Lake Stone Fish Management Area
DRAFT Management Plan 2019 - 2029
Management Intent, Goals and Objectives, Challenges and Strategies

Managed by the Florida Fish and Wildlife Conservation Commission (FWC) and Escambia County

Owned by the State of Florida

Title held by the Board of Trustees of the Internal Improvement Trust Fund

~249 acres, Escambia County, Florida

Table of Contents

1 Introduction

The Lake Stone Fish Management Area (LSFMA) is one of six freshwater fishing lakes constructed by the Florida Fish & Wildlife Conservation Commission (FWC) in cooperation with other governmental agencies for the sole purpose of increasing freshwater fishing opportunities in the western panhandle. The LSFMA is located approximately 40 miles north of Pensacola and has become a very popular recreational retreat for fishermen and campers.

The LSFMA is owned by the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees). The FWC has lead management authority and has an established sublease with Escambia County for management of recreational activities on the area. The LSFMA is approximately 249 acres, with Lake Stone, and its accompanying structure and spillways, encompassing approximately 130 acres with the remaining 119 acres consisting of upland habitat (Figure 1). The LSFMA is managed to conserve and restore important natural communities and wildlife habitat for imperiled and more common wildlife species, and while providing high-quality opportunities for fishing and wildlife viewing and other fish and wildlife-based public outdoor recreation opportunities, including hiking, camping and boating.

The following are the draft management plan elements that have been developed for the FWC's LSFMA and are proposed for submittal to the Board of Trustees and the Acquisition and Restoration Council (ARC) through the Florida Department of Environmental Protection's (DEP) Division of State Lands (DSL) pursuant to the requirements of Chapters' 253 and 259, Florida Statutes (FS), and Chapters' 18-2 and 18-4, Florida Administrative Code (FAC). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of the DSL.

The FWC and Escambia County are responsible for the operation of the LSFMA as a Fish Management Area, as well as a number of other responsibilities. Further management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters' 253, 259, 327, 370, 372, 373, 375, 378, 379, 403, 487, 597 and 870 FS. These laws provide the authority for the FWC with regard to protection and management of the State's fish and wildlife resources.

1.1 Purpose of Acquisition

The LSFMA was purchased primarily for the creation of public fishing opportunities. The LSFMA is managed by the FWC and Escambia County for the purpose of operating a Fish Management Area, while creating ecological diversity, by management of habitat for both common and imperiled wildlife and for providing the public with fish and wildlife-oriented outdoor recreational opportunities.

1.2 Acquisition History

In 1965, the Outdoor Recreational Development Council authorized funds for the acquisition of 205 acres for the construction and establishment of the LSFMA. The property was then leased to the FWC for 99 years by the Board of Trustees in 1969 under lease number 2786. Property description inequities were found in the original 1969 lease from the Board of Trustees to the FWC requiring the lease to be renegotiated and amended in 1975. In 1988, an additional 44-acre acquisition was added to the area's lease bringing the area to its current size of 249 acres. In 1992, the remaining uplands were subleased to Escambia County under contract number 91118 for further development of outdoor recreational facilities.

The FWC is directed via lease number 2786, from the Board of Trustees to manage the area "…for the purpose of preserving, developing, improving, operating, maintaining and otherwise managing land for public outdoor recreational, park, conservation and related purposes…"

2 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve or otherwise use fragile natural resources and nonrenewable historic resources on the LSFMA. In general, the FWC management intent for the LSFMA is to conserve, protect and restore cultural resources, landscapes, forests, watershed and water resources and other elements important to ecosystem functions, and encourage lake management techniques necessary for maintaining healthy habitats in Lake Stone. In conjunction with this emphasis, it is the FWC's and Escambia County's intent to provide quality fish-and wildlife-based public outdoor recreational opportunities on the LSFMA. The FWC will utilize the best available data, guidelines, natural resource management practices and recreational management practices to achieve these outcomes in accordance with the original purposes for acquisition. Furthermore, the management activities described in this section are in compliance with those of the Conceptual State Lands Management Plan.

2.1 Previous Management Activities 2010 - 2020

The following Resource Management Goals and Objectives are from the 2010 Lake Stone Fish Management Area Habitat Management Plan. Planned activities for the LSFMA during this period are detailed in the Goals and Objectives listed below. The degree to which the FWC was able to accomplish the planned activities during this period is reflected as **Percent Accomplished** with each associated objective.

Objectives Accomplished from the 2010 Lake Stone Fish Management Area Habitat Management Plan

Goals and Objectives	Percent Accomplished	Comments
Goal 1: Monitor and manage Lake Stone fish populations for sustained recreational use by anglers.		
Continue to monitor and maintain sportfish populations through the use of length-frequency histograms, age and growth data, condition indices, and creel survey data. These are ongoing activities.	100%	The FWC continues to monitor and maintain all sportfish populations.
Continue to develop and apply appropriate harvest regulations as needed for largemouth bass and panfish to promote optimum population densities and size structure.	100%	FWC staff continues to develop and apply harvest regulators as needed for largemouth bass and panfish populations.
Apply appropriate management strategies including liming/fertilization, supplemental stocking, habitat enhancement, water level manipulation, and vegetation control to provide high quality fishing opportunities. These are ongoing activities.	100%	The FWC continues to apply liming/fertilization, stock Lake Stone as needed, and perform habitat enhancement, water level manipulation and vegetation control as needed and appropriate.
Evaluate angler catch and effort data through a spring peak season creel survey at least once during the five-year reporting period to document fishing success rates and assess overall results of management strategies.	0%	The FWC's Division of Freshwater Fisheries (DFFM) was temporarily short-staffed from 2010-2015, and the LSFMA was a low priority at the time for spring creel surveys. However, in 2018 a drop box survey was completed to assess efforts and public satisfaction.
Goal 2: Preserve structural integrity of the dam and other facilities to ensure perpetual use opportunities by the general public.		

Continue annual inspections of the dam, fishing fingers, and water control structures, and coordinate necessary repairs with the FWC engineer.	100%	FWC staff continues to inspect dam, fishing fingers and water control structures and perform repairs as necessary and funding allows.
Correct erosion caused by wind and wave action on the fishing fingers using the most efficient and economical means available.	100%	During this planning period FWC staff determined that minimal erosion had taken place, so no activities were determined necessary.
Goal 3: Continue to provide public access and enhance bank fishing opportunities.		
Repair and/or enhance access areas, boat ramps, and bank fishing areas as needed.	100%	The FWC, along with Escambia County, regularly inspect and repair access areas, boat ramps and fishing areas as needed.
Goal 4: Develop an enhancement/renovation plan for Lake Stone to improve and revitalize existing fisheries habitat.		
Coordinate plan development through FWC Small Lakes Committee and the Division of Freshwater Fisheries Management and AHRES to determine funding sources, permitting needs, and timetable for implementing plan. Development of plans should be completed and ready for submission for funding by 2012.	100%	Currently, the FWC's Small Lake Committee is no longer active, however FWC staff continue to work with AHRES on various habitat projects.
Goal 5: Coordinate maintenance of upland recreational facilities with Escambia County Parks and Recreation Department.		
Continue coordination with Escambia County the maintenance of hiking trails and park area located at Lake Stone.	100%	The FWC continues to cooperate with Escambia County for maintenance of all roads and campground amenities located on the area.
Coordinate with Escambia County to prevent development within swamps and wetlands contiguous with the lake in order to protect and	100%	The FWC continues to communicate and coordinate with Escambia County to ensure adjacent

enhance fish and wildlife resources. This task will be completed in 1997 and continue as needed throughout the duration of this plan.		land uses are compatible with the LSFMA and its fish and wildlife resources.
Goal 6: Continue aquatic education efforts.		
Develop and make available brochures, informational kiosks, press releases and other educational materials as needed to enlighten anglers regarding available fishing opportunities and fishery management principals.	100%	During this planning period brochures were made available to the public and are currently being updated. Escambia County also continues to provide a website. The FWC has also installed signs for bass regulation and continue to work with Escambia County on any potential promotions for the area, as feasible.
Goal 7: Provide law enforcement protection for fish and wildlife resources.		
Implement preventative patrol as well as apprehension and arrest of persons violating conservation and environmental laws. This task is currently ongoing and scheduled to continue.	100%	Escambia County Sheriff's Office continue to provide law enforcement patrol for the area as needed and appropriate.
Goal 8: Maintain and/or enhance upland recreational facilities to provide greater use opportunities as funding becomes available.		
Continue to maintain and/or enhance upland recreational areas as needed and as funding allows.	100%	Escambia County parks and recreation field staff and the campground caretaker continually maintain recreational areas as needed and appropriate.
Attempt to maintain native vegetation communities in all undisturbed upland areas specifically during development of additional recreational facilities.	100%	Escambia County parks and recreation field staff and the campground caretaker maintain vegetation around the recreational facilities up to the edge of the Lake Stone shoreline.

Continue to maintain and enhance where possible hiking trails along northern shoreline of lake.	100%	The Escambia County roads department continually maintain roads on the area as needed and appropriate.
Develop other recreational amenities as needed.	0%	After Hurricane Ivan, prior to the development of the 2010 management plan, all recreational amenities for the area were established. No further recreational facilities were determined necessary during this planning period.
Coordinate additional law enforcement patrol with the Escambia County Sheriff's Office as needed.	100%	Escambia County Sheriff's Office continue to provide law enforcement patrol for the area as needed and appropriate.

2.2 Habitat Maintenance, Restoration and Improvement

On the LSFMA, the FWC and Escambia County will focus on managing for native habitat diversity and emphasizing maintenance of high-quality natural communities. Maintenance of upland areas may be achieved by mowing and/or the use of mechanical or chemical forest management techniques as appropriate. Retention of the native old growth component of forests, while also providing for natural regeneration, remains an important consideration. The LSFMA has high-quality, but limited, native communities including bottomland forest, successional hardwood forest and upland pine that the FWC will continue to manage and protect.

2.3 Fish and Wildlife Management and Imperiled Species Habitat Maintenance, Enhancement, Restoration or Population Restoration

2.3.1 Fish and Wildlife

Due to the variety of natural communities present on the area, a diversity of associated wildlife can be found on the LSFMA. In managing for wildlife species, an emphasis will be placed on conservation, protection and management of natural communities. On the LSFMA, natural communities important to wildlife include Lake Stone, bottomland forest, successional hardwood forest and upland pine.

The size and natural community composition of the LSFMA creates a habitat mosaic for a variety of wildlife species. Resident wildlife will be managed for optimum richness, diversity and abundance. In addition to resident wildlife, the LSFMA provides resources critical to many migratory birds including waterfowl, passerines, raptors and others. Habitats important to migratory species will be protected, maintained or enhanced.

Wildlife management emphasis is placed on documenting the occurrence and abundance of rare and imperiled species on the property. The FWC will continue to update inventories for certain species, with emphasis on rare and imperiled fish and wildlife species. Monitoring of wildlife species will continue as an ongoing effort for the area.

Concurrent with ongoing species inventory and monitoring activities, management practices are designed to restore, enhance or maintain rare and imperiled species and their habitats. This will be further augmented by following approved federal and FWC species recovery plans, guidelines and other scientific recommendations for these species. Guided by these recommendations, land management activities will address rare and imperiled species requirements and habitat needs.

Additionally, a comprehensive species list has been developed for the area, which will be updated and modified as appropriate over time. The species list is included within the

accompanying Management Prospectus that has been developed for the area and will be included in the final version of the LSFMA Management Plan to enhance knowledge and management of the area.

2.4 Public Access and Recreational Opportunities

2.4.1 General Information

The LSFMA will be managed under a low intensity, multiple-use concept that includes providing opportunities for fish and wildlife-based public outdoor recreation. The recreational activities offered on the LSFMA include hiking, wildlife viewing, fishing, boating, camping, canoeing and nature study.

Authorized recreational uses are managed with the purposes for acquiring the LSFMA, including promoting habitat conditions critical to the management of Lake Stone, and ensuring the conservation and ecological integrity of the area while managing for low intensity, multiple-uses, thus providing fish and wildlife based public outdoor recreational opportunities for Florida's citizens and visitors.

2.4.2 Americans with Disabilities Act

When public facilities are developed on FWC-managed areas, the FWC complies with the Americans with Disabilities Act [ADA (Public Law 101-336)]. As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions. Recreation facilities in semi-primitive or primitive zones will be planned to be universally accessible to the degree possible except as allowed by the ADA[1] where:

1. Compliance will cause harm to cultural or historic sites or significant natural features and their characteristics.

2. Compliance will substantially alter the nature of the setting and therefore the purpose of the facility.

3. Compliance would not be feasible due to terrain or prevailing construction practices.

4. Compliance would require construction methods or materials prohibited by federal or state statutes or local regulations.

2.4.3 Recreation Carrying Capacity

Baseline carrying capacities for users on FWC-managed lands are established by conducting a site-specific sensitivity analysis using available data for the site. The intent of the carrying capacity analysis is to minimize wildlife and habitat disturbance and provide the experience of being "immersed in nature" that visitors to FWC-managed areas desire. Carrying capacities are just a first step; management of recreational use requires a means

of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacities as necessary. The carrying capacities generated through this process are used as a tool to help plan and develop public access, wildlife viewing and fish and wildlife resource based public outdoor recreation opportunities.

Based on an analysis of the overall approved uses and supported public access user opportunities, and the anticipated proportional visitation levels of the various user groups, the FWC has determined that the LSFMA can currently support 144 visitors per day for fishing and recreational opportunities, with an additional 154 visitors per day for camping. However, visitation to the LSFMA is currently minimal, which provides excellent opportunities for quiet and solitude while viewing the area's wildlife.

Importantly, public access carrying capacities are not developed to serve as a goal for expanding the public use of a particular area to match the established carrying capacity. Rather, they are developed to establish maximum thresholds for public use of the respective area in order to protect the natural and historical resources on the LSFMA and to ensure that visitors will have a high-quality visitor experience. The public access carrying capacity will be periodically reevaluated.

2.4.4 Visitation and Economic Benefits

Visitation and public use of the area for fish-and wildlife-based public outdoor recreational opportunities is the primary source of economic benefits from the LSFMA and contributes to the overall economy for the northwest region of Florida. If the current maximum visitation level for fishing and lake access on the area reached the 144 visitors per day and the 77 campsites were utilized by visitors per day, a total of 108,770 visitors per year could be expected. If the area were at carrying capacity, the FWC economic analysis estimates indicate that the LSFMA could potentially generate an estimated economic impact of $21,252,570 for the State and the Northwest region of Florida. This estimated annual economic impact would aid in the creation of an estimated 216 jobs. However, it should be noted that the current visitation rates for the area are estimated to be far below the area's established carrying capacity.

The above figures are based on expenditure data from the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (USFWS) and 2006 IMPLAN economic models assembled by Southwick Associates and the USFWS. The results were updated to 2010 based on hunting and fishing license trends and inflation. The results were combined and weighted based on the numbers of hunters, anglers and wildlife viewers statewide. The results assume participants' expenditures and the results impacts are consistent throughout the state. Users applying these results to local situations should be aware that differences might exist between these statewide averages and the site in question and make adjustments if needed.

Further potential of the LSFMA will depend upon future uses to be approved in the management plan. Additional economic impact from environmental lands such as the LSFMA might include sales of various permits and recreational user fees and ecotourism activities, if such projects could be economically developed. The legislature annually appropriates funds for land management. The area regulations can also be consulted to clarify the necessary and required permits, fees and regulations. The long-term values of ecosystem services to local and regional land and water resources, and to human health, through the protection of air and water quality, are expected to be significant.

2.4.5 Wildlife Viewing

The LSFMA is home to a variety of resident wildlife found within its upland pine, bottomland forest and within Lake Stone. The LSFMA's size and variety of habitat types, create outstanding wildlife viewing opportunities.

2.4.6 Hunting

Hunting is prohibited on the LSFMA. However, hunting opportunities are offered on nearby public lands.

2.4.7 Fishing

Fishing is authorized year-round at the LSFMA.

2.4.8 Bicycling

Bicycling is permitted on the LSFMA. However, bicycling opportunities are limited on the area.

2.4.9 Horseback riding

Horseback riding is prohibited on the LSFMA. However, horseback riding opportunities are offered on nearby public lands.

2.4.10 Camping

Camping is authorized year-round at the LSFMA.

2.4.11 Roads and Trails

Currently, the LSFMA offers just under two miles of unmarked trails.

2.4.12 Geocaching

Geocaching, also known as Stash Hunt or Geo-stash, is a contemporary combination of orienteering and scavenger hunting generally utilizing a Geographic Positioning System receiver unit. Geocache websites routinely promote good stewardship. However, the potential exists for resource damage, user conflicts or safety issues caused by

inappropriately placed caches and/or links that do not provide adequate information about the area.

For these reasons, it is the policy of the FWC to allow placement of geocaches only in those locations that do not present the potential for resource damage, user conflicts or threats to the safety of the activity participants. The placement of geocaches on FWC-managed lands is allowed only through issuance of an FWC permit that is governed by specific permitting guidelines. These guidelines may be found on the following FWC website: http://myfwc.com/media/1074886/FWC_Geocache_Guidelines.pdf .

2.5 Hydrological Preservation and Restoration

2.5.1 Hydrological Assessment, Restoration and Management

Approximately 130 acres of the LSFMA is comprised of Lake Stone, a dam, two boat ramps, fishing pier and fingers, principal spillway, drawdown structure and drain values and two emergency overflow spillways. Lake Stone is an impoundment created to increase fishing opportunities in the area. Lake Stone is designated as open water. Most of the hydrology on the LSFMA is controlled by the water level of Lake Stone. Lake Stone has an average depth of six feet and a maximum depth of 22 feet, with the deepest area of the lake found near the dam and along the old stream bed. The lake also contains flooded timber.

The Lake Stone dam is an earthen embankment structure 1,012 feet in length with a top or crest width of l6 feet. The crest elevation is 102.0 feet National Geodetic Vertical Datum (NGVD) and the height of the dam is 30.4 feet. The gradient is 3:1 on both the front and back slopes.

The principal spillway is a rectangular reinforced concrete riser with fixed crest weirs on two opposing sides. These weirs are each 7.5 feet in length at an elevation of 95.0 feet NGVD. At this elevation, the lake encompasses 130 acres. Discharge from the lake is through a deep-water release with an intake 11 feet below normal pool. The discharge barrel through the dam consists of 30-inch concrete pipe 192 feet long. The spillway was constructed with a 24-inch external slide gate to achieve a maximum drawdown of 10 feet, and a 20-inch diameter slide headgate which serves as a drain gate. Invert elevation of the drawdown gate and drain gate are 85.0 and 75.0 feet NGVD.

Emergency overflow spillways on each end of the dam are broad-crested, grass-lined, trapezoidal channels with crest elevations of 98.0 feet NGVD. The bottom width of the channels are 50 feet and the side slopes are 4:1.

The FWC and Escambia County will continue to work with Northwest Florida Water Management District (NWFWMD) and the DEP on monitoring groundwater resources and water quality.

2.5.2 Water Resource Monitoring

Currently, the FWC and Escambia County cooperates with the DEP and the NWFWMD for the monitoring of surface and ground water quality and quantity and will continue to cooperate with those agencies to develop and implement any additional surface water monitoring protocols for the LSFMA. In this capacity, the FWC will primarily rely on the expertise of the NWFWMD and the DEP to facilitate these monitoring activities. As necessary, the FWC may independently conduct or contract for water resource monitoring on the LSFMA, as guided by the DEP and the NWFWMD.

2.6 Forest Resource Management

There are no substantial timber resources on the LSFMA. As a result, the FWC and the Florida Forest Service (FFS) have determined that a professional forest assessment for the LSFMA is unnecessary. The FWC and Escambia County will continue to manage any timber resources that occur on the area for wildlife benefits and natural community restoration. Also, the FWC will continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

2.7 Exotic and Invasive Species Maintenance and Control

The FWC will continue efforts to control the establishment and spread of Florida Exotic Pest Plant Council (FLEPPC) Category I or II plants on the LSFMA. Control techniques may include mechanical, chemical, biological and other appropriate treatments. Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ the Best Management Practices for their application. Exotic and invasive plant species that have been documented on the LSFMA are Chinese privet (*Ligustrum sinense*), hydrilla (Hydrilla verticillate) and Japanese climbing fern (*Lygodium japonicum*). However, the FWC's methodology for determining the number of acres "infested" with invasive exotic plants only represents a cumulative acreage and does not reflect the degree of the invasive exotic occurrence. The degree of infestation among areas identified with invasive exotic plant occurrences often varies substantially by species, level of disturbance, environmental conditions and the status of ongoing eradication and control efforts.

Additionally, the FWC will continue efforts to control the introduction of exotic and invasive species, as well as pests and pathogens, on the LSFMA by inspecting any vehicles and equipment brought onto the area by contractors and requiring that they be free of vegetation and dirt. If vehicles or equipment used by contractors are found to be contaminated, they will be referred to an appropriate location to clean the equipment prior to being allowed on the area. This requirement is included in every contract for contractors who are conducting any operational or resource management work on the area. In this way, the FWC implements a proactive approach to controlling the introduction of exotic pests

and pathogens to the area. The FWC will continue to conduct measures to control and monitor exotics species on the area as outlined in Section 3.4 of this draft management plan.

2.8 Capital Facilities and Infrastructure

When public facilities are developed on FWC-managed areas, the FWC complies with the ADA (Public Law 101-336). As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions (e.g., where handicap access is structurally impractical or where providing such access would change the fundamental character of the facility being provided). Planned capital facilities and infrastructure improvements are listed in Section 3.8 of this draft management plan.

2.8.1 Administrative and Operational Facilities

The FWC will continue to maintain 10 facilities, as well as nearly two miles of unmarked trails on the LSFMA. The 10 facilities on the area are a two boat ramps, fishing pier, field office, bathhouse, campsites, parking area, pavilion, dam and playground. Section 3.8 of this plan includes objectives for maintaining facilities on the area.

2.9 Historical Resources

Procedures outlined by the Florida Department of State's Division of Historical Resources (DHR) will be followed to preserve archaeological and historical resources. The FWC will continue to consult with the DHR in an attempt to locate and preserve any historical or archaeological features on the area. As necessary, the FWC will also contact professionals from the DHR for assistance prior to any ground-disturbing activity on the area.

The DHR indicates that there are two recorded archaeological sites within the boundaries of the LSFMA. The FWC and Escambia County will coordinate with the DHR to assess the need for conducting a historical resource survey during this planning period.

As a part of this management plan, the FWC and Escambia County will ensure that management staff receive Archaeological Resource Management (ARM) training. Furthermore, the FWC will ensure all known sites are recorded in the DHR Master Site File.

2.10 Research Opportunities

The FWC and Escambia County intend to cooperate with researchers, universities and others as feasible and appropriate. For the LSFMA, the FWC will continue to assess and identify research needs and pursue research and environmental education partnership opportunities as appropriate. Research proposals involving the use of the area are

evaluated on an individual basis. All research activities on the LSFMA must have prior approval by the FWC.

2.11 Land Conservation and Stewardship Partnerships

The FWC utilizes a three-tiered approach to identifying, acquiring or otherwise protecting important conservation lands adjacent to or in proximity to existing FWC-managed areas. This involves development of an Optimal Resource Boundary (ORB), Optimal Conservation Planning Boundary (OCPB) and associated Conservation Action Strategy (CAS). Increasingly, cooperative land steward partnership efforts with private landowners play an integral role in this effort as does ongoing land conservation, either through fee-simple or less-than-fee conservation easements. In combination, this tiered model helps the FWC to further the regional conservation of important fish and wildlife habitats through a proactive, comprehensive and cooperative approach towards conservation.

2.11.1 Optimal Resource Boundary

This three-tiered model begins with the development of an ORB, which is a resource-based analysis on a regional scale that integrates important FWC conservation research and analysis into practical planning, acquisition and management efforts through GIS analysis. The ORB focuses on critical and important wildlife species or habitat considerations, such as rare and imperiled species habitat within a particular region or ecosystem-like area, on a landscape scale within which an FWC managed area is contained while eliminating urban areas or lands that have already been conserved or protected.

2.11.2 Optimal Conservation Planning Boundary

The second tier is known as the OCPB. The OCPB combines the regional natural resources identified in the ORB, as well as regional and local area conservation planning, including habitat conservation and restoration, habitat linkages, management challenges, land use and zoning issues, infrastructure including roads and developments, improving access, eliminating inholdings, providing management buffers, resolving boundary irregularities, water resource protection and conserving other important natural and historical resources.

The OCPB provides the basis for development of a broader CAS for the LSFMA. Although the OCPB provides the basis for potential future voluntary, willing-seller conservation acquisitions, it is designed to function primarily as a conservation planning boundary. The OCPB identifies surrounding lands and natural resources that may be important to the continued viability of fish and wildlife populations in the region. As they are currently managed, these lands appear to contribute to regional conservation and may support conservation landscape linkages.

2.11.3 Conservation Action Strategy

The CAS is the third tier and implements the results of the ORB and OCPB tiers. This element of the process incorporates the conservation planning recommendations into an action strategy that prioritizes conservation needs. The CAS is integral to the development of conservation stewardship partnerships and also implements the current approved process for establishing the FWC Florida Forever Inholdings and Additions acquisition list.

Primary components of the CAS may include:

- FWC Landowner Assistance Program
- FWC conservation planning
- FWC Additions and Inholdings Program Land Conservation Work Plan
- Forest Stewardship Program proposals
- Florida Forever project proposals and boundary modifications
- Conservation easements
- Federal or State grant conservation proposals
- Regional or local conservation proposals
- Local, state and federal planning proposals
- Non-governmental organization conservation proposals

Continued conservation of these lands may be aided by available voluntary landowner stewardship programs, conservation easements and in some cases, potential voluntary conservation acquisitions. Participation in any FWC conservation effort is entirely voluntary and at the sole choice of willing landowners.

Private landowners seeking assistance with habitat management will likely find it offered within the FWC's Landowner Assistance Program (LAP). The FWC employs biologists who are available to provide wildlife-related assistance with land-use planning and habitat management. There are many forms of assistance that include technical, financial, educational and various forms of recognition that seek to award landowners who manage their wildlife habitat responsibly. More information on the FWC's LAP program and online habitat management tools are available online at: http://myfwc.com/conservation/special-initiatives/lap/.

2.11.4 FWC Florida Forever Additions and Inholdings Acquisition List

Currently, there are 11 parcels included on the FWC Florida Forever Additions and Inholdings list for the LSFMA. Upon completion of the CAS, additions to the FWC Florida Forever Additions and Inholdings acquisition list may be recommended for the area.

2.12 Climate Change

Because of the unique ecology and topography of Florida, any potential impacts, as a result of climate change, may be particularly acute and affect multiple economic, agricultural,

environmental and health sectors across the state. The impact of climate change on wildlife and habitat may already be occurring, from eroding shorelines and coral bleaching to increases in forest fires and saltwater intrusion into inland freshwater wetlands.

The Intergovernmental Panel on Climate Change (IPCC), a multi-national scientific body, reports that climate change is likely proceeding at a rate where there will be unavoidable impacts to humans, wildlife and habitat. Given current levels of heat-trapping greenhouse gas emissions, shifts in local, regional and national climate patterns including changes in precipitation, temperature, increased frequency and intensity of extreme weather events, rising sea levels, tidal fluctuations and ocean acidification are projected. The current trend of global temperature increase has appeared to accelerate in recent decades, and continued greenhouse gas emissions may result in projected global average increases of 2 –11.5° F by the end of the century[3].

This apparent change in global climate has the potential to disrupt natural processes; in some areas, climate change may cause significant degradation of ecosystems that provide services such as clean and abundant water, sustainable natural resources, protection from flooding, as well as hunting, fishing and other recreational opportunities. Consequently, climate change is a challenge not only because of its likely direct effects, but also because of its potential to amplify the stress on ecosystems, habitats and species from existing threats such as exponential increases in surface and ground water use, habitat loss due to increased urbanization, introduction of invasive species and fire suppression.

Potential impacts that may be occurring as a result of climate change include: change in the timing of biological processes, such as flowering, breeding, hibernation and migration[4, 5, 6]; more frequent invasions and outbreaks of exotic invasive species [7]; and loss of habitat in coastal areas due to sea level rise[8]. Some species are projected to adjust to these conditions through ecological or evolutionary adaptation, whereas others are projected to exhibit range shifts as their distributions track changing climatic conditions. Those species that are unable to respond to changing climatic conditions are projected to go extinct. Some estimates suggest that as many as 20 - 30% of the species currently assessed by the IPCC are at risk of extinction within this century if global mean temperatures exceed increases of 2.7 – 4.5° F [9]. A number of ecosystems are projected to be affected at temperature increases well below these levels.

At this time, the potential effects of climate change on Florida's conservation lands are just beginning to be studied and are not yet well understood. For example, the FWC has begun a process for developing climate change adaptation strategies for monitoring, evaluating, and determining what specific actions, if any, may be recommended to ameliorate the projected impacts of climate change on fish and wildlife resources, native vegetation and the possible spread of exotic and invasive species. Currently, the FWC is continuing its

work on the development of these potential adaptation strategies. However, as noted above, the effects of climate change may become more frequent and severe within the time period covered by this plan.

For these reasons, there is a continuing need for increased information and research to enable adaptive management to cope with potential long-term climate change impacts. The most immediate actions that the FWC can take are to work with partners to gather the best scientific data possible for understanding natural processes in their current state, model possible impacts and subsequent changes from climate change, develop adaptive management strategies to enhance the resiliency of natural communities to adapt to climate change, and formulate criteria and monitoring for potential impacts when direct intervention may be necessary to protect a species. To this end, when appropriate, the FWC will participate in organizations such as the Peninsular Florida Land Conservation Cooperative or similar organizations, so that the FWC continues to gain understanding and share knowledge of key issues related to potential climate change. In addition, the FWC will consider the need for conducting vulnerability assessments to model the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats on FWC-managed land.

The low-lying coastal habitats, such as the salt marsh and hardwood swamp natural communities, are projected to face the most direct and dramatic impacts of climate change, particularly from a projected rising sea level and from the projected increased frequency and intensity of coastal storms [10, 11, 12, 13]. The potential loss of habitat may result in the loss of species using that habitat, including migrating and nesting birds. Storm events also cause considerable physical damage to native vegetation along vulnerable shorelines, impacting nesting habitat for sea life and shorebirds. The projected rise in sea levels may decrease the availability and abundance of prey for wading birds that forage in shallow waters on the expansive tidal flats of the Gulf Coast. Climate change may amplify and hasten these effects, potentially at rates that exceed the normal resiliency of plant communities to recover, shift or adapt accordingly [14, 15]. Projected salt water intrusion into the subsurface freshwater lens from potential sea level rise and saltwater inundation of surface freshwaters from storm surges may alter coastal ecosystems and freshwater marshes, possibly resulting in more salt-tolerant aquatic plant communities.

Elements of climate change that may potentially affect the LSFMA include more frequent and more potent storm events, alteration of vegetation reproductive cycles, the spread of exotic species and changes in the fire regime. To address the potential impacts of climate change on the LSFMA, goals and objectives have been developed as a component of this Management Plan. Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the LSFMA Management Plan in the future.

2.13 Soil and Water Conservation

Soil disturbing activities will be confined to areas that have the least likelihood of experiencing erosion challenges. On areas that have been disturbed prior to acquisition, an assessment will be made to determine if soil erosion is occurring, and if so, appropriate measures will be implemented to stop or control the effects of this erosion. Water conservation is accomplished through hydrological restoration, management and monitoring as described in Section 2.5 above.

2.14 Cooperative Management and Special Uses

2.14.1 Cooperative Management

The FWC and Escambia County are responsible for the overall management and operation of the LSFMA. The FFS assists the FWC by providing technical assistance on forest resource management. In addition, the FWC cooperates and consults with the DEP and the NWFWMD for the monitoring and management of both ground and surface water resources of the LSFMA.

3 Resource Management Goals and Objectives

The management goals described in this section are considered broad, enduring statements designed to guide the general direction of management actions to be conducted in order to achieve an overall desired future outcome for the LSFMA. The objectives listed within each management goal offer more specific management guidance and measures and are considered the necessary steps to be completed to attain the management goal. All of the objectives listed below are classified as having either **short-term** (2019 – 2021) or **long-term** (2019 – 2029) timelines for completion. Some have specific end-of-the-calendar-year target dates for completion.

3.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Long-term (UP TO 10 YEARS)

1. Continue to maintain landscape around recreational facilities including mowing and weed control.
2. Apply appropriate management strategies such as liming/fertilization, supplemental stocking, habitat enhancement, water level manipulation and vegetation control in order to provide high quality fishing opportunities.

3.2 Imperiled Species Habitat Maintenance, Enhancement, Restoration or Population Restoration

Goal: Monitor, maintain, improve or restore imperiled species populations and habitats.

Long-term

1. Continue to identify habitats and monitor imperiled species.
2. Continue to collect and record opportunistic wildlife species occurrence data.

3.3 Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration or Population Restoration

Goal: Monitor, maintain, improve or restore game and non-game species populations and habitats.

Long-term

1. Continue to monitor locally important wildlife species.
2. Continue to monitor and maintain sportfish populations through the use of length-frequency histograms, age and growth data, condition indices and creel survey data.
3. Continue to develop and apply appropriate harvest regulations as needed to promote optimum sportfish population densities and size structure.
4. Apply appropriate management strategies for fish stocking.

3.4 Exotic and Invasive Species Maintenance and Control

Goal: Remove exotic and invasive plants and animals and conduct needed maintenance and control.

Long-term

1. Continue to annually inspect at least 249 acres for the level of infestation of FLEPPC Category I and Category II invasive exotic plant species and treat as needed and appropriate (Chinese privet, hydrilla and Japanese climbing fern).
2. Conduct submersed vegetation sonar mapping to estimate submersed vegetation PAC (percent area covered) and PVI (percent volume infested) and/or point-intercept sampling to collect data on vegetation species richness and frequency of occurrence.
3. Continue to annually monitor fish community for presence of exotic and nuisance fish. Implement any needed control measures (if a feasible option exists).

3.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Long-term

1. Obtain any necessary permits and add fish attractors to improve fish habitat and congregate fish (brush attractors, artificial attractors and/or gravel beds).
2. Continue coordination with Escambia County for the maintenance of hiking trails and park area located at Lake Stone.
3. Continue to make available brochures, website, press releases and other educational materials as needed to enlighten anglers regarding available fishing opportunities and fishery management principals.
4. Explore the feasibility of developing an informational kiosk and interpretative signage on the area.
5. Evaluate angler catch and effort data through a spring peak season creel survey at least once during the planning period to document fishing success rates and assess overall results of management strategies.
6. Conduct and evaluate angler use and opinion (satisfaction) survey.
7. Maintain public access and recreational opportunities to allow for 77 campsites and a recreational carrying capacity for fishing opportunities of 144 visitors per day.
8. Continue to work with Escambia County Roads Department for maintaining two miles of roads on the area.
9. Continue to provide paddling opportunities on Lake Stone.
10. Continue to provide fishing opportunities on Lake Stone.

3.6 Hydrological Preservation and Restoration

Goal: Protect water quality and quantity, restore hydrology to the extent feasible and maintain the restored condition.

Long-term

1. Continue annual inspections of the dam, spillways, fishing fingers and water control structures, and coordinate necessary repairs with the FWC engineer.
2. Correct erosion caused by wind and wave action on the fishing fingers using the most efficient and economical means available.
3. Continue to annually monitor dam seepage.
4. Explore potential funding opportunities to improve and repair water control structure and dam and complete necessary repairs as funds become available.
5. Continue to maintain dam by including mowing and removal of woody vegetation.
6. Continue to cooperate with the Northwest Florida Water Management District for the monitoring of surface and ground water quality and quantity.

3.7 Forest Resource Management

Goal: Manage timber resources to improve or restore natural communities for the benefit of wildlife.

Long-term

1. Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

3.8 Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Short-term

1. Improve campsites on the area by paving the sites with concrete.

Long-term

1. Monitor trails and infrastructure annually for visitor impacts.
2. Continue to maintain 10 facilities (two boat ramps, fishing pier, field office, bathhouse, campsites, parking area, pavilion, dam and playground).
3. Continue to cooperate with Escambia County to maintain two miles of roads on the area.
4. To improve, replace and enhance current playground facilities, campground manager residence trailer, piers, boat ramps, access areas and bank fishing areas.
5. Explore the feasibility of constructing an additional open pavilion.

3.9 Historical Resources

Goal: Monitor, protect, preserve and maintain the historical resources of the LSFMA.

Short-term

1. Coordinate with the DHR to schedule and conduct a historical resource survey.

Long-term

1. Ensure all known sites are recorded in the Florida Division of Historical Resources Master Site file.
2. Cooperate with the DHR in designing site plans for development of infrastructure.
3. Cooperate with the DHR to manage and maintain known existing historical resources.
4. Continue to monitor, protect and preserve as necessary two identified sites.
5. Coordinate with the DHR for cultural resource management guideline staff training.
6. Continue to follow the DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.

3.10 Land Conservation and Stewardship Partnerships

Goal: Enhance wildlife conservation, resource and operational management through development of an optimal boundary.

Long-term

1. Continue to identify and evaluate potential important wildlife habitat, landscape-scale linkages, wildlife corridors and operational management needs, and update the OCPB for the LSFMA as appropriate and necessary.
2. Continue to contact and inform adjoining private landowners about the FWC Landowners Assistance Program, and coordinate with public entities to pursue conservation stewardship partnerships.
3. Continue to evaluate and identify the FWC inholdings and additions priority parcels for potential conservation acquisition and pursue acquisitions as funding allows.
4. Continue to maintain a GIS shapefile and other necessary data to facilitate nominations within the FWC OCPB for the FWC landowner assistance and conservation acquisition programs.
5. Continue to update the FWC Conservation Action Strategy for LSFMA as necessary.
6. Continue to identify potential non-governmental land stewardship organization partnerships and grant program opportunities.
7. Determine the efficacy of conducting a landowner assistance/conservation stewardship partnership workshop(s) and pursue as necessary and appropriate.
8. Continue to evaluate and determine if any portions of the LSFMA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

3.11 Climate Change Adaptation

Goal: Develop appropriate adaptation strategies in response to projected climate change effects and their potential impacts on fish and wildlife conservation, resources and operational management of the LSFMA.

Long-term

1. Coordinate with the FWC-Fish and Wildlife Research Institute (FWRI) Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the LSFMA.
2. As science, technology and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs and efforts to study, document and address potential climate change.

3.12 Cooperative Management, Special Uses and Research Opportunities

Goal: Provide access and use of the LSFMA to current cooperative managers and continue collaborative management efforts.

Long-Term

1. Continue to cooperate with Escambia County Sheriff's Office and the FWC law enforcement to implement preventative patrol as well as apprehension and arrest of persons violating conservation and environmental laws.
2. Continue to cooperate with Escambia County Parks and Recreation for management of recreational activities.
3. Explore and pursue cooperative research opportunities through universities, Fish and Wildlife Research Institute, etc.
4. Continue to assess the need for research and environmental education partnership opportunities as appropriate.
5. Coordinate and cooperate with Department of Defense military branches to allow for training opportunities for military personnel and other initiatives as appropriate and compatible with the conservation of LSFMA.

4 Resource Management Challenges and Strategies

The following section identifies problems, further describes management needs and challenges associated with the LSFMA and provides solution strategies that will address these issues. These specific challenges are provided to supplement the broader management intent and goals and objectives sections of this management plan found above (Sections 2 - 3).

Challenge 1: Currently, the FWC aims to meet the FWC law enforcement and management staff standards and needs.

Strategy: Agency staff levels will continue to be evaluated to determine if increased staffing or other alternatives can improve management needs.

Strategy: Pursue funding for increased law enforcement, management staffing and additional private sector contract services as appropriate.

Strategy: Explore potential volunteer resources for assisting with management.

Challenge 2: Currently it is difficult for the general public to access other parts of the lake.

Strategy: Explore potential concessionaire opportunities for establishing onsite kayak/canoe rentals.

Strategy: Explore potential funding for establishment of a kayak/canoe specific ramp.

Challenge 3: The LSFMA is not a widely known recreational destination.

Strategy: Continue to coordinate and communicate with existing and future partnerships.

Strategy: Work with Escambia County to promote the LSFMA.

Strategy: Cross promote the LSFMA with other regional conservation lands.

Strategy: Explore potential funding opportunities to further promote the area.

Challenge 4: Currently, there is unauthorized uses on the area.

Strategy: Continue to work with the FWC and Escambia County law enforcement for enforcement of rules and regulations and increase patrol of the area.

Strategy: Work with the FWC law enforcement and Escambia County on potential revisions to rules and regulations on the area.

Strategy: Pursue outreach efforts to increase public awareness of area rules and regulations.

Challenge 5: Potential future development on adjacent lands can result in incompatible land uses increasing management challenges for the area.

Strategy: Cooperate and work with Escambia County to ensure land use and zoning designations adjacent to the LSFMA will continue to be compatible with the management of the area.

5 Endnotes

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