OKEECHOBEE COUNTY

OPPOSITION TO PROPOSED SFWMD LOWER KISSIMMEE BASIN STORMWATER TREATMENT AREA (LKBSTA)

THURSDAY, DECEMBER 14, 2023

Okeechobee County Supports The Need & Purpose of Stormwater Treatment Areas – **Just Not In This Location…**

- Okeechobee County Board of County Commission is an **advocate and strong supporter of the need for STA's within our region to reduce nutrient discharges prior to entering Lake Okeechobee**
- Together with the District,
  - We must be concerned and respectful of the negative impacts that the proposed LKBSTA facility will bring to our community
  - Need to develop/identify opportunities to improve the environmental issues that we are challenged with today without placing a significant impact on our homeowners and property owners

Okeechobee County Board of County Commissioners Opposes the planned SFWMD LKBSTA Project - Proposed to be Developed by Ecosystem Investment Partners (EIP)

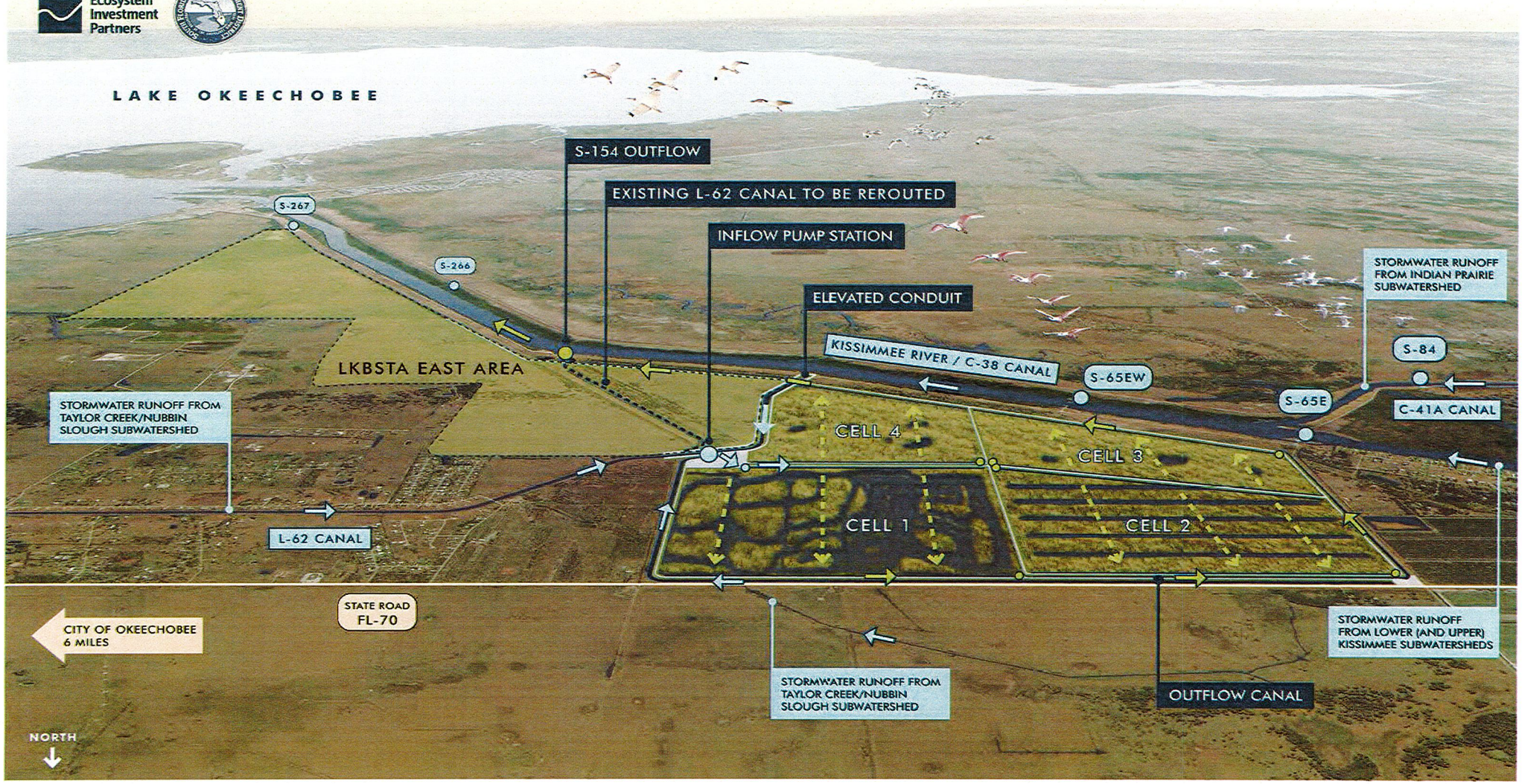
- Okeechobee County **opposes the proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project in its current location**
- County is requesting the South Florida Water Management District (SFWMD) Governing Board **to oppose and discontinue its consideration of the design and construction of the LKBSTA project** by Ecosystem Investment Partners Florida Water Quality, LLC – Ecosystem Investment Partners, LLC (EIP)
- Request **to oppose includes the proposed expansion of this project to include the adjacent property** that is either owned and/or controlled/managed by HGS, LLC d.b.a. RES Environmental Operating Company (RES)

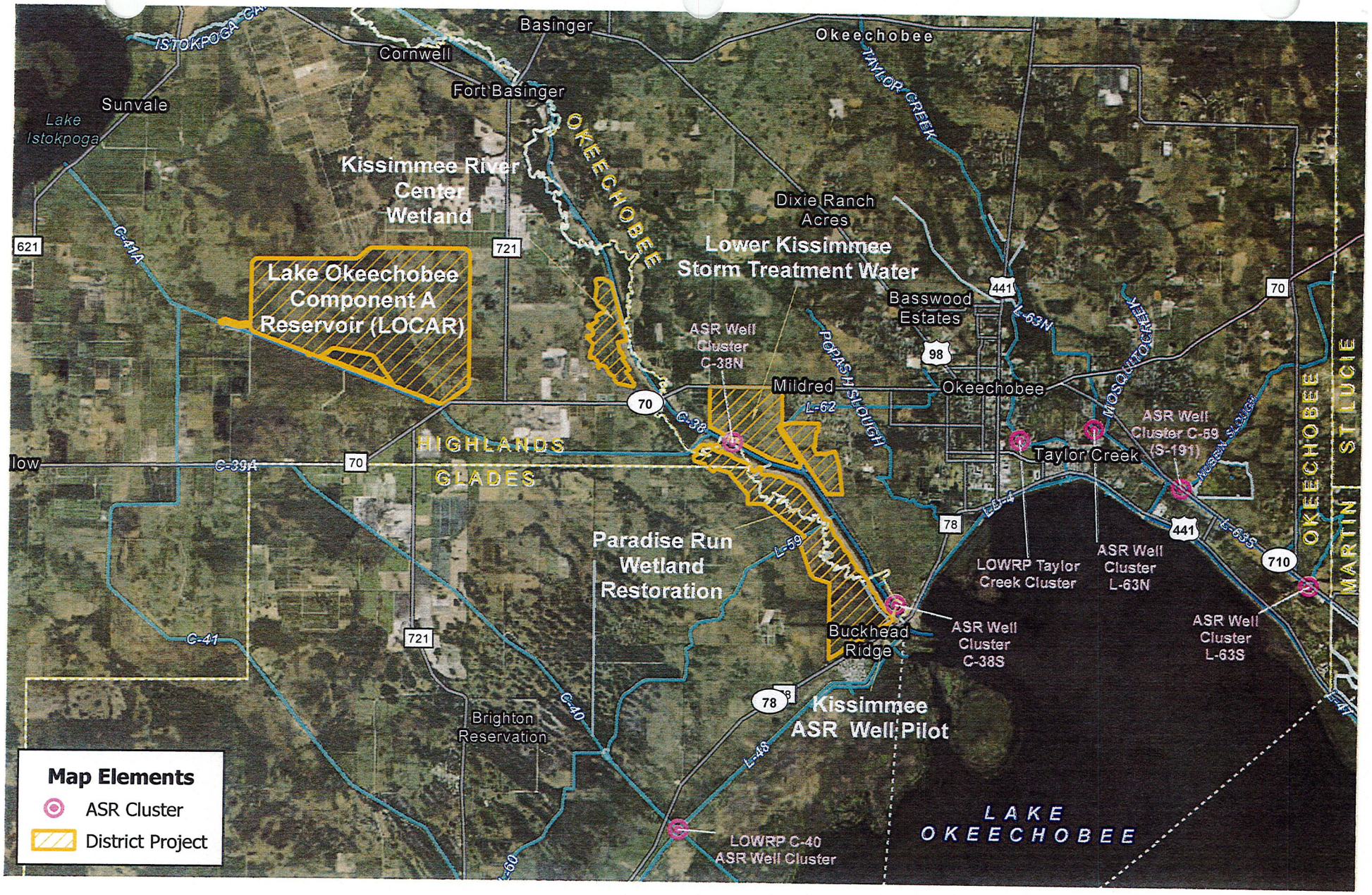
Four (4) reasons the Okeechobee Board of County Commissioners are not in support of the proposed project:

1. Insufficient transparency related to the proposed LKBSTA project development, impacts and cost
2. There are better options that are available today that do not threaten the safety of our community's homes and are not nearly as financially taxing to our residents and businesses
3. This project, if developed, is too close to three (3) airstrips, with one being the Okeechobee County Airport, which is one of the most significant economic development tools that the County maintains in an effort to attract jobs and resources to our community
4. The proposed LKBSTA project is being planned to be developed on the RIO Ranch property in western Okeechobee County (adjacent to State Road 70) to address one of the highest nutrient contributors in our region – the Kissimmee River (according to the SFWMD)
    - The River and natural or historical flow/drainage is bringing in significant amounts of phosphorus into the Okeechobee community from other areas around the central Florida areas and the properties within Okeechobee County are being utilized to attempt to clean the water from other areas of the state

LOWER KISSIMMEE BASIN STORMWATER TREATMENT AREA

Ecosystem Investment Partners





BASE CREDITS:
State plane projection, Florida east zone, NAD 83-HARN, US feet.
Notes:
ASR = Aquifer Storage and Recovery Wellfields

South Florida Water Management District
3301 Gun Club Rd., West Palm Beach, Florida 33406
(561) 686-8800; www.sfwmd.gov

N W E S

Okeechobee Area Projects

0 5 10 Miles

0 5 10 Kilometers

IMPORTANT DISCLAIMER:
This map is a conceptual or planning tool only. The South Florida Water Management District does not guarantee or make any representation regarding the information contained herein. It is not self-executing or binding, and does not affect the interests of any persons or properties, including any present or future right or use of real property.

Map Date: July 2023

User Name: erios Remedy ID Ticket: 190974 Map Produced on Date: 7/26/2023 2:41 PM

\\ad.sfwmd.gov\dfsroot\GS\GSPro\SWPROJ\LOWRP\North_LakeOkeechobee\North_LakeOkeechobee.aprx
Layout Name: 20230725_Okeechobee_BOCC

Restoration and Resiliency Project Opportunities North of Lake Okeechobee

Building Water Infrastructure to Protect Lake Okeechobee and Our Water Resources

About Us

The South Florida Water Management District (SFWMD) is the regional water resources agency. The SFWMD operates the largest water control system in the world. This water management system of canals, levees and control structures moves water away from homes, businesses and populated areas for flood control. The system also provides water supply to communities, businesses and the environment.

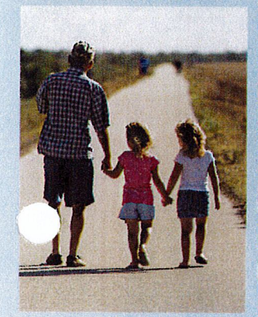
The Kissimmee Chain of Lakes, Kissimmee River and Lake Okeechobee offer world class boating and fishing opportunities. Along the route, there are 11 locks maintained by the SFWMD and five maintained by the U.S. Army Corps of Engineers (USACE).

The SFWMD also builds projects to improve the region's water resources. As the local sponsor of the Comprehensive Everglades Restoration Plan (CERP), the SFWMD partners with the USACE to build Everglades restoration projects.

Recreational activities available to the public include hiking, fishing, boating, cycling, camping, birdwatching, horseback riding, nature study, hunting and stargazing.

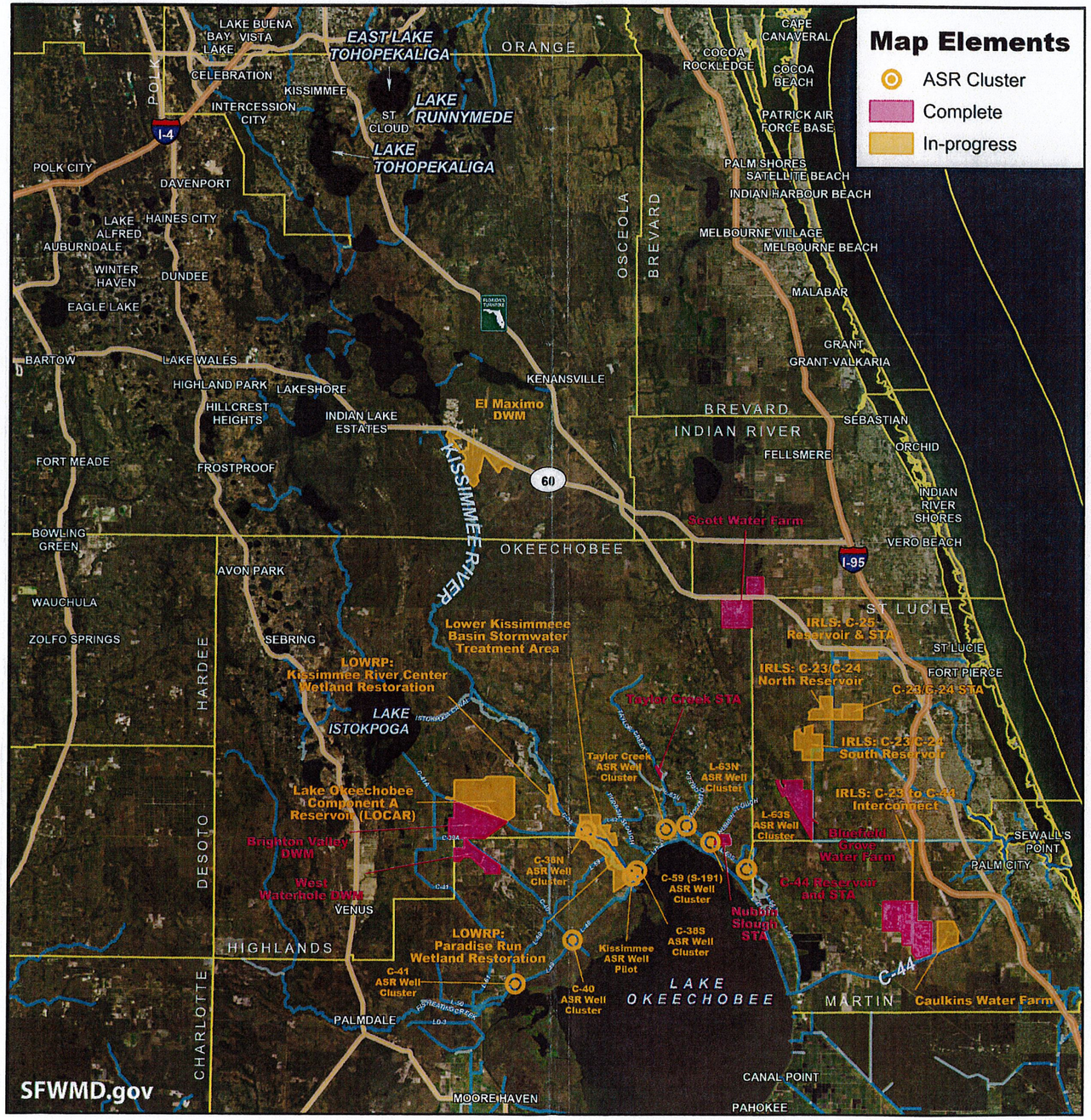
Kayaking

Bass Fishing



Enjoy Florida wildlife while walking along levees and trails.

Submerged Aquatic Vegetation (SAV) is a key component of the ecosystem and fisheries in Lake Okeechobee.



Lake Okeechobee Component A Reservoir (LOCAR)

This planning project explores the opportunity for an above ground reservoir to store excess water north of Lake Okeechobee. It will store 200,000 acre-feet of water (0.5 feet of Lake Okeechobee). When built, the project will help support healthy water levels in Lake Okeechobee – one of the most important freshwater resources in the state. SFWMD supports Congressional authorization in 2024 for the project.

Lake Okeechobee Watershed Restoration Project (LOWRP)

LOWRP includes features to store water and restore wetlands north of Lake Okeechobee. Stored water is cleaned to high water quality standards. The project improves water levels in Lake Okeechobee to benefit communities, businesses and the environment. The project includes two components:

- Up to 55 aquifer storage and recovery (ASR) wells to store water.
- Restoration of 5,900 acres of wetlands.

SFWMD supports Congressional authorization in 2024 for the project.

Water Farms and Dispersed Water Management (DWM)

These public-private partnerships with private landowners store and clean excess water from the regional canal system on private land.

Stormwater Treatment Areas (STA)

These constructed wetlands use aquatic vegetation to remove nutrient pollution from the water. Using both floating and submerged vegetation, water is cleaned by moving through highly-managed cells.

STAs provide several recreational opportunities such as walking trails, biking, kayaking, fishing, and more.

Lower Kissimmee Basin Stormwater Treatment Project (LKSTA)

Located in the most nutrient-rich basin in the region, this 3,400-acre water treatment project is in the planning and feasibility phase now. It includes built wetlands to remove nutrient pollution and may include innovative technology. When constructed, the public will have access to trails, fishing and other recreational opportunities.

This project will improve the health of Lake Okeechobee by removing harmful nutrients from the water, sending cleaner water to the lake.

Board of County Commissioners
Office of the County Administrator

304 NW Second Street - Room 123 • Okeechobee, Florida 34972
Telephone 863-763-6441 Ext. 1 • Facsimile 863-763-0118

June 26, 2023
via email transmission only

Mr. Drew Bartlett, Executive Director
South Florida Water Management
3301 Gun Club Road
West Palm Beach, FL 33406

Re: Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Lazy 7 Area

Dear Mr. Bartlett: DRew

Regarding the above SFWMD project, and at the request of the Okeechobee County Board of County Commissioners, please accept this letter as our request to have a SFWMD representative come to an upcoming BOCC Meeting to explain the process of this stormwater treatment area. Our upcoming meetings are July 13, July 27, and August 10, 2023 all beginning at 9:00 a.m. Kindly contact the Administrator's office at 863-763-6441 Ext. 1 to be placed on an upcoming agenda.

Additionally, it is our Board's request that SFWM conduct and hold a public meeting to afford the citizens of Okeechobee an opportunity to hear about the project and ask questions. Okeechobee County would be glad to host the location at our Civic Center located on Highway 98. We would just need to coordinate and date/time with you.

Our understanding is that this is an EIP project for a water treatment, which will be built on privately-owned land and operated under a contract with SFWMD. SFWMD will pay the property owner to remove phosphorus from the water before it goes into Lake Okeechobee

We look forward to hearing from you.

Sincerely,

David Hazellief, Chairman

cc: South Florida Water Management Board Members

[1016-00033216.1ADMIN]

David Hazellief	Frank DeCarlo	Bradley G. Goodbread	Terry Burroughs	Kelly Owens
District 1	District 2	District 3	District 4	District 5

Board of County Commissioners
Okeechobee County

304 NW Second Street – Room 123, Okeechobee, FL 34973
Phone: 863-763-6441 Ext.1 or Fax: 863-763-0118

August 7, 2023

Mr. Drew Bartlett
Executive Director
South Florida Water Management District (SFWMD)
3301 Gun Club Road
West Palm Beach, FL 33406

Re: Okeechobee County's Opposition to the South Florida Water Management District's Proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project

Dear Mr. Bartlett:

On behalf of the Okeechobee County Board of County Commissioners, I am writing to formally notify the South Florida Water Management District (SFWMD) of the County Commission's strong opposition to the design and construction of the District's proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project, which would include the proposed expansion of this project to include the adjacent property that is either owned and/or controlled/managed by HGS, LLC d.b.a. RES Environmental Operating Company (RES property).

Our Commission is an advocate and strong supporter of the need for STA's within our region to reduce nutrient discharges prior to entering Lake Okeechobee. However, together, we must be concerned and respectful of the negative impacts that these types of facilities bring to our communities and develop/identify opportunities to improve the environmental issues that we are challenged with today without placing a significant impact on our homeowners and property owners.

Although the County and surrounding areas within our region are faced with significant drainage and stormwater treatment issues, the Okeechobee Board of County Commissioners are not in support of the proposed LKBSTA Project due to reasons that would impact the safety and the quality of life for our citizens within our County, including:

- The proposed project is expected to result in significant flooding concerns for the surrounding residential communities in Okeechobee. Thus, our residents and property owners would be faced with a reduction in their property valuation while also being challenged with a cost increase in their homeowner's insurance rates (above the significant increases that we are already seeing within our County and throughout the state of Florida before this project is constructed).

Our homes are one of our greatest investments and the safety and cost impacts that this project would create are valid to real concerns/fears for our homeowners in this area. This project would increase the risk of our property owners having to pay more for homeowner's insurance (with the possibility of losing their insurance entirely due to the inherent flooding that will occur from this project) or losing their home due to flooding.

- To date, this project has progressed through the District's design stage without notice to the public nor the acceptance of comments/suggestions from the community. Our residents, businesses and stakeholders should have the opportunity to voice their thoughts and/or concerns on this significant infrastructure project during the conceptual (or feasibility) stage.

- The project is expected to have significant costs, which would require significant tax-payer funding support to not only design and construct this proposed facility, but it would also require an amount of annual funding to support the operations, maintenance and staffing for this project.

  Thus, the total cost of this project is not justified by the projected nutrient load that is expected to be removed from our waterways (13 to 15 metric tons of phosphorus per year depending on design). *[There are better options as identified below that are available today that do not threaten the safety of our community's homes and are not nearly as financially taxing to our residents and businesses].*

Unanimously, the Okeechobee County Board of County Commissioners, on behalf of the citizens of Okeechobee County, is urging the SFWMD Governing Board as well as the District's executive leadership to reconsider this project due to the many safety concerns and cost impacts that it will have within our community.

Further, the Board is requesting the District to strongly consider other options/locations to build this type of stormwater treatment area (STA) project, including north of the State Road (SR) 60 or in the northern portion of the County on the +/- 40,000 acres of land where several government agencies maintain ownership and/or flowage easements (Kissimmee Prairie Preserve State Park).

Thus, the County Commission is requesting the SFWMD's Governing Board to vote against any request to proceed with this project in its current location during your upcoming discussion and consideration of the inclusion and/or expansion of the project to include the RES property into the District's larger project. Additionally, we are requesting the Governing Board to vote against moving the entire project from the design stage to the implementation stage.

Should you have any questions and/or require additional information regarding our County's position on this project, please do not hesitate to contact either myself or Ms. Deborah Manzo, County Administrator at 561.763.6441 (Option #1).

Thank you in advance for your support of the need to find better solutions (and locations) to this important environmental issue while also protecting the safety of our community's homes and citizens' quality of life.

Respectfully submitted,

David Hazellief, Chairman
Board of County Commissioners

cc: Okeechobee County Board of County Commissioners
The Honorable Benjamin Butler – Okeechobee County Area Representative - South Florida Water Management District (SFWMD) Governing Board
The Honorable Charlette Roman – Okeechobee County Area Representative - South Florida Water Management District (SFWMD) Governing Board
The Honorable Chauncey Goss – Chairman – South Florida Water Management District (SFWMD) Governing Board
The Honorable Scott Wagner– Vice-Chairman – South Florida Water Management District (SFWMD) Governing Board
The Honorable Members of the South Florida Water Management District (SFWMD) Governing Board

[1028-00033367.1ADMIN]

Okeechobee County
Board of County Commissioners
304 NW 2nd Street
Okeechobee, FL 34972

Department: Administration
Category: Presentation
Prepared By: Tracy Rowland
Initiator: Deborah Manzo

COMPLETED
PRESENTATION (ID # 9696)

SUBJECT: 10:00 A.M. PRESENTATION: MR. KYLE GRAHAM AND MR. JEREMY MCBRYAN ON BEHALF OF ECOSYSTEMS INVESTMENT PARTNERS (EIP) AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT CO-PRESENTING ON LOWER KISSIMMEE BASIN STORMWATER TREATMENT (STA) PROJECT

MEETING: Regular Session August 10, 2023

FINANCIAL IMPACT:

REQUESTED ACTION:
That the Board of County Commissioners receive a presentation from Mr. Kyle Graham and Mr. Jeremy McBryan of Ecosystems Investment Partners (EIP), will be co-presenting with Ms. Megan Jacoby from South Florida Water Management District to provide a briefing on the Lower Kissimmee Basin Stormwater Treatment (STA) Project.

BACKGROUND:
Mr. Jeremy McBryan from EIP will provide an overview and briefing on the Lower Kissimmee Basin Stormwater Treatment (STA) Project, along with Ms. Megan Jacoby from South Florida Water Management District

Mr. Kyle Graham and Mr. Jeremy McBryan of Ecosystems Investment Partners (EIP), will be present along with Ms. Megan Jacoby from South Florida Water Management District.

County Administrator recommends the Board receive the presentations.

ATTACHMENTS:

- Lower Kissimmee Basin STA from EIP and SFWMD Okeec_BCCC_Mtg_10Aug2023 v2 to County (PDF)
- EIP - SFWMD Request to Appear 8-10-23 (PDF)

RESULT: **RECEIVED**

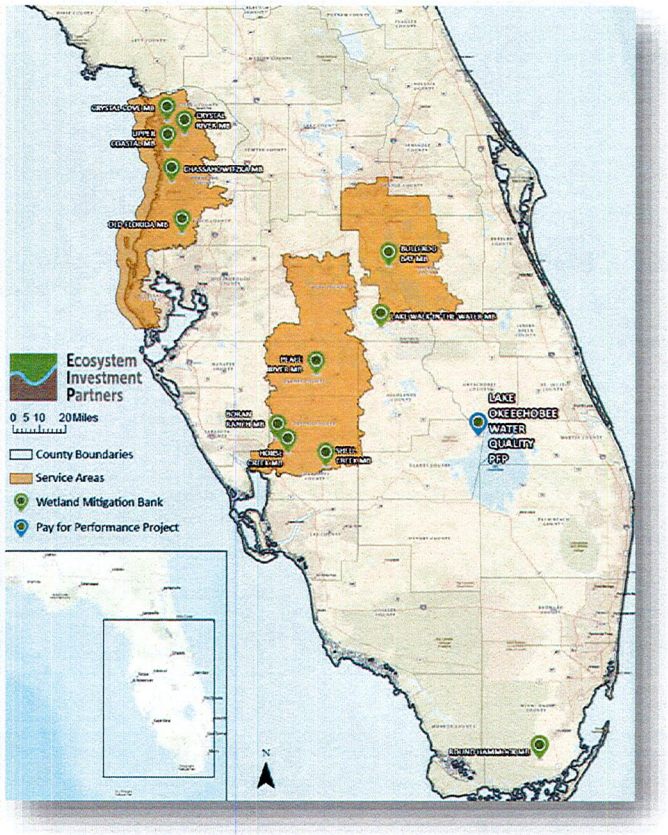
Lower Kissimmee Basin Stormwater Treatment Area Project (LKBSTA)

Okeechobee County
Board of County Commissions Meeting
August 10, 2023

Ecosystem Investment Partners

LOWER KISSIMMEE BASIN STORMWATER TREATMENT AREA PROJECT

Introduction



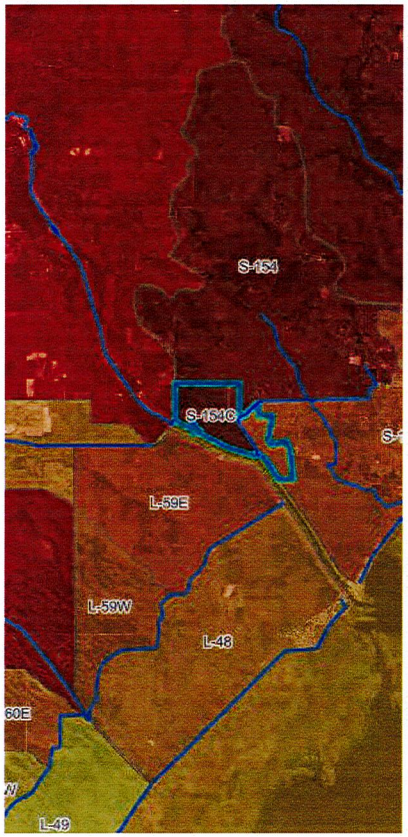
226+ Miles of Streams Restored and Conserved

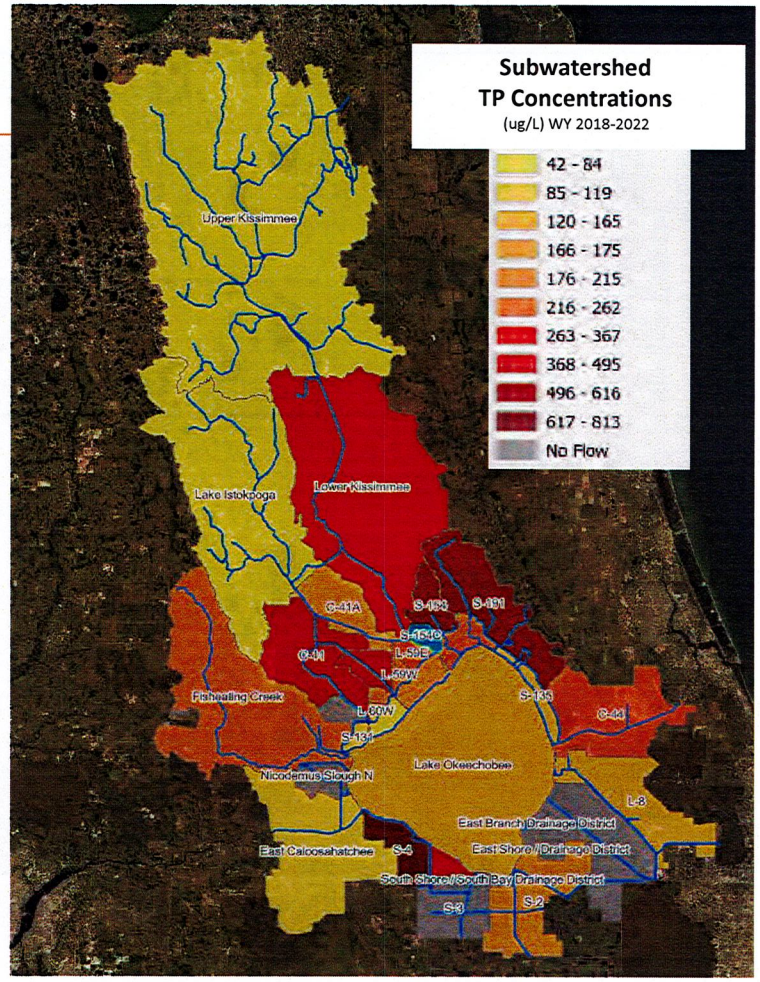
46,900+ Acres of Wetlands Restored and Conserved

6,500 Tons of Nutrient and Sediment Pollution Eliminated Annually

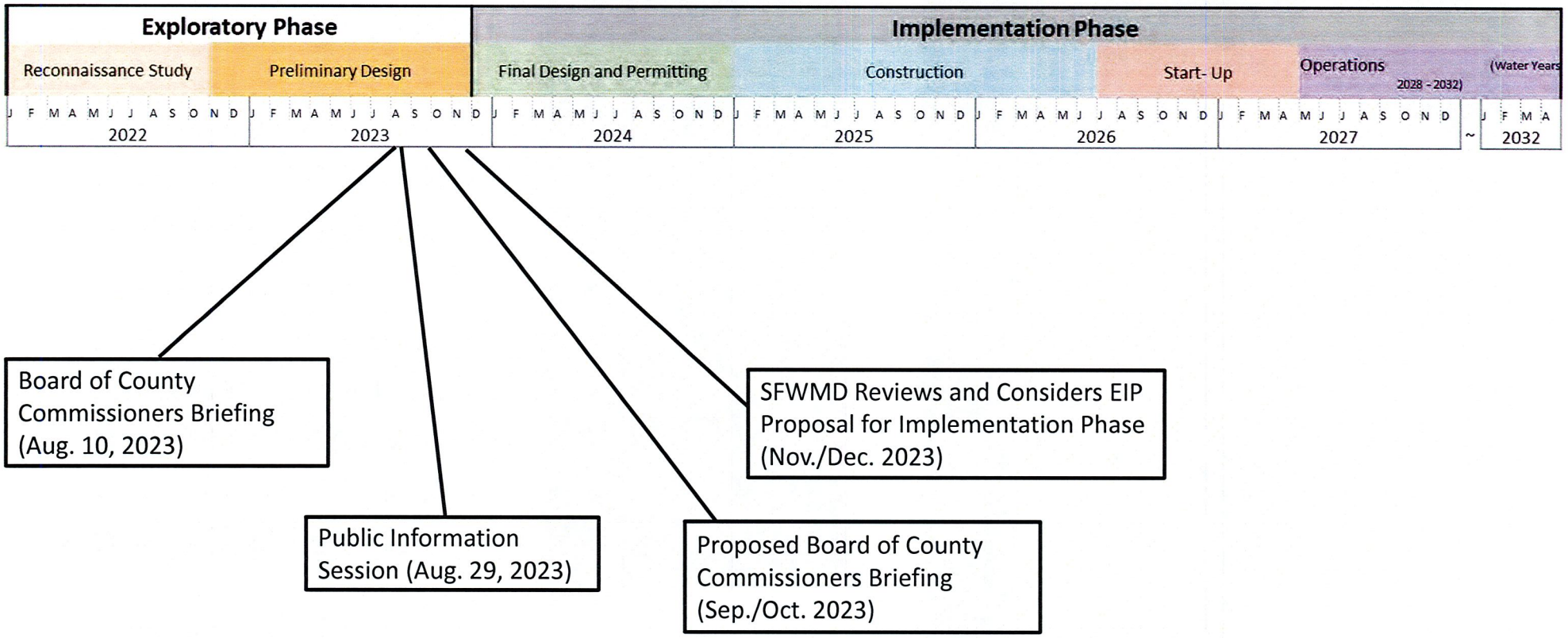
Property Location

- **May 2021:** SFWMD solicited proposals to Design/Build/Operate a stormwater treatment project in the Lower Kissimmee Basin
- **December 2021:** EIP entered into contract with SFWMD





Contract


Exploratory Phase
Implementation Phase
Reconnaissance Study
Preliminary Design
Final Design and Permitting
Construction
Start- Up
Operations
2028 - 2032)
(Water Years
J F M A M J J A S O N D
2022
2023
2024
2025
2026
2027
2032
Board of County Commissioners Briefing (Aug. 10, 2023)
Public Information Session (Aug. 29, 2023)
Proposed Board of County Commissioners Briefing (Sep./Oct. 2023)
SFWMD Reviews and Considers EIP Proposal for Implementation Phase (Nov./Dec. 2023)

RES Property

- **Spring 2023:** EIP evaluated the possible benefits of adding the RES property to the project.
- **May 11, 2023:** At SFWMD Governing Board Meeting, staff stated they were in discussions with EIP about the possible expansion of the contract to include the RES property.
- **September/October 2023:** SFWMD Governing Board expected to be presented proposal to begin "Exploratory Phase" for EIP land not included in the current proposed project and the RES property.

Exploratory Phase Activities to Date

Biological / Environmental Studies

Geological Studies

Field Surveys

Project Concept Development

Treatment Performance Evaluations

Infrastructure Assessments

Operational Strategy Development

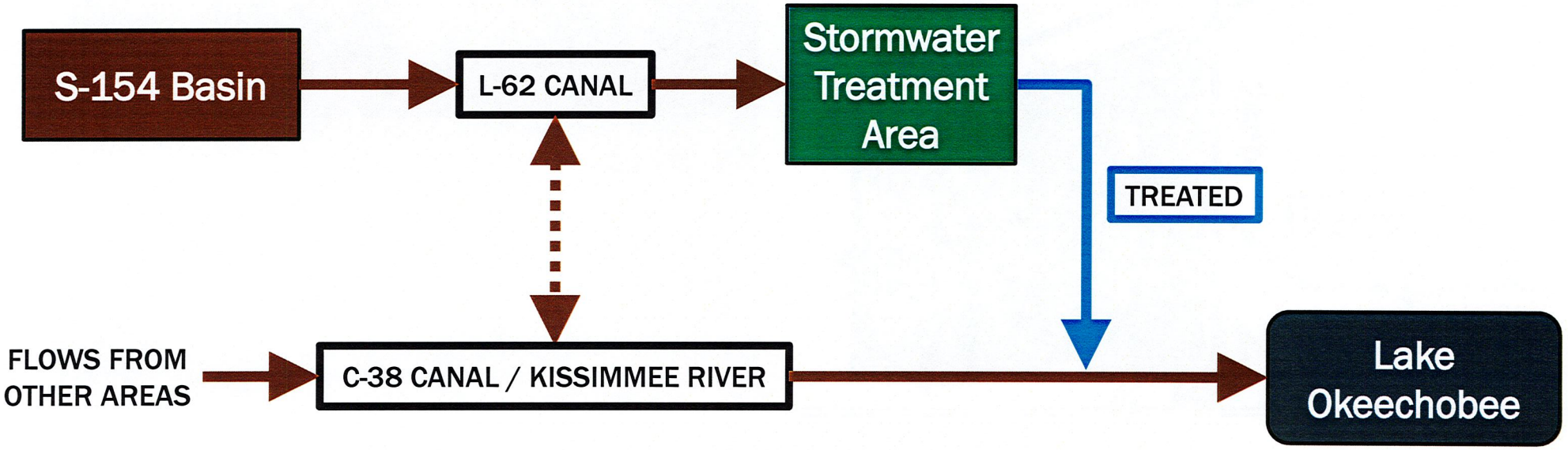
Permit Acquisition Coordination/Planning

Construction Planning

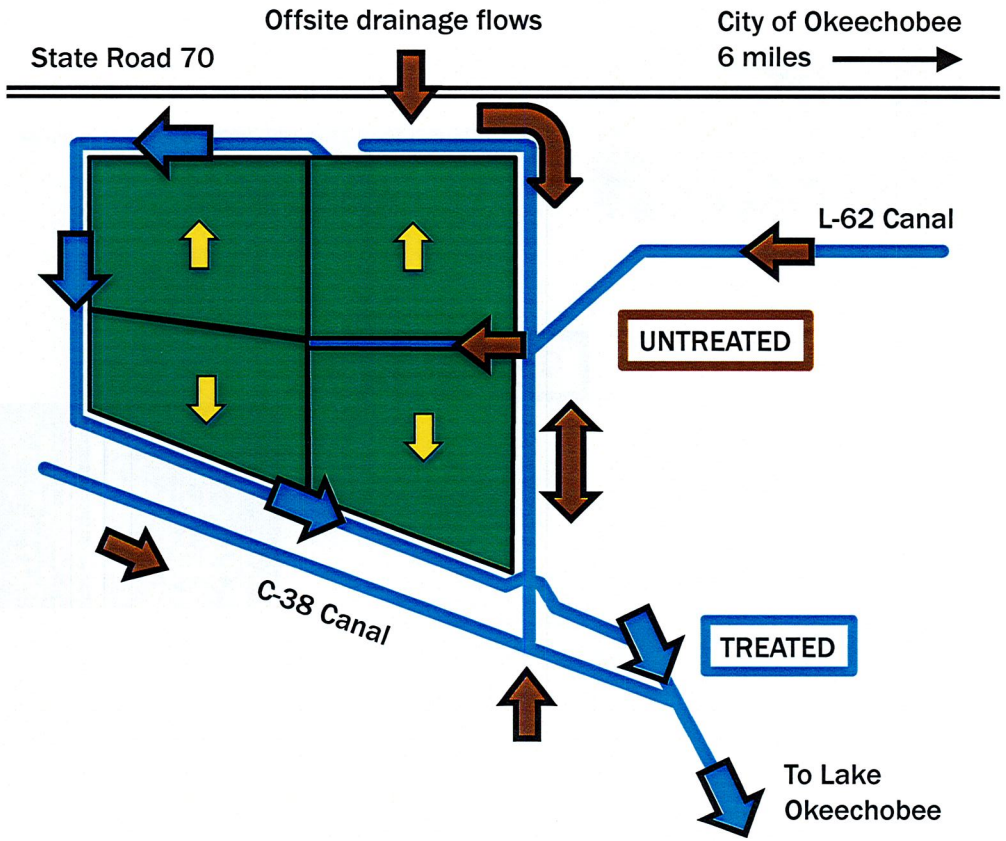
Conclusions

- Project site should be graded flat to facilitate long-term wetland vegetation health and treatment performance
- Re-locating a segment of the L-62 canal enables efficient STA cell configurations and construction methods
- C-38 canal water can be treated if L-62 canal water is not available
- One inflow pump station can convey water from both the L-62 and C-38 Canals

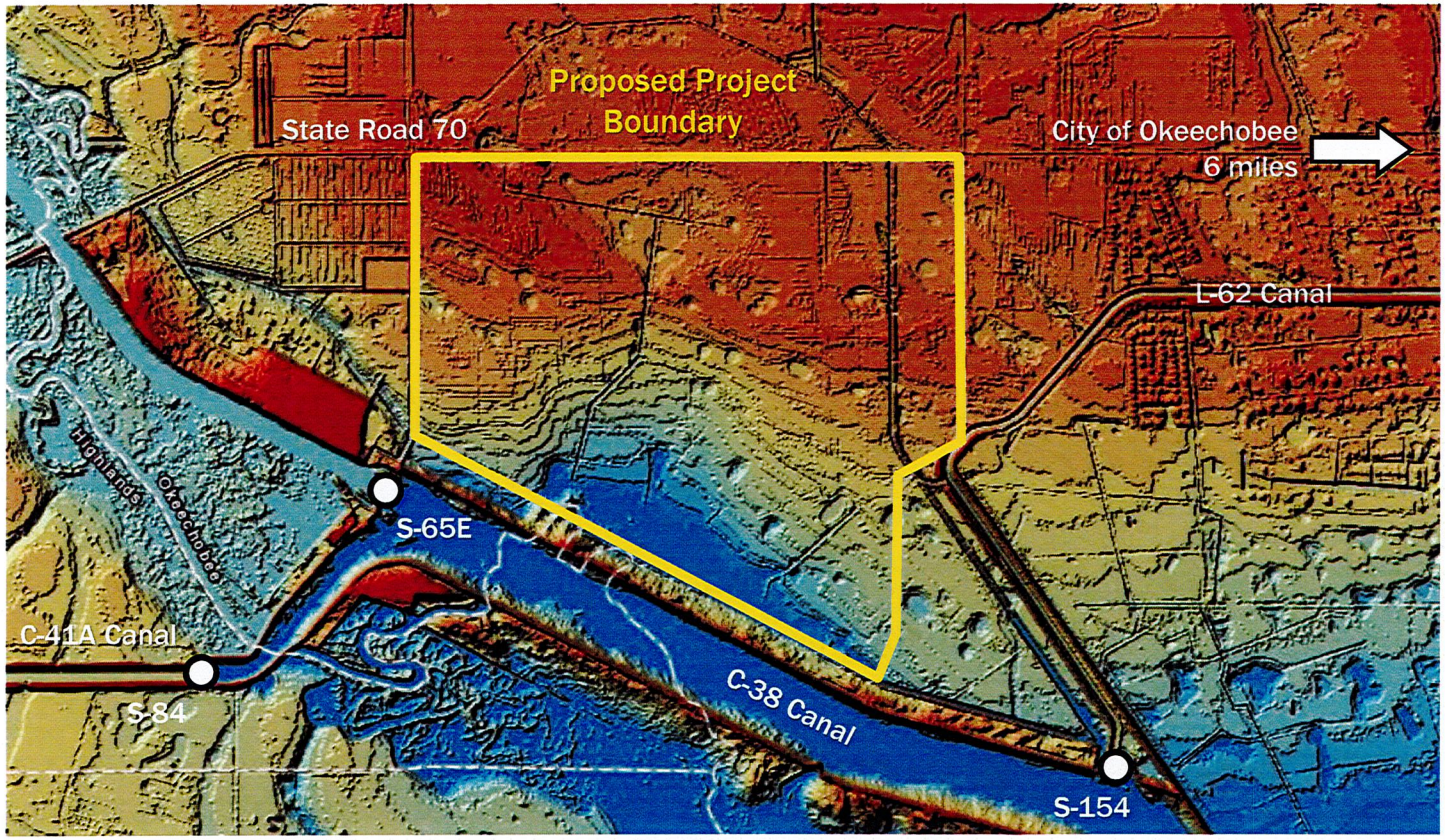
Proposed Project – Concept



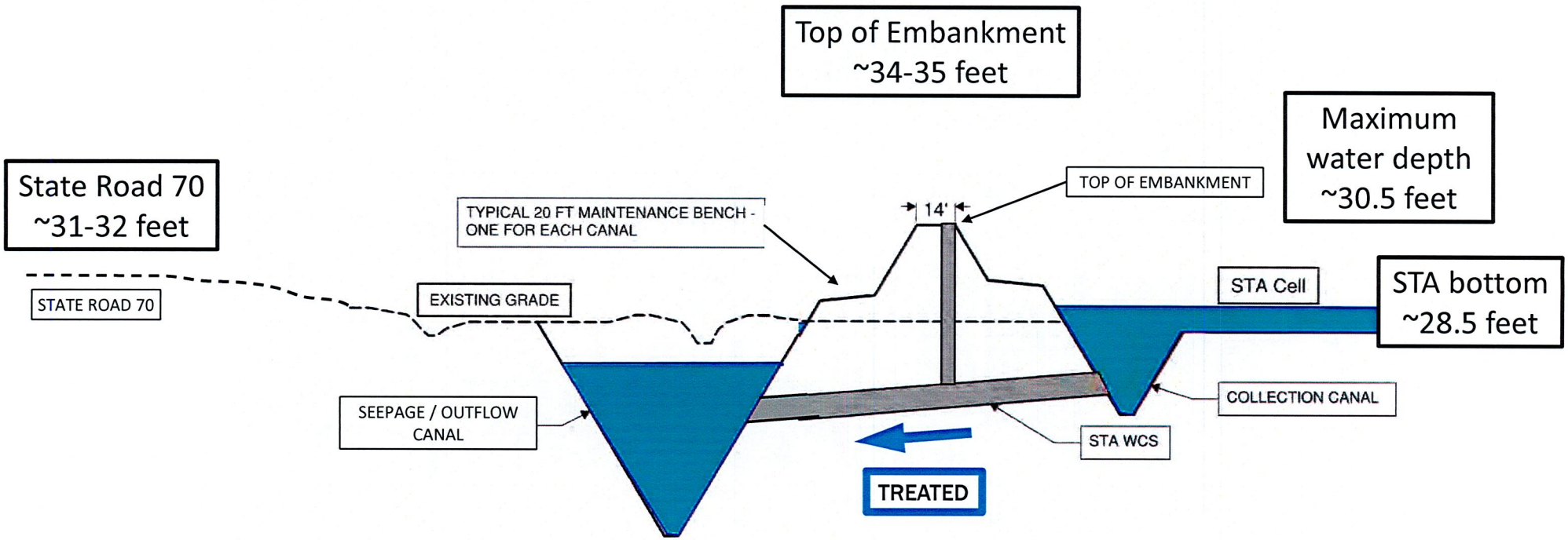
Proposed Project – Concept (cont'd)



Proposed Project – Concept (cont'd)



Proposed Project – Canals and Embankments



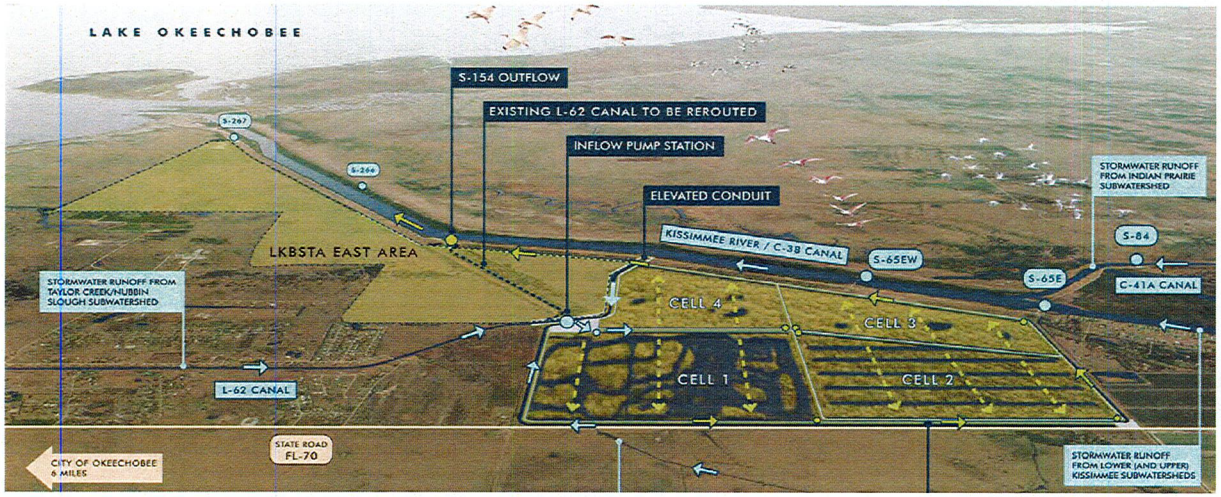
All elevations are NAVD88

Proposed Project – Canals and Embankments (cont'd)

Proposed Project – Water Control Structures

Proposed Project – Public Access and Recreation

Next Steps



August 29, 2023

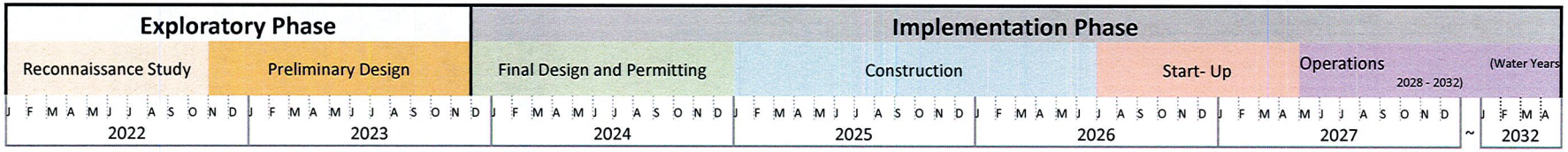
- EIP to hold public information session at Okeechobee Civic Center

September/October 2023

- BOCC briefing (proposed)

November/December 2023

- SFWMD reviews and considers EIP's proposal for Implementation Phase

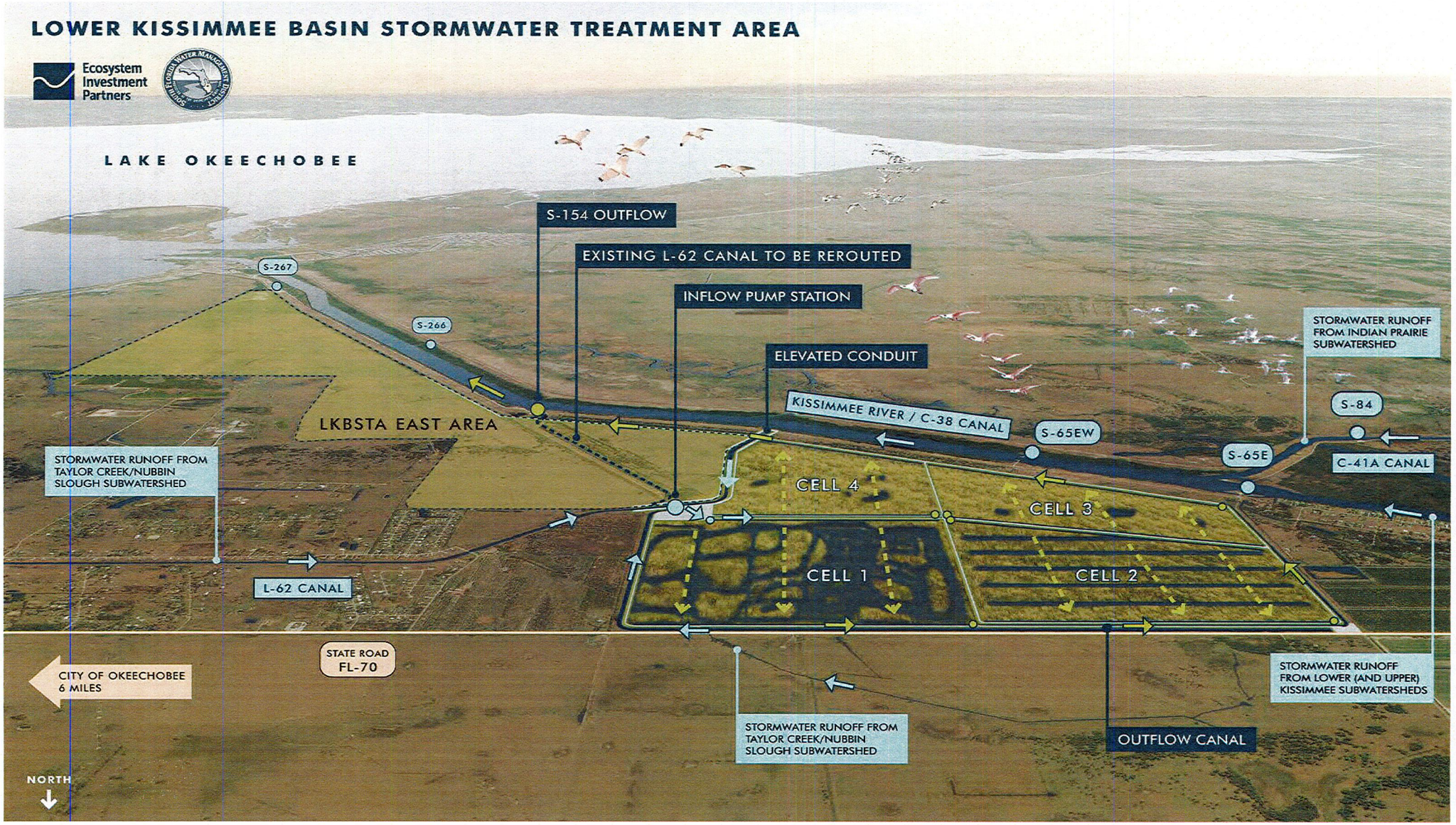


Questions

Kyle Graham
Senior Program Manager
828-243-2674
kyle@ecosystempartners.com

Jeremy McBryan, PE, CFM, ENV SP
Director, Florida Water Quality
561-319-4995
jeremy@ecosystempartners.com

Ecosystem
Investment
Partners


LOWER KISSIMMEE BASIN STORMWATER TREATMENT AREA
Ecosystem Investment Partners
LAKE OKEECHOBEE
S-154 OUTFLOW
EXISTING L-62 CANAL TO BE REROUTED
INFLOW PUMP STATION
ELEVATED CONDUIT
S-267
S-266
LKBSTA EAST AREA
KISSIMMEE RIVER / C-38 CANAL
S-65EW
S-65E
S-84
C-41A CANAL
STORMWATER RUNOFF FROM INDIAN PRAIRIE SUBWATERSHED
STORMWATER RUNOFF FROM TAYLOR CREEK/NUBBIN SLOUGH SUBWATERSHED
CELL 4
CELL 3
CELL 1
CELL 2
L-62 CANAL
STATE ROAD FL-70
CITY OF OKEECHOBEE 6 MILES
STORMWATER RUNOFF FROM LOWER (AND UPPER) KISSIMMEE SUBWATERSHEDS
STORMWATER RUNOFF FROM TAYLOR CREEK/NUBBIN SLOUGH SUBWATERSHED
OUTFLOW CANAL
NORTH

ONLINE EXCLUSIVE

STA proposed near Lazy 7 to be discussed at Thursday meeting

Posted Tuesday, August 8, 2023 1:11 pm

By Katrina Elsken
Lake Okeechobee News

OKEECHOBEE – A presentation on the Lower Kissimmee Basin Stormwater Treatment Area Project (LKBSTA) is planned for 10 a.m. on Aug. 10, as part of the Okeechobee County Commission meeting in the Historic Okeechobee County Courthouse, 304 N.W. Second St.

Jeremy McBryan of Ecosystems Investment Partners (EIP) and Megan Jacoby of the South Florida Water Management District (SFWMD) will provide a briefing on the project which will clean water before it enters Lake Okeechobee.

The LKBSTA project is planned about three miles upstream of Lake Okeechobee on the east side of the Kissimmee River. The property is south of State Road 70 and west of the Lazy 7 subdivision.

The project is designed to pull water from the L-62 canal and clean it before the water is released to the Kissimmee River. If L-62 canal water is not available, the project can pull water from the Kissimmee River (C-38 canal). One inflow pump can convey water from both the L-62 and C-38 canals.

The average water depth in the STA would be about 18 inches, according to the plans shared by EIP. The berm surrounding the STA would be about 4 feet higher than the water. A canal outside the berm would collect any seepage.

The public is welcome to attend.

Board of County Commissioners
Okeechobee County

304 NW Second Street – Room 123, Okeechobee, FL 34973
Phone: 863-763-6441 Ext.1 or Fax: 863-763-0118

August 23, 2023

Florida Department of Environmental Protection
Attn: Mr. Shawn Hamilton, Secretary
via email transmission only

Re: Okeechobee County's Opposition to the South Florida Water Management District's Proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project

The Honorable Shawn Hamilton:

On behalf of the Okeechobee County Board of County Commissioners, this letter is to address an issue currently involving Okeechobee County and South Florida Water Management District (SFWMD) regarding clean water issues associated with Lake Okeechobee. Currently, we are in conversation with SFWMD regarding the potential development of a Stormwater Treatment Area (STA) on the RIO Ranch Property in western Okeechobee County. According to SFWM, the reason for selecting this site is to address one of the highest nutrient contributors in our region (Kissimmee River).

Our Board of County Commissioners believe the STA in question is in the wrong place because it is too close to existing residential homes and is in proximity of three airstrips, one being the Okeechobee County airport. The impact is that the installation of the EIP project may cause safety issues with aircraft on approach to runway 05 as the wetlands will attract hazardous birds and lead to non-compliance with applicable grant assurances. FAA Advisory Circular 150/5200-33C Subject: Hazardous Wildlife Attractants on or near Airports, states for all airports, the FAA recommends a distance of 5 miles between the closest point of the airport's aircraft operations area and the hazardous wildlife attractant. Special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace. Additionally, building this type of project has the potential to require the homes close to this STA to require flood insurance.

We have communicated our opposition to SFWMD regarding the location of the STA, but it has come to our attention FDEP is in favor of this project.

[1028-00033481.1ADMIN]

A new development in a contiguous county (Glades County) is adjacent to Lake Okeechobee and has a high potential of creating more nutrient load because of effluents from septic tanks. It is our understanding that FDEP is involved with both projects and is currently supporting both. Our question is why is FDEP supporting the approval of over 1000 homes and commercial space to be on a septic system while at the same time supporting the development of a STA, which functionally may not provide the results intended?

While we functionally understand the issue of reducing nutrient loads, we are confused when a development is projected to create over 1,000 homes plus commercial space is about to be approved by FDEP to implement septic tanks as means to manage the wastewater from this new development.

Additionally, the question looms in our mind, why is it so important to build water storage areas in Okeechobee County? These types of projects should be developed in-between Osceola and Okeechobee Counties to assist in providing the cleaning and storage of water. Continuing to take land off our tax roll to build these types of facilities is not in the best interest of our constituents.

Thank you in advance for your consideration of our concerns and your support as the need to find better solutions (and locations) to this important environmental issue is important to our Board and community while also protecting the safety of our community's homes and citizens' quality of life.

We thank you and FDEP for the work your organization performs, and we would appreciate a response to address our concerns.

Should you have any questions and/or require additional information regarding our county's position on this project, please do not hesitate to contact either myself or Ms. Deborah Manzo, County Administrator at 863.763.6441 (Option #1).

Respectfully submitted,

David Hazellief, Chairman
Board of County Commissioners

cc: Okeechobee County Board of County Commissioners
Drew Bartlett, SFWM Executive Director

Lower Kissimmee Basin Stormwater Treatment Area Project

Community Meeting & Information Sessions

Join members of the project team to learn more and share feedback.

August 29

Okeechobee Civic Center

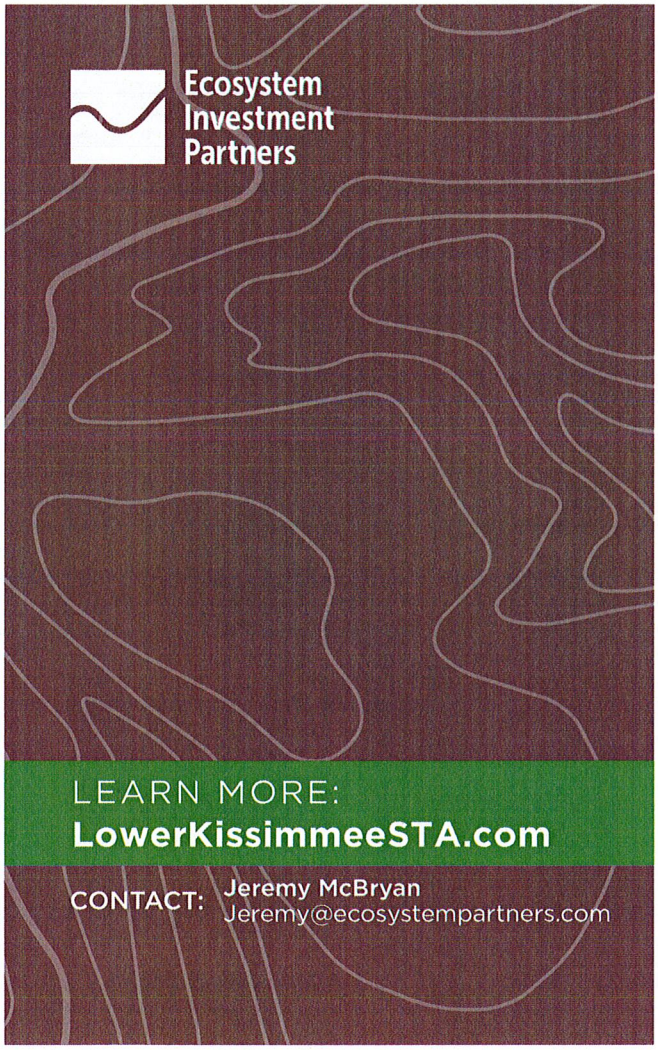
1750 U.S. Hwy 98 North
Okeechobee, FL 34972

Scan the QR code to learn more.

SESSION 1
Open House: 2-3 p.m.
Presentation 3 p.m.
Q/A: 3:30 p.m.

SESSION 2
Open House: 5-6 p.m.
Presentation 6 p.m.
Q/A: 6:30 p.m.

If you cannot attend a meeting, information about the project and a contact form for questions or feedback can be found at ***LowerKissimmeeSTA.com****.*


Ecosystem
Investment
Partners
LEARN MORE:
LowerKissimmeeSTA.com
CONTACT: Jeremy McBryan
Jeremy@ecosystempartners.com

Board of County Commissioners
Okeechobee County

304 NW Second Street – Room 123, Okeechobee, FL 34972
Phone: 863-763-6441 Ext.1 or Fax: 863-763-0118

September 28, 2023

Mr. Drew Bartlett
Executive Director
South Florida Water Management District (SFWMD)
3301 Gun Club Road
West Palm Beach, FL 33406

Re: Okeechobee County's Opposition to the South Florida Water Management District's Proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project

Dear Mr. Bartlett:

As a follow-up to our earlier letter (dated August 3, 2023), the Okeechobee County Board of County Commissioners (BOCC) continues to oppose the proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project in its current location and is requesting the South Florida Water Management District (SFWMD) Governing Board to oppose and discontinue its consideration of the design and construction of the LKBSTA project by Ecosystem Investment Partners Florida Water Quality, LLC – Ecosystem Investment Partners, LLC (EIP), which would include the proposed expansion of this project to include the adjacent property that is either owned and/or controlled/managed by HGS, LLC d.b.a. RES Environmental Operating Company (RES).

Please note that as previously stated, each member on our Commission is an advocate and strong supporter of the need for STA's within our region to reduce nutrient discharges prior to entering Lake Okeechobee. However, together with the District, we must be concerned and respectful of the negative impacts that this facility will bring to our community and develop/identify opportunities to improve the environmental issues that we are challenged with today without placing a significant impact on our homeowners and property owners.

Further, with respect to your commitment to ensuring that the County Commission maintains a voice within the decision making process for this project, we appreciate your assurance to provide the County Commission an opportunity to speak and represent our concerns with the LKBSTA project to the SFWMD Governing Board at an upcoming meeting and wanted to say Thank You…

This opportunity will provide the members of the Okeechobee Board of County Commissioners with a chance to provide the Governing Board and District staff with an understanding of the concerns that our Commission, residents, businesses and stakeholders have with this proposed project and the real impacts that we will experience if this project is permitted to proceed by the SFWMD.

Also, we would request that the District permit the County to provide a Power Point presentation to ensure that Board and public can view the documents/maps as they're being discussed.

In advance of speaking to the Governing Board at a future meeting, the BOCC would like to restate and ensure that the District's Governing Board is aware of the issues, impacts and concerns that our citizens and community have with the LKBSTA project and why the Okeechobee Board of County Commissioners are not in support of the proposed project, including:

1. A lack of transparency related to the proposed LKBSTA project development, impacts and cost.
   - Limited information on the District's website related to competitive selection of EIP, owners of the proposed property to be developed as the LKBSTA, to complete the design/build of the property in the amount of $300 million.
     - In fact, only one document was found when utilizing the search function within the District's website – "Lower Kissimmee Basin Stormwater Treatment Project" presentation by Ms. Jennifer Reynolds – Division Director – Ecosystem Restoration & Capital Projects Division – December 9, 2021.
   - To date, this project has progressed through the District's design stage without notice to the public nor the acceptance of comments/suggestions from the community.
     - Our residents, businesses and stakeholders should have the opportunity to voice their thoughts and/or concerns on this significant infrastructure project during the conceptual (or feasibility) stage.
     - Public awareness on the progress of this project was limited until recently.
     - No public or community meetings were held and/or notifications were sent out to potentially impacted property owners until (or around) August 29, 2023, which was requested by the Okeechobee County Commission on June 26, 2023 [two (2) public meetings were held on the same day at the Okeechobee County Civic Center].

2. There are better options that are available today that do not threaten the safety of our community's homes and are not nearly as financially taxing to our residents and businesses.
   - Our homes are one of our greatest investments and the safety and cost impacts that this project would create are valid to real concerns/fears for our homeowners in this area.
     - New flooding concerns have emerged due to a lack of understanding by the District's selected firm – EIP Florida Water Quality, LLC – on the current structures within the area (i.e., finished floor elevations, surrounding neighborhood drainage infrastructure needs and/or concerns, etc.) and the expected design of the proposed project.
     - The potential for flooding as a result of this project is expected to negatively affect home and property values in close proximity to the proposed LKBSTA project and may now be required to carry additional flood insurance (which is not required today) for these homeowners and would place an unnecessary financial burden on many residents.
     - This project may increase the risk to our property owners who may experience rate increases (above the significant increases that we are already seeing within our County and throughout the state of Florida before this project is constructed) and/or losing their homeowners insurance entirely due to the inherent flooding that will occur from this project or losing their home due to flooding.
     - Residential property owners within the area of the proposed project have also outlined/voiced additional concerns and impacts that may affect their homes/property and quality of life, including:

- Noise
- Dust
- Loss of peaceful living (i.e., construction, recreational activities, etc.)
- Impact to existing habitat and degradation to endangered, threatened and/or protected species (i.e., bald eagles, etc.)
- Increase in alligators, mosquitos and other pests
- Flooding of State Road 70, which is an emergency evacuation route
- Loss of farm land to support our state's and country's food needs and/or economic development opportunities for water storage purposes
- Proposed leaching of phosphorus to continue from the Kissimmee River without corrective solution (should be addressed prior to this project being considered).

3. This project, if developed is too close to three (3) airstrips, with one being the Okeechobee County airport, which is one of the most significant economic development tools that the County maintains in an effort to attract jobs and resources to our community.
   - The proposed project does not comply with the County's Airport Zoning regulations with the County's Land Development Code - specifically, Section 3.01.03.F – Airport zones and airspace height limitations. – Other areas., which states "In addition to the height limitations imposed in paragraphs A through E above, no structure or obstruction will be permittee within Okeechobee County that would cause a hazard to air navigation.".
   - The District's proposed LKBSTA project is expected to create significant safety issues with aircraft on approach to runway 05 as the wetlands will attract hazardous birds and lead to non-compliance with applicable grant assurances.
   - Federal Aviation Administration (FAA) Advisory Circular 150/5200-33C Subject: Hazardous Wildlife Attractants on or near Airports, states for all airports, the FAA recommends a distance of 5 miles between the closest point of the airport's aircraft operations area and the hazardous wildlife attractant and special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace.
     - The SFWMD's website [Stormwater Treatment Area 5/6 (STA-5/6) | South Florida Water Management District (sfwmd.gov)] provides the following related to promoting wildlife within their STA's, which is expected to lead to real safety issues for airplanes utilizing the County's Airport:
       - "STAs provide another bonus – prime home and visiting territory to wildlife including wading birds, ducks and American alligators. A variety of nature-based recreational activities are allowed at several of these wetland locations."
       - "Located on approximately 17,000 acres in eastern Hendry County, Stormwater Treatment Area 5/6 (STA-5/6) has become one of the premier bird-watching areas in Florida through a long-standing partnership with the Hendry-Glades Audubon Society. More than 200 bird species have been spotted at STA-5/6 on the seasonal, guided bird-watching tours offered by the local Audubon chapter.

The site is also popular as a waterfowl hunting area managed by the Florida Fish and Wildlife Conservation Commission (FWC)."

- "Access to STA-5/6 was expanded in 2013 with a public use area with shell-rocked parking, an informational kiosk, restrooms and a trail that includes a covered shade shelter and a boardwalk. Hiking, bicycling and bird-watching are among the activities visitors can enjoy from the public use area. In addition, a portion of the Florida National Scenic Trail runs along the L-3 levee on the west side of the STA."

4. The proposed LKBSTA project is being planned to be developed on the RIO Ranch property in western Okeechobee County (adjacent to State Road 70) to address one of the highest nutrient contributors in our region – the Kissimmee River (according to the SFWMD). The River and natural or historical flow/drainage is bringing in significant amounts of phosphorus into the Okeechobee community from other areas around the central Florida areas and the properties within Okeechobee County are being utilized to attempt to clean the water from other areas of the state.
    - There may be better financial options to remove the projected phosphorus nutrient load then this proposed project (and location), including, but not limited to, septic-to-sewer conversion, which provides a high reduction of phosphorus at a low cost.
        - Phase One of the District's project is expected to cost up to $300,000,000, which would require significant tax-payer funding support to not only design and construct this proposed facility, but it would also require an amount of annual funding to support the operations, maintenance and staffing for this project.
        - There have been conflicting statements regarding the total amount of nutrients that are expected to be removed on an annual basis if the LKBSTA is constructed.
            - 13 to 15 metric tons of phosphorus per year is expected to be removed depending on design as outlined within the "Lower Kissimmee Basin Stormwater Treatment Project" presentation by Ms. Jennifer Reynolds – Division Director – Ecosystem Restoration & Capital Projects Division – December 9, 2021.
            - 9 to 10 metric tons of phosphorus per year is expected to be removed according to Mr. Kyle Graham with EIP during the first Public Meeting on August 29, 2023.
    - The proposed project would not provide for the rehydration of deteriorating on-site wetlands as represented to the Okeechobee community.

Unanimously, the Okeechobee County Board of County Commissioners, on behalf of the citizens of Okeechobee County, is urging the SFWMD Governing Board as well as the District's executive leadership to reconsider this project due to the many safety concerns and impacts that it will have within our community.

Thus, the County Commission is requesting the SFWMD's Governing Board to vote against any request to proceed with this project in its current location during your upcoming discussion and consideration of the inclusion and/or expansion of the project to include the RES property into the District's larger LKBSTA project (expected in early 2024). Additionally, we are requesting the

Governing Board to oppose and vote against moving the entire project from the design stage to the implementation stage (within its current location), which is being completed by the District's selected firm – Ecosystem Investment Partners Florida Water Quality, LLC (EIP).

Additionally, based on our community's concerns and issues outlined above, the Okeechobee County Commission is requesting the District's Governing Board to strongly consider other options/locations to build this type of stormwater treatment area (STA) project, including north of the State Road (SR) 60 or in the northern portion of the County on the +/- 40,000 acres of land where several government agencies maintain ownership and/or flowage easements (Kissimmee Prairie Preserve State Park).

Thank you in advance for your consideration of our concerns as well as your support to find better solutions (and locations) to this important environmental issue while also protecting the safety of our community's homes and citizens' quality of life.

Should you have any questions and/or require additional information regarding our County's position on this project, please do not hesitate to contact either myself or Mr. Richard Reade, Deputy County Administrator at 863.763.6441 (Option #2).

Respectfully submitted,

David Hazellief, Chairman
Board of County Commissioners

Attachments

c: Okeechobee County Board of County Commissioners
The Honorable Benjamin Butler – Okeechobee County Area Representative - South Florida Water Management District (SFWMD) Governing Board
The Honorable Charlette Roman – Okeechobee County Area Representative - South Florida Water Management District (SFWMD) Governing Board
The Honorable Chauncey Goss – Chairman – South Florida Water Management District (SFWMD) Governing Board
The Honorable Scott Wagner – Vice-Chairman – South Florida Water Management District (SFWMD) Governing Board
The Honorable Members of the South Florida Water Management District (SFWMD) Governing Board

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

October 25, 2023

Commissioner David Hazellief, Chairman
Okeechobee County Board of County Commissioners
304 NW Second Street, Room 123
Okeechobee, FL 34972

Subject: Proposed Lower Kissimmee Basin Stormwater Treatment Area Project

Dear Commissioner Hazellief:

Thank you for your letter dated September 28, 2023 regarding Okeechobee County's opposition to the proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) project. The South Florida Water Management District (District) serves 9 million people within its 16-county region and is responsible for executing many projects providing ecosystem restoration, water supply, and flood protection. As public and stakeholder input is integral to the project implementation process, the District appreciates the Okeechobee County Board of County Commissioners taking the time to outline its concerns about the LKBSTA project and hopes the following information will address and clarify some of the points from your letter.

Over the last two decades, the Florida Department of Environmental Protection (FDEP) has documented high levels of phosphorus in Lake Okeechobee – an important source of water for drinking, agricultural irrigation, recreational activities, and wildlife. The Draft 2024 South Florida Environmental Report (www.sfwmd.gov/sfer) states that the total annual average total phosphorus (TP) load discharged into Lake Okeechobee from the period of 2019 to 2023 was 402 metric tons per year (t/yr), exceeding the state's established total maximum daily load (TMDL) by 262 t/yr (DEP 2001; FloridaDEP.gov/TMDL). Regional projects to improve water quality, particularly in long-standing high-nutrient areas, are necessary to achieve the TMDL for the Lake Okeechobee Watershed (LOW).

Because of this pollution challenge, the District and FDEP began a public exploration of a project in 2019. In coordination with Lake Okeechobee stakeholders, comprised of 28 governmental agencies and local entities including Okeechobee County, a conceptual project was placed in the Lake Okeechobee Basin Management Action Plan (BMAP) Update in 2020 to address the S-154 and S-154C basins which contain some of the highest nutrient concentrations in the LOW.

In 2021, funding was made available, and the District solicited landowners to propose a conceptual project for the *Design/Build of a Lower Kissimmee Basin Stormwater Treatment Project* to address these canals. The solicitation was publicly noticed on the District's Procurement website which adhered to the District's formal procurement process. The project was subsequently awarded at a public meeting consistent with Sunshine Law, as outlined in the State Constitution and Section 286.011, Florida Statutes. In addition to the public procurement process, all Governing Board presentations and actions were posted to the District website in a timely manner where they currently remain. Following Governing Board meetings, the District shared press releases which were subsequently picked up and reported by local news outlets (South Central Florida Life, May 31, 2021).

We are still, however, in the early stages of the project, and nothing is set in stone. There is still time to address your concerns. I assure you and your Commissioners that the District will not support a project that exacerbates flood conditions or poses a threat to public safety. Furthermore, the District expects any sponsored project of this nature to comply with all federal, state, and local requirements both in the design of a project and during construction.

The District is focused on addressing safety questions regarding the project's location. As the agency responsible for flood protection, the District takes the community's flood and safety concerns very seriously. Because the project is located near homes, robust hydrologic and hydraulic modeling is currently underway to understand flood risk and seepage to the surrounding region; however, it is important to note that the project is currently in the Preliminary Design phase. This means there is much more analysis to be done prior to the District accepting a plan to move forward with construction. This type of analysis takes time. Any completed analysis and results will be made available to the public. Also, any project sponsored by the District will monitor water levels, both in and outside of the project, during construction and operations, and all data are made available to the public.

STAs are known habitats for bird species, particularly wading birds and waterfowl. These birds are present in the area and are known to typically move between the Kissimmee River floodplain and Lake Okeechobee. To address public concerns, the project developer, Ecosystem Investment Partners, LLC (EIP) has hired a Federal Aviation Administration (FAA) Qualified Airport Wildlife Biologist to conduct wildlife surveys at the project site and vicinity to understand the wildlife that currently utilizes the project area and potential associated hazards. The District will also hire a similarly qualified independent specialist to peer review the subject report and advise the District as to its quality and integrity.

Again, the District welcomes and appreciates feedback from the public and stakeholders regarding the design of the LKBSTA. The District also expects EIP, to continue engaging with the public and stakeholders throughout design of the project

such that feedback can be incorporated into the plan as appropriate. With this in mind, we invite the Okeechobee County Board of County Commissioners to present your information regarding the LKBSTA project at the SFWMD Governing Board business meeting on December 14, 2023, to be held at District Headquarters, B-1 Auditorium in West Palm Beach. Also, please don't hesitate to call me at any time.

Sincerely,

Drew Bartlett
Executive Director

DB/mj

c: Okeechobee Board of County Commissioners

Okeechobee County
Board of County Commissioners
304 NW 2nd Street
Okeechobee, FL 34972

Department: Administration
Category: General Business
Prepared By: Richard Reade
Initiator: Richard Reade

DRAFT
ACTION ITEM (ID # 9935)

SUBJECT: DISCUSSION – OKEECHOBEE COUNTY'S OPPOSITION TO THE SFWMD'S LOWER KISSIMMEE BASIN STORMWATER TREATMENT AREA (LKBSTA) PROJECT - SFWMD, EIP & RES – SFWMD GOVERNING BOARD MEETING – THURSDAY, DECEMBER 14, 2023

MEETING: Regular Session October 26, 2023

FINANCIAL IMPACT:
N/A

REQUESTED ACTION:
That the Board of County Commissioners discuss the upcoming SFWMD Governing Board Meeting on Thursday, December 14, 2023 and the County's position/request to District's Governing Board to oppose the SFWMD's proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project.

BACKGROUND:
On August 7, 2023, the Board of County Commissioner's sent a letter to the South Florida Water Management District (SFWMD) Executive Director (and copied the District's Governing Board) outlining the Board's concerns with the proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project, including the proposed location and concerns related to the proposed location.

On August 10, 2023, the County Commission heard a presentation from representatives of the SFWMD and Ecosystem Investment Partners (EIP), the District's selected firm to design and construct the proposed project.

On August 29, 2023, the SFWMD and EIP held two (2) Community Meetings & Information Sessions at the Okeechobee Civic Center to provide our community with an opportunity to learn more about the proposed project and share feedback.

On September 28, 2024, the County Commission authorized and sent a letter to the District's Governing Board and Executive Director outlining the issues and concerns that have been provided during the various public and community meetings and requested the SFWMD Governing Board & Executive Director to oppose the District's proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project.

Note: To date a response has not been received by the County regarding this letter.

On December 14, 2023, the County has been notified that the LKBSTA projects will be considered by the SFWMD Governing Board and the County will be added to the agenda to provide discussion/information related to the concerns/issues with this project.

County Administrator recommends Board discuss the upcoming SFWMD Governing Board Meeting on Thursday, December 14, 2023 and the County's position/request the District's Governing Board to oppose the SFWMD's proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project.

ATTACHMENTS:

- Presentation - Opposition to Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project - SFWMD Governing Board Meeting - Thursday, December 14, 2023 (PDF)

SFWMD/EIP/RES Lower Kissimmee Basin Stor[illegible]ater Treatment Area (LKBSTA) Project Timeline

DATE	PURPOSE OF MEETING	MEETING LOCATION	ATTENDEES
03/12/2021	South Florida Water Management District (SFWMD) issues Design/Build Solicitation (RFQ) for Lower Kissimmee Basin Stormwater Treatment (LKBSTA) Project	SFWMD District Headquarters, West Palm Beach, Florida	N/A
12/09/2021	SFWMD enters into Project Agreement (Contract No. 4600004527) with Ecosystem Investment Partners Florida Water Quality, LLC (EIP) for the design, construction, operation, innovative technology and land acquisition associated with the LKBSTA in and amount not to exceed $300 million	SFWMD District Headquarters, West Palm Beach, Florida	
11/3/2021	Meeting with RES Environmental Operating Company (RES) to negotiate agreement with RES & Okeechobee County and potential legislative funding to support project	Teleconference	Deborah Manzo, Richard Reade, Wade Vose, Ansley Tilley, John Fumero
11/15/2021	Meeting with RES to negotiate agreement with RES & Okeechobee County (and possibly the City of Okeechobee as a joint project)	Okeechobee County	Commissioner Terry Burroughs, Deborah Manzo, Rich Reade, Gary Ritter, John Fumero
02/03/2022	Meeting with RES Environmental Operating Company (RES) to negotiate agreement with RES & Okeechobee County and potential legislative funding to support project	Okeechobee County	Deborah Manzo, Richard Reade, Wade Vose, Ansley Tilley, John Fumero
3/30/2022	Meeting with SFWMD & RES to discuss proposed RES project (i.e., project to be designed and constructed in accordance with District standards) and agreement with RES. County outlined long term maintenance cost expectations and proposed that SFWMD take over the project and ensure design and construction on accordance with District standards. RES expressed concerned needing to meet District standards as well as potential rise in cost due to District design standards. SFWMD recommended that County enter into an Interlocal Agreement with the District to take over the project after construction and District would agree to review all aspects of design and construction. Proposed endowment agreement to cover future maintenance costs would possibly need to be changed to support Districts expectations for future maintenance costs	Okeechobee County	Commissioner David Hazellief, Deborah Manzo, Richard Reade, Wade Vose, Ansley Tilley, Drew Bartlett, Jennifer Reynolds, Megan Jacoby, Elizabeth Pigman, Brandon Tucker
6/21/2022	Meeting with SFWMD & RES to discuss proposed RES project (i.e., project to be designed and constructed in accordance with District standards) and agreement with RES	Teleconference	Deborah Manzo, Richard Reade, Jennifer Reynolds, Megan Jacoby, Elizabeth Pigman, Jonathan Madden, Derek Brown
07/01/2022	FDEP legislative appropriation funding to support proposed RES project design (termination on March 31, 2024)	Funding Award	N/A
10/26/2022	Meeting with FDEP & RES to discuss $1.8 Million legislative appropriation	Teleconference	
11/15/2022	Meeting with RES to discuss proposed project (i.e., project to be designed and constructed in accordance with District standards), negotiate agreement with RES & Okeechobee County and potential legislative funding to support project	Okeechobee County	Deborah Manzo, Richard Reade, Wade Vose, Ansley Tilley, John Fumero
11/22/2022	BOCC Meeting - RES Project Update - RES & SFWMD to ensure that proposed project would meet SFWMD design standards and concern with projected increase in engineering and construction costs (estimated to grow to $120 million from original projection of $58 million) and options/needs as well as future costs to County to maintain facility (need to obtain grant funding to support project)	Okeechobee County	BOCC, BOCC staff, Wade Voss, Ansley Tilley, John Fumero
11/28/2022	Meeting with SFWMD & RES to discuss RES proposed project (i.e., project to be designed and constructed in accordance with District standards) and agreement with RES - Follow-up meeting to discuss BOCC concerns and requests from November 22, 2022 BOCC meeting		Deborah Manzo, Richard Reade, Wade Vose, Stef Matthes, Megan Jacoby, Sandy Smith
12/16/2022	Meeting with SFWMD to discuss proposed RES project (i.e., project to be designed and constructed in accordance with District standards) and agreement with RES - Follow-up meeting to discuss BOCC concerns and requests from November 22, 2022 BOCC meeting	Teleconference	Commissioner David Hazellief, Deborah Manzo, Richard Reade, Wade Vose, Randy Premer, Stef Matthes, Jennifer Reynolds, Megan Jacoby, Jonathan Madden
3/30/2023	Meeting with SFWMD and notified by District that EIP & RES may partner together to work through the District to design and construct a single project. SFWMD working with EIP to negotiate a contract change to include RES property	SFWMD District Headquarters, West Palm Beach, Florida	Commissioner David Hazellief, Deborah Manzo, Richard Reade, Stef Matthes, Justin Hoover, Ben Butler, Drew Bartlett, Jennifer Reynolds, Megan Jacoby, Elizabeth Pigman, Gary Priest (Teleconference)
Spring 2023	EIP evaluated the possible benefits of adding the RES property into the current SFWMD/EIP LKBSTA project	N/A	N/A
5/11/2023	SFWMD Governing Board meeting announcement that District was in discussions with EIP to incorporate RES property into LKBSTA and possible expansion of the existing contract between SFWMD & EIP	SFWMD District Headquarters, West Palm Beach, Florida	
06/26/2023	Letter to Drew Bartlett, SFWMD Executive Director, inviting District to provide public presentation and update on the LKBSTA to the BOCC and community during an upcoming BOCC meeting	Letter	N/A

7/17/2023	eeting with SFWMD and District confirmed that EIP & RES have partnered together to wor gh the District to design and construct a single project (SFWMD Governing Board will consider expanded LKBSTA project in September 2023). Commissioner Hazellief expressed concerns with flooding, property insurance rates, cost of project, lack of public notice and transparency and expected project effectiveness. District staff acknowledged that this is not a "perfect project" and they are "not sold" on the EIP & RES project, but the District may not find a better opportunity to remove harmful nutrients due to not having property available. County notified District that notice/request would be provided to FDEP to withdraw need for $1.8 million in funding to design RES project	Okeechobee County	Commissioner David Hazellie ie Manzo, Richard Reade, Jennifer Reynolds, Mega acoby, Elizabeth Pigman
07/18/2023	Notified SFWMD of residents concerns with (non-approved) sod business operations and trucking on proposed EIP and/or RES properties	Telephone Call	Richard Reade, Elizabeth Pigman
07/23/2023	BOCC Meeting - Discussion by the BOCC regarding various concerns/issues (i.e., location, residential homeowners insurance, cost and effectiveness, water storage levels, etc.) with the proposed LKBSTA project. Recommended sending a letter to the FDEP & the SFWMD expressing these concerns	Okeechobee County	Public
8/01/2023	SFWMD - Community Meeting for North of Lake Okeechobee Storage Reservoir (LOCAR) Section 203 Study Project (Project location - Glades County, Florida)	SFWMD District Office, Okeechobee County Florida	Public
08/07/2023	Site visit to SFWMD Lakeside Ranch Stormwater Treatment Area (STA) to review similar type of project to the proposed LKBSTA project (SFWMD invited County at earlier meeting)	Okeechobee County	Commissioner David Hazellief, Deborah Manzo, Richard Reade, Stef Matthes, Elizabeth Pigman, Bruce Chesser
08/07/2023	Letter to Drew Bartlett, SFWMD Executive Director, noticing the District of County's opposition and concerns related to the proposed LKBSTA project	Letter	N/A
08/09/2023	Meeting with SFWMD discuss proposed LKBSTA project (i.e., project design, cost, construction timetable and project phasing, expected takeover property/project ownership and maintenance by SFWMD, etc.)	Teleconference	Richard Reade, Megan Jacoby
8/10/2023	BOCC Meeting - (1st Public) Presentation by SFWMD and EIP to discuss proposed SFWMD/EIP LKBSTA and listen to community concerns and answer questions regarding the proposed project design and construction and impacts to surrounding residential community, economic development, environmental issues, homeowners insurance and property costs, etc.)	Okeechobee County	Public
8/10/2023	BOCC Meeting - Request to terminate the FDEP legislative appropriation RES (design) project funding ($1.8 million). FDEP accepted County's request on August 22, 2023 and funding was terminated	Okeechobee County	Public
08/15/2023	E-mail request to SFWMD to include BOCC on SFWMD Governing Board's upcoming meeting agenda and provide opportunity to make presentation (discuss with PowerPoint). District provided information that BOCC would be eligible "to provide comments to the Board during General Public Comment."	E-mail	N/A
08/21/2023	Letter to FDEP Secretary Shawn Hamilton Okeechobee outlining County's opposition to the SFWMD's proposed LKBSTA project (i.e., location in close proximity to established residential communities, airplane safety, environmental concerns, loss of property for water storage purposes, etc.)	Letter	N/A
8/29/2023	Two (2) Community/Public Meetings to discuss proposed SFWMD/EIP LKBSTA and listen to community concerns and answer questions regarding the proposed project design and construction and impacts to surrounding residential community, economic development, environmental issues, homeowners insurance and property costs, etc.). SFWMD notified the BOCC Chairman that the County would be placed on a future SFWMD meeting agenda	Okeechobee County Civic Center	SFWMD & EIP staff and Public/Community
9/6/2023	SFWMD confirmed that the BOCC would be placed on an upcoming SFWMD Governing Board meeting to discuss concerns/issues with the proposed LKBSTA project; however, a PowerPoint would not be available to be utilized (posters and handouts would be acceptable)	Telephone Call	Deborah Manzo, Richard Reade, Drew Bartlett
09/28/2023	BOCC Meeting - Discussion on proposed letter to SFWMD outlining County's concerns with the proposed LKBSTA project by the BOCC and community (i.e., location in close proximity to established residential communities, airplane safety, environmental concerns, loss of property for water storage purposes, etc.)	Okeechobee County	Public
09/28/2023	Letter to Drew Bartlett, SFWMD Executive Director, and copied to the SFWMD Governing Board, noticing the District of County's opposition and concerns related to the proposed LKBSTA project	Letter	N/A
10/10/2023	BOCC Meeting - Discussion on letter sent to SFWMD outlining County's concerns with the proposed LKBSTA project by the BOCC and community (i.e., location in close proximity to established residential communities, airplane safety, environmental concerns, loss of property for water storage purposes, etc.). Additional discussion regarding leaking concerns with the District's C-44 STA in Martin County, Florida and loss of property (owned by the SFWMD) that have been taken off the County's tax rolls	Okeechobee County	Public
10/26/2023	BOCC Meeting - Expected discussion on letter sent to SFWMD outlining County's concerns with the proposed LKBSTA project by the BOCC and community (i.e., location in close proximity to established residential communities, airplane safety, environmental concerns, loss of property for water storage purposes, etc.) as well as upcoming SFWMD Meeting (December 14, 2023), including County's presentation to the Board	Okeechobee County	Public

12/14/2023	WMD expected to consider approval of LKBSTA - Phase 1A & 1B completion and authorize ...encement of LKBSTA - Phase 2. Additionally, the Governing Board is expected to consider expansion of the project to include the RES property that is adjacent to the ongoing EIP project (originally expected to be considered by the District Governing Board August/September/October 2023 meetings and moving project from design to implementation stage during November/December 2023 meetings)	SFWMD District Headquarters, West Palm Beach, Florida	TBD

U.S. Department
of Transportation
**Federal Aviation
Administration**

Orlando Airports District Office
8427 SouthPark Circle, Suite 524
Orlando, FL 32819
Phone: (407) 487-7720
Fax: (407) 487-7135

September 27, 2023

[via email to: jhurst@co.okeechobee.fl.us]

Mr. John L. Hurst
Airport & Commerce Park Director
Okeechobee County Airport & Commerce Park
2800 NW 20th Trail
Okeechobee, FL 34972

RE: Proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA)
Okeechobee County, Florida

Dear Mr. Hurst,

We have reviewed the proposed development of a surface water treatment facility that would be developed in the vicinity of the Okeechobee County Airport (OBE). Based on the information provided, the project would take water from the Kissimmee River and circulate the water through a series of man-made wetlands/marshes to remove phosphorus and other nutrients. Once treated, the water would be discharged back into the river.

Okeechobee County Airport is a public-use airport that is used by a wide variety of aircraft, including business jets. A portion of the proposed water quality treatment project site is located within five miles of the airport and on the extended centerline of Runway 5-23, the airport's primary runway. The site is located under a segment of the non-precision instrument approach procedure for Runway 5. The same area is traversed by many aircraft departing the airport on Runway 23.

FAA Advisory Circular (AC) 150/5200-33C, *Hazardous Wildlife Attractants on or near Airports*, provides guidance on certain land uses that have potential to attract hazardous wildlife on or near public-use airports. Hazardous wildlife can threaten aviation safety. The FAA recommends this guidance for airports that receive funding under Federal grant assistance programs. The FAA urges regulatory agencies and planning and zoning agencies to evaluate proposed new land uses within the separation criteria and prevent the creation of land uses that attract or sustain hazardous wildlife within the separation distances. For all airports, the FAA recommends a distance of five miles between the closest point of the airport's aircraft operations area and the hazardous wildlife attractant. Special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace.

Based on FAA's initial review, the proposed water quality treatment project does not fully comply with the hazardous wildlife attractant separation distances, as outlined in AC 150/5200-33C. It is FAA's understanding the proposed water quality treatment project will pump water from the Kissimmee River and release the water into cells containing man-made wetlands and marsh habitat. The river water would flow through the cells and nutrients (phosphorus) would be filtered and absorbed by the wetland vegetation. This man-made wetland and marsh habitat is likely to attract a wide variety of wildlife, including avian species hazardous to aviation activity.

As noted in section 2.3.5 of AC 5200-33C, artificial marshes and submergent and emergent vegetation may be used by flocking species of blackbirds and waterfowl for breeding and roosting activities. The FAA recommends against establishing artificial marshes within the separations identified in the AC. Wetlands, including constructed wetlands, can also be attractive to many types of wildlife, including many of which rank high on the list of hazardous wildlife species listed in Table 1 in 1AC 50/5200-32B, *Reporting Wildlife Aircraft Strikes*. Table 1 in this AC includes a composite ranking (1 equals most hazardous and 50 equals least hazardous) and the relative hazard score of fifty wildlife species with at least 100 reported strikes with civil aircraft based on three criteria (damage, major damage, and effect-on-flight).

Qualified Airport Wildlife Biologists conducted hazardous wildlife surveys at OBE in September 2016. A total of 2,909 individual birds comprised of 27 species were observed during the surveys at OBE. Of all the observations, 71 percent were wading birds, including cattle egrets, white ibis, sandhill cranes, and great blue herons. Cattle egrets and white ibis were considered the most hazardous species at OBE at that time due to their large flock size. The LKBSTA, as described, will be very desirable habitat for wading birds. The existing South Florida Water Management District (SFWMD) STAs are coveted for both their bird watching and waterfowl hunting opportunities.
.
Based on the existing data for OBE and south Florida STAs, the FAA recommends that the proposed water treatment facility is located outside the 5-mile separation distance from OBE. If there is no alternative to the proposed water quality treatment project location, the state agencies having approval authority over the proposed project, in cooperation with Okeechobee County and the FAA, should consult a Qualified Airport Wildlife Biologist to develop potential mitigation strategies should the LKBSTA create a wildlife hazard for the airport. Mitigation strategies can identify both design and operational measures to be employed to ensure aviation safety.

Thank you for reaching out to advise our office of the proposed project. If you would like to discuss our concerns further, you can contact me at (407) 487-7296 and peter.m.green@faa.gov.

Sincerely,

Peter Matthias Green

Digitally signed by Peter Matthias Green
Date: 2023.09.27 15:43:05 -04'00'

Peter M. Green, AICP
Environmental Protection Specialist
Orlando Airports District Office

Richard Reade

Subject: FW: BOCC 2nd Letter Opposing the Lower Kissimmee Basin STA Project - SFWMD - Sept 28, 2023.docx

Attachments: BASH_website_data_2020_class_A_B_C_D_Mishaps_by_FY.pdf; BASH_website_data_2020_Wildlife Strikes Phase of Operation.pdf

From: MACLAUGHLIN, CHARLES E CIV USAF ACC 598 RANS/RMD [mailto:charles.maclaughlin.1@us.af.mil]
Sent: Wednesday, September 27, 2023 10:01 AM
To: Deborah Manzo <dmanzo@co.okeechobee.fl.us>
Cc: Richard Reade <rreade@co.okeechobee.fl.us>; Jennifer Codo-Salisbury - CFRPC <jcodosalisbury@cfrpc.org>
Subject: RE: BOCC 2nd Letter Opposing the Lower Kissimmee Basin STA Project - SFWMD - Sept 28, 2023.docx

Good morning Deborah,

My apologies for not replying sooner. The Florida Wildlife Corridor "Corridor Connect" conference has been very dynamic and has been an opportunity to connect will quite a few colleagues from the conservation and planning worlds.

Thank you for the information regarding the proposed SFWMD Lower Kissimmee Basin STA Project. From an Avon Park Air Force Range perspective, the proposed location is underneath several of the low-altitude Military Flight Routes (MTRs) and could cause an increased Bird Aircraft Strike Hazard (BASH) risk to military pilots flying the routes. Specifically, the proposed STA project would be underneath Instrument Route (IR) 49 and 50 and Visual Route (VR) 1087 and 1088.

As requested by Commissioner Hazellief, please see the attached BASH data from the Air Force Safety Center. For reference, Class A – D is a system of classifying the severity of the mishap with Class A being the most serious. More information can be found at https://www.safety.af.mil/Divisions/Aviation-Safety-Division/BASH/#:~:text=The%20Bird%2Fwildlife%20Aircraft%20Strike%20Hazard%20%28BASH%29%20Team%27s%20goal,for%20worldwide%20on-site%20and%20remote%20technical%20BASH%20assistance.

Fortunately, the Range has not had any reported bird strikes in several years so I do not have any additional information specific to Avon Park AFR or the referenced MTRs.

Thank you for the opportunity to share this information. I hope it helps inform the BoCC.

Please let me know if you have any questions or would like additional information.

Very Respectfully (V/R),

Buck

Charles "Buck" MacLaughlin, Civ, USAF
Range Operations Officer
Avon Park Air Force Range, FL
813-857-7109

From: Deborah Manzo <dmanzo@co.okeechobee.fl.us>
Sent: Monday, September 25, 2023 4:44 PM
To: MACLAUGHLIN, CHARLES E CIV USAF ACC 598 RANS/RMD <charles.maclaughlin.1@us.af.mil>
Cc: Richard Reade <rreade@co.okeechobee.fl.us>

Subject: [Non-DoD Source] RE: BOCC 2nd Letter Opposing the Lower Kissimmee Basin STA Project - SFWMD - Sept 28, 2023.docx

Charles, thank you for reviewing the letter regarding the Lower Kissimmee Basin Stormwater Treatment Area and the impact it may have on your operations. Commissioner Hazellief asked if you could provide information on plane crashes that occurred due to bird strikes; he recalls there were two planes that crashed on his family's property due to bird strikes.

Thank you again.

Deborah S. Manzo, County Administrator

BASH Class A, B, C, & D Mishaps by Fiscal Year Current as of October 2020						
Year	**Class A Mishaps**	**Class B Mishaps**	**Class C Mishaps**	**Class D Mishaps**	**Destroyed Aircraft**	**Fatalities**
FY00	1	8	45	0	1	0
FY01	2	7	47	0	0	0
FY02	1	5	33	0	0	0
FY03	3	3	32	0	2	0
FY04	1	6	44	0	1	0
FY05	3	9	56	0	0	0
FY06	2	2	63	0	1	0
FY07	6	16	73	0	1	0
FY08	0	12	82	0	0	0
FY09	1	16	79	0	0	0
FY10	1	2	34	0	0	0
FY11	0	4	38	0	0	0
FY12	0	1	39	23	0	0
FY13	3	3	43	48	2	0
FY14	1	3	53	36	1	4
FY15	3	4	59	39	0	0
FY16	3	9	55	35	1	0
FY17	1	6	60	44	0	0
FY18	2	2	60	50	1	0
FY19	0	5	74	40	0	0
Total	**34**	**123**	**1069**	**315**	**11**	**4**

Wildlife Strikes by Phase of Operation (Object #1) FY2000 - FY2019				
Phase of Ops Tier 1	Count	% of Total	Total Mishap cost (Excluding Injuries)	Total Mishap Cost with Injuries
No Data	22,556	36.61%	$236,119,486	$236,119,726
Unknown	10,349	16.80%	$2,693,868	$2,693,868
Landing-Normal	5,592	9.08%	$16,244,191	$16,244,191
Approach-Final	4,934	8.01%	$32,690,276	$32,690,276
Low-Level	3,909	6.34%	$177,536,249	$180,500,411
Blank	3,377	5.48%	$80	$80
Take Off	3,308	5.37%	$37,510,203	$37,510,443
Traffic Pattern	2,731	4.43%	$9,050,036	$9,058,411
Initial Climb	1,262	2.05%	$15,915,210	$15,915,210
Enroute	1,210	1.96%	$11,969,258	$11,969,258
Go-Around	797	1.29%	$48,873,813	$48,873,933
Approach-Initial	348	0.56%	$3,294,169	$3,294,169
Ground Operations	332	0.54%	$1,019,085	$1,019,085
Air Work	305	0.49%	$10,828,255	$10,828,255
Air To Ground	209	0.34%	$20,482,753	$20,482,753
Landing-Tactical	109	0.18%	$119,838	$119,838
Aerial Delivery	99	0.16%	$1,299,404	$1,299,404
Air To Air	43	0.07%	$628,381	$628,381
On Station	34	0.06%	$0	$0
Flight Demonstration	29	0.05%	$1,916,027	$1,916,027
Orbit	26	0.04%	$11,410	$11,410
Air Refuel-Probe/Drogue	13	0.02%	$141,670	$141,670
Hover	12	0.02%	$0	$0
Landing-Emergency	12	0.02%	$0	$0
Air Refuel-Boom/Recepticle	8	0.01%	$445,670	$445,670
Simulated Flame Out	6	0.01%	$0	$0
Maintenance	4	0.01%	$0	$0
Autorotate	3	0.00%	$13,380	$13,380
Total	**61,617**	**100.00%**	**$628,802,712**	**$631,775,849**

From: Hatim, Abdul
To: John Hurst; Gallon, Dawn
Cc: Roberts, David; Keith, Andy; Smith, Kristi; Scott Brady; Deborah Manzo; Richard Reade
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport
Date: Monday, October 16, 2023 1:59:56 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png

John,

We have reviewed the Lower Kissimmee Basin Stormwater Treatment Area project information and some supplemental information available to us. The letter from the ADO outlines the FAA information and comments and should, of course, be submitted to SFWMD and possibly Ecosystem Investment Partners (EIP). Some of the additional documentation we have reviewed indicates that the phosphorus removal will be an absolute priority. At least one conservation group has reported that current phosphorus levels entering Lake Okeechobee are five times higher than its assimilative capacity. That said, we believe there may be an option to remove the same or greater amounts of phosphorus with designs that are less attractive to wildlife if the project footprint cannot be shifted outside the zones that concern the FAA.

The documents provided from the EIP presentations indicate the construction will be shallow marsh with treatment water pumped in from either of two canals. Some of the marsh is located under the final approach fix (CORDI) for Runway 5 where jet or piston traffic will be as low as 1500 feet and descending on the instrument approaches and possibly lower on visuals. In lieu of the shallow marsh, it may be possible to construct a series of parallel, deep, steep-sided canals less attractive to birds and very efficient at phosphorus removal by sedimentation and sequestration. The demonstration project for an FAA pond at Naples Airport provided monitoring data and verified methodologies that can be directly used to design and construct such a system.

Our suggestion is a joint meeting with SFWMD, EIP, Okeechobee Airport, FAA (if available), FDOT, and our water management consultants to discuss options that can both reduce the phosphorus loads significantly and minimize wildlife hazards to landing and departing aircraft.

Sincerely,

Abdul Hatim, Ph.D.
Airport Engineering Manager
FDOT Aviation Office
605 Suwannee Street, MS 46
Tallahassee, FL 32399-0450
Phone: (850) 414-4504
Fax: (850) 414-4508
Email: abdul.hatim@dot.state.fl.us

FDOT AVIATION

From: John Hurst <jhurst@co.okeechobee.fl.us>
Sent: Monday, October 9, 2023 5:47 PM
To: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Abdul,

I wanted to clarify the Stormwater Treatment Area project so you have the correct information. EIP purchased the property and proposed a Stormwater Treatment Area project to SFWMD that would reduce phosphorus. EIP has provided a cost to SFWMD for the project, however, they are not paid by how much phosphorus they remove, they submit the cost of their project and estimate the amount of phosphorus that would be reduced.

Best Regards,

John L. Hurst
Airport & Commerce Park Director
Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972
Office: 863-467-5505 • Cell: 863-634-1474
Email: jhurst@co.okeechobee.fl.us

From: John Hurst
Sent: Friday, October 6, 2023 3:55 PM
To: 'Hatim, Abdul' <Abdul.Hatim@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Hi Abdul,

Ecosystem Investment Partners (EIP) purchased the land and is doing the project working with SFWMD. DEP is also helping to fund the project. I understand that EIP is paid for how much phosphorus they remove.

Per your request, I have attached a number of documents with plans and details about the project.

Please let us know if you have any additional questions, and what assistance you can provide.

Best Regards,

John L. Hurst
Airport & Commerce Park Director
Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972
Office: 863-467-5505 • Cell: 863-634-1474
Email: jhurst@co.okeechobee.fl.us

From: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Sent: Friday, October 6, 2023 11:19 AM
To: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>; John Hurst <jhurst@co.okeechobee.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good Morning Dawn/John,

Some additional information is needed to offer some alternatives to meet both the cleanup targets for phosphorus and maintain the maximum aircraft safety practicable. Is the project design and construction strictly DEP or is SFWMD also participating? Depending on the design specifics and the amount of encroachment into the approach and departure areas, information in the latest (March 2023) update of the Statewide Airport Stormwater Best Management Practices Manual may provide equally or more effective phosphorus removal in systems less attractive to wildlife. It may also offer some options for a smaller footprint that could take the portion of the project inside the recommended exclusion limits out of those limits. If we can get the information on exactly who is doing the project (DEP, SFWMD, or other) and project plans, we can provide more specific assistance.

Sincerely,

Abdul Hatim, Ph.D.
Airport Engineering Manager
FDOT Aviation Office
605 Suwannee Street, MS 46
Tallahassee, FL 32399-0450
Phone: (850) 414-4504
Fax: (850) 414-4508
Email: abdul.hatim@dot.state.fl.us

FDOT AVIATION

From: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Sent: Thursday, October 5, 2023 1:48 PM
To: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good afternoon, Abdul:

Can you please help John Hurst, Airport Director for Okeechobee County Airport communicate FAA's concern to FDEP?

I appreciate it .

Thank you.

Dawn M. Gallon, CPM, FCCM
Aviation/Intermodal Project Manager
Modal Development Office
Florida Department of Transportation - District One
Office: 863-519-2675
Cell: 863-608-3350
dawn.gallon@dot.state.fl.us

FDOT | AVIATION

From: John Hurst <jhurst@co.okeechobee.fl.us>
Sent: Wednesday, October 4, 2023 9:25 PM
To: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>; Roberts, David <david.roberts@dot.state.fl.us>
Subject: Re: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Dawn,

Thank you for the referral. Please see the attached letter from Peter Green.

The proposed project is partially located within 5 miles of the OBE aircraft operations area; however, FAA recommends that the proposed water treatment facility be located outside the 5-mile separation distance from OBE.

We understand that FDEP will be funding this project through SWFMD.

To help us comply with FAA Advisory Circular 150/5200-33C as required by our FAA grant obligations, can FDOT help us communicate FAA's concern to FDEP?

Best Regards,

John L. Hurst
Airport & Industrial Park Director
Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972
Office: 863-467-5505 • Cell: 863-634-1474
Email: jhurst@co.okeechobee.fl.us

From: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Sent: Monday, August 28, 2023 2:57:51 PM
To: John Hurst
Cc: Smith, Kristi; Deborah Manzo; Gallon, Dawn
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good afternoon, John:

Please reference the email below from Abdul Hatim on contacting the Environmental Specialist at FAA Orlando ADO, which is Peter Green, 407-487-7296 or peter.green@faa.gov.

Thank you.

Dawn M. Gallon, CPM, FCCM

Aviation/Intermodal Project Manager

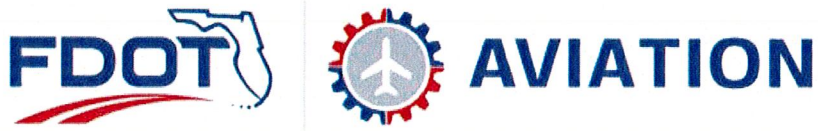
Modal Development Office

Florida Department of Transportation - District One

Office: 863-519-2675

Cell: 863-608-3350

dawn.gallon@dot.state.fl.us



From: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Sent: Monday, August 28, 2023 10:03 AM
To: Keith, Andy <Andy.Keith@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Smith, David P <DavidP.Smith@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good Morning Dawn,

Please advise OBE to contact Environmental Specialist at FAA Orlando ADO regarding the proposed water retention pond by SFWMD.

Sincerely,

Abdul Hatim, Ph.D.

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: abdul.hatim@dot.state.fl.us

From: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Sent: Thursday, August 24, 2023 8:02 AM
To: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>
Cc: Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good morning,

Seeking your assistance on the email below from John Hurst, Okeechobee County Airport Director.

I appreciate you both.

Thank you.

Dawn M. Gallon, CPM, FCCM

Aviation/Intermodal Project Manager

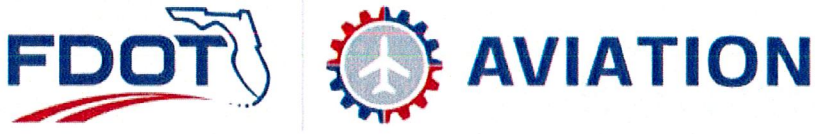
Modal Development Office

Florida Department of Transportation - District One

Office: 863-519-2675

Cell: 863-608-3350

dawn.gallon@dot.state.fl.us



From: John Hurst <jhurst@co.okeechobee.fl.us>
Sent: Tuesday, August 22, 2023 3:29 PM
To: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>
Subject: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Dawn,

We are concerned about a potentially hazardous wildlife attractant that the South Florida Water Management District is interested in building within 5 statute miles of Okeechobee County Airport's Aircraft Operations area. They are planning to build water retention that they state will attract birds which may be a hazard.

Also, CORDI, the final approach fix for the RNAV approach to runway 5 will be well within

the boundaries of the proposed site. Aircraft will be descending through 1,500' over this fix during their approach. Please see the attached drawing.

Specifically, compliance with **FAA Advisory Circular 150/5200-33C Subject: Hazardous Wildlife Attractants on or near Airports** is required per this checklist.

AC No: 150/5200-33C States:

1.4 Protection of Approach, Departure, and Circling Airspace.

For all airports, the FAA recommends a distance of 5 miles between the closest point of the airport's *aircraft operations area* and the hazardous wildlife attractant. Special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace. Figure 1 depicts an example of the 5-mile separation distance measured from the nearest aircraft operations area.

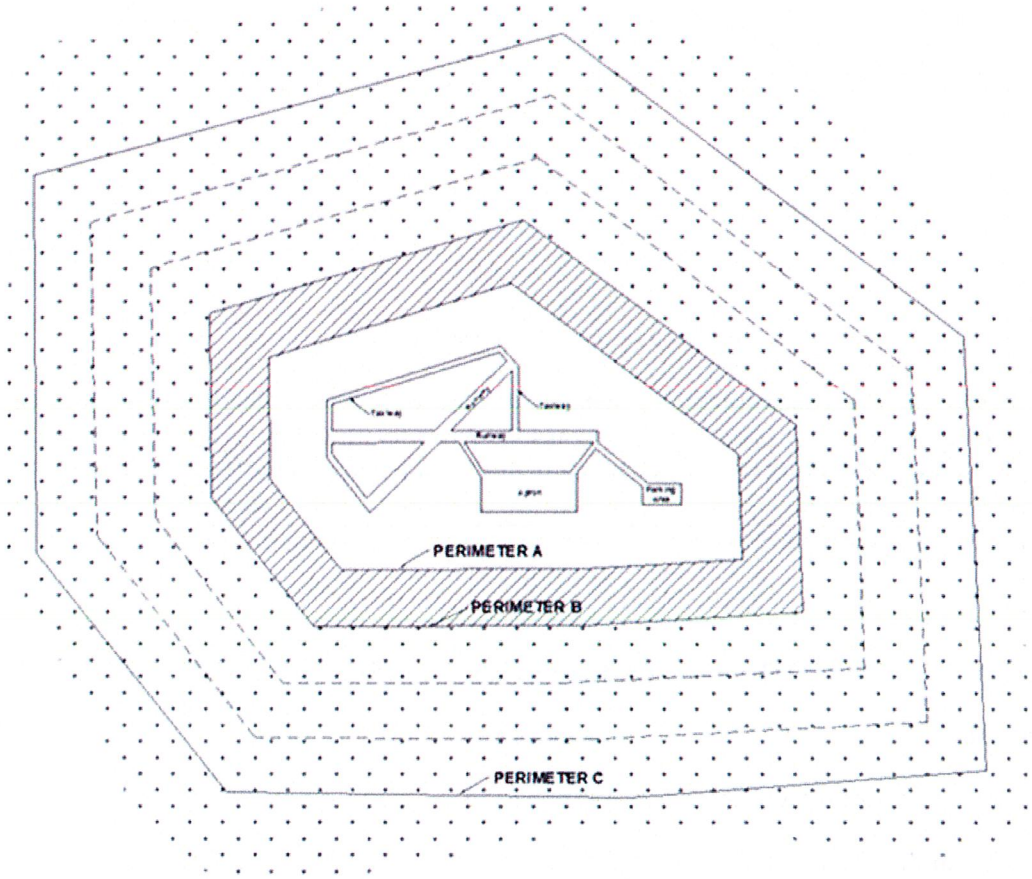
APPENDIX A. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR

A.1 General.

This appendix provides definitions of terms used throughout this AC.

1. **Air operations area**. Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

Figure 1. Example of recommended separation distances described in Chapter 1 within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



We are concerned with "Perimeter C" at Okeechobee County Airport

PERIMETER C: Recommended for all airports, 5-mile range to protect approach, departure and circling airspace.

4.3.4 Airports that have Received Federal Assistance.

Airports that have received Federal assistance are required under their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. See Grant Assurance 21. *The FAA recommends that airport operators oppose off-airport land-use changes or practices, to the extent practicable, within the separations identified in Paragraphs 1.2 through 1.4, which may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances.* The FAA will not approve the placement of airport development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for preventing, eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any

planning process for airport development projects.

Per our obligations, the county is using all its means to prevent this. Is there anything that FDOT can also do to help? If not, who should we talk to?

Please let me know if you have any questions, or if you would like to meet and discuss.

Best Regards,

John L. Hurst

Airport & Industrial Park Director

Okeechobee County Airport & Industrial Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@co.okeechobee.fl.us

421 Aviation Way
Frederick, MD 21701
T. 202-737-7950
F. 202-273-7951
www.aopa.org

December 1, 2023

Florida Department of Environmental Protection
Mr. Shawn Hamilton, Secretary
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

South Florida Water Management District
Mr. Chauncey Goss, Board Chairman
3301 Gun Club Road
West Palm Beach, FL 33406

Via Email to shawn.hamilton@floridadep.gov and cgoss@sfwmd.gov

Re: AOPA Opposition to the Location of the Proposed LKBSTA.

Honorable Secretary Hamilton and Chairman Goss,

The Aircraft Owners and Pilots Association (AOPA) is the largest aviation association in the world with over 60,000 members in the southeast US alone. On behalf of the pilots and aircraft owners that reside in and around Okeechobee County, and aviators that visit the three airports in Okeechobee County, AOPA opposes the location of the Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) Project.

Any project that has the ***potential*** to increase the risk of wildlife interaction with aircraft threatens aviation safety. This public threat is greatest when wildlife crosses paths with an aircraft on approach or departure from an airport, the most demanding operations of flying. It is unlikely that the proposed project can be engineered, and maintained, as to not ***potentially*** increase the risk of wildlife mixing with aircraft operations and therefore should not move forward in its proposed location.

The annual cost of wildlife strikes to the US civil aviation industry in 2022 was projected to be 67,848 hours of aircraft downtime and $385 million in direct and other monetary losses.[1] Furthermore, these strikes put the lives of aircraft crew members and their passengers at risk: over 250 people have been killed worldwide as a result of wildlife strikes since 1988.[2]

Three airports, Okeechobee County Airport (OBE), River Oak (00FL), and Sunset Strip Airpark (32FA), are in the vicinity of the proposed project. These airports have a combined based aircraft make-up of 65 single and multi-engine aircraft, 2 jets, and 3 helicopters. Estimated annual operations include over 5600 local operations plus over 45,000 itinerant (visiting) operations.[3] Additionally, in reviewing the airports' positive financial impact to the community, the OBE Economic Impact Study alone shows economic impacts of 894 employees with a total payroll of $43.1 million and a **total output of $153 million** (see

[1] https://birdstrike.org/wildlife-management-resources/#hot-topics accessed 11/29/2023.
[2] https://www.fws.gov/story/threats-birds-collisions-aircraft accessed 11/29/2023.
[3] FAA 5010 Database accessed 11/29/2023.

the attached summary). It would be a detriment to the financial viability of the overall community to construct such a wildlife attractant as it may cause pilots and businesses to go elsewhere.

The proposed project location does not meet the Federal compliance standards per FAA Advisory Circular governing Hazardous Wildlife Attractants (AC 150/5200-33C) for which OBE must comply as a Federally obligated airport. While the consultant project manager correctly stated during the August 29th townhall meeting that they do not *need permission* from the FAA to construct the project, the pressure is borne by the airport sponsor to protect the flying public and the public investment in OBE. We applaud the August 23, 2023, letter to the FDEP from the Board of County Commissioners of Okeechobee County informing the various agencies about the valid and real concerns. Regardless that previous projects were inappropriately allowed to occur too close to an airport, no additional hazardous projects should move forward that are inconsistent with the FAA's standards for the safety of civil aviation.

While two airports (00FL and 32FA) are not federally obligated, it is ill advised from a public policy perspective to ignore the public safety hazard that will be created with this project in the proposed location. The project property line is only ~1500' away from River Oak and Sunset Strip Airpark runways placing the potential increased wildlife risk immediately in the departure and landing paths.

Although collisions between birds and airplanes can occur at any time, the majority occur at relatively low altitudes during take-off and landing. Due to the proposed project location, there will be low-flying aircraft traversing the area routinely. A wildlife strike at these altitudes will likely prohibit a safe return to the airport and may impede quick emergency response to any aircraft that may crash into the wetland/stormwater project due to bird strike damage. A quick google search for "Aircraft bird strike videos" will yield plenty of alarming news stories of aircraft suffering bird strikes. If this project moves forward in its present location, and an accident occurs, the likelihood of a story highlighting the voiced opposition will be a difficult to avoid.

The AOPA opposes this project's location due to the threat to civil aviation. We urge you to relocate the project away from any active airport operations area. Should you have any questions, please contact me via email at stacey.heaton@aopa.org.

Sincerely,

Stacey Heaton

Stacey Heaton, AAE
Southern Regional Manager

Attach: OBE AEIS

Cc: Mr. Adam Blalock, Deputy Secretary for Ecosystems Restoration, FDEP
via email: adam.blalock@floridadep.gov

Mr. Drew Bartlett, Executive Director, SFWMD
via email: dbartlett@sfwmd.gov

Mr. John Hurst, Airport & Industrial Park Director, Okeechobee County
via email: jhurst@okeechobeecountyfl.gov

OBE
OKEECHOBEE COUNTY AIRPORT

AEIS 2022
Florida Aviation Economic Impact Study

AIRPORT ECONOMIC IMPACTS

894 JOBS

$43.1M PAYROLL

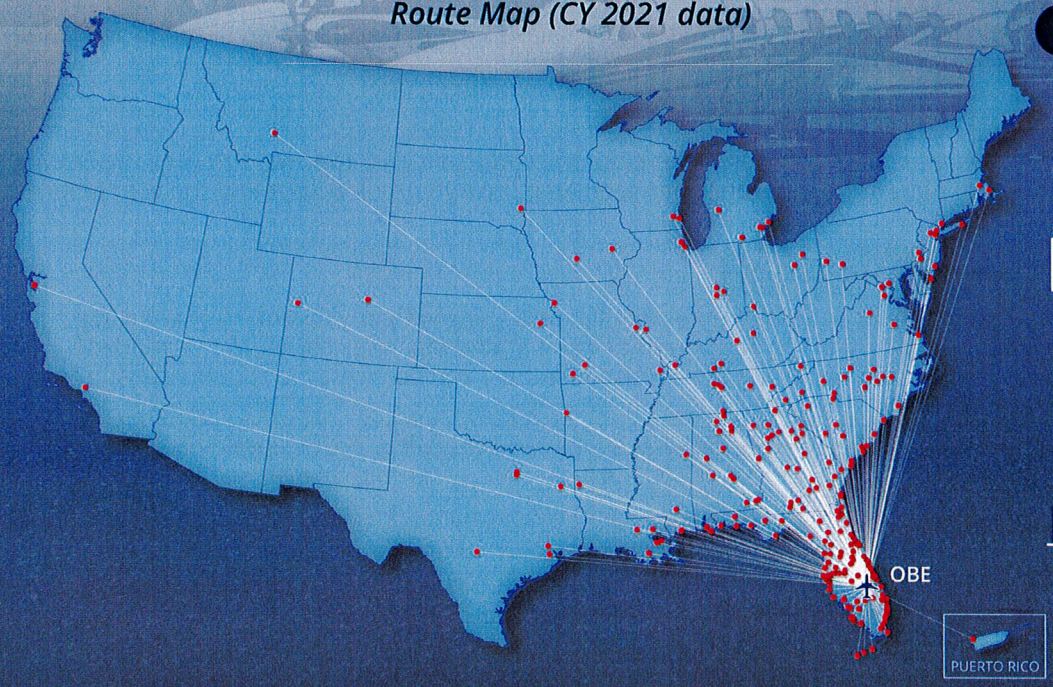
$73.3M VALUE ADDED

$153M ECONOMIC IMPACT *(OUTPUT)*

About Okeechobee County Airport

Okeechobee County Airport (OBE) is a general aviation (GA) airport located directly northwest of the city of Okeechobee. The airport provides two intersecting paved runways, the longest of which (Runway 05/23) is 5,000 feet long by 100 feet wide. The airport serves as a hub for recreational GA flying, as well as business/corporate flights and charter air service. Business and corporate travelers utilize OBE to quickly access Okeechobee and the surrounding south-central Florida region. The airport boasts multiple aviation-related tenants, and an adjacent industrial park supports local jobs and bolsters the airport's economic impact. Flying clubs from around Florida fly into OBE to utilize airport fueling facilities and visit the on-site restaurant, which has become a favorite for locals and visitors alike. The airport has undertaken multiple capital improvements over the past few years. In early 2022, OBE installed an Automated Weather Observation Station (AWOS) and completed a major runway rehabilitation project. These improvements, along with the airport's numerous amenities, continue to draw visitors from around Florida and the United States.

Okeechobee County Airport
Route Map (CY 2021 data)



STATEWIDE ECONOMIC IMPACTS[1]

2,009,088 JOBS

$109B PAYROLL

$170B VALUE ADDED

$336B ECONOMIC IMPACT *(OUTPUT)*

[1]Totals include new off-airport air cargo impacts developed for this update

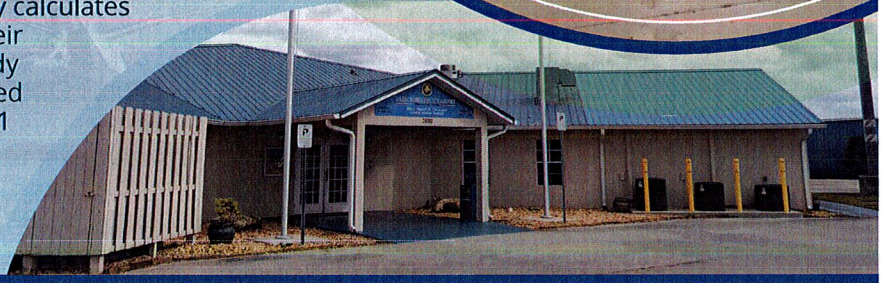
STUDY OVERVIEW

Florida's over 125 public-use airports are economic engines for the state, representing some of the largest aviation facilities in the world and providing critical transportation connections for their local communities. By supporting jobs both on- and off- airport property, Florida's airports support the infrastructure necessary for important activities such as manufacturing, logistics, tourism, and emergency response.

In 2021, Florida welcomed over 43 million out-of-state visitors through its commercial service airports and over 4.6 million visitors through its general aviation airports. Over 3,500 businesses operate at Florida's airports and their 161,000 direct employees create substantial economic impacts.

To help quantify and communicate these immense contributions, the FDOT Aviation Office initiated the development of the 2022 Florida Aviation Economic Impact Study. This study calculates each airport's annual monetary contribution to their local, regional, and statewide economies. This study determined that Florida's aviation system generated 2,009,088 jobs and contributed $336 billion in 2021 to the state's economy, accounting for 13.5% of Florida's gross domestic product (GDP).[2]

[2]*Totals include new off-airport air cargo impacts developed for this update*



What is Economic Impact?

The economic impacts of each airport and the state are defined by the total jobs, payroll, value added, and economic impact (output) generated by aviation in the state. These are defined as:

JOBS

The sum of full-time and part-time employees, and account for the total number of people employed as a result of the airport or company within a defined geography or industry.

PAYROLL

Total compensation for work, including gross wages, salaries, employer-provided benefits and taxes paid to governments on behalf of employees.

VALUE ADDED

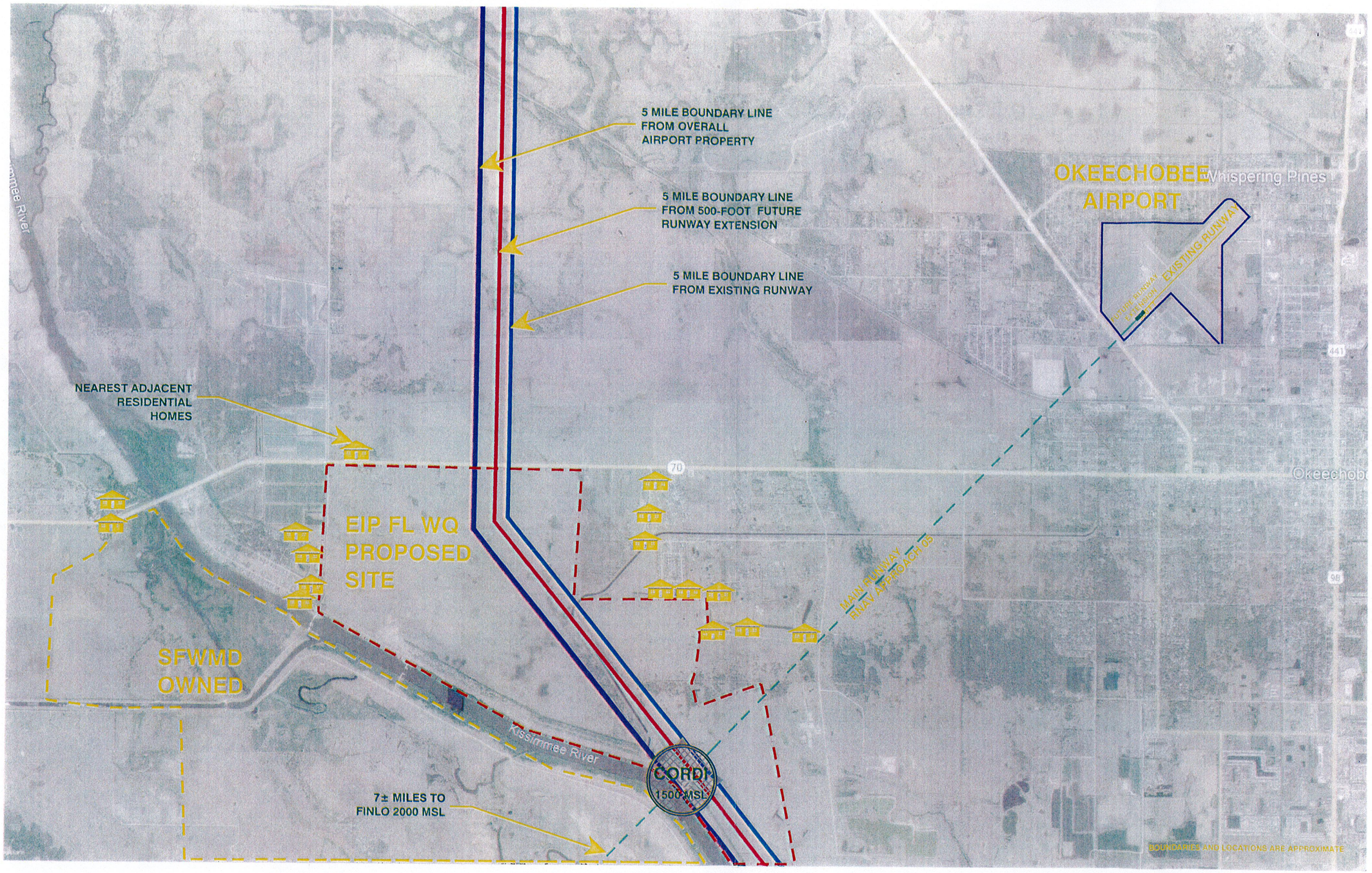
Consists of compensation of employees, taxes paid on production and imports, and gross operating surplus. Value added equals the difference between an industry's gross output and the cost of its intermediate inputs.

ECONOMIC IMPACT (OUTPUT)

The value of sales or receipts and other operating income along with any inventory change (e.g., spoilage, breakage, or theft). It is the equivalent of value added plus the cost of all intermediate inputs (including energy, raw materials, semi-finished goods, and services) that are purchased from all sources/locations.

OFF-AIRPORT AIR CARGO

Off-airport air cargo is a new component of this study which assesses the cargo activity that interacts with Florida's businesses and relies on Florida's airports. The off-airport air cargo component was developed to highlight Florida's diverse industries that depend on airports to support business activity.



NORTH

NOT TO SCALE

REV	DATE	DESCRIPTION	APPR
1			
2			
3			
4			
5			
6			

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY: MYM
DRAWN BY: MYM
PLAN DATE: 08/2023
PROJECT ENGINEER: MARCOS Y. MONTES DE OCA, P.E.
REG NUMBER: 63897
DATE OF SIGNATURE:
EXP DATE: 02/2025
FBPE AUTHORIZATION NUMBER: 29880

MDO ENGINEERING, INC.
PO BOX 1001
OKEECHOBEE, FL 34973
TEL: (863) 634-2131
FAX: (863) 763-6169
FL ENGINEERING BUSINESS NO. 29880
MARCOS@MDO-ENGINEERING.COM

PROJECT NUMBER: MB-1

OKEECHOBEE COUNTY AIRPORT
OKEECHOBEE, FLORIDA

5 MILE BOUNDARY EXHIBIT
SHOWN WITH ADJACENT RESIDENTIAL HOMESITES

DRAWING
SHEET 1 OF 1 SHEETS

3.01.00. - AIRPORT OVERLAY ZONE

Footnotes:
--- (1) ---
Cross reference— *Aviation, ch. 14.*

3.01.01. - Generally.

This section is adopted pursuant to the authority conferred by F.S. § 333.03. It is hereby found that an airport obstruction has the potential for being hazardous to aircraft operations as well as to the persons and property on the ground in the vicinity of the obstruction. An obstruction may affect land use in the vicinity of the obstruction, and in effect reduces the size of areas available for the landing, taking off and maneuvering of aircraft, thus tending to destroy or impair the utility of the Okeechobee County Municipal Airport and the public investment therein. Accordingly, it is declared:

A. That the creation or establishment of an airport obstruction is a public nuisance and an injury to the region served by the Okeechobee County Municipal Airport;

B. That it is necessary in the interest of the public health, public safety, and general welfare that the creation of airport obstructions and structures be prevented; and

C. That it is necessary in the interest of the public health, and general welfare that the establishment of incompatible land uses be prevented in the areas defined as the CNR 100 contour (ASDS 85 dBA) noise area and/or the accident potential hazard area; and

D. That the prevention of these obstructions, structures and incompatible land uses should be accomplished to the extent legally possible, by the exercise of the police power without compensation; and

E. That both the prevention and the creation or establishment of airport obstructions, structures and incompatible land uses and the elimination, removal, alteration, mitigation, or making and lighting of existing airport hazards are public purposes for which the political subdivision may raise and expend public funds and acquire land or interests in land.

3.01.02. - Establishment of airport zoning map.

There is hereby established an official Okeechobee County Municipal Airport zoning map. This map shall be maintained and modified by the county clerk in the manner prescribed for the official zoning atlas in section 2.03.01 of this code.

3.01.03. - Airport zones and airspace height limitations.

In order to carry out the provisions of this section, there are hereby created and established certain zones which includes all of the land lying beneath the approach, transitional, horizontal and conical surfaces as they apply to the Okeechobee County Municipal Airport. Such zones are shown on the official Okeechobee County Municipal Airport zoning map. An area located in more than one of the described zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

A. *Primary zone.* An area longitudinally centered on a runway, extending 200 feet beyond each end of that runway with the width so specified for each runway for the most precise approach existing or planned for either end of the runway. No structure or obstruction will be permitted within the primary zone, that is not part of the landing and takeoff area, and is of a greater height than the nearest point on the runway centerline.

1. The width of the primary zone is as follows: Runways 13, 31, 04 and 22; 500 feet for visual runways having only visual approaches.
2. The width of the primary zone of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.
3. No structure or obstruction will be permitted within the primary zone, that is not part of the landing and takeoff facilities and is of a greater height than the nearest point on the runway centerline.

B. *Horizontal zone.* The area around each civil airport with an outer boundary the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary zone of each airport's runway and connecting the adjacent arcs by lines tangent to those arcs.

1. The radius of each arc is: Runways 13, 31, 04 and 22; 5,000 feet for all runways designated as visual.
2. No structure or obstruction will be permitted in the horizontal zone that has a height greater than 150 feet above the airport height.

C. *Conical zone.* The area extending outward from the periphery of the horizontal zone for a distance of 4,000 feet. Height limitations for structures in the conical zone are 150 feet above airport height at the inner boundary with permitted height increasing one foot vertically for every 20 feet of horizontal distance measured outward from the inner boundary to a height of 350 feet above airport height at the outer boundary.

D. *Approach zone.* An area longitudinally centered on the extended runway centerline and extending outward from each end of the primary surface. An approach zone is designated for each runway based upon the type of approach available or planned for that runway end.

1.

The inner edge of the approach zone is the same as the primary zone and it expands uniformly to a width of: Runways 13, 31, 04 and 22; 1,500 feet for that end of a runway with only visual approaches.

2. The approach surface extends for a horizontal distance of: Runways 13, 31, 04 and 22; 5,000 feet for all visual runways.
3. The outer width of an approach zone to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.
4. Permitted height limitation within the approach zones is the same as the runway end height at the inner edge and increases with horizontal distance outward from the inner edge as follows: Runways 13, 31, 04 and 22; permitted height increases one foot vertically for every 20 feet horizontal distance for all utility and visual runways.

E. *Transitional zone.* The area extending outward from the sides of the primary zones and approach zones connecting them to the horizontal zone. Height limits within the transitional zone are the same as the primary zone or approach zone at the boundary line where it adjoins and increases at a rate of one foot vertically for every seven feet horizontally, with the horizontal distance measured at right angles to the runway centerline and extended centerline, until the height matches the height of the horizontal zone or conical zone or for a horizontal distance of 5,000 feet from the side of the part of the precision approach zone that extends beyond the conical zone.

F. *Other areas.* In addition to the height limitations imposed in paragraphs A through E above, no structure or obstruction will be permitted within Okeechobee County that would cause a hazard to air navigation.

3.01.04. - Airport land use restriction.

Notwithstanding any other provision of this code, no use may be made of land or water within any zones established by this code in such a manner as to interfere with the operation of an airborne aircraft. The following special requirements shall apply to each permitted use:

A. *Generally.*

1. All lights or illumination used in conjunction with street, parking, signs or use of land and structures shall be arranged and operated in such a manner that it is not misleading or dangerous to aircraft operating from a public airport or in vicinity thereof.
2. No operations of any type shall produce smoke, glare or other visual hazards within three statute miles of any usable runway of a public airport.
3. No operations from any type shall produce electronic interference with navigation signals or radio communication between the airport and aircraft.
4.

Use of land within the accident potential hazard area shall prohibit high-density residential use, schools, hospitals, storage of explosive material, assemblage of large groups of people or any other use that could produce a major catastrophe as a result of an aircraft crash.

B. *Lighting.* Notwithstanding the preceding provisions of this section, the owner of any structure over 200 feet above the ground level shall install lighting in accordance with Federal Aviation Administration advisory circular 70-7460-1D and amendments thereto on such structure. Additionally, high-intensity white obstruction lights shall be installed on a high structure which exceeds 749 feet above mean sea level. The high-intensity white obstruction lights must be in accordance with Federal Aviation Administration advisory circular 70-7460-1D and amendments.

C. *Hazard marking and lighting.* Any permit or variance granted shall require the owner to mark and light the structure in accordance with FAA advisory circular 70/7460-1D or subsequent revisions. The permit may be conditioned to permit Okeechobee County at its own expense to install, operate and maintain such markers and lights as may be necessary to indicate to pilots the presence of an airspace hazard if special conditions so warrant.

D. *Airport noise zones.* No person shall sell, lease or offer to sell or lease any land within the airport noise zone (100 CNR 85 dBA contour) unless the prospective buyer or lessee has been given the following notice in writing:

"Noise Warning—this land lies beneath the aircraft approach and departure routes for the Okeechobee County Municipal Airport and is subject to noise that may be objectionable."

3.01.05. - Miscellaneous aviation restrictions.

This section attempts to balance the interest of the county, where Okeechobee must provide for adequate solid waste disposal for the residents and visitors of Okeechobee County while at the same time provide a safe aviation environment for existing airports and landing strips located in the county.

A. *Piston-driven aircraft.* No piston-driven aircraft may utilize a landing or takeoff point or airport within 5,000 feet of an active or open permitted and licensed landfill in Okeechobee County.

B. *Turbine-driven aircraft.* No turbine-driven aircraft may utilize a landing or takeoff point or airport within 10,000 feet of an active or open permitted and licensed landfill in Okeechobee County.

C. *New aviation facilities.* No new aviation facilities, airports, landing or takeoff points shall be licensed or permitted within a five-mile radius of an active or open permitted and licensed landfill in Okeechobee County.

From: Deborah Manzo
To: Bill Royce
Cc: Richard Reade
Subject: Re: H&H Study Quick Guide by FEMA
Date: Monday, October 2, 2023 8:05:34 PM
Attachments: FEMA HH Study Quick Guide(Final).pdf

Thank you Bill.

Deborah S. Manzo, Okeechobee County Administrator
Sent from iPhone

> On Oct 2, 2023, at 6:01 PM, Bill Royce <broyce@co.okeechobee.fl.us> wrote:
>
> I found this Quick Guide from FEMA.
> We do reference hydrologic and hydraulic data in in our land development regulations.
> We adopted the model ordinance when new flood maps and flood regulations were adopted in 2015.
> There is a watercourse on the property that was just rezoned.
> I don't believe anything else we have reviewed since 2015 meets the requirements for an H&H study.
> This EIP project of a couple thousand acres would require it, but their whole concept is altering a watercourse to filter water, so it would be an integral part of their plans anyway.
>
> William Royce
> Okeechobee County
> Community Development Department
> 1700 NW 9th Avenue, Suite A
> Okeechobee, FL 34972
> Phone (863) 763-5548
> Fax (863) 763-5276
>
>

DHS FEMA Region IV

HYDROLOGIC AND HYDRAULIC (H&H) STUDY QUICK GUIDE

DEFINITION

A Hydrologic and Hydraulic (H&H) Study is the study of movement of water, including the volume and rate of flow as it moves through a watershed, basin, channel, or man-made structure.

PURPOSE

H&H studies are completed to ensure structures are sized correctly to handle floodwaters, while not inadvertently increasing flooding up or down stream. The studies are performed to quantify the volume flow rate of water draining from a watershed (i.e., drainage area), and determine the depth and velocity of flow and forces from flowing water on a surface or at hydraulic structures. H&H studies are essential to mitigate against flood loss in the future.

AN H&H STUDY IS REQUIRED

For FEMA-funded projects involving:

- Projects occurring in watercourses[1] with year-round or seasonal base flows[2]
- New construction or alterations of bridges and culverts, including changes to the length, diameter, material, number of culverts, or modifications to inlets or outlets (e.g. head or wing walls, rounding, grouted rip rap)
- New construction or re-construction of levees riverward of existing alignment or higher than existing grades
- Channel modification or realignment
- Significant re-grading (raising or lowering levels of land), including adding fill material(s)

WHEN AN H&H STUDY IS NOT REQUIRED

- Project is a storm water drainage or conveyance structure, where water does not flow year-round or seasonally
- Return back to exact pre-disaster condition (length, diameter, material, number of culverts, exit and entrance conditions, and stream morphology has not changed, etc.)

> ! *An H&H study may be only one of several requirements to ensure FEMA reimbursement. Permits may be required under the Clean Water Act or other regulations. Additional requirements may exist if state or federally listed threatened or endangered species, critical habitat, or cultural resources are present in the project area. Always coordinate with your community floodplain manager prior to making modifications in a mapped floodplain.*

HOW TO OBTAIN AN H&H STUDY

For assistance, contact an agency or company that has licensed, professional civil, environmental, or hydrologic engineers

CONTENTS OF AN H&H STUDY (Minimum requirements)

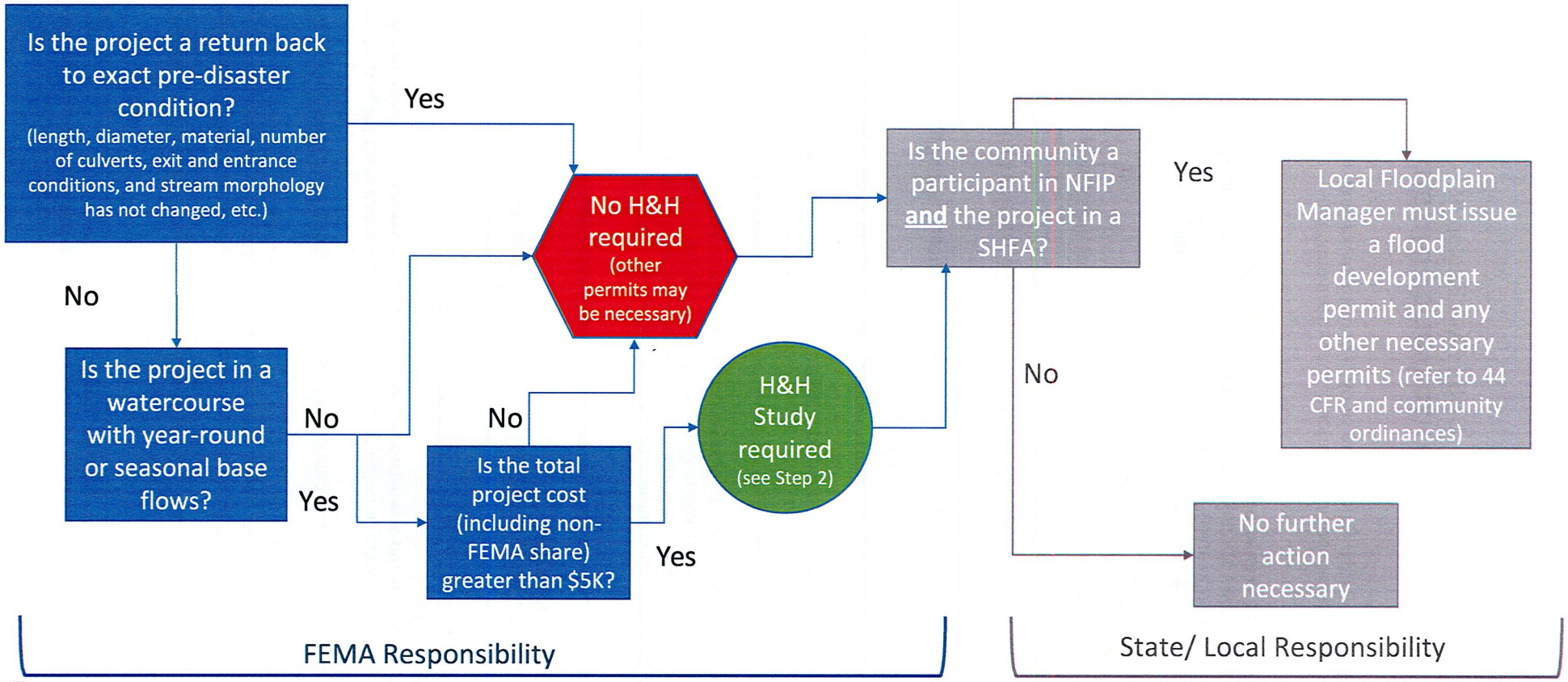
All H&H studies shall include:

- Identification of upstream and downstream impacts (e.g. stage, velocity, duration) of alterations to the floodplain, including change to the extent or depth of the Special Flood Hazard Area (SFHA) or changes to the Base Flood Elevation (BFE)
- General site description, including location, latitude and longitude, drainage basin, FIRM, regulatory mapped flood zone (if applicable)
- Existing condition: pipe shape, material, length, inlet and outlet conditions, performance level
- Proposed condition: pipe shape, size, material, length, inlet and outlet conditions, performance level
- Will the proposed condition satisfy the local floodplain ordinance and local and state storm water management requirements?
- Stamped certification by a professional engineer in the state where the facility is located and certification that the calculations and drawings comply with 44 CFR 60.3

[1] Watercourse definition: a natural or artificial channel through which water flows

[2] Base flow definition: natural or human-induced sustained flow of a watercourse in the absence of direct runoff

When an H&H Study is Required



FEMA

HOBE SOUND
ENVIRONMENTAL CONSULTANTS, INC.
9512 S. E. DUNCAN STREET
HOBE SOUND, FLORIDA 33455
PHONE: (772) 545-3676 CELL (772) 260-0857
E-MAIL: bobhsenv@gmail.com

5 December 2024

Stefan K. Matthes, P.E.
Senior Vice President
Culpepper and Terpening, Inc.
2980 South 25th Street
Fort Pierce, FL 34981

Via Email: smatthes@ct-eng.com

Ref: Proposed SFWMD Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) and possible hazardous wildlife attractants (avian) influences on the Okeechobee County Airport (OBE) and Runway 5-23 Okeechobee County, Florida.

Dear Mr. Matthes;

HSE has reviewed the information provided by Culpepper and Terpening, Inc. regarding wildlife attractants in the proximity of the Okeechobee County Airport (see Attachments) and has the following comments:

HSE staff has over 30 years of experience with stormwater treatment area (STA) design, permitting construction management and monitoring, water farming, wetland mitigation, and marsh restoration. It is the professional opinion of HSE, based on our experience, that the proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) will attract wildlife, especially wading and migratory avian species. In the past, STA's have provided important feeding, breeding and nursery habitat for avian species. Many STA's are used for bird watching and duck hunting by the general public due to the proliferation of avian species within these areas. HSE was involved in the design, permitting and monitoring of the McCarty Ranch STA operated by the City of Port St. Lucie. This STA has attracted numerous avian species, including (but not limited to): wood stork (*Mycteria americana*), American bald eagle (*Haliaeetus leucocephalus*), sandhill crane (*Grus canadensis*), turkey vulture (*Cathartes aura*), black vulture (*Cathartes aura*), osprey (*Pandion haliaetus*), crested caracara (*Caracara cheriway*), red-tail hawk (*Buteo jamaicensis*), cattle egret (*Bubulcus ibis*),barn owl (*Tyto alba*), American crow (*Corvus brachyrhynchos*), mallard duck (*Anas platyrhynchos*) , Egyptian geese (*Alopochen aegyptiaca*), Everglades snail kite (*Rostrhamus sociabilis*), American robin (*Turdus migratorius),* northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), mottled duck (*Anas fulvigula*),roseate spoonbill (*Platalea ajaja)* blue-winged teal (*Anas discors*) green-winged teal (*Anas crecca*), black-bellied whistling duck (*Dendrocygna autumnalis*), fulvous whistling-duck, (*Dendrocygna bicolor*), American black duck (*Anas rubripes*), purple gallinule (*Porphyrio*

martinicus), boat-tail grackle (*Quiscalus major*), great blue heron (*Egretta caerulea*), black-crowned night-heron (*Nycticorax nycticorax*), white ibis (*Eudocimus albus)*, glossy ibis (*Plegadis falcinellus)* American swallow-tail kite *(Elanoides forficatus),* black-necked stilt (*Himantopus mexicanus*), among others.

The FAA Advisory Circular (AC) 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports*, provides guidance on hazardous wildlife which can threaten aviation safety. The FAA recommends a distance of five (5) miles between the closest point of airports aircraft operations area and the hazardous wildlife attractant.

STA's contain a fascinating kingdom of diurnal birds of prey, waterfowl, storks, herons and vultures, cranes and rails, perching birds, owls, pelicans, turkey, falcons, kingfishers, etc.. STA's are also utilized by numerous migratory species during the fall and winter migration and provide attractive habitat during the dry season. These unique habitats also provide birds with a variety of food sources such as fish, macro invertebrates and vegetation, especially during nursery periods and migrations. Incidental plane impacts of avian species may impact endangered and threatened bird species within the designated 5 mile zone mentioned above.

The proposed location of the LKBSTA is within a 5 mile radius of Okeechobee County Airport, and will attract potentially hazardous wildlife. The proposed project is too close to three (3) airstrips, including the Okeechobee County Airport, which could potentially be hazardous to aircraft and threaten aviation safety.

It is HSE's opinion that the proposed LKBSTA is within the five (5) mile radius of Okeechobee County Airport and the extended centerline of runway 5-23, the airports primary runway, and may cause an increase in airplane navigation hazards. This wildlife hazard area within the 5 mile zone of OBE may result in the loss of grants under the Federal Grant assistance programs.

If HSE can be of any further assistance to the Okeechobee County Airport, please contact me or call our office.

Sincerely

Robert L. Weigt

Digitally signed by Robert L. Weigt
DN: cn=Robert L. Weigt, o=HSE, ou=President, email=bobhsenv@gmail.com, c=US
Date: 2023.12.06 08:56:32 -05'00'

Attachments

Gmail

Bob Weigt <bobhsenv@gmail.com>

FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

3 messages

Stef Matthes <smatthes@ct-eng.com> Fri, Dec 1, 2023 at 1:41 PM
To: Bob Weigt <bobhsenv@gmail.com>
Cc: Freda Posin <fredahsenv@gmail.com>

Bob, please give me a call about this. This would be work for Okeechobee County who is in opposition to a STA site located south side of SR 70 adjacent to the Kissimmee River

Stef

From: Richard Reade <rreade@okeechobeecountyfl.gov>
Sent: Friday, December 1, 2023 12:51 PM
To: Stef Matthes <smatthes@ct-eng.com>
Cc: Deborah Manzo <dmanzo@okeechobeecountyfl.gov>; david c21okee.com <david@c21okee.com>
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Hey Stef,

Hope all is well…

Just wanted to check in to see if you may have had any luck with finding someone who can review the District's and EIP's Wildlife Hazard Report and provide comments related to the proposed LKBSTA in advance of the upcoming December 14th meeting…

Thank you.

Have a great day.

Please consider assisting Okeechobee County in developing a new five (5) year Strategic Plan by completing the County's Community Survey - https://www.surveymonkey.com/r/B76NJHS

Richard J. Reade

Deputy County Administrator

Okeechobee Board of County Commissioners

Tel: 863.763.6441 Ext. 2

E-mail: rreade@okeechobeecountyfl.gov

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From: John Hurst <jhurst@okeechobeecountyfl.gov>
Sent: Thursday, November 30, 2023 6:32 PM
To: Richard Reade <rreade@okeechobeecountyfl.gov>
Cc: Deborah Manzo <dmanzo@okeechobeecountyfl.gov>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Richard,

Attached is the report from the wildlife biologist hired by EIP. Scott Hunt marked it up indicating "LSR" on the types of birds found at Lakeside Ranch, many of which are not on the report. A video documenting these birds can be found here: https://youtu.be/TYrdSdCsatQ?si=q-1h-wwHRcGpYvE8

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@okeechobeecountyfl.gov

NOTE: Okeechobee County Board of County Commissioners has a new domain address that has changed from "@co.okeechobee.fl.us" to **"@okeechobeecountyfl.gov**." Please update your contact information to our new domain email address in order to prevent any delays in our office receiving your emails. Thank you.

From: John Hurst
Sent: Monday, October 16, 2023 2:54 PM
To: Richard Reade <rreade@co.okeechobee.fl.us>
Cc: Deborah Manzo <dmanzo@co.okeechobee.fl.us>
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Richard,

Scott Hunt, an airport tenant attended the October 12 SFWMD in West Palm Beach. He informed me that he spoke with Jenifer Reynolds who told him that EIP/DEP has been speaking with FAA regarding the letter we received. She told him that EIP/DEP has engaged an FAA-approved biologist to determine what hazards exist, and what mitigation procedures, if any, are required.

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@co.okeechobee.fl.us

From: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Sent: Monday, October 16, 2023 2:00 PM
To: John Hurst <jhurst@co.okeechobee.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

John,

We have reviewed the Lower Kissimmee Basin Stormwater Treatment Area project information and some supplemental information available to us. The letter from the ADO outlines the FAA information and comments and should, of course, be submitted to SFWMD and possibly Ecosystem Investment Partners (EIP). Some of the additional documentation we have reviewed indicates that the phosphorus removal will be an absolute priority. At least one conservation group has reported that current phosphorus levels entering Lake Okeechobee are five times higher than its assimilative capacity. That said, we believe there may be an option to remove the same or greater amounts of phosphorus with designs that are less attractive to wildlife if the project footprint cannot be shifted outside the zones that concern the FAA.

The documents provided from the EIP presentations indicate the construction will be shallow marsh with treatment water pumped in from either of two canals. Some of the marsh is located under the final approach fix (CORDI) for Runway 5 where jet or piston traffic will be as low as 1500 feet and descending on the instrument approaches and possibly lower on visuals. In lieu of the shallow marsh, it may be possible to construct a series of parallel, deep, steep-sided canals less attractive to birds and very efficient at phosphorus removal by sedimentation and sequestration. The demonstration project for an FAA pond at Naples Airport provided monitoring data and verified methodologies that can be directly used to design and construct such a system.

Our suggestion is a joint meeting with SFWMD, EIP, Okeechobee Airport, FAA (if available), FDOT, and our water management consultants to discuss options that can both reduce the phosphorus loads significantly and minimize wildlife hazards to landing and departing aircraft.

Sincerely,

Abdul Hatim, Ph.D.

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: abdul.hatim@dot.state.fl.us

FDOT AVIATION

From: John Hurst <jhurst@co.okeechobee.fl.us>
Sent: Monday, October 9, 2023 5:47 PM
To: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Abdul,

I wanted to clarify the Stormwater Treatment Area project so you have the correct information. EIP purchased the property and proposed a Stormwater Treatment Area project to SFWMD that would reduce phosphorus. EIP has provided a cost to SFWMD for the project, however, they are not paid by how much phosphorus they remove, they submit the cost of their project and estimate the amount of phosphorus that would be reduced.

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@co.okeechobee.fl.us

From: John Hurst
Sent: Friday, October 6, 2023 3:55 PM
To: 'Hatim, Abdul' <Abdul.Hatim@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Hi Abdul,

Ecosystem Investment Partners (EIP) purchased the land and is doing the project working with SFWMD. DEP is also helping to fund the project. I understand that EIP is paid for how much phosphorus they remove.

Per your request, I have attached a number of documents with plans and details about the project.

Please let us know if you have any additional questions, and what assistance you can provide.

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@co.okeechobee.fl.us

From: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Sent: Friday, October 6, 2023 11:19 AM
To: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>; John Hurst <jhurst@co.okeechobee.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Scott Brady <sbrady@eg-solutionsinc.com>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good Morning Dawn/John,

Some additional information is needed to offer some alternatives to meet both the cleanup targets for phosphorus and maintain the maximum aircraft safety practicable. Is the project design and construction strictly DEP or is SFWMD also participating? Depending on the design specifics and the amount of encroachment into the approach and departure areas, information in the latest (March 2023) update of the Statewide Airport Stormwater Best Management Practices Manual may provide equally or more effective phosphorus removal in systems less attractive to wildlife. It may also offer some options for a smaller footprint that could take the portion of the project inside the recommended exclusion limits out of those limits. If we can get the information on exactly who is doing the project (DEP, SFWMD, or other) and project plans, we can provide more specific assistance.

Sincerely,

Abdul Hatim, Ph.D.

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: abdul.hatim@dot.state.fl.us

FDOT AVIATION

From: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Sent: Thursday, October 5, 2023 1:48 PM
To: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good afternoon, Abdul:

Can you please help John Hurst, Airport Director for Okeechobee County Airport communicate FAA's concern to FDEP?

I appreciate it .

Thank you.

Dawn M. Gallon, CPM, FCCM

Aviation/Intermodal Project Manager

Modal Development Office

Florida Department of Transportation – District One

Office: 863-519-2675

Cell: 863-608-3350

dawn.gallon@dot.state.fl.us

FDOT AVIATION

From: John Hurst <jhurst@co.okeechobee.fl.us>
Sent: Wednesday, October 4, 2023 9:25 PM
To: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>; Richard Reade <rreade@co.okeechobee.fl.us>; Roberts, David <david.roberts@dot.state.fl.us>
Subject: Re: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Dawn,

Thank you for the referral. Please see the attached letter from Peter Green.

The proposed project is partially located within 5 miles of the OBE aircraft operations area; however, FAA recommends that the proposed water treatment facility be located outside the 5-mile separation distance from OBE.

We understand that FDEP will be funding this project through SWFMD.

To help us comply with FAA Advisory Circular 150/5200-33C as required by our FAA grant obligations, can FDOT help us communicate FAA's concern to FDEP?

Best Regards,

John L. Hurst

Airport & Industrial Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@co.okeechobee.fl.us

From: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Sent: Monday, August 28, 2023 2:57:51 PM
To: John Hurst
Cc: Smith, Kristi; Deborah Manzo; Gallon, Dawn
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good afternoon, John:

Please reference the email below from Abdul Hatim on contacting the Environmental Specialist at FAA Orlando ADO, which is Peter Green, 407-487-7296 or peter.green@faa.gov.

Thank you.

Dawn M. Gallon, CPM, FCCM

Aviation/Intermodal Project Manager

Modal Development Office

Florida Department of Transportation – District One

Office: 863-519-2675

Cell: 863-608-3350

dawn.gallon@dot.state.fl.us

FDOT AVIATION

From: Hatim, Abdul <Abdul.Hatim@dot.state.fl.us>
Sent: Monday, August 28, 2023 10:03 AM
To: Keith, Andy <Andy.Keith@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>; Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Smith, David P <DavidP.Smith@dot.state.fl.us>
Cc: Roberts, David <david.roberts@dot.state.fl.us>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good Morning Dawn,

Please advise OBE to contact Environmental Specialist at FAA Orlando ADO regarding the proposed water retention pond by SFWMD.

Sincerely,

Abdul Hatim, Ph.D.

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: abdul.hatim@dot.state.fl.us

FDOT AVIATION

From: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Sent: Thursday, August 24, 2023 8:02 AM
To: Roberts, David <david.roberts@dot.state.fl.us>; Keith, Andy <Andy.Keith@dot.state.fl.us>
Cc: Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Subject: FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good morning,

Seeking your assistance on the email below from John Hurst, Okeechobee County Airport Director.

I appreciate you both.

Thank you.

Dawn M. Gallon, CPM, FCCM

Aviation/Intermodal Project Manager

Modal Development Office

.orida Department of Transportation – District One

Office: 863-519-2675

Cell: 863-608-3350

dawn.gallon@dot.state.fl.us

From: John Hurst <jhurst@co.okeechobee.fl.us>
Sent: Tuesday, August 22, 2023 3:29 PM
To: Gallon, Dawn <Dawn.Gallon@dot.state.fl.us>
Cc: Smith, Kristi <Kristi.Smith@dot.state.fl.us>; Deborah Manzo <dmanzo@co.okeechobee.fl.us>
Subject: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Dawn,

We are concerned about a potentially hazardous wildlife attractant that the South Florida Water Management District is interested in building within 5 statute miles of Okeechobee County Airport's Aircraft Operations area. They are planning to build water retention that they state will attract birds which may be a hazard.

Also, CORDI, the final approach fix for the RNAV approach to runway 5 will be well within the boundaries of the proposed site. Aircraft will be descending through 1,500' over this fix during their approach. Please see the attached drawing.

Specifically, compliance with **FAA Advisory Circular 150/5200-33C Subject: Hazardous Wildlife Attractants on or near Airports** is required per this checklist.

AC No: 150/5200-33C States:

1.4 Protection of Approach, Departure, and Circling Airspace.

.·or all airports, the FAA recommends a distance of 5 miles between the closest point of the airport's *aircraft operations area* and the hazardous wildlife attractant. Special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace. Figure 1 depicts an example of the 5-mile separation distance measured from the nearest aircraft operations area.

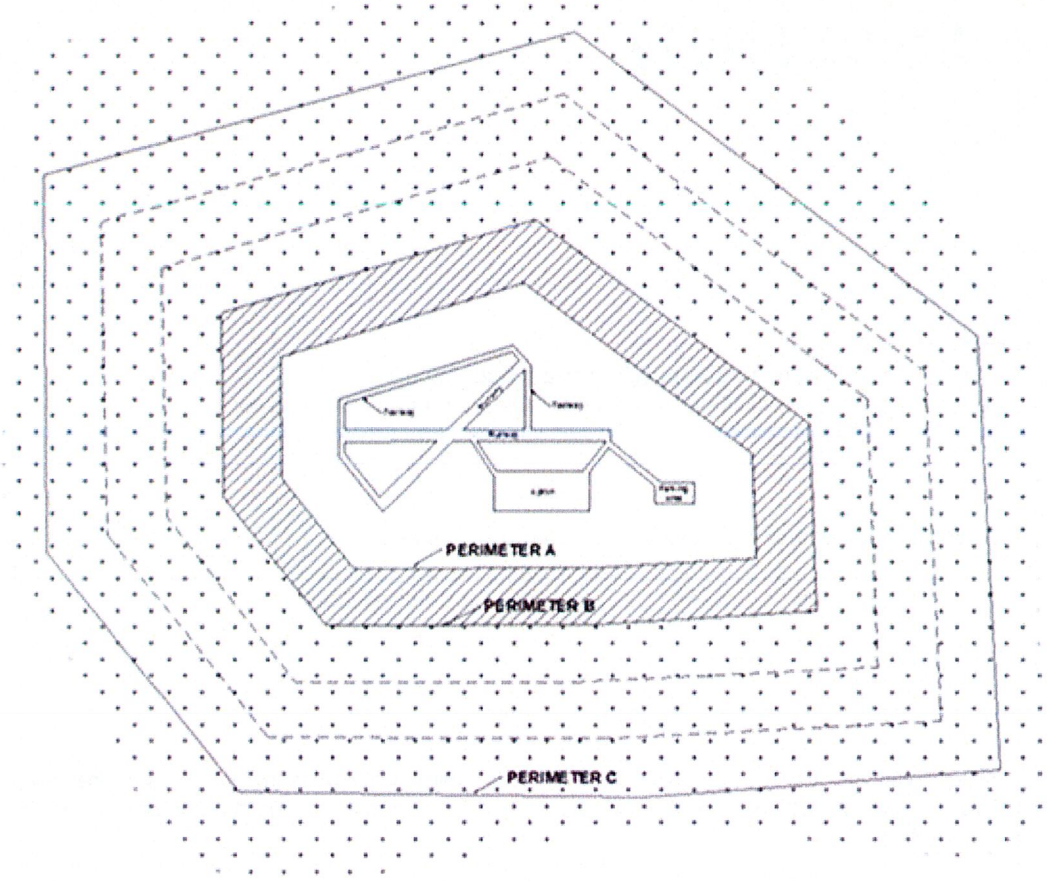
APPENDIX A. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR

A.1 General.

This appendix provides definitions of terms used throughout this AC.

1. **Air operations area**. Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

Figure 1. Example of recommended separation distances described in Chapter 1 within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



We are concerned with "Perimeter C" at Okeechobee County Airport

PERIMETER C: Recommended for all airports, 5-mile range to protect approach, departure and circling airspace.

4.3.4 Airports that have Received Federal Assistance.

Airports that have received Federal assistance are required under their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. See Grant Assurance 21. *The FAA recommends that airport operators oppose off-airport land-use changes or practices, to the extent practicable, within the separations identified in Paragraphs 1.2 through 1.4, which may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances.* The FAA will not approve the placement of airport development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for preventing, eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for airport development projects.

Per our obligations, the county is using all its means to prevent this. Is there anything that FDOT can also do to help? If not, who should we talk to?

Please let me know if you have any questions, or if you would like to meet and discuss.

Best Regards,

John L. Hurst

Airport & Industrial Park Director

Okeechobee County Airport & Industrial Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: jhurst@co.okeechobee.fl.us

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FILE_5450.pdf
1951K

Stef Matthes <smatthes@ct-eng.com> Mon, Dec 4, 2023 at 7:44 AM
To: Bob Weigt <bobhsenv@gmail.com>

ob, here's our draft presentation for your use in the bird review

Stef

From: Richard Reade <rreade@okeechobeecountyfl.gov>
Sent: Monday, December 4, 2023 6:30 AM
To: Stef Matthes <smatthes@ct-eng.com>
Cc: Deborah Manzo <dmanzo@okeechobeecountyfl.gov>; david c21okee.com <david@c21okee.com>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Here you go Stef.

Hope you had a great weekend.

Thank you.

Have a great day.

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Rich Reade

Deputy County Administrator

Okeechobee County

Tel: 863.763.6441

From: Stef Matthes [mailto:smatthes@ct-eng.com]
Sent: Sunday, December 3, 2023 9:55 AM
To: Richard Reade <rreade@okeechobeecountyfl.gov>
Cc: Deborah Manzo <dmanzo@okeechobeecountyfl.gov>; david c21okee.com <david@c21okee.com>
Subject: RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Rich,

I did,

HSE (Hobe Sound Environmental) will be reviewing the reports and providing me with their insight on birds and wetland/STA/lakes….. usage

Can you please send me the draft power point so that I can share the big picture with them?

Thanks

Stef

Stefan K. Matthes, P.E.

Senior Vice President

Culpepper and Terpening, Inc.

2980 South 25th Street

Fort Pierce, FL 34981

Telephone 772.464.3537 Ext *114

Facsimile 772.464.9497

smatthes@ct-eng.com

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Presentation - SFWMD Meeting (Final) - December 14, 2023.pdf
3201K

Bob Weigt <bobhsenv@gmail.com> Mon, Dec 4, 2023 at 9:35 AM
To: Stef Matthes <smatthes@ct-eng.com>

The SFWMD LKBSTA project is too close to three (3) airstrips, including the Okeechobee County Airport, which is one of the most significant economic development tools to attract jobs & resources
Do you have copies of the maps on this page of the powerpoint?
I can not read them. five mile boundary exhibit

[Quoted text hidden]

--

Robert Weigt
Hobe Sound Environmental Consultants, Inc
9512 SE Duncan Street
Hobe Sound, Fl. 33455
(772) 545-3676 Cell (772) 260-0857
E-mail: bobhsenv@gmail.com

ESA

5401 S. Kirkman Road
Suite 475
Orlando, FL 32819
407-748-2729 phone

www.esassoc.com

Memorandum

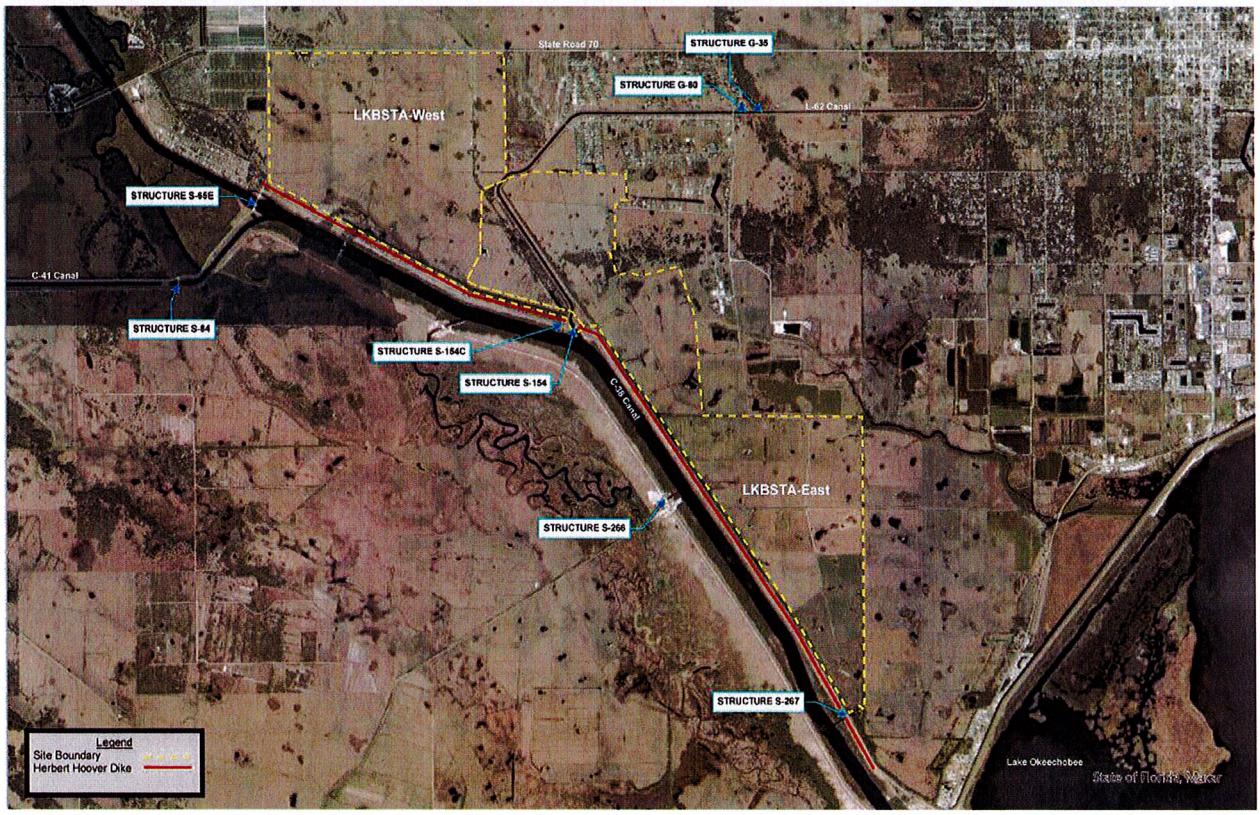
DATE: October 30, 2023

TO: Jeremy McBryan, PE, CFM, ENV SP – Ecosystem Investment Partners

FROM: Julie Sullivan, FAA Qualified Wildlife Biologist
Brendon Quinton, FAA Qualified Wildlife Biologist

PROJECT: Wildlife Hazard Review – Proposed Lower Kissimmee Basin Stormwater Treatment Area

ESA was retained to provide an independent review of a proposed project identified as the Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) in Okeechobee County. The project includes the development of a regional STA which entails creation of several interconnected herbaceous freshwater wetlands designed to reduce nutrients, specifically phosphorus, from stormwater runoff and help achieve the State of Florida's Total Phosphorus Total Maximum Daily Load for Lake Okeechobee. It is understood that the proposed project will be constructed in two phases with the western phase (LKBSTA-W) being constructed first.



LKBSTA Proposed Development Area

ESA

5401 S. Kirkman Road
Suite 475
Orlando, FL 32819
407-748-2729 phone

www.esassoc.com

Federal Aviation Administration (FAA) Advisory Circular (AC) No. 150/5200-33C *Hazardous Wildlife Attractants on or near Airports* provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. There is one public-use airport (Okeechobee County Airport - OBE) located in the vicinity of the proposed project, and comments from Okeechobee County led to the applicant's request for this independent review.

OBE is a general aviation facility located approximately 4.5 miles from the proposed project site. As a facility serving piston-powered aircraft, this is within the recommended separation distance (5 miles) for specified land uses. ESA reviewed the proposed STA in the context of the existing landscape and the relevant FAA guidance (ACs, manuals, publications and other guidance). Further, a review of the likely species use of the proposed facility and the hazardous ranking and status of those species (or guilds) is included in this memorandum.

Existing Conditions:

In addition to thorough review of online information and site-specific studies, on Wednesday, October 18, 2023, one of ESA's FAA qualified wildlife biologists conducted a site visit of the proposed project and surrounding areas. The purpose of the site visit was to review the proposed project site and to also review similarly situated existing STA(s) to identify existing conditions and to gauge potential wildlife usage and changes expected to occur with the development of the proposed project.

LKBSTA Site and Vicinity:

The proposed STA site is primarily improved pasture with evidence of cattle use. A thorough review of the existing land cover classifications and wildlife observations was completed by Common Ground Ecology and detailed in the *Lower Kissimmee Basin Stormwater Treatment Area – West Listed Species Assessment* (June 2023). This study identified ~195 acres of wetlands within the proposed project area and documented the occurrence of listed wildlife and their habitats within the site. While that study focused on listed species, additional studies of similar projects led to the development of a list of likely avian species that would be expected in the STA. In addition to the wading birds, cranes, bald eagles, Audubon's Crested Caracara and other species documented in the Listed Species Assessment, common species utilizing the existing land cover include vultures, cattle egrets, and raptors. Vultures are a species of concern for aircraft because they take advantage of rising columns of warm air (thermals) soaring high in the sky searching for food. This hunting technique puts vultures at higher altitudes for longer durations than other birds and therefore more likely to have interactions with aircraft.

ESA

5401 S. Kirkman Road
Suite 475
Orlando, FL 32819
407-748-2729 phone

www.esassoc.com

The proposed project is adjacent (and will be hydraulically connected to) the Kissimmee River. The Kissimmee River, which was ditched in the 1960's as a flood control project, has been subject to extensive habitat restoration since 1999. This has led to the recovery of hundreds of species and the river and its floodplain provide forage, nesting (including rookeries) and full life cycle habitat for hundreds of avian species. Additionally, the proposed project is in the vicinity of Lake Okeechobee, which is also less than 5 miles from OBE.

During the site visit, the FAA Qualified Biologist confirmed the land cover and existing conditions documented in prior studies and observed the following wildlife in the proposed project footprint: Eastern Meadowlark, greater yellowlegs, great egret, American kestrel, Eastern phoebe, white ibis, anhinga, sandhill crane, pied-billed grebe, red tailed hawk, great blue heron, and others.

Review of Existing STAs

In addition to the existing natural features, it was noted that there are existing (previously developed) STAs in the vicinity of OBE. The Taylor Creek STA is located approximately 2 miles northeast of OBE in the departure/approach of the main runway (5-23). The Lakeside Ranch STA is located on the eastern side of Lake Okeechobee, more than 12 miles from OBE, but it is located directly off the approach / departure of a private airstrip (Flying Cow Air Ranch – FD39) which has a single turf runway. While private use airports are not subject to the FAA AC for Hazardous Wildlife, Lakeside Ranch STA was reviewed because it provided a good comparison for the wildlife species likely to utilize the LKBSTA.

The Lakeside Ranch STA has been constructed in two phases which allowed the qualified biologist to observe similar wildlife activity to that likely anticipated at the proposed LKBSTA. The first phase of the existing Lakeside Ranch STA was heavily vegetated with dense cattails with drivable embankments between them. It is understood that this is the expected cover (dense cattail) for the STAs in the Lake Okeechobee watershed due to high nutrient content in the source water. While the dense vegetation provided a limited view in many areas, the biologist listened for and noted avian vocalizations coming from the vegetation. Wildlife activity was low in this area and consisted of observations of red-shouldered hawk, osprey, cattle egret, anhinga, and wading birds. It was noted this habitat cover took approximately two years to achieve.

The newer phase of Lakeside Ranch STA showed the greatest potential for wildlife activity. Vegetation was patchy and thin, although several areas had been planted to expedite vegetation coverage in those areas. The open water in the lightly vegetated areas appeared to attract species including glossy ibis, cormorant, with wading birds the most prevalent. While waterfowl were not observed, the open water areas could be an attractant for that guild.

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FAA Qualified Biologist Review

In addition to the site reviews and analysis of previously collected data, the ESA FAA Qualified Biologists reviewed existing strike data and compared that with the expected avian species / families at the proposed STA and the observations during the field review. The review of the FAA strike data[1] for OBE for a 10-year period (10-27-2013 to 10-27-2023) identified a total of six (6) strike reports with annual operations of ~50,000. This included 4 "unknown birds" (small to medium), one vulture and one crow. While it is not possible to determine whether the "unknown birds" would occur at the proposed STA, neither of the other species would be more likely to occur than in the site's existing condition. Several of the "top 10" from the list of species hazardous to aircraft (Table 1 – AC 150/5200-32B – **Exhibit 1**)[2] currently occur at the proposed project location.

Wildlife is attracted to a variety of different features and the extent of the wildlife hazard risk for an individual airport depends on many factors including number and type of operations, local and migratory wildlife populations, and habitat conditions. OBE averages ~50,000 operations per year, of which the majority (~45,000) are general aviation (GA) aircraft. According to a letter from the FAA's Orlando Airports District Office (ADO) dated September 27, 2023, OBE completed wildlife surveys in one month (September) in 2016 and identified ~2,900 observations of 27 different avian species. ESA's biologists have not reviewed that data and it is not clear whether those observations represent ~2,900 birds or repeat observations, but it was reported in this FAA letter that 71% of the observations were wading birds. While the FAA establishes separation criteria as a guideline for perimeters within which hazardous wildlife attractants should be avoided off airport, it is acknowledged that the majority of wildlife strikes occur within the immediate airport environment (74% of all strikes occur at or below 500 feet above ground level (AGL)[3]). It is not known if OBE has a current Wildlife Hazard Management Plan (WHMP) nor what measures OBE is using to address the wildlife hazard concern on airport property, but management for the hazardous species on airport should be the primary focus for risk management related to wildlife.

Based on our understanding of the proposed STA design and field review of existing similarly situated STAs, the site will be heavily vegetated with emergent wetland vegetation, primarily cattails once it is fully established.

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[1] FAA Strike Database (https://wildlife.faa.gov/search) accessed 10/27/2023
[2] AC No. 150/5200-32B - Reporting Wildlife Aircraft Strikes (2013)
[3] Wildlife Hazard Management at Airports – A Manual for Airport Personnel (Cleary and Dolbeer, July 2005)

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Lakeside Ranch STA (ESA photo 10-18-2023)

Based on this and a knowledge of the habitat and life cycle needs of regional wildlife, a summary table of the avian species likely to utilize the developed STA site was compiled by Common Ground Ecology Inc. (**Exhibit 2**). It is likely that the mature STA will restrict use by some of the more hazardous species as identified in AC 150/5200-32B including cattle egrets and white ibis which the FAA letter (September 27, 2023) identifies were considered the most hazardous species at OBE at the time of the 2016 OBE survey(s) due to their large flock size. The species most likely to utilize the STA once it is fully established include rails, gallinules and their allies, woodcock and snipe, bitterns and green heron. Species including limpkin, cranes, and black- and yellow-crowned herons either utilize thick vegetation for hunting or are widely variable in their habitat use and may occur at this proposed STA.

Conclusions:

The existing condition at the proposed STA site is improved pasture with intermittent wetlands. A large number of avian species on the list of most hazardous species to aircraft currently utilize the site including turkey vulture, sandhill crane, bald eagle, wading birds and cattle egret. Based on thorough review of the proposed design, similar STAs, understanding of anticipated wildlife use, and the distance from OBE (~4.5 miles), it is the conclusion of the FAA Qualified Biologists that the mature STA, if vegetated as designed, does not represent a significantly greater wildlife hazard to aircraft at OBE than the existing condition.

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While the habitat of the mature STA is not likely to create a greater risk to aviation than the existing condition, it is acknowledged that it may take up to ~2 years for the STA vegetation to fully establish. It should be acknowledged that the interim phase (between construction and habitat maturity) may attract a greater diversity of wildlife than the mature STA system. Therefore, it is the recommendation of the FAA Qualified Biologists that wildlife monitoring should be conducted during and after construction and continue until the STA vegetation has fully established. If monitoring indicates that wildlife activity deviates from expectations, mitigative actions such as additional plantings to accelerate vegetative coverage of the STA or wildlife deterrent activities may be employed to reduce attractiveness.

Table 1. Composite ranking (1 = most hazardous, 50 = least hazardous) and relative hazard score of 50 wildlife species with at least 100 reported strikes with civil aircraft based on three criteria (damage, major damage, and effect-on-flight). Data were derived from the FAA National Wildlife Strike Database.

Wildlife species	% of strikes with:			Mean hazard level[4]	Composite ranking	Relative hazard score[5]
	Damage[1]	Major damage[2]	Effect on flight[3]			
White-tailed deer	84	36	46	55	1	100
Snow goose	77	41	39	53	2	95
Turkey vulture	51	19	35	35	3	63
Canada goose	50	17	28	31	4	57
Sandhill crane	41	13	27	27	5	48
Bald eagle	41	12	28	27	6	48
D.-crested cormorant	34	15	24	24	7	44
Mallard	23	9	13	15	8	27
Osprey	22	7	15	15	9	26
Great blue heron	21	6	16	15	10	26
American coot	24	7	11	14	11	25
Coyote	9	2	21	11	12	19
Red-tailed hawk	15	5	11	10	13	19
Cattle egret	10	3	15	9	14	17
Great horned owl	15	3	6	8	15	14
Herring gull	10	5	9	8	16	14
Rock pigeon	10	4	10	8	17	14
Ring-billed gull	8	3	8	6	18	11
American crow	8	3	8	6	18	11
Peregrine falcon	8	2	5	5	20	9
Laughing gull	5	2	7	5	21	8
American robin	7	1	4	4	22	7
Snow bunting	1	1	9	4	23	7
Red fox	3	0	8	4	23	7
European starling	4	1	5	3	25	6
Amer. golden-plover	4	2	4	3	26	6
Barn owl	4	2	3	3	27	5
Upland sandpiper	4	1	4	3	27	5
Purple martin	5	1	2	3	29	5

Wildlife species	% of strikes with: Damage[1]	Major damage[2]	Effect on flight[3]	Mean hazard level[4]	Composite ranking	Relative hazard score[5]
Mourning dove	3	1	4	3	30	5
Red-winged blackbird	3	0	5	3	31	5
Woodchuck	2	0	4	2	32	4
Northern harrier	2	1	2	2	33	3
Chimney swift	2	0	2	1	34	2
Killdeer	1	0	2	1	35	2
House sparrow	2	0	1	1	35	2
Blk-tailed jackrabbit	1	1	1	1	37	2
American kestrel	1	<1	2	1	38	2
Eastern meadowlark	1	<1	2	1	38	2
S.-tailed flycatcher	0	0	2	1	40	1
Horned lark	1	<1	1	1	41	1
Pacific golden-plover	1	0	1	1	41	1
Barn swallow	1	0	1	1	43	1
Savannah sparrow	1	0	<1	1	43	1
Common nighthawk	1	0	1	1	45	1
Tree swallow	0	0	1	<1	46	1
Burrowing owl	1	0	0	<1	46	1
Western kingbird	0	0	1	<1	48	0
Virginia opossum	1	0	0	<1	48	0
Striped skunk	0	0	0	0	50	0

[1] Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

[2] Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained made it inadvisable to restore aircraft to airworthy condition.

[3] Aborted takeoff, engine shutdown, precautionary landing, or other negative effect on flight.

[4] Based on the mean value for percent of strikes with damage, major damage (substantial damage or destroyed), and negative effect-on-flight.

[5] Mean hazard level (see footnote 4) was scaled down from 100, with 100 as the score for the species with the maximum mean hazard level and thus the greatest potential hazard to aircraft.

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

This list was compiled using data from eBird (a vetted, citizen-science-based online database). Two reference sites in or near Okeechobee County were used: Lakeside Ranch STA and Taylor Creek STA. This list is not a complete list of expected species but includes the species that are most likely to occur based on the detections at the other nearby STAs. Further, some species listed may not occur at LKB STA-W.

Waterbirds with Potential for Occurrence in Okeechobee County

Waterbirds are listed and grouped based on avian family; general notes associated with each group are provided. Each species has been assigned to one of three categories: Open Water, Dense Cover or Both.

Family (and description)	Species	Open-water	Dense-cover	Both
Waterfowl - tend to prefer open water, with some exceptions like tree nesting species that tend to be somewhat secretive, especially in breeding season	Black-bellied Whistling-Duck	x	LSR	
	Fulvous Whistling-Duck	x	LSR	
	Graylag Goose	x		
	Canada Goose	x		
	Mute Swan	x		
	Egyptian Goose	x	LSR	
	Muscovy Duck	x		
	Wood Duck		LSR	x
	Blue-winged Teal	x	LSR	
	Northern Shoveler	x		
	Gadwall	x		
	American Wigeon	x	LSR	
	Mallard	x	LSR	
	Mottled Duck	x		
	Mallard x Mottled Duck (hybrid)	x	LSR	
	Northern Pintail	x		
	Green-winged Teal	x	LSR	
	Ring-necked Duck	x		
	Lesser Scaup	x		
	Bufflehead	x		
	Hooded Merganser	x	LSR	
	Ruddy Duck	x		
Grebes - duck like birds that prefer open water with some vegetative cover	Pied-billed Grebe	x		
	Horned Grebe	x		
Rails, Gallinules, and Allies - Secretive Marsh Birds that are typically associated with dense cover	King Rail		x	
	Virginia Rail		x	
	Sora		x	
	Common Gallinule		x	
	American Coot		x	
	Purple Gallinule		x	

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

	Gray-headed Swamphen		x	
Limpkin - need vegetative cover but also open spaces to visually hunt for apple snails	Limpkin		**LSR**	x
Cranes - need vegetative cover for nesting in/near wetlands, prefer open grasslands & pastures when not nesting	Sandhill Crane		**LSR**	x
Shorebirds - Typically associated with open mudflats, very shallow water, and/or wetland edges; some are very secretive and prefer short herbaceous vegetative cover	Black-necked Stilt	x		
	American Avocet	x		
	Killdeer	x		
	Stilt Sandpiper	x		
	Sanderling	x		
	Dunlin	x		
	Least Sandpiper	x		
	White-rumped Sandpiper	x		
	Pectoral Sandpiper	x		
	Semipalmated Sandpiper	x		
	Western Sandpiper	x		
	Short-billed Dowticher	x		
	Long-billed Dowitcher	x		
	Short-billed/Long-billed Dowitcher	x		
	American Woodcock		x	
	Wilson's Snipe		x	
	Spotted Sandpiper	x		
	Solitary Sandpiper	x		
	Greater Yellowlegs	x		
	Lesser Yellowlegs	x		
	Greater/Lesser Yellowlegs	x		
	Willet	x		
Gulls, Terns, and Skimmers - open water foragers	Bonaparte's Gull	x		
	Laughing Gull	x		
	Ring-billed Gull	x		
	Herring Gull	x		
	Least Tern	x		
	Gull-billed Tern	x		
	Caspia Tern	x		
	Forster's Tern	x		
	Royal Tern	x		
	Black Skimmer	x		

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

Storks - associated with a variety of wetlands, mostly open with some herbaceous vegetation	Wood Stork	x	LSR	
Cormorants and Anhingas - need open water for successful foraging	Anhinga	x	LSR	
	Double-crested Cormorant	x	LSR	
Pelicans - need open water for successful foraging	American White Pelican	x	LSR	
	Brown Pelican	x		
Herons, Ibis, and Allies - many wading birds prefer short herbaceous vegetative cover at varying depths of water, will use open water if shallow enough; there are a few that prefer dense cover	American Bittern		x	
	Least Bittern		x	
	Great Blue Heron	x	LSR	
	Great Egret	x	LSR	
	Snowy Egret	x	LSR	
	Little Blue Heron	x		
	Tricolored Heron	x	LSR	
	Cattle Egret	x	LSR	
	Green Heron		LSR	
	Black-crowned Night-Heron		LSR	x
	Yellow-crowned Night-Heron			x
	White Ibis	x	LSR	
	Glossy Ibis	x		
	Roseate Spoonbill	x	LSR	
Kingfishers - need open water for successful foraging	Belted Kingfisher	x		

Other Avian Species with Potential for Occurrence in Okeechobee County

These species are not considered waterbirds, but some can be associated with wetlands where indicated. Where noted, the species may be associated with open water, dense cover, or with the edges of STA's where there are larger shrubs, trees, or powerlines

Family	Species	Comments
Grouse, Quail, and Allies	Helmeted Guineafowl	
	Northern Bobwhite	
	Wild Turkey	
	Ring-necked Pheasant	
Pigeons and Doves	Rock Pigeon	
	Eurasian Collared-Dove	
	Common Ground Dove	
	White-winged Dove	
	Mourning Dove	
Swifts	Chimney Swift	

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

Hummingbirds	Ruby-throated Hummingbird	
Vultures, Hawks, and Allies	Black Vulture	LSR
	Turkey Vulture	LSR
	Swallow-tailed Kite	
	Sharp-shinned Hawk	
	Cooper's Hawk	
	Red-shouldered Hawk	LSR
	Short-tailed Hawk	
	Red-tailed Hawk	LSR
	Osprey	utilize open water for fishing LSR
	Snail Kite	utilize open vegetated areas to visually hunt for apple snails LSR
	Northern Harrier	hunts for small birds in a variety of vegetation LSR
	Bald Eagle	utilize open water for fishing and hunting waterfowl
Owls	Great Horned Owl	LSR
	Barred Owl	
Woodpeckers	Yellow-bellied Sapsucker	
	Red-headed Woodpecker	
	Red-bellied Woodpecker	
	Downy Woodpecker	
	Pileated Woodpecker	
	Northern Flicker	
Falcons and Caracaras	Crested Caracara	LSR
	American Kestrel	LSR
	Merlin	
	Peregrine Falcon	likelihood of presence in the winter months hunting waterfowl in open water areas
Parrots, Parakeets, and Allies	Monk Parakeet	
Tyrant Flycatchers: Pewees, Kingbirds, and Allies	Eastern Wood-Pewee	associated with open areas/water for foraging on flying insects
	Least Flycatcher	associated with open areas/water for foraging on flying insects
	Eastern Phoebe	associated with open areas/water for foraging on flying insects
	Ash-throated Flycatcher	associated with open areas/water for foraging on flying insects
	Great Crested Flycatcher	associated with open areas/water for foraging on flying insects
	Western Kingbird	associated with open areas/water for foraging on flying insects

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

	Eastern Kingbird	associated with open areas/water for foraging on flying insects
	Gray Kingbird	associated with open areas/water for foraging on flying insects
Vireos	White-eyed Vireo	associated with forested wetlands with medium to dense cover
	Blue-headed Vireo	associated with forested wetlands with medium to dense cover
	Red-eyed Vireo	associated with forested wetlands with medium to dense cover
Shrikes	Loggerhead Shrike	
Jays, Magpies, Crows, and Ravens	Blue Jay	
	American Crow	
	Fish Crow	
Tits, Chickadees, and Titmice	Tufted Titmouse	
Martins and Swallows	Northern Rough-winged Swallow	associated with open water for foraging on flying insects
	Purple Martin	associated with open water for foraging on flying insects
	Tree Swallow	associated with open water for foraging on flying insects
	Bank Swallow	associated with open water for foraging on flying insects
	Barn Swallow	associated with open water for foraging on flying insects
Kinglets	Ruby-crowned Kinglet	
Gnatcatchers	Blue-gray Gnatcatcher	
Wrens	House Wren	
	Sedge Wren	associated with wetlands with dense cover like cattail
	Marsh Wren	associated with wetlands with dense cover like cattail
	Carolina Wren	
Starlings and Mynas	European Starling	
Catbirds, Mockingbirds, and Thrashers	Gray Catbird	
	Brown Thrasher	
	Northern Mockingbird	
Thrushes	Eastern Bluebird	
	American Robin	
Waxwings	Cedar Waxwing	
Old World Sparrows	House Sparrow	
Wagails and Pipits	American Pipit	
Finches, Euphonias, and Allies	American Goldfinch	

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

New World Sparrows	Bachman's Sparrow	
	Grasshopper Sparrow	
	Lark Sparrow	
	Chipping Sparrow	
	Vesper Sparrow	
	White-crowned Sparrow	
	Savannah Sparrow	
	Song Sparrow	
	Lincoln's Sparrow	
	Swamp Sparrow	
	Eastern Towhee	
Blackbirds	Bobolink	
	Eastern Meadowlark	
	Baltimore Oriole	
	Red-winged Blackbird	associated with wetlands with dense cover like cattail
	Brown-headed Cowbird	
	Common Grackle	associated with wetlands with dense cover like cattail
	Boat-tailed Grackle	associated with wetlands with dense cover like cattail
Wood-Warblers	Ovenbird	
	Northern Waterthrush	
	Black-and-white Warbler	
	Orange-crowned Warbler	
	Common Yellowthroat	
	American Redstart	
	Northern Parula	
	Yellow Warbler	
	Black-throated Blue Warbler	
	Palm Warbler	
	Pine Warbler	
	Yellow-rumped Warbler	
	Yellow-throated Warbler	
	Prairie Warbler	
	Black-throated Green Warbler	
Cardinals, Grosbeaks, and Allies	Summer Tanager	
	Northern Cardinal	
	Blue Grosbeak	
	Indigo Bunting	
	Painted Bunting	

SFWMD Lands Provide Important Habitat for Migratory Birds

Tue May 17, 2022
Category: Did You Know? (/taxonomy/term/314581)

Did you know the South Florida Water Management District (SFWMD) restores and protects natural ecosystems that provide important habitat for migratory birds?

In recognition of **World Migratory Bird Day**, SFWMD is highlighting our continuing commitment to supporting and improving wildlife habitat through ecosystem restoration and effective land management.

South Florida is often the last stop for birds on their flight to the Caribbean and Central and South America. The SFWMD manages 60,000 acres of stormwater treatment areas and constructed wetlands that provide habitat for migratory birds as they travel through the region.

Ensuring the protection of birds on our project sites is very important, including when these projects are being constructed. The SFWMD's wildlife management staff conduct comprehensive trainings for staff and contractors that cover:

- The importance of the federal Migratory Bird Treaty Act.
- A walkthrough of state and federally-listed species that they might encounter on a project site.
- What to do if/when you see a protected bird species.
- How to avoid disturbing or otherwise negatively impacting these species and nesting activities.

In addition to trainings, SFWMD staff also monitor project sites for birds and other wildlife while instituting safety protections such as reduced speed limits on project sites. You may even notice barriers, instructions and signage to alert site visitors of nearby protected species. And, it's important to note that all studies of birds and all construction activities are completed under appropriate state and federal permits to ensure the protection of our natural resources and wildlife.

2023 SOUTH FLORIDA ENVIRONMENTAL REPORT

WATER YEAR 2022 (MAY 1, 2021–APRIL 30, 2022)
FISCAL YEAR 2022 (OCT. 1, 2021–SEPT. 30, 2022)

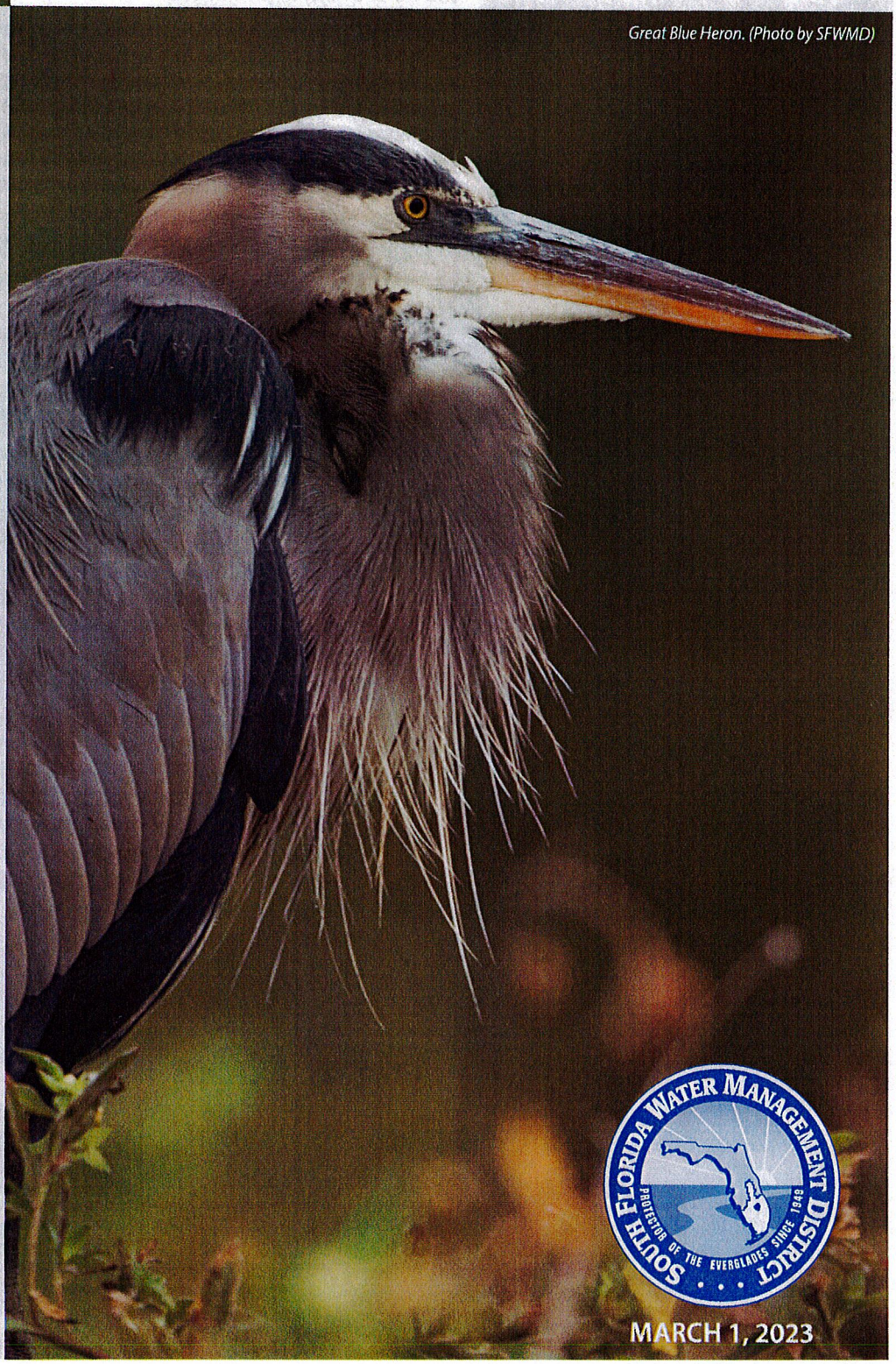
Highlights

The ***South Florida Environmental Report*** (SFER) documents an important year of restoration, scientific and engineering accomplishments in the Kissimmee Basin, Lake Okeechobee, Everglades and South Florida coastal areas.

The report also provides extensive peer-reviewed research summaries, data analyses, financial updates and a searchable database of environmental projects.

The report covers environmental information for Water Year 2022 (WY2022; May 1, 2021–April 30, 2022) and project budgetary and construction information for the South Florida Water Management District (SFWMD or District) for Fiscal Year 2022 (FY 2022; Oct. 1, 2021–Sept. 30, 2022).

The full 2,642-page report is available at SFWMD.gov/sfer.



Great Blue Heron. (Photo by SFWMD)

MARCH 1, 2023

IMPLEMENTING EXECUTIVE ORDER 23-06 AND CONTINUING PROGRESS ON 19-12

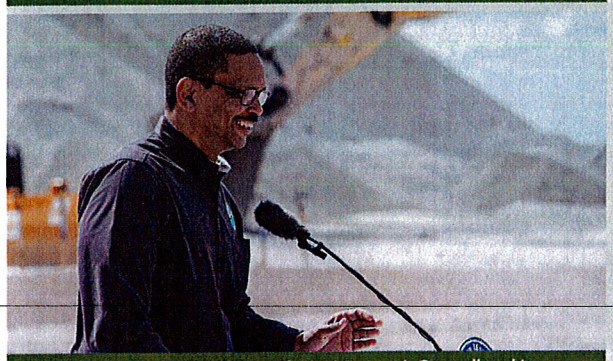
Achieving *Even More* Now for Florida's Environment – New Executive Order Continues Momentum for Everglades Restorat

Governor Ron DeSantis tours waterways on Jan. 10, 2019, at Florida Gulf Coast University's Vester Marine and Environmental Research Field Station in Bonita Springs, where he signed an executive order addressing problems with water quality that have plagued the state. (Photo by Andrew West Fort Myers News-Press via AP)

The South Florida Water Management District (SFWMD) is working to implement Executive Order 23-06 that will continue the historic momentum for Florida's environment and bring additional resources to accelerate Everglades restoration and water quality projects. On January 10, 2023, Governor Ron DeSantis signed **Executive Order 23-06 (Achieving *Even More* Now for Florida's Environment)** to enhance ongoing efforts to expedite restoration projects and further advance the protection of Florida's natural resources. The Governor's announcement came exactly four years to the day after he signed **Executive Order 19-12 (Achieving More Now For Florida's Environment)** that resulted in record environmental funding, expedited Everglades projects, and water quality improvements.

The SFWMD and the Florida Department of Environmental Protection (DEP) made progress on critical Everglades restoration projects including efforts to build water storage north, south, east and west of Lake Okeechobee. More than 50 Everglades projects have been completed, broken ground or hit a major milestone since January of 2019. These projects are making a measurable difference for water quality and the ecological health of South Florida's natural resources. Executive Order 23-06 aims to secure a record-setting $3.5 billion over four years to protect our water resources and further restore America's Everglades.

Executive Order 23-06 Announcement from Governor Ron DeSantis in Bonita Springs on Jan. 10, 2023. (Photo by SFWMD)



DEP Secretary Shawn Hamilton at the EAA Reservoir Groundbreaking on Feb. 22, 2023. (Photo by SFWMD)

MOMENTUM CONTINUES FOR SENDING MORE WATER SOUTH AND REDUCING HARMFUL DISCHARGES

Under the leadership of Governor Ron DeSantis, DEP Secretary Shawn Hamilton and the SFWMD Governing Board, significant progress has been made on the Everglades Agricultural Area (EAA) Reservoir Project. The EAA Reservoir groundbreaking was held on February 22, 2023 and is the culmination of decades of work to bring this project to life.

The EAA Reservoir Project is one of the most important Everglades restoration projects of the Comprehensive Everglades Restoration Plan (CERP). The project will provide ecological benefits, reduce harmful discharges to the St. Lucie and Caloosahatchee estuaries, and send more clean freshwater south to the Everglades.

The SFWMD began working on the project site in April 2020 for the 6,500-acre treatment wetland component, known as a Stormwater Treatment Area (STA) of the EAA Reservoir Project. The STA component is expected to be complete at the end of 2023. The U.S. Army Corps of Engineers is building the 10,500-acre reservoir component of the project and expects to be completed in 2030.

"Four years ago, I promised to pursue a bold agenda and to commit to lead Florida into a new era of stewardship for Florida's natural resources, and we delivered. Today, I am proud to announce the next step in this administration's continued dedication to Florida's treasured environment. This order directs funding and strategic action that will continue our momentum and enhance our ongoing efforts to expedite critical Everglades restoration projects, employ sound science to protect and restore our waterways, and fund infrastructure projects to improve water quality and safeguard Florida's water supply." — Governor Ron DeSantis

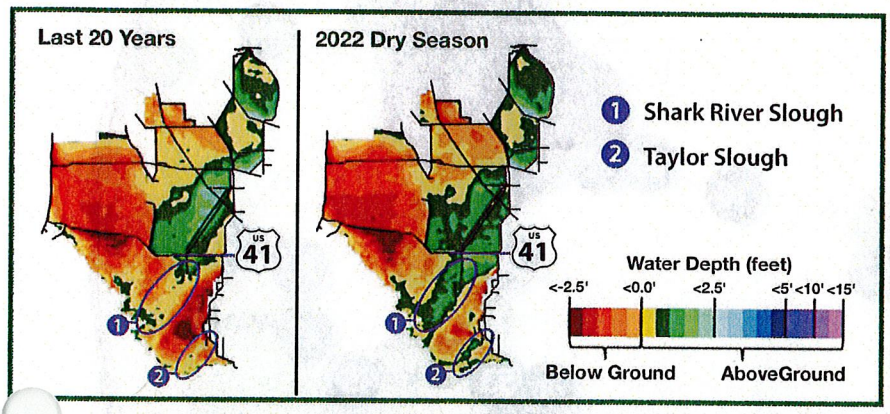
EAA Reservoir Groundbreaking on Feb. 22, 2023. L-R: SFWMD Governing Board Members Jay Steinle and Cheryl Meads, USACE Jacksonville District Lt. Col. Todd Polk, City of South Bay Mayor Joe Kyles, SFWMD Governing Board Vice Chairman Scott Wagner, Former Florida Senate President Joe Negron, Assistant Secretary of the Army for Civil Works Michael Connor, USACE Jacksonville District Col. James Booth, SFWMD Executive Director Drew Bartlett, U.S. Rep. Debbie Wasserman-Schultz, U.S. Department of the Interior Office of Everglades Restoration Initiatives Director Adam Gelber, DEP Secretary Shawn Hamilton, Everglades Foundation President & CEO Eric Eikenberg, SFWMD Governing Board Member Charlette Roman, Captains for Clean Water Executive Director Daniel Andrews, Florida Farm Bureau Assistant Director of Government & Community Affairs Jake Fojtik, Office of U.S. Senator Marco Rubio – London Rotundo, SFWMD Governing Board Members "Alligator Ron" Bergeron, Jacqui Thurlow-Lippisch and Ben Butler. (Photo by SFWMD)

NEW DATA DEMONSTRATE THE SUCCESS OF EVERGLADES PROJECTS ACROSS SOUTH FLORIDA – PROVING RECENT INVESTMENTS AND MOMENTUM ARE WORKING

Together with our partners at the DEP and the U.S. Army Corps of Engineers (USACE) Jacksonville District, the SFWMD continues our significant efforts implementing CERP projects to improve the quantity, quality, timing and distribution of water within the Greater Everglades Ecosystem. Unprecedented state funding coupled with momentum are making a real difference to protect Florida's precious natural resources, support our economy and restore America's Everglades.

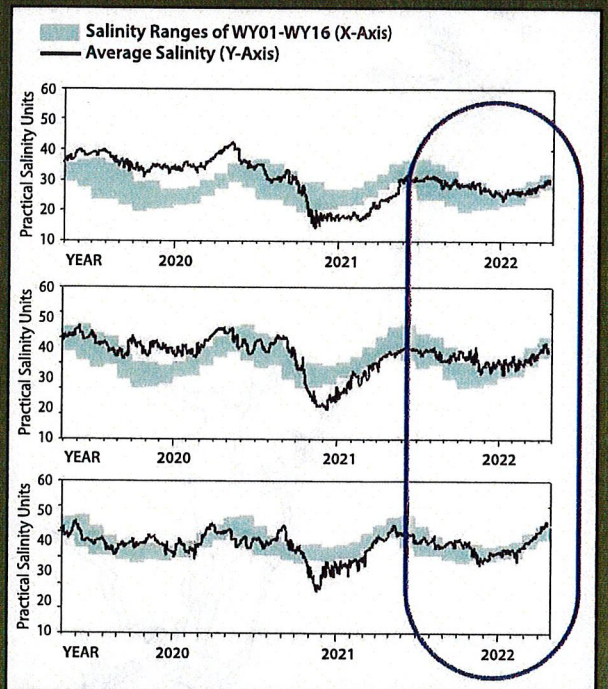
Record Hydration in the Everglades

Current water depths in two key locations, Shark River Slough and Taylor Slough, demonstrate that restoration projects and operations work well together when coupled with rainfall to nourish the Everglades and send water south to support the health of Florida Bay.



Salinity Levels in Florida Bay Stabilize

Record water flows and water depths in the Everglades coupled with rainfall demonstrated that restoration can support healthy salinity levels in Florida Bay. Balanced salinity supports sea grass and spawning fish.



TAYLOR SLOUGH FLOW IMPROVEMENT PROJECT GROUNDBREAKING

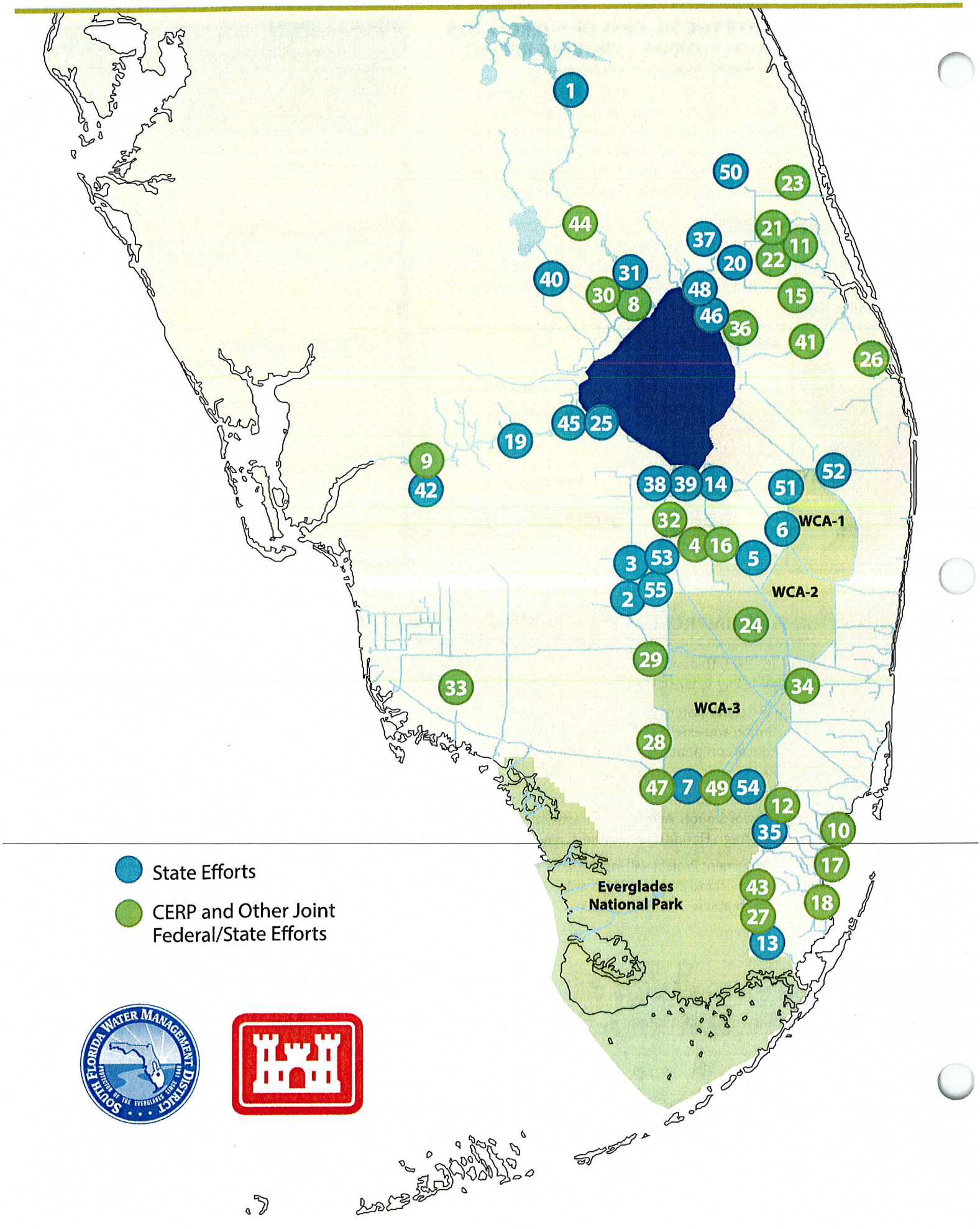
The SFWMD along with the National Park Service broke ground on the Taylor Slough Flow Improvement Project within Everglades National Park on January 26, 2023. This environmental restoration project will allow more clean, freshwater to flow south through Taylor Slough and onto Florida Bay, where it is needed to balance salinity levels and promote ecological health.

Taylor Slough is located in the southeastern part of Everglades National Park and was historically a major contributor of freshwater to Florida Bay. The duration, timing and extent of wetland inundation of Taylor Slough's interconnected wetlands and freshwater flows through Florida Bay are a critical component of the Everglades ecosystem.

In the early 1920's, surface flow was substantially reduced by the construction of Ingraham Highway, which was opened as the first motorway to Flamingo, a small fishing village on the edge of Florida Bay. Ingraham Highway acted as a dam, cutting off and redirecting freshwater flow away from Taylor Slough. Additional infrastructure changes, including the building of the regional flood control system known as the Central and Southern Florida (C&SF) Project, have also reduced the flow of water to this important ecological resource.

The Taylor Slough Flow Improvement Project will install up to 18 culverts at nine locations along a 3.2-mile section of Old Ingraham Highway in Everglades National Park to improve the distribution of freshwater flows and restore natural plant communities and wetlands. The project is expected to be complete in Summer 2023.

Taylor Slough Groundbreaking on Jan. 26, 2023. L-R: Audubon Florida Director of Everglades Policy Kelly Cox, Florida Oceanographic Society Executive Director and CEO Mark Perry, State of Florida Chief Resilience Officer Dr. Wes Brooks, Superintendent of Everglades and Dry Tortugas National Parks Pedro Ramos, SFWMD Governing Board Chairman Chauncey Goss, U.S. Department of Interior Assistant Secretary for Fish and Wildlife and Parks Shannon Estenoz, SFWMD Governing Board Member Cheryl Meads, SFWMD Executive Director Drew Bartlett, SFWMD Governing Board Member Charlette Roman, Everglades Foundation President & CEO Eric Eikenberg, and USACE Jacksonville District Lt. Col. Todd Polk. (Photo by SFWMD)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Everglades
National Park
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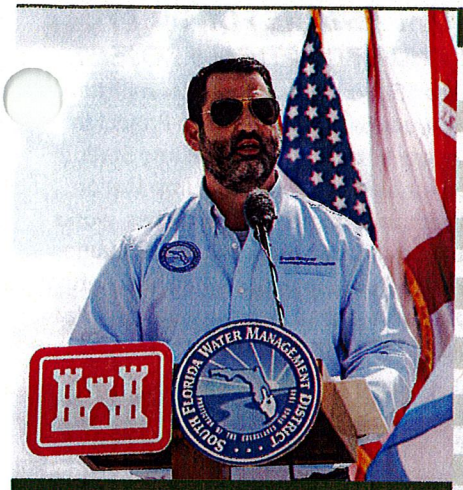
State Efforts
CERP and Other Joint
Federal/State Efforts



SFWMD Governing Board Vice Chairman Scott Wagner at the EAA Reservoir Groundbreaking on Feb. 22, 2023. (Photo by SFWMD)

GROUND BREAKING SINCE 2019

#	PROJECT	EFFORT	GROUND BREAKING	COMPLETION DATE
1	El Maximo Dispersed Water Management	State	2022	2023
2	C-139 Wetland Restoration – Phase II	State	2021	2027
3	C-139 Water Storage Basin (FEB)	State	2021	2023
4	EAA Reservoir Project's Treatment Wetland	Joint	2020	2023
5	STA 2 Refurbishments	State	2020	2022
6	STA 1W – Expansion No. 2	State	2020	2023
7	Raising Tamiami Trail (FDOT)	State	2021	2024
8	Lake O Watershed – Aquifer Storage & Recovery Wells	Joint	2021	2030
9	Caloosahatchee (C-43) Reservoir – Final Phase of Construction	Joint	2019	2025
10	Biscayne Bay Coastal Wetlands - L-31E Flow-way	Joint	2020	2024
11	C-23/C-24 Treatment Wetland	Joint	2022	2025
12	Everglades Nat'l Park Seepage Containment Wall – CEPP New Water	Joint	2022	2024
13	Taylor Slough Hydrologic Improvements	State	2023	2023
14	Bolles Canal Improvements – Final Segment	State	2022	2023
15	C-23/C-44 Canal to Divert Harmful Discharges to St. Lucie River	Joint	2022	2025
16	EAA Reservoir	Joint	2023	2030

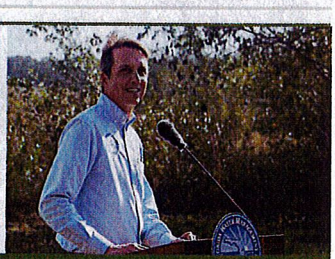
MAJOR MILESTONE SINCE 2019

#	PROJECT	EFFORT	RECENT ACCOMPLISHMENT	COMPLETION DATE
17	Biscayne Bay Coastal Wetlands – Cutler Wetlands	Joint	Finalized Planning and Initial Design	2025
18	Biscayne Bay and Southeastern Everglades Ecosystem (BBSEER)	Joint	Began Planning Efforts	TBD
19	Boma Water Storage Basin (FEB)	State	Started Design	2026
20	C-23/C-24 Interim Water Storage	State	Started Design	2025
21	C-23/C-24 North Reservoir	Joint	Completed Final Design	2028
22	C-23/C-24 South Reservoir	Joint	Started Design	2030
23	C-25 Reservoir and Treatment Wetland	Joint	Completed Land Acquisition, Started Design	2028
	Central Everglades Planning Project (CEPP) North	Joint	Ready to Issue Construction Contact	2026
	Lake Hicpochee Restoration – Phase II	State	Started Design	2025
26	Loxahatchee River Watershed Restoration	Joint	Authorized by Congress, Started Design	TBD
27	S-332B Pump Station Replacement	Joint	Started Design	2026
28	Western Everglades Restoration-South Features	Joint	Started Design	2027
29	Western Everglades Restoration-Remaining Features	Joint	Began Planning	TBD
30	Lake O Watershed – Wetland Restoration	Joint	Began Real Estate Acquisition	TBD
31	Lower Kissimmee Treatment Wetland	State	Began Initial Planning and Design	TBD
32	EAA Reservoir Project Conveyance Improvements	Joint	Started Design	2027
33	Picayune Strand Wetland Restoration	Joint	Began Partial Rehydration of Drained Wetlands	2025
34	C-11 Water Storage Impoundment	Joint	Began Final Design	2028

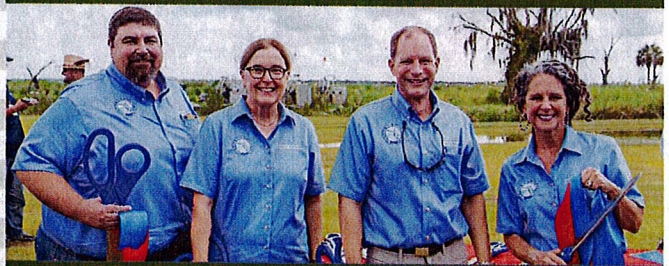
COMPLETED SINCE 2019

#	PROJECT	EFFORT	YEAR
35	Everglades Nat'l Park Seepage Containment Wall – Phase I (8.5 SMA)	State	2022
36	Allapattah Flats Wetland Restoration	Joint	2021
37	Bluefield Grove Water Storage Farm	State	2021
38	Bolles Canal Improvements – Segment 3	State	2020
39	Bolles Canal Improvements – Segment 4	State	2022
40	Brighton Valley Dispersed Water Storage and Management	State	2020
41	C-44 Reservoir and Treatment Wetland	Joint	2021
42	Caloosahatchee (C-43) Reservoir Water Quality Improvements Study	State	2021
43	Improved Water Deliveries for ENP (COP) and C-111 South Dade Project	Joint	2020
44	Kissimmee River Restoration	Joint	2021
45	Lake Hicpochee Restoration – Phase I	State	2020
46	Lakeside Ranch Treatment Wetland	State	2019
47	Old Tamiami Trail Roadbed Removal	Joint	2021
	S-191A Pump Station	State	2021
	S-333N Structure for Everglades Nat'l Park Water Deliveries	Joint	2020
50	Scott Water Storage Farm	State	2021
51	STA 1W – Expansion No. 1	State	2020
52	STA 1E Improvements	State	2022
53	STA 5/6 Improvements	State	2020
54	Bridging Tamiami Trail (FDOT)	State	2019
55	C-139 Wetland Restoration – Phase I	State	2019

DEP Deputy Secretary for Ecosystems Restoration Adam Blalock at the CEPP New Water Groundbreaking on Dec. 12, 2022. (Photo by SFWMD)



SFWMD Executive Director Drew Bartlett at the Taylor Slough Flow Improvement Project Groundbreaking on Jan 26, 2023. (Photo by SFWMD)



Ribbon Cutting Ceremony for the Kissimmee River Restoration Project, July 29, 2021. L-R: SFWMD Governing Board Members Ben Butler and Charlette Roman, SFWMD Governing Board Chairman Chauncey Goss and SFWMD Governing Board Member Jacqui Thurlow-Lippisch. (Photo by SFWMD)

Rehydration of Wetlands, Picayune Strand Restoration Project, July 2, 2021. (Photo by SFWMD)

MAJOR MILESTONE FOR PICAYUNE STRAND RESTORATION PROJECT

In 2021, the SFWMD reached a major milestone for the Picayune Strand Restoration Project in Collier County as the Faka Union Pump Station turned on for the first time. The pump station, coupled with other restoration activities, works to rehydrate drained wetlands in the Picayune Strand State Forest and restore the area's natural sheet flow and health of downstream estuaries and habitats.

MAJOR COMPONENTS OF CALOOSAHATCHEE (C-43) RESERVOIR ARE ADVANCING

The Caloosahatchee (C-43) Reservoir aims to reduce harmful discharges to the Caloosahatchee Estuary and provide beneficial freshwater flows to the estuary in the dry season. This project is a major part of CERP and designed to store approximately 170,000 ac-ft of water.

After the signing of Executive Order 19-12, the SFWMD worked with the DEP, Lee County, Hendry County, Lehigh Acres Municipal Services Improvement District, the City of Cape Coral, the City of Sanibel, stakeholders and the public to complete a Caloosahatchee Reservoir Water Quality Feasibility Study to improve the quality of water leaving the reservoir. The Caloosahatchee Reservoir Project is expected to be complete and fully operational within the next couple of years.

Governor Ron DeSantis, along with State and Local Officials, Breaks Ground on Embankments and Canals to Advance the C-43 Reservoir on Oct. 25, 2019. (Photo by SFWMD)

C-44 Ribbon Cutting, Nov. 19, 2021. L-R: SFWMD Governing Board Members Ben Butler and Jay Steinle, SFWMD Executive Director Drew Bartlett, SFWMD Governing Board Chairman Chauncey Goss, SFWMD Governing Board Members Jacqui Thurlow-Lippisch and Charlette Roman, USACE Jacksonville District Col. James Booth, Lt. Gov. Jeanette Nuñez, Rep. Toby Overdorf, DEP Secretary Shawn Hamilton, Sen. Gayle Harrell, Regional Director for U.S. Sen. Marco Rubio – Greg Langowski, Martin County Chairman Doug Smith, U.S. Department of the Interior Assistant Secretary for Fish and Wildlife and Parks Shannon Estenoz, and Martin County Commissioner Stacey Hetherington. (Photo by SFWMD)

COMPLETED C-44 RESERVOIR & STA TO CURB HARMFUL DISCHARGES TO ST. LUCIE ESTUARY

In 2021, the SFWMD and the USACE hosted a ribbon cutting to celebrate completion of the Indian River Lagoon-South C-44 Reservoir and STA. The C-44 component of the Indian River Lagoon-South project will capture, store, and treat nutrient-rich water, revitalize habitat, help restore the balance of fresh and salt water in the Indian River Lagoon and the St. Lucie Estuary, and provide significant water quality improvements.

The reservoir provides 50,000 ac-ft of new water storage and 6,300 acres of new wetlands. This is the largest CERP project ever completed. The completion of the C-44 Reservoir and STA is another example of Everglades restoration partnerships, success and progress.

Indian River Lagoon-South C23/C-24 STA Groundbreaking, Feb. 18, 2022. L-R: USACE Jacksonville District Lt. Col. Todd Polk, U.S. Fish and Wildlife Service State Supervisor for Ecological Services in Florida Larry Williams, USACE South Atlantic Division Programs Director Dr. Larry McCallister, SFWMD Governing Board Chairman Chauncey Goss, USACE Jacksonville District Col. James Booth, SFWMD Executive Director Drew Bartlett, St. Lucie County Vice Chairman Frannie Hutchinson, SFWMD Governing Board Member Jacqui Thurlow-Lippisch, DEP Deputy Secretary for Ecosystems Restoration Adam Blalock and Florida Chief Science Officer Dr. Mark Rains. (Photo by SFWMD)

INDIAN RIVER LAGOON-SOUTH C-23/C-24 STA BREAKS GROUND: ANOTHER PIVOTAL MOMENT FOR ST. LUCIE RIVER & INDIAN RIVER LAGOON

On February 18, 2022, the SFWMD and the USACE celebrated the groundbreaking of the Indian River Lagoon–South C-23/C-24 STA. This important project will capture and treat local run-off from the C-23 and C-24 basins and reduce the sediment, phosphorus, and nitrogen going to the St. Lucie River Estuary and the southern portion of the Indian River Lagoon.

The STA is the first major construction feature of the Indian River Lagoon-South project to address the C-23 and C-24 basins in St. Lucie County. The STA is part of the Comprehensive Everglades Restoration Plan (CERP) and includes over 2,500 acres. When complete, this project will also provide valuable wetland and upland habitat.

EVALUATING THE SUCCESS OF THE KISSIMMEE RIVER RESTORATION PROJECT

Monitoring and evaluation efforts to measure the success of the Kissimmee River Restoration Project continued, along with adaptively controlling invasive and undesirable species:

- Many methods are used to control invasive plants in the Kissimmee River floodplain. For example, populations of the brown lygodium moth continue to be released to combat the invasive exotic Old World climbing fern.
- Fish abundance increased by 60% in the Kissimmee River Restoration Project Phase I restoration area due mostly to an increase in bluegill sunfish and other sunfish.
- In the Phase IV restoration area, the abundance of largemouth bass increased during winter. Largemouth bass accounted for more than 70% of the total fish biomass.

KISSIMMEE RIVER HEADWATERS REVITALIZATION SCHEDULE

The completion of construction for the Kissimmee River Restoration Project sets the stage for gradual implementation of the new Headwaters Revitalization Schedule (HRS), which regulates water levels in the Kissimmee River to support restoration goals. Phased HRS increments will allow successively higher stages in the Headwaters Lakes (Lakes Kissimmee, Cypress, and Hatchineha) until approximately 2026, when the HRS is currently projected to be fully implemented.

The objective of the HRS is to provide sufficient water storage to reestablish historical (pre-channelization) flow patterns to the Kissimmee River. The higher stages allowed by the schedule are also expected to improve littoral zone habitat in the lakes.

Kissimmee River Restoration Area. (Photo by SFWMD)

Kissimmee River Restoration Project Ribbon Cutting, July 29, 2021. L-R: USACE Jacksonville District Col. Andrew Kelly, SFWMD Executive Director Drew Bartlett, SFWMD Governing Board Member Charlette Roman, Acting Assistant Secretary of the Army for Civil Works Jaime Pinkham, U.S. Department of Interior Assistant Secretary for Fish and Wildlife and Parks Shannon Estenoz, SFWMD Water Resources Director Lawrence Glenn, SFWMD Governing Board Chairman Chauncey Goss, DEP Secretary Shawn Hamilton, County Coalition Chairperson Karson Turner, SFWMD Governing Board Member Jacqui Thurlow-Lippisch, USACE Major General William (Butch) H. Graham, SFWMD Governing Board Member Ben Butler and Rep. Toby Overdorf. (Photo by SFWMD)

CONSTRUCTION COMPLETE ON THE KISSIMMEE RIVER RESTORATION PROJECT

In 2021, the SFWMD and the USACE hosted a ribbon cutting to celebrate construction completion for the Kissimmee River Restoration Project.

The Kissimmee River is a significant part of America's Everglades and this project is vital to restoring the Greater Everglades Ecosystem. The historic Kissimmee River once meandered for 103 miles through Central Florida. Its floodplain, reaching up to two miles wide, was inundated for long periods by heavy seasonal rains. Recurring and prolonged flooding impacted local residents and resulted in Congressional authorization of the Central and Southern Florida Project, which included channelizing the Kissimmee River and floodplain.

Construction of the C-38 Canal achieved flood reduction benefits, but it also harmed the river-floodplain ecosystem. The decline of the ecosystem spurred federal, state and local partnerships to embark on one of the world's largest riverine restoration efforts: the Kissimmee River Restoration Project.

What is a Spillway?

A Spillway is a structure that allows the movement of water between water bodies by use of gates.

PROGRESS CONTINUES ON INCREASING WATER STORAGE NORTH OF LAKE OKEECHOBEE

Progress continues to increase water storage and restore wetlands north of Lake Okeechobee. The SFWMD is continuing to implement the Lake Okeechobee Watershed Restoration Project (LOWRP) in accordance with its science plan in addition to supporting above-ground storage opportunities north of Lake Okeechobee.

SFWMD C38-S and C38-N Drill Rigs. (Photo by SFWMD)

What is a Baffle Box?

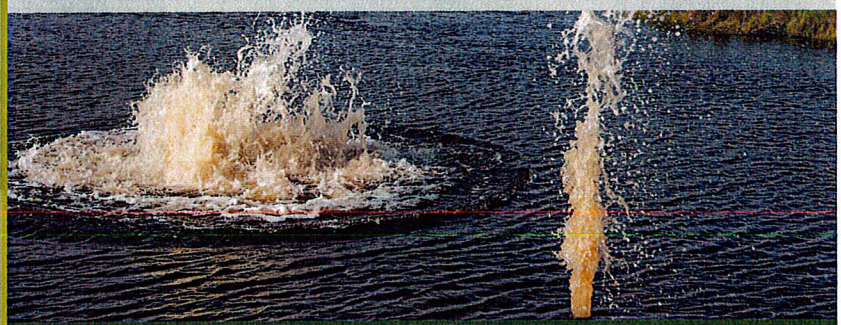
A Baffle Box is an underground stormwater management device that uses barriers (or baffles) to slow the flow of water, allowing sediment to settle before water is released.

DISPERSED WATER MANAGEMENT (DWM) PROJECTS

Brighton Valley DWM, Bluefield Grove Water Farm and Scott Water Farm provide water storage on private property by holding stormwater or even pulling excess water from a regional canal system. These projects help improve water quality and enhance plant and wildlife habitat. All three projects are complete and operational.

Brighton Valley DWM Project

This 8,000-acre project pumps excess water from the C-41A Canal and is estimated to treat up to 40,000 ac-ft of water per year and remove approximately 3 metric tons of phosphorus and 27 metric tons of nitrogen annually before it enters Lake Okeechobee.



Brighton Valley DWM Project. (Photo by SFWMD)

Bluefield Grove Water Farm

The Bluefield Grove Water Farm can capture over 9 billion gallons of regional stormwater before it enters the St. Lucie Estuary and makes a difference in water quality. This 6,100-acre project removes approximately 3 metric tons of phosphorus and 12 metric tons of nitrogen annually from the C-23 Basin.

Bluefield Grove Water Farm Ribbon Cutting, Aug. 18, 2021. L-R: SFWMD Governing Board Member Jacqui Thurlow-Lippisch, Evans Properties Project Manager HM Ridgely, SFWMD Executive Director Drew Bartlett, Evans Properties CEO & President Ron Edwards, Rep. Toby Overdorf, St. Lucie County Vice Chairman Frannie Hutchinson, and SFWMD Governing Board Member Ben Butler. (Photo by SFWMD)

Scott Water Farm

The Scott Water Farm can store more than 9 billion gallons of local stormwater runoff and was designed to reduce harmful estuary discharges. The project will retain onsite rainfall and pump water from the C-25 Canal and store it on approximately 7,500 acres of privately-owned land. The project has the capability to reduce more than 3 metric tons of phosphorus per year and over 13 metric tons of nitrogen per year.

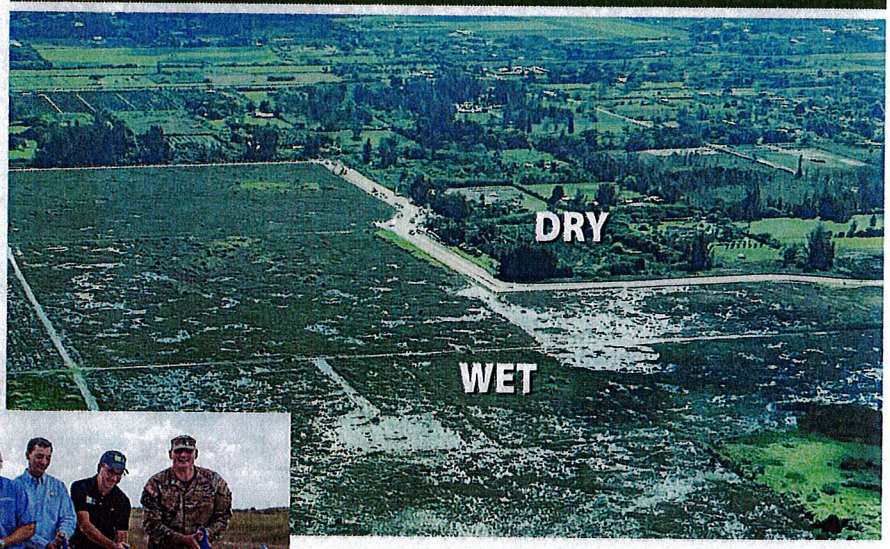
Scott Water Farm Ribbon Cutting, Feb 11, 2022. L-R: St. Lucie County Chair Sean Mitchell, Indian River County Commissioner Laura Moss, SJRWMD Governing Board Member Doug Bournique, Indian River County Vice Chairman Joe Earman, Evans Properties CEO & President Ron Edwards, Okeechobee County Vice Chairman David Hazellief, SFWMD Executive Director Drew Bartlett, SFWMD Governing Board Member Jacqui Thurlow-Lippisch, Rep. Toby Overdorf, SFWMD Governing Board Member Charlette Roman, DEP Deputy Secretary Adam Blalock, County Coalition Chairperson Karson Turner, SFWMD Governing Board Members Cheryl Meads and Ben Butler. (Photo by SFWMD)

UNDERGROUND SEEPAGE WALL SUPPORTS EVERGLADES RESTORATION AND MITIGATES FLOODING

On Dec. 12, 2022, the SFWMD and the USACE joined other federal, state, and local officials to break ground on the CEPP New Water Seepage Barrier Wall Project, which extends the successful underground wall that was built as part of the 8.5 Square Mile Area Seepage Wall Project. The project supports ongoing restoration efforts to move water south through the Everglades and into Florida Bay while mitigating potential flooding impacts in communities outside of Everglades National Park.

The CEPP New Water Seepage Barrier Wall Project adds five miles of underground seepage wall along the L-357 Levee. SFWMD completed the 2.3-mile first phase of the wall in September 2022 and the project is already demonstrating success. During heavy rain events, water that typically would flood communities remained inside Everglades National Park to support the park's historic hydrology. By supporting restoration flows of water through the Greater Everglades Ecosystem, the new underground wall supports the Combined Operating Plan (COP) and new infrastructure being put in place throughout the Everglades that delivers more water into Everglades National Park and Florida Bay—two key areas that need increased flows of water.

Groundbreaking of the CEPP New Water Seepage Barrier Wall, Aug. 20, 2021. L-R: USACE Jacksonville District Lt. Col. Todd Polk, SFWMD Executive Director Drew Bartlett, Congressman Carlos Gimenez, Lt. Gov. Jeanette Nuñez, SFWMD Governing Board Member "Alligator Ron" Bergeron, Miami-Dade County Board of County Commissioners Chairman Jose "Pepe" Diaz, Superintendent of Everglades and Dry Tortugas National Parks Pedro Ramos, Everglades Foundation President & CEO Eric Eikenberg, and DEP Southeast District Director Jason Andreotta. (Photo by SFWMD)



8.5 SMA Seepage Wall - Phase I Ribbon Cutting, Sept. 15, 2022. L-R: Superintendent of Everglades and Dry Tortugas National Parks Pedro Ramos, SFWMD Executive Director Drew Bartlett, Miami-Dade County Board of County Commissioners Chairman Jose "Pepe" Diaz, SFWMD Governing Board Members Charlette Roman, "Alligator Ron" Bergeron and Charlie Martinez, SFWMD Governing Board Chairman Chauncey Goss, DEP Deputy Secretary for Ecosystems Restoration Adam Blalock, Everglades Foundation President & CEO Eric Eikenberg and USACE Jacksonville District Lt. Col. Todd Polk. (Photo by SFWMD)

UNDERGROUND WALL IN ACTION

Heavy rain events in 2022 demonstrated the success of the underground seepage wall. On the bottom left of the above photo, conditions in Everglades National Park are wet.

On the top right, the nearby community is dry. Prior to the installation of the seepage wall, the conditions in both areas of the image would have been wet with similar heavy rains.

OLD TAMIAMI TRAIL ROADBED REMOVAL PROJECT COMPLETED SIX MONTHS AHEAD OF SCHEDULE

In 2021, Governor Ron DeSantis joined the DEP, SFWMD, USACE, and other state and federal officials to celebrate the completion of the Old Tamiami Trail Roadbed Removal Project, which was completed six months ahead of schedule. This project is a critical Everglades restoration project to remove nearly six miles of roadbed from Old Tamiami Trail to allow more water to naturally flow south into Everglades National Park.

Old Tamiami Trail is a historic highway that was built across the Everglades to connect Tampa and Miami in the early 1900s. By removing the roadbed, the project helps restore the ecologically important sheet flow of water south through the Everglades.

Completion of the Old Tamiami Trail Roadbed Removal Project, Aug. 3, 2021. L-R: SFWMD Governing Board Members Charlie Martinez and "Alligator Ron" Bergeron, SFWMD Governing Board Vice Chairman Scott Wagner, SFWMD Governing Board Member Charlette Roman, Governor Ron DeSantis, SFWMD Governing Board Chairman Chauncey Goss, SFWMD Governing Board Members Cheryl Meads, Jacqui Thurlow-Lippisch and Jay Steinle, and SFWMD Executive Director Drew Bartlett. (Photo by SFWMD)

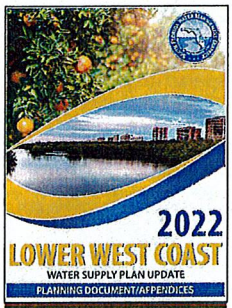
How much is an acre-foot?

An acre-foot (ac-ft) is the volume of water needed to cover one acre of land with one foot, or 325,851 gallons.

MINIMUM FLOWS AND MINIMUM WATER LEVELS, WATER RESERVATIONS, AND RESTRICTED ALLOCATION AREAS

- Adopted Restricted Allocation Area Rule to protect water made available by the CERP Loxahatchee River Watershed Restoration Project.

WATER SUPPLY AND QUALITY



2022 Lower West Coast Water Supply Plan Update.

- Completed the Draft 2022 LWC Water Supply Plan Update with demand projections through 2045 and initiated public review and comment period. Conducted stakeholder meetings and coordinated with the Southwest Florida Water Management District.
- Implemented the DEP Alternative Water Supplies grant program FY2022, which provided funding for three alternative water supplies and nine water conservation projects with regional stakeholders.
- Significantly advanced the number of local governments that have now adopted irrigation ordinances that comply with SFWMD's Year-round Irrigation Rule.
- Conducted an initial siting analysis for the Picayune Watershed Water Quality project. The objective of the study is to determine if there is land available and suitable for implementation of a water quality project in the Picayune watershed and improve water quality in the Outstanding Florida Waters.

COMPREHENSIVE EVERGLADES RESTORATION PLAN

- For the Central Everglades Planning Project (CEPP), construction continues on the EAA Reservoir Project STA and design continues for the CEPP EAA Canal Conveyance Improvements. Completed design and permitting of the CEPP North S-620 Structure. The CEPP New Water Draft Validation Report and design of the seepage management feature were completed.
- Completed the 2nd annual Aquifer Storage and Recovery (ASR) Well Science Plan to identify potential studies to be conducted to address scientific uncertainties of phased implementation of ASR wells. Initiated several ASR wells for testing.
- Completed design and permitting of the remaining component of the Biscayne Bay Coastal Wetlands Phase I, the Cutler Flow Way and initiated construction of the S-701 Pump Station.

LAND RESOURCES

- Swept over 150,000 acres of conservation and project lands to control invasive plant species, resulting in treatment of more than 40,000 acres of vegetation to maintain the ecological function and values of native plant species.
- Prescribed burns were conducted on 14,291 acres of fire dependent plant communities and wetlands on District-managed conservation and project lands.

What is a Ditch?

A Ditch is a narrow channel dug in the ground, typically used for drainage alongside a road or the edge of a field. Ditches are typically dry except during rain events.

RESTORATION STRATEGIES

The design and construction of Restoration Strategies projects is ongoing with completion of all projects expected by December 2024. In Water Year 2022 (WY2022; May 1, 2021–April 30, 2022), five milestones were completed on four projects: (1) STA 1 East (STA 1E) Repairs and Modification, (2) STA 1 West (STA 1W) Expansion No. 2, (3) G-341 Related Improvements, and (4) C-139 FEB.

STA 1E Repairs and Modifications were completed in March 2022. The project leveled out land surface issues of Cells 5 and 7 which improves treatment performance and is undergoing vegetation management activities prior to operating.

For the G-341 Conveyance Improvements Project, land needed was fully acquired in June 2021 and the final design was completed in March 2022. The C-139 FEB and STA 1 Expansion No. 2 construction status reports were submitted in February 2022.

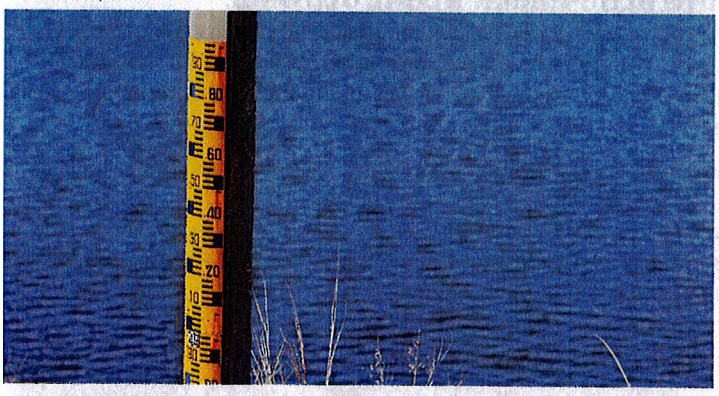

G-341 Conveyance & Related Improvements; Segment #4 Construction. (Photo by SFWMD)

RESTORATION STRATEGIES SCIENCE PLAN

Over the 10 years that the Restoration Strategies Science Plan has been in effect, nine studies have been completed and 12 are ongoing. In WY2022, the Floating Tussocks study was completed. The study evaluated factors that contribute to formation of floating mats of vegetation (tussocks) in STAs and their effects on phosphorus retention. An unmanned aerial vehicle (i.e., drone) equipped with imaging sensors took high resolution images of STA cells planted with emergent aquatic vegetation (EAV). EAVs are wetland plants that extend above the water surface.

A buoyancy model was developed to inform operational recommendations to reduce the formation of tussocks in the STAs. Regular use of drones to survey these areas could provide early detection, allowing management activities such as planting of deeply rooted EAV, harvesting, treatments, or lowering water levels to prevent further tussock expansion. See Chapter 5C for details about completed and ongoing studies.


Mapping floating tussocks in an STA using a drone equipped with imagining sensors. (Photo by SFWMD)



SEA LEVEL RISE AND FLOOD RESILIENCY

The SFWMD is strongly committed to addressing the impacts of climate change, including rising sea levels, changing rainfall, and flood patterns.

The SFWMD's current resiliency efforts focus on assessing how sea level rise and extreme events, including flood and drought events, happen under current and future climate conditions, and how they affect water resources management.

The SFWMD is also making significant infrastructure adaptation investments that are needed to successfully implement its mission. As part of its resilience initiatives, SFWMD established an initial set of water and climate resilience metrics to track and document trends and shifts in water and climate data monitored by SFWMD.

The SFWMD continues to assess these data to better understand the current and predicted impacts of climate change on South Florida's ecosystems and water resources. This year's chapter 2B focuses on:

- Groundwater levels and coastal saltwater intrusion trends in South Florida — chloride data collected between 1990 and 2020 in the lower east coast surficial aquifer identify areas of westward (inland) saltwater movement and areas of eastward (seaward) saline water movement.
- Estuarine inland migration trends in South Florida — The distribution of coastal mangrove forests and adjacent estuarine ecosystems in South Florida is determined by tidal fluctuation, salinity, and sediment elevation. These forests are important buffer zones between land and sea that contribute to the formation of soil and stabilization of coastlines, acting as natural defense systems against hurricanes and tidal surge protecting inland habitats and coastal communities from flooding.
- Habitats are responding to global climate change and changes in historical water flows. Evaluation of the data also illustrates the role of water management in staving off the impacts of sea level rise through freshwater inputs.
- Evaluation of salinity trends in the South Florida Ecosystem and soil subsidence (loss of elevation).

What are Dikes and Levees?

Dikes and Levees are barriers that divert or restrain the flow of water. The large earthworks that surround Lake Okeechobee are generally referred to as dikes, whereas the smaller earthworks surrounding canals and Water Conservation Areas are generally called levees.

STORMWATER TREATMENT AREAS AND BEST MANAGEMENT PRACTICES HAVE PREVENTED THOUSANDS OF METRIC TONS OF TOTAL PHOSPHORUS FROM ENTERING THE EVERGLADES

Since 1994, the Everglades STAs have treated approximately 25.2 million ac-ft of water (~ 8.2 trillion gallons) and retained 3,221 metric tons (t) of TP with a 77% Total Phosphorus (TP) load reduction. The overall outflow TP Flow-Weighted Mean Concentration (FWMC) from these treatment wetlands during this period has been 30 µg/L. STA 3/4, over its 19-year operational history, has treated the most water (~ 8.3 million ac-ft), retained the most TP load (875 t), achieved the highest percent TP load retained (85%), and discharged water at the lowest outflow TP FWMC (15 µg/L) of all the Everglades STAs. See Chapter 5B, Volume I, for more information.

The SFWMD BMP Program prevented approximately 4,431 metric tons of TP from entering the Everglades for the WY1996–WY2022 period. With the WY2022 results, the 27-year average annual TP load reduction for the program is 57%. EAA basin runoff is directed to the Everglades STAs for further nutrient reduction before discharging to the Everglades Protection Area. See Chapter 4, Volume I, for more information.

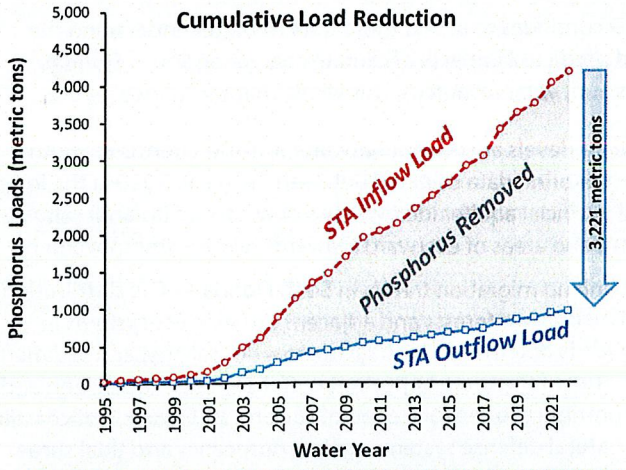


Figure 1. Everglades STAs have prevented 3,221 metric tons of phosphorus from entering the Everglades since 1995.

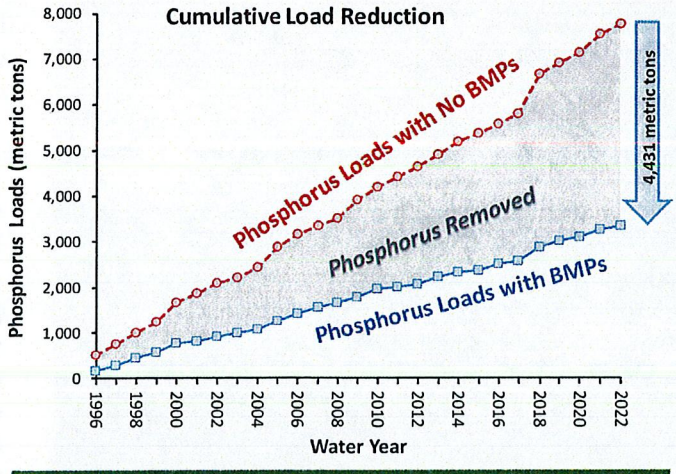


Figure 2. BMPs have prevented 4,431 metric tons of phosphorus from leaving the EAA Basin in stormwater runoff since 1996.

What are Nutrients?

In aquatic environments, nitrogen and phosphorus are key nutrients that affect the growth rate of plants. Although the nutrients, phosphorus and nitrogen, are vital in all natural systems, too much nutrients in an ecosystem can have harmful ecological consequences. Nutrients can flow across the landscape in stormwater runoff as pollution (urban and agricultural). This can harm natural areas by promoting algae growth, creating an overabundance of non-native plants, crowding out natural vegetation and disrupting food sources and habitats.

The Everglades is naturally an extremely low-nutrient system. Even small amounts of additional nutrients can upset the delicate ecological balance needed by the native plants and animals in the historic "River of Grass." Phosphorus is normally recorded in micrograms per liter (µg/L) or parts per billion (ppb) and nitrogen is normally recorded in milligrams per liter (mg/L) or parts per million (ppm). In this document, Total Phosphorus (TP) and Total Nitrogen (TN) are used to denote measurement when monitoring the nutrients found in water bodies or as they relate to inflows and outflows of water.

ADDRESSING BLUE-GREEN ALGAL BLOOMS

The SFWMD, in cooperation with the DEP, maintains a Blue-Green Algae (BGA) Response Plan. The plan outlines a threshold-based framework for monitoring and treating BGA blooms based on severity, with four main components: Field Reconnaissance, Treatment Response, Monitoring, and Experiments.

The SFWMD aims to use eco-friendly methods for BGA bloom management and control and continuously assess their effectiveness. Monitoring provides data to inform treatment and improve BGA management. Experiments will test new methods for future control and include the use of federal grants. Leveraging technology, including new laboratory equipment and automating processes, the SFWMD can provide more frequent reporting and data summaries to facilitate efficient coordination and response efforts.

SFWMD Staff Deploying Nexsens CB 450 Data Buoys on Lake Okeechobee to Help Monitor Water Quality Across the Lake. (Photo by SFWMD)

A Group of Wood Storks Wading in an STA at Sunset. (Photo by SFWMD)

SECOND HIGHEST WADING BIRD NESTING SEASON ON RECORD

Wading birds help us understand the health of the Everglades. We know that if we get the water right for wading birds, we're getting it right for the ecosystem. SFWMD ecologists track the timing, location and distribution of wading bird nesting, as well as foraging patterns, in addition to other activities. The SFWMD regularly monitors ibises, wood storks, herons, roseate spoonbills and egrets. These species serve as important ecological indicators, especially during exceptionally wet and dry years. Most species exhibited considerably increased nesting efforts and nesting success during 2021.

According to the 2021 Wading Bird Report, nearly 102,000 wading bird nests were initiated during the 2021 wading bird nesting season! This represented the second largest number of nests initiated by wading birds, one of the bellwether species used by scientists to gauge the overall health of the Everglades, since scientists started surveying nesting throughout the Everglades in 1996.

"This latest reporting year shows the benefits of Everglades restoration efforts when climatic conditions are favorable and the exciting potential for all the ongoing environmental restoration projects that will be finished in the coming years," said Dr. Mark Cook, lead editor of the SFWMD Wading Bird Report. "We had above average rainfall and favorable timing during the reporting period. This shows that as we are restoring the hydrology of the Everglades, getting the water right will allow Mother Nature to take advantage of favorable conditions when they are presented. All species, including wading birds, are benefiting."

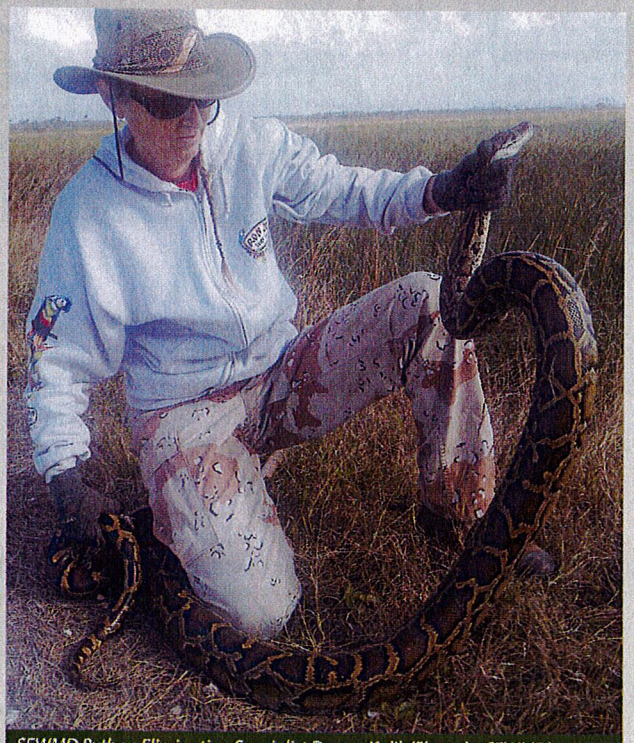
What are STAs?

Stormwater Treatment Areas (STAs) are large, constructed wetlands with inflow and outflow structures for controlling water movement. Aquatic plants in the STAs remove and store excess nutrients (phosphorus) found in the stormwater runoff through growth and accumulation of dead plant material in the layers of sediment. This natural process cleanses the water before it is moved out of the STA and into the Everglades or other water bodies.

TAKING AGGRESSIVE ACTION TO REMOVE INVASIVE BURMESE PYTHONS

To date, over 10,000 Burmese pythons have been removed from the Everglades and the surrounding rural areas.

Pythons are non-native, invasive snakes that pose direct threats to native wildlife. Pythons cause significant impacts to native prey, such as marsh rabbits, deer, wading birds and even alligators. Their aggressive predation negatively impacts the food sources of native species including panthers, raptors, alligators, and bobcats.

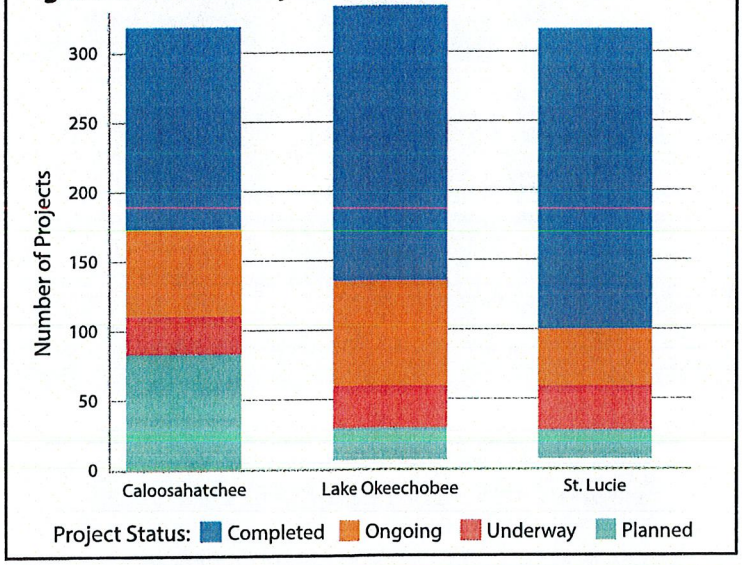


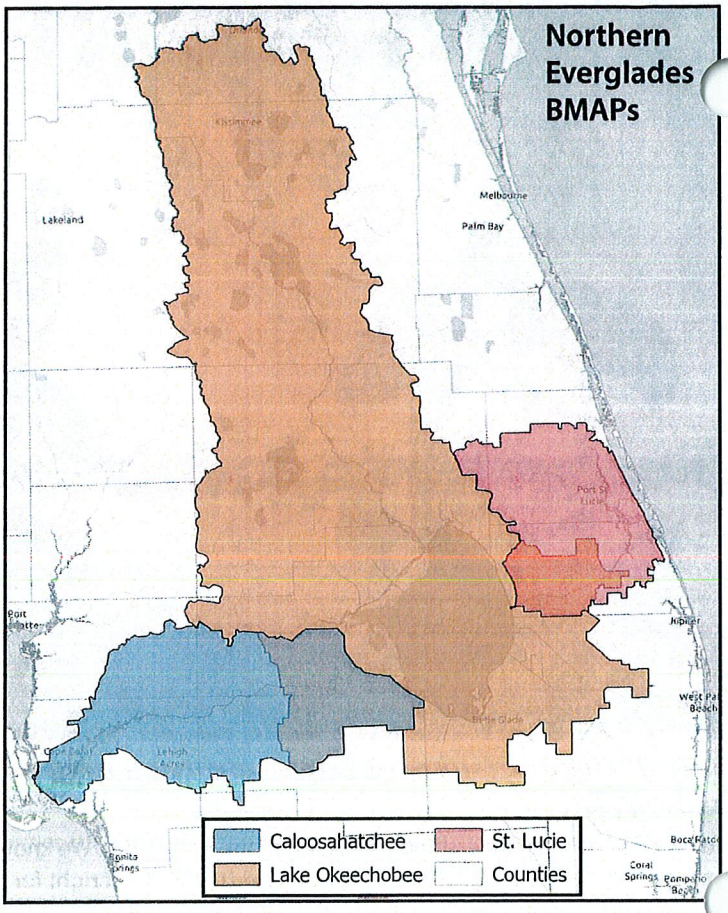
SFWMD Python Elimination Specialist Donna Kalil. (Photo by SFWMD)

BASIN MANAGEMENT ACTION PLAN (BMAP) UPDATES SHOW ONGOING PROGRESS

Progress continues on DEP BMAPs designed to implement nutrient reductions established by the TMDLs for the Northern Everglades watersheds (see figure 1 below). The 2021 Statewide Annual Report on Total Maximum Daily Loads, Basin Management Action Plans, Minimum Flows or Minimum Water Levels, and Recovery or Prevention Strategies (STAR) details progress made through December 31, 2021 on implementation of the NEEPP BMAPs.

Figure 1: BMAP Project Status





Pump Activated at Scott Water Farm, Feb 11, 2022. (Photo by SFWMD)

Project Successes

Water Storage Benefits in the Northern Everglades: During Water Year 2022 (WY2022; May 1, 2021–April 30, 2022), 28 projects were operational in the Northern Everglades watersheds, including 22 Dispersed Water Management (DWM) and six other regional restoration projects that provide water storage benefits. Collectively, these projects provided an estimated storage volume of approximately 142,195 ac-ft across the region.

New Watershed Construction Projects Move Forward: In May 2022, the SFMWD Governing Board authorized entering into contract negotiations for 14 projects under the Northern Everglades Watersheds Water Retention and Nutrient Load Reduction Projects Request for Proposals. This includes renewals for six DWM projects and eight new projects with water storage and/or quality benefits across the Northern Everglades watersheds.

Coordinating Agencies Collaborate on New Rapid Assessment Process: To be more proactive in managing specific water quality issues, the Coordinating Agencies' Water Quality Team has developed a new Rapid Assessment process to quickly notify and share information when unusual events occur based on field observations and/or lab data reviews. The Coordinating Agencies are the SFWMD, DEP, and Florida Department of Agriculture and Consumer Services (DACS). With the team's guidance, SFWMD also continues to conduct basin-specific assessments within the Northern Everglades and Estuaries Protection Program (NEEPP) priority areas to help pinpoint key nutrient sources and recommend targeted actions for further water quality and storage improvements.

New Local Projects Advance in the St. Lucie River Watershed: In 2020, nine water quality improvement projects by local governments were awarded state grant funds, which are being administered via a Memorandum of Understanding between SFWMD and St. Johns River Water Management District.

To date, design has been completed for all projects and construction has been fully completed for three projects:

- City of Port St. Lucie's Floresta Drive Baffle Box
- Sagamore Basin STAs
- North St. Lucie Water Control District's 10-Mile Creek Sediment Control Project

What is a Pump?

A Pump is a mechanical control structure that forces the movement of water.

LAKE OKEECHOBEE WATERSHED PROTECTION PLAN HIGHLIGHTS

Advancing Watershed Construction Projects

El Maximo Ranch: A 7,000-acre treatment and attenuation project began construction in August 2022 and is expected to be operational in 2024.

Lower Kissimmee Basin Stormwater Treatment Area (STA): 3,350-acre treatment project at the confluence of the S-154 and S-154C structures and the Kissimmee River. Design was initiated in 2022, and construction is expected to commence in 2025.

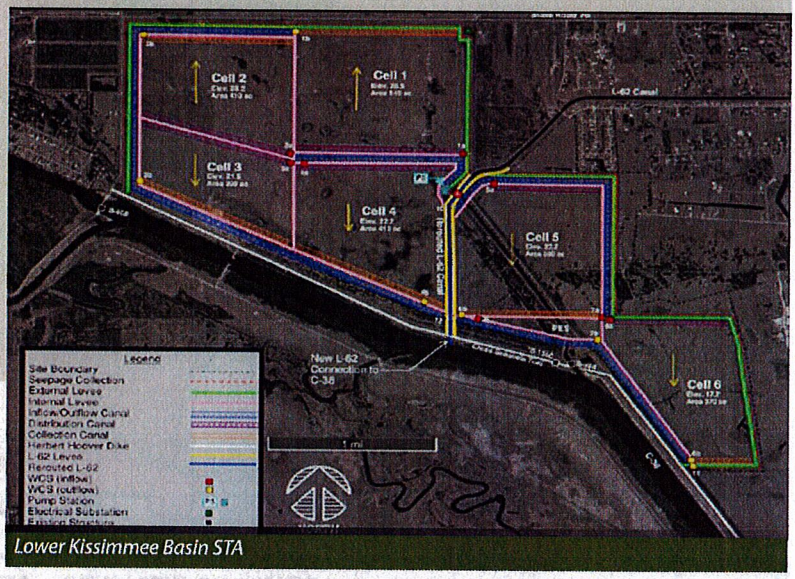
Brady Ranch & Grassy Island: Two flow equalization basins (FEBs) located on District-owned properties that will capture peak stormwater flows and assist in hydrating adjacent STAs for improved nutrient removal. Design is underway and construction is expected to commence in 2025.

S-191 Innovative Technology Treatment: Nutrient load reduction project to remove phosphorus from the S-191 Basin before it enters Lake Okeechobee. Design was recently completed, and the project is expected to be operational in 2023.

Kissimmee Headwaters Revitalization Schedule: Continued development of the revised regulation schedule is for the restored portion of the Kissimmee River. Final schedule is anticipated in 2026.

Taylor Creek Nubbin Slough (TCNS) 214 Storage and Treatment: Capture and attenuate excess stormwater from Williamson Ditch into a shallow water storage feature. Planning and design began in 2022.

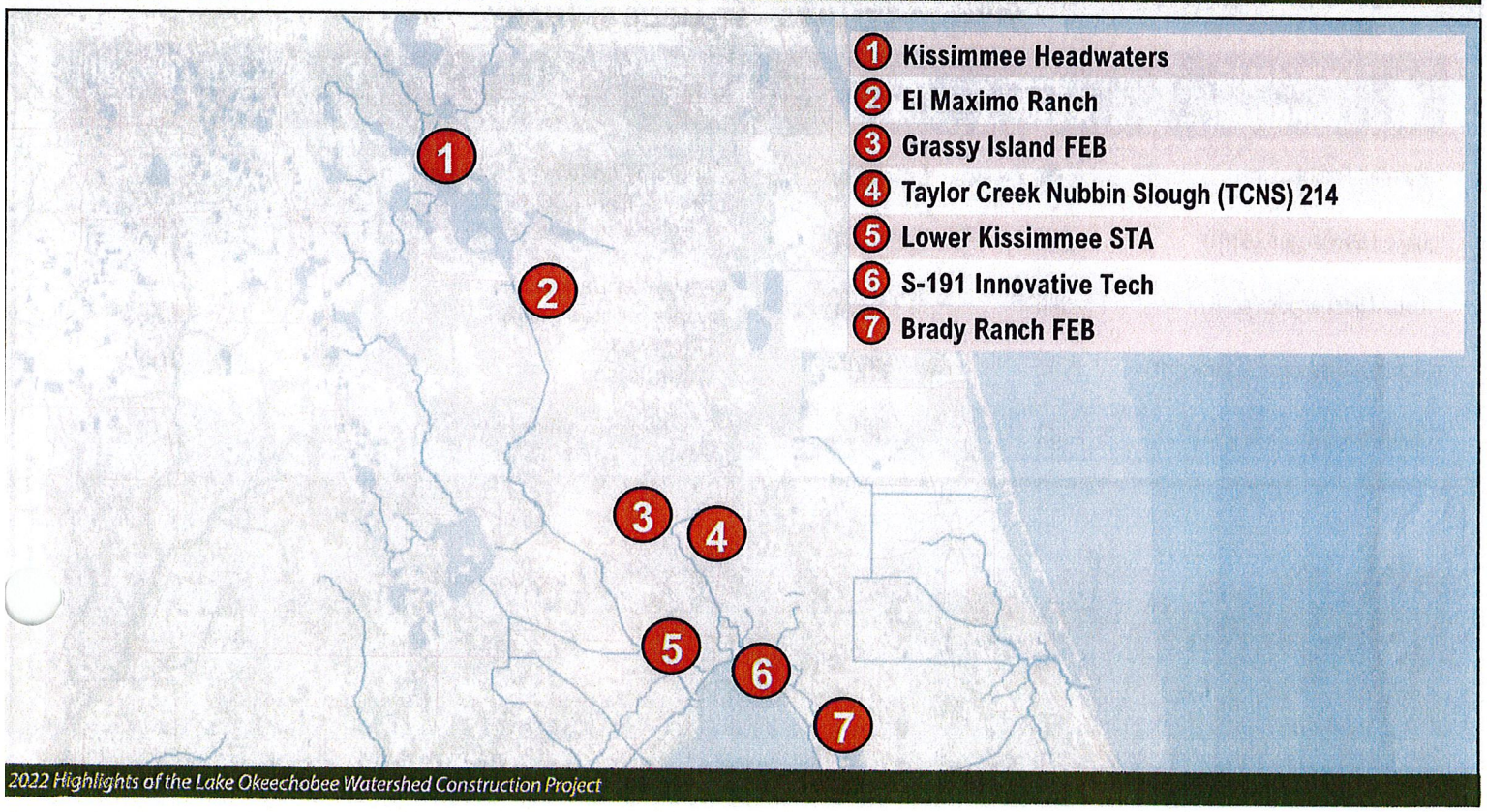
El Maximo Ranch Property. (Photo by SFWMD)



Lower Kissimmee Basin STA

What are Canals?

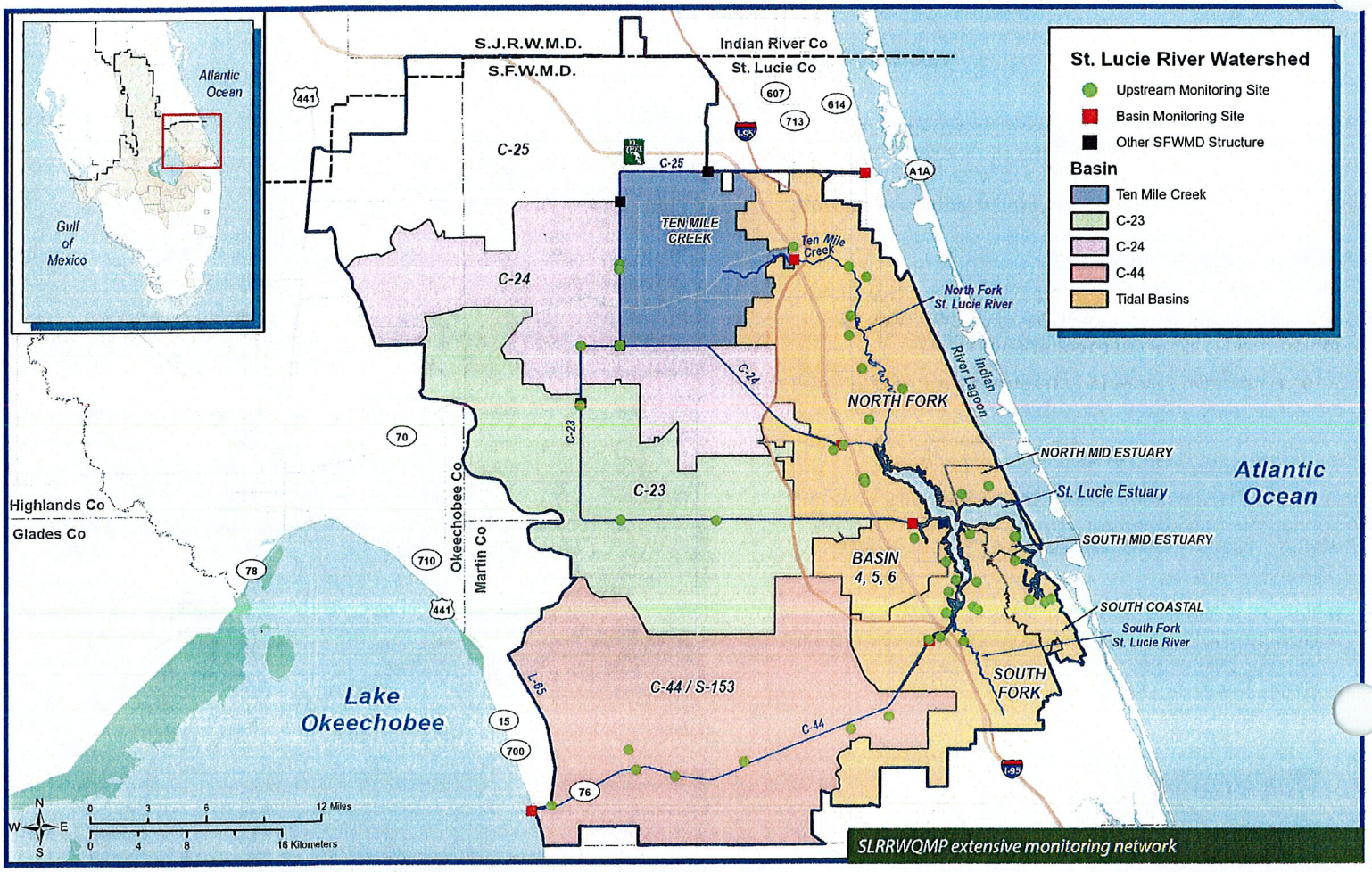
Canals are a system of human-made trenches used for the movement of water.



2022 Highlights of the Lake Okeechobee Watershed Construction Project

ST. LUCIE RIVER WATERSHED PROTECTION PLAN HIGHLIGHTS

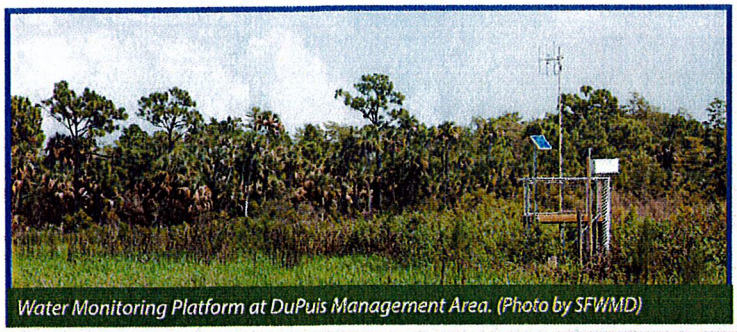
Research & Monitoring Results



WY2022 RESULTS – ST. LUCIE ESTUARY

Hydrologic Conditions	WY2022 Results	Change from WY2021
Rainfall (inches)	46	↓ 33%
Lake Discharges (ac-ft)	0	↓ 198,000
Total Discharges (ac-ft)	598,000	↓ 617,000
Total Phosphorus Loading (t)	115	↓ 66%
Total Nitrogen Loading (t)	783	↓ 58%

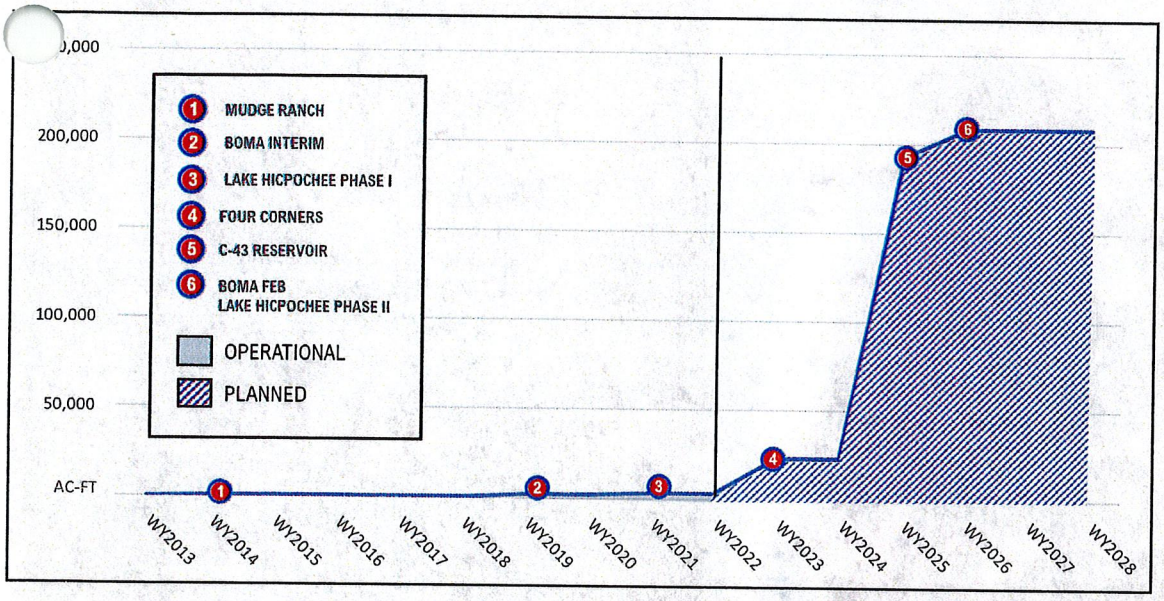
Ecological Conditions	WY2022 Results	Change from WY2021
Submerged Aquatic Vegetation		
Dry Season Abundance	0.25	↑ 308%
Wet Season Abundance	0.27	↑ 30%
Live Oyster Densities (oysters per square meter)		
Dry Season	268	↓ 42%
Wet Season	286	↑ 98%
% of the year in optimum salinity range for oysters	79%	↑ 24%



Water Monitoring Platform at DuPuis Management Area. (Photo by SFWMD)

Oysters in the Indian River Lagoon. (Photo by SFWMD)

INCREASING WATER STORAGE IN THE CALOOSAHATCHEE RIVER WATERSHED



Total Nitrogen (TN) Total Maximum Daily Load

Total Storage

CALOOSAHATCHEE RIVER WATERSHED PROTECTION PLAN HIGHLIGHTS

Advancing Watershed Construction Projects

Lake Hicpochee Hydrologic Enhancement Phase II: Multi-phase project to enhance hydration of the ...ic Lake Hicpochee lakebed through storage and water quality improvements. Phase II includes a new 2,200-acre flow equalization basin (FEB), pump station to withdraw from the C-43 Canal, and associated connections to Phase I of the project. Construction begins this year, and the project will be operational in 2026.

Boma FEB & Water Quality Treatment Technology (WQTT) Phase II Test Cells: The 1,800-acre Boma FEB will expand regional storage in the Caloosahatchee River Watershed and store excess runoff to reduce harmful releases to the Caloosahatchee Estuary. Construction begins this year, and the project will be operational in 2026. The WQTT Phase II project includes interconnected test cells to evaluate the effectiveness of constructed wetland treatment in reducing nitrogen. Construction will begin this year and the project will be operational in 2024.

What is a FEB?

Flow equalization basins (FEBs) are constructed impoundments designed to capture water. They can provide a steadier flow of water to STAs, helping to maintain desired water levels needed to achieve optimal water quality, improve performance and prevent dry out, which can be extremely damaging to STA vegetation.

Progress Towards Water Quality and Storage Goals
Three projects were operational in WY2022 and provided approximately:

- 8,800 ac-ft of storage
- 2 metric tons Total Phosphorus retention
- 27 metric tons Total Nitrogen retention

Northern Everglades Request for Proposals: In 2022, the SFWMD Governing Board authorized staff to negotiate two new projects in the Caloosahatchee River Watershed.

Total flow into the Caloosahatchee Estuary was 1.998 million ac-ft in WY2022, 10% **lower** than WY2021.

Total Nitrogen loading to the Caloosahatchee Estuary in WY2022 was 3,074 metric tons; 17% **lower** than WY2021 and bringing the 5-year average to 3,578 metric tons.

Oyster densities were measured biannually (fall and spring) at the Iona Cove and Bird Island sites. Oyster densities **increased** at both sites in WY2022, especially during the dry season.

Submerged aquatic vegetation (SAV) in the upper and middle estuary **remained low** in WY2022. The lower estuary had substantially **greater** spatial extent, abundance, and diversity of seagrass with *Thalassia testudinum* the most prevalent in WY2022 (below).

Thalassia Testudinum. (Photo by SFWMD)

Juvenile Snail Kite at Lake Hicpochee. (Photo by SFWMD)

REQUIRED REPORTING FULFILLED BY 2023 SFER

The Florida Statutes (F.S.) contain specific reporting requirements that the SFER fulfills.

Consolidated Water Management District Annual Report

373.036(7), F.S., requires a consolidated report on the management of water resources be submitted annually. The 2023 SFER fulfills this requirement for SFWMD.

Volume I

- Appendix 1-2 provides the Everglades restoration report.
- Appendix 1-3 provides the Everglades Trust Fund expenditure report.
- Chapters 3, 4, 5A, 5B, 5C, 6, and 7 and associated appendices provide an update on Everglades progress.
- Chapters 8A, 8B, 8C, and 8D provide the Northern Everglades and Estuaries Protection Program annual progress report.

Volume II provides an annual update on the project status during Fiscal Year 2022 and planning for Fiscal Year 2023 for 10 annual reports required of all water management districts.

Volume III of the 2023 SFER provides an annual update on environmental restoration projects to comply with permits issued by DEP. Currently, annual updates are provided for five projects under construction, 19 projects operating, and two projects operating that also had a phase or component under construction during the water year.

Get the latest information from SFWMD

Learn more about Everglades restoration projects in South Florida by signing up for the District's emails. Visit SFWMD.gov and click on ***"Subscribe for Email Updates."***

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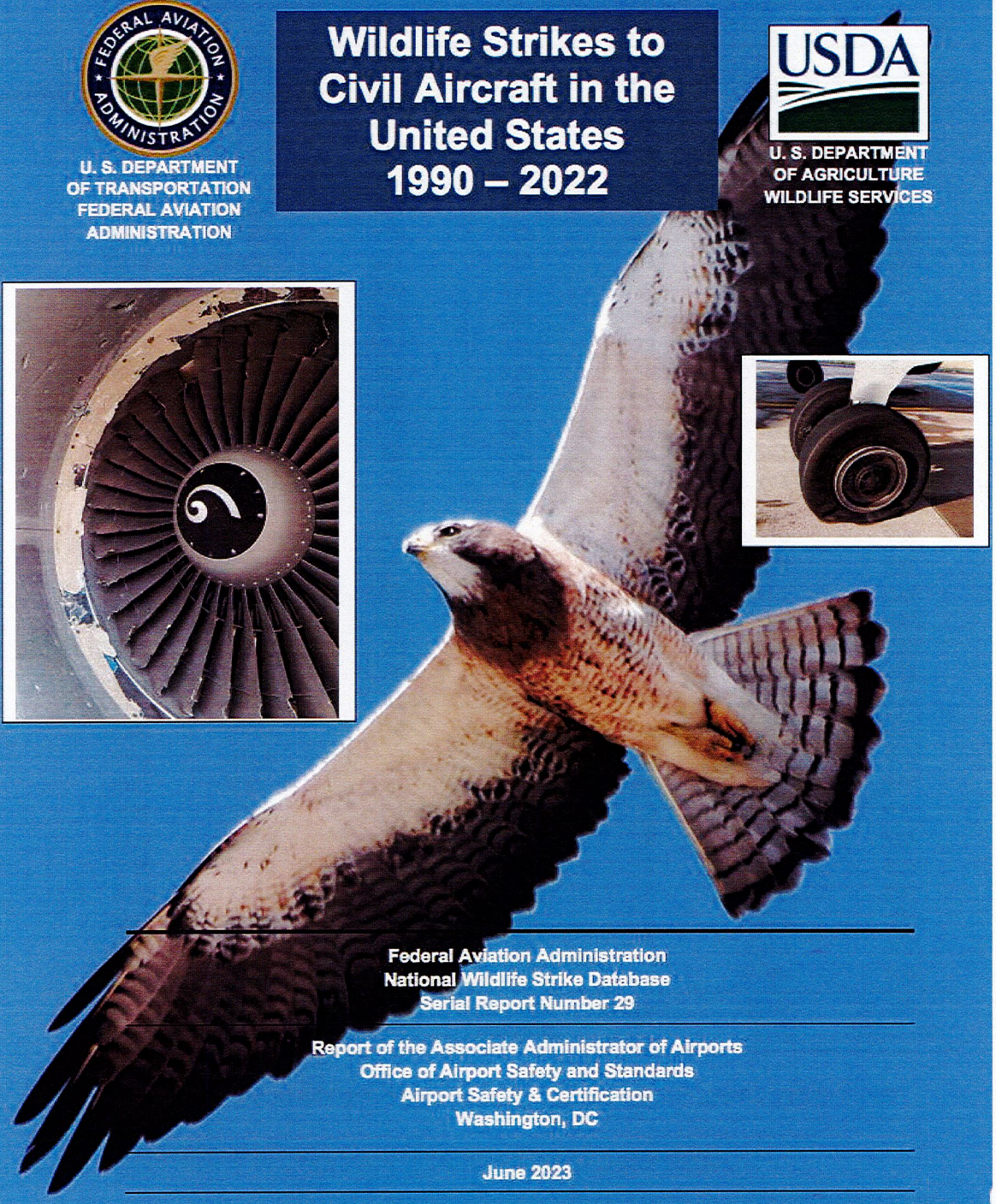
U. S. DEPARTMENT
OF TRANSPORTATION
FEDERAL AVIATION
ADMINISTRATION

Wildlife Strikes to Civil Aircraft in the United States 1990 – 2022

U. S. DEPARTMENT
OF AGRICULTURE
WILDLIFE SERVICES



Federal Aviation Administration
National Wildlife Strike Database
Serial Report Number 29

Report of the Associate Administrator of Airports
Office of Airport Safety and Standards
Airport Safety & Certification
Washington, DC

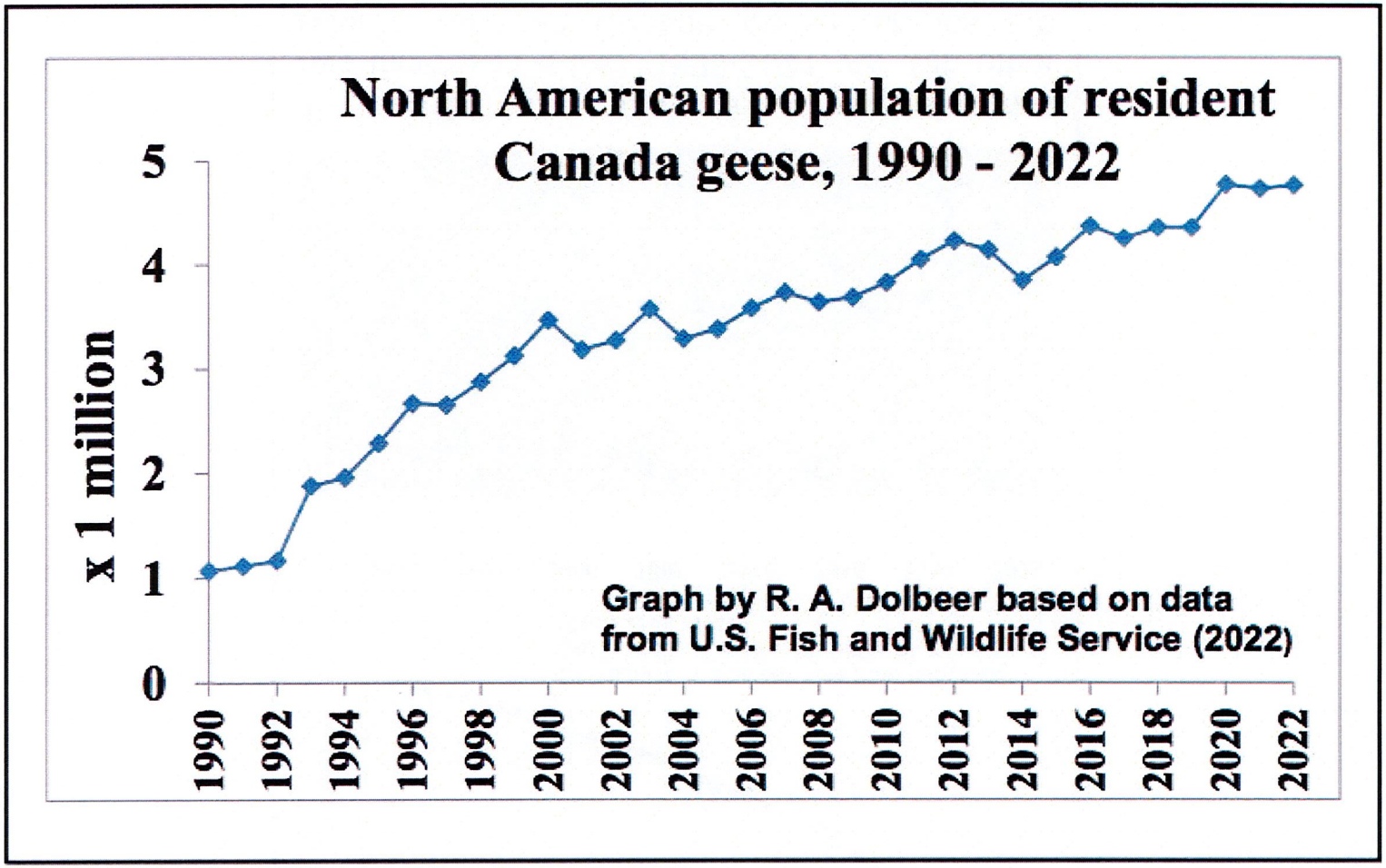
June 2023

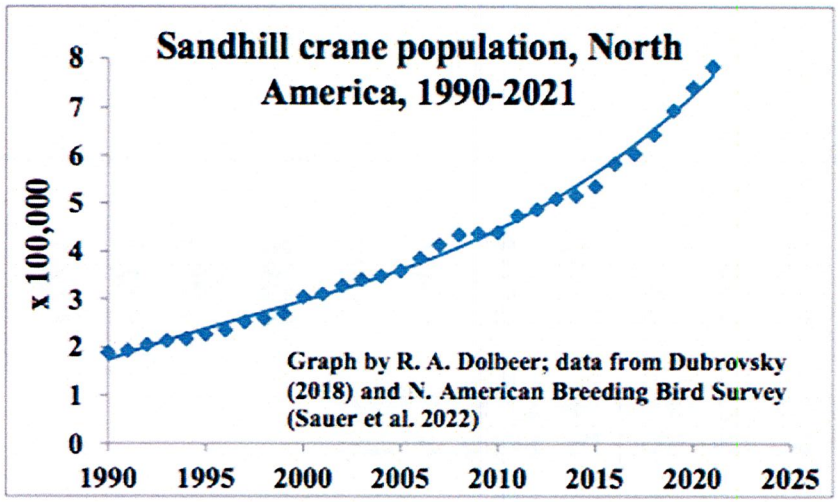
Table 2. Number of reported wildlife strikes to civil aircraft in USA by wildlife group, 1990–2022.

Year	Birds	Bats	Terrestrial mammals[1]	Reptiles[1]	Total strikes	Strikes with damage[2]
1990	2,030	3	55	0	2,088	366
1991	2,418	3	58	0	2,479	395
1992	2,538	2	73	1	2,614	360
1993	2,518	6	66	0	2,590	395
1994	2,589	2	81	1	2,673	452
1995	2,676	4	85	8	2,773	487
1996	2,887	1	89	3	2,980	493
1997	3,383	1	92	14	3,490	566
1998	3,619	3	112	7	3,741	577
1999	4,921	6	97	1	5,025	687
2000	5,756	15	123	3	5,897	744
2001	5,543	8	138	8	5,697	631
2002	5,923	19	119	15	6,076	659
2003	5,706	20	123	5	5,854	611
2004	6,248	27	126	6	6,407	614
2005	6,899	27	131	7	7,064	591
2006	6,906	46	148	10	7,110	584
2007	7,369	51	171	7	7,598	552
2008	7,210	43	183	5	7,441	513
2009	8,946	66	229	10	9,251	587
2010	9,292	112	253	11	9,668	585
2011	9,491	138	201	15	9,845	521
2012	10,268	161	210	22	10,661	600
2013	10,749	223	207	33	11,212	601
2014	12,942	253	226	35	13,456	570
2015	12,964	316	213	36	13,529	611
2016	12,647	247	226	36	13,156	581
2017	13,872	408	272	59	14,611	667
2018	15,105	507	314	49	15,975	702
2019	16,101	553	416	87	17,157	747
2020	10,921	288	239	42	11,490	479
2021	14,634	451	295	68	15,448	652
2022	16,099	513	282	66	16,960	671
Total	**261,170**	**4,523**	**5,653**	**670**	**272,016**	**18,851**

[1] For terrestrial mammals and reptiles, species with body masses <1 kilogram (2.2 pounds) such as small rodents generally are excluded from database (Dolbeer et al. 2005).

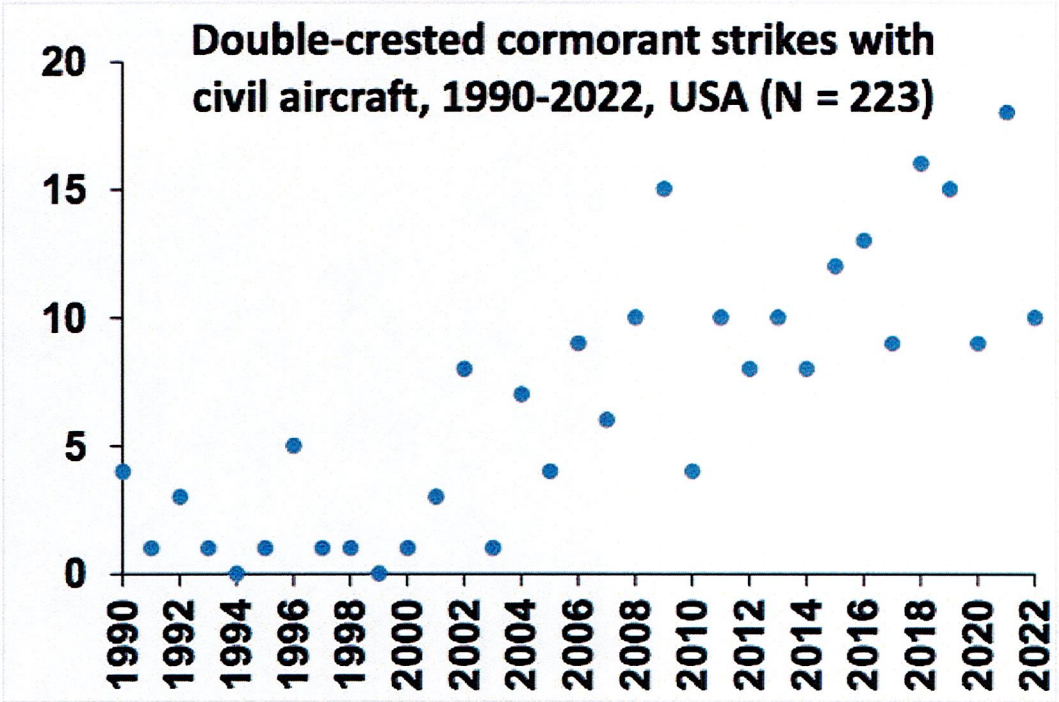
[2] Birds, terrestrial mammals, bats, and reptiles respectively accounted for 17,527 (93.0%), 1,289 (6.8%), 32 (0.2%), and 3 (<0.1%) of the 18,851 damage strikes.


North American population of resident Canada geese, 1990 - 2022
x 1 million
0
1
2
3
4
5
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Graph by R. A. Dolbeer based on data from U.S. Fish and Wildlife Service (2022)



The sandhill crane population in North America has increased 4-fold, 1990-2021. As with other wildlife such as Canada geese, cranes are adapting to human habitats such as this cemetery in Michigan. From 1990-2022, 193 strikes involving sandhill cranes and civil aircraft were reported, USA. Photo, Nov 2022, J. Wharton.

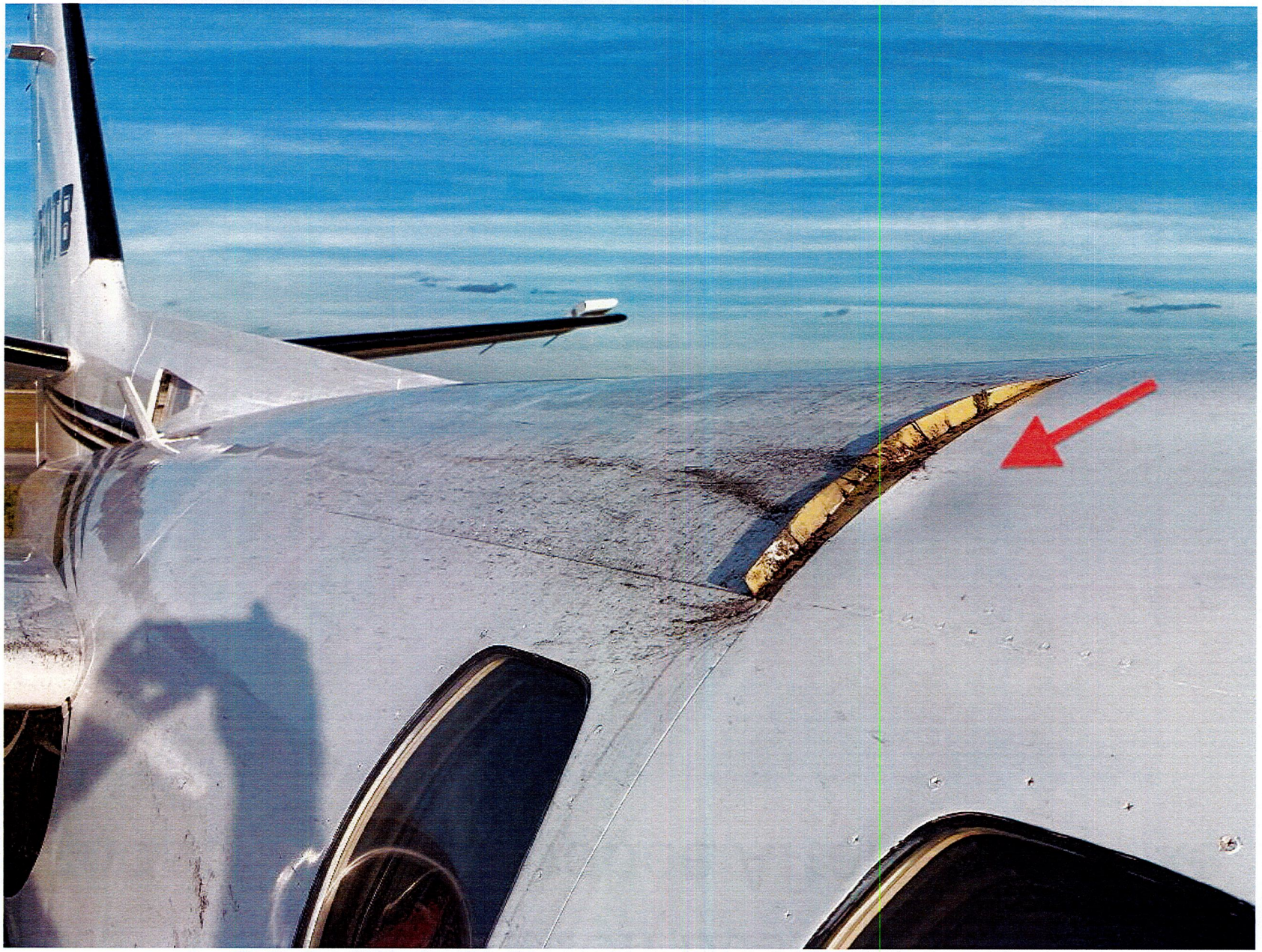
A BE-400 BJET struck a double-crested cormorant during climb out of a coastal airport in Georgia, July 2022. The aircraft was en route to New York but diverted to an airport in Pennsylvania. The double-crested cormorant population in North America has doubled from about 450,000 to 900,000 birds, 1990-2021 (Dolbeer 2020, Sauer et al. 2022). Photo, Mike Crognale.



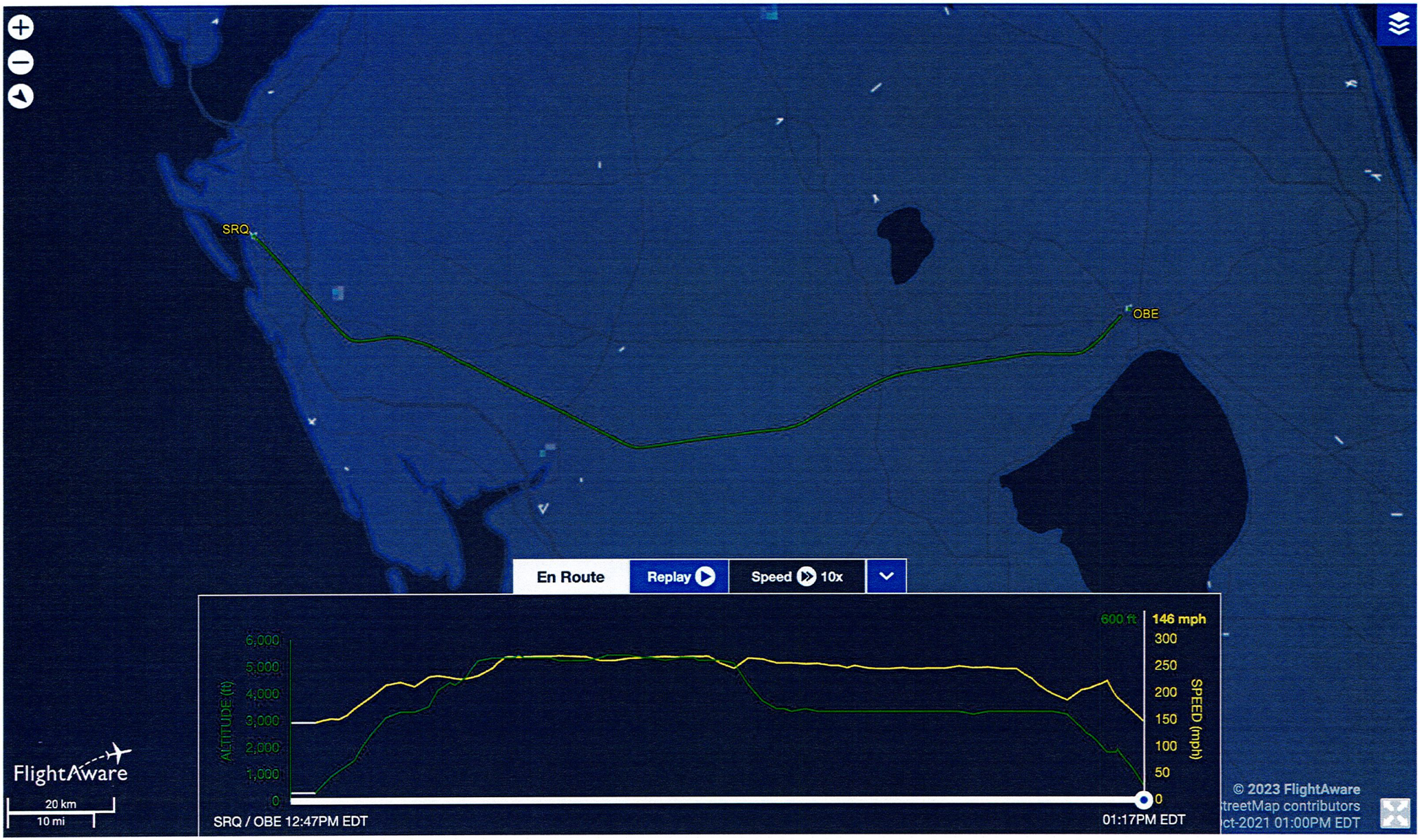
Over the 10-year period, 2013-2022, an average of 12 strikes per year were reported for double-crested cormorants (mean body mass = 2.1 kg) and civil aircraft in USA. At least 16% of the strikes involved multiple birds.

Cessna 172 vs Cormorant

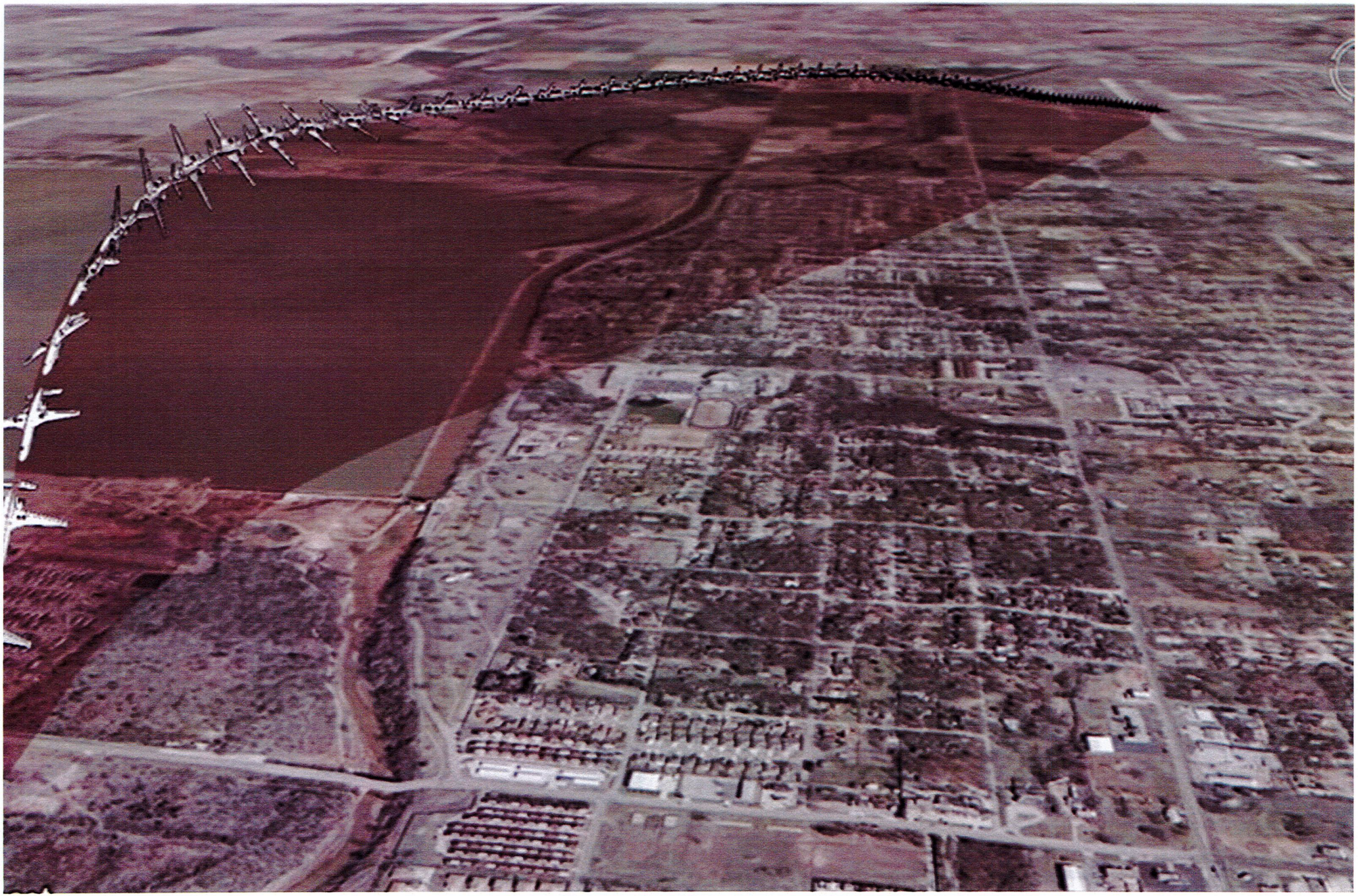
Cessna Citation Business Jet Landed in Okeechobee After Bird Strike

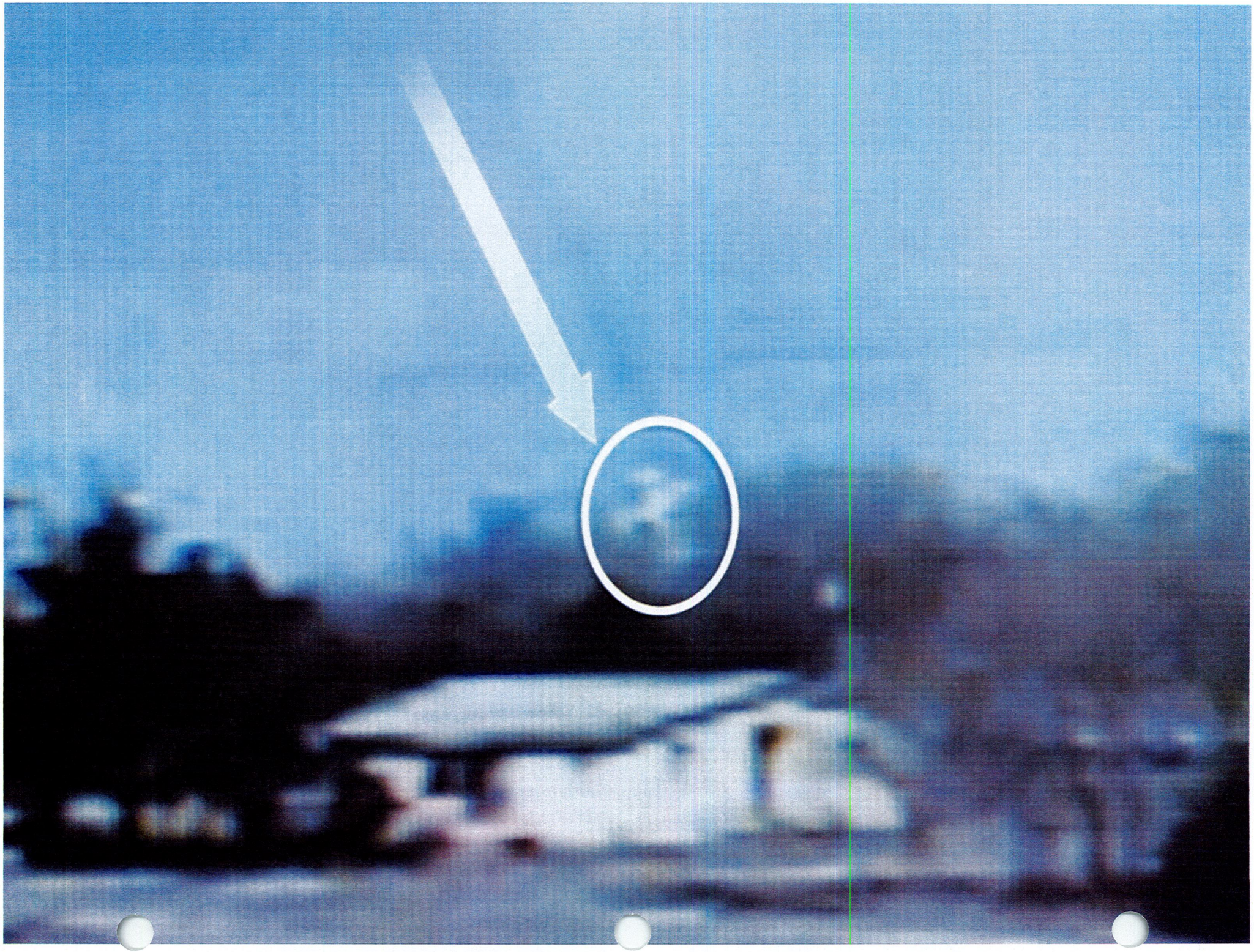



750TB


SRQ
OBE
En Route
Replay
Speed 10x
600 ft
146 mph
6,000
5,000
4,000
3,000
2,000
1,000
0
ALTITUDE (ft)
300
250
200
150
100
50
0
SPEED (mph)
SRQ / OBE 12:47PM EDT
01:17PM EDT
FlightAware
20 km
10 mi
© 2023 FlightAware
treetMap contributors
ct-2021 01:00PM EDT

13SH | Copyright by Richard T Davis | 2008-02-28 | DAN | Airport-Data.com





American White Pelicans: Florida's Other Snowbird

American white pelicans are one of the largest birds in North America with wingspans up to 9.5 feet across, or in other words, a wingspan that can reach from your floor to your ceiling (assuming you live in an average Florida home)!

Although some migratory bird maps do not show American white pelicans migrating to inland Central Florida, squadrons of these majestic birds have been observed on lakes throughout Polk County for years.

Author Profile

Shannon Carnevale

As the Natural Resources and Conservation Extension Agent for UF/IFAS Extension Polk County, Shannon's outreach work focuses on lake ecology, co-existing with wildlife, invasive species management, and urban forestry. ...

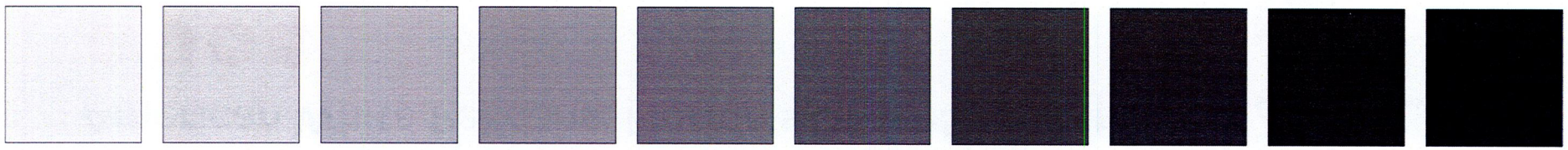
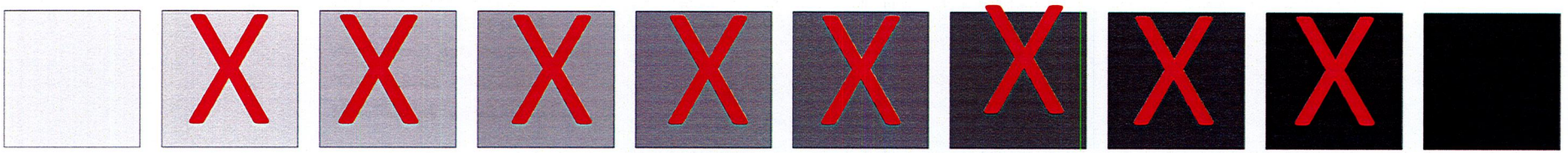


Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

This list was compiled using data from eBird (a vetted, citizen-science-based online database). Two reference sites in or near Okeechobee County were used: Lakeside Ranch STA and Taylor Creek STA. This list is not a complete list of expected species but includes the species that are most likely to occur based on the detections at the other nearby STAs. Further, some species listed may not occur at LKB STA-W.

Waterbirds with Potential for Occurrence in Okeechobee County				
Waterbirds are listed and grouped based on avian family; general notes associated with each group are provided. Each species has been assigned to one of three categories: Open Water, Dense Cover or Both.				
Family (and description)	Species	Open-water	Dense-cover	Both
Waterfowl - tend to prefer open water, with some exceptions like tree nesting species that tend to be somewhat secretive, especially in breeding season	Black-bellied Whistling-Duck	x		
	Fulvous Whistling-Duck	x		
	Graylag Goose	x		
	Canada Goose	x		
	Mute Swan	x		
	Egyptian Goose	x		
	Muscovy Duck	x		
	Wood Duck			x
	Blue-winged Teal	x		
	Northern Shoveler	x		
	Gadwall	x		
	American Wigeon	x		
	Mallard	x		
	Mottled Duck	x		
	Mallard x Mottled Duck (hybrid)	x		
	Northern Pintail	x		
	Green-winged Teal	x		
	Ring-necked Duck	x		



Open Water

Lake Okeechobee Image from Okeechobee County Website

Dense Vegetation

Lakeside Ranch STA (ESA photo 10-18-2023)

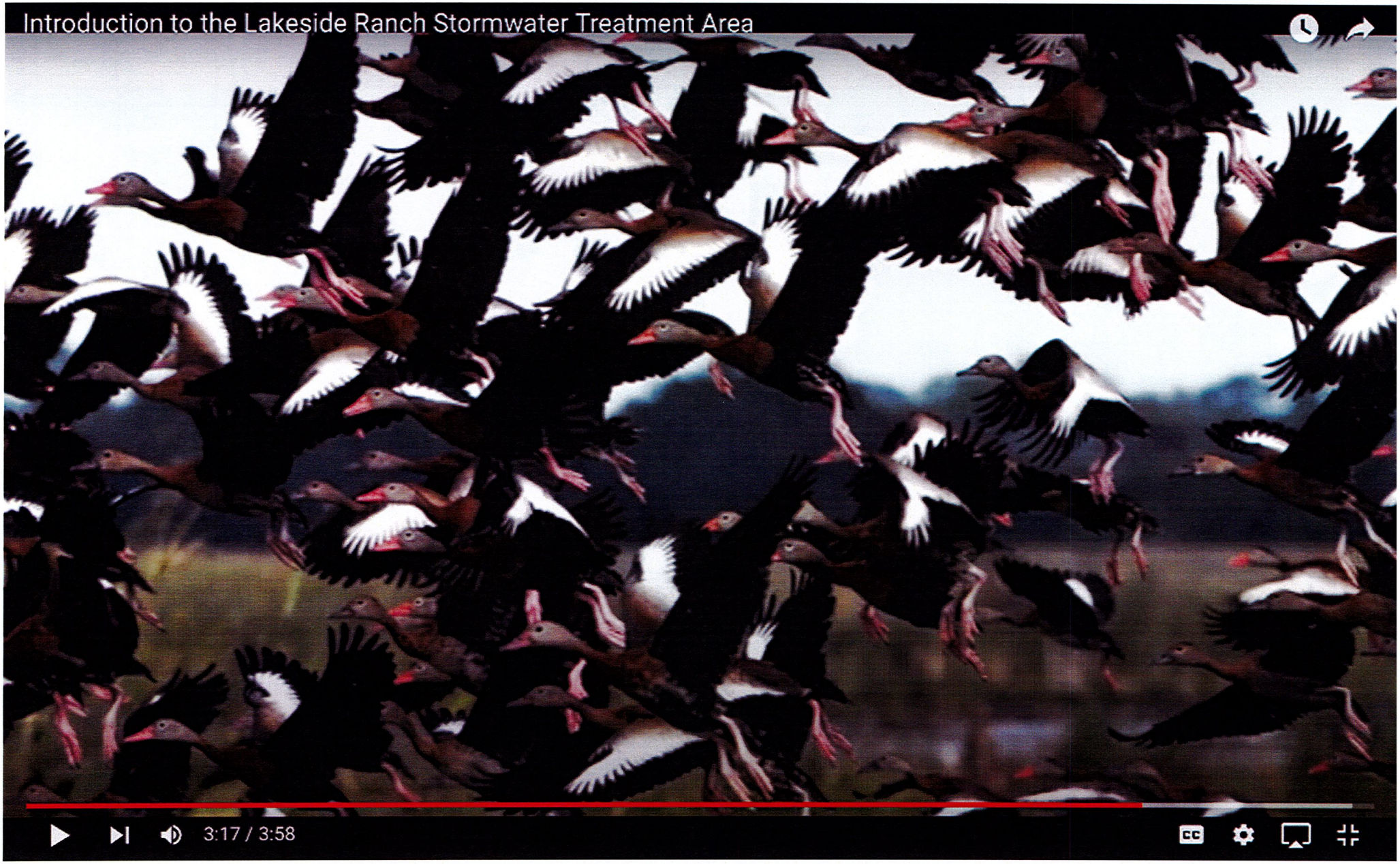
Dense Vegetation Image Provided by ESA in Wildlife Hazard Review Memo


Introducing
Lakeside Ranch
Stormwater Treatment Area
0:05 / 3:58

Only Picture of Lakeside Ranch STA Wildlife Hazard Review Memo

Lakeside Ranch STA (ESA photo 10-18-2023)

Tree Ducks Featured in Lakeside Ranch STA Video



TCPalm.

INDIAN RIVER LAGOON

C-44 Reservoir cost $339 million, but it's leaking and holding 80% less water than it should

Katie Delk
Treasure Coast Newspapers

Published 5:02 a.m. ET Oct. 9, 2023 | **Updated 5:02 a.m. ET Oct. 9, 2023**

A $339 million reservoir designed to curb Lake Okeechobee discharges to the St. Lucie River is leaking, so the Army Corps of Engineers had filled it to only 20% of its maximum capacity for most of this year.

The C-44 Reservoir's water level had been 3 feet instead of 15 feet since March, meaning it was holding about 3.26 billion gallons of water instead of 16.5 billion gallons — about 13.2 billion gallons less than it should have been.

The agency, which is in litigation with the construction contractor, is designing a solution, but has not estimated how much that will cost or how long that will take, Col. James Booth said. A few "catching facilities" that could include wells are being designed to intercept the water, Booth said in September.

"We're really trying to make sure we get this solved so it runs well for many, many decades," Booth said of the reservoir, which Lt. Gov. Jeanette Nuñez called "a crown jewel in all of Florida's resources" during a November 2021 ribbon cutting ceremony.

The reservoir is still within the planned two-year period of operational testing, the Army Corps stressed.

C-44 Canal in Martin County

The reservoir's water level had increased to 6 feet by Friday, an Army Corps spokesperson told TCPalm, which has been asking the agency questions about the leak for months. The agency has not explained when, how or why the water level increased. TCPalm does not know whether it's from rainfall or the agency pumping it from the canal, and why they would do that if they were previously concerned about the water level.

Herbicide kills invasive plant

An invasive plant in the canal is another reason the reservoir isn't holding as much water as it should.

Limnophila sessiliflora was blocking reservoir water from flowing into the stormwater treatment area (STA), Lt. Col. Todd Polk said in August, before he retired.

The agency treated a 1.5-mile swath with the herbicide Flumioxazin twice this summer, Markovitch said. It's "probably not" present now, but could return because it's fast-growing and can regrow from fragments, he said.

"It's not a one-time battle," he said.

C-44 Reservoir and STA

The C-44 Canal, which runs 23 miles from the Port Mayaca dam in Canal Point passed Indiantown to the St. Lucie dam in Stuart, collects Lake O water and stormwater runoff from the surrounding area, mostly from western Martin County farms.

The reservoir was designed to capture canal water — some Lake O discharges and 65% of the stormwater runoff — by gravity moving the water into a 2-mile-long canal that runs perpendicular to Citrus Boulevard.

From there, the water is pumped into the STA, where it's cleaned by plants such as cattails that suck up pollutants.

From there, it's pumped back into the canal, where it's sometimes released into the St. Lucie River through the St. Lucie dam.

Comprehensive Everglades Restoration Plan (CERP)

After Congress approved the project in 2007, the South Florida Water Management District spent $173 million, including $27 million from Martin County's special 1-cent sales tax, to buy and clear 12,000 acres for the:

3,400-acre reservoir, which the Army Corps built as a rectangle measuring approximately 2 miles by 3 miles across either way and 15 feet at its deepest point
6,300-acre STA, which the SFWMD built to hold 3.1 billion gallons of water.

The reservoir and STA can store a combined 19.7 billion gallons of water, which could fill the Houston Astrodome to the brim every 10 hours.

The STA was completed in November 2019 and the reservoir in November 2021. It's the first fully completed project among 68 in the Comprehensive Everglades Restoration Plan (CERP), designed to restore, protect and preserve the River of Grass ecosystem.

The Army Corps said it could not comment on its ongoing litigation with Barnard Construction Co. Inc., which it paid $197 million on Sept. 11, 2015, to build the reservoir.

Katie Delk is TCPalm's environment reporter. Contact her at katie.delk@tcpalm.com or 772-408-5301. Check for updates @katie_delk.