Highest Priority: Lake Tohopekaliga LMA

The Lake Tohopekaliga (Toho) LMA is the top ranked management priority because of the size of the resource, its fish and wildlife assets, the financial importance of the recreational activities on the lake and the number of existing and anticipated management challenges facing the resource.

Management Goal: Enhance

Key Characteristics:

- **C&SF Waterbodies**: Lake Tohopekaliga and Goblets Cove
- **Combined Waterbody Volume**: 144,948 acre-feet at elevation 55.0 FEET NGVD
- **Combined Waterbody Acreage**: 22,018 acres at elevation 55.0 FEET NGVD
- **Contributing Watershed Area**: 153,040 acres
- **KCOL Drainage Area**: 14.9% of Upper Kissimmee Basin Drainage Area
- **KCOL Annual Discharge**: 26.1% of S-65 Structure Annual Flow
- **Fish & Wildlife Assets**: Lake Tohopekaliga is designated by the FWC as a fish management area. The lake is world renowned for its largemouth bass, black crappie, bluegill, redear sunfish, and warmouth fisheries that are valued in the millions to the local economy. It is also recognized around the world as a mecca for bird watching and is home to the endangered Everglades snail kite and whooping crane. In 2007, the Toho LMA supported 26 bald eagle nests, and an alligator population estimated to be over 2,700 (Arnold Brunell personal communication December 2008).
- **Economic Value**: Lake Toho generates almost $2.7 million in spending, nearly 25 jobs, and almost $405,000 in wages (Bell 2006).
- **Primary Recreational Uses**: Recreational boating including high airboat use, recreational fishing and hunting (duck, frog, alligator, turkey, etc.), picnicking, and wildlife viewing.
- **Public Use and Recreational Areas**: Makinson Island, Mac Overstreet Park, Lake Toho Park, Southport Park, City of Kissimmee Lakefront Park, Brinson Park, and public boat ramps at Whaley’s Landing and Granada Road
- **Critical Wildlife Habitat**: Little Grassy Island is considered extremely important for Everglades snail kite nesting but is not designated as a critical habitat. FWC does enforce restrictions during nesting season.
- **Recreational Visitors per year**: Approximately 82,400 recreational visitors per year based on 2004-2005 period (Bell 2006).

Management Challenges:

- **Rooted and Floating Aquatic Plants**: Water hyacinth (*Eichhormia crassipes*) and water lettuce (*Pistia stratiotes*) are the FWC’s highest aquatic plant management priority because of their rapid growth rate and propensity to block flood control structures, navigation, and critical fish and wildlife habitat. A total of 191 acres of floating plants were controlled during fiscal year 2007-2008. Lakeshore residents have expressed concerns about aquatic vegetation along the shore of Lake Toho.
Specific concerns include access to open water from private docks, navigation around the lake, and general conditions of aquatic weeds adjacent to lakefront property. Hydrilla (*Hydrilla verticillata*), American lotus (*Nelumbo lutea*), and smartweed (*Polygonum densiflorum*) were identified as the plants of greatest concern. Cattail (*Typha spp.*), pickerelweed (*Pontederia cordata*), water primrose (*Ludwigia spp.*), and tussocks also become problematic as a result of stabilized water levels and require management to maintain desirable fish and wildlife habitat.

- **Hydrilla Management:** Hydrilla coverage has reached levels of up to 80 percent of the Lake in the recent past and the majority of the lake is infested at densities not seen in other lakes in KCOL (except Lake Cypress). With a standing crop of more than 12,000 acres reported in 2008, Lake Toho is the most heavily hydrilla-infested (*Hydrilla verticillata*) water in the state. Nearly 4,700 acres of hydrilla were controlled in Lake Toho during FY07-08 at a cost of $3.03 million.

- **Water Quality:** Nutrient loads to the lake are high and lake sediments are believed to be rich in phosphorus due to past wastewater treatment plant discharges. Nutrient loading problems may be masked by high hydrilla densities. Lake sediment nutrient concentrations and nutrient masking by hydrilla require further study to better understand how nutrients are affecting the overall lake ecology and contributing to aquatic plant management problems. Stakeholders are concerned that development within the watershed will increase nutrients and pollutant loads to the lake.

- **Muck accumulation:** Littoral wetland plants in Lake Toho are highly productive. Stabilized water levels prevent periodic flushing during high water events and compaction and oxidation of decomposing organic materials during low water events. This has resulted in high muck accumulation rates within the littoral wetlands. FWC has performed four extreme draw downs on Lake Toho since the C&SF project was completed (1971, 1979, 1987, 2004). This is more than on any other lake. Although Lake Toho is by nature more productive than other lakes within the chain, it is believed that aquatic plants are more productive in Lake Toho due to high nutrients concentrations.

- **Development:** Lake Toho and its contributing watershed are entirely within the Osceola County Urban Service Area. Since early 2000, the majority of the agricultural acreage around the lake has been sold to developers. Although the majority of this acreage will be within developments of regional impact (DRIs) and subject to stricter regulatory standards, conversion of these lands will dramatically change the landscape and increase the number of people living around the lake.

- **Water Supply:** Water supplies to meet the projected growth within the Lake Toho LMA have not yet been identified or developed. Water Supply Utilities in the area consider Lake Toho a potential water supply source.

- **Flood Control:** Because lake water levels tend to rise and fall quickly in response to large rainfall events, Osceola County becomes concerned with flood event storage whenever Lake Toho water levels are within 0.5 feet of its maximum regulatory water levels. Floating invasive plants and hydrilla are managed at the lowest feasible levels adjacent to inflows and outfalls to prevent water from backing up during high flow periods.

- **Navigation:** Aquatic and nuisance vegetation as well as low water levels can obstruct access and navigation within the lakes.
• **Recreational User Conflicts:** Development is expected to increase the number of boats and recreational users on the lake. This will increase conflicts between wildlife and habitat protection activities and recreational uses and between recreational users and lakeshore homeowners. Of particular concern is the impact increased boat traffic will have on the nesting and foraging activities of wading birds, waterfowl, and Everglades snail kite. There are existing conflicts between lakeshore residents and alligator and duck hunters over noise, safety, and rights and privileges.

• **Exotic apple snail:** Exotic apple snails first appeared on Lake Toho in the Goblets Cove area in 2001. Since that time they have expanded throughout Lake Toho and the KCOL.

• **Federal and State Listed Species:** Lake Toho currently serves as the primary foraging and nesting refuge for Everglades snail kite during regional droughts like those experienced throughout South Florida in 2001, 2006 and 2007. It is also home to endangered whooping crane, limpkin, wood stork, American alligator, snowy egret, white ibis, little blue heron, tricolored heron, and bald eagle.

**Second Highest Priority: East Lake Tohopekaliga, Fells Cove and Lake Ajay LMA**

The East Lake LMA is second-highest ranked management priority because of its size, fish and wildlife assets, and the development pressures facing the resource. It is an urban recreational lake. Because of this, water quality and navigation are of utmost importance to recreational users.

**Management Goal:** Enhance

**Key Characteristics:**

- **C&SF Waterbodies:** East Lake Tohopekaliga, Fells Cove, Lake Ajay
- **Combined Waterbody Volume:** 125,538 acre-feet at elevation 58.0 FEET NGVD
- **Combined Waterbody Acreage:** 12,898 acres at elevation 58.0 FEET NGVD
- **Contributing Watershed Area:** 91,750 acres
- **KCOL Drainage Area:** 8.9% of Upper Kissimmee Basin Drainage Area
- **KCOL Annual Discharge:** 8.4% of S-65 Structure Annual Flow
- **Fish & Wildlife Assets:** East Lake is designated by the FWC as a fish management area and is well known for its largemouth bass, black crappie, bluegill, redear sunfish, and warmouth fisheries. East Lake supported four bald eagle nests in 2007. It supports a stable population of approximately 100 American alligators and has served as a commercial alligator egg collection area since 2007. East Lake also supports a population of Florida sandhill cranes. Surveys in 2008 found 72 nests within the littoral zones of Lake Ajay and Fells Cove. Everglades snail kite and whooping crane also use this lake for nesting and foraging. Although Everglades snail kites are not in the numbers seen on Lake Toho, it is considered an important kite habitat especially during regional droughts.
- **Economic Value:** Information not available.
- **Primary Recreational Uses:** Recreational uses include fishing, boating, water skiing, jet skiing, boat racing, sightseeing, canoeing, kayaking and ecotourism.
Excerpt from KCOL LTMP Chapter 4: Management Objectives and Priorities

- **Public Use and Recreational Areas:** City of St. Cloud Lakefront Park, Marina, and Boat Ramp; Ralph V. Chisholm Park and Boat Ramp; and Austin Tindall Park.
- **Critical Wildlife Habitat:** None designated.
- **Recreational Visitors per year:** Information not available.

Management Challenges:

- **Rooted and Floating Aquatic Plants:** Cattail, pickerelweed water primrose and tussocks are problematic as a result of stabilized water levels and require management to maintain desirable fish and wildlife habitat. Torpedo grass is also a management concern.
- **Hydrilla Management:** Hydrilla is not a major management concern on East Lake.
- **Water Quality:** Nutrient reduction goals need to be reviewed to ensure that watershed loads are consistent with maintaining the current mesotrophic state of the lake. There are concerns that E. coli levels in swimming areas adjacent to ranching activities will increase without appropriate agricultural best management practices.
- **Muck accumulation:** East Lake was drawn down in 1990 for muck removal and habitat enhancement. Since that time conditions have deteriorated to the point that another extreme draw down and habitat enhancement project is required to improve littoral fish and wildlife foraging habitat. FWC is in the planning stages for that draw down, which is expected to occur after new lake regulations schedules are approved by the USACE.
- **Development:** East Lake is experiencing the same types of urban growth pressures as Lake Toho. There are concerns that development will encroach on nesting and foraging habitat and reduce the total acreage of desirable habitat in the KCOL.
- **Water Supply:** Water supplies to meet the projected growth in the Orlando Metropolitan area have not yet been identified or developed. Water Supply Utilities in the area consider East Lake a potential water supply source.
- **Flooding:** East Lake water levels tend to rise and fall quickly in response to rainfall events due to the volumes of runoff discharged directly to the lake. Flooding occurred in 1994, 1997, 1998, 2003 and 2004. Flooding in 1994 associated with Hurricane Gordon is attributed to backwater effects in East Lake caused by a sand berm and hydrilla in Goblits Cove. During the 2004 hurricane seasons, the maximum stage was 60 ft-NGVD in September 2004, which is two feet above the maximum regulatory stage (ADA, 2005). There are additional concerns with floating muck deposits/islands on Lake Runnymede that have the potential to break loose, float to the surface, and move into East Lake creating a potential for flooding by obstructing the outlet structure. Although this has never occurred, flooding in Runnymede has been attributed to these islands breaking loose and blocking the outfall canal from Lake Runnymede.
- **Navigation:** Aquatic and nuisance vegetation as well as low water levels can obstruct access and navigation within the lakes.
- **Recreational User Conflicts:** Development is expected to increase the number of boats and recreational users on the lake. Since this is an urban recreational lake, conflicts between listed recreational uses above are expected. Of particular concern
Excerpt from KCOL LTMP Chapter 4: Management Objectives and Priorities

is the impact increased boat traffic will have on the nesting and foraging activities of wading birds, waterfowl, and Everglades snail kite.

- **Exotic apple snail:** Exotic apple snails are present in East Lake and co-occur with native apple snails.

- **Federal and State Listed Species:** Everglades snail kite and whooping crane, among other species, use this lake for nesting and foraging. Although not in the quantities seen on Lake Toho, Everglades snail kite nest and forage in East Lake and have done so off and on since the mid-1980s. East Lake’s importance to snail kite is relative to conditions in South Florida. When conditions in South Florida are not conducive for snail kite nesting, East Lake is of secondary importance to Lakes Toho and Kissimmee based on past nesting numbers. Based on recent nest numbers its importance appears to be increasing; however, if South Florida is conducive to snail kite nesting, East Lake probably would fall to a tertiary position for relative importance for nesting (Alex Kropp, Janell Brush and Jim Rodgers of the FWC and FWC KCOL Standing team). East Lake also supports a stable population of threatened American alligator and bald eagle nesting.

**Third Highest Priority: Alligator Chain-of-Lakes and Lake Gentry LMA**

The Alligator Chain-of-Lakes and Lake Gentry LMAs are ranked third because they are smaller in size and have less fish and wildlife value than East Lake. The Alligator Chain is valued for its recreational opportunities and good water quality. Development pressure on these resources is similar to that on East Lake.

**Management Goal:** Enhance

**Key Characteristics:**

- **C&SF Waterbodies:** Lakes Alligator, Brick, Lizzie, Coon, Center, Trout, and Gentry
- **Combined Waterbody Volume:** 73,962 acre-feet at elevation 64.0 FEET NGVD on Alligator Chain and 61.5 FEET NGVD on Lake Gentry
- **Combined Waterbody Acreage:** 9,159 acres at elevation 64.0 FEET NGVD on Alligator Chain and 61.5 FEET NGVD on Lake Gentry
- **Contributing Watershed Area:** 89,373 acres
- **KCOL Drainage Area:** 8.7% of Upper Kissimmee Basin Drainage Area
- **KCOL Annual Discharge:** 7% of S-65 Structure Annual Flow
- **Fish and Wildlife Assets:** The Alligator Chain supports stable populations of largemouth bass (16-35 bass/hr) and American alligator (~110) and are utilized for nesting and foraging by a variety of wading birds including Florida sandhill crane. Two bald eagle nests were identified in 2007. Big Bend Swamp is located along the southern shore of Lake Gentry. Big Bend Swamp is a large cypress-dominated strand swamp with depressional marshes, wet prairies, and hydric hammocks. Big Bend Swamp may be particularly important for up to 30 rare animal species that require large areas of flatwoods, prairie, and wetlands, such as red-cockaded woodpecker, Florida sandhill crane, Florida grasshopper sparrow, Sherman’s fox squirrel, swallow-tailed kite, and the threatened Audubon crested caracara (http://www.floridadep.org/lands/FFAnnual/).
• **Economic Value**: Information not available.
• **Primary Recreational Uses**: Recreational uses include fishing, boating, water skiing, wake boarding, sightseeing, canoeing, kayaking, and hunting (alligator, frog, duck).
• **Public Use and Recreational Areas**: Lake Lizzie Nature Preserve and public boat ramps at Trout Lake, C-Gate on the C-31 Canal (access to Alligator Lake), and Smith’s Landing (Lake Gentry).
• **Critical Wildlife Habitat**: Lake Lizzie Nature Preserve (918 acres) is part of the Lake Mary Jane – Upper Econ Mosaic designated by the Audubon Society as an Important Bird Area. It is noted for its Florida Scrub-Jay populations and it proximity to the undeveloped lands within the Deseret Ranches to the north. Lake Lizzie is the southern terminus of a mosaic of natural communities including long-leaf pine flatwoods; cypress and bay swamps; lacustrine, flag, and sawgrass marshes; xeric oak scrub and sand pine scrub; slash pine flatwoods; temperate hammock; and riverine communities. These habitats are considered important to the endangered wood stork, Florida sandhill crane, red-cockaded woodpecker, threatened Florida scrub-jay, and Bachman's sparrow (http://iba.audubon.org/iba/viewSiteProfile.do?siteId=77&navSite=state).
• **Recreational Visitors per year**: Information not available.

**Management Challenges:**

• **Rooted and Floating Aquatic Plants**: Residents have expressed concerns with torpedo grass along littoral areas and pickerelweed, duck potatoe and other aquatic plants blocking access to canals between the lakes. Cattail, pickerelweed, water primrose and tussocks become problematic as a result of stabilized water levels and require management to maintain desirable fish and wildlife habitat.
• Residents have expressed concerns with torpedo-grass along littoral areas and duck potato and other aquatic plants blocking access to canals between the lakes.
• **Hydrilla Management**: While hydrilla is not a major management concern, it requires periodic small-scale management efforts.
• **Water Quality**: Water quality on these lakes is considered good.
• **Muck Accumulation**: The Alligator Chain of Lakes was drawn down in 2000 for muck removal and habitat enhancement. The FWC removed nearly 1 million cubic yards of organic material at the cost of 1.2 million dollars.
• **Development**: Alligator Chain of Lakes and Lake Gentry are expected to experience the same types of urban growth pressures as Lake Toho because the Osceola County Urban Service Area encompasses the majority of the watershed surrounding the lakes.
• **Water Supply**: These lakes have not been identified as a potential water supply source.
• **Flood Control**: Septic systems are impacted by water levels equal or greater than 64.8 feet FEET NGVD. (Regulatory water level range is between 62.0 and 64.0 feet NGVD.)
• **Navigation**: Navigation between the lakes in the chain can be obstructed by floating plants as well as sand bars / shoaling that occurs at the outlets of canals.
Excerpt from KCOL LTMP Chapter 4: Management Objectives and Priorities

Maintenance of navigational beacons and markers to ensure safe navigation is another concern. Stakeholders would like to see lakes and project canals navigable at elevation 60.5 feet NGVD. (Regulatory water level range is between 62.0 and 64.0 feet NGVD.)

- **Recreational User Conflicts:** There are conflicts between wake boarders and fishermen, especially under high water conditions. The number of users on the lakes is expected to increase with development and these increases are expected to increase conflicts between the different types of uses.

- **Exotic apple snail:** Present in small numbers throughout the Alligator Chain and Lake Gentry.

- **Federal and State Listed Species:** The Alligator Chain supports a stable population of American alligators. Wood stork, white ibis, snowy egret, little blue heron, and bald eagle utilize these lakes for nesting and foraging. Areas within the Lake Lizzie Preserve are important to the threatened Florida scrub-jay. Areas within Big Bend swamp are considered important to the threatened Audubon crested caracara. Everglades snail kites currently do not use the Alligator Chain or Lake Gentry for nesting or foraging, however there have been sightings of the birds within the area.

Fourth Highest Priority: Lakes Kissimmee, Hatchineha, and Cypress

The Lake Kissimmee, Hatchineha, and Cypress LMA is ranked fourth because it is not experiencing the same development pressures and management challenges as the higher ranked LMAs. This ranking is not intended to diminish the importance of the LMA because this LMA is considered highest ranked in terms of fish and wildlife and economic value to the region. Its ranking is reflective of the protections provided through the Kissimmee River Restoration Project, the Osceola and Polk County urban growth boundaries, and the public land holdings around the lakes. These lakes are the headwater lakes for the Kissimmee River Restoration Project and have the greatest potential to benefit from both that project and the implementation of new KCOL lake water level regulation schedules.

**Management Goal:** Enhance

**Key Characteristics:**

- **C&SF Waterbodies:** Lakes Kissimmee, Hatchineha, and Cypress
- **Combined Waterbody Volume:** 508,026 acre-feet at elevation 52.5 feet NGVD
- **Combined Waterbody Acreage:** 61,147 acres at elevation 52.5 feet NGVD
- **Contributing Watershed Area:** 645,793 acres
- **KCOL Drainage Area:** 62.8% of Upper Kissimmee Basin Drainage Area
- **KCOL Annual Discharge:** 52.8% of S-65 Structure Annual Flow
- **Fish & Wildlife Assets:** Lakes Kissimmee, Hatchineha and Cypress are designated by the FWC as fish management areas. These lakes are well known for their largemouth bass, black crappie, bluegill, redear sunfish, and warmouth fisheries valued in the millions to the local economy. Bird Island and Rabbitt Island in Lake Kissimmee support wading bird rookeries. Bald eagle (49 nests in 2007), Everglades snail kite, and whooping crane are among the species that use Lake Kissimmee and the surrounding areas for nesting and foraging. In 2007, the estimated alligator
population was approximately 10,000 on Lake Kissimmee and 4,400 on Lake Hatchineha. More data will be gathered before population estimates are provided for Cypress Lake (Arnold Brunell personal communication December 2008). In addition, the Drasdo Property consists of rare scrub habitat that supports the Florida scrub jay.

- **Economic Value:** Lakes Kissimmee, Hatchineha, and Cypress generate almost $4.29 million in spending, nearly 41 jobs, and almost $670,000 in wages (Bell 2006).
- **Primary Recreational Uses:** Recreational fishing and hunting (duck, frog, alligator, turkey, etc.), picnicking, and wildlife viewing.
- **Public Use and Recreational Areas:** Gardner-Cobb Marsh, Drasdo Property, Three Lakes Wildlife Management Area, Lake Kissimmee State Park, Disney Wilderness Preserve, and Tiger Creek Preserve.
- **Critical Wildlife Habitat:** None designated.
- **Recreational Visitors per year:** Approximately 216,400 Recreational Visitors per year based on 2004-2005 period (Bell 2006)

**Management Challenges:**

- **Rooted and Floating Aquatic Plants:** Management of rooted vegetation and floating plants, such as water lettuce and water hyacinth, can be a major problem. Cattail, pickerelweed, water primrose and tussocks become problematic as a result of stabilized water levels and require management to maintain desirable fish and wildlife habitat.
- **Hydrilla Management:** Hydrilla has been a significant problem in Lakes Kissimmee, Hatchineha and Cypress and has covered as much as 90% of the water surfaces in Lakes Cypress and Hatchineha and as much as half of Lake Kissimmee. Nearly $700,000 were spent controlling 3,720 acres of hydrilla in Lake Cypress during FY 07-08. Treatment can be complicated by conflicts with Everglades snail kite management, continuous flow requirements for the Kissimmee River Restoration Project, and recreational users of these lakes.
- **Water Quality:** Lakes Cypress and Kissimmee are nutrient impaired. These lakes are eutrophic and algal blooms occur at times during the year.
- **Muck accumulation:** FWC has performed two extreme draw downs on Lake Kissimmee, Hatchineha, and Cypress since the C&SF project was completed (1977, 1996).
- **Development:** Development pressures are less severe in this LMA because much of the land surrounding these lakes is held in public ownership. The shorelines of these lakes are not within the Osceola County urban growth boundary but a portion of Lake Hatchineha is within the Polk County urban growth boundary.
- **Water Supply:** Water stored within this lake management unit is intended for use by the Kissimmee River Restoration Project. The increase in high pool stage associated with the Kissimmee River Restoration Headwaters Revitalization Project will provide storage for water needed to meet the hydrologic criteria for the restored Kissimmee River and to achieve the secondary project purposes of increasing the quantity and quality of lake littoral wetland habitat around these lakes.
- **Flood Control:** There are fewer flood control concerns on these lands because much of the land surrounding the lakes is held in public ownership, is rural, and/or
Excerpt from KCOL LTMP Chapter 4: Management Objectives and Priorities

has a flowage easement. However, floating invasive plants as well as tussocks, floating islands and hydrilla all must be managed to prevent these plants from jamming against the Highway 60 bridge and flood control structure at the south end of Lake Kissimmee.

- **Navigation:** Aquatic and nuisance vegetation can obstruct access and navigation within the lakes.
- **Recreational User Conflicts:** Recreational uses (fishing, hunting, wildlife viewing, picnicking) are similar among the three lakes. Conflicts exist between recreational users and residents over use of lakeshore public lands.
- **Exotic apple snail:** Exotic apple snails are present in Lakes Kissimmee and Cypress and abundant in Lake Hatchineha.
- **Federal and State Listed Species:** Bald eagle, Everglades snail kite, American alligator, and whooping crane use Lake Kissimmee and areas surrounding Lake Kissimmee for nesting and foraging.

Fifth Highest Priority: Lakes Hart and Mary Jane

Lakes Hart and Mary Jane are headwater lakes, with inflows from the Preston/Myrtle/Joel LMA. There is some urban growth pressure in the watershed, however the majority of areas around both lakes are parts of rural settlements with covenants intended to preserve the rural / agricultural nature of the areas surrounding these lakes. Lake Mary Jane, Moss Park, and Split Oak Preserve are part of the Lake Mary Jane – Upper Econ Mosaic designated by the Audubon Society as an Important Bird Area. This area is of particular importance given its proximity to the Upper Econ Mosaic CARL-Florida Forever Project and the undeveloped lands within Deseret Ranches.

Management Goal: Enhance

Key Characteristics:

- **C&SF Waterbodies:** Lakes Hart and Mary Jane
- **Combined Waterbody Volume:** 25,880 acre-feet at elevation 61.0 feet NGVD
- **Combined Waterbody Acreage:** 3811 acres at elevation 61.0 feet NGVD
- **Contributing Watershed Area:** 34,408 acres
- **KCOL Drainage Area:** 3.3% of Upper Kissimmee Basin Drainage Area
- **KCOL Annual Discharge:** 2.4% of S-65 Structure Annual Flow
- **Fish and Wildlife Assets:** The most notable asset is the Bird Island rookery located within Lake Mary Jane. It is part of the Lake Mary Jane – Upper Econ Mosaic designated by the Audubon Society as an important Bird Area (IBA) and supports one of the larger wood stork colonies in Central Florida numbering between 125-150 nests. This rookery also supports many species of wading birds nest including great white egret, great blue heron, little blue heron, anhinga, snowy egret, white ibis, tri-colored heron, black-crowned night heron, yellow-crowned night heron, glossy ibis, American coot and cattle egret. In addition to the Bird Island rookery, American alligator and Florida sandhill crane are important assets. Lake Hart and Mary Jane supports stable American alligator populations of approximately 60 and 200 alligators, respectively. Surveys in 2008 found 75 active Florida sandhill crane nests in the littoral wetlands in Lake Hart and Lake Mary. One bald eagle nest
was recorded in the area in 2007. Residents have been working with the Orange County Green Ways program to acquire additional lands east of the Split Oak Preserve to establish a wildlife corridor from Eagle Creek Conservation Area to the Econ Mitigation Bank. Species expected to use that corridor include raccoon, Florida black bear, deer, and turkey.

- **Economic Value:** Information not available.
- **Primary Recreational Uses:** Wildlife viewing; horseback riding, hiking, camping; recreational boating, fishing, and swimming; wakeboarding; water skiing; and hunting (frog, alligator, duck and turkey).
- **Public Use and Recreational Areas:** Moss Park, Split Oak Forest / Preserve, Eagle Creek Conservation Area
- **Critical Wildlife Habitat:** Lake Mary Jane-Upper Econ Mosaic is an area of approximately 36,000 acres that includes a mosaic of natural communities including long-leaf pine flatwoods; cypress and bay swamps; lacustrine, flag, and sawgrass marshes; xeric oak scrub and sand pine scrub; slash pine flatwoods; temperate hammock; and riverine communities. These habitats are considered important to endangered Wood stork, Florida sandhill crane, red-cockaded Woodpecker, threatened Florida Scrub-Jay, and Bachman’s Sparrow (http://iba.audubon.org/iba/viewSiteProfile.do?siteId=77&navSite=state).
- **Recreational Visitors per year:** Moss Park is the largest Orange County park (1,600 acres) with an estimated 200,000 visitors per year (personal communication, J. Paradise, 2008).

Management Challenges:

- **Rooted and Floating Aquatic Plants:** Residents concerned with wax myrtle encroachment in wetlands and sloughs, cattail encroachment, and torpedo-grass.
- **Hydrilla Management:** Hydrilla is not a major management concern.
- **Water Quality:** Lakewatch data indicates the current water quality is good.
- **Muck accumulation:** FWC has never performed an extreme draw down on Lake Hart or Lake Mary Jane.
- **Development:** The majority of areas around both lakes are parts of rural settlements with covenants intended to preserve the rural / agricultural nature of the areas surrounding these lakes. Residents are working with the Orange County Green Ways program to acquire additional private lands east of the Split Oak Preserve to establish a wildlife corridor from Eagle Creek Conservation Area to the Econ Mitigation Bank. Species expected to use that corridor include raccoon, Florida black bear, deer, and turkey.
- **Water Supply:** Utilities in the Central Florida area consider Lakes Hart and Mary Jane potential water supply sources.
- **Flood Control:** Docks have flooded in the past but no major issues identified.
- **Navigation:** Most residents access the lake from their lakeshore property so they are concerned with having access obstructed by aquatic plants or low water levels.
- **Recreational User Conflicts:** Moss Park has a public swimming beach and public boat ramp that experience high volume usage during the weekends. There are concerns with the number of watercraft using the lakes and the associated impacts
Excerpt from KCOL LTMP Chapter 4: Management Objectives and Priorities

on wildlife, water quality, lakeshore residents, and public safety. There are additional concerns with the potential for conflicts between recreational boaters, water skiers, jet skiers, and wake boarders.

- **Exotic apple snail**: Exotic apple snails have not yet been reported on these lakes.
- **Federal and State Listed Species**: Bird Island Rookery within Lake Mary Jane supports one of the larger wood stork colonies in Central Florida along with limpkin, snowy egret, little blue heron, white ibis, and tricolored heron. Lakes Hart and Mary Jane also support populations of American alligator and Florida sandhill crane.

**Sixth Highest Priority: Lakes Preston, Myrtle, and Joel**

Lakes Preston, Myrtle, and Joel are within the property of a private rural ranch landowner, Deseret Ranch. The lakes and contributing watersheds are the only remaining undeveloped remnant of the natural KCOL system. The watershed and shoreline remain in near natural/native condition. Lands on the western side of these lakes are in Osceola County Urban Service Area with projected growth and future urban densities.

Deseret Ranch is currently working with Osceola County to develop a comprehensive master plan for this area. Management challenges are undetermined at this time although there are concerns with preserving the relatively natural and un-impacted nature of these lakes. Lands north and south of this LMA are part of the Lake Mary Jane – Upper Econ Mosaic Important Bird Area.

**Management Goal**: Sustain

**Key Characteristics:**

- **C&SF Waterbodies**: Lakes Preston, Joel, and Myrtle
- **Combined Waterbody Volume**: 9,913 acre-feet at elevation 62.0 feet NGVD
- **Combined Waterbody Acreage**: 2,750 acres at elevation 62.0 feet NGVD
- **Contributing Watershed Area**: 13,939 acres
- **KCOL Drainage Area**: 1.4% of Upper Kissimmee Basin Drainage Area
- **KCOL Annual Discharge**: 3.2% of S-65 Structure Annual Flow
- **Fish and Wildlife Assets**: Not completely documented but assumed to be similar to those identified as part of the Lake Mary Jane – Upper Econ Mosaic Important Bird Area. Those would include long-leaf pine flatwoods; cypress and bay swamps; lacustrine flag and sawgrass marshes; xeric oak scrub and sand pine scrub; slash pine flatwoods; temperate hammock; and riverine communities that support Endangered wood stork, Florida sandhill crane, red-cockaded woodpecker, threatened Florida scrub-jay, and Bachman's sparrow.
- **Economic Value**: Information not available.
- **Primary Recreational Uses**: Private recreational boating, fishing, and hunting.
- **Public Use and Recreational Areas**: None
- **Critical Wildlife Habitat**: Entire contributing watershed.
- **Recreational Visitors per year**: Not applicable because there is no public access to the lakes.

**Management Challenges:**
• **Rooted and Floating Aquatic Plants:** There is no history of aquatic plant problems or aquatic plant treatments of any kind. Because there are no public boat ramps on these lakes or navigable connections to waters with public access, these waters are not eligible for FWC aquatic plant management funding.

• **Hydrilla Management:** There is no reported occurrence of hydrilla in these lakes.

• **Water Quality:** Very good as evidenced by the presence of mayflies.

• **Muck Accumulation:** Minimal.

• **Development:** This area is undeveloped. Osceola County has adopted its comprehensive plan and included a portion of the area around the lakes in its urban growth boundary. The County is studying the area and will formulate a master plan to include topics such as transportation, land use, and the environment. This effort is to be completed in 2008.

• **Water Supply:** Being considered as a potential future source.

• **Flood Control:** In the past, Deseret Ranch and the SFWMD have had a gentleman’s agreement that allowed lake water levels to exceed maximum regulatory stages for extended periods of time during flood events. The Ranch has since requested SFWMD to adhere to approved regulation schedules and rules.

• **Navigation:** No issues identified.

• **Recreational User Conflicts:** None.

• **Exotic Apple Snail:** Not present.

• **Federal and State Listed Species:** Unknown but assumed to be similar to those identified as important in the Lake Mary Jane – Upper Econ Mosaic Important Bird Area (wood stork, Florida sandhill crane, red-cockaded woodpecker, Florida scrub-jay, Bachman’s sparrow, white ibis, snowy egret, little blue heron, American alligator, bald eagle).