate permit. Tree cutting violations may be cited under the provisions of Title 36, Code of Federal Regulations, and may be cause to revoke any Shoreline Use Permits held by the violator, as well as incur fines and/or fees.

4.2.2 PRIVATE FLOATING FACILITIES (BOAT DOCKS): Permits will be issued only for existing facilities and new facilities that meet the shoreline allocation criteria, and construction and safety criteria set forth in this plan. After initial issuance of a permit, the permitted facility must pass an annual safety inspection. The permittee will be notified in writing of any deficiencies after the inspection and will be given 30 calendar days to correct deficiencies. Any deficiency determined by USACE to be in substantial non-compliance in accordance with paragraph 4.2.2.1 below, and so noted in writing as described above, must be corrected within the 30-day period. At the end of the 30 calendar day period, if the facility remains in substantial non-compliance with permit requirements, the permittee will be given 30 calendar days to remove the facility (refer to condition 21 in Appendix C of ER 1130-2-406.) Permits for private facilities are not transferable and will become null and void upon the date of sale or other legal change of ownership. If the ownership of a permitted facility is sold or transferred, the permittee or new owner will notify the Lake Manager of the action prior to finalization. The new owner of a previously permitted facility must apply for a Shoreline Use Permit within 14 days or remove the facility and restore the area within 30 days of ownership transfer. No private facilities located on USACE property shall be used for permanent human habitation. Vessels of any type, when not in use, shall be removed from project lands and waters unless moored in an approved community dock or marina.

In accordance with ER 1130-2-406, existing permitted facilities as of 13 December 1974 may remain on the lake unless the facility fails to meet the criteria described in section 4.2.2.1 of this plan. All Shoreline Use Permits include a standard set of conditions that apply to the permit (see Appendix C) and may include special conditions to address unique circumstances.

4.2.2.1 Existing Facilities on 17 November 1986: In accordance with Section 1134(d) of Public Law 99-662, any houseboat, floating cabin or lawfully installed dock or appurtenant structures in place under a valid Shoreline Use Permit as of 17 November 1986, cannot be forced to be removed from any Federal water resources project or lake administered by the Secretary of the Army on or after 31 December 1989, if it meets the three conditions below, except where necessary for immediate use for public purposes or higher public use for a navigation or flood control project:

1. Such property is maintained in a usable and safe condition;

2. Such property does not occasion a threat to life or property;
3. The holder of the permit is in substantial compliance with the existing permit.

New permits for these prior permitted facilities will be issued to new owners upon completed application and passing inspection. If the holder fails to comply with the terms of the permit, it may be revoked and the owner required to remove the structure from public land.

4.2.2.2 Facilities in Limited Development Areas: Permit applications for new private facilities will, in general, be accepted and reviewed for those areas designated as limited development. However, a new permit request may be denied if the limited development area is subject to any of the following:

1. The shoreline has reached a density of 50 percent and facilities are no closer than 75' from one another.
2. The shoreline is subject to severe erosion, heavy siltation, exposure to high winds and wave action, or other limiting conditions.
3. A community dock or commercial marina exists in the vicinity.

4.2.2.3 Facilities in Other Than Limited Development Areas: In areas allocated as protected shoreline, existing private facilities and activities that have been permitted previously will, in general, be allowed under new permits provided they meet the criteria established in this plan. No applications for new private facilities will be accepted in shoreline areas allocated as anything other than limited development areas.

4.2.2.4 Ownership and Transfer of Private Floating Facilities: Ownership of existing facilities may be transferred, but the facility must remain in its present location and must conform to the Standards for Private Floating Facilities (see Appendix F). No more than one permit for a private floating facility will be issued per adjacent lot or tract parcel. The permittee must be the owner and primary user of permitted facilities. Permittees are limited to one dock on the lake with one exception; individuals that own properties with existing permitted docks may obtain renewal permits for those facilities. If an individual holds a permit for one or more docks, that individual may be issued a permit to rebuild an existing dock but may not be issued a permit to build a new dock where no dock previously existed.

Under no circumstances will permits be issued for speculative purposes, for enhancement of private property, to persons renting private property, or to minors. An individual permittee may obtain multiple permits only by acquiring additional properties with existing permits, but cannot be issued an additional new permit. A responsible party, owner, or caretaker must be available locally to care for the structure and to provide entrance to the structure and/or information to the USACE. According to ER

1130-2-406, facilities authorized under a shoreline use permit will not be leased, rented, sub-let or provided to others by any means of engaging in commercial activity(s) by the permittee or his/her agent for monetary gain. This does not preclude the permittee from selling total ownership to the facility.

4.2.2.5 Private Boat Dock Specifications: As described in previous sections, existing permitted private facilities may remain if they meet the conditions listed in this section.

1. Normal repairs to an existing facility that becomes unsafe or poses a hazard to the public as a result of normal wear, storm, flood, or any other event are permissible without prior authorization. However, repairs made to facilities not meeting safety specification standards may require additional alterations, and verification of standards is recommended prior to any repairs. After a permit has been issued, no alterations outside of general maintenance may be made to any private facilities without prior approval by the Lake Manager.

2. Complete replacement of an existing facility is permissible in accordance with the Standards for Private Floating Facilities (see Appendix F) following approval by the Lake Manager. The replacement facility shall be placed in the same exact location as the removed structure, unless variation is authorized in writing by the Lake Manager.

3. All boat docks shall be of the floating type with provision for safe usage during normal regulated lake level fluctuations between elevations 228.5 feet NGVD29 and 230 feet NGVD29. Consideration will be given to boat dock designs that allow the dock to rest on bracing material rather than coming to rest on the lake bottom. All boat docks permitted under this SMP shall adhere to the design standard depicted in Standards for Private Floating Facilities (see Appendix F).

4. Dock guide posts (pilings) shall be designed and placed to adequately support the dock, and to prevent breaking away of floating docks at lake elevations other than normal seasonal regulated pool levels. In the interest of boating safety, and during flood events, all dock pilings (not including extensions) must reach a minimum height of 240 feet NGVD29. Consideration will be given to unique designs and may require independent professional review.

5. No private floating dock will exceed the minimum length required to provide adequate draft and safely moor the permittee's boat. In the interest of boating safety, no dock shall exceed 125 feet in length from the 230 feet NGVD29 contour line. The dock end section cannot be larger than 8 feet by 12 feet, and the walkway cannot be narrower than 30 inches or wider than 6

feet. The Lake Manager may approve personal watercraft ports for facilitating easier access, provided that they do not extend beyond the dock end section, and that owners ensure they are not used for long-term moorage.

6. All floating docks shall be securely anchored to the shore by means of moorings that do not obstruct the free use of the shoreline or pose any safety hazard on land or on the lake. Cable or chain anchoring systems shall be attached only to the landward end of the dock and a soil auger, concrete anchor, or other approved anchor. Stiff-arms or other cable mooring devices that obstruct the safe and free use of the shoreline are not allowed.

7. All new and replacement floatation must be plastic encapsulated foam that meets marina industry standards. The float and its floatation material shall be 100 percent warranted for a minimum of 8 years against sinking, becoming waterlogged, cracking, peeling, fragmenting, or losing beads. All floats shall resist puncture and penetration and shall not be subject to damage by animals under normal condition for the area. All floats and floatation material used in them shall be fire resistant and encapsulated.

8. The installation of permanent roofs, closed walls, raised decks, fixed seat space, plumbing and electrical fixtures and devices, or any other fixtures, equipment or items conducive to human habitation of floating private facilities is prohibited.

9. Handrails are required on any new or replacement walkways or ramps that are more than 30 inches above ground or are located over water. Sides of docks and attached walkways used for loading and unloading boats do not require handrails. Existing walkways or ramps are not required to have handrails unless the walkway or ramp is replaced or an imminent hazard exists. Ramps or walkways in excess of 5 percent slope must meet Americans with Disabilities Act (ADA) standards so that a rise greater than 6 inches or length greater than 72 inches shall have handrails on both sides. Handrails shall be constructed to conform to the International Building Code (IBC). As of the date of this SMP, the IBC handrail requirements specify a top rail height of 34-38 inches with a bottom rail located one-half the distance from the top rail to the ramp or walkway surface. Handrails shall be designed and constructed to resist a load of 50 pounds per linear foot applied in any direction at the top rail.

4.2.3 Community Docks: Community docks are private shoreline use facilities that are authorized by a Shoreline Use Permit. Permits for new community docks may be issued to contiguous landowners of any subdivision development in Limited Development Areas only when the site is remote from commercial marina concessions, a suitable site in a

protected cove is available for installation of the dock, and the granting of such a permit will not unduly inhibit public use of the shoreline. In order to qualify for a community dock permit, a group applying for the permit must show sufficient use demand for the proposed facility and furnish assurances to provide for continued surveillance and maintenance. If a new community mooring facility is approved for an area, any existing private docks and individual privileges of community group members shall be terminated upon commencement of operation of the community dock. Design criteria for community boat docks shall be in general compliance with guidelines for individual docks, except that covered boat storage areas may be permitted. Any permit issued for a community dock will be issued to a single individual who will be the permittee that represents all members of the community dock. Community docks are to be used strictly for the moorage of watercraft and gear essential to operation of watercraft. Fuel may not be stored on the community dock and no concession privileges will be permitted.

4.2.4 Commercial Concessions: In accordance with the objective to limit the expansion of private use, USACE policy gives preference to the use of commercial marina concessions over private docks. These concessions are required to offer a variety of services to the general public at fair market prices.

4.2.5 Erosion Control Structures: Individuals may be permitted to install erosion control structures such as rip-rap, gabions, or other measures where bank or shoreline erosion is endangering private facilities or structures. Any erosion control structure should blend with the natural setting as much as possible. Permission to install such structures may be granted only after review and approval of plans and specifications by the Lake Manager and issuance of the proper instrument from the Fort Worth District Real Estate Division. See Section 4.4.6 Landform Modification for additional information.

4.2.6 Duck Blinds: Permanent duck blinds will not be permitted. The use of portable blinds is allowed. Blinds may be installed onshore and in shallow areas (including islands), but must be of a nature that it will not be necessary to drive posts or other objects into the ground to install the blind. Portable blinds shall be left in place for no more than 72 consecutive hours and must be clearly marked with the owner's name, address, telephone number, and date of placement. Blinds that are either not marked as specified, or exceed the allowed timeframe, will be considered abandoned personal property and a violation pursuant to Title 36, Chapter III, Code of Federal Regulations. Human habitation of duck blinds is expressly prohibited. In any case, duck blinds may be regulated by Texas Parks and Wildlife Department, and any change reflected in USACE public hunting guides.

4.2.7 Buoyed Courses or Ski Jumps: Temporary, special event permits may be issued by the Lake Manager for buoyed courses or ski jumps upon approval of plans

submitted by a club, group, or agency. Permits for such facilities will not be issued to individuals and are not subject to this SMP.

4.2.8 Access to Permitted Facilities: Pedestrian paths may be created for access to permitted facilities and are authorized by the permit issued for the facility. Specifications for pedestrian access paths is located in part 4.2.1.2 of this plan. Paths will follow a meandering route that conforms to the topography as much as possible to help prevent erosion, avoid the need for removal of vegetation. Construction of stairways, steps, or similar modifications will only be permitted by a Real Estate instrument, explained in section 4.3 of this plan. All work will be completed with hand tools only, unless otherwise authorized in writing by the Lake Manager. If erosion is evident due to continued foot traffic and water runoff, intermittent water breaks and/or other measures may be required.

4.2.9 Special Conditions: Any individual or group wishing to use, change, landscape, mow, build upon, or place property of any kind on USACE lands or waters must first obtain written permission through the project office. All plans must be submitted in writing with a signed letter of request. A standard set of conditions apply to all Shoreline Use Permits (see Appendix B) but the USACE has authority to place special conditions on any Shoreline Use Permit that is issued.

4.3 REAL ESTATE INSTRUMENTS: The USACE issues real estate instruments such as leases, licenses, easements, and consents to easements for a wide variety of activities that take place at a typical USACE lake. Leases are typically issued to concessionaires for marinas, and to governmental entities for operation of park areas. Easements are typically granted to public utilities and governmental entities for water lines, sewer lines, natural gas lines, electric lines and roads. Licenses are typically granted to individuals for water lines for domestic irrigation, erosion control structures, and other activities that involve use of USACE-administered public lands. Consents are issued for the placement of approved structures or land alterations in the flowage easement. Real estate instruments to private entities are typically issued at fair market value plus the cost of administrative expenses. However, consents and most licenses issued for erosion control structures may be granted at no cost.

All commercial development activities and other activities by private or public interests on Government owned land that are not covered in this plan may be allowed only after issuance of a lease, license, or other legal grant in accordance with the requirements of ER 405-1-12, Real Estate Handbook. A fee, based on fair market value, plus administrative costs, is charged for issuance or renewal of real estate licenses granted for utility lines and stairways that serve a permitted private floating facility. Where applicable, a single real estate license may be issued for both electric and water service.

4.3.1 Electrical Power and Lights: A real estate license may be issued for electrical power and light service to a permitted private floating facility in a limited development shoreline area. Requests for a new or renewal license for electric service shall be submitted to the Lake Manager. Electrical service shall be limited to one outdoor type overhead light and one weather protected outdoor type electrical power receptacle, all mounted on a single pole. Power supply for the light and receptacle shall be provided by underground power lines only. The underground electrical supply installation shall be protected and controlled by a readily accessible main cut-off switch and circuit breaker, no larger than 20 amps, located on the adjacent private property, above the flowage easement line or the 254.5 feet NGVD29 elevation, for which the installation permit is issued. The service light/receptacle pole shall be located not less than 50 feet from the water's edge with the lake elevation of 230 feet NGVD29. Outdoor lights shall be rated at not more than 150 watts and receptacles rated at not more than 120 volts, 15 amps, and be protected by ground-fault interrupter circuit. Shoreline below the 254.5 feet NGVD29 elevation is considered a wet location. All electrical components shall be installed and maintained in accordance with the National Electric Code (NEC) and the National Electrical Safety Code (NESC) conducive to wet and damp locations. The licensee shall provide a certification signed by a Licensed Master Electrician stating that all electrical components and installations have been inspected and comply with all applicable codes. All light fixtures shall be pointed downward and shielded or otherwise constructed so that residents or boaters are not subjected to glare from the lights. Applicants for electric line licenses are encouraged to consider solar applications that will meet the need for electrical power.

4.3.2 Waterlines: A real estate license may be issued to an adjacent property owner for a waterline for domestic irrigation. Requests for a new or renewal license for a waterline shall be submitted to the Lake Manager. Requests shall include written approval from the Northeast Texas Municipal Water District. No electrical components associated with a waterline may be located on government property, including but not limited to wiring, cut-off switches, breakers, or pumps (including electrical submersible pumps.) The main electrical cut-off switch must be located above the flowage easement line or the 254.5 feet NGVD29 elevation. All electrical components shall be installed and maintained in accordance with the National Electric Code (NEC) and the National Electrical Safety Code (NESC) conducive to wet and damp locations. If any electrical components are located on lands within flowage easements, the licensee shall provide electrical certification of all components approved and signed by a licensed electrician.

4.3.3 Stairways: A real estate license may be issued to an adjacent property owner for a new or existing stairway for access to a private floating facility. Existing private stairways and/or steps will, in general, be allowed to remain if maintained in a structurally sound and safe condition as approved by the Lake Manager, and certified by a licensed structural engineer. Building material will be of stone, metal, or similar materials that can be removed if required, and if painted, only colors that are visually compatible with the natural

background will be allowed. The construction of new stairways and/or steps will be permitted only where absolutely essential for safe access to a permitted private floating facility, and must comply with EM 385-1-1 and the USACE, Fort Worth District standard operating procedures for stairways. Written requests for a new or renewal license for a stairway shall be submitted to the Lake Manager. Requests shall include a request letter, location map, and stairway plan/drawing certified by a licensed structural engineer.

4.3.4 Department of the Army Permits: The USACE has broad regulatory authority pursuant to Section 404 of the Clean Water Act of 1972 and Section 10 of the Rivers and Harbors Act of 1899 to regulate the placement of dredged or fill material in waters of the United States and placement of certain structures in waters that are, by definition, a navigable water of the United States. These regulatory permits generally have no relationship to Shoreline Use Permits except in rare instances where a facility that is authorized by a Shoreline Use Permit might also require a regulatory permit. Any shoreline erosion control structure could require both a real estate instrument and a regulatory permit from the USACE. Applications for such activities must be submitted to the Lake Manager.

4.4 PROHIBITED FACILITIES AND ACTIVITIES: The following facilities and activities are prohibited at Lake O' the Pines.

4.4.1 Fixed Piers: Any type of fixed pier or platform extending into the water from the shoreline is prohibited.

4.4.2 Pilings or Posts: All pilings or posts not structurally associated with existing or future approved private facilities, and driven into the lake bottom for the purpose of mooring or tying boats are prohibited.

4.4.3 Buoys or Waterway Markers: All privately owned buoys or waterway markers are prohibited.

4.4.4 Vessel Moorage: Private boat docks will be permitted only for transient usage by the permittee and shall not be used for permanent moorage of any private boat, barge, houseboat, seaplane or other vessel. Vessels of any type, when not in use, shall be removed from project lands and waters unless moored in an approved community dock or marina.

4.4.5 Burning: The burning of any materials along the shoreline by private individuals is prohibited.

4.4.6 Landform Modification: Any type of private modification, construction or other activity that changes the original or present condition of the shoreline is prohibited, unless otherwise permitted. This includes but is not limited to beach construction, channel construction, bank terracing, retaining walls, cuts and fills, or road and trail construction. See section 4.2.5 for rules concerning erosion control.

4.4.7 Private Structures or Facilities: Construction or placement of personal property, private buildings or similar structures, portable or permanent, including but not limited to fireplaces, barbecue pits, patios, picnic tables, shelters, swimming pools, or other facilities on the shoreline or adjacent fee-owned Government lands is prohibited.

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SECTION 5: PERMIT ADMINISTRATION

5.1 APPLICATIONS FOR SHORELINE USE PERMITS: All existing private use facilities (including community docks) and activities located on USACE owned shoreline property at Lake O' the Pines have been permitted in accordance with criteria as set forth in the SMP implemented in 11 October 1978. All applicants for permits for new private facilities or activities shall submit a completed form titled "Application for Shoreline Use Permit, ENG 4264-R, (see Appendix B). Applications for private use facilities shall include two (2) copies of drawings (plans) and specifications for the facilities that clearly show engineering and structural design details, anchorage method, construction materials, type, size, and location, as well as the owner's name, address and telephone number. All applications for vegetation modification permits shall include a map drawn to scale showing the extent of the proposed modification, type of vegetation to be affected and the reason for desiring the work.

All applications for permits for new community boat docks shall be submitted with two (2) copies of plans and specifications of the facility to the Lake Manager of Lake O' the Pines. Review of plans for community dock facilities will be made by the USACE, Operations Division, Fort Worth District Office. Permits will be issued by the District Engineer or authorized representative in accordance with approved plans.

The Application for Shoreline Use Permit, (see Appendix B) will be available at the Lake O' the Pines Project Office. The permit for any type facility or activity will be issued in the name of the adjacent property owner(s) and are not transferable (except that the community dock permits will be issued in the name of responsible individuals designated to act on behalf of the organization represented). All permits are revocable whenever the District Engineer determines that the public interest requires such revocation or the permittee has failed to comply with the conditions of the permit or with the conditions in this plan. Community dock permits will remain valid on a continuing basis only so long as the organization remains active and complies with conditions of the permit. All permits will be enforced in accordance with "Conditions of Permits for Shoreline Use" (see Appendix C).

5.2 PERMIT DURATION: Individual permits, such as for vegetation alteration and/or boat docks, will be issued for a 5-year a duration, beginning on the issue date. Permits are non-transferable and shall become null and void upon sale or transfer of ownership, or death of the permittee. In such circumstances, the new owner should apply for a permit upon sale or transfer of ownership. Special event permits are issued on a temporary basis only.

5.3 ADMINISTRATIVE FEES: A fee of $30.00 will be assessed for permits issued for private floating facilities. The fee includes the processing of the permit and annual inspections of the dock. The fee for permits for vegetation alteration will be $10.00. All private use permit administrative fees shall be collected in advance of permit issuance. In the event that a permit is terminated or revoked before its expiration date, no portion of the administrative fee will be prorated or returned for the unused tenure of the permit. This administrative fee shall be paid by check or money order made payable to the F&A Officer, US Army District, Millington, Tennessee (USAED), Fort Worth. Only the exact amount of the fee due will be accepted. Receipts will be given for all transactions and all fees will be received by the Lake Manager at Lake O' the Pines.

5.4 POSTING OF PERMITS: The USACE will provide a 5”x 8” or larger printed permit tag of light metal, plastic, or fiberglass for posting the permit. The permit display tag shall be posted on the facility and or on the land area covered by the permit, so that it can be visually checked with ease in accordance with the instructions provided by the resource manager. Facilities or activities permitted under special provisions should be identified in a way that will set them apart from other facilities or actives. Permits issued for vegetation modification and other activities will not be posted but shall be retained in the possession of the permittee.

5.5 APPEAL OF PERMIT DISAPPROVAL OR REVOCATION OF PERMITS: Violations of the conditions of the permit or any unauthorized modification of a permitted structure or activity may be grounds for revocation of the permit and could result in issuance of a United States District Court Violation Notice. The District Engineer may revoke Shoreline Use Permits after thirty (30) days-notice, by registered or certified mail, if removal of the permitted structure or cessation of the permitted activity is required for public interests, or to conform with law, the SMP, the operational procedures of the lake, or upon determination that the permittee has failed to comply with the conditions of the permit. The revocation notice shall specify the reason for such action. If within the 30-day period the permittee presents a written request for a hearing, the District Engineer will grant such a hearing at the earliest opportunity. In no event shall the hearing occur more than 60 days subsequent to the date of the hearing request. At the conclusion of the hearing, the District Engineer's decision will be rendered in writing and will be mailed to the permittee by registered or certified letter. Upon determination of emergency circumstances, the District Engineer may summarily revoke any permit.

5.6 REMOVAL OF UNAUTHORIZED FACILITIES: Unauthorized private use facilities or activities that are not removed or terminated upon request of the Lake Manager, or when requested after revocation, termination of expiration of a permit, will be treated as unauthorized structures or activities, abandoned personal property or other applicable violations pursuant to Title 36, Chapter III, Code of Federal Regulations.

SECTION 6: CONCLUSION AND REVIEW

6.1 CONCLUSIONS: This plan is a flexible and working document that is considered to effectively balance private shoreline uses with the protection of natural resources for general public use, and the USACE requirement to honor past commitments to private individuals. This plan provides recreational benefit to the public and balances the physical limitations and aesthetic qualities of the shoreline. The plan has taken into consideration both the present and anticipated recreational needs of the area. Public comments, received at public meetings on 09 and 22 May 2019 and during the subsequent 30-day public comment period ending 22 June 2019, were taken into consideration in the preparation of this plan. *Adjustments to this Plan will also be made to consider comments received following the final draft public meetings and comment period*.

6.2 REVIEW: The Lake Manager will continually monitor the needs of the recreational users of the lake and recommend revisions that will minimize conflicts between various interests. Minor changes that would eliminate areas or reduce the size of areas designated for limited development may be approved by the District Engineer and reported to the Division Engineer on an annual basis. Changes that may result in additional or expanded limited development areas will require significant public involvement and proper documentation pursuant to the National Environmental Policy Act, normally in the form of an Environmental Assessment. As noted in previous sections of this plan, new or expanded private shoreline use at Lake O' the Pines will be discouraged in favor of use of commercial concessions.

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APPENDIX A: SHORELINE USE MAPS

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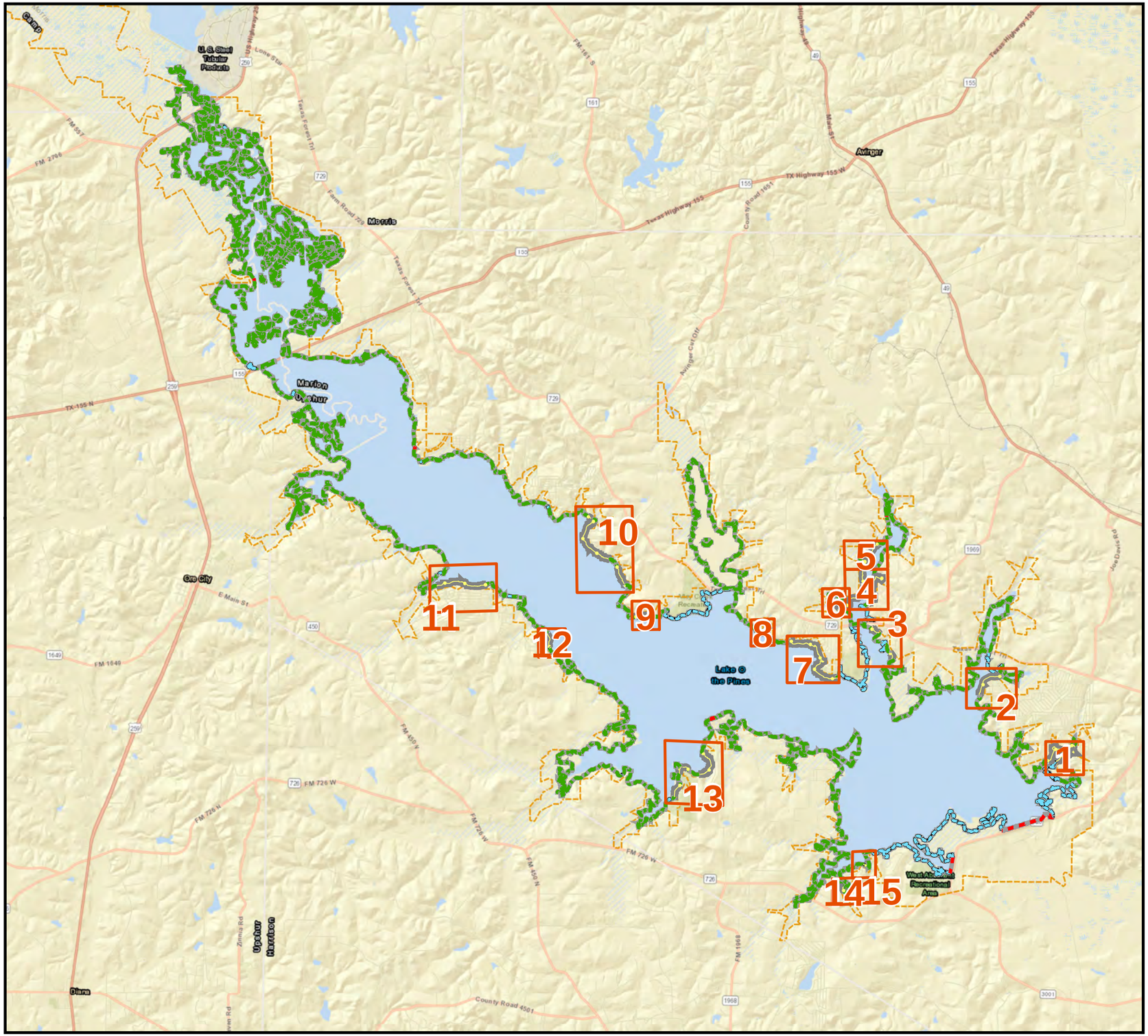

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Protected Shoreline Area (PSA)

Limited Development Area (LDA)

Public Recreation Area (PRA)

USACE Property Boundary

U.S. Army Corps of Engineers
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Roads
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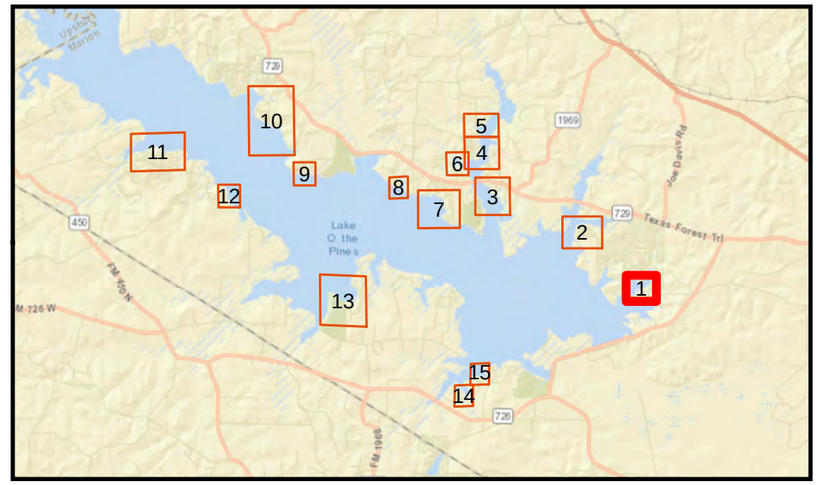

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- USACE Property Boundary
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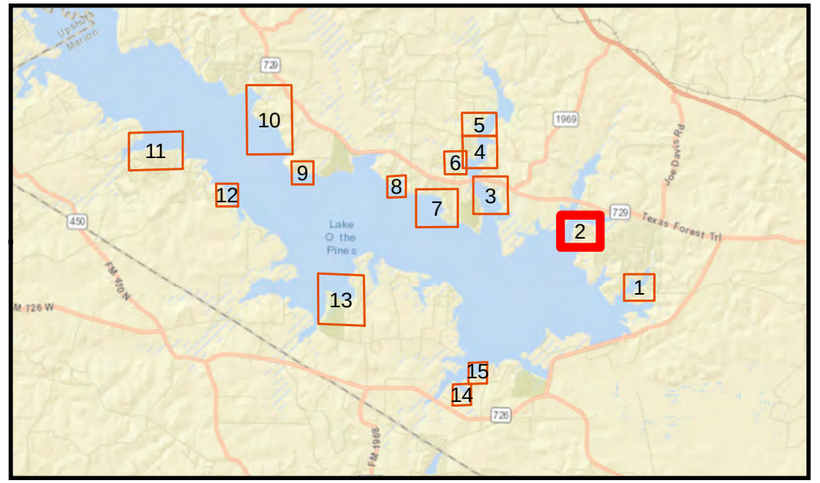

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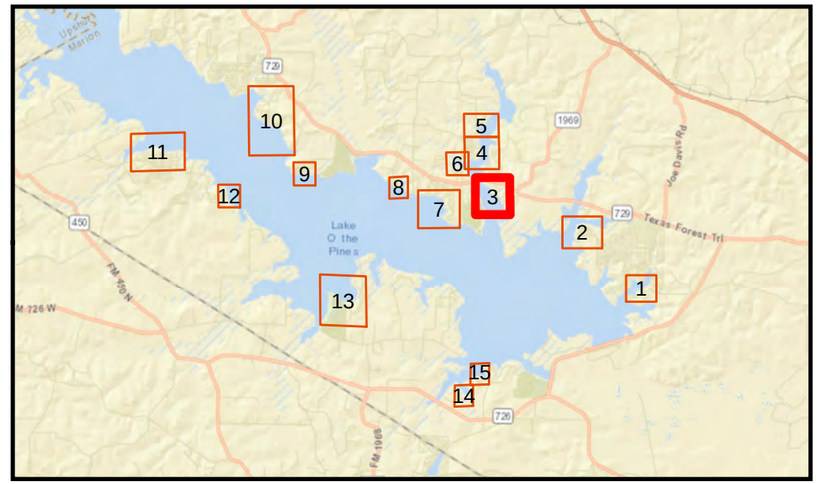

- Prohibited Access Area (PAA)
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Feet

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LDA 8

LDA 6

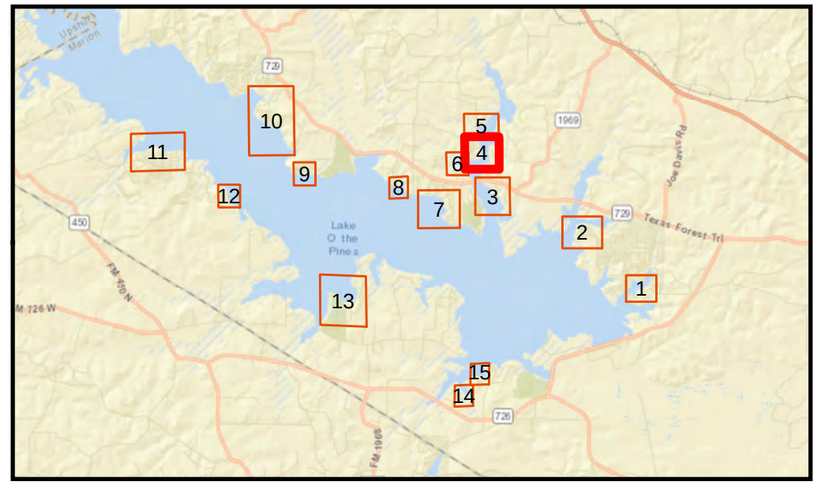
Lakeshore Estates East
Boat Ramp

LDA 9

LDA 9

LDA 11

Bullfrog Marina



Prohibited Access Area (PAA)

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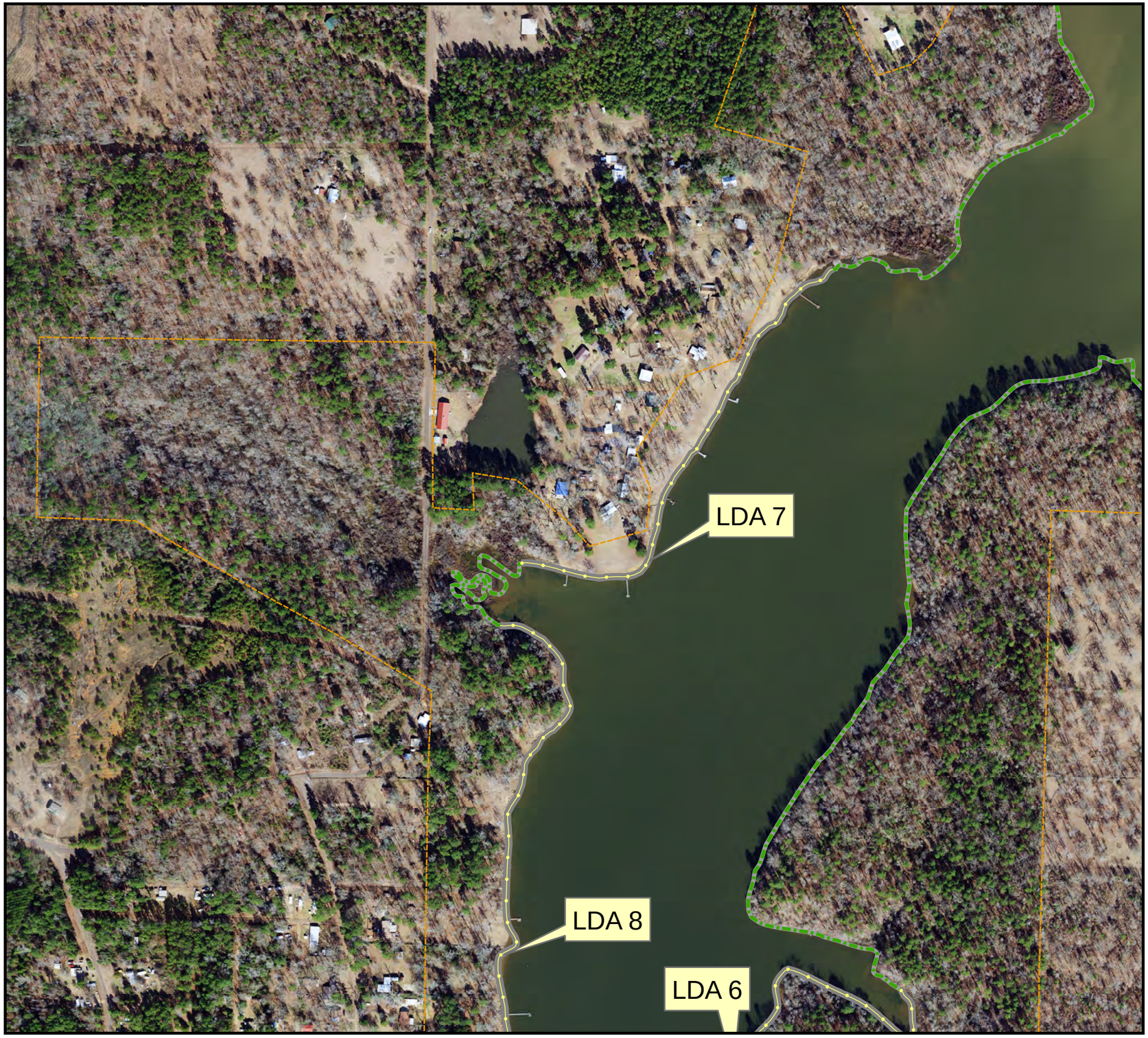
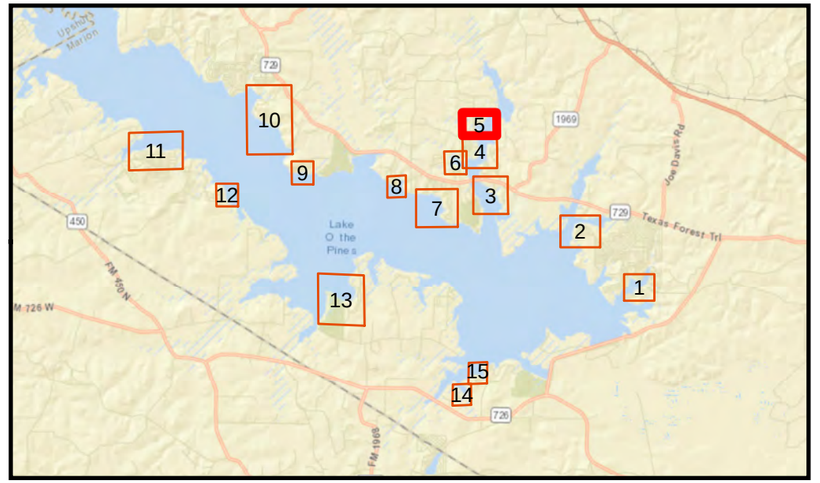
LP19-SMP-LDA-4





- Prohibited Access Area (PAA)
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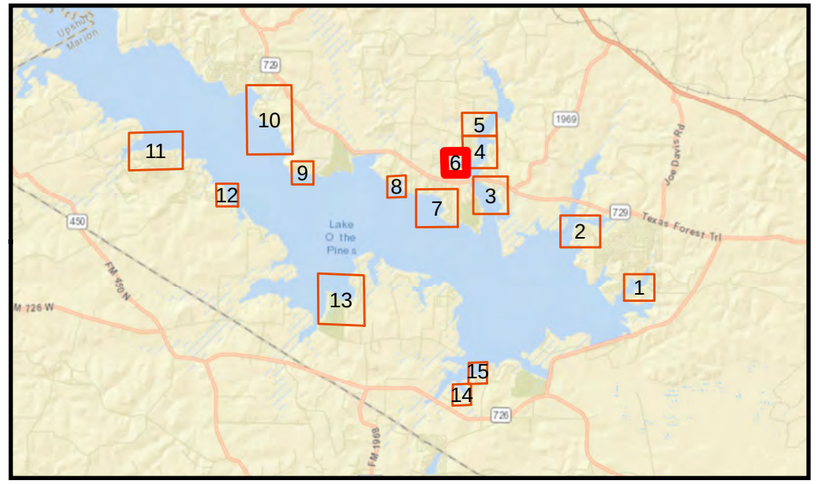
N

0 250 500 1,000 1,500 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-5



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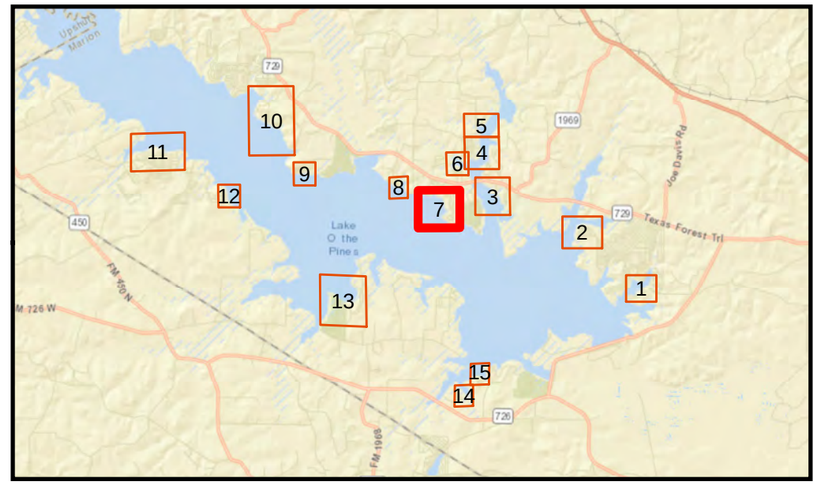
N

0 250 500 1,000 Feet

Date: October 2019

Map No. LP19-SMP-LDA-6



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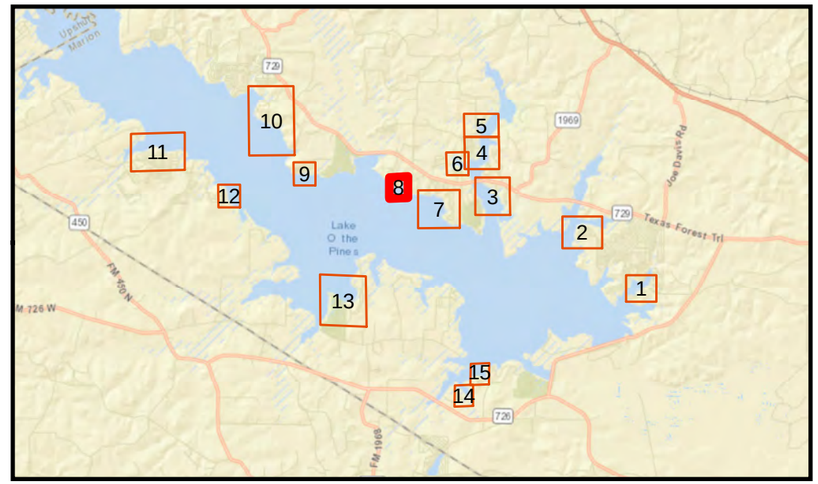
N

0 250 500 1,000 1,500
Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-7



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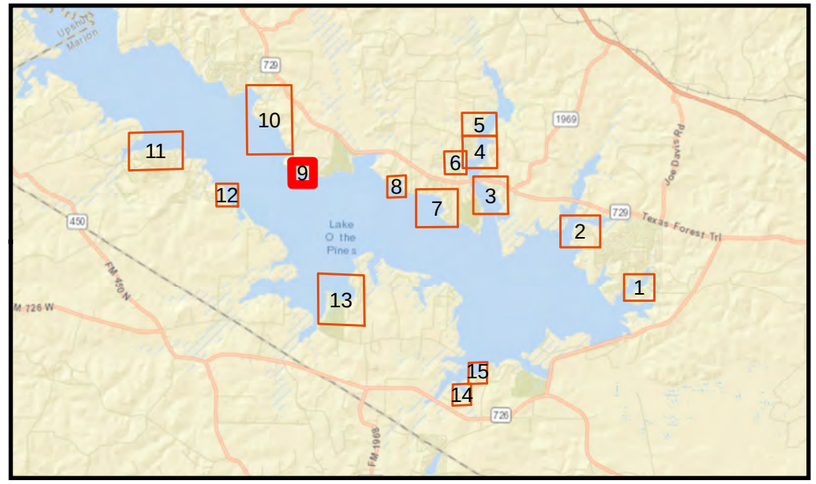
N

0 250 500 1,000 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-8



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N

0 250 500 1,000 Feet

Date: October 2019

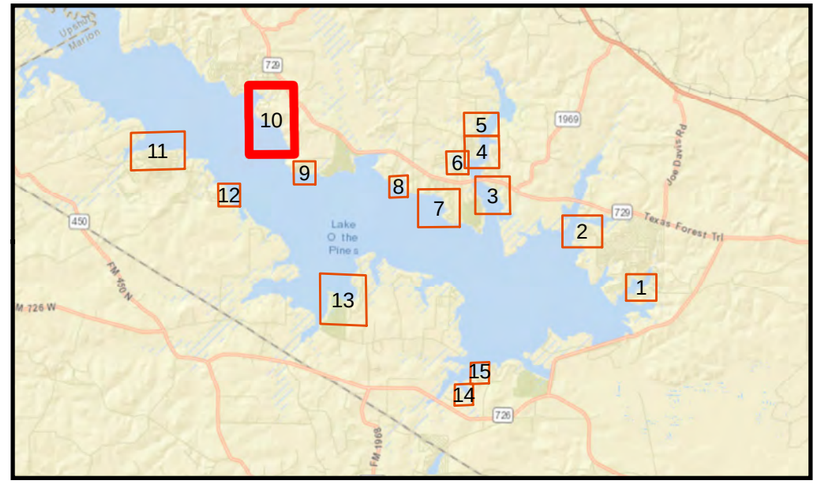
Map No. LP19-SMP-LDA-9

Mims Chapel Ramp

LDA 17

LDA 16

LDA 15



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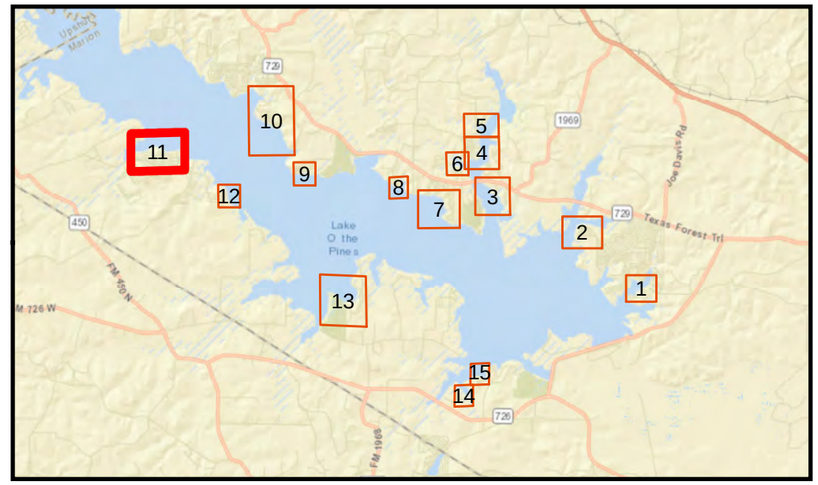
N

0 250 500 1,000 1,500 2,000 2,500 3,000 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-10



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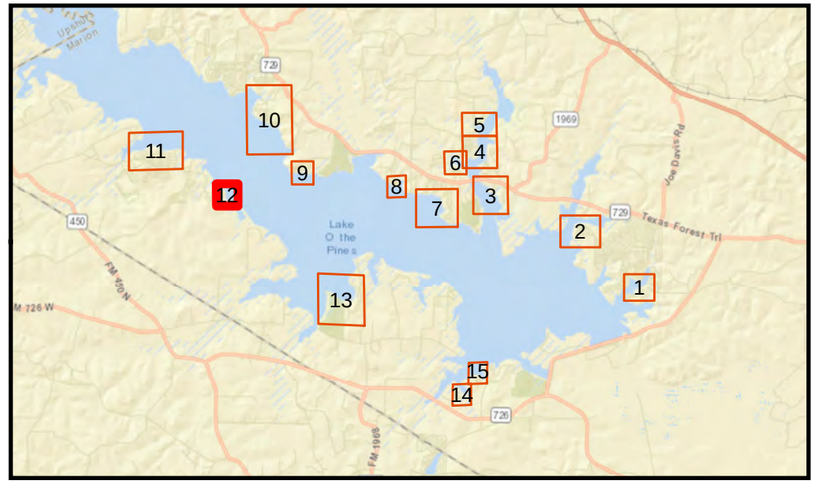
N

0 250 500 1,000 1,500 2,000 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-11



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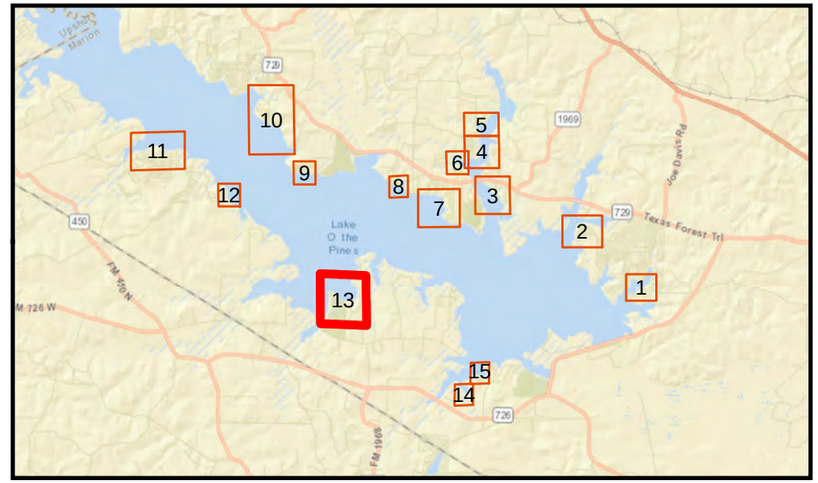
N

0 250 500 1,000 Feet

Date: October 2019

Map No. LP19-SMP-LDA-12



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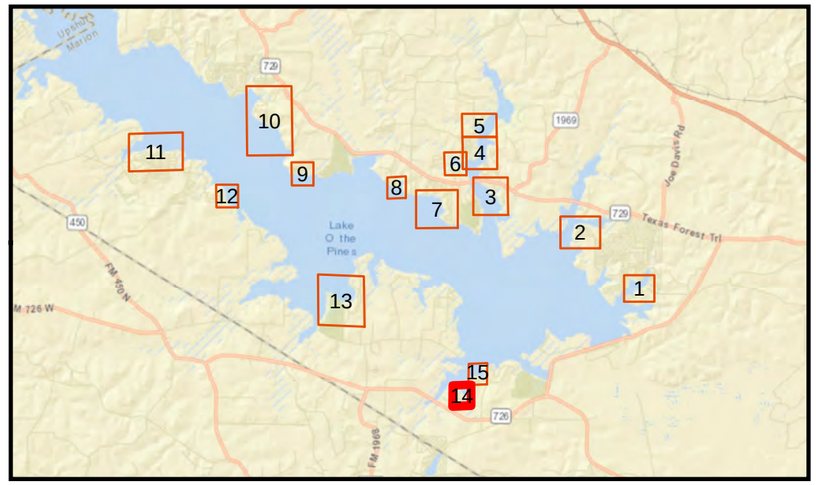
N

0 250 500 1,000 1,500 2,000 2,500 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-13



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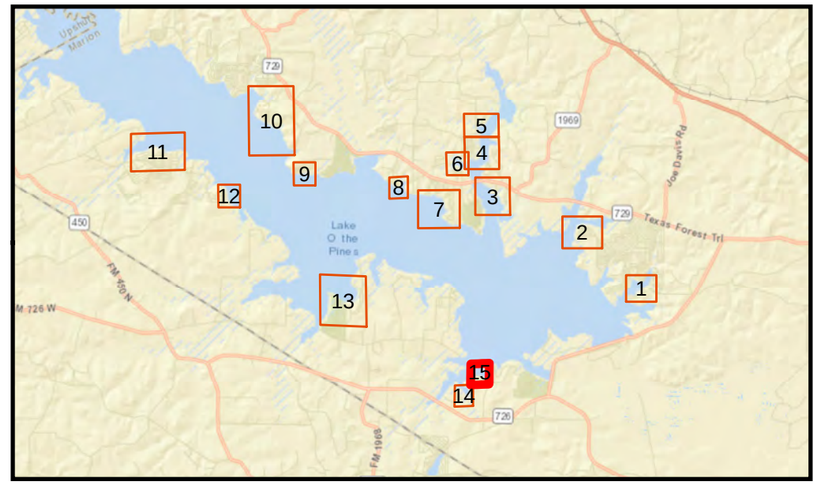
N

0 250 500 1,000 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-14



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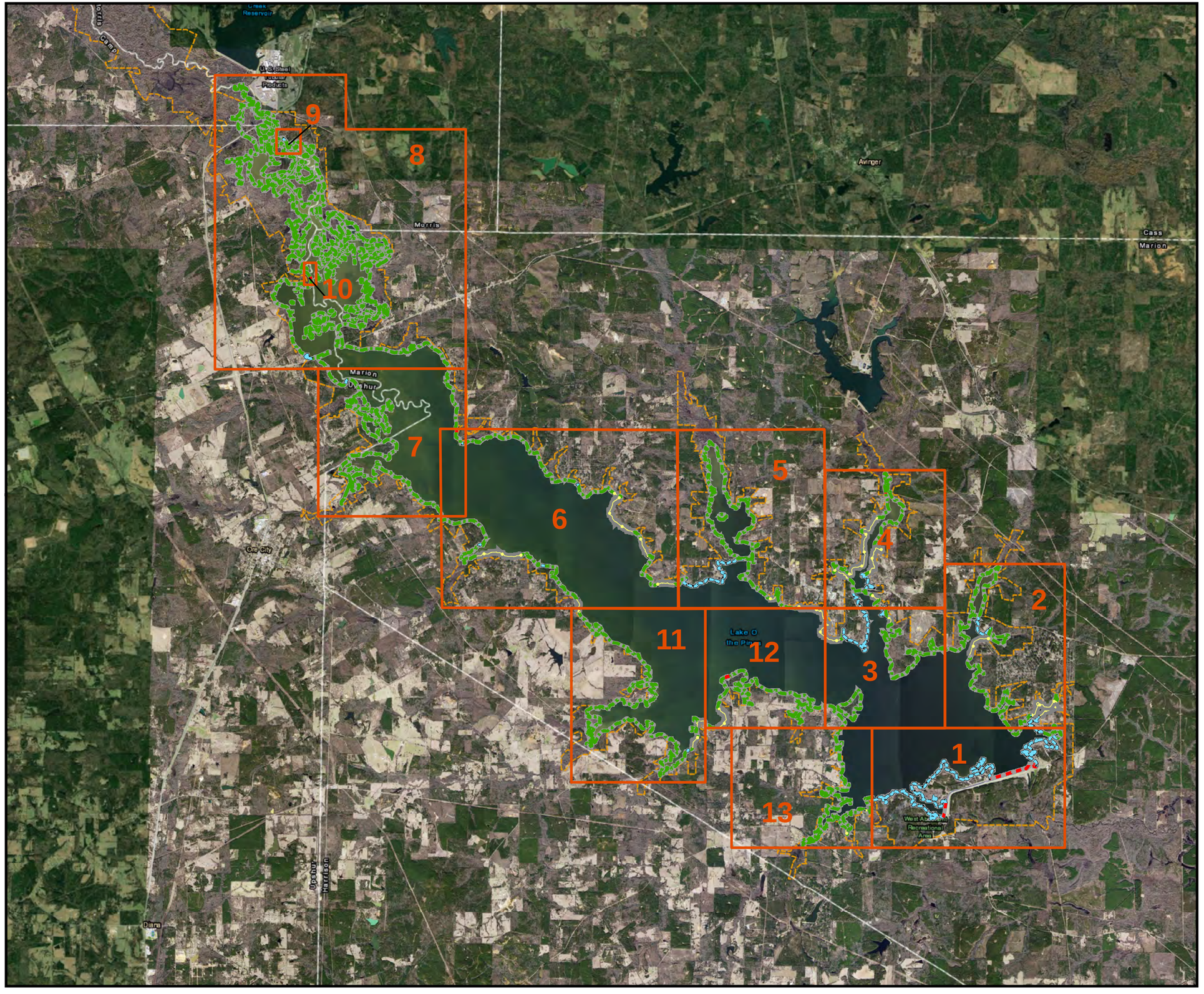
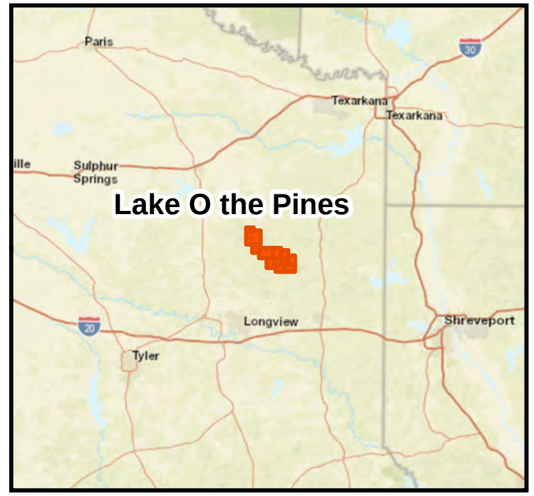
N

0 250 500 1,000 Feet

Date:	Map No.
October 2019	LP19-SMP-LDA-15





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N

0 1 2 4 Miles

Date:	Map No.
October 2019	LP19-SMP-00

Big Cypress Marina

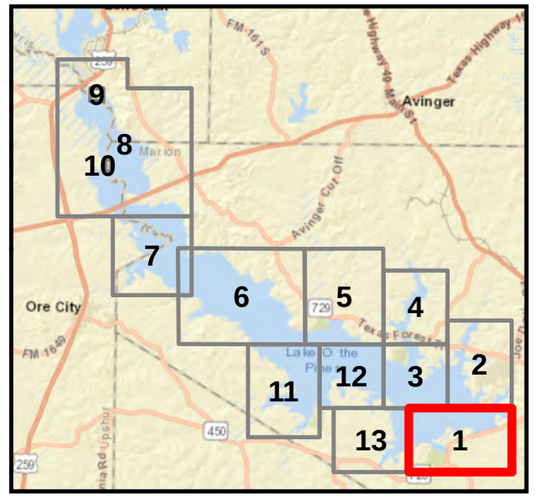
Buckhorn Creek Park

Overlook

Lakeside Park

Lakeside Park

Brushy Creek Park



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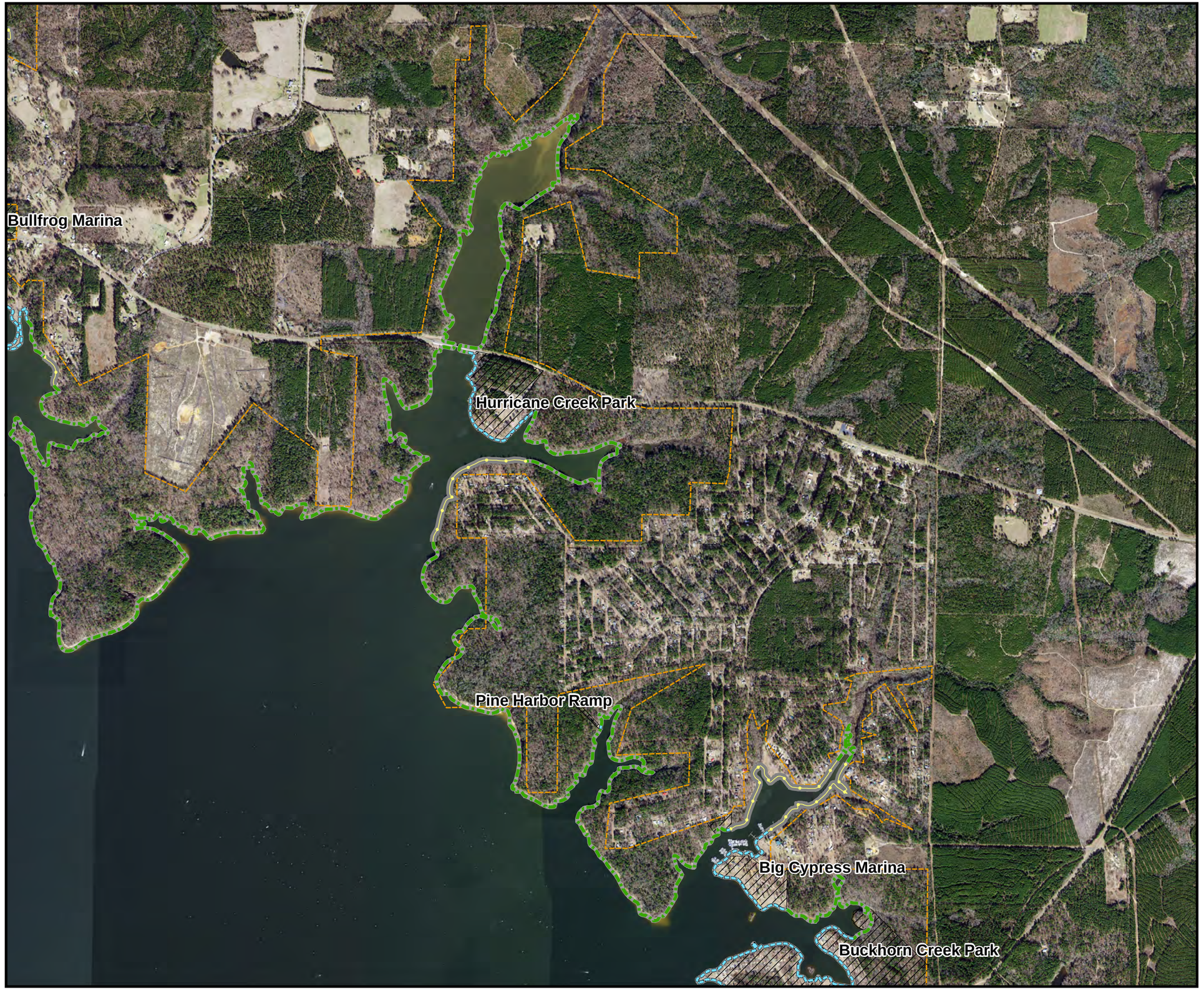
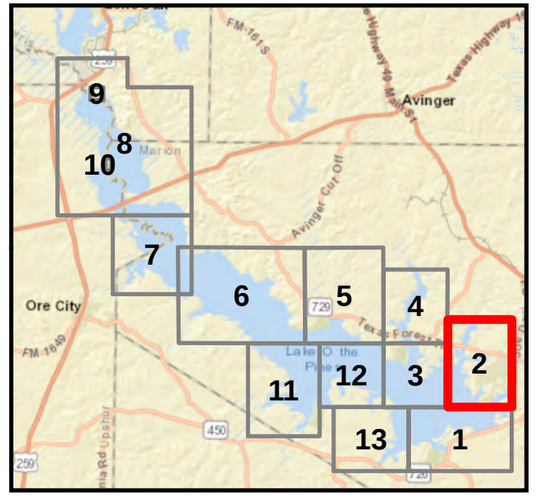
N

0 0.375 0.75 Miles

Date: October 2019

Map No. LP19-SMP-1





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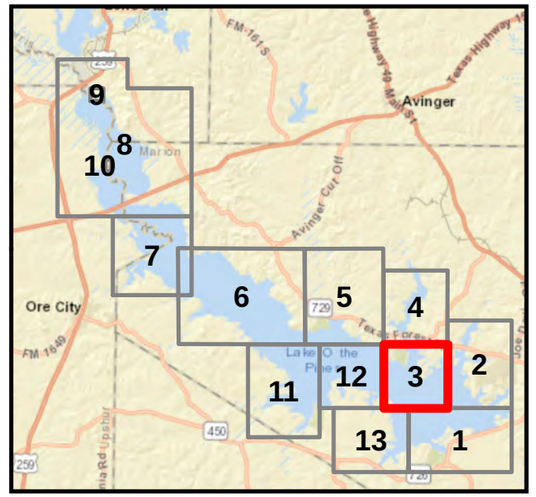
0 0.4 0.8 Miles

Date:	Map No.
October 2019	LP19-SMP-2

Johnson Creek Park



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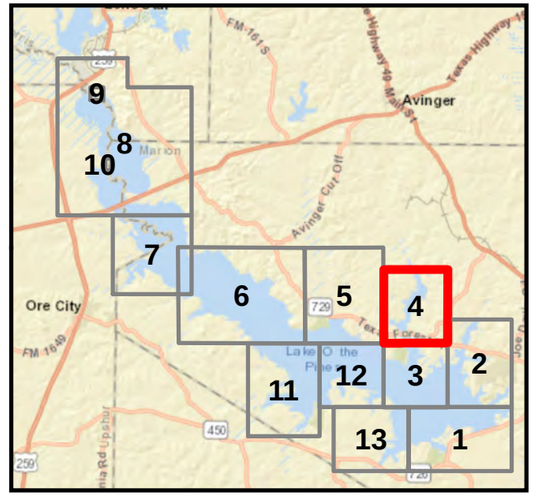
N

0 0.275 0.55 Miles

Date: October 2019

Map No. LP19-SMP-3



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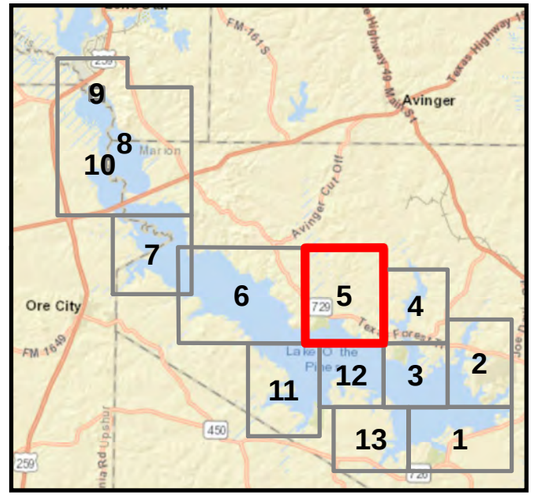
N

0 0.325 0.65 Miles

Date:	Map No.
October 2019	LP19-SMP-4



Prohibited Access Area (PAA)

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0 0.425 0.85 Miles

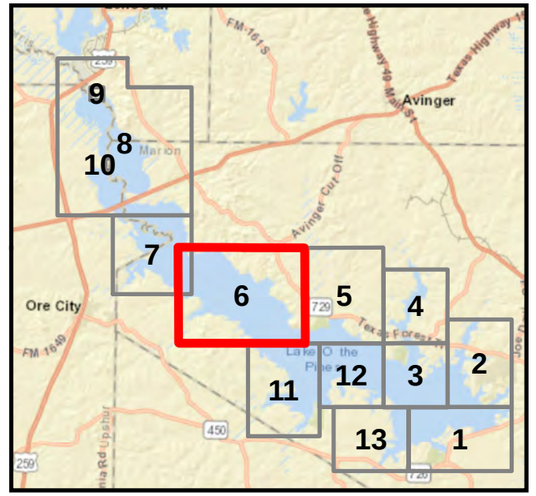
Date:	Map No.
October 2019	LP19-SMP-5

Oak Valley Boat Ramp

Mims Chapel Ramp

Pine Hill Boat Ramp

Pop's Landing Ramp



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N

0 0.475 0.95 Miles

Date: October 2019

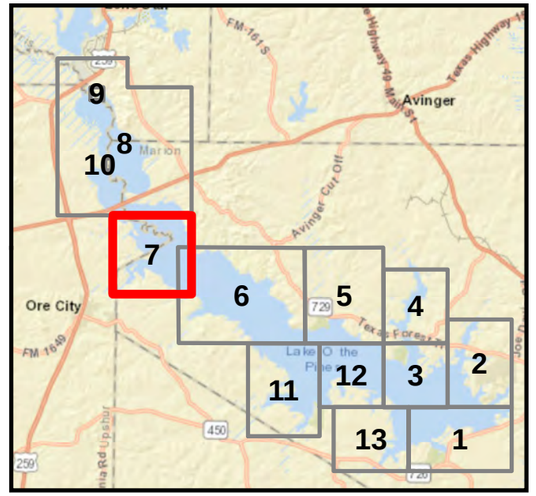
Map No. LP19-SMP-6

Cedar Hill Boat Ramp

Oak Valley Boat Ramp

Sunrise Cove

Pine Hill Boat Ramp



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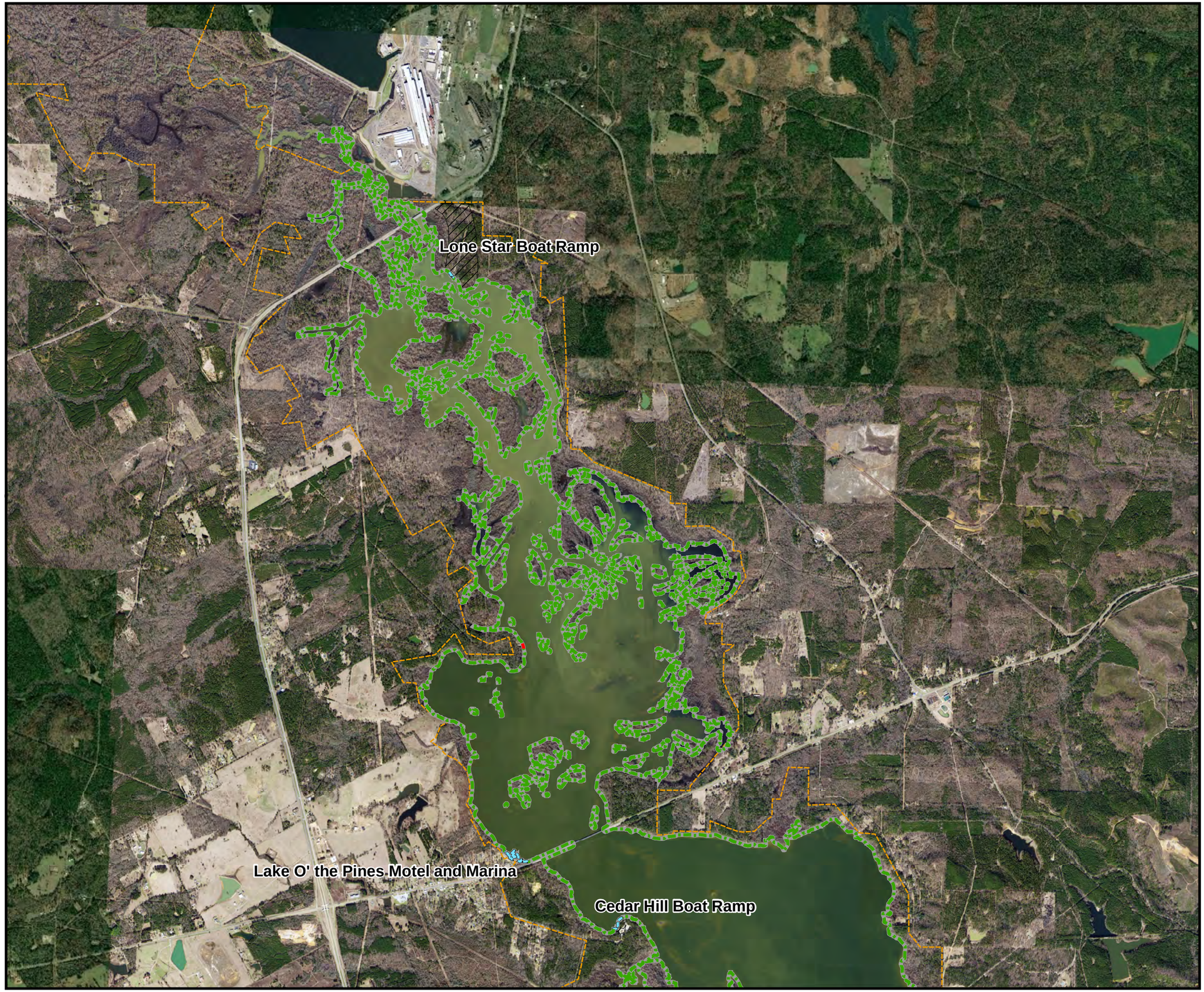
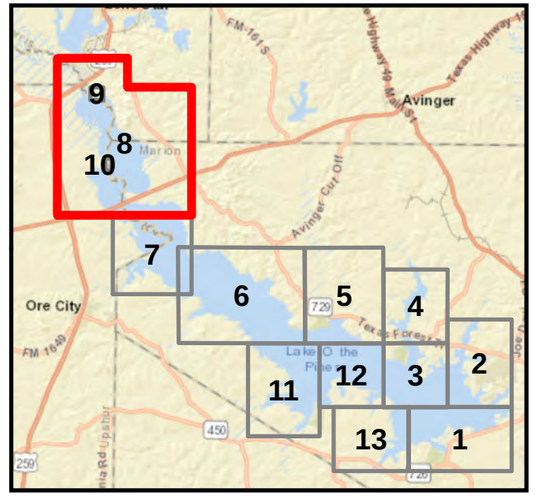
N

0 0.35 0.7 Miles

Date: October 2019

Map No. LP19-SMP-7





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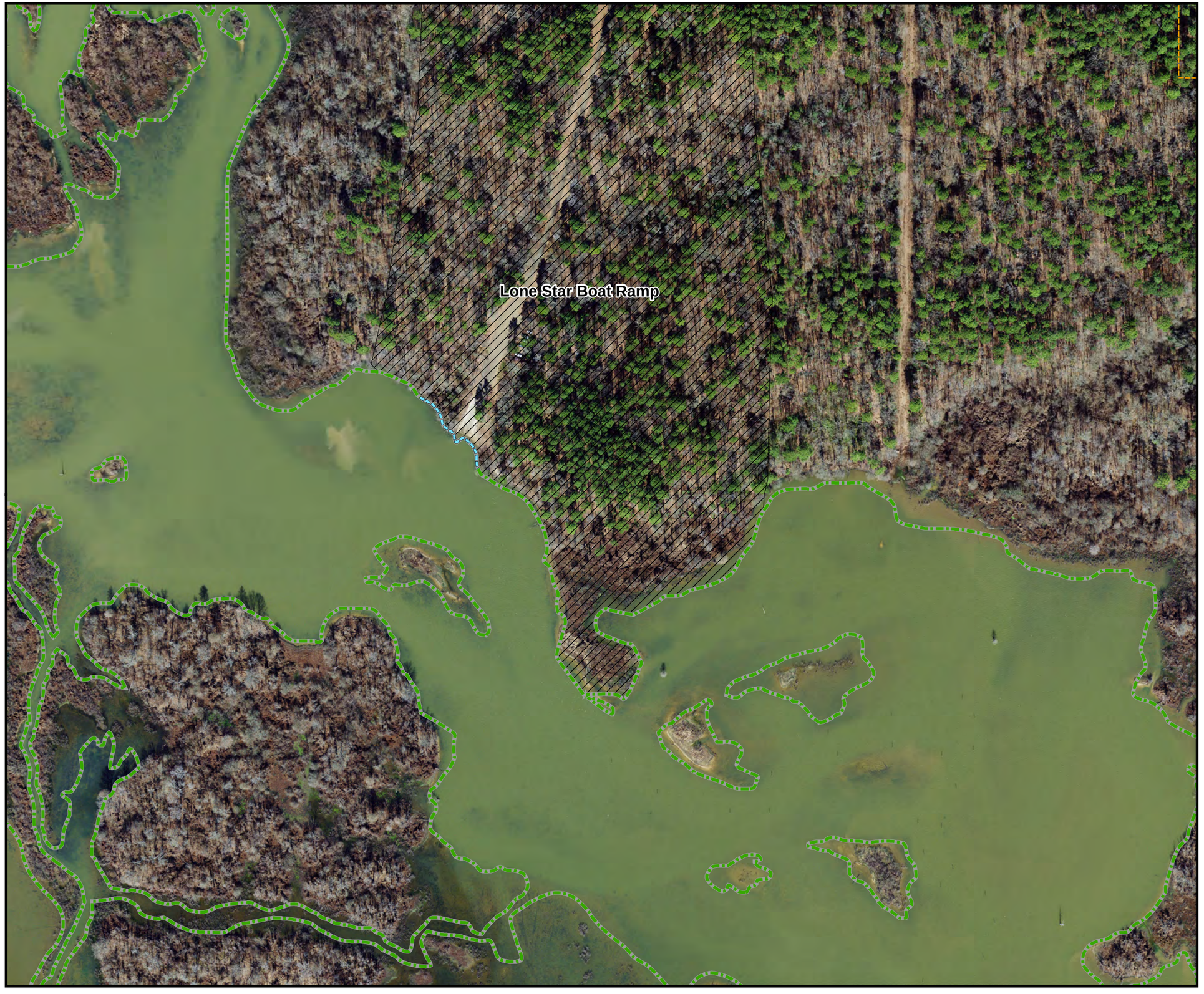
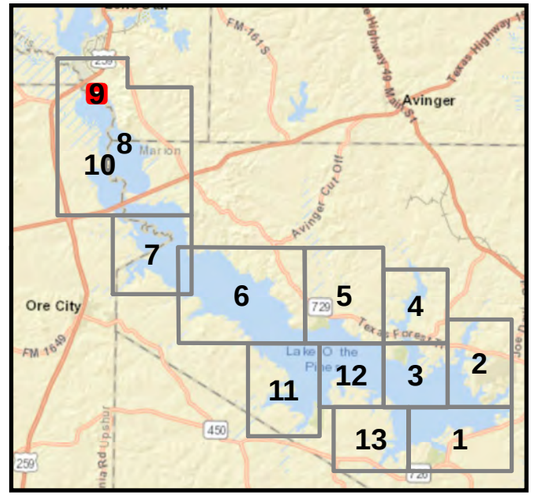
0 0.5 1 Miles

Date:	Map No.
October 2019	LP19-SMP-8





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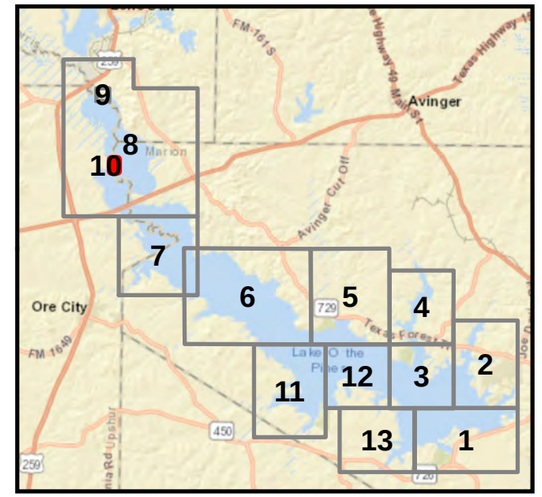
N

0 0.05 0.1 Miles

Date: October 2019

Map No. LP19-SMP-9



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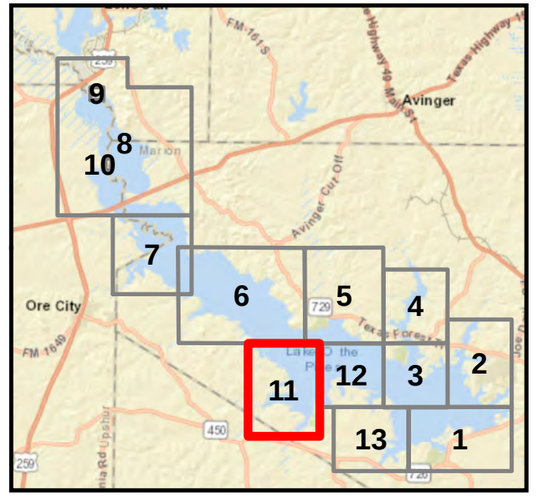
N

0 0.05 0.1 Miles

Date: October 2019

Map No. LP19-SMP-10



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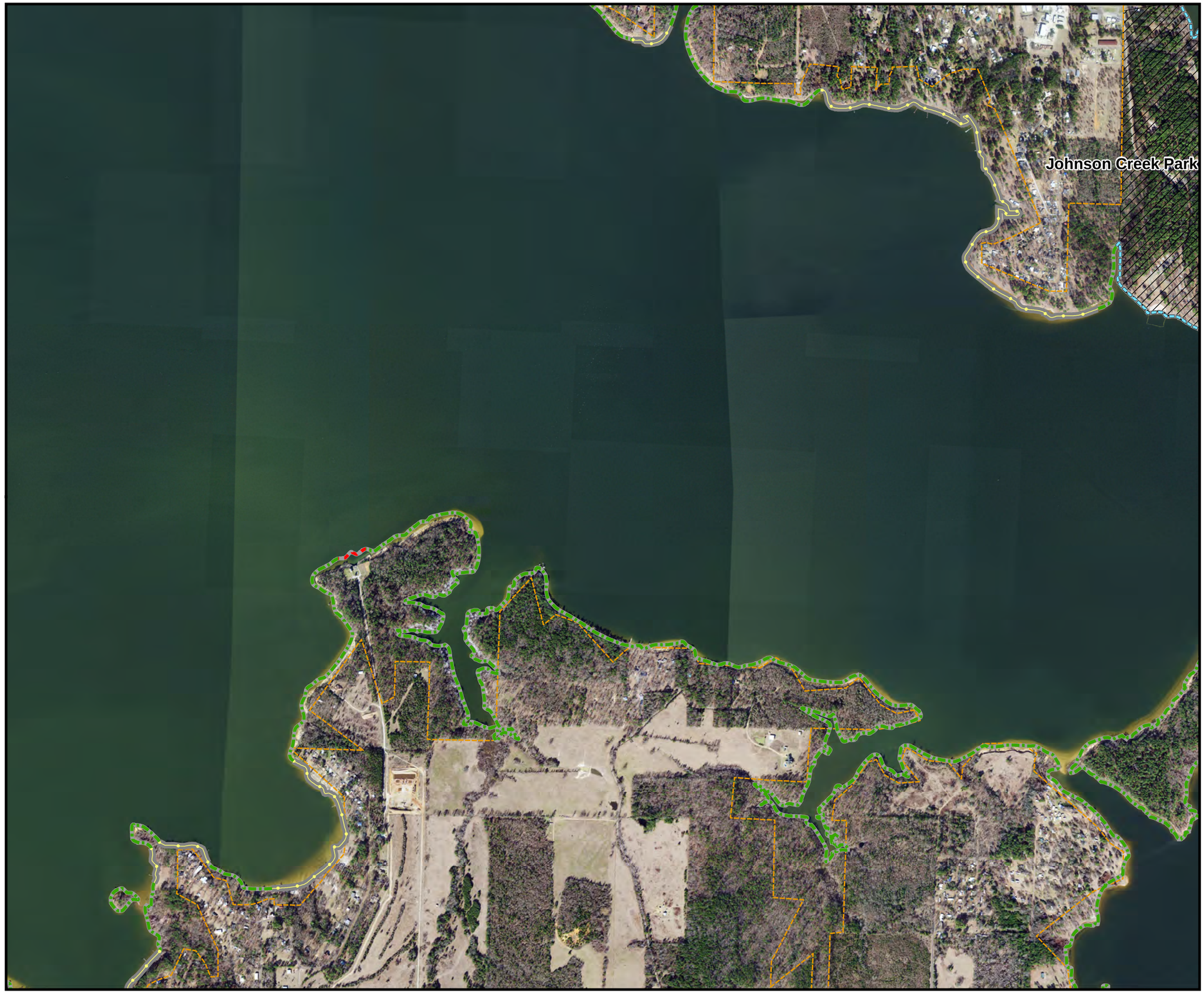
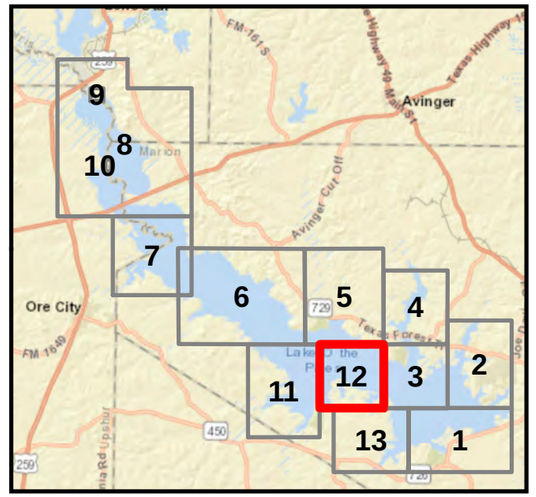
N

0 0.425 0.85 Miles

Date: October 2019

Map No. LP19-SMP-11





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N

0 0.275 0.55 Miles

Date:	Map No.
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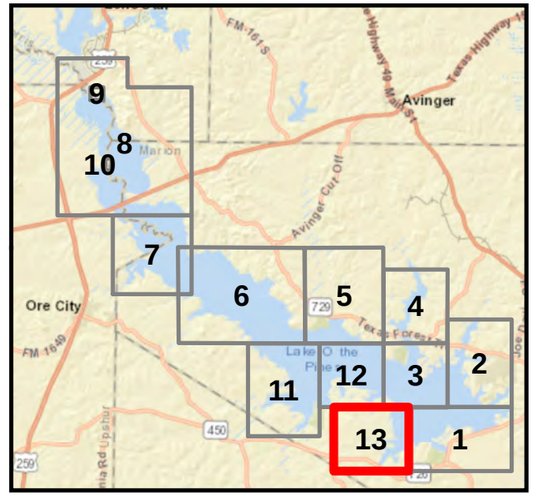

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N

0 0.275 0.55 Miles

Date: October 2019

Map No. LP19-SMP-13

APPENDIX B: APPLICATION FOR SHORELINE PERMIT

ENG FORM 4264-R

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APPLICATION FOR SHORELINE USE PERMIT

(ER 1130-2-406)

(See reverse side for Privacy Act Statement)

Print or type information requested below. Submit two completed and original signed copies of this application with two complete sets of plans and specifications to the Resource Manager.

PROJECT Lake O' the Pines	DATE OF APPLICATION
NAME OF APPLICANT*(and Spouse if applicable)*	TELEPHONE, AREA CODE AND NUMBER
STREET	CITY, STATE, ZIP CODE

TYPE OF FACILITY *(Check one or more blocks as appropriate)* ☐ NEW ☐ RENEWAL

WATER-BASE		LAND-BASE	
☐ SINGLE-OWNER DOCK	☐ SKI JUMP	☐ UNDERBRUSHING	☐ MOWING
☐ COMMUNITY DOCK	☐ SKI COURSE	☐ PLANT /LANDSCAPING	☐ FOOT PATH
☐ MOORING BUOY	☐ SWIM FLOAT	☐ EROSION CONTROL	
☐ MOORING POST	☐ DUCK BLIND		

☐ OTHER *(Describe)* _____

BRIEF DESCRIPTION OF FACILITY LOCATION, STATE LICENSE NUMBER(S) OF BOAT(S) TO BE DOCKED *(If this application is for boat mooring facility)* OR DEVELOPMENT *(If this application is for land use):*

THE FOLLOWING ALTERNATE PARTY WILL BE READILY AVAILABLE ON SHORT-NOTICE CALL AND RESPONSIBLE FOR PROVIDING ANY NEEDED SURVEILLANCE OF THE STRUCTURE IN MY ABSENCE.

NAME	TELEPHONE, AREA CODE AND NUMBER
STREET	CITY, STATE, ZIP CODE

I UNDERSTAND AND AGREE TO THE CONDITIONS OF THE PERMIT FOR SHORELINE USE. TWO COMPLETE SETS OF THE PLANS AND SPECIFICATIONS, INCLUDING SITE LOCATION AND LAYOUT PLAN, FOR THE PROPOSED ACTIVITY. STRUCTURE OR ANCHORAGE SYSTEM ARE ENCLOSED.

_____ _____

(Date) *(Signature of Applicant)*

_____ _____

(Date) *(Signature of Alternate)*

(DO NOT WRITE BELOW THIS LINE)

PERMIT

SHORELINE PERMIT NO.	DATE ISSUED	DATE EXPIRES *(Date)*

THE APPLICANT IS HEREBY GRANTED A PERMIT TO CONSTRUCT AND/OR MAINTAIN AND USE A FLOATING RECREATION FACILITY OR OTHER DEVELOPMENT AS SHOWN ON THE ATTACHED PLANS SUBJECT TO THE RULES AND REGULATIONS OF THE CORPS OF ENGINEERS ON WATERS UNDER THE CONTROL OF THE U.S ARMY, CORPS OF ENGINEERS. THE PERMITTEE SHALL ADHERE TO THE CONDITIONS FOR SHORELINE USE SET FORTH IN APPENDIX C OF ER 1130-2-406.

_____ _____

(Date) *(Signature of Resource Manager)*

DATA REQUIRED BY THE PRIVACY ACT OF 1974

AUTHORITY	**The Rivers and Harbors Act of 1894 as amended and supplemented (33 U.S. C. 1)**
PRINCIPAL PURPOSE	**Provide the Corps of Engineers with information for contact of the responsible person applying for and/or receiving a Shoreline Management permit. The description of the activity is needed to assure conditions of the permit requirements are met.**
ROUTINE USES	**The information on this application is used in considering the issuance of shoreline management permits on Corps of Engineers projects. This information is collected and maintained at project offices and is used as basis for issuing permits. It provides auditing information for this program which has financial invovlement.**
DISCLOSURE	**Disclosure of information is voluntary. However, failure to provide the requested information will preclude the issuance of a Shoreline Management permit.**

APPENDIX C: SHORELINE USE PERMIT CONDITIONS

ER 1130-2-406

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SHORELINE USE PERMIT CONDITIONS
APPENDIX C of ER 1130-2-406

1. This permit is granted solely to the applicant for the purpose described on the attached permit.

2. The permittee agrees to and does hereby release and agree to save and hold the Government harmless from any and all causes of action, suits at law or equity, or claims or demands or from any liability of any nature whatsoever for or on account of any damages to persons or property, including a permitted facility, growing out of the ownership, construction, operation or maintenance by the permittee of the permitted facilities and/or activities.

3. Ownership, construction, operation, use and maintenance of a permitted facility are subject to the Government's navigation servitude.

4. No attempt shall be made by the permittee to forbid the full and free use by the public of all public waters and/or lands at or adjacent to the permitted facility or to unreasonably interfere with any authorized project purposes, including navigation in connection with the ownership, construction, operation or maintenance of a permitted facility and/or activity.

5. The permittee agrees that if subsequent operations by the Government require an alteration in the location of a permitted facility and/or activity or if in the opinion of the district commander a permitted facility and/or activity shall cause unreasonable obstruction to navigation or that the public interest so requires, the permittee shall be required, upon written notice from the district commander to remove, alter, or relocate the permitted facility, without expense to the Government.

6. The Government shall in no case be liable for any damage or injury to a permitted facility which may be caused by or result from subsequent operations undertaken by the Government for the improvement of navigation or for other lawful purposes, and no claims or right to compensation shall accrue from any such damage. This includes any damage that may occur to private property if a facility is removed for noncompliance with the conditions of the permit.

7. Ownership, construction, operation, use and maintenance of a permitted facility and/or activity are subject to all applicable Federal, state and local laws and regulations. Failure to abide by these applicable laws and regulations may be cause for revocation of the permit.

8. This permit does not convey any property rights either in real estate or material; and does not authorize any injury to private property or invasion of private rights or any infringement of Federal, state or local laws or regulations, nor required by law for the construction, operation, use and maintenance of a permitted facility and/or activity.

9. The permittee agrees to construct the facility within the time limit agreed to on the permit issuance date. The permit shall become null and void if construction is not completed within that period. Further, the permittee agrees to operate and maintain any permitted facility and/or activity in a manner so as to provide safety, minimize any adverse impact on fish and wildlife

habitat, natural, environmental, or cultural resources values and in a manner so as to minimize the degradation of water quality.

10. The permittee shall remove a permitted facility within 30 days, at his/her expense, and restore the waterway and lands to a condition accepted by the resource manager upon termination or revocation of this permit or if the permittee ceases to use, operate or maintain a permitted facility and/or activity. If the permittee fails to comply to the satisfaction of the resource manager, the district commander may remove the facility by contract or otherwise and the permittee agrees to pay all costs incurred thereof.

11. The use of a permitted boat dock facility shall be limited to the mooring of the permittee's vessel or watercraft and the storage, in enclosed locker facilities, of his/her gear essential to the operation of such vessel or watercraft.

12. Neither a permitted facility nor any houseboat, cabin cruiser, or other vessel moored thereto shall be used as a place of habitation or as a full or part-time residence or in any manner which gives the appearance of converting the public property, on which the facility is located, to private use.

13. Facilities granted under this permit will not be leased, rented, sub-let or provided to others by any means of engaging in commercial activity(s) by the permittee or his/her agent for monetary gain. This does not preclude the permittee from selling total ownership to the facility.

14. Floats and the flotation material for all docks and boat mooring buoys shall be fabricated of materials manufactured for marine use. The float and its flotation material shall be 100% warranted for a minimum of 8 years against sinking, becoming waterlogged, cracking, peeling, fragmented, or loosing beads. All floats shall resist puncture and penetration and shall not be subject to damage by animals under normal conditions for the area. All floats and the flotation material used in them shall be fire resistant. Any float which is within 40 feet of a line carrying fuel shall be 100% impervious to water and fuel. The use of new or recycled plastic or metal drums or non-compartmentalized air containers for encasement or floats is prohibited. Existing floats are authorized until it or its flotation material is no longer serviceable, at which time it shall be replaced with a float that meets the conditions listed above. For any floats installed after the effective date of this specification, repair or replacement shall be required when it or its flotation material no longer performs its designated function or it fails to meet the specifications for which it was originally warranted.

15. Permitted facilities and activities are subject to periodic inspection by authorized Corps representatives. The resource manager will notify the permitter of any deficiencies and together establish a schedule for their correction. No deviation or changes from approved plans will be allowed without prior written approval of the resource manager.

16. Floating facilities shall be securely attached to the shore in accordance with the approved plans by means of moorings which do not obstruct general public use of the shoreline or adversely affect the natural terrain or vegetation. Anchoring to vegetation is prohibited.

17. The permit display tag shall be posted on the permitted facility and/or on the land areas covered by the permit so that it can be visually checked with ease in accordance with instructions provided by the resource manager.

18. No vegetation other than that prescribed in the permit will be damaged, destroyed or removed. No vegetation of any kind will pe planted, other than that specifically prescribed in the permit.

19. No change in land form such as grading, excavation or filling is authorized by this permit.

20. This permit is non-transferable. Upon the sale or other transfer of the permitted facility or the death of the permittee and his/her legal spouse, this permit is null and void.

21. By 30 days written notice, mailed to the permittee by certified letter, the district commander may revoke this permit whenever the public interest necessitates such revocation or when the permittee fails to comply with ant permit condition or term. The revocation notice shall specify the reasons for such actions. If the permittee requests a hearing in writing to the district commander through the resource manager within the 30 day period, the district commander shall grant such hearing at the earliest opportunity. In no event shall the hearing date be more than 60 days from the date of the hearing request. Following the hearing, a written decision wil be rendered and a copy mailed to the permittee by certified letter.

22. Notwithstanding the condition cited in condition 21 above, if in the opinion of the district commander, emergency circumstances dictate otherwise, the district commander may summarily revoke the permit.

23. When vegetation modification on these lands is accomplished by chemical means, the program will be in accordance with appropriate Federal, state and local laws, rules and regulations.

24. The resource manager or his/her authorized representative shall be allowed to cross the permittee’s property, as necessary, to inspect facilities and/or activities under permit.

25. When vegetation modification is allowed, the permitter will delineate the government property line in a clear, but unobtrusive manner approved by the resource manager and in accordance with the project Shoreline Management Plan.

26. If the ownership of a permitted facility is sold or transferred, the permittee or new owner will notify the resource manager of the action prior to finalization. The new owner must apply for a Shoreline Use Permit within 14 days or remove the facility and restore the use area within 30 days from the date of ownership transfer.

27. If permitted facilities are removed for storage or extensive maintenance, the resource manager may require all portions of the facility be removed from public property.

US Army Corps of Engineers
Fort Worth District

PRIVATE BOAT DOCK INSPECTION CHECKLIST

LAKE O' THE PINES

Permit #: _____ Inspector: _____

Lake Elevation: _____ Date: _____

Permit Type: _____ Owner: _____

Subdivision: _____ Address: _____

Section / Lot #: _____ Phone: _____

Potential New Docks (need)
2-3' end depth at 228.5' MSL
≤125' length from 230' MSL
≥75' between docks
Encapsulated flotation
Floating if over water at 230' MSL

CODE LETTER

1. Flotation
   - A. Adequate to support and float dock facility in a stable manner.
   - B. Adequate to allow dock facility to rise with raising water level.
   - C. Flotation secure and well maintained (encapsulated if new).

2. Anchoring
   - A. Anchoring allows dock to rise and fall with water level fluctuations.
   - B. Anchoring remains secure with wave action and water level fluctuations.
   - C. Anchoring system does not restrict public use of government property.

3. Pilings
   - A. Required height is 240' M.S.L.
   - B. Pilings and extensions (if present) are in good condition and do not present a safety hazard.
   - C. Pilings placed to adequately support dock facility.

4. Structure (Decking and frame)
   - A. Good condition and does not present a safety hazard (treated wood, aluminum, or galvanized).
   - B. If any hinged sections exist on dock, hinges are secure and in good condition.
   - C. No unauthorized structures in conjunction with, or adjacent to, dock or on government property.
   - D. Structure becomes fully floating at 230' M.S.L.

5. Size
   - A. Walkway width 4' standard, larger OK if approved (minimum = 30", maximum = 6').
   - B. End section maximum size 8' x 12'.

6. Paint/Finish
   - A. Brown is standard color.
   - B. Unpainted OK if galvanized, rust resistant metal, or not deteriorated.

Comments / Remarks:

S = Sufficient

I = Insufficient

NA = Not Applicable

APPENDIX D: PRIVATE DOCK INSPECTION CHECKLIST

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US Army Corps of Engineers
Fort Worth District

PRIVATE BOAT DOCK INSPECTION CHECKLIST

LAKE O' THE PINES

Permit #: _____ Inspector: _____

Lake Elevation: _____ Date: _____

Permit Type: _____ Owner: _____

Subdivision: _____ Address: _____

Section / Lot #: _____ Phone: _____

Potential New Docks (need)
2-3' end depth at 228.5' MSL
≤125' length from 230' MSL
≥75' between docks
Encapsulated flotation
Floating if over water at 230' MSL

CODE LETTER

1. Flotation
   - A. Adequate to support and float dock facility in a stable manner.
   - B. Adequate to allow dock facility to rise with raising water level.
   - C. Flotation secure and well maintained (encapsulated if new).

2. Anchoring
   - A. Anchoring allows dock to rise and fall with water level fluctuations.
   - B. Anchoring remains secure with wave action and water level fluctuations.
   - C. Anchoring system does not restrict public use of government property.

3. Pilings
   - A. Required height is 240' M.S.L.
   - B. Pilings and extensions (if present) are in good condition and do not present a safety hazard.
   - C. Pilings placed to adequately support dock facility.

4. Structure (Decking and frame)
   - A. Good condition and does not present a safety hazard (treated wood, aluminum, or galvanized).
   - B. If any hinged sections exist on dock, hinges are secure and in good condition.
   - C. No unauthorized structures in conjunction with, or adjacent to, dock or on government property.
   - D. Structure becomes fully floating at 230' M.S.L.

5. Size
   - A. Walkway width 4' standard, larger OK if approved (minimum = 30", maximum = 6').
   - B. End section maximum size 8' x 12'.

6. Paint/Finish
   - A. Brown is standard color.
   - B. Unpainted OK if galvanized, rust resistant metal, or not deteriorated.

Comments / Remarks:

S = Sufficient

I = Insufficient

NA = Not Applicable

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APPENDIX E: BOAT DOCK TYPICAL DRAWING

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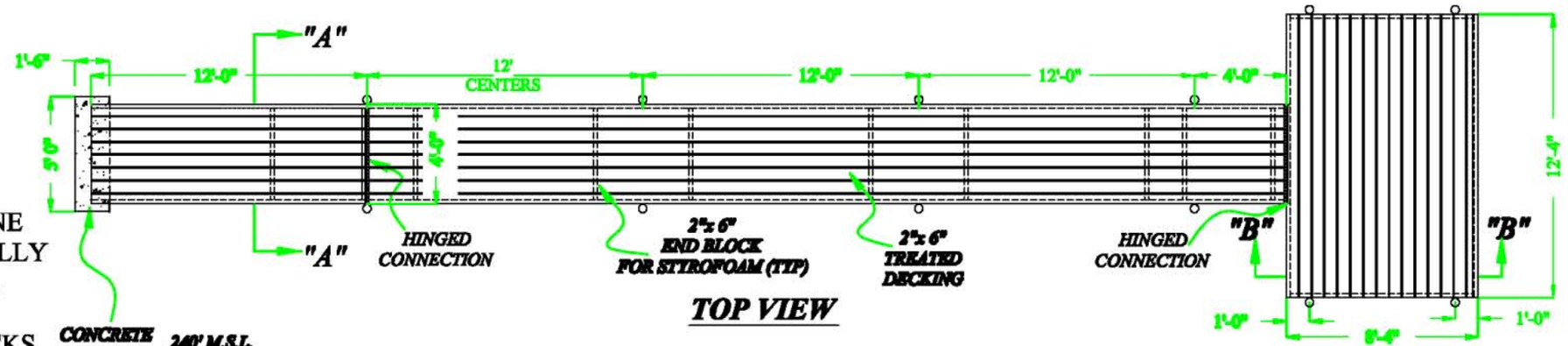
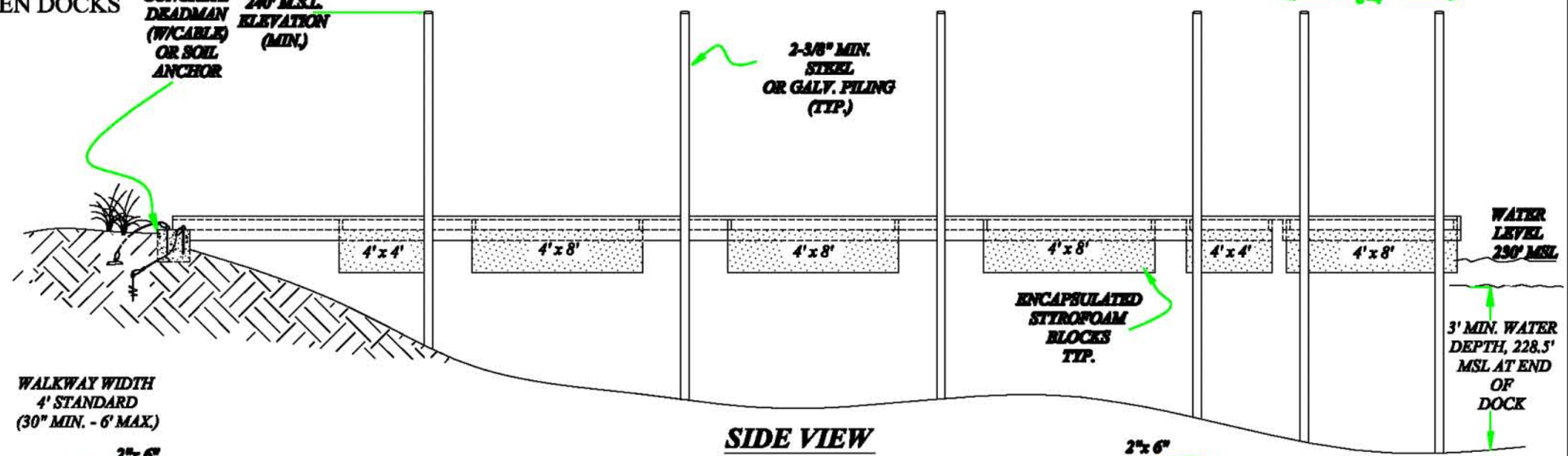
GENERAL NOTES:

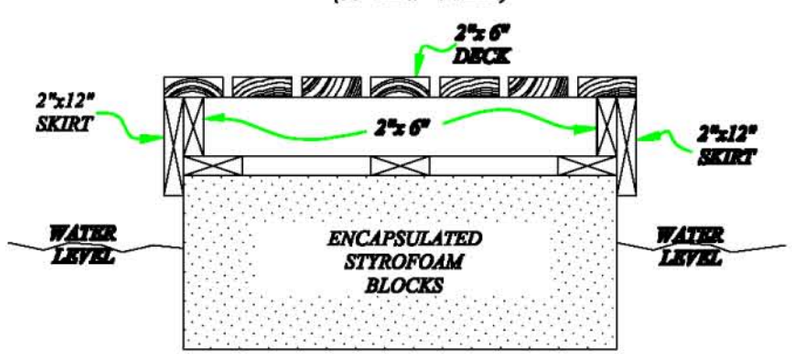
- MAX. DECKLENGTH 125' FROM 230' MSL WATERLINE
- STRUCTURE BECOMES FULLY FLOATING AT 230' MSL OR HIGHER
- MIN. OF 75' BETWEEN DOCKS



TOP VIEW



SIDE VIEW



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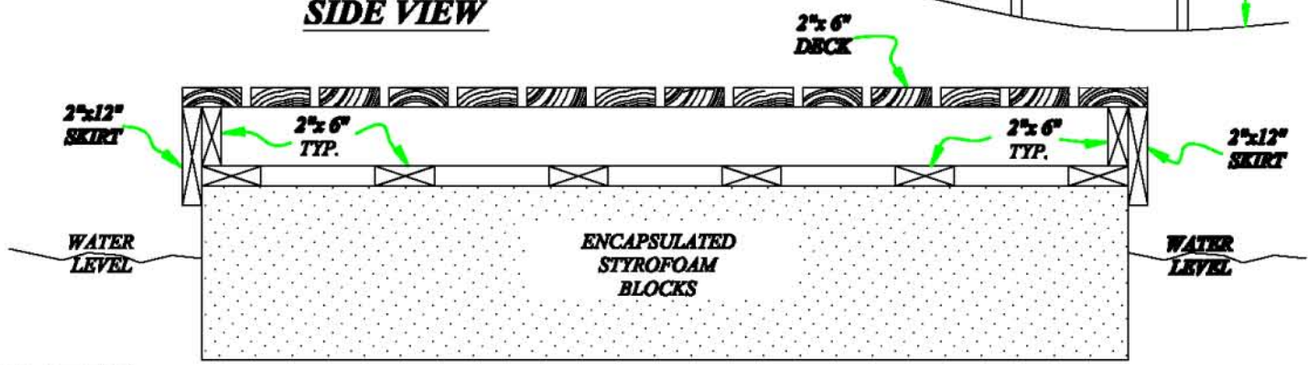
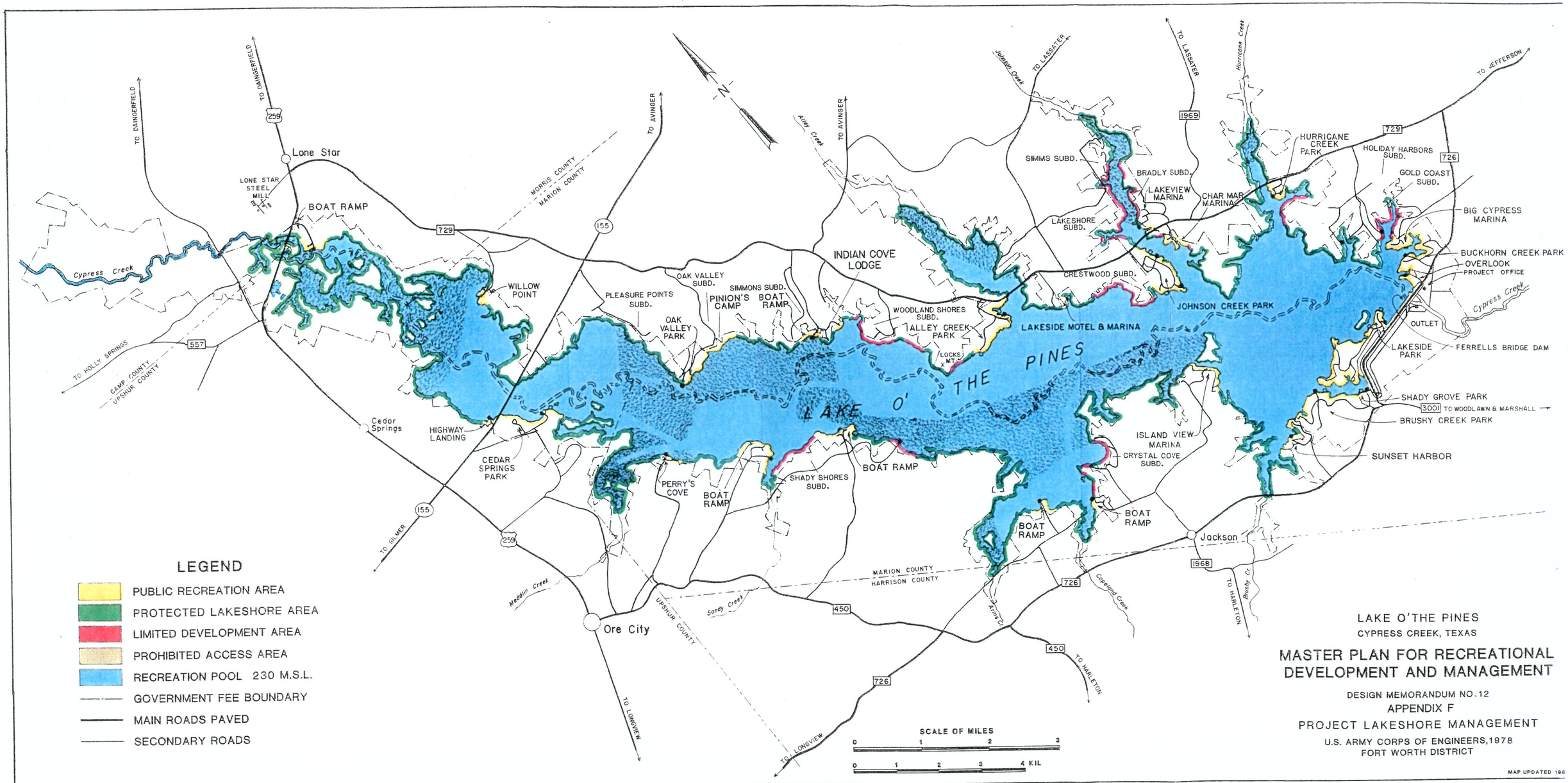


SECTION "B-B"

TYPICAL FLOATING DOCK



LEGEND

- PUBLIC RECREATION AREA
- PROTECTED LAKESHORE AREA
- LIMITED DEVELOPMENT AREA
- PROHIBITED ACCESS AREA
- RECREATION POOL 230 M.S.L.
- GOVERNMENT FEE BOUNDARY
- MAIN ROADS PAVED
- SECONDARY ROADS

LAKE O'THE PINES
CYPRESS CREEK, TEXAS

MASTER PLAN FOR RECREATIONAL DEVELOPMENT AND MANAGEMENT

DESIGN MEMORANDUM NO.12
APPENDIX F
PROJECT LAKESHORE MANAGEMENT
U.S. ARMY CORPS OF ENGINEERS,1978
FORT WORTH DISTRICT

MAP UPDATED 198

EXHIBIT 3

APPENDIX F: FLOATING DOCK STANDARDS

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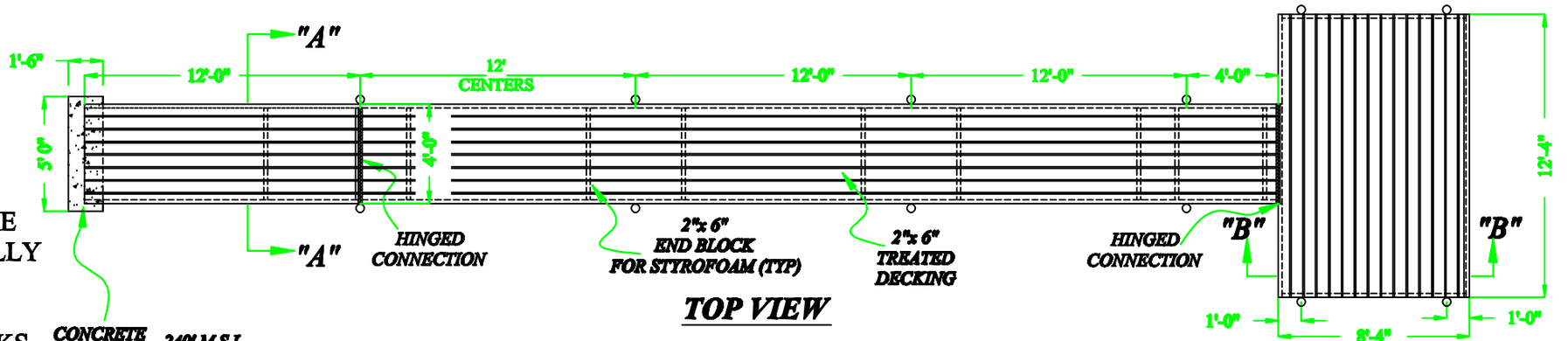
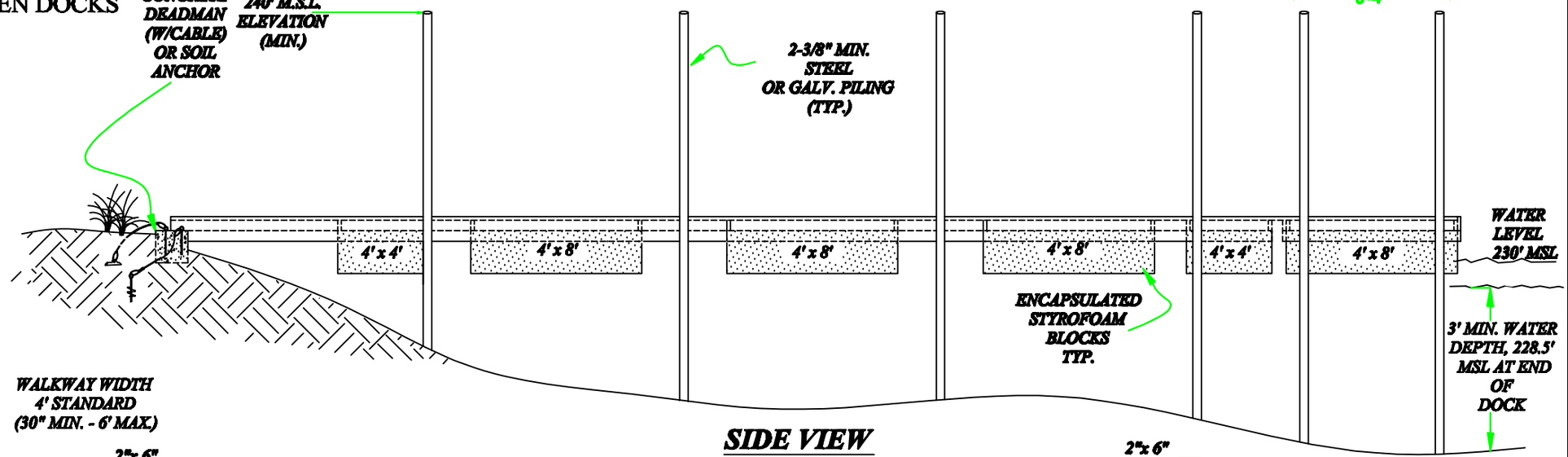
GENERAL NOTES:

- MAX. DECKLENGTH 125' FROM 230' MSL WATERLINE
- STRUCTURE BECOMES FULLY FLOATING AT 230' MSL OR HIGHER
- MIN. OF 75' BETWEEN DOCKS

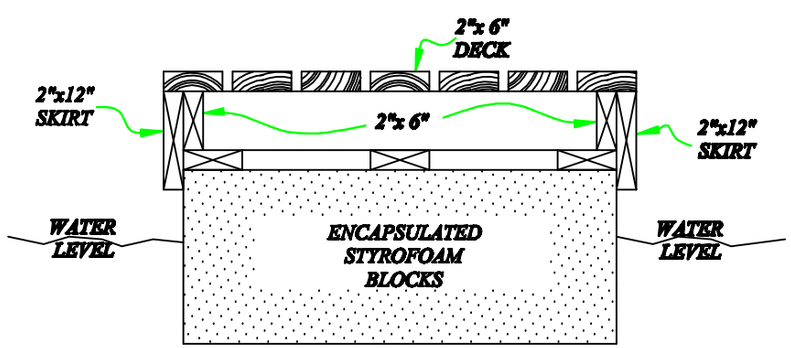


TOP VIEW



SIDE VIEW

WALKWAY WIDTH 4' STANDARD (30" MIN. - 6' MAX.)



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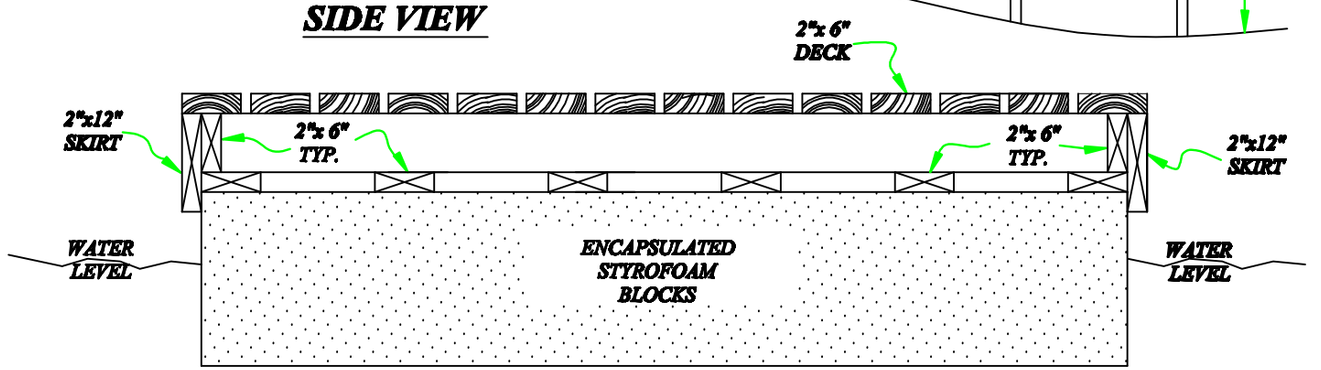

SECTION "B-B"

TYPICAL FLOATING DOCK

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APPENDIX G: SUMMARY OF PUBLIC COMMENTS

Comment NO.	NO. Commenters	Comment	USACE Response
1	2	Map at public meeting did not show Shady Shores as a Limited Development Area.	Unfortunately, a mapping error failed to show that the Shady Shores area is a Limited Development Area where vegetation modification is allowable on USACE land, which has since been corrected.
2	1	Consider Pine Hill to Pop's Landing for dock use	Noted. A portion of the described area is designated as an LDA (where docks are allowed), but some areas are in an ESA as described in the Master Plan and thus in a Protected Shoreline Area allocation where new boat docks are not allowed.
3	1	Reside at 205 Steele Lane and would like adjacent area to be a limited development area	Noted. After careful review of existing Limited Development Areas, it was determined that the shoreline fronting 205 Steele Lane is in a Limited Development Area.
4	1	Owns 9 adjoining lots on Hideaway Rd. The 1978 SMP shows designation of Lakeshore marina between Alley Creek and Johnson Creek. Would like a permit to erect a dock in the cove according to specifications	Noted. The area in question is a prior recreation area that was closed several years ago. A portion of the shoreline in this area is proposed to be a Limited Development Area with the remaining shoreline allocated as a Protected Shoreline Area. The cove in question is shallow and not suited to boat docks. See section 5 of this Plan for details on how to apply for a permit.

Comment NO.	NO. Commenters	Comment	USACE Response
5	1	Big Cypress marina houseboat mooring is a gross injustice to the quality of the lake water, and associated garbage. Garbage and sewage from houseboats blows or falls off, thereby drifting across the other shoreline. Raw sewage is routinely smelled and seen around the floating cabins. Please inspect commercial operations.	Noted. Although not a Shoreline Management topic, environmental compliance issues associated with marinas may be reported to USACE. Compliance with environmental laws and regulations may involve action by the Texas Commission on Environmental Quality and Texas Parks and Wildlife Department. USACE encourages anyone to report suspected violations.
6	1	Would like a boat dock on Johnson Creek	Noted. While USACE strives to work with adjacent land owners the area described is currently a Protected Shoreline Area, which aligns with the land classifications in the Lake O' the Pines Master Plan, and therefore not available for placement of private boat docks.
7	2	Would like to be able to mow and keep wooded debris and trash picked up along the shoreline between Corps land and his property. - Owns lots in Indian Hills Harbor.	Noted. Clean up of flood debris and trash along the shoreline can by authorized by issuances of a Shoreline Use Permit. Mowing may also be authorized if considered a grandfathered activity or for the purpose of reasonable wildfire prevention.

Comment NO.	NO. Commenters	Comment	USACE Response
8	11	Would like to be able to clean up debris and debris lines, and would like to burn and clear area by the lake.	Concur in part. The draft plan will consider this comment. Limited removal of underbrush and mowing will be possible on most USACE land if there is a need for wildfire prevention purposes. With the exception of those areas where significant mowing has occurred for many years under a written shoreline use permit, and is therefore a grandfathered activity, the draft SMP would specify that all new vegetation modification permits would be issued in accordance with Zone 1, defensible space criteria of the Texas A&M Forest Service National Firewise Program. In general, vegetation modification would be permissible on USACE land where necessary to provide for a 30-foot defensible space around private structures. If sufficient space is available on private land to create a 30-foot defensible space, there will be no need to alter vegetation on USACE land. Vegetation modification permits are not issued for the purposed of creating a "lawn" or "yard" on USACE land. Outdoor burning on USACE land will not be permitted.
9	1	Easier access to mow permits	Noted. Vegetation modification permits are issued as part of the SMP in certain areas and for certain reasons as explained in the USACE response to Comment No. 8.

Comment NO.	NO. Commenters	Comment	USACE Response
10	1	Would like to be able to remove dead trees and downed timber	Noted. Dead or downed timber does provide habitat for numerous wildlife species and may not be arbitrarily removed. However, if the timber presents a wildfire hazard or is otherwise a danger risk to people or private property, USACE policy within the SMP and Tree Risk Management Guidelines, provides an avenue to manage these hazards and risk. Neighbors are encouraged to contact USACE staff at Lake O' the Pines if the risk of damage from trees is suspected.
11	2	Would like to be allowed to groom landscape for safer, easier access and permit mowing for dock access	Non-concur. Rules governing vegetation modification are set forth in the previous responses. It is noteworthy that USACE does not operate under a mission to enhance private property values by allowing landscaping and grooming of USACE land. USACE does operate under outdoor recreation and environmental stewardship missions that seek to provide quality outdoor recreation opportunities related to the natural resources afforded by the lake and surrounding public lands, and to sustain and improve wildlife habitat. It must be noted that no one is permitted to maintain a "lawn" or a "yard" on USACE land. Where vegetation modification is allowed to exceed the amount needed for wildfire protection around private structures (see USACE response to later comments), in no case will

Comment NO.	NO. Commenters	Comment	USACE Response
			the vegetation modification on public land be allowed to create the appearance of private property.
12	1	For campgrounds, remove dead and low hanging limbs, allow mowing permits, allow removal/move of underbrush, maintain mowing and water access	Noted. Maintenance of USACE campgrounds is not part of the SMP, but comments are noted.
13	3	Accessibility to docks - would like golf carts/utility vehicle access for unloading boating, fishing, maintenance equipment and aid persons with handicaps (private access)	Concur in part. Vehicle access is generally not allowed on USACE land with the exception of access needed for mowing with small lawn maintenance mowers (no heavy equipment such as tractors allowed) or for repair of boat docks. Requests for pedestrian access paths from individuals with special accessibility requirements will be handled on a case-by-case basis with the intent to allow reasonable access while preventing adverse impacts to natural resources.
14	2	Allow stationary chairs and benches on private docks	Non-concur. Installation of permanent chairs, benches or other amenities on permitted docks is prohibited. Docks are authorized only for the purpose of mooring the permittees boat and boating related equipment (to be

Comment NO.	NO. Commenters	Comment	USACE Response
			stored in a locker on the dock). Use of portable tables and chairs is allowable on authorized docks.
15	1	Allow for improvements such as picnic tables, benches or fire pits as the COE has done at many public areas and campgrounds	Non-concur. Placement of personal private property on USACE lands is prohibited under Title 36, Chapter III, Part 327, of the Code of Federal Regulations. In accordance with Section 327.15 - Abandonment and Impoundment of Personal Property: any personal property left unattended on USACE lands for a period of more than 24 hours will be considered abandoned and subject to impoundment.
16	1	Dock permits should include mowing for dock access and prevent overgrowth	Concur. Past practice has been to combine dock permits and mowing permits into a single permit where the permittee so desires. This practice will be considered for carryover into the draft SMP.

Comment NO.	NO. Commenters	Comment	USACE Response
17	1	What determines if land is in a floodplain	Noted. Several elevations are important for determining the flood risk potential on lands surrounding Lake O' the Pines. The conservation pool (typically considered to be the "normal" elevation of the lake is 228.5 feet in the winter months and 230.0 feet in the summer. When flood water enters the lake as the result of rainfall, the level of the lake can rise to as high as 254.5. In all areas around the lake, USACE purchased the right to store floodwater up to elevation 254.5. However, residents around the lake should be aware that it is possible, but only under very rare conditions, for the lake to rise above elevation 254.5. Lake O' the Pines provides a very high level of flood risk reduction for downstream area, but does not provide absolute and guaranteed control of flood events.
18	1	Existing docks with Styrofoam floatation should not be required to install "encapsulated floatation" unless it must be replaced due to breakage or loss	Concur. Encapsulated flotation is currently required when a new dock is constructed or if the flotation on an existing dock is no longer serviceable. Encapsulated flotation has the distinct advantage of significantly reducing the amount of litter resulting from loss of "beads" from compressed polystyrene flotation and of reducing damage to flotation from animals such as nutria or beaver.
19	1	We are a provider of a floating boat dock	Providers of floating dock systems are welcome to provide

Comment NO.	NO. Commenters	Comment	USACE Response
		system that has been in use on Lake O' the Pines for the past 19 years. Our system is also installed at several of the USACE park boat ramps at the lake.	comments to improve safety/security/durability of private docks.
20	8	Public Outreach and Communication - USACE received 13 comments related to public outreach and communication. These included not being informed of the public meeting, issues with the presentation at the public meeting, complements on the public meeting, and request for maps and information about the lake and public access at the marinas.	Noted. USACE makes every effort to inform the public of meetings, posting them in local newspapers and online, as well as posting notices at marinas and parks. The purpose of the initial public meetings included reviewing lake history and context and to allow the public to provide input into their perspectives/desire for the lake. Copies of the Shoreline Management Plan are available at the Project Office and online at http://www.swf-wc.usace.army.mil/lakeopines/. All individuals who attended the initial meeting will receive notification of the final public meeting where the draft SMP will be made available, as will permit holders and other stakeholders with whom USACE have contact information. Following announcement of the draft SMP, a 30-day comment period will ensue providing a window for additional changes and comments.
21	5	Public Relations: Desire better communication between the rangers and the adjacent land owners	Noted: We strive to maintain relationships and communication with residents and will continue to engage with adjacent land owners and the public.

Comment NO.	NO. Commenters	Comment	USACE Response
22	1	Allow construction of retaining wall to prevent erosion specifically around docks. (as COE has done at Johnson Creek)	Concur. Retaining walls and similar structures may be authorized on the shorelines of Lake O' the Pines but not through the Shoreline Use Permit process. Such structures may be authorized through a USACE Real Estate License after careful review by the USACE Lake Manager. If such structures are designed to prevent shoreline erosion from eroding onto private property, there is generally no fee associated with issuances of a license.
23	1	Allow docks to have utilities. Improvements such as lighting would definitely improve safety for boating at night.	Concur. Electric lights may be authorized on docks through issuance of a USACE Real Estate License. Many docks already have such lights. USACE encourages all dock owners to consider solar light applications that will remove the expense and safety hazard posed by electric lines. Dock owners wishing to convert to solar lighting should bring plans to the USACE office at Lake O' the Pines.
24	1	Maintain the water level of the lake	Noted. The water level of Lake O' the Pines is managed in accordance with a USACE Water Control Manual. One of the primary missions of Lake O' the Pines is to provide flood risk management and water conservation. When flood waters enter the lake the level of the lake may rise significantly, but USACE will then release the water as soon as possible (taking into

Comment NO.	NO. Commenters	Comment	USACE Response
			account downstream areas) to achieve the "normal" or conservation pool elevations of 228.5 in winter or 230.0 in summer. When the lake reaches the normal pool elevation, the Northeast Texas Municipal Water District and City of Longview control water withdrawals for municipal purposes.
25	1	Dredge our silt - sell for top soil / fill dirt to assist in the cost of dredging	Concur in part. Dredging is generally allowed but only to maintain municipal water intakes, public boat ramps, navigation lanes, and commercial marinas. Rarely is it necessary, desirable or cost effective for private entities to conduct dredging activities.
26	1	Would like to minimize the appearance of private exclusive use of public land and limit Lakeshore Development, which will affect esthetic quality and may restrict the safe use of the lake shore by the general public. Would rather see a park like or natural appearance	Concur. Aesthetic and natural values are an objective of the shoreline management plan and the master plan. The goal is to limit the appearance and impact of private use, and favor aesthetic qualities of the shoreline.
27	1	I just bought a lake house and turned it a family get away. On this property I have a mowing permit. I bought a second house on the same street for	Noted. Protected areas align with the Environmentally Sensitive Areas of the 2019 Master Plan. These areas are protected for aesthetic, habitat, endangered species, and/or cultural resources, are often subject to Federal

Comment NO.	NO. Commenters	Comment	USACE Response
		my kids just one block down and am told we can't mow or move dead trees to even see the water. It is protected.	regulations for protections, and therefore are off limits to development of any kind.
28	1	If you are not going to allow piers at least let us have a small loading dock to tie off a boat.	Noted: Docks are not permitted outside of Limited Development Areas unless they already exist in another shoreline allocation under a grandfathered status, having been permitted prior to the implementation of the SMP and maintained according to required standards. The boundaries and extent of Limited Development Areas are under consideration and will be included in the draft SMP.
29	1	Allow canoes and boats to be laid on the banks - not just a 24 hour rule. Place a ticket on it is trash and doesn't run.	Noted: Vessels, including paddle craft, are allowed to be temporarily moored along the shoreline and at boat docks, up to 24 hours as you stated, and after that time vessels are a violation of Title 36 CFR, CHAPTER III, PART 327.15 Abandonment and Impoundment of personal property.
30	1	Allow residents to clean up lake area. Airbnb can allow new growth in old neighborhoods. The fishing is good at this lake. I want to respect the land but need help with rewriting some old outdated laws that were good for that time but now need changed.	Noted. USACE has and will continue to authorize vegetation modification permits where necessary for access to a permitted dock or for reasonable wildfire prevention. Pedestrian access paths to the shoreline may also be authorized by Shoreline Use Permit. Unfortunately, many of the comments made are related to local economic

Comment NO.	NO. Commenters	Comment	USACE Response
			conditions that are beyond USACE control.
31	1	Request forestry management from US Forestry Service along protected shoreline from Holiday boat ramp to the main lake, or consider adjacent land owner underbrush activity.	Noted. Vegetation modification permits are issued as part of the SMP in certain areas and for certain reasons as explained in the USACE response to Comment No. 8. USACE employs foresters to manage areas for multiple benefits including, timber, wildlife habitat, water quality, and aesthetics.
	58	TOTAL COMMENTORS	

APPENDIX H: SUMMARY OF SHORELINE MANAGEMENT CHANGES

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
<u>Public Law and Engineer Regulation</u> The 1978 SMP contains numerous outdated requirements related to permit administration, transfer of permits, permit termination, dock removal/replacement, and required response times.	<u>Public Law and Engineer Regulation</u> Numerous changes are proposed to bring the revised SMP into compliance with public law and current Engineer Regulation.	These changes were implemented administratively as they became effective, and do not require public comment/approval to be updated in the plan.
<u>Shoreline Allocations</u> *Shoreline Allocations (in miles) in the 1978 SMP consisted of the following:* Prohibited Access Areas: 0.9 Miles Protected Shoreline Areas: 151.3 Miles Limited Development Areas: 10.6 Miles Public Recreation Areas: 26.4 Miles In the 1978 SMP, numerous public recreation areas existed with a larger footprint than they do today. The 1978 SMP aligned shoreline allocation with a prior version of the Lake O' the Pines Master Plan land use classes.	<u>Shoreline Allocations</u> *Shoreline Allocations in the 2019 SMP revision consist of the following:* Prohibited Access Areas: 1.3 Miles Protected Shoreline Areas: 163.0 Miles Limited Development Areas: 10.5 Miles Public Recreation Areas: 15.5 Miles Park closures and reductions caused by closure of several commercial leases after 1978 resulted in considerably less public recreation area than depicted in the 1978 map. Prior public recreation areas were reclassified to Multiple Resource Use Lands with emphasis on Wildlife or Vegetation Management and most are allocated as Protected Shoreline Areas. Limited Development Areas were reduced by 0.1 miles.	Many of these changes reduced the relic public recreation areas, and aligned allocations with the 2019 Master Plan revision. The majority of other shoreline allocation changes were to align with updated Master Plan land use classification for Low Density Recreation. Limited Development Areas were reduced by 0.1 miles due to removing small areas that are not suitable for boat docks due to shallow water or wind and wave action. 0.4 shoreline miles of Public Recreation Area were changed to Prohibited Access Area along the

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
	The 2019 Lake O' the Pines Master Plan revision aligned land use classification with current conditions and management goals, and the proposed Shoreline Management Plan aligns shoreline allocation with those land use classes.	upstream, northeastern end of the dam. 11.7 shoreline miles were changed from Limited Development Area (0.1 miles) and Public Recreation Area (10.5 miles) to Protected Shoreline Area. Public Recreation Area allocations were reduced to match the extent of the landside recreation areas. Limited Development Areas were reduced by 0.1 shoreline miles in areas where recreation facilities already exist nearby and in areas adjacent to shorelines subject to severe erosion, steep bluffs, and Environmentally Sensitive Areas identified by the 2019 Lake O' the Pines Master Plan. The 1.1 shoreline miles missing in the overall allocation is a result of erosion over the past 40 years and improved measurement technology.

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
<u>Boat Docks</u> The 1978 plan did not include a standard dock plan, although one was later implemented to clarify vague language in the SMP. The 1978 plan allows up to 50 percent density of docks within those portions of Limited Development Areas suitable for docks. The 1978 plan does not specify maximum dock size allowed, only that the overall size will be kept to a minimum to limit encroachment on the water surface. The 1978 plan does not specify dock guide piling height requirements, and the original standard dock plan required piling height of 236 feet NGVD29, the 5-year flood frequency.	<u>Boat Docks</u> The proposed plan includes the latest version of the standard dock plan, which has been in use for about 10 years. The proposed plan includes the requirement of a minimum distance of 75 feet between docks, which has been a standard dock plan requirement for many years. The proposed plan includes maximum dock size and length requirements that have been in effect as part of the standard dock plan for many years. The proposed plan includes dock guide piling height requirement of 240 feet NGVD29.	A standard dock plan provides clear construction and maintenance guidance to dock owners. It is useful as a design example that meets minimum local requirements. The use of 50 percent density is effective on lakes that allow cable or stiff-arm anchoring systems which occupy much more shoreline width than vertical pilings. The 75 feet minimum requirement is needed to reduce the impact to navigation around these facilities by the public. Dock size and length requirements are needed to keep with the original intent of the 1978 plan of minimizing encroachment on the water surface. This requirement has been included in the standard dock plan for many years, and has proven to be more effective with the frequency and magnitude of recent flood events. Consideration will be given to unique designs that may also be effective with such flooding.

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
The 1978 plan prohibits posting of private signs on permitted private use facilities. The 1978 plan did not include a requirement for handrails on boat docks.	The proposed plan allows the posting of "private property" signs only on private use facilities. The proposed plan includes specific minimum requirements for handrails for new or replacement walkways or ramps that are elevated and/or sloped.	Engineer Regulation has allowed posting of private signs even though the outdated 1978 SMP prohibited such posting. The proposed requirement is a safety measure to assist traversing sloped or elevated walkways or ramps, and to conform to International Building Code.
<u>Vegetation Alteration</u> In protected shoreline areas, the 1978 plan references permitting of limited underbrushing and mowing to reduce fire hazards to private homes. The 1978 plan specifies a diameter limit of 3 inches for tree removal that is allowed by USACE without the need to specifically mark trees to be removed.	<u>Vegetation Alteration</u> The proposed plan adopts Zone 1 defensible space criteria described by the Texas A&M Forest Service to reduce the risk of damage to private structures from wildfire. The proposed plan changes the tree cutting diameter limit to 2 inches.	Use of Texas A&M Forest Service Zone 1 defensible space criteria will provide consistency in the issuance of vegetation alteration permits for fire hazard reduction near adjacent private structures. In general, Zone 1 is described as a space of 30-feet that surrounds structures on all sides and provides space for fire suppression equipment in the event of an emergency. In many cases the 30-foot space can be achieved by combining private land and Government land.

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
		This change will improve the effectiveness of protecting young, high quality trees from damage or removal, and result in more effective forest regeneration.
<u>Community Docks</u> The 1978 plan encourages the use of community docks.	<u>Community Docks</u> The 2019 SMP does not encourage the use of community docks, although they may be permitted if a group can provide assurance of sufficient use demand and for continued surveillance and maintenance.	Community docks have proven difficult to manage and maintain for groups of adjacent landowners and are therefore not encouraged by USACE. However, with careful consideration they may still be beneficial in areas remote from commercial mooring facilities.
<u>Duck Blinds</u> The 1978 plan references permitting of duck blinds.	<u>Duck Blinds</u> The proposed plan allows for portable duck blinds under the requirements of the hunting program, but does not permit construction of permanent duck blinds.	Permitting of duck blinds does not operationally fit into the shoreline management plan. Permits for permanent duck blinds have not been issued for decades, and the use of portable blinds increases shoreline aesthetic values while meeting the needs of hunters.
<u>Buoyed Courses and Ski Jumps</u> The 1978 plan references permitting ski jumps.	<u>Buoyed Courses and Ski Jumps</u> The proposed plan does not include ski jumps or related water recreation activities that may be permitted separately as a special event.	The Special Event Program is more applicable than the SMP for permitting such lake activities.

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
Electrical Power and Lights The 1978 plan included permitting of electrical installations to service private use facilities.	Electrical Power and Lights The proposed plan denotes that electrical installations may be authorized by a real estate license following approval by the Lake Manager. Solar installations are also encouraged over traditional utility-dependent installations.	The proposed plan incorporates the use of real estate instruments for activities (including waterlines and stairways) that are customarily permitted by that method. The requirement for a real estate instrument as the standard means of approval for electric service or stairs that service a dock has been in place for many years, but is not specifically mentioned in the 1978 SMP..

APPENDIX I: ENVIRONMENTAL ASSESSMENT

Environmental Assessment for the Lake O' the Pines 2019 Shoreline Management Plan

Cypress River Basin
Marion, Harrison, Upshur, Camp, Titus, and Morris Counties, TX

November 2019

US Army Corps of Engineers ®
Fort Worth District

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DRAFT FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT FOR THE
LAKE O' THE PINES SHORELINE MANAGEMENT PLAN REVISION
MARION, HARRISON, UPSHUR, CAMP, TITUS, AND MORRIS COUNTIES, TEXAS

In accordance with the National Environmental Policy Act of 1969, including guidelines in 33 Code of Federal Regulations (CFR) Part 230, the Fort Worth District and the Regional Planning and Environmental Center (RPEC) of the U.S. Army Corps of Engineers (USACE) have assessed the potential impacts of the Lake O' the Pines Shoreline Management Plan revision.

The 2019 Shoreline Management Plan (SMP) is a revision of the 1978 SMP. The revised SMP will align with the 2019 Lake O' the Pines Master Plan (MP) that provides guidance for stewardship of natural resources and management of long-term public access to, and use of, the natural resources of Lake O' the Pines Reservoir and Dam. The SMP utilizes shoreline classifications to define appropriate uses of the USACE-managed shorelines. The SMP provides a comprehensive description of the project, a discussion of factors influencing resource management and development, new resource management objectives, the resource plan describing how project lands and waters will be managed, an identification and discussion of special topics, a synopsis of public involvement and input into the planning process, and descriptions of existing development.

Under the No Action Alternative, the USACE would take no action, which means the SMP would not be revised. With this alternative, no new resources analysis or shoreline use reclassifications would occur. The operation and management of Lake O' the Pines would continue as outlined in the current SMP.

The Proposed Action includes SMP Revisions, coordination with the public, and updates to comply with the USACE regulation and guidance, and reflects changes in land management and the land uses that have occurred since 1978. Shoreline classifications were revised to meet authorized project purposes and current resource objectives that address a mix of natural resource and recreation management objectives that are compatible with regional goals, recognize outdoor recreation trends, and are responsive to public comments. Recommended shoreline classification changes associated with the Proposed Action include the following:

Table A - List of SMP Changes from 1978 to Proposed Action

1978 Shoreline Management Plan (SMP)	Proposed 2019 SMP	Justification of the Proposed Action
Public Law and Engineer Regulation The 1978 SMP contains numerous outdated requirements related to permit administration, transfer of permits, permit termination, dock removal/replacement, and required response times.	Public Law and Engineer Regulation Numerous changes are proposed to bring the revised SMP into compliance with public law and current Engineer Regulation.	These changes were implemented operationally as they became effective, and do not require public comment/approval to be updated in the plan.
Shoreline Allocations Shoreline Allocations (in miles) in the 1978 SMP consisted of the following: Prohibited Access Areas: 0.9 Miles Protected Shoreline Areas: 151.3 Miles Limited Development Areas: 10.6 Miles Public Recreation Areas: 26.4 Miles In the 1978 SMP, numerous public recreation areas existed with a larger footprint than they do today. The 1978 SMP aligned shoreline allocation with a prior version of the Lake O' the Pines Master Plan land use classes.	Shoreline Allocations Shoreline Allocations in the 2019 SMP revision consist of the following: Prohibited Access Areas: 1.3 Miles Protected Shoreline Areas: 163.0 Miles Limited Development Areas: 10.5 Miles Public Recreation Areas: 15.5 Miles Park closures and reductions caused by closure of several commercial leases after 1978 resulted in considerably less public recreation area than depicted in the 1978 map. Prior public recreation areas were reclassified to Multiple Resource Management Lands with emphasis on Wildlife or Vegetation Management and most are allocated as Protected Shoreline Areas. The 2019 Lake O' the Pines Master Plan revision aligned land use classification with current conditions and management goals, and the proposed SMP aligns shoreline allocation with those land use classes.	0.4 shoreline miles of Public Recreation Area were changed to Prohibited Access Area along the upstream, northeastern end of the dam. 11.7 shoreline miles were changed from Limited Development Area (0.1 miles) and Public Recreation Area (10.5 miles) to Protected Shoreline Area. Public Recreation Area allocations were reduced to match the extent of the landside recreation areas. Limited Development Areas were reduced by 0.1 shoreline miles in areas where recreation facilities already exist nearby and in areas adjacent to shorelines subject severe erosion, steep bluffs, and Environmentally Sensitive Areas identified by the 2019 Lake O' the Pines Master Plan. The 1.1 shoreline miles missing in the overall allocation is a result of erosion over the past 40 years and improved measurement technology.
Boat Docks The 1978 plan did not include a standard dock plan, although one was	Boat Docks The proposed plan includes the latest version of the standard dock plan,	A standard dock plan provides clear construction and maintenance guidance

1978 Shoreline Management Plan (SMP)	Proposed 2019 SMP	Justification of the Proposed Action
later implemented to clarify vague language in the SMP. The 1978 plan allows up to 50 percent density of docks within those portions of Limited Development Areas suitable for docks. The 1978 plan does not specify maximum dock size allowed, only that the overall size will be kept to a minimum to limit encroachment on the water surface. The 1978 plan does not specify dock guide piling height requirements, and the original standard dock plan required piling height of 236 National Geodetic Vertical Datum 23 (NGVD), the 5-year flood frequency. The 1978 plan prohibits posting of private signs on permitted private use facilities. The 1978 plan did not include a requirement for handrails on boat docks.	which has been in use for about 10 years. The proposed plan includes the requirement of a minimum distance of 75 feet between docks, which has been a standard dock plan requirement for many years. The proposed plan includes maximum dock size and length requirements that have been in effect as part of the standard dock plan for many years. The proposed plan includes dock guide piling height requirement of 240 NGVD. The proposed plan allows the posting of “private property” signs only on private use facilities. The proposed plan includes specific minimum requirements for handrails for new or replacement walkways or ramps that are elevated and/or sloped.	to dock owners. It is useful as a design example that meets minimum local requirements. The use of 50 percent density is effective on lakes that allow cable or stiff-arm anchoring systems which occupy much more shoreline width than vertical pilings. The 75 feet minimum requirement is needed to reduce the impact to navigation around these facilities by the public. Dock size and length requirements are needed to keep with the original intent of the 1978 plan of minimizing encroachment on the water surface. This requirement has been included in the standard dock plan for many years, and has proven to be more effective with the frequency and magnitude of recent flood events. Consideration will be given to unique designs that may also be effective with such flooding. Engineer Regulation has allowed posting of private signs even though the outdated 1978 SMP prohibited such posting. The proposed requirement is a safety measure to assist traversing sloped or elevated walkways or ramps, and to conform to International Building Code.
Vegetation Alteration	Vegetation Alteration	

1978 Shoreline Management Plan (SMP)	Proposed 2019 SMP	Justification of the Proposed Action
In protected shoreline areas, the 1978 plan references permitting of limited underbrushing and mowing to reduce fire hazards to private homes. The 1978 plan specifies a diameter limit of 3 inches for tree removal that is allowed by USACE without the need to specifically mark trees to be removed.	The proposed plan adopts Zone 1 defensible space criteria described by the Texas A&M Forest Service to reduce the risk of damage to private structures from wildfire. The proposed plan changes the tree cutting diameter limit to 2 inches.	Use of Texas A&M Forest Service Zone 1 defensible space criteria will provide consistency in the issuance of vegetation alteration permits for fire hazard reduction near adjacent private structures. In general, Zone 1 is described as a space of 30-feet that surrounds structures on all sides and provides space for fire suppression equipment in the event of an emergency. In many cases the 30-foot space can be achieved by combining private land and Government land. This change will improve the effectiveness of protecting young, high quality trees from damage or removal, and result in more effective forest regeneration.
<u>Community Docks</u> The 1978 plan encourages the use of community docks.	<u>Community Docks</u> The 2019 SMP does not encourage the use of community docks, although they may be permitted if a group can provide assurance of sufficient use demand and for continued surveillance and maintenance.	Community docks have proven difficult to manage and maintain for groups of adjacent landowners and are therefore not encouraged by USACE. However, with careful consideration they may still be beneficial in areas remote from commercial mooring facilities.
<u>Duck Blinds</u> The 1978 plan references permitting of duck blinds.	<u>Duck Blinds</u> The proposed plan allows for portable duck blinds under the requirements of the hunting program, but does not permit construction of permanent duck blinds.	Permitting of duck blinds does not operationally fit into the SMP. Permits for permanent duck blinds have not been issued for decades, and the use of portable blinds increases shoreline aesthetic values while meeting the needs of hunters.

1978 Shoreline Management Plan (SMP)	Proposed 2019 SMP	Justification of the Proposed Action
Buoyed Courses and Ski Jumps The 1978 plan references permitting ski jumps.	Buoyed Courses and Ski Jumps The proposed plan does not include ski jumps or related water recreation activities that may be permitted separately as a special event.	The Special Event Program is more applicable than the SMP for permitting such lake activities.
Electrical Power and Lights The 1978 plan included permitting of electrical installations to service private use facilities.	Electrical Power and Lights The proposed plan denotes that electrical installations may be authorized by a real estate license following approval by the lake manager. Solar installations are also encouraged over traditional utility-dependent installations.	The proposed plan incorporates the use of real estate instruments for activities (including waterlines and stairways) that are customarily permitted by that method. The requirement for a real estate instrument as the standard means of approval for electric service or stairs that service a dock has been in place for many years, but is not specifically mentioned in the 1978 SMP.

Table B - Changes in SMP Shoreline Allocation Miles to Align with the 2019 Lake of the Pines MP

DESIGNATION	1978 MILES	2019 MILES	DIFFERENCE*
Prohibited Access Area	0.9	1.3	0.4
Protected Shoreline Area	151.3	163.0	11.7
Limited Development Area	10.6	10.5	-0.1
Public Recreation Area	26.4	15.5	-10.9

* The 1.1 miles reduction overall is a result of erosion over the past 40 years and improved measurement technology.

The Proposed Action was chosen because it would meet regional goals associated with good stewardship of land and water resources, would meet regional recreation goals, and would allow for continued use and development of project lands along the shoreline without violating national policies or public laws.

The Environmental Assessment (EA) and comments received from other agencies and the public have been used to determine whether the Proposed Action requires the preparation of an Environmental Impact Statement (EIS). All environmental, social, and economic factors that are relevant to the recommended alternative were considered in this assessment. These include, but are not limited to, climate and climate change, environmental justice, cultural

resources, air quality, visual aesthetics, prime farmland, water quality, wetlands, fish and wildlife, invasive species, migratory birds, recreational fisheries, and threatened and endangered species.

It is my finding, based on the EA, that the revision of the 1978 SMP for Lake O' the Pines will have no significant adverse impact on the environment and will not constitute a major federal action significantly affecting the quality of the human environment. Therefore, an EIS will not be prepared.

Date

Kenneth N. Reed, PMP
Colonel, U.S. Army
District Engineer

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic impacts of the Shoreline Management Plan of Lake O' the Pines. This EA will facilitate the decision 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* describes the existing environmental and socioeconomic setting.

ENVIRONMENTAL CONSEQUENCES identifies the potential environmental and socioeconomic effects of implementing the Proposed Action and alternatives.

SECTION 4 *CUMULATIVE IMPACTS* describes the impact on the environment that may result from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions.

SECTION 5 *COMPLIANCE WITH ENVIRONMENTAL LAWS* provides a listing of environmental protection statutes and other environmental requirements.

SECTION 6 *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 7 *PUBLIC AND AGENCY COORDINATION* provides a listing of individuals and agencies consulted during preparation of the EA.

SECTION 8 *REFERENCES* provides bibliographical information for cited sources.

SECTION 9 *ACRONYMS/ABBREVIATIONS*

SECTION 10 *LIST OF PREPARERS* identifies persons who prepared the document and their areas of expertise.

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ENVIRONMENTAL ASSESSMENT
Lake O' the Pines Shoreline Management Plan Revision
Marion, Harrison, Upshur, Camp, Titus, And Morris Counties, Texas

SECTION 1: INTRODUCTION

The United States Army Corps of Engineers, Fort Worth District (USACE) is proposing to adopt and implement the 2019 Lake O' the Pines Shoreline Management Plan (SMP). The 2019 SMP is a revision of the 1978 SMP. The 2019 SMP establishes policies and sets guidelines by which the USACE manages certain private development and use of public lands and waters along the shoreline of Lake O' the Pines.

Adoption and implementation of the 2019 SMP (Proposed Action) would create potential impacts on the natural and human environments, and as such, this Environmental Assessment (EA), was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-190), 33 Code of Federal Regulations (CFR) Part 230, Council on Environmental Quality (CEQ) regulations (40 CFR 1500–1517), and the USACE implementing regulations, Policy and Procedures for Implementing NEPA, ER 200-2-2 (USACE, 1988).

1.1 PROJECT LOCATION AND SETTING

Lake O' the Pines is located in east Texas approximately eight miles west of the city of Jefferson, on the Big Cypress Bayou, 18 miles upstream from the confluence of the Bayou with the Red River. The lake is approximately 18 miles long and one mile wide, with water extending into eight tributaries. The lake area extends throughout portions of Marion, Harrison, Upshur, Camp, Titus, and Morris counties. The lake is formed by the Ferrells Bridge Dam, which was authorized in 1946 and constructed and designated in 1958 for the purpose of flood control and water supply storage. Since impoundment, Lake O' the Pines has prevented flooding on Cypress Creek, Caddo Lake, and Twelve Mile Bayou. An additional benefit accruing from Lake O' The Pines is the utilization of impounded water to provide municipal and industrial water supplies to the cities of Longview, Jefferson, Ore City, Daingerfield, Avinger, Lone Star, and Hughes Springs, and Southwestern Electric Power Company (Hallsville, Texas). The Northeast Texas Municipal Water District (NETMWD) is the state agency created by the Texas legislature to administer the water supply features of the project.

1.2 PURPOSE OF AND NEED FOR THE ACTION

The purpose of the Proposed Action is to establish what facilities and activities will be permitted on government property along the project shoreline to the extent possible within constraints imposed by public law and agency policy, and also to support the goals and objectives of the 2019 Lake O' the Pines MP.

The need for the Proposed Action is to bring the 1978 SMP up to date and to reflect ecological, socio-political, and socio-demographic changes that are currently impacting Lake O' the Pines, as well as those changes anticipated to occur through

2044. In particular, the SMP needed to be revised in order to align with the 2019 MP, to incorporate current terminology, to insure compliance and compatibility with ER 1130-2-406 and ER 1130-2-540, and to insure compliance with Fort Worth District policy related to shoreline management.

Additionally, increasing fragmentation of wildlife habitat, national policies related to climate change, growing demand for recreational access, and protection of natural resources are all factors affecting Lake O' the Pines. In response to these continually evolving trends, the USACE determined that a full revision of the 1978 SMP would be required.

Section 2 below describes the specific objectives of the SMP.

As part of the Shoreline Management planning process, the project delivery team evaluated public comments and current shoreline area uses, determined any necessary changes to shoreline area classifications, and formulated proposed alternatives. As a result of public coordination and two public information meetings, alternatives were developed and screened, and this EA was initiated.

1.3 SCOPE OF THE ACTION

This EA was prepared to evaluate existing conditions and potential impacts of proposed alternatives associated with the implementation of the 2019 SMP. The alternatives considered were based on different shoreline management strategies as well as considering the local cultural, natural, and recreational resources. Alternatives were developed using different combinations of shoreline management strategies to be aligned with the 2019 Lake O' the Pines MP.

SECTION 2: PROPOSED ACTION AND ALTERNATIVES

The project need is to revise the 1978 SMP so that it is compliant with current USACE regulations, guidance, the 2019 Lake O' the Pines MP, incorporates public access and recreation needs, includes current terminology in regards to shoreline allocations, and to reestablish shoreline allocation miles based on natural resources, public recreation and access, and project land management. As part of this process, which includes public outreach and comment, the USACE plans to produce an updated SMP that is relevant to both federal and local needs.

The 2019 MP established resource goals and objectives for purposes of development, conservation, and management of natural, cultural, and man-made resources at the Lake O' the Pines. Goals describe the desired end state of overall management efforts, whereas resource objectives are specific task-oriented actions necessary to achieve the overall 2019 SMP goals. Goals and objectives are guidelines for obtaining maximum public benefits while minimizing adverse impacts on the environment, and are developed in accordance with 1) authorized project purposes, 2) applicable laws and regulations, 3) resource capabilities and suitabilities, 4) regional needs, 5) other governmental plans and programs, and 6) expressed public desires.

The purpose of the SMP is to establish policies and set guidelines by which the U.S. Army Corps of Engineers (USACE) manages certain private development and use of public lands and waters along the shoreline of Lake O' the Pines. The objectives of the Lake O' the Pines SMP are as follows:

1. To manage and protect shoreline under jurisdiction of the Chief of Engineers.

2. To establish, conserve, and maintain sustainable natural resources, including fish and wildlife habitat, and promote environmental sustainability and aesthetic quality.

3. To promote a reasonably safe and healthful environment for project visitors.

4. To provide pedestrian access to project lands and waters while maintaining the shoreline for general public use.

5. To manage private use of public property to the degree necessary to gain maximum benefits to the public.

6. To encourage boat owners to moor their boats at commercial marinas, utilize dry storage off project lands, or to trailer their boats to commercial or public launching ramps.

7. To ensure the SMP compliments and does not contradict the 2019 Lake O' the Pines MP.

USACE regulations specify four possible categories of shoreline allocation: Protected Shoreline Areas, Limited Development Areas, Prohibited Access Areas, and Public Recreation Areas. Descriptions of each allocation are listed below.

2.2.1 LIMITED DEVELOPMENT AREAS (LDA): LDAs are those areas of fee-owned USACE land adjacent to private land holdings that have been developed for private recreational cottages and homes and whose location and physical characteristics conform to the criteria established in this plan as qualifying for limited development status. The requisite criteria are as follows:

LDAs must be adjacent to existing high density private residential developments, and must meet the other criteria in this SMP.

LDAs shall be located in coves, or small inlets that afford some degree of natural protection from high winds and wave action, and must have adequate water depth to accommodate pool fluctuations. Limited development shall not be located in areas subject to severe shoreline erosion, the presence of steep bluffs, or environmentally sensitive areas.

LDAs must provide a visually pleasing natural appearance when viewed from the open lake, being planted only in native trees, vines, shrubs, groundcovers, and grasses, and thus maintaining general aesthetic and environmental qualities found along the naturally vegetated shoreline. Formal landscaping practices through plantings or maintenance practices are prohibited. In addition, vegetable gardening, row cropping, and other agricultural practices are prohibited.

Shoreline segments where only scattered or isolated private facilities or vegetation modifications exist under previous permits do not qualify for limited development status.

A LDA shall not be located proximate to developed or proposed public recreation areas unless a vegetative buffer can be established along the perimeter of the public use area to maintain its desired environmental characteristics and aesthetic quality.

Existing private use facilities located on Government land and within areas zoned for limited development will, in general, be allowed to remain provided they meet the criteria established in this plan. After proper application and approval by the Lake Manager, permits may be issued for existing or new facilities located in these areas provided the density of such facilities does not exceed 50 percent of the shoreline that is suitable for the placement of floating facilities and a spacing of 75 feet between facilities is maintained. Permits may also be issued for vegetation modification such as mowing and clearing of vegetation and underbrush, in accordance with section 4.2.1 of the Shoreline Management Plan, as approved by the Lake Manager. Erosion and shoreline protection measures may also be authorized by a real estate license if permanent structures on private land are threatened by shoreline erosion.

2.2.2 PUBLIC RECREATION AREAS (PRA): PRAs are those shoreline segments adjacent to developed or proposed public use and commercial concession areas. These areas have controlled access for the protection of the park and their users. An adequate vegetative buffer has been established around each public use area to maintain aesthetic and environmental qualities. Neither private use privileges nor

facilities, nor vegetation and landform modifications by private individuals are allowed or permitted in these areas. Activities in commercial concession areas are governed by the conditions contained in the concession lease and are not subject to the permit requirements of this plan.

2.2.3 PROTECTED SHORELINE AREAS (PSA): PSAs are designated primarily to protect aesthetic, environmental, cultural, and fish and wildlife resources. The shoreline may also be designated in the category for physical protection reasons, such as heavy siltation or exposure to high winds and wave action. Pedestrian access and boating are permitted along protected shorelines provided that protected resource values are not damaged or destroyed. In general, private shoreline use that existed in these areas prior to December 13, 1974, will be allowed to continue. However, no new private shoreline use, including floating facilities and major mowing or other vegetation modification, will be permitted in these areas. Although these shorelines are available for general recreational purposes, no developed public use facilities are provided. Subsequent to proper application and review, minor mowing and/or under-brushing may be permitted in these areas for the purpose of wildfire prevention.

2.2.4 PROHIBITED ACCESS AREAS (PAA): These shoreline areas are allocated for project operation facilities, protection of sensitive resources, and the physical safety of recreation visitors. This allocation includes hazardous areas that are restricted from public access near the dam embankment, outlet works, stilling basin, uncontrolled spillway, and all municipal water intake locations. Fishing is allowed at the outlet structure downstream from the dam.

2.1 ALTERNATIVE 1: NO ACTION ALTERNATIVE

Under the No Action Alternative, the USACE would not approve the adoption or implementation of the 2019 SMP. Instead, the USACE would continue to manage Lake O' the Pine's natural resources as set forth in the 2019 MP. However, the 1978 SMP would continue to provide shoreline management guidance while out of date and compliance with current USACE regulations and the 2019 MP. The No Action Alternative, while it does not meet the purpose of or need for the Proposed Action, serves as a benchmark of existing conditions against which federal actions can be evaluated, and as such, the No Action Alternative is included in this EA, as required by NEPA and CEQ regulations (40 CFR § 1502.14(d)).

2.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the 2019 SMP would be reviewed, coordinated with the public, revised to comply with USACE regulations and guidance, and revised to reflect changes in the land management and land uses that have occurred over time or are desired in the near future. The keys to this alternative would be the revision of shoreline allocations and associated areas to USACE standards, and the preparation of resource objectives that would reflect current and projected needs compatible with regional goals while sustaining Lake O' the Pines' natural resources and providing recreational experiences for the next 25 years.

A summary of the changes in the proposed action are compared to the 1978 SMP in Table 1. A summary of the changes in shoreline management allocation miles compared to the 1978 SMP are presented in Table 2, maps of the 1978 shoreline allocations and proposed allocations can be found in Appendix A of the 2019 Draft SMP.

In addition, to changes in shoreline allocations, Table 1 presents proposed changes and justifications to standard boat dock designs, sizes, piling height, use of private property signs, handrails, and spacing. Further changes proposed for vegetation modifications, portable duck blinds, lighting, community docks, and water skiing jumps and courses can be found in Table 1 as well.

Table 1 - Summary of Shoreline Management Changes

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
Public Law and Engineer Regulation The 1978 SMP contains numerous outdated requirements related to permit administration, transfer of permits, permit termination, dock removal/replacement, and required response times.	Public Law and Engineer Regulation Numerous changes are proposed to bring the revised SMP into compliance with public law and current Engineer Regulation.	These changes were implemented operationally as they became effective, and do not require public comment/approval to be updated in the plan.
Shoreline Allocations Shoreline Allocations (in miles) in the 1978 SMP consisted of the following: Prohibited Access Areas: 0.9 Miles Protected Shoreline Areas: 151.3 Miles Limited Development Areas: 10.6 Miles Public Recreation Areas: 26.4 Miles In the 1978 SMP, numerous public recreation areas existed with a larger footprint than they do today. The 1978 SMP aligned shoreline allocation with a prior version of the Lake O' the Pines MP land use classes.	Shoreline Allocations Shoreline Allocations in the 2019 SMP revision consist of the following: Prohibited Access Areas: 1.3 Miles Protected Shoreline Areas: 163.0 Miles Limited Development Areas: 10.5 Miles Public Recreation Areas: 15.5 Miles Park closures and reductions caused by closure of several commercial leases after 1978 resulted in considerably less public recreation area than depicted in the 1978 map. Prior public recreation areas were reclassified to Multiple Resource Management Lands with emphasis on Wildlife or Vegetation Management and most are allocated as Protected Shoreline Areas. The 2019 Lake O' the Pines MP revision aligned land use classification with current conditions and management goals, and the proposed Shoreline Management Plan aligns shoreline allocation with those land use classes.	0.4 shoreline miles of Public Recreation Area were changed to Prohibited Access Area along the upstream, northeastern end of the dam. 11.7 shoreline miles were changed from Limited Development Area (0.1 miles) and Public Recreation Area (10.5 miles) to Protected Shoreline Area. Public Recreation Area allocations were reduced to match the extent of the current landside recreation areas. Limited Development Areas were reduced in areas where recreation facilities already exist nearby and in areas adjacent to shorelines subject to severe erosion, steep bluffs, and Environmentally Sensitive Areas identified by the

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
		2019 Lake O' the Pines MP. The 1.1 miles reduction overall is a result of erosion over the past 40 years and improved measurement technology.
<u>Boat Docks</u> The 1978 plan did not include a standard dock plan, although one was later implemented to clarify vague language in the SMP. The 1978 plan allows up to 50 percent density of docks within those portions of Limited Development Areas suitable for docks. The 1978 plan does not specify maximum dock size allowed, only that the overall size will be kept to a minimum to limit encroachment on the water surface. The 1978 plan does not specify dock guide piling height requirements, and the original standard dock plan required piling height of 236 NGVD, the 5-year flood frequency. The 1978 plan prohibits posting of private signs on permitted private use facilities. The 1978 plan did not include a requirement for handrails on boat docks.	<u>Boat Docks</u> The proposed plan includes the latest version of the standard dock plan, which has been in use for about 10 years. The proposed plan includes the requirement of a minimum distance of 75 feet between docks, which has been a standard dock plan requirement for many years. The proposed plan includes maximum dock size and length requirements that have been in effect as part of the standard dock plan for many years. The proposed plan includes dock guide piling height requirement of 240 NGVD. The proposed plan allows the posting of "private property" signs only on private use facilities. The proposed plan includes specific minimum requirements for handrails for new or replacement walkways or ramps that are elevated and/or sloped.	A standard dock plan provides clear construction and maintenance guidance to dock owners. It is useful as a design example that meets minimum local requirements. The use of 50 percent density is effective on lakes that allow cable or stiff-arm anchoring systems which occupy much more shoreline width than vertical pilings. The 75 feet minimum requirement is needed to reduce the impact to navigation around these facilities by the public. Dock size and length requirements are needed to keep with the original intent of the 1978 plan of minimizing encroachment on the water surface. This requirement has been included in the standard dock plan for many years, and has proven to be more effective with the frequency and magnitude of recent flood events. Consideration will be given to unique designs that may also be effective with such flooding. Engineer Regulation has allowed posting of private signs even though the

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
		outdated 1978 SMP prohibited such posting. The proposed requirement is a safety measure to assist traversing sloped or elevated walkways or ramps, and to conform to International Building Code.
<u>Vegetation Alteration</u> In protected shoreline areas, the 1978 plan references permitting of limited underbrushing and mowing to reduce fire hazards to private homes. The 1978 plan specifies a diameter limit of 3 inches for tree removal that is allowed by USACE without the need to specifically mark trees to be removed.	<u>Vegetation Alteration</u> The proposed plan adopts Zone 1 defensible space criteria described by the Texas Forest Service to reduce the risk of damage to private structures from wildfire. The proposed plan changes the tree cutting diameter limit to 2 inches.	Use of Texas Forest Service Zone 1 defensible space criteria will provide consistency in the issuance of vegetation alteration permits for fire hazard reduction near adjacent private structures. In general, Zone 1 is described as a space of 30-feet that surrounds structures on all sides and provides space for fire suppression equipment in the event of an emergency. In many cases the 30-foot space can be achieved by combining private land and Government land. This change will improve the effectiveness of protecting young, high quality trees from damage or removal, and result in more effective forest regeneration.
<u>Community Docks</u> The 1978 plan encourages the use of community docks.	<u>Community Docks</u> The 2019 SMP does not encourage the use of community docks, although they may be permitted if a group can provide assurance of sufficient use demand and for continued surveillance and maintenance.	Community docks have proven difficult to manage and maintain for groups of adjacent landowners and are therefore not encouraged by USACE. However, with careful consideration they may still be beneficial in areas remote from commercial mooring facilities.
<u>Duck Blinds</u>	<u>Duck Blinds</u>	

1978 Shoreline Management Plan (SMP)	Proposed 2019 Shoreline Management Plan (SMP)	Justification of the Proposed Action
The 1978 plan references permitting of duck blinds.	The proposed plan allows for portable duck blinds under the requirements of the hunting program, but does not permit construction of permanent duck blinds.	Permitting of duck blinds does not operationally fit into the shoreline management plan. Permits for permanent duck blinds have not been issued for decades, and the use of portable blinds increases shoreline aesthetic values while meeting the needs of hunters.
Buoyed Courses and Ski Jumps The 1978 plan references permitting ski jumps.	Buoyed Courses and Ski Jumps The proposed plan does not include ski jumps or related water recreation activities that may be permitted separately as a special event.	The Special Event Program is more applicable than the SMP for permitting such lake activities.
Electrical Power and Lights The 1978 plan included permitting of electrical installations to service private use facilities.	Electrical Power and Lights The proposed plan denotes that electrical installations may be authorized by a real estate license following approval by the lake manager. Solar installations are also encouraged over traditional utility-dependent installations.	The proposed plan incorporates the use of real estate instruments for activities (including waterlines and stairways) that are customarily permitted by that method. The requirement for a real estate instrument as the standard means of approval for electric service or stairs that service a dock has been in place for many years, but is not specifically mentioned in the 1978 SMP.

Table 2 - Changes in SMP Shoreline Allocation Miles to Align with the 2019 Lake of the Pines MP

SHORELINE DESIGNATION	1978 ALLOCATIONED MILES	2019 ALLOCATIONED MILES	DIFFERENCE*
Prohibited Access Area	0.9	1.3	0.4
Protected Shoreline Area	151.3	163.0	11.7
Limited Development Area	10.6	10.5	-0.1
Public Recreation Area	26.4	15.5	-10.9

*The 1.1 miles reduction overall is a result of erosion over the past 40 years and improved measurement technology.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Ultimately, two alternatives were developed for evaluation including a No Action Alternative and an alternative that provides for a mixed use shoreline based on adjacent natural, cultural, and recreational resources. The mixed use alternative was developed with input from the 2019 MP land classifications that indicate the primary use for which project lands would be managed, public input, and consideration for natural, cultural, and recreational resources present at the lake.

SECTION 3: AFFECTED ENVIRONMENT AND CONSEQUENCES

This section of the EA describes the natural and human environments that exist at the project and the potential impacts of the No Action Alternative (Alternative 1) and Proposed Action (Alternative 2), outlined in Section 2.0 of this document. Only those issues that have the potential to be affected by these alternatives are described, per CEQ guidance (40 CFR § 1501.7 [3]). Some topics are limited in scope due to the lack of direct effect from the Proposed Action on the resource, or because that particular resource is not located within the project area. For example, no body of water in the Lake O' the Pines watershed is designated as a Federal Wild or Scenic River, so this resource will not be discussed.

Impacts (consequences or effects) 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]). As discussed in this section, the alternatives may create temporary (less than one year), short-term (up to three years), long-term (three to ten years), or permanent impacts following the implementation of the SMP.

The 2019 Lake O' the Pines MP was completed in January of 2019. The MP is a document that serves as a comprehensive land and recreational management plan. The 2019 MP gave special consideration to the sensitive environmental resources and habitats found at Lake O' the Pines. The 2019 MP can be found at:

https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Master-Plan-Updates/Lake-O-The-Pines/

Since the 2019 MP was recently completed and thoroughly evaluated the existing conditions of the same environment at Lake O' the Pines discussed in this EA, the existing conditions following are included by reference.

Whether an impact is significant depends on the context in which the impact occurs and the intensity of the impact (40 CFR § 1508.27). 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

Ferrells Bridge and Dam was constructed for the purpose of flood control and water supply storage. The project was authorized by the Flood Control Act of 24 July 1946, Public Law No. 526, 79th Congress, 2nd session. The reservoir was designated as Lake O' the Pines on July 15, 1958, Public law 85-522, 85th Congress. The reservoir is part of the plan for flood control on Red River below Denison Dam, Oklahoma- Texas. The drainage area of 850 square miles above the dam site is approximately 24 percent (%) of the drainage area of Cypress Creek and 3% of the drainage area of Red River below Denison Dam, excluding the Ouachita- Black River Basin. Forestry is, and will probably remain, the principal land use in this region since the soils of East Texas are better adapted to trees than grass.

At present, there are ten (10) developed public-use areas around the lake, consisting of four (4) campgrounds and six (6) day-use areas (See maps in Appendix A of the 2019 Draft SMP for locations). Improvements at these areas generally include access and circulation roads, restroom facilities, bathhouses or washhouses, potable water supplies, sanitary dump stations, swimming beaches, picnic sites with tables, fire rings, trash dumpsters, shelters, parking areas, and campsites.

Earlier development of PRAs allowed the uncontrolled mixing of camping and day-use recreational activities. In many cases, this resulted in overcrowding, overuse and subsequent degradation of natural resources in the developed areas. Present planning and development practices provide for separation of overnight and day-use recreation activities, and for the establishment of more recreation facilities designed to optimize public benefit from recreational use of the land, while minimizing environmental impacts from such uses. In addition to the 10 developed public use areas around the lake, there are 28 boat launching ramps, with 17 operated by USACE and 11 operated by Marion County. The USACE provides nine courtesy docks at ramps, while Marion County provides two. Currently, five USACE ramps may be used free of charge.

3.1.1 Alternative 1: No Action Alternative

The No Action Alternative for Lake O' the Pines is defined as the USACE taking no action, which means the 1978 SMP would not be revised. No new resource analysis, resources management objectives, or shoreline allocations would occur. The operation and maintenance of USACE lands at Lake O' the Pines would continue as outlined in the existing 1978 SMP. Although this alternative does not result in a SMP that meets current regulations and guidance, there would be no significant negative long-term impacts on land uses on Lake O' the Pines lands.

3.1.2 Alternative 2: Proposed Action

The objectives for revising the Lake O' the Pines 2019 SMP are to administer all shoreline management actions to achieve a balance between permitted private uses and protection of natural resources and environmental quality for general public use. The USACE intends to support the current level of land and shoreline use by the surrounding and visiting community. The only changes to land use are as described in Table 1, and are effectively zoning changes. While LDA and PRA shoreline miles were reduced by 11 shoreline miles, only 0.4 of those miles were changed to PAA along the upstream side of the dam. Under PAA, no public access is granted. The remaining 11.7 miles were allocated to PSA. This 11.7 shoreline miles takes into account the additional 1.1 shoreline miles gained in the overall shoreline total due to erosion and improved mapping technologies. Low impact recreation can still occur in these areas. Additionally, changes to vegetation modification standards, boat dock design, and boat dock spacing preserves the natural setting through less disturbance while still allowing for recreation activities to still occur.

While the use of private property signs on boat docks may not prevent all instances of use by a non-owner, the signs should help prevent confrontations regarding use of private structures.

The proposed changes in mileage of shoreline allocations are not expected to have long-term adverse effects; there will be a benefit to sensitive environmental areas considering the increase in PSAs and PAAs.

3.2 WATER RESOURCES

Surface Water

Lake O' the Pines is located on Cypress Creek. Its watershed drains approximately 850 square miles above the dam and spans 6 counties (Marion, Harrison, Upshur, Camp, Titus, and Morris) in Northeast Texas. At the maximum water surface, the reservoir contains 63,200 surface acres of water and a maximum storage of 1,855,000 acre-feet. Waters detained for flood control purpose equals 842,100 acre-ft of storage, with a surface area of 38,200 acres. The top of conservation pool capacity is 241,363 acre-feet, and covers the area of 17,638 acres. Fluctuation within the conservation pool depends upon the rate of withdrawals for water supply by the water district as well as inflows and evaporation.

Hydrology and Groundwater

An additional benefit from Lake O' the Pines is the utilization of water impounded to provide municipal and industrial water supplies to the cities of Jefferson, Ore City, Daingerfield, Lone Star, Avinger, Hughes Springs, and Longview, the rural systems of Mims Rural Water Cooperative and Holly Springs Rural Water Cooperative, and Southwestern Electrical Power Company. The Northeast Texas Municipal Water District is the state agency created by the legislature to administer the water supply features of the project. Intake structures are located at various points on the lake and one downstream of the lake.

The dam has an uncontrolled concrete spillway that is 200-ft-wide, located on the east end of the dam. There are two discharge gates/conduits that are 10 feet in diameter and are at the elevation of 200.00 NGVD located at the southeast side of the dam. The flood control pool is regulated by releasing a maximum of 3,000 cubic feet per second (cfs).

The main source of ground water in the lake area is the Cypress Aquifer, which consists of four hydraulically connected units: the Wilcox group, the Carrizo Sand, the Reklaw Formation, and Queen City Sand.

Ground water monitoring wells in the Carrizo-Wilcox aquifer shows that water level has risen in the past few years. None of the counties spanning Lake O' the Pines is in the groundwater conservation districts. The water from shallow wells generally contains less than 500 milligrams per liter of dissolved solids and is excessive only in its iron content (TWDB, January 2009).

Water Quality

Texas Commission on Environmental Quality (TCEQ) sets and implements standards for surface water quality to improve and maintain the quality of water in the state based on various beneficial use categories for the water body. The draft 2018 Texas Integrated Report-Index of Water Quality Impairments, pursuant to the Clean Water Act Sections 305(b) and 303(d), evaluates the quality of surface waters in Texas and identifies those that do not meet uses and criteria defined in the Texas Surface Water Quality Standards. Impaired waters are then identified, along with impairment descriptions, on the 303(d) list.

Lake O' the Pines (Segment ID 0403) has identified water quality impairments for pH within the middle 5,000 acres assessment area, the lower 5,000 acres assessment area, and the middle 5,000 acres assessment area below Highway 155. Big Cypress Creek below Lake O' the Pines (Segment ID 0402) has been identified as having water quality impairments for depressed dissolved oxygen from the confluence with Haggerty Creek upstream to the confluence with Black Cypress Bayou. Big Cypress Creek also has multiple listings associated with mercury in edible fish tissue. Big Cypress Creek below Lake Bob Sandlin (Segment ID 0404) has identified water quality impairments

regarding bacteria concerns for contact recreation for 23 miles, as well as sulfate impairments for a total of 37.9 miles.

For more information regarding water quality at Lake O' the Pines, please refer to section 2.2.8 of the 2019 MP as well as the TCEQ's 2018 draft report of the Texas Integrated 303(d) List.

Wetlands

Waters of the United States are defined within the Clean Water Act (CWA), and jurisdiction is addressed by the USACE and United States Environmental Protection Agency (USEPA). Wetlands are a subset of the waters of the United States that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

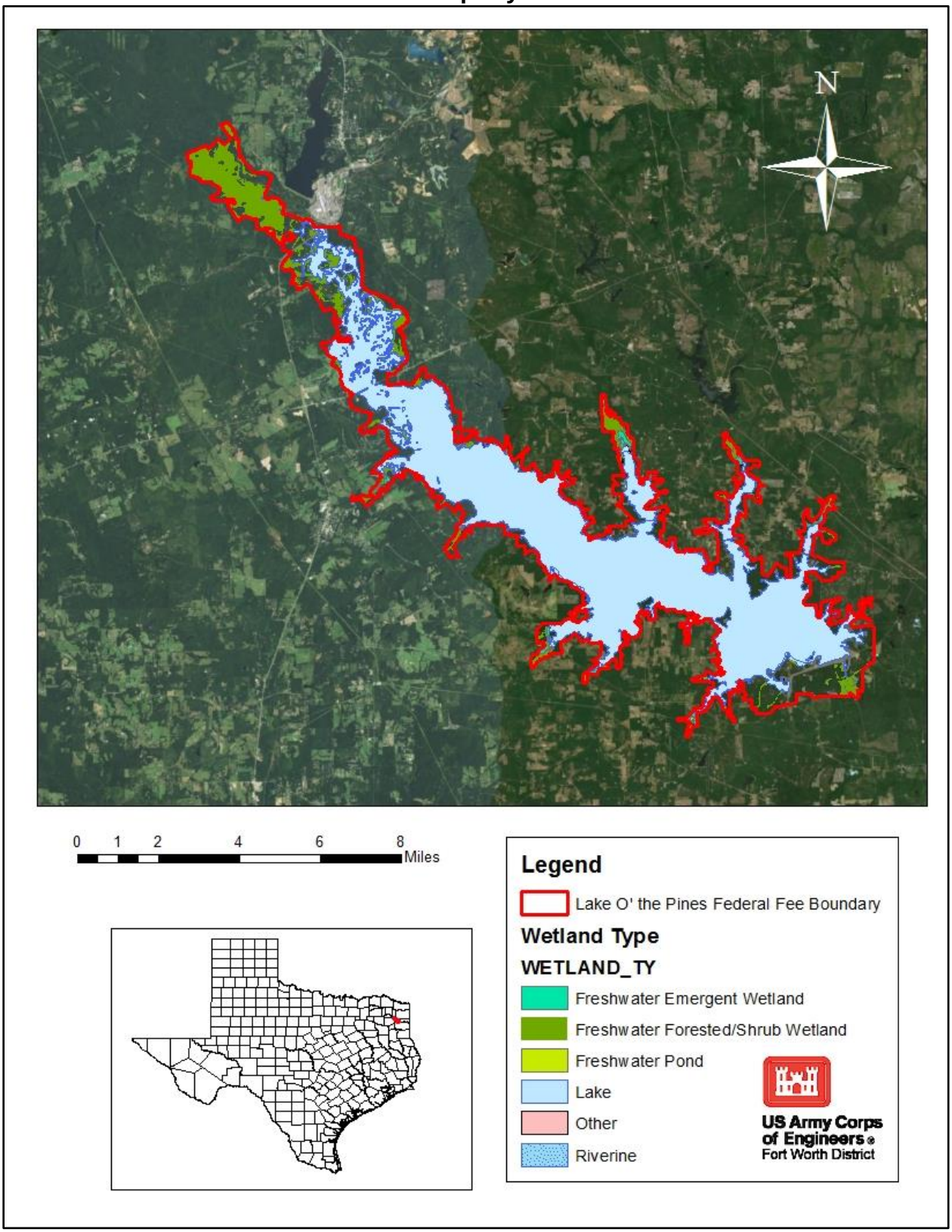
As a result of the topography of the region around Lake O' the Pines, wetlands generally occur near the rivers and within areas with low topographic relief that are primarily located on the western side of the Lake. Table 3 lists the acreages of various types of wetlands present at Lake O' the Pines. Wetland classifications presented are derived from the United States Fish and Wildlife Service (USFWS) Trust Resource List generated using the Information, Planning, and Conservation System decision support system (USFWS, 2018D). Figure 1 below shows the distribution of wetland types at Lake O' the Pines.

Table 3 Wetland Resources

Wetland Types	Total Acres
Freshwater Emergent Wetland	33.94
Freshwater Forested/ Shrub Wetland	3,076.06
Freshwater Pond	29.64
Lake	17,845.61
Riverine	26.63
Other	8.40

Note: Acreages from the USFWS website do not match exactly with the USACE digitized acreages.

Figure 1. Map of Wetlands within USACE Lake O' the Pines Federal Fee-Owned Property.



3.2.1 Alternative 1: No Action Alternative

There would be no negative, significant, or permanent impacts on water resources as a result of implementing the No Action Alternative, since there would be no change to the existing SMP.

3.2.2 Alternative 2: Proposed Action

The changes proposed to shoreline allocations will have both temporary, adverse and beneficial, minor, long-term effects to water quality. Adverse impacts would be realized as docks, and other recreation features are constructed within the remaining PRAs, and LDAs. However, the re-allocation of 10.9 miles of shorelines to recreation is proposed and would further protect shorelines and wetlands from the impacts of erosion as those areas would be reclassified as PSA areas. Beneficial effects will result from reduced areas for constructing public use features, particularly like swim beaches and boat ramps, that should result in a reduction in possible sources of pollution and erosion, which can effect water resources. Better management of vegetation communities will allow for more stable soils, reduce turbidity, and reduce potential runoff issues. Adverse effects may stem from temporary, localized, impacts during construction of docks, whereas recreational boat use may result in more long term impacts due to wave erosion.

Any adverse impacts to water resources would be minor and not dissimilar to the impacts already experienced from the No Action Alternative. In compliance with the Clean Water Act, any proposed ground disturbing activities at Lake O' the Pines should be coordinated with the Lake O' the Pines Lake Manager. Activities within or near protected bodies of water could require a Section 404 permit from the U.S. Army Corps of Engineers prior to construction. This permit would outline measures to help avoid and minimize impacts to wetlands and other aquatic habitats.

3.3 CLIMATE

Lake O' the Pines lies in a region characterized as warm, moist, humid, and subtropical. The area has hot, humid, long summers, with occasional temperatures of 100 Fahrenheit and short, moderate winters. However, sharp extremes are occasionally recorded as short duration freezes can occur throughout the winter. The average annual temperature is 71°F with monthly averages ranging from a maximum of 83°F for July and a minimum of 44°F for January. Extreme temperatures vary from 118°F to -13°F. The average annual rainfall is approximately 45 inches.

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 impacts on climate as a result of implementing the No Action Alternative.

3.3.2 Alternative 2: Proposed Action

Revision of the Lake O' the Pines SMP would have no impact on the climate of the study area. There would be no impacts on climate as a result of implementing the Proposed Action Alternative.

3.4 CLIMATE CHANGE AND GREENHOUSE GAS

Federal agencies are required to consider Greenhouse Gas (GHG) emissions and climate change in EAs in accordance with NEPA. On August 1, 2016, the CEQ issued final guidance on the consideration of GHG emissions and climate change in NEPA reviews; however, Executive Order 13783 directed the CEQ to rescind that guidance. At the same time, case law in the Ninth Circuit Court still requires climate change analyses: "The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct" (Center for Biological Diversity vs. the National Highway Traffic Safety Administration, 538 F.3d 1172, 1217 (9th Cir., 2008). Consistent with case law, an analysis of climate change impacts are conducted within EAs/EISs.

CEQ drafted guidelines for determining meaningful Greenhouse Gas (GHG) decision-making analyses. The CEQ guidance states that if a project would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of carbon dioxide (CO_2)-equivalent (CO_2e) GHG emissions per year, the project should be considered in a qualitative and quantitative manner in NEPA reporting (CEQ, 2015). CEQ proposes this as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHG (CEQ, 2015).

EPA records show that there is only one GHG contributor within Marion County, the Wilkes Power Plant, near the city of Avinger, Texas. The total reported emission is 414,124 metric tons CO_2e. The general operations and recreation facilities associated with Lake O' the Pines does not approach the proposed reportable limits. Lake O' the Pines Project Office does have management plans in place, such as routine equipment maintenance plans, vegetation management plans, natural resources management plans, and public education and outreach programs, to protect regional natural resources. In addition, the Lake O' the Pines Project Office will continue monitoring programs, as required, to meet applicable laws and policies.

Two Executive Orders (EOs), EO 13693 and EO 13783, set forth requirements to be met by federal agencies. These requirements range from preparing general preparedness plans to meeting specific goals to conserve energy and reduce GHG emissions. The USACE has prepared an Adaptation Plan in response to the EOs. The Adaptation Plan includes the following USACE policy statement:

> *It is the policy of USACE to integrate climate change preparedness and resilience planning and actions in all activities for the purpose of enhancing the resilience of our built and natural water-resource infrastructure and the*

effectiveness of our military support mission, and to reduce the potential vulnerabilities of that infrastructure and those missions to the effects of climate change and variability.

The USACE manages project lands and recreational programs to advance broad national climate change mitigation goals including, but not limited to, climate change resilience and carbon sequestration, as set forth in EO 13783, EO 13693, and related USACE policy.

3.4.1 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 impacts on climate change or contributions to GHG emissions and climate change as a result of implementing the No Action Alternative.

3.4.2 Alternative 2: Proposed Action

Under the Proposed Action, current Lake O' the Pines shoreline management strategies and monitoring programs would not be changed. There would be no measurable impacts on climate change or contributions to GHG emissions as a result of implementing the 2019 SMP. In the event that GHG emission issues become significant enough to impact the current operations at Lake O' the Pines, the 2019 SMP and all associated documents would be reviewed and revised as necessary.

3.5 AIR QUALITY

The Clean Air Act, last amended in 1990, requires the USEPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. These standards are implemented by the EPA to assign limits to the amount of pollution that can be present in the atmosphere.

The State of Texas has adopted the NAAQS as the state's air quality criteria. NAAQS standards specify maximum permissible short- and long-term and concentrations of various air contaminants including primary and secondary standards for six criteria pollutants: Ozone (O3), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Nitrogen Oxide (NO), particulate matter (PM10 and PM2.5), and Lead (Pb). Based on both Federal and state air quality standards, an area can be classified as either an "attainment," "maintenance," or "non-attainment" area for each pollutant. According to TCEQ current State Implementation Plan (TCEQ 2015), Upshur and Harrison Counties are in an attainment area and therefore Lake O' the Pines does not require a pollutant control strategy. The closest state air quality monitoring station (AWS 484491078) located in the Cookville City, northwest of Lake O' the Pines, describes the air quality as

good. The closest EPA monitoring station to the lake is at Harrison County. The station report shows data from 366 days in 2016 with 328 days good air quality and 38 days moderate quality.

In conducting routine operations and maintenance activities at Lake O' the Pines, the USACE will comply with all Federal, state, and local laws governing air quality and will implement best management practices (BMP) to protect air quality. Prescribed fire is a useful land management tool for improving native prairie and certain forested areas and will be conducted in accordance with the Texas Administrative Code, Section 111.211(1). Statutory requirements governing prescribed fire and other types of outdoor burning are explained in the TCEQ publication "Outdoor Burning in Texas" available on the TCEQ website. USACE guidance for wildland fire management is set forth in EP 1130-2-540.

3.5.1 Alternative 1: No Action Alternative

There would be no major adverse long-term impacts on air quality as a result of implementing the No Action Alternative, since there would be no change to the existing 1978 SMP.

3.5.2 Alternative 2: Proposed Action

Existing operation and management of Lake O' the Pines is compliant with the Clean Air Act and would not change with implementation of the 2019 SMP. Due to the increase in protected shorelines by 11.7 miles, there will be less area available for development or construction actions that can further contribute negatively to air quality. Negligible adverse air emissions could occur in LDA and PRA shoreline areas as new structures and recreational features are built in the area, but they would be short-term and minimal.

3.6 TOPOGRAPHY, GEOLOGY, AND SOILS

Topography

Lake O' the Pines is situated in the West Gulf Coastal Plain section of the Coastal Plain physiographic province. The topography of land surrounding Lake O' the Pines is generally rolling, hilly upland terrain averaging 200-500 feet, dissected by flat floodplains and terraces. Some of these hills rise to 200 feet above the shoreline.

Geology

Lake O' the Pines lies within the outcrop belt of the Queen City Formation. The land surface at Lake O' the Pines has developed upon a sequence of sedimentary rock units which dip slightly more steeply toward the Gulf than the land surface, resulting in successively younger formations cropping out gulf-ward. Queen City Formation is composed of a fine-grained quartz sand varying in color from light to brownish gray. It is

locally carbonaceous, contains clay, and slightly lignitic. It contains beds of glauconite, quartz green sand, and cross bedding. The thickness ranges from 100-400 feet.

The age of rock units range from Early Cretaceous to Quaternary (Recent Epoch). The lake lies within the East Texas Timber Belt which consists of sandy, wooded, hilly, terrain developed on formations of Eocene (Early Tertiary) age. On the north side of the lake the hills are supported by the erosional resistant Weches Formation, and the higher hills are capped by sands of the Sparta Formation. Surface outcrops in this area are very thin, only few feet in some locations.

Soils

Lake O' the Pine is located in the Cypress Valley Watershed, which is underlain by southeasterly dipping sand, ingite, glauconite, and clay. The soil is fertile, sandy loam soils, which are generally acidic and mostly pale to dark gray sands or sandy loams with gravely surface. The most dominant soil order at the Cypress River basin is Ultisol order. Ultisol is an ochric epipedon and argillic or kandic horizon that has few bases and commonly is calcium deficient. It supports mixed coniferous and hardwood forest vegetation as well as cropland and pasture. Other soil orders in the area include Alfisol (suborder Udalfs), Entisol (suborder Fluvent), and Vertisol (suborder Aquerts.)

Lake O' the Pines is situated in the Western Coastal Plain and Flatwoods in the soil map of Texas. The major soil group in the area of Lake O' the Pines are Cuthbert-Bowie- Kirvin and Trawick-Eastwood- Scottisville. The soils are formed on nearly level to sloping plains dissected by perennial streams and their tributaries. The parent material for the soils are alluvial and marine sediments of Tertiary age. Pinewoods soils are mostly highly weathered, acidic soils that support pine-hardwoods vegetation. Cuthbert- Bowie- Kirvin and Eastwood-Scottisville are deep soils that occur on inter-stream divides and low ridges.

A soil survey by the Natural Resource Conservation Service (NRCS) shows there are six out of the eight possible general classifications (Classes I through Class VIII) occurring in the reservoir area. The erosion hazards and limitations for use increase as the class number increases. Class I has few limitations, whereas Class VIII has many. The soil class data for project lands and a general description of the soils at Lake O' the Pines along with the land capability classes are provided in Table 4. This data is compiled by the NRCS and is a standard component of natural resources inventories on USACE lands. This, and other inventory data, is recorded in the USACE Operations and Maintenance Business Information Link (OMBIL). Detailed information on all soil types surrounding Lake O' the Pines is available on websites maintained by the NRCS, U.S. Department of Agriculture.

Table 4 Soil Classes

Soil Class	Acreage	Description
Class I	0	*Class I* soils have slight limitations that restrict their use
Class II	760	*Class II* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
Class III	1,980	*Class III* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
Class IV	260	*Class IV* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
Class V	3,039	*Class V* soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
Class VI	2,876	*Class VI* soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
Class VII	255	*Class VII* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.
Class VIII	0	*Class VIII* soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for aesthetic purposes.
Unassessed	91	

3.6.1 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 impacts on topography, geology, soils, sedimentation, or shoreline erosion as a result of implementing the No Action Alternative.

3.6.2 Alternative 2: Proposed Action

The proposed action will decrease PRA miles by 10.9 miles and 0.1 miles in LDA miles. These reductions could reduce erosion and the loss of soil stability from ground disturbing activities.

Erosion control structures may be permitted where private facilities or structures are at risk. In addition, should a pedestrian paths be permitted, Section 4.2.1.2 and 4.2.8 of the proposed 2019 SMP outlines erosion prevention measures such as paths following natural topography and minimal vegetation removal.

The 11.7 mile increase in PSA will also limit construction of recreational features, thus reduce degradation of existing topography, geology, soils, sedimentation, or shoreline erosion. Continued restrictions on development will also help to reduce these types of impacts. The proposed alternative will have moderate beneficial impacts to topography, geology, soils, sedimentation, shoreline erosion, or prime farmlands.

3.7 NATURAL RESOURCES

Operational civil works projects administered by USACE are required, with few exceptions, to prepare an inventory of natural resources. The basic inventory required is referred to within USACE regulations (ER and EP 1130-2-540) as a Level One Inventory. This inventory includes the following: vegetation in accordance with the National Vegetation Classification System through the sub-class level; assessment of the potential presence of special status species including, but not limited to, federal and state listed endangered and threatened species, migratory species, and birds of conservation concern listed by the USFWS; land (soils) capability classes in accordance with National Resource Conservation Service (NRCS) soil surveys; and wetlands in accordance with the USFWS Classification of Wetlands and Deepwater Habitats of the United States, which are previously discussed in Section 3.2.

Vegetation

Lake O' the Pines is located within the Piney Woods ecological region in Texas. This region is characterized by rolling terrain covered with pines and oaks, and rich bottomlands with tall hardwoods. Using habitat types and descriptions from the Texas Conservation Action Plan (TCAP) and USEPA ecoregion descriptions, the following are the major vegetation types found on USACE lands at Lake O' the Pines. Species listed below are representative of dominant species found in the Piney Woods region, which includes a large area of East Texas, but should not be considered a comprehensive list or entirely specific to Lake O' the Pines.

Bottomland Hardwood Forest

This system is associated with the Pleistocene Fluvial Terraces ecoregion in the northern portion of East Texas. This woodland or forest system is often dominated by more mesic species on interior ridges, including Loblolly Pine (*Pinus taeda*), Shortleaf Pine (*Pinus echinata*), Slash Pine (*Pinus elliottii*), Post Oak (*Quercus stellata*), White Oak (*Quercus alba*), Southern Red Oak (*Quercus falcata*), and Black Hickory (*Carya texana*). Within the range of Longleaf Pine (*Pinus palustris*), occurrences that represent West Gulf Coastal Plain Wet Longleaf Pine Savanna and Flatwoods may be mapped as this system. On the somewhat wetter sites of the swales, species such as Water Oak (*Quercus nigra*), Willow Oak (*Quercus phellos*), Laurel Oak (*Quercus laurifolia*), Blackgum (*Nyssa sylvatica*), Sweetgum (*Liquidambar styraciflua*), and Green Ash (*Fraxinus pennsylvanica*) may be dominant. Sites that are even wetter would likely be mapped as West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods. Chinese Tallow (*Triadica sebifera*) may invade this system. Mid-story species that may be encountered include Red Maple (*Acer rubrum*), American Holly (*Ilex opaca*), Winged Elm (*Ulmus alata*), and small members of the overstory. Wax-Myrtle (*Morella cerifera*), Possumhaw (*Ilex decidua*), and Yaupon (*Ilex vomitoria*) are commonly encountered shrubs. Herbaceous cover is generally sparse, with species such as Woodoats (*Chasmanthium* spp.), Bushy Bluestem (*Andropogon glomeratus*), and Carolina Jessamine (*Gelsemium sempervirens*). Sites dominated by Loblolly Pine or Slash Pine may often represent plantations or managed forests.

Emergent Wetlands

This system is typically represented by forests that vary relative to the flooding regime, which is often controlled by local topographic variation and proximity to the river. Swamps are typically represented by forests of *Taxodium distichum* (baldcypress), with other species such as *Nyssa aquatica* (water tupelo), *Gleditsia aquatica* (water honeylocust), and *Carya aquatica* (water hickory) also present. Some semi-permanently flooded sites may also be dominated by *Planera aquatica* (water elm). Floating aquatics, such as *Lemna minor* (common duckweed), *Potamogeton spp.* (pondweeds), *Ceratophyllum demersum* (coontail), and *Nymphaea odorata* (American waterlily) may also be present at those sites. *Quercus lyrata* (overcup oak) is characteristic of seasonally flooded bottomlands, but numerous other species are also important components of the canopy, including *Taxodium distichum* (baldcypress), *Quercus phellos* (willow oak), *Fraxinus pennsylvanica* (green ash), *Liquidambar styraciflua* (sweetgum), *Nyssa biflora* (swamp tupelo), *Fraxinus caroliniana* (Carolina ash), and *Quercus similis* (bottomland post oak). Commonly encountered, and sometimes dominant, species of temporarily flooded sites include *Liquidambar styraciflua* (sweetgum), *Quercus nigra* (water oak), and *Fraxinus pennsylvanica* (green ash). Numerous other species, such as *Quercus laurifolia* (laurel oak), *Quercus michauxii* (swamp chestnut oak), *Quercus pagoda* (cherrybark oak), *Celtis laevigata* (sugar hackberry), *Acer rubrum* (red maple), *Ulmus crassifolia* (cedar elm), *Ulmus americana* (American elm), and *Carya illinoinensis* (pecan) may also be important components of the canopy.

Woody vines that may be encountered include *Berchemia scandens* (Alabama supplejack), *Smilax bona-nox* (saw greenbrier), *Vitis rotundifolia* (muscadine grape), *Toxicodendron radicans* (poison ivy), and *Campsis radicans* (trumpet creeper). Herbaceous species may include *Boehmeria cylindrica* (false nettle), *Saururus cernuus* (lizard's tail), *Saccharum baldwinii* (narrow plumegrass), *Elymus virginicus* (Virginia wildrye), *Onoclea sensibilis* (sensitive fern), *Carex cherokeensis* (Cherokee sedge), *Carex intumescens* (bladder sedge), *Carex joorii* (cypress swamp sedge), *Carex debilis* (spindlefruit sedge), other *Carex* (sedge) species, *Chasmanthium latifolium* (creek oats), *Chasmanthium sessiliflorum* (narrowleaf woodoats), *Justicia ovat*a (looseflower waterwillow), *Bidens aristosa* (bearded beggarticks), *Panicum hemitomon* (maidencane), *Leersia virginica* (Virginia cutgrass), and numerous others. *Pinus taed*a (loblolly pine) may be found, particularly on some better drained sites, and where it has been planted. *Triadica sebifera* (Chinese tallow) sometimes invades this system.

This habitat type corresponds to marsh landcover that occurs on bottomland soils. Occurrences may consist of graminoids such as *Eleocharis spp*. (spikerushes), *Typha spp.* (cattails), *Rhynchospora spp.* (beaksedges), *Juncus spp.* (rushes), *Scirpus cyperinus* (woolgrass bulrush), *Panicum hemitomon* (maidencane), *Zizaniopsis miliacea* (marshmillet), *Saccharum baldwinii* (narrow plumegrass), and/or *Carex spp*. (caric sedges). *Nymphaea odorata* (American waterlily), *Ludwigia spp*. (primroses), *Polygonum spp*. (smartweeds), *Heteranthera spp*. (mudplantains), *Echinodorus cordifolius* (heartleaf burhead), *Sagittaria spp.* (arrowheads), and other herbaceous wetland plants may also be common.

In the summer of 2017, USACE biologists, rangers, and foresters conducted habitat assessments at Lake O' the Pines to inform land classifications. The Wildlife Habitat Appraisal Procedure (WHAP) data collected was used to identify unique and/or high quality habitats for targeted conservation throughout the classification of appropriate land classes in the 2019 MP. Methodology, habitat quality, and vegetation species encountered at Lake O' the Pines is available in Appendix E of the 2019 MP. In summary, the WHAP surveys show that moderate to high quality upland and riparian forest habitat exists around the lake.

Fisheries and Wildlife Resources

Lake O' the Pines provides habitat for an abundance of fish and wildlife species. The lake provides a quality fishery, as well as quality wildlife habitat on public land associated with the project. Some of the most common game fish in the lake for anglers are Largemouth Bass (*Micropterus salmoides*), Spotted Bass (*Micropterus puctulatus*), Blue Catfish (*Ictalurus furcatus*), Channel Catfish (*Ictalurus punctatus*), Flathead Catfish (*Pylodictis olivaris*), White Bass (*Morone chrysops*), White Crappie (*Pomoxis annularis*), Black Crappie (*Pomoxis nigromaculatus*), Bluegill Sunfish (*Lepomis macrochirus*), Green Sunfish (*Lepomis cyanellus*), Longear Sunfish (*Leopomis megalotis*), Redbreast Sunfish (*Lepomis auritus*), Redear Sunfish (*Lepomis microlophus*), Warmouth (*Lepomis gulosus*), and Chain Pickerel (*Esox niger*).

While Lake O' the Pines is operated by USACE, the Texas Parks and Wildlife Department (TPWD) remains the primary agency in charge of managing the fisheries

resources. The fish stocking history shows that the lake has been stocked with Florida largemouth bass every other year over the last decade. The Lake previously stocked Hybrid Striped Bass but this was discontinued in 2000 due to low angler utilization..

Terrestrial Wildlife Resources

Wildlife species prevalent at Lake O' the Pines include Southern Short Tailed Shrew *(Blarina carolinensis)*, Seminole Bat *(Lasiurus seminolus)*, Virginia Opossum *(Didelphis virginana)*, Rafinesque Big-Eared Bat *(Corynorhinus rafinesquii),* Eastern Cottontail *(Sylvilagus floridanus),* Common Gray Fox *(Urocyon cinereoargenteus),* Striped Skunk (*Mephitis mephitis*), Bobcat (Lynx rufus), White-Tailed Deer (*Odocoileus virginianus*), Swamp Rabbit (*Sylvilagus aquaticus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Flying Squirrel (*Glaucmoys volans*), Attwater's Pocket Gopher (*Geomys attwateri*), Marsh Rice Rat (*Orzomys plaustris*), Eastern Harvest Mouse (*Reithrodonmys humulis*), Cotton Mouse (*Peromyscus gossypinus*), Prairie Vole (*Microtus ochrogaster*), and River Otter (*Lontra canadensis*).

3.7.1 Alternative 1: No Action Alternative

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

3.7.2 Alternative 2: Proposed Action

The proposed SMP would support the moderate, beneficial, long-term effects to natural resources provided by the 2019 MP. The proposed 2019 SMP's shoreline allocations are in aligment with the 2019 MP by increasing PSA allocations by 11.7 miles in conversions from PRA and LDA allocations.

Minor, adverse impacts to vegetation would occur from the proposed changes to allow for defensible space brush clearing on federal lands adjacent to homes would increase habitat loss in isolated areas near residential developments along the Lake O' the Pines federal fee boundary. Brush clearing would also help prevent fires starting in or near those residential areas from burning onto federal lands.

When combined with restrictions placed on vegetation management and tree cutting limited to trees smaller than two inches in diameter, shoreline habitat corridors will face less fragmentation. Overall, recreational activities are expected to have less short and long-term adverse impacts over time to natural resources.

3.8 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act (ESA) was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All federal agencies are required to implement protective measures for designated species and to use their authorities to further the purposes of the Endangered Species Act. The Secretary of the

Interior and the Secretary of Commerce (marine species) are responsible for the identification of threatened or endangered species and development of any potential recovery plan.

USFWS is the primary agency responsible for implementing the Endangered Species Act, and is responsible for birds and other terrestrial and freshwater species. USFWS responsibilities under the Endangered Species Act include (1) the identification of threatened and endangered species; (2) the identification of critical habitats for listed species; (3) implementation of research on, and recovery efforts for, these species; and (4) consultation with other federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species officially recognized by USFWS as being in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those candidate species that are found to warrant listing as either threatened or endangered, after completion of a scientific review including biology, ecology, abundance and population trends, and threats. Official listing occurs after considering public comments and any new data that may become available, and publication of a Final Rule in the Federal Register. Species may be considered eligible for listing as endangered or threatened when any of the five following criteria occur: (1) current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affecting their continued existence.

The USFWS has identified threatened and endangered species, as well as other trust resources, potentially found at Lake O' the Pines as result of identified threats to their continued existence. The U.S. Fish and Wildlife Service's Information, Planning, and Conservation (IPAC) Report Official Species List (USFWS, 2019C) identifies these resources and can be found in Attachment B of this report. No critical habitat or candidate species were identified within the Lake O' the Pines area. Although not afforded protection by the Endangered Species Act, candidate and proposed species may be protected under other federal or state laws.

Five federally listed Endangered and Threatened species with the potential to occur at Lake O' the Pines are listed below (USFWS 2019C); The TPWD has also identified Species of Greatest Conservation Need for each ecoregion of Texas. Species of Greatest Conservation Need for the Pineywoods ecoregion can be found in Attachment B.

The 2019 SMP revision does not entail wind energy aspects. As such, the Red Knot (*Calidris canutus rufa*), Least Tern (*Sterna antillarum*), and Piping Plover (*Charadrius melodus*) will not be addressed any further concerning possible impacts to the species.

Geocarpon (*Geocarpo minimum*) is a vascular, flowering annual that is 1-4cm tall. The preferred habitat consists of prairies and glades with shallow saline soils

(NatureServe, 2017A). Because of the lack of preferred habitat and rarity of the species, the occurrence within USACE Lake O' the Pines federal fee-owned property is considered rare.

Neches River Rose-mallow (*Hibiscus dasycalyx*) is a vascular, flowering perennial herb that can grow to 7.5 ft tall. The preferred habitat consists of shrub swamps and riparian woodlands. Within these it prefers seasonally wet soils that are not flooded year round (NatureServe, 2017C). Because of the lack of preferred habitat and rarity of the species, the occurrence within Lake O' the Pines federal fee-owned property is considered rare.

3.8.1 Texas Natural Diversity Database

The Texas Natural Diversity Database (TXNDD), administered by TPWD, manages and disseminates occurrence of information on rare species, native plant communities, and animal aggregations in Texas to help guide project planning efforts. An official request via email was made requesting this information for the following USGS quadrangles that the Lake O' the Pines federal fee-owned property falls within: Harleton, Lassater, Kellyvielle, Ore City, and Lone Star. The following paragraphs summarize the information received from TXNDD.

Within the Lake O' the Pines federal fee-owned property, TXNDD identified two unique plant communities: Panicled Indigobush (*Amorpha paniculata*) and Goldenwave Tickseed (*Coreopsis intermedia*). Both overlap each other and occur only in one geographic area. The last official recording of Panicled Indigobush was published in 1958. The species is a flowering bush that prefers to live in wet, forested woodlands with acidic soils and it spreads through the use of fire (NatureServe, 2017D). Based on this information and lack of recent sightings, the occurrence of this species within Lake O' the Pines federal fee-owned property is considered rare. The last official recording of Goldenwave Tickseed was published in 1994. The species is a flowering forb that prefers to live in low quality pine forests, especially in areas that have been clear cut (NatureServe, 2017B). Based on this information and lack of recent sightings, the occurrence of this species within Lake O' the Pines federal fee-owned property is considered rare.

In the vicinity of Lake O' the Pines federal fee-owned property, TXNDD identifies the following unique communities: Smooth Indigobush (*Amorpha laevigata*), Water Oak-Willow Oak (*Quercus nigra-Quercus phellos*), Blackspot Shiner (*Notropis atrocaudalis*), Ironcolor Shiner (*Notropis chalybaeus*),Taillight Shiner (*Notropis maculatus*), Blackside Darter (*Percina maculata*), and Bluehead Shiner (*Pteronotropis hubbsi*) communities. None of these communities overlap one another and some of them are more abundant than others. Among these, only the Blackside Darter and Bluehead Shiner are known to occur on federal fee-owned property. Both are state listed as threatened, and were last reported in 1993.

3.8.2 Alternative 1: No Action Alternative

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; therefore, no major, long-term adverse impacts on threatened and endangered species would be anticipated as a result of implementing the No Action Alternative.

3.8.3 Alternative 2: Proposed Action

Under the Proposed Action, the USACE would continue cooperative management plans with the USFWS and TPWD to preserve, enhance, and protect wildlife habitat resources. Threatened and Endangered species potentially occurring in the Lake O' the Pines area are provided protections by the 2019 MP, to which the 2019 SMP is subservient. Protections already in place would not be contradicted or violated by any policy or land classification changes in the 2019 SMP. The increase in PSAs will further add to protecting sensitive or ecologically important areas.

The two listed plant species were assessed during the 2019 MP study and are known to be incredibly rare. The USACE staff at Lake O' the Pines have no knowledge of them occurring on USACE managed lands at Lake O' the Pines. If these species were to occur, they would be managed via an Environmentally Sensitive Area or Wildlife Management Area as defined in the 2019 MP. Protection afforded to these species in the 2019 MP would also be afforded along shorelines as PSAs are being increased by 11.7 miles for a total 163 miles.

Any future activities that could potentially result in impacts on federally listed species will be coordinated with USFWS consistent with requirements found in Section 7 of the Endangered Species Act. Due to no known occurrences of federally threatened or endangered species occurring within Lake O' the Pines federal fee property, USACE has determined the proposed changes in the 2019 SMP will have no effect on federally listed species.

The 2019 SMP does not propose any ground disturbing activities, rather it provides a process for future proposed activities to be evaluated for impacts to protected resources, including Federally protected species. As such, the 2019 SMP has no effect on federally listed species.

3.9 INVASIVE SPECIES

Invasive species are any kind of living organism which, if uncontrolled, causes harm to the environment, economy, or human health. Invasive species generally grow and reproduce quickly and spread aggressively. Non-native, or exotic, species have been introduced, either intentionally or unintentionally, and can out-compete native species for resources or otherwise alter the ecosystem. Native invasive species are those species that spread aggressively due to an alteration in the ecosystem, such as lack of fire or the removal of a predator from the food chain.

Both USACE and TPWD monitor and enforce aquatic nuisance species regulations in an effort to prevent the expansion/colonization of invasive species at Lake O' the Pines.

Major invasive species of concern at Lake O' the Pines include red-imported fire ants (*Solenopsis invicta*), feral hogs (*Sus scrofa*), hydrilla (*Hydrilla sp.*), water hyacinth (*Eichornia crassipes*), bahiagrass (*Paspalum notatum*), bermudagrass (*Cynodon dactylon*), and johnsongrass (*Sorghum halepense*).

3.9.1 Alternative 1: No Action Alternative

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

3.9.2 Alternative 2: Proposed Action

The land reclassifications, resource objectives, and resource plan required to revise the Lake O' the Pines The proposed 2019 SMP is compatible with the lake's invasive species management practices. The measures mentioned in the sections above regarding the prevention of erosion also prevent the establishment of new invasive species populations. The 11.7 mile increase in PSAs in the 2019 SMP will further add to the protections already provided by the 2019 MP. These allocations would protect shorelines from erosive disturbances associated with constructing recreational features and exposing areas to colonization from invasive species.

The proposed shoreline allocation changes and associated policy changes proposed by the 2019 SMP will result in minor, long-term beneficial impacts in reducing and preventing the spread of invasive species.

3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Cultural History Sequence

The earliest known Native American civilization to occur within the Lake O' the Pines area is documented to have occurred 12,500 years before present (BP). From that time period on, various Native American tribes have occupied the area. The first European settlement was in 1542. From that point on, the area would eventually be developed into Texas' 2nd largest inland port. However, the detour of a major rail line and removal of various natural occurring dams within the Red River, would eventually bring demise to the port industry within the area. The subsequent discovery and development of the oil and iron industries brought a boom to the area in the early 20th century. Declining prices in oil and steel in the 1980s has resulted in a steady decline in the population of the area as people were laid off. For more detailed information please see Section 2.3 of the 2019 MP.

Cultural Resources Management at Lake O' the Pines

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. To date, 250 archeological sites have been recorded at Lake O’ the Pines. None have been formally listed on the National Register of Historic Places (NRHP) and none have received the designation of “eligible” for NRHP inclusion. In some cases, this is due to the fact that the site might be inundated by the reservoir at its conservation pool level. In other cases, it is a result of the fact that limited NRHP eligibility testing has been performed at Lake O’ the Pines.

Current research suggests the area around Lake O’ the Pines has been occupied since the Paleo-Indian Period. This period is estimated to have lasted from 12,500-8,000 year before present (B.P.). Broadly, these earliest inhabitants were nomadic hunters and gatherers. Unfortunately, their highly-mobile lifestyle left a relatively sparse archeological record. Much of the evidence for their presence comes from the projectile points they left behind. These finely-crafted points are typically made from high-quality stone from regions outside East Texas-supporting the belief that these Paleo-Indians traveled extensively across the landscape. Often, these projectile points and other Paleo-Indian artifacts are discovered on the surface or mixed with artifacts from later inhabitants. A handful of such surface scatters exist around the lake. One, the Forrest Murphey site, was uncovered in the aftermath of the construction of the lake’s dam. It produced examples of the well-known Clovis spear point and mastodon teeth. Unfortunately, intact Paleo-Indian sites are not characteristic of the area around Lake O’ the Pines.

Over time, the Paleo-Indian Period gave way to the Archaic Period. This vast expanse of prehistory began around 8,000 years B.P. and lasted to about 2,200 B.P. in East Texas. As the climate regime shifted away from the cooler climate of the Paleo-Indian Period to one warmer and drier than today, Archaic Period peoples gradually became more sedentary. Populations increased and archeological sites can be found on a wide variety of landforms. The environment of East Texas provided them with a multitude of plant and animal resources. It did not, however, provide them with high-quality materials for stone tool making, when compared to those found in the Paleo-Indian Period. Regardless, Archaic Period inhabitants expanded their toolkit and made other adaptations to the local environment that allowed for population growth over time.

The Woodland Period is generally recognized to have begun by 2200 B.C. and lasted until around 800 A.D. During the Woodland Period, ceramics are first seen in the area. Undecorated ceramics predominate. However, decorated types influenced by the Woodland Period cultures of the Lower Mississippi River valley to the east have been recovered from the area. Arrow points found on many of these sites indicate the

adoption of the bow and arrow during this period. While it's generally believed that these Woodland Period cultures were still hunting and foraging, squash and native plant cultivation appears to have begun in earnest during this period. These peoples did settle some sites for long periods of time in the Big Cypress basin around present-day Lake O' the Pines. Some of these sites were quite large, covering several acres. Additionally, we see the beginnings of mound building, along with complex, intentional burial practices.

The Caddo Period began around 800 A.D. in East Texas and lasted until historic times. It is divided into the Formative, Early, Middle, Late, and Historic Caddo Periods. By the beginning of the Middle Caddo Period in 1200 A.D., the Caddo were successful agriculturalists that came to rely a great deal on cultivation of corn. Permanent settlements with many mounds, elaborate burials, and structures such as grass houses were common. The Caddo produced a wide variety of ceremonial and utilitarian ceramic vessels that are distinctive and impressive. Vast trade networks were established in this time period, with the Caddo trading for items such as salt, bison hides, marine shell, copper, and turquoise. The Big Cypress basin in the area of present-day Lake O' the Pines was intensively occupied by the Caddo. Several Late Caddo Period archeological sites were recorded in the Big Cypress basin prior to the impoundment of Lake O' the Pines. Archeologically, these sites are classified as belonging to Titus Phase.

The Historic Caddo Period is defined in Texas as the period that began with sustained European contact during the 1680s and continuing through their removal from East Texas in 1859. The earlier Titus Phase ended with the entry into the area of early European explorers. Within 100 years or so of the 1542 de Soto/Moscoso *Entrada's* passage through the area, Titus Phase Caddo appear to have succumbed to the effects of European diseases and other cultural upheavals. The remnant populations are speculated to have joined the large Historic Period Kadohadacho and Hasinai Confederacies to the north and south of the area. Elsewhere in the region, the Caddo were able to use the competing interests of the French and Spanish colonizers of East Texas and Louisiana to their advantage, gaining guns, horses, and previously unavailable metal tools. Recognized as a "friendly tribe," the Caddo were valued allies that aided their European neighbors in altercations against other, more hostile groups. However, the various interruptions of the traditional Caddo way of life caused by European exploration and settlement caused the Caddo population to dwindle drastically. The Caddo creation story says that their first village was founded on Caddo Lake. In the late 1700s, the Caddo returned to vicinity of the lake east of present-day Jefferson. After the Texas War of Independence, the Caddo, along with many migrant tribes from further east, were forced from East Texas. They ultimately were relocated to Indian Territory in Oklahoma by 1859.

The period of European exploration and settlement and the subsequent Anglo-American and African-American development of the area of Lake O' the Pines is briefly covered in the remaining sections. The lake is spread across the five counties of Camp,

Harrison, Morris, Marion, and Upshur. The counties share similar histories and economies.

As referenced earlier, Europeans initially entered the area as part of the Spanish de Soto Entrada in 1542. De Soto, by this point, had perished. Luis de Moscoso de Alvarado led the remnants in an attempt to reach Mexico. The effort failed, and the party retraced its route, eventually descending the Mississippi River to the Gulf of Mexico. De Moscoso, probably passed through the area on well-worn Caddo trails.

Throughout its colonial history, the region was a province of Spain and then Mexico. Anglo-American settlement of East Texas increased after the Louisiana Purchase made most of the lands north and east of Texas territory of the United States. In the early 1800s, settlers began utilizing existing Caddo trails to smuggle horses to existing settlements further south. In 1824, Nicholas Trammell improved and added to existing trails from Red River to the El Camino Real de los Texas to make them more amenable to wagon travel. The route, which crossed Marion County, would be known as Trammell's Trace.

Texas's independence in 1836 and ultimate statehood only increased settlement in the area. Jefferson was founded in 1842. Eventually, it became the head of navigation from the Red River and the largest inland port city in Texas. Soon, a cotton and corn-based agricultural economy developed. Caddo Lake and Big Cypress Bayou saw steamboat traffic carrying crops to the coast and, likewise, ships from further south bringing manufactured wares for sale in Jefferson and a wide swath of northeast Texas.

During the Civil War, the area avoided the direct, typically disastrous impacts felt by other parts of the South. Local farmers, ranchers, and merchants profited by supplying crops, cattle, and timber to the war effort. Additionally, a meat cannery and ironworks were located in the area. In the immediate aftermath of the war, the addition of the 13th Amendment to the U.S. Constitution and a Radical Republican administration installed in Austin resulted in the loss of the sizeable workforce of enslaved Africans. However, the sharecropping system that replaced slavery meant that much of this prior workforce remained. Jefferson's economic condition began to improve soon after the war. By the early 1870s, Jefferson was the sixth largest city in Texas and home to the state's second largest port.

Prior to the Civil War, Jefferson had begun construction of a railroad line southward in attempt to link Shreveport and Marshall. The outbreak of hostilities ended this effort. When rail construction resumed, Jefferson was initially bypassed on a route that led from Marshall to Texarkana. The railroad did soon run a line into the town. Rail transportation, however, diminished the importance of Jefferson's river commerce.

The event that most view as the main factor in the demise of Jefferson's importance as a regional hub of commerce was the destruction of the Great Raft on the Red River. The river's route through highly erodible soils meant trees were constantly being washed into the waterway, creating a series of natural dams that elevated water levels in its nearby tributaries and creating large "raft lakes" within its floodplain. Since the 1830s, attempts had been made to remove the Great Raft from the river. In 1873, explosives were used to break up the jam. The resulting low water levels made Big

Cypress Bayou seasonably unnavigable, ultimately ending river commerce. By the middle of the 1880s, Jefferson's population was half of its post-bellum peak.

In the 20th century, the discovery of oil in the area briefly sustained and increased the population of Jefferson. However, the population today is less than half its 20th century peak. Although oil and timber continue to be important to the area, Jefferson has managed to develop a booming tourism industry. The fact that many of the structures from the town's 19th century boom time are still intact has become a vital asset. Multiple individual properties are listed on the National Register of Historic Places and a large swath of the old downtown and adjacent neighborhoods lie within a designated historic district. Traditional industries, tourism, proximity to Caddo Lake, and construction of Lake O' the Pines in 1959 have sustained the city and its current estimated population of 2,043 residents.

Ore City lies just west of Lake O' the Pines in Upshur County with a currently estimated population of 1,204 residents. The town sprang up in 1911 in anticipation of the Port Bolivar Iron Ore Railroad. Eastern Upshur and adjacent western Cass counties contained large deposits of iron ore that had been mined sporadically since the 1860s. An attempt was made to construct a railroad line from the Texas coast in the belief this ore could be mined, shipped, and sold to the booming steel mills of the northeastern United States. World War I interrupted the construction of the railroad and it was abandoned in 1927, completed only as far north as the community of Warlock on the northern side of present-day Lake O' the Pines. Later 20th century mining efforts, oil, timber, and construction of the lake have sustained the town into the 21st century.

The town of Lone Star is situated at the north end of Lake O' the Pines in Morris County. Lone Star owes its existence to the aforementioned iron ore deposits in the area. In the 1930s, the town sprang up around the Lone Star Steel plant. At one point, the sprawling plant employed as many as 6,000 workers. Lone Star's population peaked in the 1980s with 2,006 residents, with the steel plant supporting the thriving petroleum industry. With the decline in oil prices and subsequent production in the 1980s, the plant began to experience difficulties. Over the ensuing years, production and employment declined. Today the town is home to approximately 1,500 residents.

The earliest archeological studies conducted within the current fee boundary of Lake O' the Pines were performed in anticipation of lake construction in the 1950s. Through funding from the River Basin Survey and the National Park Service, Ed Jelks, E. Mott Davis, and others recorded and excavated several archeological sites in proximity to the eventual lake. Of the 60 sites found, nineteen were substantial Caddo settlements and five were mound sites. Prominent among Caddo sites excavated were the Harroun, Whelan, and Dalton sites. Various sites were recorded through the 1980s either through small-scale efforts or opportunistically by USACE personnel, volunteers, and avocational archeologists and collectors. The 1990s saw the beginning of current era of larger-scale efforts related to timber management activities by cultural resource management firms contracted by USACE. Additionally, the USACE has employed an archeologist at the lake dedicated to cultural resource concerns at Lake O' the Pines and the other four Lakes within the USACE Piney Woods Regional Operations Project.

To date, archeologists have conducted cultural resource inventories on roughly 90% of fee lands at Lake O' the Pines.

To date, 250 archeological sites have been recorded at Lake O' the Pines. None have been formally listed on the National Register of Historic Places (NRHP) and none have received the designation of "eligible" for NRHP inclusion. In some cases, this is due to the fact that the site might be inundated by the reservoir at its conservation pool level. In other cases, it's a result of the fact that limited NRHP eligibility testing has been performed at Lake O' the Pines. 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.

3.10.1 Alternative 1: No Action Alternative

There would be no major adverse impacts on cultural resources as a result of implementing the No Action Alternative, as there would be no changes to the existing 1978 SMP. However, maintaining existing shoreline allocations would not recognize the presence or importance of cultural resources, which could lead to long-term negative moderate or major impacts as a result of implementing the No Action Alternative.

3.10.2 Alternative 2: Proposed Action

The Proposed 2019 Shoreline Management Plan would not contradict or violate any of the protections for cultural resources set forth by the 2019 MP. The proposed action serves to further protect cultural resources and their associated areas by increasing the area of PSAs by 11.7 shoreline miles. The proposed action would have minor to moderate beneficial impacts to cultural resources over the planning horizon of the project.

An Integrated Cultural Resources Management Plan (ICRMP) was developed and incorporated into the Operational Management Plan in accordance with EP 1130-2-540 in 2005 and will be updated in the near future. Such plans establish standard operating procedures pertaining to both USACE and external activities that might impact cultural resources. Completion of a full inventory of cultural resources at Lake O' the Pines is a long-term objective that is needed for compliance with Section 110 of the NHPA. Currently, just under 90% of fee owned lands above the conservation pool of the reservoir have been inventoried. Ultimately, all currently known sites, as well as those found in future inventories should be evaluated to determine their eligibility for the NRHP. Sites of currently unknown NRHP eligibility and those found in the future to be eligible for the NRHP must be protected from impacts caused by USACE or those having easements on Lake O' the Pines fee lands. All future cultural resource activities will be coordinated with the State Historic Preservation Officer at the Texas Historical Commission and with the federally-recognized Caddo Nation of Oklahoma, who recognize the area as part of their historic homeland, in order to insure compliance with

the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

Any future ground-disturbing activities would take into account Section 106 of the National Historic Preservation Act of 1966 and other applicable cultural resource statutes to insure that cultural resources are protected.

3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The zone of interest for this socioeconomic analysis includes Marion, Morris, Upshur, Camp, Cass, Gregg, and Harrison Counties and Caddo Parish with additional economic influence extending up to a 30-mile radius of Lake O' the Pines. This east Texas-county region, where the most impacts would be expected, has been utilized as the basis in summarizing the population characteristics of Lake O' the Pines. The population, education level, employment rates, income, and household characteristics of the area are discussed in detail in Section 2.4 of the 2019 MP and are incorporated herein by reference (USACE, 2019). Highlights from Section 2.4 of the 2019 MP are provided below.

The total population for the zone of interest in 2016 was 548,955. Almost half of the zone of interest's population (approximately 46%) resides in Caddo Parish, with a majority of the Parish's residents living in the city of Shreveport. 23% of the zone of interest's population resides in Gregg County, 12% in Harrison County, 7% in Upshur County, and 6% in Cass County. The remaining counties in the zone of interest each account for 2% or less of the zone of interest's population.

From 2016 to 2045, the zone of interest is expected to experience an annual growth rate of approximately 0.4%. Note that this number holds Caddo Parish's population constant after 2030, since this is the last year of available population projection data for the region. By comparison, the population of Texas is projected to increase at a rate of 1.2% per year, and the national growth rate is expected to be 0.6% per year between 2016 and 2045. Between 2016 and 2030, the state of Louisiana's population is expected to increase by 0.8% annually. During these specified timeframes, most counties within the zone of interest are projected to have positive growth with the exception of Caddo Parish and Marion County, both of which are forecasted to experience negative growth at a rate of 0.2% annually.

The distribution of the population among gender is approximately 48% male and 52% female in the zone of interest. The state of Texas is approximately 50% male and 50% female, while Louisiana is 49% male and 51% female.

The zone of interest is approximately 56% White, 32% Black, and 8% Hispanic or Latino, with the other race categories account for 1% or less for each of the population. By comparison, the state of Texas is approximately 43% White, 12% Black, 39% Hispanic or Latino, and 4% Asian. The state of Louisiana is approximately 59% White, 32% Black, 5% Hispanic or Latino, 2% Asian, and 2% two or more races.

The largest percentage of the zone of interest is employed in the Educational services, and health care and social assistance sector at 25%, followed by 13% in Retail Trade, 10% in Manufacturing, 9% each in the Arts, entertainment, and recreation, and accommodation and food services, 8% in the Professional, scientific, and management, and administrative and waste management services, and 6% each in the Construction sector and the Other services, except public Administration sector. The remainder of the employment sectors each comprise 5% or less of the zone of interest's labor force.

The unemployment rate in the zone of interest was 6.5% in 2016, higher than that of the states of Texas and Louisiana, which had unemployment rates of 4.6% and 6.2%, respectively. Within the zone of interest, all of the Texas counties had a higher unemployment rate than the state, with Morris County's 11% unemployment being the highest. Caddo Parish experienced a slightly higher unemployment rate than the state of Louisiana at 6.6% compared to the 6.2% state unemployment rate.

In 2016, the median household income in the zone of interest ranged from $35,424 in Marion County to $47,724 in Upshur County. Per capita income was similar among the zone of interest, ranging from $20,034 in Camp County to $25,206 in Caddo Parish. The per capita incomes in the states of Louisiana and Texas were $25,515 and $27,828 respectively.

In the zone of interest, 15.3% of individual's incomes fell below the poverty level in 2016. In the state of Texas, 16.7% of individual's incomes fell below the poverty level, slightly higher than the state of Louisiana, where 15.1% of incomes fell below the poverty level in 2016. Within the zone of interest, Caddo Parish had the largest percentage of persons with incomes below the poverty level at 17.2%, and Upshur County had the smallest at 9.2%. In the remaining counties included in the zone of interest, the number of persons whose incomes fell below the poverty level ranged from 13% to 15%. In terms of families below the poverty level, Caddo Parish had the greatest percentage at 22.4%, and Upshur County had the smallest percentage at 13.5%. By comparison, 19.7% of Louisiana's families and 13% of Texas' families had incomes below the poverty level during the same time period.

Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by President Clinton on February 11, 1994. It is intended to ensure that proposed federal actions do not have disproportionately high and adverse human health and environmental effects on minority and low-income populations, and to ensure greater public participation by minority and low-income populations. It requires each agency to develop an agency-wide environmental justice strategy. A Presidential Transmittal Memorandum issued with the EO states that "each federal agency shall analyze the environmental effects,

including human health, economic and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by the NEPA 42 U.S.C. section 4321, et seq."

EO 12898 does not provide guidelines as to how to determine concentrations of minority or low-income populations. However, analyses of demographic data on race and ethnicity and poverty provides information on minority and low-income populations that could be affected by the Proposed Actions. The U.S. Census American Community Survey provides the most recent estimates available for race, ethnicity, and poverty. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, Pacific Islander, or Other (section 2.4.2 of the 2019 SMP). Poverty status is used to define low-income. Poverty is defined as the number of people with income below poverty level, which was $24,588 for a family of four in 2017 with two children under 18 (US Census Bureau, 2018). A potential disproportionate impact may occur when the minority in the study area exceeds 50 percent, or when the percent minority and/or low-income in the study area are meaningfully greater than those in the region.

Protection of Children

EO 13045 requires each federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children" and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. The potential for impacts on the health and safety of children is greater where projects are located near residential areas. Please refer to Figure 2.5 in section 2.4.2 of the 2019 MP for a graphical representation for the percentage of total population that are children in the study area.

3.11.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no changes to the existing SMP, with the USACE continuing to manage Lake O' the Pines natural resources as set forth in the 1978 SMP. There would be no major adverse long-term impacts on socioeconomic resources. Beneficial socioeconomic impacts existing as a result of the implementation of the 1978 SMP would continue, as visitors would continue to come to the lake from surrounding areas. In addition to camping in USACE-operated campgrounds, many visitors purchase goods such as groceries, fuel, and camping supplies locally, eat in local restaurants, stay in local hotels and resorts, play golf at local golf courses, and shop in local retail establishments. These activities would continue to bring revenues to local companies, provide jobs for local residents, and generate local and state tax revenues. There would be no disproportionately high or adverse impacts on minority or low-income populations or children with the implementation of the No Action Alternative.

3.11.2 Alternative 2: Proposed Action

Lake O' the Pines is beneficial to the local economy through indirect job creation and local spending by visitors, and also offers a variety of recreation opportunities and uses innovative maintenance and planning programs to minimize usage fees.

While reductions totaling 11.7 shoreline miles of PRA and LDA allocations are proposed, those changes may only prohibit the construction of new recreational features in those areas. Hiking, nature viewing, primitive camping, and shoreline fishing are still appropriate recreational activities that can occur in these areas.

In Chapter 3 of the revised 2019 MP, recreational objectives support improving and modernizing recreation opportunities at Lake O' the Pines that promote continued visitation and related spending. The proposed changes in the updated SMP may limit new recreational features in PSA shorelines, however, new recreational features, docks, and vegetation management are still available options within LDA and PRA allocated shorelines.

Since recreational opportunities remain abundant, and the revised SMP recognizes and reinforces projected recreational trends there would be negligible, long-term beneficial impacts on area economic stability and environmental justice populations resulting from the revision of the 1978 SMP.

3.12 RECREATION

The majority of visitors to Lake O' the Pines come from a 100-mile radius 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 county and federally operated campgrounds around the reservoir, adjacent residents, hunters and anglers who utilize public hunting areas and participate in recreational and tournament fishing, marina customers who utilize the marinas on the reservoir, and day users who picnic, hike, bird watch, bicycle, and ride horses. Recreational facilities, activities, and needs are discussed in detail in Section 2.5 of the 2019 MP.

3.12.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no major adverse long-term impacts on recreational resources, as there would be no changes to the existing SMP.

3.12.2 Alternative 2: Proposed Action

The primary objective for revising the Lake O' the Pines 1978 SMP is to manage shoreline activities in alignment with the 2019 MP. Specific objectives are listed in Section 1.2 of the proposed 2019 SMP.

While reductions totaling 11.7 shoreline miles of PRA and LDA allocations are proposed in alignment with the 2019 MP, those changes only prohibit the construction of new recreational features along those shorelines. Hiking, nature viewing, primitive camping, and shoreline fishing are still appropriate recreational activities that can occur

in these areas. The proposed action would have negligible to minor adverse impacts due to the reduction in PRA and LDA miles. However, considering the change in PRAs better reflects the areas actually being used by the public, thus allowing for better management of these recreational areas (REC).

3.13 AESTHETIC RESOURCES

Lake O' the Pines is best known for the mature pine and pine-hardwood forests that surround the lake, as well as the excellent hunting, fishing, and camping opportunities. Lake O' the Pines proper and surrounding federal lands also offers public, open space value and scenic vistas that are unique in the region.

3.13.1 Alternative 1: No Action Alternative

There would be no major adverse impacts on visual resources as a result of implementing the No Action Alternative, as there would be no changes to the existing 1978 SMP.

3.13.2 Alternative 2: Proposed Action

The proposed action includes an increase in PSAs by 11.7 shoreline miles. This change will serve to better preserve the aesthetic value of the environment of Lake O' the Pines. An increase in PSAs will protect and preserve valuable cultural and environmental resources that contribute to the aesthetic properties of Lake O' the Pines. The vegetation management restrictions will better protect the growth and maturation of young, high quality, trees from damage or removal. Continued vegetation management within LDA and PRA allocations will also preserve the natural aesthetics of the Lake by preventing planting of non-native flora and the removal or disturbance of native flora while still providing for recreation activities.

Section 3.2 of the proposed 2019 SMP provides LDA requisite criteria that also protects the aesthetic features within LDA shoreline allocated areas.

Therefore, the Proposed Action would result in minor, long-term beneficial impacts to the aesthetic resources of Lake O' the Pines.

3.14 HAZARDOUS MATERIALS AND SOLID WASTE

This section describes the existing condition within the study area with regard to potential environmental contamination and the sources of releases to the environment. Contaminants could enter the lake environment via air or water pathways. The highways and roads, railroads, and oil and gas pipelines in the vicinity could also provide sources of contaminants to the project area.

3.14.1 Alternative 1: No Action Alternative

There would be no major adverse long-term impacts on hazardous, toxic, radioactive, or solid wastes as a result of implementing the No Action Alternative, as there would be no changes to the existing SMP.

3.14.2 Alternative 2: Proposed Action

The shoreline allocations recommended to revise the SMP would be compatible with Lake O' the Pines hazardous and toxic waste and solid waste management practices. Therefore, no major, adverse, long-term impacts due to hazardous, toxic, radioactive, or solid wastes would occur as a result of implementing the 2019 SMP.

3.15 HEALTH AND SAFETY

Lake O' the Pines is managed for flood risk management, water conservation, recreation, and fish and wildlife management, environmental quality, and conservation of natural resources. Compatible uses incorporated in project operation management plans include programs that establish recreation management practices to protect the public, such as water safety education, safe boating and swimming regulations, safe hunting regulations, and speed limit and pedestrian signs for park roads. The staff of Lake O' the Pines are in place to enforce these policies, rules, and regulations during normal park hours.

3.15.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the 2019 SMP would not be revised. No major, adverse, long-term impacts on human health or safety would be anticipated.

3.15.2 Alternative 2: Proposed Action

Under the Proposed Action, the recommended revisions to the Lake O' the Pines 1978 SMP would be compatible with project safety management plans. The Project would continue to have reporting guidelines in place should water quality become a threat to public health. Existing regulations and safety programs throughout the Lake O' the Pines area would continue to be enforced to ensure public safety. The proposed changes to allow for defensible space around homes to prevent wildfire damage, hand rail requirements on sloped pathways, and spacing requirements for docks all contribute to increased safety of those who live next to and recreate at Lake O' the Pines.

The proposed SMP includes the requirement of a minimum distance of 75 feet between docks, which has been a standard dock plan requirement for many years.

The proposed plan also includes maximum dock size and length (not exceed 125 feet in length from the 230 foot NGVD29 contour line) requirements that have been in effect as part of the standard dock plan for many years. Additional dock size restrictions can be found in Section 4.2.2.5 of the 2019 SMP.

Therefore, there would be no major, adverse, long-term impacts on public health and safety as a result of implementing the Proposed Action.

3.16 SUMMARY OF CONSEQUENCES AND BENEFITS

Table 5 provides a tabular summary of the consequences and benefits for the No Action and Proposed Action alternatives for each of the 15 assessed resource categories.

Table 5. Summary of Consequences and Benefits

Resource	Change Resulting from Revised Shoreline Management Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Land Use	No effect on private lands. Minor to moderate benefit from placing emphasis on protection of wildlife and environmental values on USACE land and maintaining current level of developed recreation facilities.	Fails to recognize recreation trends and regional natural resource priorities.	Recognizes recreation trends and regional natural resource priorities identified by TPWD, USFWS, and public comment.	Shoreline allocations fully recognize passive use recreation trends and regional environmental values.
Water Resources Including Groundwater, Wetlands, and Water Quality	Minor change with benefits to recognize value of wetlands.	Fails to recognize the water quality benefits of good land stewardship and need to protect wetlands.	Promotes restoration and protection of wetlands and good land stewardship.	Shoreline allocations fully recognize regional environmental values.
Climate	No effect on climate	Fails to promote sustainable, energy efficient design.	Promotes shoreline management practices and design standards that promote sustainability.	No change.
Climate Change and Greenhouse Gases	Same as for Climate	Same as for Climate	Same as for Climate	Same as for Climate
Air Quality	Negligible change to help reduce air emissions.	No effect	Promotes activities and goals that will help to reduce emissions.	Shoreline allocations fully recognize regional air quality value.
Topography, Geology and Soils	Beneficial change to place emphasis on good stewardship of land and water resources.	Fails to specifically recognize known and potential soil erosion problems.	Encourages good stewardship that would reduce existing and potential erosion.	Shoreline allocations fully recognize need to reduce erosion.

Resource	Change Resulting from Revised Shoreline Management Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Natural Resources	Minor to moderate benefits through shoreline allocations.	Fails to recognize ESAs, and regional priorities calling for protection of wildlife habitat.	Gives full recognition of sensitive resources and regional trends and priorities related to natural resources.	Increases allocation to PSA shorelines to protect sensitive resources.
Threatened & Endangered Species and rare/unique communities as identified in the TXNDD Database	Minor to moderate benefits from shoreline allocations to PSA.	Fails to recognize current federal and state-listed species.	Fully recognizes federal and state-listed species as well as the TXNDD Database listed by TPWD.	The SMP sets forth the most recent listing of federal and state-listed species and addresses on-going commitments to conservation of protected species.
Invasive Species	Minor change to recognize several recent and potentially aggressive invasive species.	Fails to recognize current invasive species and associated problems.	Fully recognizes current species and the need to be vigilant as new species may occur.	Shoreline allocations fully recognize need to reduce invasive species.
Cultural, Historical and Archaeological Resources	Minor change to recognize current status of cultural resource.	Included cursory information about cultural resources that is inadequate for future management and protection.	Recognizes the presence of cultural resources and places emphasis on protection and management.	Shoreline allocations fully recognize need to preserve areas within known or potential cultural resources.
Socioeconomics and Environmental Justice	No change	No effect	No effect	No added benefit
Recreation	Negligible to minor adverse impacts to outdoor recreation programs.	Fails to recognize current outdoor recreation trends.	Fully recognizes current outdoor recreation trends, allows for ongoing recreation in established areas.	Provides for current recreation activities to continue within appropriate areas.

Resource	Change Resulting from Revised Shoreline Management Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Aesthetic Resources	Minor benefits through shoreline allocations to protect shorelines from construction or vegetation management in sensitive areas.	Fails to minimize activities that disturb the scenic beauty and aesthetics of the lake.	Promotes activities that limit disturbance to the scenic beauty and aesthetics of the lake.	Shoreline allocations fully recognize need to protect the aesthetic value along the shorelines.
Hazardous Materials and Solid Waste	No change	No effect	No effect	No added benefit
Health and Safety	Minor change to promote public safety awareness and boating safety.	Fails to emphasize public safety programs.	Recognizes the need for public safety regarding outdoor recreation.	Includes specific proposals for boating and wildland fire safety.

SECTION 4: CUMULATIVE IMPACTS

The most severe environmental degradation may not result from the direct effects of any particular action, but from the combination of effects of multiple, independent actions over time. As defined in 40 CFR 1508.7 (CEQ Regulations), a cumulative effect is 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.

By Memorandum dated June 24, 2005, from the Chairman of the CEQ to the Heads of Federal Agencies, entitled "Guidance on the Consideration of Past Actions in Cumulative Effects Analysis", CEQ made clear its interpretation that "…generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions…" and that the "…CEQ regulations do not require agencies to catalogue or exhaustively list and analyze all individual past actions." This cumulative impacts analysis summarizes expected environmental impacts from the combined impacts of past, current, and reasonably foreseeable future activities affecting any part of the human or natural environments impacted by the Proposed Action.

4.1 Past Impacts within the zone of interest.

Lake O' the Pines was originally authorized by the Ferrells Bridge Dam and Reservoir by the Flood Control Act of 1946, but changed to the Lake O' the Pines and Ferrells Bridge Dam in 1958. Congressional Authority for recreation was provided by the Flood Control Acts of 1941 and late in 1944. Construction of the Ferrells Bridge Dam in January 1955 and was completed in December 1959. Lake O' The Pines encompasses a total area of 29,410 acres of both land and surface water.

Completed in 2013, under Section 1135 of the USACE Continuing Authorities Program, the Big Cypress Bayou Fish and Wildlife Restoration project restored several habitat types in and near Jefferson, Texas. With TPWD being the local sponsor, bottomland hardwood and bald cypress habitats were improved or restored, spawning habitat for paddlefish was created through the placement of gravel beds, and roosting habitat was created for bats. Environmental education and interpretative access was also created with a riverside boardwalk trail.

The Lake O' the Pines MP was completed in 2019 and was authorized under the Flood Control Act as approved 22 December 1944 (Public Law 534, 78th Congress, 2d Session) as well as the Fish and Wildlife Coordination Act of 1958 (Public Law 85-624, 72 Stat 563), as amended. The purpose of the 2019 MP revision was to implement updated strategies regarding comprehensive land management to include natural resources, cultural resources, development, and recreation. The 2019 MP serves as the basis for the 2019 SMP; the SMP is subservient to the MP and will not contradict or degrade any actions set in place by the MP.

4.2 Current and Reasonably Foreseeable Projects Within And Near The Zone Of Interest

Future management of the 16,058 acres of Flowage Easement Lands at Lake O' the Pines includes routine inspection of these areas to ensure that the Government's rights specified in the easement deeds are protected. In almost all cases, the Government acquired the right to prevent placement of fill material or habitable structures on the easement area. Placement of any structure that may interfere with the USACE flood risk management and water conservation missions may also be prohibited.

Regional and county mobility plans call for general roadway improvements of some existing roadways within the surrounding vicinity of USACE lands. The Texas Department of Transportation (TXDOT) currently plans to widen Hwy 155 and construct a new bridge at Lake O' the Pines. There are no other plans from TXDOT that result in major changes to nearby transportation or emissions; there are small projects like adding road signs, painting center lines, texturizing road shoulders, and eliminating road hazards (TXDOT 2019). No other large-scale local road expansion or construction projects planned or anticipated to take place within the zone of interest during the planning horizon of the 2019 SMP.

USACE policy encourages the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. After obtaining public input and examining the location of existing roads and utility lines on project lands, the USACE determined that only utility corridors would be designated at Lake O' the Pines. Because USACE policy in EP 1130-2-550, Chapter 17, states that project lands will generally be available only for roads that are considered regional arteries or freeways, and all current regional and county mobility plans include no proposals for regional arterials crossing USACE land, there is no need for designation of roadway corridors. Future use of these corridors, where the corridor is limited to an existing easement, would in most cases require prior approval of those entities that have legal rights to the easement.

Private mineral owners are anticipated to continue exploration and production activities within their respective mineral deposits that underlie the majority of USACE lands. The rate at which exploration and production activity may occur is unpredictable as it is governed by numerous factors such as the value of the deposits in relation to national and international markets. Through the use of mineral subordination rights acquired by USACE on private minerals, basic resource protection measures can be required when mineral exploration and production activities are proposed, to the extent that private mineral owners cannot be denied reasonable access to their minerals. Federal ownership of minerals underlying USACE lands is very limited, but such minerals could be proposed for lease to private entities, provided USACE determines that the leasing would not interfere with operation of the project for its intended purposes, there is no threat to public health and safety, and natural resources are not harmed. If leasing of federal minerals would occur in the future, the Bureau of Land Management (BLM) would execute the lease and seek public input prior to the lease. It

is anticipated that USACE would require BLM to stipulate “No Surface Occupancy” of federal land as a condition of the lease. Coordination with BLM during project preparation indicated there are currently no active or proposed leases of federally-owned minerals underlying USACE lands. A new mineral lease may require a separate EA or EIS depending on the scope of the project.

4.3 Analysis Of Cumulative Impacts

Impacts on each resource were analyzed according to how other actions and projects within the zone of interest might be affected by the No Action Alternative and Proposed Action. Impacts 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 will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.0. Moderate growth and development are expected to continue in the vicinity of Lake O’ the Pines and cumulative adverse impacts on resources would not be expected when added to the impacts of activities associated with the Proposed Action or No Action Alternative. A summary of the anticipated cumulative impacts on each resource is presented below.

4.3.1 Land Use

A major impact would occur if any action is inconsistent with adopted land use plans or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Under the No Action Alternative, land use would not change. Although the Proposed Action would result in changes to shoreline allocations, the changes were developed to enhance regional goals associated with good stewardship of shoreline resources that would allow for continued use and development of project lands. Therefore, cumulative impacts on land use within the area surrounding Lake O’ the Pines, when combined with past and proposed actions in the region, are anticipated to be minimal.

4.3.2 Water Resources

Lake O’ the Pines was developed for flood control, water supply, fish and wildlife management, and recreation purposes. A major impact would occur if any action is inconsistent with shoreline allocations, adopted surface water classifications or water use plans, or if an action would substantially alter those resources required for, supporting, or benefiting the current use. The reclassifications required for the Proposed Action would allow shoreline management and land uses to be compatible with the goals of good stewardship of water resources.

Other activities surrounding Lake O’ the Pines, such as the addition of future utility lines in corridors. Utility lines would likely require boring beneath streams in most cases to avoid impacts, Water quality monitoring will continue to be used to assess for changes in current conditions. Cumulative impacts on water quality from the Proposed Action at Lake O’ the Pines are anticipated to be negligible when combined with past and proposed actions in the area. As mentioned in Section 3.2.1, any ground

disturbance activities impacting protected water bodies would require a Section 404 permit from the U.S. Army Corps of Engineers. The permit would provide impact avoidance and mitigation measures to account for impacts to water resources.

4.3.3 Climate

The implementation of the revised shoreline allocations in the 2019 SMP, when combined with other existing and proposed projects in the region, would not result in major cumulative impacts on the climate.

4.3.4 Climate Change and GHG

Under the Proposed Action, current Lake O' the Pines project management plans and monitoring programs would not be changed. In the event that GHG emission issues become significant enough to impact the current operations at Lake O' the Pines, the 2019 SMP and all associated documents would be reviewed and revised as necessary. Therefore, implementation of the 2019 SMP, when combined with other existing and proposed projects in the region, would not result in cumulative impacts on climate change and GHG emissions.

4.3.5 Air Quality

For the area surrounding Lake O' the Pines, activities that could add to air emissions in the area are likely few and minor in nature. Vehicle traffic along park and area roadways and routine daily activities in nearby communities contribute to current and future emission sources. Seasonal prescribed burning on Lake O' the Pines lands would have minor, negative impacts on air quality through elevated ground-level ozone and particulate matter concentrations; however, these seasonal burns are generally scheduled so that impacts are minimized. Minor improvements to the communities in the Lake O' the Pines area, such as construction of new business buildings and highway improvement projects could also contribute to minor future emissions. Implementation of the 2019 SMP will not contribute to major cumulative impacts in the region.

4.3.6 Topography, Geology, and Soils

A major impact would occur if the action exacerbates or promotes long-term erosion, if the soils are inappropriate for the proposed construction and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of prime farmland soils. Cumulative adverse impacts on topography, geology, and soils within the area surrounding Lake O' the Pines, when combined with past and proposed actions in the region, are anticipated to be negligible on the long-term basis.

Land use around Lake O' the Pines has changed in the past several years. Given the projected population growth and vast acreage of prime farmland in the area, there could be cumulative impacts on prime farmland in the Project area. However, the cumulative impacts on prime farmland from the Proposed Action at Lake O' the Pines

are anticipated to be negligible when combined with past and proposed actions in the area.

4.3.7 Natural Resources

The significance threshold for a major impact on natural resources would include a substantial reduction in ecological processes, communities, or populations that would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or otherwise compensated. Past, present, and future projects are not anticipated to impact the viability of any plant species or community, rare or sensitive habitats, or wildlife. The establishment of Environmentally Sensitive Areas (ESA), Multiple Resource Management Lands – Wildlife Management (MRML-WM), and Multiple Resource Management Lands – Vegetation Management (MRML-VM) areas as part of the 2019 MP, as well as resource objectives that favor protection and restoration of valuable natural resources, will have beneficial cumulative impacts. Past and proposed actions in the area, when coupled with the increase of 11.7 miles of PSA shorelines proposed in the 2019 Lake O' the Pines SMP, would result in long-term beneficial cumulative impacts to natural resources. Any permits issued under the SMP would also require only native vegetation to be planted to fit into the natural surroundings.

4.3.8 Threatened and Endangered Species

The Proposed Action would not adversely impact threatened, endangered and special status species within the area. Should federally listed species change in the future (e.g., delisting of the Least Tern or other species or listing of new species), associated requirements will be reflected in revised land management practices in coordination with the USFWS. The USACE would continue cooperative management plans with the USFWS and TPWD to preserve, enhance, and protect critical wildlife habitat resources. One such example of this cooperation can be found in how USACE is actively working with USFWS, TPWD and various other agencies to maintain and restore the Paddlefish (*Polyodon spathula*) population in Big Cypress Bayou by releasing additional water when the species is spawning and creating habitat.

Projects proposed within the Lake O' the Pines project area, as well as past and present projects, are not anticipated to impact threatened and endangered species, as they will be coordinated with the appropriate resource agencies. The land reclassifications, as explained in detail in section 3.8.3 of the 2019 MP, will allow for further protection of threatened, endangered and other unique/rare communities found within the TXNDD database. Past and proposed actions in the area, when coupled with the increase of 11.7 miles of PSA shorelines proposed in the 2019 Lake O' the Pines SMP, would result in minor, long-term beneficial cumulative impacts to any threatened and endangered species that may occur at Lake O' the Pines.

4.3.9 Invasive Species

To the extent that funding will allow, USACE will continue its proactive, cooperative herbicide treatments with TPWD to control these species that affect not only the natural biological resources, but also recreational opportunities. Pesticide treatment for invasive ants will also continue. The USACE will also continue to monitor for zebra mussels and take all practicable measures to prevent them from becoming introduced to Lake O' the Pines.

Invasive species control has and will continue to be conducted on various areas across the project lands. Implementing BMPs will help reduce the introduction and distribution of invasive species, ensuring that proposed actions in the region will not contribute to the overall cumulative impacts related to invasive species. The shoreline allocations proposed to revise the 1978 SMP are compatible with Lake O' the Pines invasive species management practices as described in the 2019 MP. Therefore, there would be minor, long-term, beneficial cumulative impacts on reducing and preventing invasive species within the area surrounding Lake O' the Pines.

4.3.10 Cultural, Historical, and Archaeological Resources

The Proposed Action would not affect cultural resources or historic properties. Therefore, this action, when combined with other existing and proposed projects in the region, would not result in major cumulative impacts on cultural resources or historic properties.

4.3.11 Socioeconomics and Environmental Justice

The Proposed Action would not result in the displacement of persons (minority, low-income, children, or otherwise) or a decrease in people recreating at Lake O' the Pines as a result of implementing the revised shoreline allocations. The creation of jobs, increase of visitor spending, and relative decrease of usage fees results in a positive impact to the local economy. Therefore, the effects of the Proposed Action on environmental justice and the protection of children, when combined with other ongoing and proposed projects in the Lake O' the Pines area, are anticipated to have negligible long-term beneficial cumulative impacts.

4.3.12 Recreation

Lake O' the Pines is beneficial to the local visitors and also offers a variety of free recreation opportunities. Some of the popular recreation activities at Lake O' the Pines are, on a national basis, either static or declining in participation. For example, developed camping activity, power boating, hunting, and fishing have experienced small to moderate declines in recent years. In contrast to these declines, significant increases in hiking, walking, sightseeing, wildlife viewing, and canoeing/kayaking have occurred in recent years. Even though the amount of PRA and LDA miles would decrease by 11 miles with implementation of the 2019 SMP, these land reclassifications reflect changes in land management and land uses that have occurred since 1978 at Lake O' the Pines. Lands and shorelines that remain in the High Density Recreation (HDR) and LDA/PRA

classifications include undeveloped acreage that could be used for future outdoor recreation development, and all MRML lands are available for passive recreation uses characteristic of MRML-LDR lands. The shoreline reallocations would only limit new recreational feaures to existing areas identified for recreation. Passive recreation can still occur along PSA shorelines. Therefore, the effects of the Proposed Action, when combined with other existing and proposed projects in the region, would result in negligible, long-term, adverse cumulative impacts on future area recreation development outside established recreation areas.

4.3.13 Aesthetic Resources

Lake O' the Pines proper and surrounding federal lands offer public, open space values and scenic vistas that are unique in the region. Natural Resources Management Objectives for the lake will continue to minimize activities which disturb the scenic beauty and aesthetics of the lake. Therefore, the Proposed Action would result in minor long-term beneficial cumulative impacts to the aesthetic resources of Lake O' the Pines.

4.3.14 Hazardous Materials and Solid Waste

No hazardous material or solid waste concerns would be expected with implementation of the 2019 SMP; therefore, when combined with other ongoing and proposed projects in Lake O' the Pines, there would be no major, long-term, adverse cumulative impacts on hazardous materials and solid waste.

4.3.15 Health and Safety

No health or safety risks would be created by the Proposed Action. The effects of implementing the 2019 SMP, when combined with other ongoing and proposed projects in the Lake O' the Pines area, would result in no major long-term adverse cumulative impacts on health and safety for the area. Beneficial impacts would likely be realized from the IBC and ADA compliance requirements regarding handrails in the proposed SMP. Navigation safety would also be increased from the limitations of dock density and dock size.

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SECTION 5: 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 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The revision of the 2019 SMP 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 – The USACE initiated public involvement and agency scoping activities to solicit input on the 2019 SMP revision process, as well as identify reallocation proposals, and identify significant issues related to the Proposed Action. Information provided by USFWS and TPWD on fish and wildlife resources has been utilized in the development of the 2019 SMP.

Endangered Species Act of 1973, as amended – Current lists of threatened or endangered species were compiled for the revision of the 2019 SMP. There would be no adverse long-term impacts on threatened or endangered species resulting from the revision of the 2019 SMP. However, continued long-term beneficial impacts, such as habitat protection, could occur as a result of the revision of the 2019 SMP.

Executive Order 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 implementation of the 2019 SMP revision would not result in adverse impacts on migratory birds or their habitat. Beneficial impacts could occur through protection of habitat as a result of implementing the 2019 SMP revision. Vegetation modifications may be subject to seasonal restrictions to avoid impacts to nesting activities.

Migratory Bird Treaty Act – The Migratory Bird Treaty Act 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 Endangered Species Act. The timing of permit would be coordinated to avoid impacts on migratory and nesting birds.

Clean Water Act (CWA) of 1977 – The Proposed Action is in compliance with all state and federal CWA regulations and requirements, and is regularly monitored by the USACE and TCEQ for water quality. A state water quality certification pursuant to Section 401 of the CWA is not required for the 2019 SMP revision. However, any future permitting actions that result in a discharge of fill into jurisdictional Waters of the United States may be required to comply with all Clean Water Act requirements. Water quality certification would be obtained from the Texas Commission on Environmental Quality as needed for future permit actions.

National Historic Preservation Act (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 NRHP. All previous surveys and site salvages were coordinated with the Texas State Historic Preservation Officer. Known sites are mapped and avoided by maintenance activities. Areas that have not undergone cultural resources surveys or evaluations will need to do so prior to any earthmoving or other potentially impacting activities.

Clean Air Act of 1977 – The EPA established nationwide air quality standards to protect public health and welfare. Existing operation and management of the reservoir is compliant with the Clean Air Act and would not change with the 2019 SMP 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 within and adjacent to Lake O' the Pines. The 2019 SMP would not impact Prime Farmland present on Lake O' the Pines. Should a permit action impact prime farmland, the Natural Resources Conservation Service would be coordinated with to account for the conversion of farmlands.

Executive Order 11990, Protection of Wetlands – EO 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 2019 SMP complies with EO 11990.

Executive Order 11988, Floodplain Management – This EO directs federal agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and management of the existing project, and the 2019 SMP comply 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 is also available for these uses. The 2019 SMP would not impact Prime Farmland present on Lake O' the Pines project lands. Should a permit action impact prime farmland, the Natural Resources Conservation Service would be coordinated with to account for the conversion of farmlands.

Executive Order 12898, Environmental Justice – This EO directs federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Implementation of the 2019 SMP would not result in a disproportionate adverse impact on minority or low-income population groups.

SECTION 6: 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. Impacts from the reallocation of shorelines would not be considered an irreversible commitment because subsequent SMP revisions could result in some shoreline being reclassified to a prior, similar shoreline allocation. 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 Lake O’ the Pines 2019 SMP.

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SECTION 7: PUBLIC AND AGENCY COORDINATION

In accordance with 40 CFR §§1501.7, 1503, and 1506.6, the USACE initiated public involvement and agency scoping activities to solicit input on the 2019 SMP revision process, as well as identify shoreline allocation proposals, and identify significant issues related to the Proposed Action. The USACE began its public involvement process with a public scoping meeting to provide an avenue for public and agency stakeholders to ask questions and provide comments. There were two public scoping meetings, the first one was held on May 9, 2019 in Jefferson, Texas, the second one was held on May 22, 2019 in Longview, TX. Fort Worth District, placed advertisements on the USACE webpage, provided news releases to media prior to the public scoping meetings. The third and fourth public meetings were held on November 20, 2019 in Jefferson, TX and November 21, 2019 in Longview, TX. These meetings introduced the public to the Draft SMP and EA and began the 30-day public review period of the Draft SMP and EA. For the third and fourth public meetings, USACE, Fort Worth District, placed advertisements on the USACE webpage, provided news releases for media, and placed printed publications in local media. Attachment A includes the ads published in the local newspaper, USACE News Releases, The Notice of Availability, comments received from agencies, and the agency and stakeholders distribution list. The EA was coordinated with agencies having legislative and administrative responsibilities for environmental protection. Please refer to Appendix G of the 2019 SMP for a summary of comments received at the public meetings.

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SECTION 8: REFERENCES

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SECTION 9: ACRONYMS/ABBREVIATIONS

%	Percent
°	Degrees
BMP	Best Management Practice
BP	Before Present
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CO_2	Carbon Dioxide
CO2e	CO2-equivalent
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EP	Engineer Pamphlet
ER	Engineer Regulation
ESA	Environmentally Sensitive Area
F	Fahrenheit
FONSI	Finding of No Significant Impact
Ft	Feet/foot
GHG	Greenhouse Gas
HDR	High Density Recreation
LDA	Limited Development Area
MP	Master Plan
MRML	Multiple Resource Management Lands
MRML-LDR	Low Density Recreation
MRML-WM	Wildlife Management
MRML-VM	Vegetative Management
msl	Mean Sea Level
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NO	Nitrogen Oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PAA	Prohibited Access Area
PRA	Public Recreation Area
PSA	Protected Shoreline Area
REC	Recreational Areas
RPEC	Regional Planning and Environmental Center
SMP	Shoreline Management Plan
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
U.S.	United States
U.S.C.	U.S. Code

USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WHAP	Wildlife Habitat Appraisal Procedures
WM	Wildlife Management
VM	Vegetative Management

SECTION 10: LIST OF PREPARERS

Blake E. Westmoreland - Biologist, Regional Planning and Environmental Center, 1 year of USACE experience.

Brandon Wadlington – Biologist, Regional Planning and Environmental Center, 4 years of USACE experience.

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ATTACHMENT A: PUBLIC INVOLEMENT

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
LAKE O' THE PINES PROJECT OFFICE
2669 FM 726
JEFFERSON, TX 75657

8 & 9 May 2019

The Fort Worth District, U.S. Army Corps of Engineers (USACE) will host two public meetings; the first meeting is on 8 May from 6:00-8:00 PM in Longview at the Maude Cobb Convention Center, Eitelman Room, 100 Grand Blvd, Longview, TX; and a second meeting is on 9 May from 6:00-8:00 PM in Jefferson at the Convention and Visitors Center, 305 Austin Street, Jefferson, TX. The purpose of these meetings is to provide information and receive public input toward the revision of the Shoreline Management Plan for Lake O' the Pines.

The meetings will begin with a brief presentation at 6:00 p.m. followed by an open house where attendees can view the current shoreline allocation maps, ask questions, and provide comments about the lake and its shoreline allocation. Enclosed is a copy of the news release announcing the public meeting.

The Shoreline Management Plan addresses the rules and guidelines that govern private shoreline uses, such as private boat docks, vegetation modification, and similar private uses of government property. The Shoreline Management Plan establishes shoreline allocations, which specify where certain private uses are allowable. Shoreline allocations are dictated by Engineering Regulation (ER) 1130-2-406 and include: Limited Development Areas, Protected Shoreline Areas, Public Recreation Areas, and Prohibited Access Areas. The Shoreline Management Plan compliments the Lake O' the Pines Master Plan.

The current Shoreline Management Plan for Lake O' the Pines was completed in 1978. Revisions are needed to address changes in land use and policies since the current Shoreline Management Plan was published. Key topics to be addresses in the revision include revising shoreline allocations and updating the plan to incorporate changes in public law and national policies related to shoreline management. The objective of the revision and related management actions is to achieve a balance between permitted private uses and resource protection for general public use. Public participation is crucial to the successful revision of the Shoreline Management Plan.

Questions pertaining to the proposed revision can be addressed to: Rhonda Fields, CESWF-PEC-TM, U.S. Army Corps of Engineers, Fort Worth District, 819 Taylor Street, Fort Worth, Texas 76102, CESWF-OD-LP@usace.army.mil

Sincerely

Matthew Seavey
Lake O' the Pines
Piney Woods Region

LAND ALLOCATIONS AND DEFINITIONS

Limited Development Areas (LDA) - Areas where private activities such as docks and limited vegetation modification are allowed

Public Recreation Areas - Private activities not allowed in or near these areas

Protected Shoreline Areas - Protected for wildlife habitat, aesthetics, or shoreline characteristics not conducive to development

Prohibited Access Areas - Areas such as the dam, spillway, water intakes, or other operational features where private activities are prohibited

Questions, Comments, or Suggestions?

We need your thoughts and comments on the effort to revise the 1978 Lake O' the Pines Shoreline (formally Lakeshore) Management Plan (SMP). Your participation is a key element in producing a meaningful and useful SMP. The presentation given at the public information meeting as well as a copy of the 1978 SMP are available for review at the website listed below. Please write your questions, comments, or suggestions on the provided comment card. Feel free to use additional pages if needed. Written comments may be submitted at the public meeting, e-mailed, or sent to the address below within 30 days. Thank you for your participation!

Lake O' the Pines

Shoreline Management Plan Revision

Public Scoping Meeting

May 2019

The U.S. Army Corps of Engineers is in the process of revising the Lake O' the Pines' shoreline allocations. The Shoreline Management Plan addresses the rules and guidelines that govern private shoreline uses, such as private boat docks, vegetation modification, and similar private uses of government property. The Shoreline Management Plan compliments the 2018 Lake O' the Pines Master Plan.

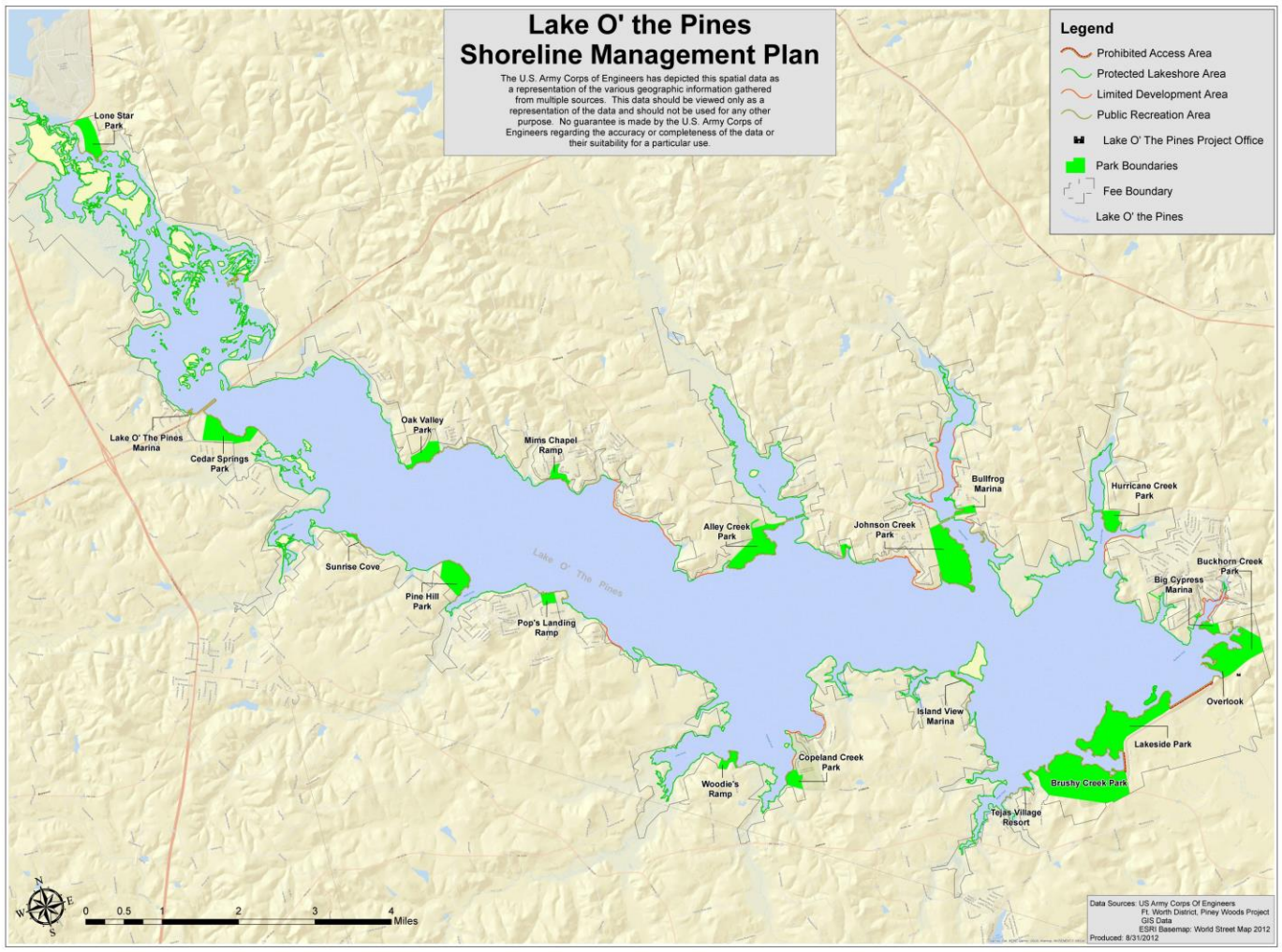
Rhonda Fields, USACE - Fort Worth District - CESWF -PEC-TM
819 Taylor Street, Room 3B10, Fort Worth, TX 76102
Email: CESWF-OD-LP@usace.army.mil

The 1978 Lakeshore Management Plan, meeting presentation, and comment sheets can be found at the following: https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/

VISION

"The land, water, and recreational resources of Lake O' the Pines is managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide outdoor recreation opportunities that complement overall project purposes for the benefit of present and future generations. In the revision of the Shoreline Management Plan, the objective of all management actions will be to achieve a balance between permitted private uses and resource protection for general public use."

Lake O’ the Pine 1978 Lakeshore (now Shoreline) Allocations



NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG®

For Immediate Release:

Contact: Clay Church, 817-886-1314
clayton.a.church@usace.army.mil

USACE to host the rescheduled public information meeting for Lake O' the Pines Shoreline Management Plan Revision

FORT WORTH, Texas – Due to the storm and subsequent cancelation of the 08 May public meeting in Longview, the US Army Corps of Engineers has reschedule the Longview, TX meeting for 22 May 2019. Public participation is requested for the revision of the Lake O' the Pines Shoreline Management Plan. The meeting will be held in Longview at the Maude Cobb Convention Center, the Eitelman Room, 100 Grand Blvd, Longview, TX. The purpose of this meeting is to provide information and receive public input for the revision of the Shoreline Management Plan for Lake O' the Pines.

The 22 May meeting will begin with a brief presentation at 6 p.m. followed by an open house forum for individual one-on-one discussion with USACE representatives. The public can view maps, ask questions and provide comments about the Shoreline Management Plan revision. Comment forms and instructions for making comments will be provided at the meeting, and the comment period will remain open through 22 Jun 2019. The meeting presentation, comment instructions, and comment forms will be available shortly before the meeting on the USACE website at: https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/

A Shoreline Management Plan addresses the rules and guidelines that govern private shoreline uses, such as private boat docks, vegetation modification, and similar private uses of government property. The Shoreline Management Plan establishes shoreline allocations, which specify where certain private uses are allowable. Shoreline allocations are dictated by Engineering Regulation (ER) 1130-2-406 and include: Limited Development Areas, Protected Shoreline Areas, Public Recreation Areas, and Prohibited Access Areas. Each of these allocation is defined in ER 1130-2-406. The Shoreline Management Plan compliments the Lake O' the Pines Master Plan.

The current Shoreline Management Plan for Lake O' the Pines was completed in 1978. Revisions are needed to address changes in land use and policies since the current Shoreline Management Plan was published. Key topics to be addressed in the revision include revising shoreline allocations and updating the plan to incorporate changes in public law and national policies related to shoreline management. The objective of the revision and related management actions is to achieve a balance between permitted private uses and resource protection for general public use. Public participation is crucial to the successful revision of the Shoreline Management Plan.

Questions pertaining to the proposed revision can be addressed to: Rhonda Fields, CESWF-PEC-TM, U.S. Army Corps of Engineers, Fort Worth District, 819 Taylor Street, Fort Worth, Texas 76102, CESWF-OD-LP@usace.army.mil

-30-

About the Fort Worth District: The Fort Worth District, U.S. Army Corps of Engineers was established in 1950. The District is responsible for water resources development in two-thirds of Texas, and design and construction at military installations in Texas and parts of Louisiana and New Mexico. Visit the Fort Worth District Web site at: www.swf.usace.army.mil and SWF Facebook at: https://www.facebook.com/usacefortworth/

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
LAKE O' THE PINES PROJECT OFFICE
2669 FM 726
JEFFERSON, TX 75657

22 May 2019

Due to the storm and subsequent 08 May 2019 meeting cancelation, the Fort Worth District, U.S. Army Corps of Engineers (USACE) will host the rescheduled public meeting on 22 May 2019 in Longview at the Maude Cobb Convention Center, the Eitelman Room, 100 Grand Blvd, Longview, TX. The purpose of these meetings is to provide information and receive public input toward the revision of the Shoreline Management Plan for Lake O' the Pines.

The meeting will begin with a brief presentation at 6:00 p.m. followed by an open house where attendees can view the current land allocation maps, ask questions, and provide comments about the lake and its shoreline allocation. Enclosed is a copy of the news release announcing the public meeting. The public comment period has been extended to 30 days after this meeting, 22 Jun 2019.

The Shoreline Management Plan addresses the rules and guidelines that govern private shoreline uses, such as private boat docks, vegetation modification, and similar private uses of government property. The Shoreline Management Plan establishes shoreline allocations, which specify where certain private uses are allowable. Shoreline allocations are dictated by Engineering Regulation (ER) 1130-2-406 and include: Limited Development Areas, Protected Shoreline Areas, Public Recreation Areas, and Prohibited Access Areas. Each of these allocation is defined in ER 1130-2-406. The Shoreline Management Plan compliments the Lake O' the Pines Master Plan.

The current Shoreline Management Plan for Lake O' the Pines was completed in 1978. Revisions are needed to address changes in land use and policies since the current Shoreline Management Plan was published. Key topics to be addresses in the revision include revising shoreline allocations and updating the plan to incorporate changes in public law and national policies related to shoreline management. The objective of the revision and related management actions is to achieve a balance between permitted private uses and resource protection for general public use. Public participation is crucial to the successful revision of the Shoreline Management Plan.

Questions pertaining to the proposed revision can be addressed to: Rhonda Fields, CESWF-PEC-TM, U.S. Army Corps of Engineers, Fort Worth District, 819 Taylor Street, Fort Worth, Texas 76102, CESWF-OD-LP@usace.army.mil

Sincerely

Matthew Seavey
Lake O' the Pines
Piney Woods Region

https://www.marshallnewsmessenger.com/news/lake-o-the-pines-shoreline-plan-subject-of-upcoming-public/article_574150fc-5c91-11e9-83f7-cf200651e4b0.html

Lake O' the Pines shoreline plan subject of upcoming public meetings

From Staff Reports Apr 12, 2019

Lake O' the Pines's shoreline management plan is the focus of two upcoming public meetings.
News Messenger file photo

The U.S. Army Corps of Engineers will host two public meetings in early May to discuss a shoreline management plan at Lake O' the Pines.

The first meeting is planned for 6 p.m. on May 8 at the Maude Cobb Convention Center, 100 Grand Blvd. in Longview, and May 9 at the Jefferson Convention and Visitors Center, 305 Austin St. in Jefferson.

The corps is holding the public meetings to "provide information and receive public input for the revision of the shoreline management plan for Lake O' the Pines." That plan outlines rules and guidelines for private and some government shoreline use, including boat docks and vegetation modification. The current plan was finished in 1978.

Both public meetings will start with a short presentation, followed by an open house forum for one-on-one discussions with corps representatives.

"The public can view maps, ask questions and provide comments about the Shoreline Management Plan revision," the corps said in a public notice.

Comment forms and instructions for making comments will be provided at the meeting. The meeting presentation, comment instructions, and comment forms will be available shortly before the meeting on the USACE website at: https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/.

Questions should be addressed to: Rhonda Fields, CESWF-PEC-TM, U.S. Army Corps of Engineers, Fort Worth District, 819 Taylor Street, Fort Worth, Texas 76102 or CESWF-OD-LP@usace.army.mil.

US Army Corps of Engineers®

Public Workshop

Comment Form

Lake O' the Pines Lake

Shoreline Management Plan Revision

Longview, Texas

22 May 2019

Questions, comments, or suggestions?

We need your thoughts and comments on the effort to revise the 1978 Lake O' the Pines Shoreline Management Plan. Your participation is a key element in producing a meaningful and useful Shoreline Management Plan. The presentation used at the public information meeting as well as a copy of the 1978 Shoreline Management Plan are available for review at the website listed below. Please write your questions, comments, or suggestions in the space provided below. Feel free to use additional pages if needed. Forms may be submitted at the public information meeting or within 30 days, to the address below. Thank you for your participation!

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Optional Information (used for mailing list to keep you informed and will not be used for any other purpose):

Name:_____ Affiliation:_____

Address:_____ City:_____ State:_____

Zip code:_____ Phone: ____/_____ Email:_____

Mail or email comment sheet to the following Point of Contact:

Rhonda Fields, USACE - Fort Worth District - CESWF-PEC-TM

819 Taylor Street, Fort Worth, Texas 76102

Email: CESWF-OD-LP@usace.army.mil

Additional information and comment sheets can be found at the following:
https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/

US Army Corps of Engineers®

Comment Form Instructions

Lake O' the Pines, Texas

Shoreline Management Plan Revision

Public Information Meeting

30 day comment period 8 May through 10 June 2019

The U.S. Army Corps of Engineers is in the process of revising the Lake O' the Pines Shoreline Management Plan. The purpose of the Shoreline Management Plan revision is to establish policies and provide guidelines for managing the shoreline (lakeshore) of Lake O' the Pines, Texas, for the protection of desirable environmental characteristics and for the restoration of shorelines where degradation has occurred. Public input is especially needed regarding revisions of shoreline allocation, which must compliment the 2019 Lake O' the Pines Master Plan.

To add your comments, ideas, or concerns about the future shoreline management for Lake O' the Pines, comments can be submitted using any of the following methods:

- fill out and return a comment form available https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/
- provide comments in an email message or use comment form and send to:
  CESWF-OD-LP@usace.army.mil
- provide comments in a letter or use comment form and mail to:

Rhonda Fields, CESWF-PEC-TM
U.S. Army Corps of Engineers, Fort Worth District
819 Taylor Street, Fort Worth, Texas 76102

The Lake O' the Pines Shoreline Management Plan Revision public meeting presentation, current shoreline allocation map, and 1978 Shoreline Management Plan is available for download at: https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/

Thank you for your participation in helping develop the Shoreline Management Plan for Lake O' the Pines.

News Release

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

For Immediate Release: NR
Oct 21, 2019

Contact: Denisha Braxton 817-886-1435
denisha.l.braxton@usace.army.mil

Corps to host public meetings for the Lake O' the Pines Shoreline Management Plan revision

FORT WORTH, Texas – Please join the U.S. Army Corps of Engineers (USACE), Fort Worth District, Operations Division and Southwest Division Regional Planning and Environmental Center for two public meetings in November, the first held on **20 November at 6 pm at the City of Jefferson Office of Tourism**, 305 E. Austin St., Jefferson, TX 75657 and a second meeting held on **21 November at 6pm at the Maude Cobb Convention Center,** 100 Grand Blvd, Longview, TX 75604. USACE will provide information concerning the Lake O' the Pines Shoreline Management Plan revision. At the conclusion of the presentation there will be an opportunity for the public to view maps, ask questions, and provide comments about the project. Following the meeting, the public will have 30 days in which to review the Shoreline Management Plan revision online or at the Lake office and provide written comments.

The current Shoreline Management Plan for Lake O' the Pines was implemented in 1978 to provide guidance for private uses of public lands. Since that time, many changes have occurred in policy and use. This revision is being done to bring the Shoreline Management Plan up to date, ensure environmental protection and public access of public lands, and honor past commitments at the Lake. **Public participation is critical to the successful revision of the Shoreline Management Plan.**

Questions pertaining to the proposed revision can be addressed to: Cody Berry, Lead Ranger, U.S. Army Corps of Engineers, 2669 FM 726, Jefferson, Texas 75657, (903) 665-2336, ext. 28, and Ms. Rhonda Fields, Project Manager, CESWF-PEC-TM, U.S. Army Corps of Engineers, Fort Worth District, P.O. Box 17300, Fort Worth, TX 76102-0300, (817) 886-1681.

About the Fort Worth District: The Fort Worth District, U.S. Army Corps of Engineers was established in 1950. The District is responsible for water resources development in two-thirds of Texas, and design and construction at military installations in Texas and parts of Louisiana and New Mexico. Visit the Fort Worth District Web site at: www.swf.usace.army.mil and SWF Facebook at: http://www.facebook.com/pages/Fort-Worth-District-US-Army-Corps-of-Engineers/188083711219308.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
LAKE O' THE PINES PROJECT OFFICE
2669 FM 726
JEFFERSON, TX 75657

31 October 2019

The Shoreline Management Plan will be the subject of two public meetings held by the U.S. Army Corps of Engineers (USACE), Fort Worth District, Operations Division and Southwest Division Regional Planning and Environmental Center. The first meeting will be held on **20 November at 6 pm at the City of Jefferson Office of Tourism**, 305 E. Austin St., Jefferson, TX 75657 and a second meeting will be held on **21 November at 6pm at the Maude Cobb Convention Center,** 100 Grand Blvd, Longview, TX 75604. USACE will provide information concerning the Lake O' the Pines Shoreline Management Plan revision.

At the conclusion of the presentation there will be an opportunity for the public to view maps, ask questions, and provide comments about the project. Following the meeting, the public will have 30 days in which to review the Shoreline Management Plan revision online or at the Lake office and provide written comments.

The current Shoreline Management Plan for Lake O' the Pines was implemented in 1978 to provide guidance for private uses of public lands. Since that time, many changes have occurred in policy and use. This revision is being done to bring the Shoreline Management Plan up to date, ensure environmental protection and public access of public lands, and honor past commitments at the Lake. **Public participation is critical to the successful revision of the Shoreline Management Plan.**

Questions pertaining to the proposed revision can be addressed to: Robert D. Flowers, Lake Manager, U.S. Army Corps of Engineers, 2669 FM 726, Jefferson, Texas 75657, (903) 665-2336, ext. 33, and Ms. Rhonda Fields, Project Manager, CESWF-PEC-TM, U.S. Army Corps of Engineers, Fort Worth District, P.O. Box 17300, Fort Worth, TX 76102-0300, (817) 886-1681.

Sincerely,

Cody Berry
Lake O' the Pines Lead Ranger
Piney Woods Region Project

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

November 11, 2019

NOTICE OF AVAILABILITY
DRAFT LAKE O' THE PINES SHORELINE MANAGEMENT PLAN, FINDING OF NO SIGNIFICANT IMPACT, AND ENVIRONMENTAL ASSESSMENT, MARION, HARRISON, UPSHUR, CAMP, TITUS, AND MORRIS COUNTIES, TEXAS

The public is hereby notified of the availability of the Draft Lake O' the Pines Shoreline Management Plan (Shoreline Management Plan), Finding of No Significant Impact (FONSI), and Environmental Assessment (EA). The Shoreline Management Plan addresses the rules and guidelines that govern private shoreline uses, such as private boat docks, vegetation modification, and similar uses of U.S. Army Corps of Engineers (USACE) federally owned fee property. Shoreline allocations include: Limited Development Areas, Protected Shoreline Areas, Public Recreation Areas, and Prohibited Access Areas. Each of the allocations are defined in the Engineering Regulation 1130-2-406. The Shoreline Management Plan compliments the 2019 Lake O' the Pines Master Plan.

The current Shoreline Management Plan for Lake O' the Pines was completed in 1978. Key topics to be addressed under this revision include revising shoreline allocations and updating the plan to incorporate changes in public law and national polices related to shoreline management. The objective of the revision and related management actions is to achieve a balance between permitted private uses and resource protection for general public use on USACE federally owned fee property.

Two public meetings will be held, the first meeting will be on **20 November at 6 pm at the City of Jefferson Office of Tourism**, 305 E. Austin St., Jefferson, TX 75657 and the second meeting will be held on **21 November at 6 pm at the Maude Cobb Convention Center**, 100 Grand Blvd, Longview, TX 75604. A brief overview outlining the purpose, scope, and proposed changes to the Shoreline Management Plan will be presented, followed by an opportunity to ask questions, view maps, and provide written comments about the Shoreline Management Plan. The public will have 30 days to review the Shoreline Management Plan Revision and to provide either written or electronic comments from 21 November to 22 December. The Draft Shoreline Management Plan, FONSI, EA, comment sheet and instructions, and public meeting presentation will also be posted at the link below starting **20 November**.

https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Shoreline-Management-Plan/Lake-O-the-Pines/

A hard copy of the Draft Shoreline Management Plan, FONSI, and EA will be available for review beginning **20 November, 2019** at U.S. Army Corps of Engineers, Lake O' the Pines Office, 2669 FM 726, Jefferson, TX 75657.

Please address any comments via mail to Dustin Flowers, Lake Manager, U.S. Army Corps of Engineers, 2669 FM 726, Jefferson, Texas 75657 or at Robert.D.Flowers@usace.army.mil

Amanda McGuire

Amanda (Mandy) McGuire
Chief, Environmental Branch
Regional Planning and Environmental Center

ATTACHMENT B: NATURAL RESOUCES

IPaC **U.S. Fish & Wildlife Service**

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.

Project information

NAME

Lake O' the Pines Shoreline Management Plan

LOCATION

Texas

DESCRIPTION

This project is basically a zoning project used to defined USACE owned lands/shorelines at Lake O' the Pines. The zones will be divided into varying levels of use and environmental sensitivity.

Local office

Arlington Ecological Services Field Office

(817) 277-1100

(817) 277-1129

2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247

http://www.fws.gov/southwest/es/arlingtontexas/
http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

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. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] 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 Fisheries[2]).

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:

Birds

NAME	STATUS

Least Tern Sterna antillarum This species only needs to be considered if the following condition applies: • Wind Energy Projects No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover Charadrius melodus This species only needs to be considered if the following condition applies: • Wind Energy Projects There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot Calidris canutus rufa This species only needs to be considered if the following condition applies: • Wind Energy Projects No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1864	Threatened

Flowering Plants

NAME	STATUS
Geocarpon minimum No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7699	Threatened
Neches River Rose-mallow Hibiscus dasycalyx There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1441	Threatened

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 Act[1] and the Bald and Golden Eagle Protection Act[2].

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 Kestrel Falco sparverius paulus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the conlinental USA	Breeds Apr 1 to Aug 31
Bachman's Sparrow Aimophila aestivalis This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental USA and Alaska. https://ecos.fws.gov/ecp/species/6177	Breeds May 1 to Sep 30
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 Sep 1 to Jul 31
Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental USA and Alaska.	Breeds May 1 to Aug 20
Henslow's Sparrow Ammodramus henslowii This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds elsewhere
Kentucky Warbler Oporornis formosus This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the conlinental 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 conlinental USA and Alaska.	Breeds May 10 to Sep 10

Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush Hylocichla 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.

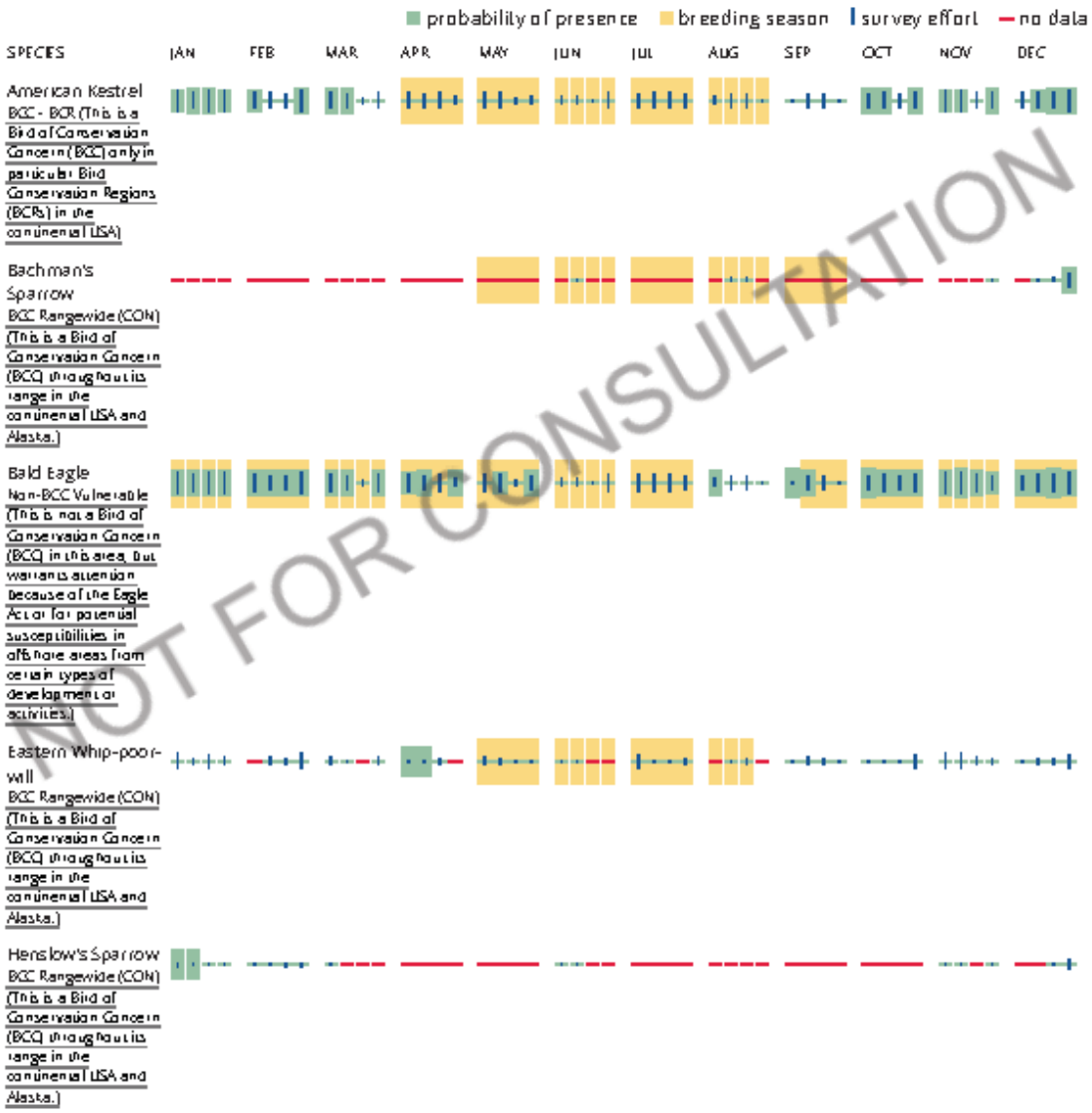
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.



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

- PEM1Fh
- PEM1C
- PEM1F
- PEM1A
- PEM1Ch
- PEM1/SS1F
- PEM5Ch
- PEM1/FO1A
- PEM5Fh
- PEM1/AB3F
- PEM1/SS1A
- PEM1/SS1Fh
- PEM5C
- PEM1/FO2F
- PEM5A
- PEM1/SS1C
- PEM1Ah
- PEM5/ABF
- PEM1/FO1C
- PEM1/SS1Ch
- PEM1/UBF
- PEM5F

PEM1/UBFx

FRESHWATER FORESTED/SHRUB WETLAND

PFO1A
PFO1C
PFO1/SS1A
PSS1A
PFO1Ah
PFO2F
PSS1Ch
PSS1C
PFO1/SS1Ch
PSS1/FO1A
PFO1/SS1Fh
PFO1/SS1C
PFO1/2F
PFO2/AB4F
PSS1F
PSS1/EM5Ch
PFO1/EM1C
PSS1/EM1C
PSS1/FO1C
PFO1Ch
PFO5/UBHh
PSS1Ax
PSS1Fh
PSS1Ah
PFO6/SS6F
PFO5F
PSS1/EM5A

FRESHWATER POND

PUBF
PUBFh
PUBFx
PUBHh
PAB3/FO1F
PUB/AB3F
PAB3/FO2F
PUBH
PUSAh
PAB3H
PUSC
PUB/AB3Fh
PAB3Fh
PAB3/UBF
PUB/FO5Fh
PAB3F

- PAB3Hh
- PUB/EM1E
- PABH
- PUB/FO5F
- PUBKx
- PUSAx

LAKE

- L1UBHh
- L2UBFh
- L2AB4Fh
- L2USAh
- L2ABH
- L1UBH
- L2ABFh
- L2AB3Fh

RIVERINE

- R2UBH
- R4SBC
- R5UBH

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.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
Phone: (817) 277-1100 Fax: (817) 277-1129
http://www.fws.gov/southwest/es/arlingtontexas/
http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

In Reply Refer To: October 08, 2019
Consultation Code: 02ETAR00-2020-SLI-0066
Event Code: 02ETAR00-2020-E-00136
Project Name: Lake O' the Pines Shoreline Management Plan

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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, which may occur within the boundary of 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.).

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 section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

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 Federal actions 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.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. 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: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

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 ECOS-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 ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy

guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

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 Tracking Number 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

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:

Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
(817) 277-1100

Project Summary

Consultation Code: 02ETAR00-2020-SLI-0066

Event Code: 02ETAR00-2020-E-00136

Project Name: Lake O' the Pines Shoreline Management Plan

Project Type: LAND - MANAGEMENT PLANS

Project Description: This project is basically a zoning project used to defined USACE owned lands/shorelines at Lake O' the Pines. The zones will be divided into varying levels of use and environmental sensitivity.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/32.83564886607664N94.65746229773536W

Counties: Camp, TX | Harrison, TX | Marion, TX | Morris, TX | Upshur, TX

Endangered Species Act Species

There is a total of 5 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. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], 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.

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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
Least Tern *Sterna antillarum* Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover *Charadrius melodus* 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 is outside the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Flowering Plants

NAME	STATUS
Geocarpon minimum	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7699	
Neches River Rose-mallow *Hibiscus dasycalyx*	Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1441	

Critical habitats

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

Last Update: 7/17/2019

CAMP COUNTY

AMPHIBIANS

southern crawfish frog *Lithobates areolatus areolatus*

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland– Conifer.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

southern dusky salamander *Desmognathus conanti*

Details unknown.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

Bachman's sparrow *Peucaea aestivalis*

Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

CAMP COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4G5 State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE State Status: E SGCN: Y

Endemic: N Global Rank: G4T2Q State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y

Endemic: N Global Rank: G3 State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S2B

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S4B

CAMP COUNTY

BIRDS

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

CRUSTACEANS

a crayfish *Orconectes maletae*

Streams of varying sizes and bottoms, almost always with leaf litter

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2

FISH

blackspot shiner *Notropis atrocaudalis*

Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

black bear *Ursus americanus*

In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

CAMP COUNTY

MAMMALS

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S4

eastern spotted skunk *Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

mountain lion *Puma concolor*

Rugged mountains & riparian zones.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2S3

CAMP COUNTY

MAMMALS

plains spotted skunk *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G4T4 State Rank: S1S3

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3

southern short-tailed shrew *Blarina carolinensis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G2G3 State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G1G2 State Rank: S1

CAMP COUNTY

MOLLUSKS

southern hickorynut *Obovaria arkansasensis*

Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S1

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

American alligator *Alligator mississippiensis*

Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4

eastern box turtle *Terrapene carolina*

Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

northern scarlet snake *Cemophora coccinea copei*

Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S3

CAMP COUNTY

REPTILES

slender glass lizard *Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

western box turtle *Terrapene ornata*

Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

goldenwave tickseed *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

Soxman's milkvetch *Astragalus soxmaniorum*

Primarily in deep sandy soils of sandhills, fallow fields, and open scrub oak-pine woodlands; Perennial; Flowering March-June; Fruiting April-June

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Last Update: 7/17/2019

HARRISON COUNTY

AMPHIBIANS

cajun chorus frog *Pseudacris fouquettei*

Habitat description is not available at this time.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: SU

southern crawfish frog *Lithobates areolatus areolatus*

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland– Conifer.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G4T4 | State Rank: S3

southern dusky salamander *Desmognathus conanti*

Details unknown.

Federal Status: | State Status: | SGCN: N
Endemic: | Global Rank: G5 | State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: SU

BIRDS

Bachman's sparrow *Peucaea aestivalis*

Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub

Federal Status: | State Status: T | SGCN: Y
Endemic: N | Global Rank: G3 | State Rank: S3B

HARRISON COUNTY

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4T2Q	State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2B

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

HARRISON COUNTY

BIRDS

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

CRUSTACEANS

a crayfish *Orconectes maletae*

Streams of varying sizes and bottoms, almost always with leaf litter

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2

FISH

blackside darter *Percina maculata*

Restricted to the Red River Basin in the northeast part of the state although specimens have been taken in the lower Trinity and San Jacinto rivers; Often found in clear, gravelly streams.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

blackspot shiner *Notropis atrocaudalis*

Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

bluehead shiner *Pteronotropis hubbsi*

Mainstem and tributaries of Big Cypress Bayou and Caddo Lake in Texas. Quiet backwater areas of small to medium-sized, sluggish streams and oxbow lakes having mud or mud-sand substrate; water typically tannin-stained; heavy growth of submergent or semi-emergent vegetation often present.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1

HARRISON COUNTY

FISH

ironcolor shiner *Notropis chalybaeus*

Found only in northeastern streams from the Sabine to the Red River with the exception of an isolated population found in the San Marcos River headwaters. Found primarily in acidic, tannin-stained, non-turbid, sluggish Coastal Plain streams and
rivers of low to moderate gradient. Occurs in aggregation, often at the upstream ends of pools, with a moderate to sluggish current and sand, mud, silt or detritus substrates. Usually associated with aquatic vegetation.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

paddlefish *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

river darter *Percina shumardi*

In Texas limited to eastern streams including Red southward to the Neches, and a disjunct population in the Guadalupe and San Antonio river systems east of the Balcones Escarpment. Confined to large rivers and lower parts of major tributaries; almost
almost invariably found in deep chutes and riffles where current is swift and bottom composed of coarse gravel or rock.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S4

Sabine shiner *Notropis sabinae*

Inhabits small streams and large rivers of eastern Texas from San Jacinto drainage northward along the Gulf Coast to the Sabine River Basin; Habitat generalist with affinities for shallow, moving water and rarely found in pools and backwater areas;
closely restricted to substrate of fine, silt free sand in small creeks and rivers having slight to moderate current.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

taillight shiner *Notropis maculatus*

Restricted to the Sulphur and Cypress drainages in northeast Texas; Quiet, usually vegetated oxbow lakes, ponds, or backwaters.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

western creek chubsucker *Erimyzon claviformis*

Eastern Texas streams from the Red River to the San Jacinto drainage. Habitat includes silt-, sand-, and gravel-bottomed pools of clear headwaters, creeks, and small rivers; often near vegetation; occasionally in lakes. Spawning occurs in river mouths or pools, riffles, lake outlets, or upstream creeks. Prefers headwaters, but seldom occurs in springs.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

western sand darter *Ammocrypta clara*

HARRISON COUNTY

FISH

Neches, Sabine, and Red River basins. Associated with substrates of course sand and fine gravels in moderate current in medium to large streams. Habit of burrowing in sand may prevent direct observations.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

black bear *Ursus americanus*

In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

HARRISON COUNTY

MAMMALS

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Louisiana black bear *Ursus americanus luteolus*

Bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5T2	State Rank: SNA

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

mountain lion *Puma concolor*

Rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

Rafinesque's big-eared bat *Corynorhinus rafinesquii*

Historically, lowland pine and hardwood forests with large hollow trees. roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

HARRISON COUNTY

MAMMALS

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

southern short-tailed shrew *Blarina carolinensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

sandbank pocketbook *Lampsilis satura*

Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2	State Rank: S1

HARRISON COUNTY

MOLLUSKS

southern hickorynut *Obovaria arkansasensis*

Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S1

Texas heelsplitter *Potamilus amphichaenus*

Quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

Texas pigtoe *Fusconaia askewi*

Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2S3

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

American alligator *Alligator mississippiensis*

Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4

eastern box turtle *Terrapene carolina*

Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

HARRISON COUNTY

REPTILES

northern scarlet snake *Cemophora coccinea copei*

Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5T5 State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

smooth softshell *Apalone mutica*

Any permanent body of water.Large rivers and streams; in some areas also found in lakes, impoundments, and shallow bogs (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4G5 State Rank: S3

western box turtle *Terrapene ornata*

Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

HARRISON COUNTY

PLANTS

earth fruit *Geocarpon minimum*

In Texas, found on vegetated edges of slick spots in saline barren complex just above floodplain of Neches River, soils are claypan, hold late winter rains, with a spongy feel to the soil, drying quickly into hardened cement; topography includes pimple mounds with micro highs/lows; elsewhere, occurs in open, sparingly vegetated glades on shallow soils over sandstone outcrops; sometimes in shallow depressions within such areas and saline prairies; these soils are very thin and high in magnesium or sodium; mostly found on the cryptogamic lip along slick spot perimeter; flowering late February-March

Federal Status: LT | State Status: T | SGCN: Y
Endemic: N | Global Rank: G2 | State Rank: S1

goldenwave tickseed *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G3 | State Rank: S3

Neches River rose-mallow *Hibiscus dasycalyx*

Open marshy habitats in seasonally wet alluvial soils, most often near standing rather than flowing water; flowering June-August

Federal Status: LT | State Status: T | SGCN: Y
Endemic: Y | Global Rank: G1 | State Rank: S1

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G2G3 | State Rank: S2

Southern lady's-slipper *Cypripedium kentuckiense*

Primarily restricted to calciphilic hardwood slope forests, mesic ravines, hardwood terraces above floodplains, and seepage slopes; flowering late March-May

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G3 | State Rank: S1

Texas trillium *Trillium texanum*

In or along the margins of hardwood forests on wet acid soils of bottoms and lower slopes, strongly associated with forested seeps and baygalls; flowering March-May

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G2 | State Rank: S3

Last Update: 7/17/2019

MARION COUNTY

AMPHIBIANS

cajun chorus frog *Pseudacris fouquettei*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: SU

southern crawfish frog *Lithobates areolatus areolatus*

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland– Conifer.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4T4 State Rank: S3

southern dusky salamander *Desmognathus conanti*

Details unknown.

Federal Status: State Status: SGCN: N
Endemic: Global Rank: G5 State Rank: S1

Woodhouse's toad *Anaxyrus woodhousii*

Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: SU

BIRDS

Bachman's sparrow *Peucaea aestivalis*

Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G3 State Rank: S3B

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3B,S3N

MARION COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4G5 State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE State Status: E SGCN: Y

Endemic: N Global Rank: G4T2Q State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y

Endemic: N Global Rank: G3 State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S2B

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S4B

MARION COUNTY

BIRDS

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

CRUSTACEANS

a crayfish *Orconectes maletae*

Streams of varying sizes and bottoms, almost always with leaf litter

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2

FISH

blackside darter *Percina maculata*

Restricted to the Red River Basin in the northeast part of the state although specimens have been taken in the lower Trinity and San Jacinto rivers; Often found in clear, gravelly streams.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

blackspot shiner *Notropis atrocaudalis*

Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

bluehead shiner *Pteronotropis hubbsi*

Mainstem and tributaries of Big Cypress Bayou and Caddo Lake in Texas. Quiet backwater areas of small to medium-sized, sluggish streams and oxbow lakes having mud or mud-sand substrate; water typically tannin-stained; heavy growth of submergent or semi-emergent vegetation often present.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1

MARION COUNTY

FISH

ironcolor shiner *Notropis chalybaeus*

Found only in northeastern streams from the Sabine to the Red River with the exception of an isolated population found in the San Marcos River headwaters. Found primarily in acidic, tannin-stained, non-turbid, sluggish Coastal Plain streams and
rivers of low to moderate gradient. Occurs in aggregation, often at the upstream ends of pools, with a moderate to sluggish current and sand, mud, silt or detritus substrates. Usually associated with aquatic vegetation.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3

paddlefish *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3

river darter *Percina shumardi*

In Texas limited to eastern streams including Red southward to the Neches, and a disjunct population in the Guadalupe and San Antonio river systems east of the Balcones Escarpment. Confined to large rivers and lower parts of major tributaries; almost
almost invariably found in deep chutes and riffles where current is swift and bottom composed of coarse gravel or rock.

Federal Status: State Status: SGCN: N
Endemic: Global Rank: G5 State Rank: S4

silverband shiner *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associatec with turbid water over silt, sand, and gravel.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

taillight shiner *Notropis maculatus*

Restricted to the Sulphur and Cypress drainages in northeast Texas; Quiet, usually vegetated oxbow lakes, ponds, or backwaters.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S1

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Global Rank: G3G4 State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

MARION COUNTY

MAMMALS

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

black bear *Ursus americanus*

In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

MARION COUNTY

MAMMALS

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

mountain lion *Puma concolor*

Rugged mountains & riparian zones.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G4T4 State Rank: S1S3

Rafinesque's big-eared bat *Corynorhinus rafinesquii*

Historically, lowland pine and hardwood forests with large hollow trees. roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S2

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3

southern short-tailed shrew *Blarina carolinensis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

MARION COUNTY

MAMMALS

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G2G3 State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G1G2 State Rank: S1

southern hickorynut *Obovaria arkansasensis*

Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: GNR State Rank: S1

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S2

American alligator *Alligator mississippiensis*

Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G5 State Rank: S4

MARION COUNTY

REPTILES

eastern box turtle *Terrapene carolina*

Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

northern scarlet snake *Cemophora coccinea copei*

Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5T5 State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

smooth softshell *Apalone mutica*

Any permanent body of water.Large rivers and streams; in some areas also found in lakes, impoundments, and shallow bogs (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

western box turtle *Terrapene ornata*

Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

MARION COUNTY

PLANTS

cypress knee sedge *Carex decomposita*

Occurs in shallow water or on baldcypress stumps and logs in wooded ponds or swamps; Perennial; Flowering/Fruiting April-May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S1

goldenwave tickseed *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Nixon's dwarf hawthorn *Crataegus nananixonii*

Found in open upland post oak-bluejack oak, scrubby woodland, or shortleaf pine-oak woodland on the Carrizo Sands and other formations.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

Southern lady's-slipper *Cypripedium kentuckiense*

Primarily restricted to calciphilic hardwood slope forests, mesic ravines, hardwood terraces above floodplains, and seepage slopes; flowering late March-May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1

Texas trillium *Trillium texanum*

In or along the margins of hardwood forests on wet acid soils of bottoms and lower slopes, strongly associated with forested seeps and baygalls; flowering March-May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S3

Last Update: 7/17/2019

MORRIS COUNTY

AMPHIBIANS

southern crawfish frog *Lithobates areolatus areolatus*

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland– Conifer.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

southern dusky salamander *Desmognathus conanti*

Details unknown.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

Bachman's sparrow *Peucaea aestivalis*

Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

MORRIS COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4G5 State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE State Status: E SGCN: Y

Endemic: N Global Rank: G4T2Q State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y

Endemic: N Global Rank: G3 State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S2B

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S4B

MORRIS COUNTY

BIRDS

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

FISH

paddlefish *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

taillight shiner *Notropis maculatus*

Restricted to the Sulphur and Cypress drainages in northeast Texas; Quiet, usually vegetated oxbow lakes, ponds, or backwaters.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

MAMMALS

black bear *Ursus americanus*

In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

MORRIS COUNTY

MAMMALS

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

mountain lion *Puma concolor*

Rugged mountains & riparian zones.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G4T4 State Rank: S1S3

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3

MORRIS COUNTY

MAMMALS

southern short-tailed shrew *Blarina carolinensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

southern hickorynut *Obovaria arkansasensis*

Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S1

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

MORRIS COUNTY

REPTILES

American alligator *Alligator mississippiensis*

Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4

eastern box turtle *Terrapene carolina*

Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

northern scarlet snake *Cemophora coccinea copei*

Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

MORRIS COUNTY

REPTILES

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

goldenwave tickseed *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

smooth indigobush *Amorpha laevigata*

Prairies, open woods and creek banks; Perennial; Flowering May-July

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3?	State Rank: S1

Last Update: 7/17/2019

TITUS COUNTY

AMPHIBIANS

southern crawfish frog *Lithobates areolatus areolatus*

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland– Conifer.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

southern dusky salamander *Desmognathus conanti*

Details unknown.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

BIRDS

Bachman's sparrow *Peucaea aestivalis*

Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S2N

TITUS COUNTY

BIRDS

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE | State Status: E | SGCN: Y

Endemic: N | Global Rank: G4T2Q | State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT | State Status: T | SGCN: Y

Endemic: N | Global Rank: G3 | State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S2B

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S4B

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G4 | State Rank: SHB,S2N

TITUS COUNTY

CRUSTACEANS

a crayfish *Orconectes maletae*

Streams of varying sizes and bottoms, almost always with leaf litter

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G2 State Rank: S2

FISH

blackspot shiner *Notropis atrocaudalis*

Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4 State Rank: S3

paddlefish *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: S3

taillight shiner *Notropis maculatus*

Restricted to the Sulphur and Cypress drainages in northeast Texas; Quiet, usually vegetated oxbow lakes, ponds, or backwaters.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5 State Rank: S1

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G3G4 State Rank: SNR

Comanche harvester ant *Pogonomyrmex comanche*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G2G3 State Rank: S2

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status: State Status: SGCN: Y

TITUS COUNTY

MAMMALS

Endemic: N | Global Rank: G5 | State Rank: S5

black bear *Ursus americanus*

In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G3G4 | State Rank: S4

eastern spotted skunk *Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G4 | State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G3G4 | State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S4

TITUS COUNTY

MAMMALS

mountain lion *Puma concolor*

Rugged mountains & riparian zones.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G4T4 State Rank: S1S3

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3

southern short-tailed shrew *Blarina carolinensis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G2G3 State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

TITUS COUNTY

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

southern hickorynut *Obovaria arkansasensis*

Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S1

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

American alligator *Alligator mississippiensis*

Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4

eastern box turtle *Terrapene carolina*

Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

TITUS COUNTY

REPTILES

slender glass lizard *Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

western hognose snake *Heterodon nasicus*

Habitat consists of areas with sandy or gravelly soils, including prairies, sandhills, wide valleys, river floodplains, bajadas, semiagricultural areas (but not intensively cultivated land), and margins of irrigation ditches (Degenhardt et al. 1996, Hammerson 1999, Werler and Dixon 2000, Stebbins 2003). Also thornscrub woodlands and chaparral thickets. Seems to prefer sandy and loamy soils, not necessarily flat. Periods of inactivity are spent burrowed in the soil or in existing burrows. Eggs are laid in nests a few inches below the ground surface (Platt 1969).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

TITUS COUNTY

PLANTS

Arkansas meadow-rue *Thalictrum arkansanum*

Mostly deciduous forests on alluvial terraces and upper drainages of hardwood slope forests at contacts with calcareous prairies; flowering March-April, withering by midsummer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2Q	State Rank: S2

Oklahoma grass pink *Calopogon oklahomensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1S2

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

Soxman's milkvetch *Astragalus soxmaniorum*

Primarily in deep sandy soils of sandhills, fallow fields, and open scrub oak-pine woodlands; Perennial; Flowering March-June; Fruiting April-June

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Last Update: 7/17/2019

UPSHUR COUNTY

AMPHIBIANS

southern crawfish frog *Lithobates areolatus areolatus*

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland– Conifer.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

southern dusky salamander *Desmognathus conanti*

Details unknown.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

BIRDS

Bachman's sparrow *Peucaea aestivalis*

Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S2N

UPSHUR COUNTY

BIRDS

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE | State Status: E | SGCN: Y

Endemic: N | Global Rank: G4T2Q | State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT | State Status: T | SGCN: Y

Endemic: N | Global Rank: G3 | State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S2B

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S4B

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G4 | State Rank: SHB,S2N

UPSHUR COUNTY

CRUSTACEANS

a crayfish *Orconectes maletae*

Streams of varying sizes and bottoms, almost always with leaf litter

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G2 State Rank: S2

FISH

blackspot shiner *Notropis atrocaudalis*

Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4 State Rank: S3

ironcolor shiner *Notropis chalybaeus*

Found only in northeastern streams from the Sabine to the Red River with the exception of an isolated population found in the San Marcos River headwaters. Found primarily in acidic, tannin-stained, non-turbid, sluggish Coastal Plain streams and
rivers of low to moderate gradient. Occurs in aggregation, often at the upstream ends of pools, with a moderate to sluggish current and sand, mud, silt or detritus substrates. Usually associated with aquatic vegetation.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4 State Rank: S3

Sabine shiner *Notropis sabinae*

Inhabits small streams and large rivers of eastern Texas from San Jacinto drainage northward along the Gulf Coast to the Sabine River Basin; Habitat generalist with affinities for shallow, moving water and rarely found in pools and backwater areas;
closely restricted to substrate of fine, silt free sand in small creeks and rivers having slight to moderate current.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4 State Rank: S3

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G3G4 State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5 State Rank: S5

UPSHUR COUNTY

MAMMALS

black bear *Ursus americanus*

In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S4

eastern spotted skunk *Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

mountain lion *Puma concolor*

Rugged mountains & riparian zones.

UPSHUR COUNTY

MAMMALS

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status: | State Status: | SGCN: N
Endemic: N | Global Rank: G4T4 | State Rank: S1S3

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G4 | State Rank: S3

southern short-tailed shrew *Blarina carolinensis*

Habitat description is not available at this time.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Habitat description is not available at this time.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G2G3 | State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

UPSHUR COUNTY

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

sandbank pocketbook *Lampsilis satura*

Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2	State Rank: S1

southern hickorynut *Obovaria arkansasensis*

Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S1

Texas heelsplitter *Potamilus amphichaenus*

Quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

Texas pigtoe *Fusconaia askewi*

Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2S3

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

American alligator *Alligator mississippiensis*

Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4

UPSHUR COUNTY

REPTILES

eastern box turtle *Terrapene carolina*

Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

Louisiana pine snake *Pituophis ruthveni*

Mixed deciduous-long leaf pine woods. Breeds April-September

Federal Status: LT State Status: T SGCN: Y
Endemic: N Global Rank: G2 State Rank: S1

northern scarlet snake *Cemophora coccinea copei*

Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5T5 State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

smooth softshell *Apalone mutica*

Any permanent body of water.Large rivers and streams; in some areas also found in lakes, impoundments, and shallow bogs (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

UPSHUR COUNTY

REPTILES

Texas horned lizard *Phrynosoma cornutum*

Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

goldenwave tickseed *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Mohlenbrock's sedge *Cyperus grayioides*

Deep sand and sandy loam in dry, almost barren openings in upland longleaf pine savannas, mixed pine-oak forests, and post oak woodlands; Occurs primarily in deep, periodically disturbed sandy soils in open areas maintained by factors such as wind, erosion, or fire. This species does not occur in shaded areas or in areas of high competition with other herbaceous species. Habitats include remnant sand prairies, sandy fields, sand blow outs, sandhill woodlands, pine barrens, and open barrens in which the slope is sufficient to produce sand erosion. May also occur in areas where the soils have been disturbed by logging or road construction; Perennial

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3S4

UPSHUR COUNTY

PLANTS

Nixon's dwarf hawthorn *Crataegus nananixonii*

Found in open upland post oak-bluejack oak, scrubby woodland, or shortleaf pine-oak woodland on the Carrizo Sands and other formations.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

Taxon	Species	Common Name	USESA	SPROT	Endemic	GRank	SRank	SGCN
Amphibians	Desmognathus conanti	southern dusky salamander				G5	S1	N
Amphibians	Anaxyrus woodhousii	Woodhouse's toad			N	G5	SU	Y
Amphibians	Pseudacris streckeri	Strecker's chorus frog			N	G5	S3	Y
Amphibians	Pseudacris fouquettei	cajun chorus frog			N	G5	SU	Y
Amphibians	Lithobates areolatus areolatus	southern crawfish frog			N	G4T4	S3	Y
Birds	Plegadis chihi	white-faced ibis		T	N	G5	S4B	Y
Birds	Mycteria americana	wood stork		T	N	G4	SHB,S2N	Y
Birds	Elanoides forficatus	swallow-tailed kite		T	N	G5	S2B	Y
Birds	Haliaeetus leucocephalus	bald eagle		T	N	G5	S3B,S3N	Y
Birds	Charadrius melodus	piping plover	LT	T	N	G3	S2N	Y
Birds	Leucophaeus pipixcan	Franklin's gull			N	G4G5	S2N	Y
Birds	Sternula antillarum athalassos	interior least tern	LE	E	N	G4T2Q	S1B	Y
Birds	Peucaea aestivalis	Bachman's sparrow		T	N	G3	S3B	Y
Fish	Polyodon spathula	paddlefish		T	N	G4	S3	Y
Fish	Notropis atrocaudalis	blackspot shiner			N	G4	S3	Y
Fish	Notropis chalybaeus	ironcolor shiner			N	G4	S3	Y
Fish	Notropis maculatus	taillight shiner			N	G5	S1	Y
Fish	Notropis sabinae	Sabine shiner			N	G4	S3	Y
Fish	Notropis shumardi	silverband shiner			N	G5	S4	Y
Fish	Pteronotropis hubbsi	bluehead shiner		T	N	G3	S1	Y
Fish	Erimyzon claviformis	western creek chubsucker		T	N	G5	S2S3	Y
Fish	Ammocrypta clara	western sand darter			N	G3	S3	Y
Fish	Percina maculata	blackside darter		T	N	G5	S1	Y
Fish	Percina shumardi	river darter				G5	S4	N
Mammals	Blarina carolinensis	southern short-tailed shrew			N	G5	S4	Y
Mammals	Myotis austroriparius	southeastern myotis bat			N	G4	S3	Y
Mammals	Perimyotis subflavus	tricolored bat			N	G2G3	S3S4	Y
Mammals	Eptesicus fuscus	big brown bat			N	G5	S5	Y
Mammals	Lasiurus borealis	eastern red bat			N	G3G4	S4	Y
Mammals	Lasiurus cinereus	hoary bat			N	G3G4	S4	Y
Mammals	Corynorhinus rafinesquii	Rafinesque's big-eared bat		T	N	G3G4	S2	Y
Mammals	Tadarida brasiliensis	Mexican free-tailed bat			N	G5	S5	Y
Mammals	Sylvilagus aquaticus	swamp rabbit			N	G5	S5	Y
Mammals	Microtus pinetorum	woodland vole			N	G5	S3	Y
Mammals	Ursus americanus	black bear		T	N	G5	S3	Y
Mammals	Ursus americanus luteolus	Louisiana black bear		T	N	G5T2	SNA	Y
Mammals	Mustela frenata	long-tailed weasel			N	G5	S5	Y
Mammals	Neovison vison	mink			N	G5	S4	Y
Mammals	Spilogale putorius	eastern spotted skunk			N	G4	S1S3	Y
Mammals	Spilogale putorius interrupta	plains spotted skunk			N	G4T4	S1S3	N
Mammals	Puma concolor	mountain lion			N	G5	S2S3	Y
Reptiles	Macrochelys temminckii	alligator snapping turtle		T	N	G3G4	S2	Y
Reptiles	Terrapene carolina	eastern box turtle			N	G5	S3	Y
Reptiles	Terrapene ornata	western box turtle			N	G5	S3	Y
Reptiles	Apalone mutica	smooth softshell			N	G5	S3	Y
Reptiles	Alligator mississippiensis	American alligator			N	G5	S4	N
Reptiles	Ophisaurus attenuatus	slender glass lizard			N	G5	S3	Y
Reptiles	Phrynosoma cornutum	Texas horned lizard		T	N	G4G5	S3	Y

Reptiles	Cemophora coccinea copei	northern scarlet snake		T	N	G5T5	S3	Y
Reptiles	Pituophis ruthveni	Louisiana pine snake	LT	T	N	G2	S1	Y
Reptiles	Crotalus horridus	timber (canebrake) rattlesnake		T	N	G4	S4	Y
Crustaceans	Orconectes maletae	a crayfish			N	G2	S2	Y
Insects	Bombus pensylvanicus	American bumblebee				G3G4	SNR	Y
Mollusks	Fusconaia askewi	Texas pigtoe		T	N	G2G3	S2S3	Y
Mollusks	Lampsilis satura	sandbank pocketbook		T		G2	S1	Y
Mollusks	Obovaria arkansasensis	southern hickorynut		T	N	GNR	S1	Y
Mollusks	Pleurobema riddellii	Louisiana pigtoe		T	N	G1G2	S1	Y
Mollusks	Potamilus amphichaenus	Texas heelsplitter		T	N	G1G2	S1	Y
Plants	Coreopsis intermedia	goldenwave tickseed			N	G3	S3	Y
Plants	Geocarpon minimum	earth fruit	LT	T	N	G2	S1	Y
Plants	Amorpha laevigata	smooth indigobush			N	G3?	S1	Y
Plants	Amorpha paniculata	panicled indigobush			N	G2G3	S2	Y
Plants	Astragalus soxmaniorum	Soxman's milkvetch			N	G3	S3	Y
Plants	Hibiscus dasycalyx	Neches River rose-mallow	LT	T	Y	G1	S1	Y
Plants	Crataegus nananixonii	Nixon's dwarf hawthorn			Y	G1	S1	Y
Plants	Carex decomposita	cypress knee sedge			N	G3G4	S1	Y
Plants	Cyperus grayioides	Mohlenbrock's sedge			N	G3G4	S3S4	Y
Plants	Trillium texanum	Texas trillium			N	G2	S3	Y
Plants	Cypripedium kentuckiense	Southern lady's-slipper			N	G3	S1	Y

Description
Details unknown.
Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.
Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.
Habitat description is not available at this time.
The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This s
Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in
Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing
Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in
Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds
Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1,
Habitat description is not available at this time.
Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; a
Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnan
Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950â€™s; recently reintroduced into Big Cypres
Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.
Found only in northeastern streams from the Sabine to the Red River with the exception of an isolated population found in the San Marcos River headwaters. Found primarily in acidic, tannin-stai
Restricted to the Sulphur and Cypress drainages in northeast Texas; Quiet, usually vegetated oxbow lakes, ponds, or backwaters.
Inhabits small streams and large rivers of eastern Texas from San Jacinto drainage northward along the Gulf Coast to the Sabine River Basin; Habitat generalist with affinities for shallow, moving
In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel.
Mainstem and tributaries of Big Cypress Bayou and Caddo Lake in Texas. Quiet backwater areas of small to medium-sized, sluggish streams and oxbow lakes having mud or mud-sand substrate
Eastern Texas streams from the Red River to the San Jacinto drainage. Habitat includes silt-, sand-, and gravel-bottomed pools of clear headwaters, creeks, and small rivers; often near vegetatio
Neches, Sabine, and Red River basins. Associated with substrates of course sand and fine gravels in moderate current in medium to large streams. Habit of burrowing in sand may prevent direct
Restricted to the Red River Basin in the northeast part of the state although specimens have been taken in the lower Trinity and San Jacinto rivers; Often found in clear, gravelly streams.
In Texas limited to eastern streams including Red southward to the Neches, and a disjunct population in the Guadalupe and San Antonio river systems east of the Balcones Escarpment. Confine
Habitat description is not available at this time.
Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological commu
Forest, woodland and riparian areas are important. Caves are very important to this species.
Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.
Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.
Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.
Historically, lowland pine and hardwood forests with large hollow trees. roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures
Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.
Habitat description is not available at this time.
Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.
In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in jun
Bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas.
Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.
Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.
Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas
Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie
Rugged mountains & riparian zones.
Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water w
Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of sh
Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. F
Any permanent body of water.Large rivers and streams; in some areas also found in lakes, impoundments, and shallow bogs (Ernst and Barbour 1972). Usually in water with sandy or mud bottom
Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.
Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubb
Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scatte

Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September.
Mixed deciduous-long leaf pine woods. Breeds April-September
Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto
Streams of varying sizes and bottoms, almost always with leaf litter
Habitat description is not available at this time.
Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures.
Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River
Medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins
Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins
Quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins
In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug
In Texas, found on vegetated edges of slick spots in saline barren complex just above floodplain of Neches River, soils are claypan, hold late winter rains, with a spongy feel to the soil, drying qui
Prairies, open woods and creek banks; Perennial; Flowering May-July
A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas.Â It is distinguished from other A
Primarily in deep sandy soils of sandhills, fallow fields, and open scrub oak-pine woodlands; Perennial; Flowering March-June; Fruiting April-June
Open marshy habitats in seasonally wet alluvial soils, most often near standing rather than flowing water; flowering June-August
Found in open upland post oak-bluejack oak, scrubby woodland, or shortleaf pine-oak woodland on the Carrizo Sands and other formations.
Occurs in shallow water or on baldcypress stumps and logs in wooded ponds or swamps; Perennial; Flowering/Fruiting April-May
Deep sand and sandy loam in dry, almost barren openings in upland longleaf pine savannas, mixed pine-oak forests, and post oak woodlands; Occurs primarily in deep, periodically disturbed san
In or along the margins of hardwood forests on wet acid soils of bottoms and lower slopes, strongly associated with forested seeps and baygalls; flowering March-May
Primarily restricted to calciphilic hardwood slope forests, mesic ravines, hardwood terraces above floodplains, and seepage slopes; flowering late March-May

Counties
42
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WESTERN GULF COASTAL PLAINS (PINEYWOODS, EAST TEXAS) SPECIES OF GREATEST CONSERVATION NEED						
Scientific Name	**Common Name**	**Status**		**Abundance Ranking**		**General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place**
		Federal	**State**	**Global**	**State**	
MAMMALS						
Blarina carolinensis	Southern short-tailed shrew			G5N5	S4	Forest, Woodland, Grassland
Corynorhinus rafinesquii	Rafinesque's big-eared bat		T	G3G4	S3	Forest, Artificial Refugia
Lutra canadensis	River otter			G5	S4	Riparian
Mustela frenata	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland
Myotis austroriparius	Southeastern myotis			G3G4	S3	Caves/Karst, Forest, Riparian
Puma concolor	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian
Spilogale putorius	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland
Sylvilagus aquaticus	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia
Ursus americanus luteolus	Louisiana black bear	LT	T	G5T3	SNA	Forest, Woodland, Savanna/Open Woodland,Shrubland, Riparian
BIRDS						
Anas acuta	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine
Colinus virginianus	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland
Meleagris gallopavo	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural
Ixobrychus exilis	Least Bittern			G5	S4B	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary
Egretta thula	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Egretta caerulea	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Egretta tricolor	Tricolored Heron			G5	S5B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Butorides virescens	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic
Plegadis chihi	White-faced Ibis		T	G5	S4B	Lacustrine, Freshwater Wetland, Agricultural
Mycteria americana	Wood Stork		T	G4	SHB,S2N	Riverine, Freshwater wetland
Elanoides forficatus	Swallow-tailed Kite		T	G5	S2B	Woodland, Forest, Riparian
Ictinia mississippiensis	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland
Circus cyaneus	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland
Buteo lineatus	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland
Falco sparverius	American Kestrel			G5	S4B	Grassland, Savanna/Open Woodland
Rallus elegans	King Rail			G4	S3B	Lacustrine, Freshwater Wetland
Pluvialis dominica	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural
Scolopax minor	American Woodcock			G5	S2B,S3N	Woodland, Forest, Riparian
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Picoides borealis	Red-cockaded Woodpecker	LE	E	G3	S2B	Savanna/Open Woodland, Woodland, Forest
Dryocopus pileatus	Pileated Woodpecker			G5	S4B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed
Poecile carolinensis	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Thryomanes bewickii (bewickii)	Bewick's Wren			G5	S5B	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Cistothorus platensis	Sedge Wren			G5	S4	Grassland, Freshwater Wetland
Hylocichla mustelina	Wood Thrush			G5	S4B	Woodland, Forest, Riparian
Dendroica dominica	Yellow-throated Warbler			G5	S4B	Woodland, Forest, Riparian
Protonotaria citrea	Prothonotary Warbler			G5	S3B	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland
Helmitheros vermivorum	Worm-eating Warbler			G5	S3B	Woodland, Forest
Limnothlypis swainsonii	Swainson's Warbler			G4	S3B	Woodland, Forest, Riparian
Seiurus motacilla	Louisiana Waterthrush			G5	S3B	Woodland, Forest, Riparian
Oporornis formosus	Kentucky Warbler			G5	S3B	Woodland, Forest
Aimophila aestivalis	Bachman's Sparrow		T	G3	S3B	Savanna/Open Woodland
Spizella pusilla	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural
Chondestes grammacus	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland
Ammodramus henslowii	Henslow's Sparrow			G4	S2S3N,SXB	Grassland, Savanna/Open Woodland
Ammodramus leconteii	Le Conte's Sparrow					Grassland
Piranga rubra	Summer Tanager			G5	S5B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Passerina ciris	Painted Bunting			G5	S4B	Shrubland, Agricultural
Spiza americana	Dickcissel			G5	S4B	Grassland, Agricultural
Sturnella magna	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland
Euphagus carolinus	Rusty Blackbird			G4	S3	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland
Icterus spurius	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian
REPTILES AND AMPHIBIANS						
Apalone mutica	smooth softshell turtle					riparian, riverine, lacustrine, freshwater wetland
Apalone spinifera	spiny softshell turtle					riparian, riverine, lacustrine, freshwater wetland
Cemophora coccinea copei	Northern Scarlet Snake		T	G5T5	S3	forest, woodlands, grassland, riparian, barren, sparse vegeatation
Cheylydra serpentina	Common snapping turtle					riparina, riverine
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	woodland, forest, riparian
Desmognathus auriculatus	Southern dusky salamander				S1	forest, freshwater wetland
Lithobates areolatus (Rana areolata)	Crawfish frog				SU	forest, grassland, freshwater wetlands, woodland
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	riparian, riverine, cultural aquatic
Ophisaurus attenuatus	western slender glass lizard					grassland, savanna
Pituophis ruthveni	Louisiana pine snake	C	T	G5T3		forest, woodland, savanna
Pseudacris fouquettei (triseriata/feriarum)	Cajun chorus frog				SU	forest, woodland, riparian, cultural aquatic, freshwater wetland, savanna
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland
Terrapene carolina	Eastern box turtle			G5	S3	grasslands, savanna, woodland
Terrapene ornata	Ornate box turtle			G5	S3	grassland, barren/sparse vegetation, deset scrub, savanna, woodland
Trachemys scripta	Red-eared slider					riparian, riverine, lacustrine, freshwater wetland, cultural aquatic
FRESHWATER FISHES						
Ammocrypta clara	Western sand darter					over sandy substrata
Anguilla rostrata	American eel			G4	S5	streams and reservoirs in drainages connected to marine environments
Atractosteus spatula	alligator gar					channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat
Cycleptus elongatus	Blue sucker		T	G3G4	S3	large, deep rivers, and deeper zones of lakes
Erimyzon oblongus	Creek chubsucker		T	G5	S2S3	vegetation depending somewhat on age and stage of reproductive cycle; declines due to siltation
Etheostoma radiosum	Orangebelly darter					riffle areas of gravel-bottoms streams with moderate to high currents

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Hiodon alosoides	Goldeye					large lakes; backwaters
Notropis atrocaudalis	Blackspot shiner					backwater and swiftest currents
Notropis bairdi	Red River shiner					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation, and
Notropis chalybaeus	Ironcolor shiner					Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to
Notropis maculatus	Taillight shiner					Quiet, usually vegetated oxbow lakes, ponds, or backwaters; mud bottom
Notropis potteri	Chub shiner		T	G4	S3	turbid, flowing water with silt or sand substrate; tolerant of high salinities
Notropis sabinae	Sabine shiner					Small creeks and rivers having slight to moderate current, primarily sand bottom
Notropis shumardi	Silverband shiner					channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water
Percina maculata	Blackside darter		T	G5	S1	variable in location; mostly in clear waters, with gravel and boulder substrates
Polyodon spathula	Paddlefish		T	G4	S3	rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if
Pteronotropis hubbsi	Bluehead shiner		T	G3	S1	substrate; water typically tannin-stained, and heavy growth of submergent or semi-emergent vegetation
Scaphirhynchus platorynchus	Shovelnose sturgeon		T	G4	S2	Bottom of main channels and embayments of large, turbid rivers
INVERTEBRATES						
Arkansia wheeleri	Ouachita rock pocketbook	LE		G1	SH*	Riverine
Bombus pensylvanicus	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland
Cheumatopsyche morsei	A caddisfly			G1G3	S1	Riparian, Riverine
Chimarra holzenthali	Holzenthal's Philopotamid caddisfly			G1G2	S1	Riparian, Riverine
Cisthene conjuncta	A lichen moth			G1Q	S1Q*	Forest, Savanna/Open Woodland
Fallicambarus houstonensis	Houston burrowing crayfish			G2G3*	S2S3*	Freshwater Wetland, Grassland
Fallicambarus kountzeae	Big Thicket burrowing crayfish			G2	S2*	Freshwater Wetland, Grassland
Faxonella blairi	Blair's fencing crayfish			G2	S2*	Freshwater Wetland
Fusconaia askewi	Texas pigtoe		T	G2G3	S2S3*	Riverine
Fusconaia lananensis	Triangle pigtoe		T	G1Q	S1	Riverine
Hydroptila ouachita	A caddisfly			G1G2	S1	Riparian, Riverine
Isoperla sagittata	Arrowhead Stripetail			G1	S1*	Riparian, Riverine
Lampsilis satura	Sandbank pocketbook		T	G2	S1	Riverine
Neotrichia mobilensis	A caddisfly			G1G2	S1?*	Riparian, Riverine
Obovaria jacksoniana	Southern hickorynut		T	G2	S1*	Riverine
Orconectes maletae	Kisatchie painted crayfish			G2	S2*	Riparian, Riverine
Phylocentropus harrisi	A caddisfly			G1G2	S1	Riparian, Riverine
Pleurobema riddellii	Louisiana pigtoe		T	G1G2	S1	Riverine
Pogonomyrmex comanche	Comanche harvester ant			G2G3*	S2*	Barren/Sparse Vegetation
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	Riverine
Procambarus brazoriensis	Brazoria crayfish			G1	S1	Riverine, Riparian
Procambarus nechesae	Neches crayfish			G2	S1S2	Riverine, Riparian
Procambarus nigrocinctus	Blackbelted crayfish			G1G2	S1	Riverine, Riparian
Somatochlora magarita	Texas emerald			G2	S2	Freshwater Wetland
Sparbarus coushatta	A mayfly			G1G2	S1?*	Riverine, Riparian
Tricorythodes curvatus	A mayfly			G1G3	S2?*	Riparian, Riverine
PLANTS						
Agalinis navasotensis	Navasota false foxglove			G1	S1	Savanna/Open Woodland (sandstone outcrops)
Agrimonia incisa	incised groovebur			G3	S3	Forest; Savanna/Open Woodland (Longleaf Pine)
Amorpha laevigata	smooth indigobush			G3	S1	Savanna/Open Woodland

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
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Amorpha paniculata	panicled indigobush			G2G3	S2	Freshwater Wetland
Astragalus reflexus	Texas milk vetch			G3	S3	Savanna/Open Woodland
Bartonia texana	Texas screwstem			G2	S2	Freshwater Wetland
Calopogon oklahomensis	Oklahoma grass pink			G3	S1S2	Savanna/Open Woodland; Grassland; Freshwater Wetland
Carex decomposita	cypress knee sedge			G3	S1	Freshwater Wetland
Clematis carrizoanus	Carrizo sands leather-flower			G2	S2	Savanna/Open Woodland
Coreopsis intermedia	goldenwave tickseed			G3	S3	Savanna/Open Woodland
Crataegus anamesa	Fort Bend hawthorn			G3Q	S3	Grasslands; woodlands?
Crataegus nananixonii	Nixon's dwarf hawthorn			G1	S1	Savanna/Open Woodland; Forest (Shortleaf Pine)
Crataegus stenosepala	narrow-sepal hawthorn			G3Q	S3	Woodland? Riparian?
Crataegus warneri	Warner's hawthorn			G3Q	S3	Savanna/Open Woodland; Woodland; Forest
Cuscuta attenuata	marsh-elder dodder			G3	S2	Grassland
Cyperus grayioides	Mohlenbrock's sedge			G3G4	S3S4	Savanna/Open Woodland (sandhills)
Cypripedium kentuckiense	Southern lady's-slipper			G3	S1	Forest (mesic)
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland
Eriocaulon koernickianum	small-headed pipewort			G2	S1	Freshwater Wetland (bogs)
Gaillardia aestivalis var. winkleri	white firewheel			G5T2	S2	Savanna/Open Woodland (Longleaf Pine Savanna; Sandhills)
Geocarpon minimum	earth fruit	LT	T	G2	S1	Barren/Sparse Vegetation (slick spots) within Grassland (saline prairie) matrix
Hibiscus dasycalyx	Neches River rose-mallow	C		G1	S1	Riparian (oxbows, swamps)
Lachnocaulon digynum	tiny bog button			G3	S1	Freshwater Wetland (bogs)
Leavenworthia texana	Texas golden gladecress	C		G1	S1	Savanna/Open Woodland (glades)
Liatris tenuis	slender gay-feather			G3	S3	Savanna/Open Woodland (Longleaf Pine savanna, sandstone barrens)
Paronychia setacea	bristle nailwort			G3	S3	Savanna/Open Woodland
Phlox nivalis subsp. texensis	Texas trailing phlox	LE	E	G4T2	S2	Savanna/Open Woodland (Longleaf Pine savanna, sandhills)
Physaria pallida	white bladderpod	LE	E	G1	S1	Savanna/Open Woodland (glades); Grassland
Physostegia longisepala	long-sepaled false dragon-head			G2G3	S2	Savanna/Open Woodland (Longleaf Pine savanna); Freshwater Wetland
Platanthera chapmanii	Chapman's orchid			G2	S1	Freshwater Wetland; Savanna/Open Woodland (Longleaf Pine savanna)
Platanthera integra	yellow fringeless orchid			G3G4	S1	Freshwater Wetland (bogs); Savanna/Open Woodland (Longleaf Pine Savanna)
Prenanthes barbata	barbed rattlesnake-root			G3	S3	Forest (mesic)
Quercus arkansana	Arkansas oak			G3	S1	Savanna/Open Woodland; Woodland; Forest
Quercus boyntonii	Boynton's oak			G1	SH	Grassland?; Forest (loblolly pine-oak)?
Rhododon ciliatus	Texas sandmint			G3	S3	Savanna/Open Woodland (sandhills)
Rhynchospora macra	large beakrush			G3	S2	Freshwater Wetland (bogs)
Schoenolirion wrightii	Texas sunnybell			G3	S3	Savanna/Open Woodland (sandstone barrens); Forest
Silene subciliata	scarlet catchfly			G3	S3	Savanna/Open Woodland (Longleaf Pine Savanna; Sandhills)
Spiranthes brevilabris var. brevilabris	Texas ladies'-tresses orchid			G1T1	S1	Grassland
Spiranthes longilabris	giant spiral ladies'-tresses			G3	S1	Freshwater Wetland (swamp)
Spiranthes parksii	Navasota ladies'-tresses	LE	E	G3	S3	Savanna/Open Woodland; Woodland
Streptanthus maculatus subsp. maculatus	clasping twistflower			G3T2T3	S2	Savanna/Open Woodland; Forest; Grassland (glades)
Symphyotrichum puniceum var. scabricaule	rough-stem aster			G5T2	S2	Freshwater Wetland (Bogs)
Thalictrum arkansanum	Arkansas meadow-rue			G2Q	S2	Forest; Riparian (bottomland forest)
Trillium texanum	Texas trillium			G2	S2	Forest; Freshwater Wetland (forested seeps and baygalls)
Triphora trianthophora var. texensis	Texas three-birds orchid			G3G4T1Q	S1	Forest (mesic)
Xyris chapmanii	Chapman's yellow-eyed grass			G2	S2	Freshwater Wetland (bogs)

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Xyris drummondii	Drummond's yellow-eyed grass			G3	S2	Freshwater Wetland (bogs)
Xyris scabrifolia	roughleaf yellow-eyed grass			G3	S2	Freshwater Wetland (bogs)
Yucca cernua	nodding yucca			G1	S1	Savanna/Open Woodland; Forest (calcareous openings)