Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

2500 Jupiter Park Drive, Jupiter, Florida 33458
Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org

D. Albrey Arrington, Ph.D., Executive Director

AGENDA
REGULAR MEETING #16-2020
JULY 16, 2020 – 7:00 PM AT DISTRICT OFFICES
ALSO, THE MEETING WILL BE AVAILABLE TO THE PUBLIC ONLINE AT:
LOXAHATCHEERIVER.ORG/PUBLICMEETING

1. Call to Order & Pledge of Allegiance
2. Administrative Matters
   A. Roll Call
   B. Previous Meeting Minutes Page 4
   C. Additions and Deletions to the Agenda
3. Comments from the Public
4. Status Updates
   A. Loxahatchee River Watershed Page 11
   B. Loxahatchee River District Dashboard Page 12
5. Consent Agenda (see next page) Page 13
6. Regular Agenda
   A. Consent Agenda Items Pulled for Discussion
   B. Rules Chapter 31-2, Agenda and Scheduling of Meetings and Workshops Page 73
   C. Attorney General Opinion Page 80
   D. Busch Wildlife Sanctuary License Agreement Page 140
   E. Sonoma Isles Irrigation Quality Water Agreement Page 142
   F. Environmental Education Policy Page 143
   G. Budget Assumptions Page 149
7. Reports (see next page) Pulled for Discussion
8. Future Business Page 247
9. Board Comments
10. Adjournment

"…if a person decides to appeal any decision made by the Board, with respect to any matter considered at such meeting or hearing, he/she will need a record of the proceedings, and that, for such purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based."

Submitted by:
Date: July 6, 2020

5. CONSENT AGENDA

All items listed in this portion of the agenda are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless requested by a Board member or citizen; in which event, the item will be removed and considered under the regular agenda.

A. Olympus Drive Notice of Intent to Assess (Resolution 2020-05) Page 14
B. US 1 Residential Preliminary Assessment (Resolution 2020-06) Page 22
C. Whispering Trails Preliminary Assessment (Resolution 2020-07) Page 29
D. Imperial Woods Preliminary Assessment (Resolution 2020-08) Page 43
E. Owner Furnished Equipment: LS 82 Standby Generator & ATS – to approve purchase Page 52
F. Owner Furnished Equipment: LS 82 Submersible Pumps – to approve purchase Page 54
G. Disposal of Surplus Tangible Personal Property Policy – to approve policy Page 57
H. Jupiter Inlet Lighthouse Septic to Sewer Conversion – to approve engineering contract Page 61
I. Fixed Asset Disposal – to approve disposal Page 62
J. Change Orders to Current Contracts – to approve modifications Page 63

7. REPORTS

A. Neighborhood Sewering Page 153
B. Legal Counsel's Report Page 155
C. Engineer's Report Page 157
D. Busch Wildlife Sanctuary Page 161
E. Director's Report Page 162

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D. Albrey Arrington, Ph.D., Executive Director

AGENDA
PUBLIC HEARING #15-2020
JULY 16, 2020 - 6:55 P.M. AT DISTRICT OFFICES
ALL MEETINGS ARE OPEN TO THE PUBLIC

1. Call to Order and Pledge of Allegiance

2. Roll Call

3. To receive public comments pertaining to Rules Chapter 31-2, Agenda and Scheduling of Meetings and Workshops

4. Comments from the Board

5. Adjournment

".... if a person decides to appeal any decision made by the Board, with respect to any matter considered at such meeting or hearing, he/she will need a record of the proceedings, and that, for such purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based."

Submitted by:
Date: July 6, 2020

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: Governing Board

FROM: Recording Secretary

DATE: July 7, 2020

RE: Approval of Meeting Minutes

Attached herewith are the minutes of the Public Hearing and Regular Meeting of June 18, 2020 which was recessed and reconvened on June 22, 2020. As such, the following motion is presented for your consideration.

> "THAT THE GOVERNING BOARD approve the minutes of the June 18, 2020 Public Hearing and Regular Meeting which was recessed and reconvened on June 22, 2020 as submitted."

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Ref. 13-2020

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
PUBLIC HEARING – MINUTES
JUNE 18, 2020

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

Chairman Rockoff called the Public Hearing of June 18, 2020 to order at 6:56 P.M.

2. ROLL CALL

The following Board Members were in attendance:

Mr. Rockoff
Dr. Rostock
Mr. Silverman (via Goto Webinar)
Mr. Snyder
Mr. Boggie

3. TO RECEIVE PUBLIC COMMENTS PERTAINING TO RULES CHAPTER 31-2, AGENDA AND SCHEDULING OF MEETINGS AND WORKSHOPS.

No comments from the public were received.

4. COMMENTS FROM THE BOARD

No comments from the Board were received.

5. ADJOURNMENT

Chairman Rockoff adjourned the Public Hearing at 6:58 P.M.

_____ _____
BOARD CHAIRMAN BOARD SECRETARY

_____
RECORDING SECRETARY

RECESSED AND RECONVENED ON JUNE 22, 2020 AT 1:00 PM

Ref: #14-2020

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
REGULAR MEETING - MINUTES
JUNE 18, 2020

1. CALL TO ORDER

Chairman Rockoff called the Regular Meeting of June 18, 2020 to order at 7:00 PM and explained the various methods of attending the meeting (in person, electronically or telephonically).

2. ADMINISTRATIVE MATTERS

A. ROLL CALL

The following Board Members were in attendance.

Mr. Rockoff
Dr. Rostock
Mr. Silverman (via GotoWebinar)
Mr. Snyder
Mr. Boggie

Staff Members in attendance were Dr. Arrington, Mr. Dean, Mr. Howard, Ms. Fraraccio (via GotoWebinar) and Mr. Pugsley (via GotoWebinar).

Consultants in attendance were Mr. Shenkman with Curtis Shenkman, PA. and Ms. Marshall with Baxter and Woodman.

Ms. Kight, Ms. Wynne and Mr. DiComo from Busch Wildlife Sanctuary were also in attendance.

B. PREVIOUS MEETING MINUTES

The minutes of the Public Hearing and Regular Meeting of May 21, 2020 were presented for approval and the following motion was made.

MOTION: Made by Mr. Boggie, Seconded by Mr. Snyder,
Passed Unanimously.

"THAT THE GOVERNING BOARD approve the minutes of the May 21, 2020 Public Hearing and Regular Meeting as presented."

C. ADDITIONS & DELETIONS TO THE AGENDA

No additions or deletions were made.

3. COMMENTS FROM THE PUBLIC

No comments were received.

4. STATUS UPDATES

A. LOXAHATCHEE WATERSHED STATUS

Mr. Howard presented a summary of the dry season river flows.

B. LOXAHATCHEE RIVER DISTRICT DASHBOARD

Dr. Arrington reviewed the District Dashboard.

5. CONSENT AGENDA

MOTION: Made by Mr. Boggie, Seconded by Dr. Rostock,
Passed unanimously.

"THAT THE GOVERNING BOARD approve the Consent Agenda of June 18, 2020 as presented."

The following motions were approved as a result of the Board's adoption of the Consent Agenda:

A. Lift Stations 162 and 291 Emergency Generators – to approve corrected amount

"THAT THE DISTRICT GOVERNING BOARD authorize the "piggy-back" of the Florida Association of Counties (FSA&AC) contract with ACF Power Systems, Inc. for 125KW Generator Package Specification # 102 with contract deduct amounts 80KW and 100KW generators and 600A Automatic Transfer Switch Specification # 80 with contract deduct amounts for 150A switches in accordance with ACF Power System, Inc.'s proposals dated March 21, 2020 in the amount of $94,460.00."

B. Software Agreement (ESRI) – to approve agreement

"THAT THE DISTRICT GOVERNING BOARD recognizes that this is a justifiable sole source purchase and authorizes the Executive Director to execute the Small Utility Term Enterprise Agreement (Quote #Q-414810) with Environmental Systems Research Institute, Inc. for the term June 22, 2020 through September 30, 2023 for $81,850."

C. Lift Station 54 Gravity Main Lining – to approve contract

"THAT THE DISTRICT GOVERNING BOARD authorize the "piggyback" of the City of Orland Contract with Granite Inliner IFB16-0007 for main line rehabilitation services in the amount of $105,076.00."

and

"THAT THE DISTRICT GOVERNING BOARD authorize an additional contingency amount of $10,500.00."

D. Fixed Asset Disposal – to approve disposal

"THAT THE GOVERNING BOARD authorize the Executive Director to dispose of tangible personal property including fixed asset number TE0095-1 in the schedule above."

E. Change Orders to Current Contracts – to approve modifications

No Change Orders were presented.

6. REGULAR AGENDA

A. CONSENT AGENDA ITEMS PULLED FOR DISCUSSION

No items were pulled for discussion.

B. Busch Wildlife Sanctuary License Agreement

Dr. Arrington, Busch Staff and the Board discussed the status of the Busch Wildlife Sanctuary License Agreement.

MOTION: Made by Mr. Rockoff, Seconded by Mr. Synder,
Failed 0-5.

"THAT THE DISTRICT GOVERNING BOARD authorize the District Attorney to draft an inquiry to the Attorney General to determine if the District can enter into a license, lease or assignment to be presented at the July Board Meeting."

MOTION: Made by Mr. Rockoff, Seconded by Dr. Snyder,
Passed unanimously.

"THAT THE DISTRICT GOVERNING BOARD authorize our counsel to draft an inquiry to the Attorney General to determine whether or not the District can enter into a lease, license, or other arrangement with a third party and present the draft letter to the Board at a reconvened date."

A recess was taken from 9:33 PM to 9:38 PM.

C. Rules Chapter 31-10, Rates, Fees and Charges

Dr. Arrington reviewed the proposed changes to Rules Chapter 31-10.

MOTION: Made by Mr. Boggie, Seconded by Mr. Silverman,
Passed unanimously.

"THAT THE DISTRICT GOVERNING BOARD approve the revised Rule Chapter 31-10.005(3) and 31-10.009(3) as amended and with an effective date of June 19, 2020."

D. Rules Chapter 31-2, Agenda and Scheduling of Meetings and Workshops

Dr. Arrington reviewed the proposed changes to Rules Chapter 31-2.
No action was taken.

7. REPORTS

The following reports stood as written.

A. NEIGHBORHOOD SEWERING

B. LEGAL COUNSEL'S REPORT

C. ENGINEER'S REPORTS

D. BUSCH WILDLIFE SANCTUARY

E. DIRECTOR'S REPORT

8. FUTURE BUSINESS

Dr. Arrington reviewed the Future Business report.

9. COMMENTS FROM THE BOARD

The Board will reconvene on June 22, 2020 to further discuss Item 6B, the Busch Wildlife Sanctuary License Agreement.

MOTION: Made by Mr. Silverman, Seconded by Dr. Rostock,
Passed Unanimously.

"That the regular meeting of June 18, 2020 recess at 10:00 PM and reconvene on June 22, 2020 at 1:00 PM."

_____ _____

BOARD CHAIRMAN BOARD SECRETARY

_____

RECORDING SECRETARY

Ref: #14-2020-Reconvened

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
RECONVENED REGULAR MEETING - MINUTES
JUNE 22, 2020

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

Chairman Rockoff called the Reconvened Meeting of June 22, 2020 to order at 1:00 PM and explained the various methods of attending the meeting (in person, electronically or telephonically).

2. ROLL CALL

The following Board Members were in attendance.

Mr. Rockoff (via Goto Webinar)
Dr. Rostock
Mr. Silverman (via Goto Webinar)
Mr. Snyder (via Goto Webinar)
Mr. Boggie

Staff Members in attendance were Dr. Arrington, Mr. Dean, Mr. Howard (via GotoWebinar), and Ms. Fraraccio (via GotoWebinar).

Consultants in attendance were Mr. Shenkman with Curtis Shenkman, PA.

3. ITEM 6B FROM JUNE 18, 2020 REGULAR AGENDA-Busch Wildlife Sanctuary License Agreement

Mr. Shenkman reviewed his draft letter for the Board's consideration. Mr. Shenkman, Dr. Arrington and the Board discussed the District's Enabling Act, Chapter 31-16, and the history of the Busch Wildlife Sanctuary License Agreement.

MOTION: Made by Mr. Boggie, Seconded by Dr. Rostock,
Passed 4-1 with Mr. Snyder voting against.

"That the Governing Board approve the draft letter to the Florida Attorney General requesting guidance as to AGO 86-90, as revised."

4. ADJOURNMENT

MOTION: Made by Mr. Silverman, Seconded by Mr. Snyder,
Passed Unanimously.

"That the reconvened meeting of June 22, 2020 recess at 2:43 PM."

_____ _____
BOARD CHAIRMAN BOARD SECRETARY

_____
RECORDING SECRETARY

Loxahatchee River Watershed Status
Dubois Park Bacteria Monitoring & Swimming Guidance

Dubois Park and the shallow water lagoon are popular recreation areas, particularly with families with small children. Each week, LRD and the Palm Beach County Department of Health (DOH) monitor water quality for Fecal Indicator Bacteria (FIB). Occasionally, water quality results exceed EPA's water quality criteria and the DOH will issue a swimming advisory and County lifeguards will close the swimming area. Because there is a 24-hour delay to obtain bacteria results and issue a closure, we set out to explore our rich dataset to see if it might be feasible to provide proactive guidance to Palm Beach County Parks Department Lifeguards and bathers. At our meeting we will present our findings as we prepare to meet with Parks Staff.

LOXAHATCHEE RIVER DISTRICT'S EXECUTIVE DASHBOARD

		Stewardship	Wastewater						Engineering	General Business					EHS	River Health		
		# People educated at RC	Mean Daily Incoming Flow	Delivery of Reclaimed Water	Customer Service	Sewage Spilled	Permit exceedance	NANO Blend to Reuse (@ 511)	Grease Interceptor Inspections	Cash Available	Revenue (excluding assessment & capital contrib.)	Operating Expenses	Capital Projects		Employee Safety	Minimum Flow Compliance	Salinity @ NB seagrass beds	River Water Quality
Units		% of Target	million gallons/day	# days demand not met	# blockages with damage in home	Gallons	# occurrences	Max Specific Conductance (umhos/cm)	% requiring pump out	$	% of Budget	% of Budget	% within budget	% on time	# of OSHA recordable injuries	# Days MFL Violation	‰	Fecal Coliform Bacteria (cfu/100ml)
Green Level		≥ 90%	< 7.7	<2	Zero	<704	Zero	<1542	≤ 15	≥ $9,894,657	≥ 95%	≥ 85% but ≤ 105%	≥80%	≥80%	Zero	0	min ≥ 20 ‰	90% of sites ≤ 200
Yellow		< 90%	< 8.8	≥ 2	1	≤1,500	1	≤1875	≤ 25	< $9,894,657	≥ 90%	≥ 80%	≥60%	≥60%	-	1	min ≥ 10 ‰	2 or more sites >200 but ≤ 400
Red		<75%	≥ 8.8	≥ 9	≥ 2	>1,500	≥ 2	>1875	> 25	< $5,557,057	< 90%	< 80% or > 105%	< 60%	< 60%	≥ 1	≥ 2	min < 10 ‰	≥ 2 sites > 400
2017 Baseline		104%	6.6	1	0	2,225	0	1,127	9	$ 30,425,084	95%	85%	98%	85%	0	not avail	22.8	1 > 200
2018 Baseline		112%	6.8	1	0	1,606	0	1,216	8	$ 33,683,858	99%	85%	95%	56%	0.4	42	23.1	1 > 200
2019 Baseline		100%	6.8	1	1	8,022	0	1229	9	$ 35,137,006	100%	89%	95%	63%	0.3	2	22.9	1 > 200
2019	June	98%	6.3	0	0	360	0	1,233	17	$ 34,111,378	98%	89%	92%	42%	0	0	23.5	1 > 200
	July	85%	6.2	0	0	3,800	0	1,279	6	$ 34,005,523	98%	88%	92%	42%	1	0	28.8	0 > 200
	Aug	89%	6.9	1	0	3,000	2	1,163	8	$ 33,341,832	97%	89%	92%	33%	1	0	15.9	3 > 200
	Sept	74%	6.5	3	1	2,250	0	1,125	13	$ 31,573,764	97%	89%	92%	33%	0	0	12.9	0 > 200
	Oct	116%	6.5	1	1	3,000	0	1,298	7	$ 32,222,812	105%	103%	92%	88%	1	0	26.9	0 > 200
	Nov	113%	6.5	3	1	67,850	0	1,230	18	$ 33,374,275	98%	90%	92%	83%	0	0	18.7	1 > 200
	Dec	108%	6.9	0	1	310	0	1,291	18	$ 33,400,263	105%	87%	92%	83%	0	0	6.1	1 > 200
2020	Jan	109%	7.1	6	0	485	0	1,176	7	$ 34,262,489	104%	93%	92%	83%	0	0	7.3	0 > 200
	Feb	137%	7.4	3	1	447	0	1,227	0	$ 35,411,980	102%	91%	92%	83%	1	0	24.5	1 > 200
	Mar	40%	7.3	0	0	10,010	0	1,256	2	$ 34,352,969	104%	90%	92%	83%	0	23	27.9	3 > 200
	Apr	0%	6.9	0	0	121	0	1,331	13	$ 35,108,854	103%	89%	88%	79%	1	30	32.7	1 > 200
	May	0%	7.3	0	0	4,028	0	1,461	NA	$ 35,110,453	102%	89%	90%	90%	0	31	11.2	2 > 200
	June	0%	8.0	0	0	17,027	0	986	65	$ 34,561,002	101%	88%	90%	65%	0	1	2.0	0 > 200
Consecutive Months at Green		0	133	4	4	0	10	117	0	132	95	17	56	0	1	0	0	1
Metric Owner		O'Neill	Pugsley	Dean	Dean	Dean	Pugsley	Pugsley	Dean	Fraraccio	Fraraccio	Fraraccio	Dean	Dean	Bains	Howard	Howard	Howard

Metric	Explanation
Public Education	The COVID-19 pandemic caused closure of the River Center in mid-March. While attendance at the River Center is zero, our educators have shifted gears and are providing online content and working on other projects (see River Center report for links).
Sewage Spills	In our collection system, we had 6 spills resulting in 17,027 gallons of sewage being spilled with one spill (15,000 gallons) impacting the Southwest Fork of the Loxahatchee River - see Engineering Report for details. In our wastewater treatment plant we had 2 spills of secondary effluent totaling 922 gallons - see Operations Report for details.
Grease Interceptors	An abnormally high percent of inspected grease interceptors required pump out this month.
Capital Projects (on time)	Seven out of 20 projects are behind schedule. Two of the delayed projects are waiting on continuing services contracts, which should be executed in August. Two of the projects are complete except for final paperwork. The remaining three projects have been delayed due to on-going work load and staffing.
MFL Compliance	The drought that began in April continued into May continued to impact MFL performance through the 20 day rolling average salinity metric, which was over 2 parts per thousand for the first day of June.
Salinity	We received 12.92-inches of rain in June. The associated runoff significantly depressed salinity conditions in North Bay - where some of the healthiest seagrass beds occur.

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org

D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: Governing Board

FROM: Administration Staff

DATE: July 7, 2020

SUBJECT: Consent Agenda

All items listed below are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless requested by a Board Member or citizen, in which event, the item will be removed and considered under the regular agenda.

This month's consent agenda consists of the following items:

A. Olympus Drive Notice of Intent to Assess (Resolution 2020-05)
B. US 1 Residential Preliminary Assessment (Resolution 2020-06)
C. Whispering Trails Preliminary Assessment (Resolution 2020-07)
D. Imperial Woods Preliminary Assessment (Resolution 2020-08)
E. Owner Furnished Equipment: LS 82 Standby Generator & ATS – to approve purchase
F. Owner Furnished Equipment: LS 82 Submersible Pumps – to approve purchase
G. Disposal of Surplus Tangible Personal Property Policy – to approve policy
H. Jupiter Inlet Lighthouse Septic to Sewer Conversion – to approve engineering contract
I. Fixed Asset Disposal – to approve disposal
J. Change Orders to Current Contracts – to approve modifications

Should you have any questions regarding these items, I would be pleased to discuss them further with you.

The following Motion is provided for Board consideration:

"THAT THE GOVERNING BOARD approve the Consent Agenda of July 16, 2020 as presented."

Signed,

D. Albrey Arrington, Ph.D.
Executive Director

J:\BOARD\Consent2020.docx

CURTIS L. SHENKMAN
Board Certified
Real Estate Attorney

CURTIS SHENKMAN, P.A.
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CURTIS@PALMBEACHLAWYER.LAW

LEGAL ASSISTANTS
JUDY MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

June 24, 2020 Sent by email

D. Albery Arrington, PhD., Executive Director
Loxahatchee River Environmental Control District
2500 Jupiter Drive
Jupiter, Florida 33458-8964

Re: Initial Resolution for **OLYMPUS DRIVE** Assessment Area

Dear Dr. Arrington:

Per your request, please attach to this letter the Pending Lien Notice, Notice of Intent to Assess, Resolution 2020-05, the PROPOSED "Exhibit B Description of Improvements", "Exhibit B Map of the Assessment Area", and preliminary List of Property Owners.

A **SUGGESTED MOTION** for the Board to consider is:

> "THAT THE GOVERNING BOARD approve Resolution 2020-05 the NOTICE OF INTENT to Assess, the Pending Lien Notice, and the Exhibits for the **OLYMPUS DRIVE** Assessment Area."

I will bring the originals to be signed at the Governing Board meeting, and leave them for the District to electronically record in the Public Records.

Sincerely,

Curtis L. Shenkman

Curtis L. Shenkman

RETURN TO:
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

PENDING LIEN NOTICE
OLYMPUS DRIVE ASSESSMENT AREA

THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, a special district of the State of Florida, created in 1971 and existing pursuant to Chapter 2002-358, Laws of Florida (hereinafter referred to as the "District"), hereby clarifies the lien status of the "Notice of Intent to Assess" attached hereto and made a part hereof (referred to as the "Pending Lien").

The Pending Lien shall not be considered certified, confirmed or ratified until such time as the passage of the Final Assessment Roll Resolution of the District.

The intention of the District in publishing this Pending Lien Notice is to assist the property owners who may be selling or refinancing their property and parties who may be placing a mortgage on their property to do so knowing that the District is not seeking the payment of any funds on the Pending Lien until the non-ad valorem tax bill is issued for the property on the date set forth in the Final Assessment Roll Resolution of the District.

Any inquiries as to the Pending Lien and the timing for the Final Assessment Roll Resolution and payment of said special assessments should be directed to:

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
2500 Jupiter Park Drive
Jupiter, Florida 33458
Phone: (561) 747-5700

IN WITNESS WHEREOF, the undersigned, Executive Director of the Loxahatchee River Environmental Control District, herein certifies that on this 16th day of July, 2020, the information contained herein is true and accurate.

WITNESSES:

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

_____

By:_____
D. Albrey Arrington, Ph.D.
EXECUTIVE DIRECTOR

_____

STATE OF FLORIDA
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me by means of physical presence this 16th day of July, 2020, by D. Albrey Arrington, EXECUTIVE DIRECTOR of the LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, a special district of the State of Florida, on behalf of the District, who is personally known to me.

(NOTARY SEAL)

_____
NOTARY PUBLIC, STATE OF FLORIDA

V:\SPECL\Assessmt\Notice of Intent Forms & Instructions\PendingLienNotice.doc

RETURN TO:
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

NOTICE OF INTENT TO ASSESS
OLYMPUS DRIVE ASSESSMENT AREA

THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, a special district of the State of Florida (the "District") **created in 1971 and existing pursuant to Chapter 2002-358, Laws of Florida**, (the "Act"), hereby gives public notice that the District's Governing Board on the 16th day of July, 2020, passed Resolution **2020-05**, authorizing the construction of certain local sewer improvements as further described in said Resolution **2020-05**, which is attached hereto as Exhibit "A". It is the intent of the District to assess the owners of property specially benefited by such sewer improvements, which property is further described on the attached **Exhibit "B"**, and to apportion the District's costs for the total expenses related to the design and construction of said improvements, based upon each owner's proportionate share of said costs determined upon a square footage basis, or by other methods as the Governing Board may deem fair and equitable, pursuant to the Act and Rules of the District, as same may be amended from time to time hereafter.

Any inquiries to the District's progress in completing certification of said assessments should be directed to:

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
2500 Jupiter Park Drive
Jupiter, Florida 33458

IN WITNESS WHEREOF, the undersigned, Executive Director of the Loxahatchee River Environmental Control District, hereby certifies on this 16th day of July, 2020, that the information contained herein is true and accurate.

WITNESSES:

_____

_____
D. Albrey Arrington, Ph.D.
Executive Director

_____

STATE OF FLORIDA
COUNTY OF PALM BEACH

SWORN TO and subscribed before me by means of physical presence this 16th day of July, 2020, by D. Albrey Arrington, EXECUTIVE DIRECTOR of the LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, who is personally known to me.

(NOTARY SEAL)

_____
NOTARY PUBLIC, STATE OF FLORIDA

Special/Assessment/NoticeIntentToAssess

RESOLUTION 2020-05

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO **OLYMPUS DRIVE** ASSESSMENT AREA IMPROVEMENTS IN ACCORDANCE WITH DISTRICT RULE 31-11; STATING THE NATURE OF THE PROPOSED IMPROVEMENTS; DESIGNATING THE STREETS TO BE IMPROVED; DESIGNATING THAT PLANS, SPECIFICATIONS, AND A TENTATIVE APPORTIONMENT BE PREPARED; PROVIDING FOR THE AVAILABILITY OF PLANS AND SPECIFICATIONS AND FOR THE PREPARATION OF THE PRELIMINARY SPECIAL ASSESSMENT ROLL; PROVIDING FOR DECLARING LINE AVAILABLE FOR CONNECTION; PROVIDING FOR CONSISTENCY; PROVIDING FOR SEVERABILITY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the "District") has considered the need for improvements to the **OLYMPUS DRIVE** Assessment Area (the "Area") in Palm Beach County, Florida;

WHEREAS the District shall construct and declare available sewerage collection lines and related appurtenances comprising a localized District sewer system in the Area as an Established Residential Neighborhood based upon the Governing Board's determination of any of the following:

(1) n/a; or
(2) that a reasonable alternative to the septic tanks exists for the treatment of the sewerage, taking into consideration factors such as cost; or
(3) the discharge from the septic tanks is adversely affecting the health of the user or the public, or the groundwater or surface water is degraded; or
(4) to enhance the environmental and scenic value of surface waters.

WHEREAS, the Governing Board has considered the facts, evidence, and presentations of the District Engineer, District staff and consultants as to the need for sanitary sewers in the Area and considered such recommendations to be in accordance with the above referenced Criteria of the "Ellis Rule" as well as in the best interests of the citizens of the District and the citizens of this Area.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE DISTRICT, THAT:

Section 1. Title:

This Resolution shall be known as the Resolution Authorizing the Project known as "**OLYMPUS DRIVE** Assessment Area Improvements".

Section 2. Nature of Improvements:

The project improvements shall consist of the construction of a waste water and sewage system within lands under the jurisdiction of the District. The proposed improvements performed shall generally consist of those set forth on Composite Exhibit "B".

Section 3. Designation of Streets to be Improved:

The streets included within the **OLYMPUS DRIVE** Assessment Area Improvements are set forth on Composite Exhibit "B".

Section 4. Plans, Specifications and Tentative Apportionment:

Upon adoption of this Resolution, The District Engineers and staff shall prepare plans, specifications and estimated total costs of such proposed improvements, together with a tentative apportionment of such costs between the District and individual parcels of property receiving special benefits pursuant to the improvements.

Section 5. Public Inspection:

The Plans, Specifications and tentative apportionments for the **OLYMPUS DRIVE** Assessment Area Improvements shall be available for inspection in the Office of the Executive Director, Loxahatchee

River Environmental Control District, 2500 Jupiter Park Drive, Jupiter, Florida 33458. The District's Engineer shall make available said plans and specifications prepared incident thereto, for inspection in the Office of the District's Engineer.

Section 6. Assessment Roll:

The District Clerk is directed to prepare a Preliminary Assessment Roll based upon this Resolution, District Rule 31-11, and the District Engineer's tentative apportionment, and to make publication of notice in newspapers in Martin and Palm Beach Counties, together with notice mailed to those interested parties and affected property owners requesting such in writing, in accordance with the requirements of District Rule 31-11.

Section 7. Availability for Connection and Required Connection:

The waste water and sewerage system shall be "Available" for connection in accordance with District Rule 31-3.003(3) and Florida Statutes 381.0065(2)(a) when the Florida Department of Health releases the system for service, which is the date of actual "Availability". In accordance with Florida Statutes 381.00655, the affected property owners shall be required to connect to the sewerage system within one (1) year of the actual Availability.

Section 8. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 9. In the event that any portion of this Resolution is found to be unconstitutional or improper, it shall be severed herefrom and shall not affect the validity of the remaining portions of this Resolution.

Section 10. This Resolution shall become effective upon its passage and adoption.

PASSED AND ADOPTED BY THE GOVERNING BOARD OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, THIS 16th DAY OF JULY, 2020.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

VOTE

_____ _____
DR. MATT H. ROSTOCK

_____ _____
STEPHEN ROCKOFF

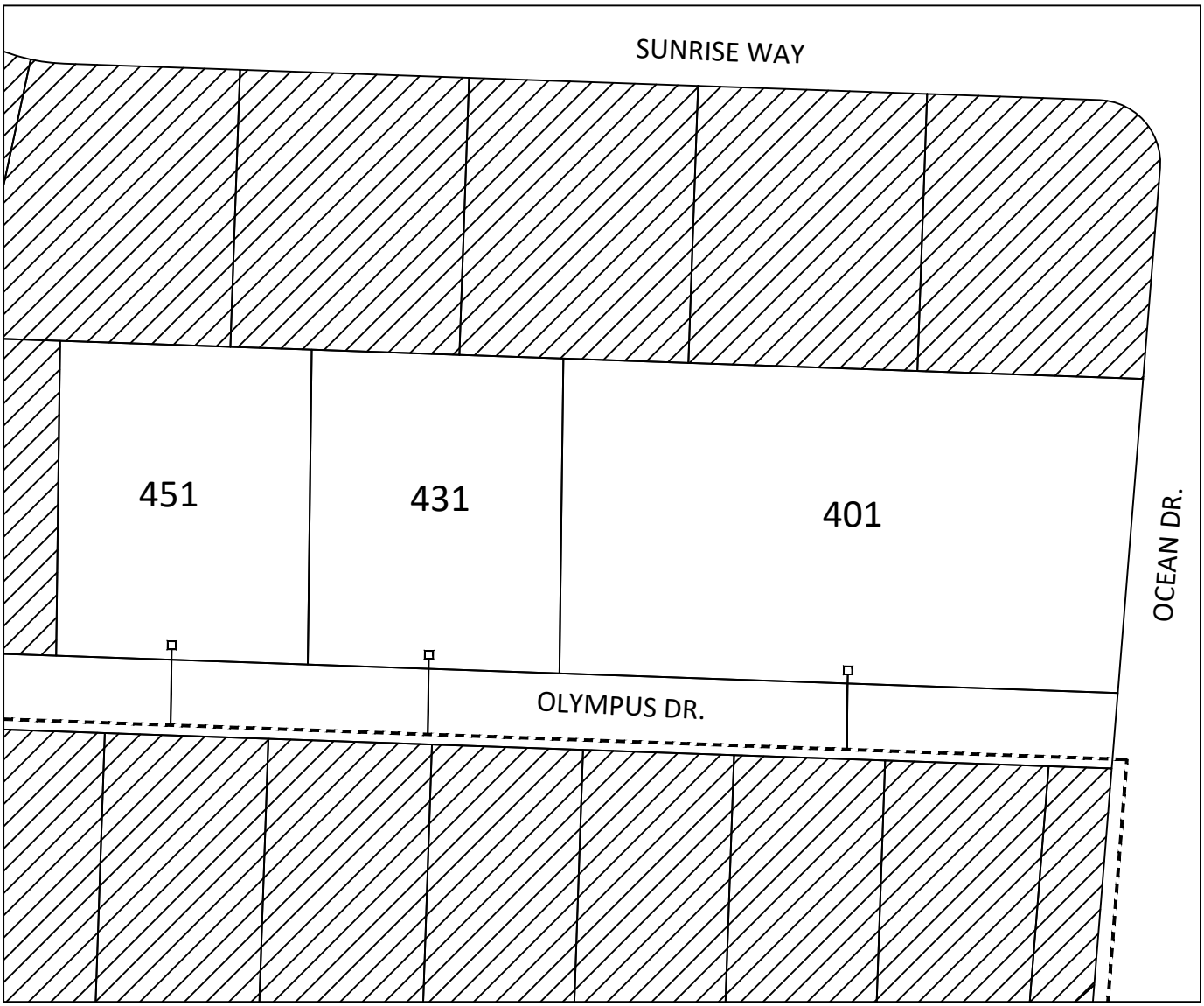
_____ _____
GORDON M. BOGGIE

_____ _____
HARVEY M. SILVERMAN

_____ _____
JAMES D. SNYDER

EXHIBIT "B"
OLYMPUS DRIVE LOW PRESSURE SEWER SYSTEM ASSESSMENT AREA

N.T.S.



LEGEND

- EXISTING 6" FORCE MAIN
- NEW LOW PRESSURE SERVICE
- NOT IN ASSESSMENT AREA

JUNO BEACH, FLORIDA

6-23-20

OLYMPUS LPSS EXH-B

EXHIBIT “B”

PROPOSED SEWER SERVICE ASSESSMENT AREA

OLYMPUS DRIVE ASSESSMENT AREA

The properties to be provided sewer service are located within Section 28, Township 41 South, Range 43 East, Juno Beach, Palm Beach County, Florida and lies within the following general boundaries:

On the North by Sunrise Way,
On the South by Seaside Lane,
On the East by Ocean Drive, and
On the West by US Highway One.

The approximate quantity of materials required to complete the project are:

3	Services
3	Low Pressure Pumping Units

Ms. Maria Bedoya
re: 431 Olympus Dr
431 Olympus Dr
Juno Bch FL 33408
28-43-41-28-01-000-0322

Ms. B Ginsburg/S Allen
re: 451 Olympus Dr
451 Olympus Dr
Juno Bch FL 33408
28-43-41-28-01-000-0323

Mr. & Mrs. Edgar Abovich
re: 401 Olympus Dr
878 Lakeside Dr
N Palm Bch FL 33408
28-43-41-28-01-000-0324

CURTIS L. SHENKMAN
Board Certified Real Estate Attorney

HUNTER C. SHENKMAN
Attorney

CURTIS SHENKMAN, P.A.
ATTORNEY & COUNSELOR AT LAW
4400 PGA BLVD, SUITE 301
PALM BEACH GARDENS, FL 33410
561-822-3939 FAX 561-898-2266
CURTIS@PALMBEACHLAWYER.LAW

PARALEGALS
JUDY MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

Sent by email July 9, 2020

D. Albery Arrington, PhD., Executive Director
Loxahatchee River Environmental Control District
2500 Jupiter Drive
Jupiter, Florida 33458-8964

Re: **Resolution 2020-06 and Preliminary Assessment Roll for US HIGHWAY 1 RESIDENTIAL**

Dear Dr. Arrington:

Please attach to this letter is Resolution 2020-06, Exhibit "A" Preliminary Assessment Roll, & Exhibit "B" Map & most recent list of property owners as part of the Resolution.

In the Resolution, Sections 2 and 7, the "Board of Adjustment" public hearing and "Governing Board" meeting to confirm the "final" assessment roll is proposed for AUGUST 20, **2020.** Preparation is necessary of the Notice to be published and mailed out by **Friday, August 7, 2020.**

A **SUGGESTED MOTION** for the Board at the July 16, 2020 meeting is as follows: "THAT THE GOVERNING BOARD approve Resolution **2020-06** adopting the **US HIGHWAY 1 RESIDENTIAL** Preliminary Assessment Roll."

Sincerely,

Curtis L. Shenkman

Curtis L. Shenkman

LRECD RESOLUTION NO. 2020-06

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO THE **US HIGHWAY 1 RESIDENTIAL** ASSESSMENT AREA IMPROVEMENTS; ADOPTING THE PRELIMINARY ASSESSMENT ROLL FOR **US HIGHWAY 1 RESIDENTIAL** ASSESSMENT AREA IMPROVEMENTS AS PREPARED BY THE DISTRICT CLERK AND ATTACHED HERETO AS EXHIBITS "A" AND "B"; AUTHORIZING THE DISTRICT GOVERNING BOARD TO ACT AS THE BOARD OF ADJUSTMENT; PROVIDING FOR THE FURNISHING OF TEN DAYS' WRITTEN NOTICE TO ALL PROPERTY OWNERS AFFECTED; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION AND OF THE WRITTEN NOTICE; MAKING REFERENCE TO RESOLUTION NO. **2019-04** PROVIDING FOR THE PUBLICATION OF THE NOTICE OF THE MEETING TO CONSIDER CONFIRMATION OF THE PRELIMINARY ASSESSMENT ROLL; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION; PROVIDING FOR CONSISTENCY; PROVIDING FOR SEVERABILITY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the "District" has authorized the sewer improvements to the **US HIGHWAY 1 RESIDENTIAL** Assessment Area in **PALM BEACH** County, Florida.

WHEREAS, the Governing Board has considered the presentation of the District Engineer and considered such recommendations to be in accordance with the requests and the best interests of the citizens of the District.

WHEREAS, the Governing Board has considered the improvements to be in accordance with the best interests of the citizens of the **US HIGHWAY 1 RESIDENTIAL** Assessment Area.

WHEREAS, the District's previous Resolution **2019-04** was approved by the District's Governing Board and directed the preparation of the Assessment Roll.

WHEREAS, the District Clerk has prepared the Preliminary Assessment Roll attached hereto as Exhibits "A" and "B".

NOW THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE DISTRICT, THAT:

Section 1. The District adopts the Preliminary Assessment Roll in the form as attached hereto as Exhibits "A" and "B".

RESOLUTION 2020-06
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 2. The District Clerk is directed to publish a Notice stating that the District's Governing Board shall act as the **Board of Adjustment** at a hearing to be held on the **20th day of August, 2020** at the District's Governing Board meeting chambers, Jupiter, Florida. Such Notice shall be published at least ten (10) days in advance of such hearing, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state that at the hearing, the Governing Board will hear objections of all interested persons to the confirmation of such resolution. Such Notice shall state in brief and general terms a description of the improvements with the location thereof and shall also state that plans, specifications, estimates, and the tentative apportionment of cost thereof are on file in the office of the District. The District Clerk is directed to mail a copy of such Notice to each of the affected property owners at least ten (10) days in advance of the hearing.

Section 3. During the Board of Adjustment hearing, such affected property owner may present information to the Governing Board in relation to his Special Assessment and the project, provided that such property owners must submit in writing to the District either prior to or at the time of said meeting of the Board of Adjustment their objections to the Special Assessment.

Section 4. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Hearing of the Governing Board as the Board of Adjustment as set forth herein.

Section 5. The District Clerk shall file Proof of Publication and Proof of Written Notice to the affected property owners at the Board of Adjustment hearing.

Section 6. Resolutions No. **2019-04 and 2020-06** of the District shall be a part of the record to be considered by the Governing Board at the aforedescribed hearing when the Governing Board sits as the Board of Adjustment.

Section 7. The District Clerk is directed to publish a Notice stating that at the meeting of the Governing Board to be held on **August 20, 2020** at the District Governing Board meeting chambers, Jupiter, Florida, all interested persons may appear and file written objections to the confirmation of the Final Assessment Roll. Such Notice shall be published at least twelve (12) days in advance of such meeting, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state the class of the improvement and the location thereof by terminal points and route. Such Notice shall also be mailed to those interested parties requesting such in writing.

Section 8. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Meeting of the Governing Board to confirm the Final Assessment Roll.

Section 9. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

RESOLUTION 2020-06
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 10. In the event that any portion of this Resolution is found to be unconstitutional or illegal, it shall be severed herefrom without affecting the validity or enforceability of the remaining portions of this Resolution.

Section 11. This Resolution shall become effective upon its passage and adoption.

PASSED AND ADOPTED BY THE GOVERNING BOARD OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, THIS **16th** day of **July, 2020.**

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

	VOTE
_____	_____
JAMES D. SNYDER	
_____	_____
STEPHEN ROCKOFF	
_____	_____
GORDON M. BOGGIE	
_____	_____
HARVEY SILVERMAN	
_____	_____
DR. MATT H. ROSTOCK	

EXHIBIT "A"
PRELIMINARY ASSESSMENT ROLL
LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
US HIGHWAY 1 RESIDENTIAL ASSESSMENT AREA

TOTAL COSTS AND EXPENSES RELATED TO THE IMPROVEMENTS. The District shall consider the **total** costs and expenses related to the improvements in the **US HIGHWAY 1 RESIDENTIAL** Assessment Area shall be **$7,301.87** per parcel of property in the **US HIGHWAY 1 RESIDENTIAL** Area.

APPORTIONMENT OF COSTS BETWEEN THE DISTRICT AND THE PROPERTY OWNERS. The District shall pay from the District's general funds ten percent (10%) of the total cost to the District of construction, reconstruction, labor, materials, acquisition, or property rights, surveys, design, engineering, and legal fees, administration expenses, and all other expenses necessary or incidental to completion of the specially assessed improvement and each lot or parcel of land subject to this special assessment shall be responsible for ninety percent (90%) of the total cost.

PAYMENT OF ASSESSMENT. As to Parcels of **US HIGHWAY 1 RESIDENTIAL** Assessment Area Property in EXHIBIT "B", the **$6,571.68** assessment may be paid, interest free, at the office of the District on or before May 1, 2021.

Owners who do not pay the $6,571.68 assessment on or before May 1, 2021 shall have the $6,571.68 principal added to the tax roll as a non-ad valorem assessment to accrue interest, beginning October 1, 2020, at six and seven eights percent (6.875%) per annum, to be collected in twenty (20) equal annual installments of $614.31, commencing with the November 1, 2021 Real Estate Tax Bill.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

By:_____
D. Albrey Arrington, District Clerk, Executive Director

EXHIBIT "B"
US HIGHWAY 1 RESIDENTIAL LOW PRESSURE SEWER SYSTEM ASSESSMENT AREA

N.T.S.

LEGEND

NOT IN ASSESSMENT AREA

JUNO BEACH, FLORIDA

3-11-2019

Ms. Deborah Osborne
re: 13440 US Hwy 1
13440 US Hwy 1
N Palm Beach FL 33408
28-43-41-28-13-000-0010

Mr. & Mrs. Robert Prier
re: vac US Hwy 1
11350 US Hwy 1 #2
N Palm Beach FL 33408
28-43-41-28-13-000-0030

Mr. Micah Bass Tr
re: 13500 US Hwy 1
7200 International Dr
Orlando FL 32819
28-43-41-28-13-000-0040

CURTIS L. SHENKMAN
Board Certified Real Estate Attorney

HUNTER C. SHENKMAN
Attorney

CURTIS SHENKMAN, P.A.
ATTORNEY & COUNSELOR AT LAW
4400 PGA BLVD, SUITE 301
PALM BEACH GARDENS, FL 33410
561-822-3939 FAX 561-898-2266
CURTIS@PALMBEACHLAWYER.LAW

PARALEGALS
JUDY MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

Sent by email July 8, 2020

D. Albery Arrington, PhD., Executive Director
Loxahatchee River Environmental Control District
2500 Jupiter Drive
Jupiter, Florida 33458-8964

Re: **Resolution 2020-07 and Preliminary Assessment Roll for WHISPERING TRAILS**

Dear Dr. Arrington:

Please attach to this letter is Resolution 2020-07, Exhibit "A" Preliminary Assessment Roll, & Exhibit "B" Map & most recent list of property owners as part of the Resolution.

In the Resolution, Sections 2 and 7, the "Board of Adjustment" public hearing and "Governing Board" meeting to confirm the "final" assessment roll is proposed for AUGUST 20, 2020. Preparation is necessary of the Notice to be published and mailed out by **Friday, August 7, 2020.**

A **SUGGESTED MOTION** for the Board at the July 16, 2020 meeting is as follows: "THAT THE GOVERNING BOARD approve Resolution **2020-07** adopting the **WHISPERING TRAILS** Preliminary Assessment Roll."

Sincerely,

Curtis L. Shenkman

Curtis L. Shenkman

LRECD RESOLUTION NO. 2020-07

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO THE **WHISPERING TRAILS** ASSESSMENT AREA IMPROVEMENTS; ADOPTING THE PRELIMINARY ASSESSMENT ROLL FOR **WHISPERING TRAILS** ASSESSMENT AREA IMPROVEMENTS AS PREPARED BY THE DISTRICT CLERK AND ATTACHED HERETO AS EXHIBITS "A" AND "B"; AUTHORIZING THE DISTRICT GOVERNING BOARD TO ACT AS THE BOARD OF ADJUSTMENT; PROVIDING FOR THE FURNISHING OF TEN DAYS' WRITTEN NOTICE TO ALL PROPERTY OWNERS AFFECTED; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION AND OF THE WRITTEN NOTICE; MAKING REFERENCE TO RESOLUTION NO. **2016-27** PROVIDING FOR THE PUBLICATION OF THE NOTICE OF THE MEETING TO CONSIDER CONFIRMATION OF THE PRELIMINARY ASSESSMENT ROLL; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION; PROVIDING FOR CONSISTENCY; PROVIDING FOR SEVERABILITY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the "District" has authorized the sewer improvements to the **WHISPERING TRAILS** Assessment Area in **PALM BEACH** County, Florida.

WHEREAS, the Governing Board has considered the presentation of the District Engineer and considered such recommendations to be in accordance with the requests and the best interests of the citizens of the District.

WHEREAS, the Governing Board has considered the improvements to be in accordance with the best interests of the citizens of the **WHISPERING TRAILS** Assessment Area.

WHEREAS, the District's previous Resolution **2016-27** was approved by the District's Governing Board and directed the preparation of the Assessment Roll.

WHEREAS, the District Clerk has prepared the Preliminary Assessment Roll attached hereto as Exhibits "A" and "B".

NOW THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE DISTRICT, THAT:

Section 1. The District adopts the Preliminary Assessment Roll in the form as attached hereto as Exhibits "A" and "B".

RESOLUTION 2020-07
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 2. The District Clerk is directed to publish a Notice stating that the District's Governing Board shall act as the **Board of Adjustment** at a hearing to be held on the **20th day of August, 2020** at the District's Governing Board meeting chambers, Jupiter, Florida. Such Notice shall be published at least ten (10) days in advance of such hearing, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state that at the hearing, the Governing Board will hear objections of all interested persons to the confirmation of such resolution. Such Notice shall state in brief and general terms a description of the improvements with the location thereof and shall also state that plans, specifications, estimates, and the tentative apportionment of cost thereof are on file in the office of the District. The District Clerk is directed to mail a copy of such Notice to each of the affected property owners at least ten (10) days in advance of the hearing.

Section 3. During the Board of Adjustment hearing, such affected property owner may present information to the Governing Board in relation to his Special Assessment and the project, provided that such property owners must submit in writing to the District either prior to or at the time of said meeting of the Board of Adjustment their objections to the Special Assessment.

Section 4. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Hearing of the Governing Board as the Board of Adjustment as set forth herein.

Section 5. The District Clerk shall file Proof of Publication and Proof of Written Notice to the affected property owners at the Board of Adjustment hearing.

Section 6. Resolutions No. **2016-27 and 2020-07** of the District shall be a part of the record to be considered by the Governing Board at the aforedescribed hearing when the Governing Board sits as the Board of Adjustment.

Section 7. The District Clerk is directed to publish a Notice stating that at the meeting of the Governing Board to be held on **August 20, 2020** at the District Governing Board meeting chambers, Jupiter, Florida, all interested persons may appear and file written objections to the confirmation of the Final Assessment Roll. Such Notice shall be published at least twelve (12) days in advance of such meeting, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state the class of the improvement and the location thereof by terminal points and route. Such Notice shall also be mailed to those interested parties requesting such in writing.

Section 8. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Meeting of the Governing Board to confirm the Final Assessment Roll.

Section 9. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

RESOLUTION 2020-07
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 10. In the event that any portion of this Resolution is found to be unconstitutional or illegal, it shall be severed herefrom without affecting the validity or enforceability of the remaining portions of this Resolution.

Section 11. This Resolution shall become effective upon its passage and adoption.

PASSED AND ADOPTED BY THE GOVERNING BOARD OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, THIS **16th** day of **July, 2020.**

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

VOTE

_____ _____
JAMES D. SNYDER

_____ _____
STEPHEN ROCKOFF

_____ _____
GORDON M. BOGGIE

_____ _____
HARVEY SILVERMAN

_____ _____
DR. MATT H. ROSTOCK

EXHIBIT "A"
PRELIMINARY ASSESSMENT ROLL
LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
WHISPERING TRAILS ASSESSMENT AREA

TOTAL COSTS AND EXPENSES RELATED TO THE IMPROVEMENTS. The District shall consider the **total** costs and expenses related to the improvements in the **WHISPERING TRAILS** Assessment Area shall be **$27,484.14** per parcel of property in the **WHISPERING TRAILS** Area.

APPORTIONMENT OF COSTS BETWEEN THE DISTRICT AND THE PROPERTY OWNERS. The District shall pay from the District's general funds ten percent (10%) of the total cost to the District of construction, reconstruction, labor, materials, acquisition, or property rights, surveys, design, engineering, and legal fees, administration expenses, and all other expenses necessary or incidental to completion of the specially assessed improvement and each lot or parcel of land subject to this special assessment shall be responsible for ninety percent (90%) of the total cost.

PAYMENT OF ASSESSMENT. As to Parcels of **WHISPERING TRAILS** Assessment Area Property in EXHIBIT "B", the **$24,735.72** assessment may be paid, interest free, at the office of the District on or before May 1, 2021.

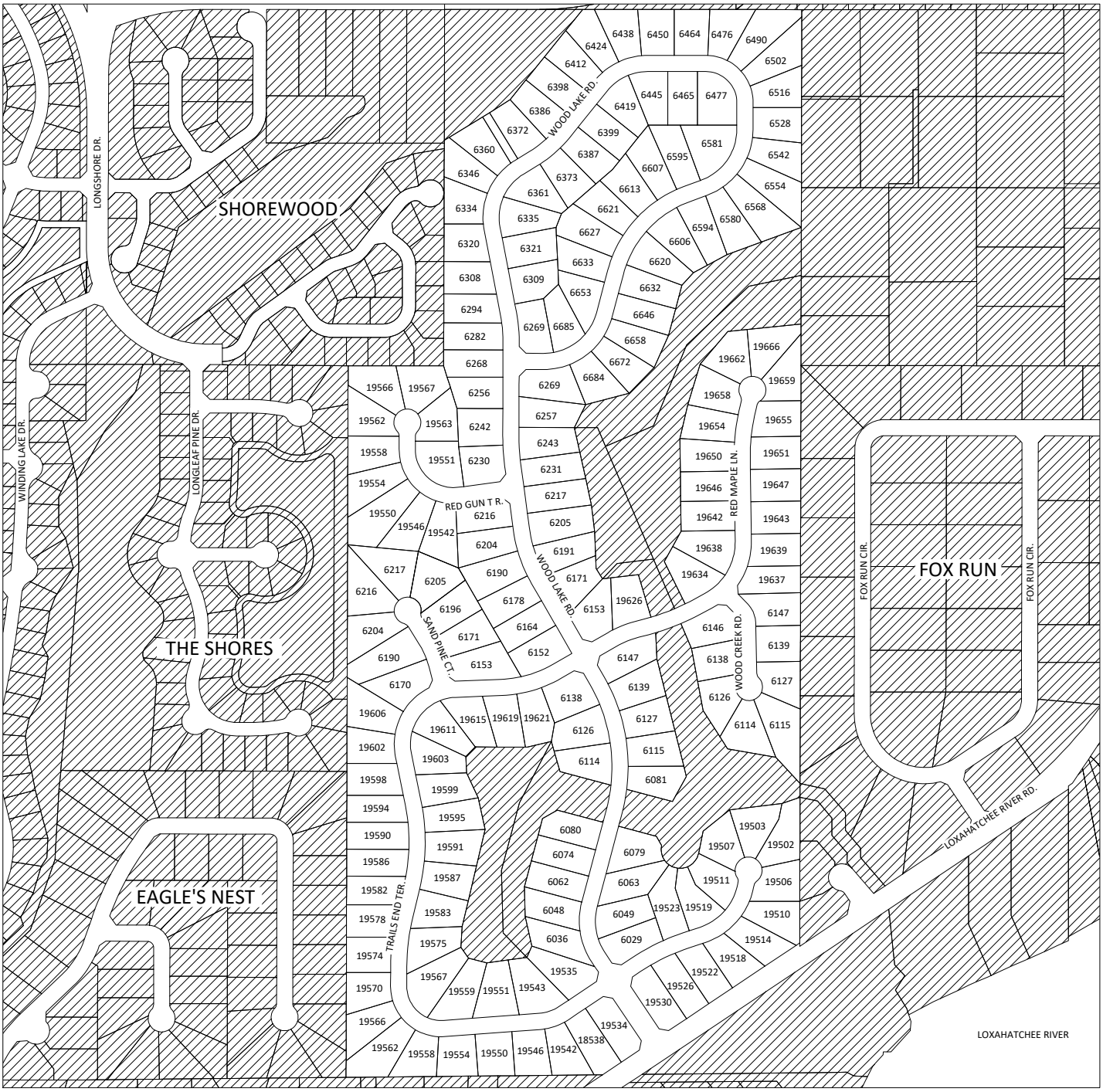
Owners who do not pay the $24,735.72 assessment on or before May 1, 2021 shall have the $24,735.72 principal added to the tax roll as a non-ad valorem assessment to accrue interest, beginning October 1, 2020, at six and seven eights percent (6.875%) per annum, to be collected in twenty (20) equal annual installments of $2,312.24, commencing with the November 1, 2021 Real Estate Tax Bill.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

By:_____
D. Albrey Arrington, District Clerk, Executive Director

EXHIBIT "B"
WHISPERING TRAILS
SEWER SYSTEM ASSESSMENT AREA

N.T.S.



LEGEND

NOT IN ASSESSMENT AREA

JUPITER, FLORIDA

8-9-2016

Mr. David Weychert
re: 19650 Red Maple Ln
19650 Red Maple Ln
Jupiter FL 33458
00 -42-40-27-08-012-0050

Mr. & Mrs. Ronaldo Chaves
re: 19534 Trails End Ter
19534 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-001-0010

Ms. Gloria Pelchen
re: 6079 Wood Lake Rd
6079 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-002-0010

Mr. & Mrs. Julian Gaillard IV
re: 6063 Wood Lake Rd
6063 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-002-0020

Mr. & Mrs. Scott Mc Mullen
re: 6049 Wood Lake Rd
6049 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-002-0030

Mr. & Mrs. Gene Lipscher
re: 6029 Wood Lake Rd
6029 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-002-0040

Mr. & Mrs. Evan Dumas
re: 19523 Trails End Ter
19523 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0050

Mr. & Mrs. Richard Davis
re: 19519 Trails End Ter
19519 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0060

Dr. Robert Morgan
re: 19511 Trails End Ter
19511 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0070

Mr. & Mrs. Kilmer Joyce
re: 19507 Trails End Ter
19507 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0080

Mr. & Mrs. Christopher Giomblanco
re: 19503 Trails End Ter
19503 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0090

Mr. & Mrs. Gerard Leahy
re: 19502 Trails End Ter
19502 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0100

Mr. & Mrs. John Schaefer
re: 19506 Trails End Ter
19506 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0110

Ms. G Ross/D Slutak
re: 19510 Trails End Ter
19510 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0120

Mr. & Mrs. Peter Grzybowski
re: 19514 Trails End Ter
19514 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0130

Mr. & Mrs. Alex Reed
re: 19518 Trails End Ter
19518 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0140

Mr. & Mrs. John Van Dusen
re: 19522 Trails End Ter
19522 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0150

Ms. Holly Boehmer
re: 19526 Trails End Ter
10389 158th St N
Jupiter FL 33478
00-42-40-27-05-002-0160

Mr. & Mrs. Bryan Woeber
re: 19530 Trails End Ter
19530 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-002-0170

Mr. Don Brand Sr % Glenn Brand
re: 6147 Wood Lake Rd
1313 Evans Rd
Belmar NJ 07719
00-42-40-27-05-003-0010

Mr. Gregory Kunzelmann
re: 6139 Wood Lake Rd
6139 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-003-0020

Mr. Todd Stewart
re: 6127 Wood Lake Rd
6127 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-003-0030

Mr. & Mrs. David Flom
re: 6115 Wood Lake Rd
6115 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-003-0040

Mr. & Mrs. Robert Grose
re: 6081 Wood Lake Rd
6081 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-003-0050

Mr. & Mrs. Rafael Cordero
re: 6153 Wood Lake Rd
6153 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-004-0010

Mr. & Mrs. Ronald Hines
re: 19626 Red Maple Ln
19626 Red Maple Ln
Jupiter FL 33458
00-42-40-27-05-004-0020

Mr. & Mrs. Mark Brinich
re: 6114 Wood Lake Rd
6114 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-005-0010

Mr. & Mrs. Marc Sickle
re: 6126 Wood Lake Rd
6126 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-005-0020

Mr. & Mrs. Craig Wallace
re: 6138 Wood Lake Rd
6138 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-005-0030

Mr. & Mrs. John Howard
re: 19535 Trails End Ter
19535 Trails End Ter
Jupiter FL 33458
00-42-40-27-05-006-0010

Mr. Gregory Mc Dermott
re: 6036 Wood Lake Rd
6036 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-006-0020

Mr. & Mrs. George Crouse Tr
re: 6048 Wood Lake Rd
6048 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-006-0030

Mr. & Mrs. Christopher Erb
re: 6062 Wood Lake Rd
6062 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-006-0040

Mr. & Mrs. Blaine Mc Kenzie Jr
re: 6074 Wood Lake Rd
6074 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-006-0050

Mr. & Mrs. Karl Burgin Tr
re: 6080 Wood Lake Rd
6080 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-05-006-0060

Mr. & Mrs. Carlton Schelhorn Jr
re: 19574 Trails End Ter
19574 Trails End Ter
Jupiter FL 33458
00-42-40-27-06 -001-0110

Mr. Derek Brock
re: 19538 Trails End Ter
19538 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0020

Mr. Sunil Khetarpal
re: 19542 Trails End Ter
19467 Camp Ln
Jupiter FL 33458
00-42-40-27-06-001-0030

Mr. & Mrs. Michael Hollenbush
re: 19546 Trails End Ter
19546 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0040

Mr. R Kullen III/M Casker
re: 19550 Trails End Ter
19550 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0050

Mr. Ryan Patterson
re: 19554 Trails End Ter
19554 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0060

Mr. & Mrs. Henry Blakiston
re: 19558 Trails End Ter
19558 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0070

Mr. & Mrs. Timothy Crotty
re: 19562 Trails End Ter
19562 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0080

Mr. Matthew Cody
re: 19566 Trails End Ter
19566 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0090

Mr. E Kimball/M Walsh
re: 19570 Trails End Ter
19570 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0100

Mr. & Mrs. Ashok Patel
re: 19578 Trails End Ter
19578 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0120

Ms. Deborah Johnson
re: 19582 Trails End Ter
19582 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0130

Mr. & Mrs. Mark Homan
re: 19586 Trails End Ter
19586 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0140

Mr. S Stern/L Dayan
re: 19590 Trails End Ter
19590 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0150

Mr. & Mrs. Frank Kohnen
re: 19594 Trails End Ter
19594 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0160

Mr. & Mrs. Donald Paulus
re: 19598 Trails End Ter
19598 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0170

Mr. & Mrs. Norbert Ehrich
re: 19602 Trails End Ter
19602 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0180

Mr. & Mrs. Todd Andrews
re: 19606 Trails End Ter
19606 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-001-0190

Mr. & Mrs. Christopher Ricker
re: 6170 Sand Pine Ct
6170 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0200

Mr. & Mrs. Richard Harpenau
re: 6190 Sand Pine Ct
6190 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0210

Mr. & Mrs. Brian Kaplan
re: 6204 Sand Pine Ct
6204 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0220

Mr. & Mrs. Paul Kennedy
re: 6216 Sand Pine Ct
6216 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0230

Mr. & Mrs. Patrick Bryan
re: 6217 Sand Pine Ct
6217 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0240

Mr. & Mrs. Craig Stroever
re: 6205 Sand Pine Ct
6205 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0250

Mr. & Mrs. Michael O'Bryan
re: 6191 Sand Pine Ct
6191 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0260

Ms. Barbara Jones
re: 6171 Sand Pine Ct
6171 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0270

Mr. & Mrs. David Capparelli
re: 6153 Sand Pine Ct
6153 Sand Pine Ct
Jupiter FL 33458
00-42-40-27-06-001-0280

Mr. & Mrs. John Carlton
re: 6152 Wood Lake Rd
6152 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0290

Mr. & Mrs. Robert Kilian II
re: 6164 Wood Lake Rd
6164 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0300

Mr. & Mrs. Christopher Hewitt
re: 6178 Wood Lake Rd
6178 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0310

Ms. Priscilla Marshall
re: 6190 Wood Lake Rd
6190 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0320

Ms. Dorothy Lamprecht
re: 6204 Wood Lake Rd
6204 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0330

Mr. John Hoctor II
re: 6216 Wood Lake Rd
6216 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0340

Mr. Louis Carrino Tr
re: 19542 Red Gum Trl
19542 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0350

Ms. Cynthia Marr
re: 19546 Red Gum Trl
19546 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0360

Mr. K Roberts/T Ruge
re: 19550 Red Gum Trl
19550 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0370

Mr. & Mrs. John Mildner
re: 19554 Red Gum Trl
19554 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0380

Dr. & Mrs. Robert Berman
re: 19558 Red Gum Trl
19558 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0390

Mr. & Mrs. David Fielding
re: 19562 Red Gum Trl
19562 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0400

Mr. & Mrs. Michael Singer
re: 19566 Red Gum Trl
19566 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0410

Mr. & Mrs. David Vaughn
re: 19567 Red Gum Trl
19567 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0420

Ms. J Gandy/B Rich
re: 19563 Red Gum Trl
19563 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0430

Mr. & Mrs. Nino Migoya
re: 19551 Red Gum Trl
19551 Red Gum Trl
Jupiter FL 33458
00-42-40-27-06-001-0440

Mr. & Mrs. Andrew Dinsdale
re: 6230 Wood Lake Rd
6230 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0450

Mr. & Mrs. Michael Stolowitz
re: 6242 Wood Lake Rd
6242 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-001-0460

Mr. Charles Prior
re: 19621 Trails End Ter
19621 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0040

Ms. Dana Marini
re: 19619 Trails End Ter
19619 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0050

Mr. & Mrs. Richard Mays
re: 19615 Trails End Ter
19615 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0060

Mr. & Mrs. Brian Mc Greevy
re: 19611 Trails End Ter
19611 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0070

Mr. & Mrs. Thomas Pruitt
re: 19603 Trails End Ter
19603 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0080

Mr. & Mrs. Michael Weeks
re: 19599 Trails End Ter
19599 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0090

Mr. & Mrs. Jay Slazinski
re: 19595 Trails End Ter
19595 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0100

Mr. & Mrs. Michael Patch Tr
re: 19591 Trails End Ter
19591 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0110

Ms. Claudia Siwik
re: 19587 Trails End Ter
19587 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0120

Mr. & Mrs. Benjamin Smiley
re: 19583 Trails End Ter
19583 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0130

Mr. & Mrs. Michael Lantz
re: 19575 Trails End Ter
19575 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0140

Mr. & Mrs. Michael O'Donnell, II
re: 19567 Trails End Ter
19567 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0150

Mr. & Mrs. Jason Mc Pharlin
re: 19559 Trails End Ter
19559 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0160

Mr. & Mrs. Bruce Cobey Jr
re: 19551 Trails End Ter
19551 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0170

Dr. & Mrs. James Beattie
re: 19543 Trails End Ter
19543 Trails End Ter
Jupiter FL 33458
00-42-40-27-06-005-0180

Mr. & Mrs. Keivan Dehghanpisheh
re: 6243 Wood Lake Rd
6243 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-007-0010

Mr. & Mrs. Kenneth Montgomery Jr
re: 6231 Wood Lake Rd
6231 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-007-0020

Mr. & Mrs. Thomas Bongard
re: 6217 Wood Lake Rd
6217 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-007-0030

Ms. Tarrah Hersey-Malagon
re: 6205 Wood Lake Rd
6205 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-007-0040

Mr. & Mrs. Timothy Crowe
re: 6191 Wood Lake Rd
6191 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-007-0050

Mr. & Mrs. Matthew Imse
re: 6171 Wood Lake Rd
6171 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-06-007-0060

Mr. & Mrs. Ernest Cantelmo
re: 6256 Wood Lake Rd
6256 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0010

Mr. & Mrs. William McGreevy
re: 6268 Wood Lake Rd
6268 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0020

Mr. & Mrs. Justin Backus
re: 6282 Wood Lake Rd
6282 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0030

Mr. & Mrs. Ramon Garcia
re: 6294 Wood Lake Rd
6294 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0040

Mr. & Mrs. George Donaldson Jr
re: 6308 Wood Lake Rd
6308 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0050

Mr. & Mrs. Alan Mulcahy
re: 6320 Wood Lake Rd
6320 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0060

Mr. & Mrs. Jeremy Blaise
re: 6334 Wood Lake Rd
6334 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0070

Mr. & Mrs. Michael Sims
re: 6346 Wood Lake Rd
6346 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0080

Mr. & Mrs. Paul Proffett
re: 6360 Wood Lake Rd
6360 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-008-0090

Mr. & Mrs. Tad Harper
re: 6477 Wood Lake Rd
6477 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0010

Mr. & Mrs. Philip Forbes
re: 6465 Wood Lake Rd
6465 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0020

Mr. & Mrs. Alan Sadowsky
re: 6445 Wood Lake Rd
6445 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0030

Ms. Patrice Miniguez Tr
re: 6419 Wood Lake Rd
6419 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0040

Mr. & Mrs. Patrick Persante
re: 6399 Wood Lake Rd
6399 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0050

Mr. & Mrs. Erik Arens
re: 6387 Wood Lake Rd
6387 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0060

Mr. & Mrs. David Holey
re: 6373 Wood Lake Rd
6373 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0070

Mr. & Mrs. Scott Espenship
re: 6361 Wood Lake Rd
6361 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0080

Mr. & Mrs. Lee Stroever
re: 6335 Wood Lake Rd
6335 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0090

Mr. & Mrs. Robert Holbrook
re: 6321 Wood Lake Rd
6321 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0100

Mr. Robi Tschappat
re: 6309 Wood Lake Rd
6309 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0110

Mr. & Mrs. William Butdorf
re: 6289 Wood Lake Rd
6289 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0120

Mr. & Mrs. Charles Payson
re: 6685 Wood Lake Rd
6685 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0130

Mr. James McCullough III
re: 6653 Wood Lake Rd
6653 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0140

Mr. & Mrs. William Pankey
re: 6633 Wood Lake Rd
6633 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0150

Mr. K Quick/C Milligan
re: 6627 Wood Lake Rd
6627 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0160

Mr. & Mrs. Mark Morgan
re: 6621 Wood Lake Rd
6621 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0170

Mr. & Mrs. Robert Clayman
re: 6613 Wood Lake Rd
6613 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0180

Mr. & Mrs. Peter De Sanctis
re: 6607 Wood Lake Rd
6607 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0190

Mr. & Mrs. Gary Nichols
re: 6595 Wood Lake Rd
6595 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0200

Mr. & Mrs. William Dean
re: 6581 Wood Lake Rd
6581 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-010-0210

Mr. & Mrs. Mark Child
re: 6372 Wood Lake Rd
6372 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0010

Mr. & Mrs. Roger Bursey
re: 6386 Wood Lake Rd
6386 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0020

Mr. & Mrs. Benjamin Williamson
re: 6398 Wood Lake Rd
6398 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0030

Mr. & Mrs. Scott Powers
re: 6412 Wood Lake Rd
6412 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0040

Mr. & Mrs. Peter Bascetta
re: 6424 Wood Lake Rd
6424 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0050

Mr. & Mrs. Antonio Sanchez-Garcia
re: 6438 Wood Lake Rd
6438 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0060

Mr. Daniel Rahfeldt
re: 6450 Wood Lake Rd
6450 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0070

Mr. & Mrs. Pedro Guilarte
re: 6464 Wood Lake Rd
6464 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0080

Mr. & Mrs. Raymond Grochowski
re: 6476 Wood Lake Rd
6476 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0090

Mr. & Mrs. Mark Sartory
re: 6490 Wood Lake Rd
6490 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0100

Mr. & Mrs. David Ceglio
re: 6502 Wood Lake Rd
6502 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0110

Ms. Debra Moler
re: 6516 Wood Lake Rd
6516 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0120

Mr. & Mrs. Thomas Tessier Tr
re: 6528 Wood Lake Rd
6528 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0130

Mr. David Seach
re: 6542 Wood Lake Rd
6542 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0140

Mr. & Mrs. Philip Beattie
re: 6554 Wood Lake Rd
6554 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0150

Mr. Richard Caspar
re: 6568 Wood Lake Rd
6568 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0160

Mr. & Mrs. Ryan Lachmansingh
re: 6580 Wood Lake Rd
6580 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0170

Mr. & Mrs. Francois Thomas
re: 6594 Wood Lake Rd
6594 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0180

Mr. Joseph Hartman
re: 6606 Wood Lake Rd
6606 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0190

Mr. P Gresch/M Hahn
re: 6620 Wood Lake Rd
6620 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0200

Mr. & Mrs. Joseph Danek
re: 6632 Wood Lake Rd
6632 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0210

Mr. & Mrs. Alexander Hoffs
re: 6646 Wood Lake Rd
6646 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0220

Mr. & Mrs. John Shanor Jr
re: 6658 Wood Lake Rd
751 E River Rd
Grand Island NY 14072
00-42-40-27-07-011-0230

Ms. Patricia Rue
re: 6672 Wood Lake Rd
6672 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0240

Mr. & Mrs. Ronald Wolf Tr
re: 6684 Wood Lake Rd
6684 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0250

Ms. H Brickman/B Sullivan
re: 6269 Wood Lake Rd
6269 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0260

Mr. & Mrs. Robert Bentz
re: 6257 Wood Lake Rd
6257 Wood Lake Rd
Jupiter FL 33458
00-42-40-27-07-011-0270

Mr. & Mrs. David Wrightson
re: 19634 Red Maple Ln
19634 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0010

Mr. & Mrs. Glenn Goodman
re: 19638 Red Maple Ln
19638 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0020

Mr. & Mrs. Thomas Burst
re: 19642 Red Maple Ln
19642 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0030

Mr. & Mrs. Andrew Ross
re: 19646 Red Maple Ln
19646 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0040

Mr. & Mrs. Michael Waters
re: 19654 Red Maple Ln
19654 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0060

Mr. & Mrs. Aaron Allen
re: 19658 Red Maple Ln
19658 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0070

Mr. & Mrs. Joshua Millar
re: 19662 Red Maple Ln
19662 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0080

Ms. Sebastiana Warren
re: 19666 Red Maple Ln
19666 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0090

Mr. & Mrs. Gary Mc Mullin
re: 19659 Red Maple Ln
19659 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0100

Ms. Miriam Elso c/o Mike Elso
re: 19655 Red Maple Ln
19655 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0110

Ms. Laura Bohn
re: 19651 Red Maple Ln
19651 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0120

Ms. Nancy Clark Tr
re: 19647 Red Maple Ln
19647 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0130

Mr. & Mrs. Andrew Morris
re: 19643 Red Maple Ln
19643 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0140

Mr. & Mrs. Shelby Bigelow
re: 19639 Red Maple Ln
19639 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0150

Mr. & Mrs. Scott Goodfellow
re: 19637 Red Maple Ln
19637 Red Maple Ln
Jupiter FL 33458
00-42-40-27-08-012-0160

Mr. M Thompson/V Goulet
re: 6147 Wood Creek Ct
6147 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0170

Mr. & Mrs. Hans Albertsson
re: 6139 Wood Creek Ct
6139 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0180

Mr. & Mrs. Robert Clyman
re: 6127 Wood Creek Ct
6127 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0190

Mr. & Mrs. Keith Bettenhausen
re: 6115 Wood Creek Ct
6115 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0200

Mr. & Mrs. Albert Wester
re: 6114 Wood Creek Ct
6114 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0210

Mr. & Mrs. Howard Douglas
re: 6126 Wood Creek Ct
6126 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0220

Mr. & Mrs. E H Pritchard III
re: 6138 Wood Creek Ct
6138 Wood Creek Ct
Jupiter FL 33458
00-42-40-27-08-012-0230

Mr. & Mrs. Harold Baseman
re: 6146 Wood Creek Ct
6146 Wood Creek Ct
Jupiter FL 33vv458
00-42-40-27-08-012-0240

CURTIS L. SHENKMAN
Board Certified Real Estate Attorney

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Attorney

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CURTIS@PALMBEACHLAWYER.LAW

PARALEGALS
JUDY MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

Sent by email July 8, 2020

D. Albery Arrington, PhD., Executive Director
Loxahatchee River Environmental Control District
2500 Jupiter Drive
Jupiter, Florida 33458-8964

Re: **Resolution 2020-08 and Preliminary Assessment Roll for IMPERIAL WOODS**

Dear Dr. Arrington:

Please attach to this letter is Resolution 2020-08, Exhibit "A" Preliminary Assessment Roll, & Exhibit "B" Map & most recent list of property owners as part of the Resolution.

In the Resolution, Sections 2 and 7, the "Board of Adjustment" public hearing and "Governing Board" meeting to confirm the "final" assessment roll is proposed for AUGUST 20, 2020. Preparation is necessary of the Notice to be published and mailed out by **Friday, August 7, 2020.**

A **SUGGESTED MOTION** for the Board at the July 16, 2020 meeting is as follows: "THAT THE GOVERNING BOARD approve Resolution **2020-08** adopting the **IMPERIAL WOODS** Preliminary Assessment Roll."

Sincerely,

Curtis L. Shenkman

Curtis L. Shenkman

LRECD RESOLUTION NO. 2020-08

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO THE **IMPERIAL WOODS** ASSESSMENT AREA IMPROVEMENTS; ADOPTING THE PRELIMINARY ASSESSMENT ROLL FOR **IMPERIAL WOODS** ASSESSMENT AREA IMPROVEMENTS AS PREPARED BY THE DISTRICT CLERK AND ATTACHED HERETO AS EXHIBITS "A" AND "B"; AUTHORIZING THE DISTRICT GOVERNING BOARD TO ACT AS THE BOARD OF ADJUSTMENT; PROVIDING FOR THE FURNISHING OF TEN DAYS' WRITTEN NOTICE TO ALL PROPERTY OWNERS AFFECTED; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION AND OF THE WRITTEN NOTICE; MAKING REFERENCE TO RESOLUTION NO. **2017-20** PROVIDING FOR THE PUBLICATION OF THE NOTICE OF THE MEETING TO CONSIDER CONFIRMATION OF THE PRELIMINARY ASSESSMENT ROLL; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION; PROVIDING FOR CONSISTENCY; PROVIDING FOR SEVERABILITY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the "District" has authorized the sewer improvements to the **IMPERIAL WOODS** Assessment Area in **PALM BEACH** County, Florida.

WHEREAS, the Governing Board has considered the presentation of the District Engineer and considered such recommendations to be in accordance with the requests and the best interests of the citizens of the District.

WHEREAS, the Governing Board has considered the improvements to be in accordance with the best interests of the citizens of the **IMPERIAL WOODS** Assessment Area.

WHEREAS, the District's previous Resolution **2017-20** was approved by the District's Governing Board and directed the preparation of the Assessment Roll.

WHEREAS, the District Clerk has prepared the Preliminary Assessment Roll attached hereto as Exhibits "A" and "B".

NOW THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE DISTRICT, THAT:

Section 1. The District adopts the Preliminary Assessment Roll in the form as attached hereto as Exhibits "A" and "B".

RESOLUTION 2020-08
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 2. The District Clerk is directed to publish a Notice stating that the District's Governing Board shall act as the **Board of Adjustment** at a hearing to be held on the **20th day of August, 2020** at the District's Governing Board meeting chambers, Jupiter, Florida. Such Notice shall be published at least ten (10) days in advance of such hearing, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state that at the hearing, the Governing Board will hear objections of all interested persons to the confirmation of such resolution. Such Notice shall state in brief and general terms a description of the improvements with the location thereof and shall also state that plans, specifications, estimates, and the tentative apportionment of cost thereof are on file in the office of the District. The District Clerk is directed to mail a copy of such Notice to each of the affected property owners at least ten (10) days in advance of the hearing.

Section 3. During the Board of Adjustment hearing, such affected property owner may present information to the Governing Board in relation to his Special Assessment and the project, provided that such property owners must submit in writing to the District either prior to or at the time of said meeting of the Board of Adjustment their objections to the Special Assessment.

Section 4. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Hearing of the Governing Board as the Board of Adjustment as set forth herein.

Section 5. The District Clerk shall file Proof of Publication and Proof of Written Notice to the affected property owners at the Board of Adjustment hearing.

Section 6. Resolutions No. **2017-20 and 2020-08** of the District shall be a part of the record to be considered by the Governing Board at the aforedescribed hearing when the Governing Board sits as the Board of Adjustment.

Section 7. The District Clerk is directed to publish a Notice stating that at the meeting of the Governing Board to be held on **August 20, 2020** at the District Governing Board meeting chambers, Jupiter, Florida, all interested persons may appear and file written objections to the confirmation of the Final Assessment Roll. Such Notice shall be published at least twelve (12) days in advance of such meeting, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state the class of the improvement and the location thereof by terminal points and route. Such Notice shall also be mailed to those interested parties requesting such in writing.

Section 8. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Meeting of the Governing Board to confirm the Final Assessment Roll.

Section 9. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

RESOLUTION 2020-08
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 10. In the event that any portion of this Resolution is found to be unconstitutional or illegal, it shall be severed herefrom without affecting the validity or enforceability of the remaining portions of this Resolution.

Section 11. This Resolution shall become effective upon its passage and adoption.

PASSED AND ADOPTED BY THE GOVERNING BOARD OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, THIS **16th** day of **July, 2020.**

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

VOTE

_____ _____
JAMES D. SNYDER

_____ _____
STEPHEN ROCKOFF

_____ _____
GORDON M. BOGGIE

_____ _____
HARVEY SILVERMAN

_____ _____
DR. MATT H. ROSTOCK

EXHIBIT "A"
PRELIMINARY ASSESSMENT ROLL
LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
IMPERIAL WOODS ASSESSMENT AREA

TOTAL COSTS AND EXPENSES RELATED TO THE IMPROVEMENTS. The District shall consider the **total** costs and expenses related to the improvements in the **IMPERIAL WOODS** Assessment Area shall be **$9,861.36** per parcel of property in the **IMPERIAL WOODS** Area.

APPORTIONMENT OF COSTS BETWEEN THE DISTRICT AND THE PROPERTY OWNERS. The District shall pay from the District's general funds ten percent (10%) of the total cost to the District of construction, reconstruction, labor, materials, acquisition, or property rights, surveys, design, engineering, and legal fees, administration expenses, and all other expenses necessary or incidental to completion of the specially assessed improvement and each lot or parcel of land subject to this special assessment shall be responsible for ninety percent (90%) of the total cost.

PAYMENT OF ASSESSMENT. As to Parcels of **IMPERIAL WOODS** Assessment Area Property in EXHIBIT "B", the **$8,875.22** assessment may be paid, interest free, at the office of the District on or before May 1, 2021.

Owners who do not pay the $8,875.22 assessment on or before May 1, 2021 shall have the $8,875.22 principal added to the tax roll as a non-ad valorem assessment to accrue interest, beginning October 1, 2020, at six and seven eights percent (6.875%) per annum, to be collected in twenty (20) equal annual installments of $829.64, commencing with the November 1, 2021 Real Estate Tax Bill.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

By:_____
D. Albrey Arrington, District Clerk, Executive Director

EXHIBIT "B"
IMPERIAL WOODS
LOW PRESSURE SEWER SYSTEM
ASSESSMENT AREA

N.T.S.

LEGEND

NOT IN ASSESSMENT AREA

PALM BEACH COUNTY , FLORIDA

08-22-2017

IW-A

Mr. & Mrs. Robert Burgess
19800 Castlewood Dr
Jupiter FL 33458
re: 19800 Castlewood Dr
00-42-40-27-04-000-0020

Mr. & Mrs. William Shaddix
19780 Castlewood Dr
Jupiter FL 33458
re: 19780 Castlewood Dr
00-42-40-27-04-000-0030

Mr. & Mrs. Glenn Davis
19760 Castlewood Dr
Jupiter FL 33458
re: 19760 Castlewood Dr
00-42-40-27-04-000-0040

Mr. & Mrs. Barry Webster
19765 Castlewood Dr
Jupiter FL 33458
re: 19765 Castlewood Dr
00-42-40-27-04-000-0050

Mr. & Mrs. Nicholas Green
19785 Castlewood Dr
Jupiter FL 33458
re: 19785 Castlewood Dr
00-42-40-27-04-000-0060

Mr. & Mrs. David Summers
19805 Castlewood Dr
Jupiter FL 33458
re: 19805 Castlewood Dr
00-42-40-27-04-000-0070

Mr. & Mrs. Lajos Horvath
19840 Queenswood Dr
Jupiter FL 33458
re: 19840 Queenswood Dr
00-42-40-27-04-000-0080

Mr. & Mrs. Kenneth Duke Jr
19810 Queenswood Dr
Jupiter FL 33458
re: 19810 Queenswood Dr
00-42-40-27-04-000-0090

Ms. Marilyn Henderson
19780 Queenswood Dr
Jupiter FL 33458
re: 19780 Queenswood Dr
00-42-40-27-04-000-0100

Mr. Michael Clementi
19775 Queenswood Dr
Jupiter FL 33458
re: 19775 Queenswood Dr
00-42-40-27-04-000-0110

Mr. & Mrs. Guy Casaceli
19805 Queenswood Dr
Jupiter FL 33458
re: 19805 Queenswood Dr
00-42-40-27-04-000-0120

Mr. & Mrs. Michael Newhaus
6650 Imperial Woods Rd
Jupiter FL 33458
re: 6650 Imperial Woods Rd
00-42-40-27-04-000-0130

Mr. Harold Miller
6700 Imperial Woods Rd
Jupiter FL 33458
re: 6700 Imperial Woods Rd
00-42-40-27-04-000-0140

Mr. & Mrs. David OBrien
19800 Princewood Dr
Jupiter FL 33458
re: 19800 Princewood Dr
00-42-40-27-04-000-0150

Mr. John Krusbe Jr
19780 Princewood Dr
Jupiter FL 33458
re: 19780 Princewood Dr
00-42-40-27-04-000-0160

Mr. & Mrs. Joseph Mc Key
19775 Princewood Dr
Jupiter FL 33458
re: 19775 Princewood Dr
00-42-40-27-04-000-0170

Mr. & Mrs. Joseph Stonecipher
19805 Princewood Dr
Jupiter FL 33458
re: 19805 Princewood Dr
00-42-40-27-04-000-0180

Mr. & Mrs. Vincent Fiordilino
6750 Imperial Woods Rd
Jupiter FL 33458
re: 6750 Imperial Woods Rd
00-42-40-27-04-000-0190

Mr. & Mrs. Francis Fitzgerald
6800 Imperial Woods Rd
Jupiter FL 33458
re: 6800 Imperial Woods Rd
00-42-40-27-04-000-0200

Mr. & Mrs. Nicholas Kukla
19810 Earlwood Dr
Jupiter FL 33458
re: 19810 Earlwood Dr
00-42-40-27-04-000-0210

Ms. Martha Young
19780 Earlwood Dr
Jupiter FL 33458
re: 19780 Earlwood Dr
00-42-40-27-04-000-0220

Mr. & Mrs. Andrew Lourie
19775 Earlwood Dr
Jupiter FL 33458
re: 19775 Earlwood Dr
00-42-40-27-04-000-0230

Mr. & Mrs. Jeff Kosberg
19805 Earlwood Dr
Jupiter FL 33458
re: 19805 Earlwood Dr
00-42-40-27-04-000-0240

Mr. & Mrs. Brian Ward
6850 Imperial Woods Rd
Jupiter FL 33458
re: 6850 Imperial Woods Rd
00-42-40-27-04-000-0250

Mr. & Mrs. Jack Sobel
19865 Earlwood Dr
Jupiter FL 33458
re: 19865 Earlwood Dr
00-42-40-27-04-000-0260

Mr. S Racy/K Vanmeter
19895 Earlwood Dr
Jupiter FL 33458
re: 19895 Earlwood Dr
00-42-40-27-04-000-0270

M Gibbs/K Kruckel
19925 Earlwood Dr
Jupiter FL 33458
re: 19925 Earlwood Dr
00-42-40-27-04-000-0280

Mr. & Mrs. Jorge Caro
19955 Earlwood Dr
Jupiter FL 33458
re: 19955 Earlwood Dr
00-42-40-27-04-000-0290

Mr. & Mrs. Terry Stevens
19985 Earlwood Dr
Jupiter FL 33458
re: 19985 Earlwood Dr
00-42-40-27-04-000-0300

Mr. & Mrs. Wayne Marov
19990 Earlwood Dr
Jupiter FL 33458
re: 19990 Earlwood Dr
00-42-40-27-04-000-0310

Mr. & Mrs. Eric Meng
19960 Earlwood Dr
Jupiter FL 33458
re: 19960 Earlwood Dr
00-42-40-27-04-000-0320

Mr. & Mrs. Donald Glass
19930 Earlwood Dr
Jupiter FL 33458
re: 19930 Earlwood Dr
00-42-40-27-04-000-0330

Mr. & Mrs. William Powers
19900 Earlwood Dr
Jupiter FL 33458
re: 19900 Earlwood Dr
00-42-40-27-04-000-0340

Mr. & Mrs. Edward Ras
36 Steeple Chase Rd
Millstone Twp NJ 08535
re: 6799 Imperial Woods Rd
00-42-40-27-04-000-0350

Mr. Daniel Turk Tr
6749 Imperial Woods Rd
Jupiter FL 33458
re: 6749 Imperial Woods Rd
00-42-40-27-04-000-0360

Mr. & Mrs. Daniel Johnson
19895 Princewood Dr
Jupiter FL 33458
re: 19895 Princewood Dr
00-42-40-27-04-000-0370

Mr. L Vogt/M Oades
19925 Princewood Dr
Jupiter FL 33458
re: 19925 Princewood Dr
00-42-40-27-04-000-0380

Mr. & Mrs. John Hudson
19955 Princewood Dr
Jupiter FL 33458
re: 19955 Princewood Dr
00-42-40-27-04-000-0390

Mr. & Mrs. G R Maihack III
19985 Princewood Dr
Jupiter FL 33458
re: 19985 Princewood Dr
00-42-40-27-04-000-0400

Mr. & Mrs. Joseph Mastracchio
19990 Princewood Dr
Jupiter FL 33458
re: 19990 Princewood Dr
00-42-40-27-04-000-0410

Mr. & Mrs. Brian Terry
19960 Princewood Dr
Jupiter FL 33458
re: 19960 Princewood Dr
00-42-40-27-04-000-0420

Mr. & Mrs. Howard Kuhns
19930 Princewood Dr
Jupiter FL 33458
re: 19930 Princewood Dr
00-42-40-27-04-000-0430

Mr. & Mrs. Lars Stubbendorff
19900 Princewood Dr
Jupiter FL 33458
re: 19900 Princewood Dr
00-42-40-27-04-000-0440

Mr. Kris Knoph/Manning Tr
6699 Imperial Woods Rd
Jupiter FL 33458
re: 6699 Imperial Woods Rd
00-42-40-27-04-000-0450

Mr. & Mrs. Timothy Stapleton
19925 Castlewood Dr
Jupiter FL 33458
re: 19925 Castlewood Dr
00-42-40-27-04-000-0460

Mr. & Mrs. Robert Harkness
19980 Castlewood Dr
Jupiter FL 33458
re: 19980 Castlewood Dr
00-42-40-27-04-000-0470

Mr. & Mrs. Thomas Bates
19940 Castlewood Dr
Jupiter FL 33458
re: 19940 Castlewood Dr
00-42-40-27-04-000-0480

Loxahatchee River District

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: D. Albrey Arrington, Ph.D.

FROM: Kris Dean, P.E., Director of Engineering Services

DATE: July 8, 2020

SUBJECT: Owner Furnished Equipment: Award of Contract for Lift Station 082 Emergency Standby Generator and Automatic Transfer Switch (ATS)

Lift Station 082 has been identified as priority station for an emergency standby generator installation. This station is undergoing a conversion project from Davco can station (drypit) to a standard submersible lift station repump station which includes the emergency standby generator and ATS. District staff has coordinated with ACF Power Systems, Inc. to direct purchase the generator and ATS for the project and provide this equipment to the construction contractor for installation. This method allows the District to utilize its tax exempt status for savings on the purchase and allows the equipment to be ordered ahead of the construction contract award thereby shortening the construction contract period due to long lead times of this equipment.

The District will "piggy-back" on the existing Florida Sherriff Association, and the Florida Association of Counties (FSA&AC) contract with ACF Power Systems, Inc. for 125KW Generator Package Specification Item # 102 and 600A Automatic Transfer Switch Specification # 80 with contract upgrades as detailed in the attached quote. Below is a summary of the generator and automatic transfer switche to be purchased.

(1) Generac SD175 w/250A ATS $64,230.00 each

The following motion is suggested:

"THAT THE DISTRICT GOVERNING BOARD authorize the "piggy-back" of the Florida Association of Counties (FSA&AC) contract with ACF Power Systems, Inc. for 125KW Generator Package Specification # 102 with contract uupgrades as detailed in ACF Power System, Inc.'s proposal dated June 18, 2020 in the amount of $64,230.00."

0020363474

Date: June 18, 2020

Reference: Loxahatchee River Environmental Control District-LS 082

We are pleased to offer the following quote for the above project:

FSA 19-VEH17.0 CAB & CHASSIS TRUCKS AND HEAVY EQUIPMENT

125KW Generator Package Specification Item #102 / 2019-2020

ITEM I Lift Station 082

- **125W Generator Package Specification Item # 102 2019 Generac SD130…… $ 35,100.00**
- **Upgrade to 175kw ……$ 9,350.00**
- **Upgrade to Permanent Magnet Generator (PMG) ……$ 1,100.00**
- **Upgrade to Alternator To 300kw ……$ 1,025.00**
- **Upgrade to Level 2 Aluminum Enclosure…… …$ 2,350.00**
- **Upgrade to 72 Hour Fuel Tank ……$ 8,975.00**
- **Upgrade to 2nd 250A breaker ……$ 1,265.00**

Sub-Total: $ 58,165.00

- **600 Amp ATS Package Specification # 80 2019 Generac 600 Amp ATS…… $ 7,100.00**
- **Downgrade to an 250A (Non Service Entrance Rated)…… $-2,200.00**
- **Optional Equipment NEMA 4X Enclosure……$ 1,165.00**

Sub-Total: $ 6,065.00

Total investment for the above equipment (Not including any applicable tax): ……$ 64,230.00

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: D. Albrey Arrington, Ph.D.

FROM: Kris Dean, P.E., Director of Engineering Services

DATE: July 8, 2020

SUBJECT: Owner Furnished Equipment: Award of Contract for Lift Station 082 Submersible Pumps

This station is undergoing a conversion project from Davco can station (drypit) to a standard submersible lift station repump station which requires purchase of new submersible pumps. District staff has coordinated with Xylem Water Solutions USA, Inc./Flygt Products to direct purchase the Flygt submersible pumps and equipment. This method allows the District to utilize its tax exempt status for savings on the purchase and allows the equipment to be ordered ahead of the construction contract award thereby shortening the construction contract period due to long lead times of this equipment.

The District has "standardized" to Flygt submersible pumps. Xylem Water Solutions USA, Inc./Flygt Products is the authorized distributor of Flygt pumps in our area and has provided the attached quote as summarized below.

(3) Flygt NP3202 Submersible Pumps and Equipment $187,338.10 lump sum

Staff recommend the following motion:

"THAT THE DISTRICT GOVERNING BOARD award the purchase of Lift Station 082 submersible pumps as detailed in Xylem Water Solutions US, Inc./Flygt Products proposal dated June 26, 2020 in the amount of $187,338.10."

Xylem Water Solutions USA Inc. / Flygt Products
15132 Park of Commerce Blvd. Suite 102
Jupiter, Florida 33478
Phone: 561-848-1200 • Fax: 561-848-1299

To: Loxahatchee River Environmental Control District Date: June 26, 2020
Subject: Lox – LS 82 Proposal

LS 82 Proposal

Qty	Part Number	Description	Extended Price
3	3202.095-0016	8” NP 3202/640 Flygt pumps with a 60HP 460V 3 phase motor, FM rated (explosion proof), 50’ motor cable, and FLS leakage detector	$ 152,113.05
3	374 76 06	8” Discharge connections	$ 12,257.85
30	14-49 89 01	12" Anchor bolts 316SS	$ 1,539.00
5	14-48 83 05	Anchor adhesive	$ 375.25
3	661 54 01	3” Upper guide bar brackets 316SS	$ 866.40
3	14-59 10 29	3” Intermediate guide bar brackets 316SS	$ 1,111.50
180’	14-49 01 01	3” Guide rail 316SS	$ 15,903.00
3	14-59 10 22	Cable holders 316SS	$ 629.85
2	14-69 00 09A	Startup service provided by Flygt representative	$ 2,542.20
		****Pricing per Orange County Contract**** **Total Price**	**$ 187,338.10**

Exclusions: WE DO NOT SUPPLY, PIPING, VALVES, GUIDE BARS, PRESSURE GAUGES, DISCONNECTS, JUNCTION BOXES, KELLUMS GRIPS, SURGE PROTECTION EQUIPMENT, SPARE PARTS, LABOR OR ANY OTHER ITEM NOT SPECIFICALLY LISTED ABOVE.

PLEASE MAKE PURCHASE ORDERS OUT TO: XYLEM WATER SOLUTIONS USA, INC.

Validity: THIS QUOTE IS VALID FOR NINETY (90) DAYS UNLESS LONGER TIME AGREED TO IN WRITING.

Taxes: State, local, and other applicable taxes are not included in this quotation.

Freight Terms: DAP; Jobsite - Full Freight Allowed (per Incoterms 2010)

Shortages: Xylem will not be responsible for apparent shipment shortages or damages incurred in shipment that are not reported within two weeks from delivery to jobsite. Damages should be noted on the receiving slip and the truck driver advised of the damages. Please contact our office as soon as possible to report damages or shortages so that replacement items can be shipped and the appropriate claims made.

Payment Terms: 90% NET 60 DAYS AFTER SHIPMENT DATE, 10% NET 120 DAYS AFTER SHIPMENT DATE.
(Note: Partial billing will be made on partial shipments)

Xylem’s payment shall not be dependent upon Purchaser being paid by any third party unless Owner denies payment due to reasons solely attributable to items related to the equipment being provided by FLYGT.

Schedule: Please consult your local Flygt branch for submittals and fabrication lead-times. Delivery lead-times may be impacted by the current COVID-19 virus pandemic relative to transportation logistics.

Back Charges: Buyer shall not make purchases nor shall Buyer incur any labor that would result in a back charge to Seller without prior written consent of an authorized employee of seller.

Terms & Conditions: *This order is subject to the Standard Terms and Conditions of Sale – Xylem Americas effective on the date the order is accepted which terms are available at http://www.xyleminc.com/en-us/Pages/terms-conditions-of-sale.apx and incorporated herein by reference and made part of the agreement between the parties.*

Xylem Water Solutions USA Inc. / Flygt Products
15132 Park of Commerce Blvd. Suite 102
Jupiter, Florida 33478
Phone: 561-848-1200 • Fax: 561-848-1299

We thank you for your interest in our equipment and look forward to being of service to you in the near future.

IN THE ABSENCE OF A FORMAL ISSUED PURCHASE ORDER, A SIGNED COPY OF THIS PROPOSAL IS ACCEPTABLE AS A BINDING CONTRACT.

Xylem Water Solutions USA, Inc.

Eric Johnson
Sales Representative
(561) 248-3712
eric.johnson@xyleminc.com

Company Name: _____

Address: _____

_____

Accepted By: _____

Print Name: _____

Date: _____

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D. Albrey Arrington, Ph.D., Executive Director

To: Governing Board

From: Kara Fraraccio, Director of Finance and Administration

Date: July 10, 2020

Subject: Disposal of Surplus Tangible Personal Property Policy

District staff relies on our Disposal of Surplus Tangible Personal Property Policy for guidance on identifying, authorizing, and executing the disposal of Surplus Tangible Personal Property. The last revision to this policy was approved by the Governing Board in March 2011. The attached draft has revised the policy to follow our new policy format where we have identified the "policies" and removed the "procedures." This policy was also updated to clarify and expand on the requirements of Florida Statutes 274 and Florida Administrative Code 69I-73.

The following motion is recommended for approval:

> **"THAT THE DISTRICT GOVERNING BOARD ratify and approve the attached Disposal of Surplus Tangible Property Personal Policy and direct the Executive Director to implement the policy with an effective date of July 17, 2020."**

DISPOSAL OF SURPLUS TANGIBLE PERSONAL PROPERTY POLICY

Purpose

The District has the discretion to classify as Surplus any of its Tangible Personal Property that is obsolete or the continued use of which is uneconomical, unsafe, inefficient, or no longer serves a useful function. This policy has been developed to set forth the parameters for identifying, authorizing, and executing the disposal of such Tangible Personal Property.

Policy

From time to time certain District owned Tangible Personal Property will become inoperable, obsolete or may exceed its normal Useful Life. Under such circumstances, it becomes prudent and operationally efficient to dispose of such items. When a department has reason to believe that District Tangible Personal Property has outlived its usefulness, an Asset Disposal Form must be completed and submitted to the Finance Department. The originating Department Director will be responsible for determining the condition of the Tangible Personal Property and its estimated value. When aging infrastructure is replaced by either Renewal or Replacement, the Director of Finance and Administration will work with qualified personnel to determine the estimated original cost of the infrastructure that was replaced.

The District's determination to dispose of Surplus Tangible Personal Property pursuant to this policy, instead of pursuant to other provisions of law, is at the election of the District in the reasonable exercise of its discretion (sensu FS 274.06).

Authorization for disposal of any type Tangible Personal Property must be recorded in the minutes of the Governing Board meeting. Governing Board approval of disposal of an item will constitute authorization to remove the item from inventory accountability and the District Capital Asset records. In order to maintain accurate Capital Asset records, disposals must be recorded promptly.

Surplus Tangible Personal Property must be auctioned, donated, destroyed, or abandoned, according to the following guidelines:

a. Surplus Tangible Personal Property may be disposed of for value without bids to the state, to any governmental unit, or to any political subdivision.
b. Surplus Tangible Personal Property purchased with grant proceeds will be disposed of in accordance with the grant agreement.

Authority: Florida Statutes 274, as amended
Date Approved by Governing Board: 7/16/2020

c. Surplus Tangible Personal Property with no commercial value, including Surplus Tangible Personal Property that received no bids through a Public Auction, may be donated to another governmental entity or a Qualified Nonprofit Agency or disposed of as scrap or trash.
d. Surplus Tangible Personal Property with an estimated value of less than $5,000 will be sold by Public Auction to the highest responsible bidder. If it is determined that Public Auction is not deemed practical from an economic sense, Surplus Tangible Property can be disposed of in another cost-effective manner (i.e., traded in).
e. Surplus Tangible Personal Property with an estimated value of $5,000 or more will be sold by Public Auction to the highest responsible bidder after publication of notice, not less than 1 week nor more than 2 weeks prior to sale, in a newspaper of general circulation in the Town of Jupiter or Palm Beach County.
f. The cost of transferring Surplus Tangible Personal Property will be paid by the entity receiving the Surplus Tangible Personal Property.

Definitions

List definitions necessary to understand the policy statement (section above).

A. Capital Asset: Tangible Personal Property with a minimum acquisition value as specified in LRD-POL-FIN-02.00 and which is recorded in the official capital asset records of the District.
B. Consumable: item that (1) is intended to be used up and then replaced or (2) does not meet the threshold specified in Florida Rule 69I-73.002, as amended.
C. Public Auction: methods by which the public can purchase Surplus Tangible Personal Property through a competitive process, including in-house computerized auctions, internet auctions (e.g., GovDeals, eBay), and sealed bids.
D. Renewal: to extend the useful life of an asset via improvement or enhancement.
E. Replace: to restore the functionality of an existing asset by placement of a new asset with similar or improved performance characteristics.
F. Surplus Tangible Personal Property: Tangible Personal Property of a non-consumable nature which is declared to be obsolete or the continued use of which is uneconomical, unsafe, inefficient, or no longer serves a useful function.
G. Tangible Personal Property: all items of non-consumable property, other than real property, that meet the threshold specified in Florida Rule 69I-73.002, as amended.
H. Qualified Nonprofit Agency: an organization that has met the requirements of Florida Statutes Chapter 273.01(3).
I. Useful Life: the expected number of years a Capital Asset will be in service for its intended purpose.

Relevant Procedures

The following procedures guide staff in the appropriate implementation of this policy:

A. Disposal of Surplus Tangible Personal Property Procedures
B. Capital Asset Recordkeeping Procedures

Relevant Policies

A. Capital Asset Policy
B. Maintenance Policy

Policy Questions

Questions regarding this policy should be directed to the author(s) listed above.

Item 5H

Jupiter Inlet Lighthouse Engineering Contract

This item is within the Executive Director's signing authority and does not require Board action.

Fixed Asset Disposal

No Fixed Assets are presented for Disposal this month.

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

2500 Jupiter Park Drive, Jupiter, Florida 33458
Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org

D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: D. Albrey Arrington, Ph.D.

FROM: Kris Dean, P.E., Director of Engineering Services

DATE: July 8, 2020

SUBJECT: Change Order: IQ511 Pump Station Piping Modifications Engineering Services Contract – Change Order 001

On March 3, 2020 the District entered into a Engineering Services contract with Baxter & Woodman for design and engineering services during construction for piping modifications to IQ511 that would allow for the onsite reclaimed lake system to be bypassed and IQ511 pump directly from the stabilization ponds to the reclaimed distribution system. During the course of design it was discovered that automated valves and integrated controls would be necessary for the proposed system to function at capacity and limit the risk of overflowing the IQ511 structure.

The increased engineering costs associated with this is $30,526.74 as detailed in the attached Change Order 001 and supporting documentation

Staff recommend the following motion:

"THAT THE GOVERNING BOARD authorize Change Order 1 to Baxter & Woodman Inc.'s contract for IQ511 Pump Station Piping Improvements in the amount of $30,526.74."

AMENDMENT 1 TO AGREEMENT BETWEEN LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT AND BAXTER & WOODMAN, INC.
FOR PROFESSIONAL ENGINEERING SERVICES

"IRRIGATION QUALITY 511 (IQ-511) PUMP STATION PIPING IMPROVEMENTS"
Additional Services for Electrical Engineering

DATE: May 22, 2020

BACKGROUND

This Amendment is for the performance of electrical engineering services by Baxter & Woodman, Inc. (B&W) pursuant to the Continuing Contract for Professional Engineering Services between Loxahatchee River District (District) and B&W dated February 3, 2015, hereafter referred to as the Contract, which expires on February 4, 2022. The District has the right to stop work at any time being only responsible for costs incurred up to that time.

The Loxahatchee River Environmental Control District (District) desires to perform specific improvements at the Irrigation Quality 511 (IQ-511) Pump Station site. The IQ-511 pump station conveys reclaimed quality water from Stabilization Ponds "A" and "B", which are located at the District's wastewater treatment facility (WWTF) site, to the District's irrigation quality water distribution piping network system. The project objective is to design specific improvements which will directly connect the stabilization ponds to the IQ-511 wet well structure. In its current configuration, the operation of IQ-511 is hydraulically limited during dry weather periods when the water level in the stabilization ponds is below their normal operating levels. During these periods, IQ-511 becomes unusable. The proposed improvements would allow IQ-511 to remain functional for longer periods during dry weather since irrigation quality water can be diverted directly to IQ-511 from Stabilization Ponds A and B which have higher operating levels.

B&W has completed a 50% Design submittal including plans, specifications and an Engineer's Opinion of Probable Construction Cost for system modifications that include an automated actuator Diversion Structure B, a 36" bypass pipe and a bypass influent bay to be attached to the IQ-511 Pump Station wet well.

This amendment includes electrical engineering services to bring power to Diversion Structure B for the proposed gate actuator. The power feed will come from Electrical Room #2 and will replace a power line that currently runs from Electrical Room #2 to a motorized gate valve located near Diversion Structure B associated with concentrate water. The new power feed will include two pull boxes and will also provide power to a new light fixture at Diversion Structure B, replacing an existing solar powered fixture. This amendment also includes the replacement of the existing gate in Structure B where the new actuator is planned. This will be reflected in the 90% and 100% plans, specifications and cost estimates and will also require an additional shop drawing review.

Below is the anticipated drawing list associated with the electrical design:
E-1: Electrical legend and Notes
E-2: Electrical Site Plan and Electrical Building No.2 Plan
E-3: One Line, Riser Diagram,
E-4: Partial P&ID and Electrical Details

Refer to Exhibit A for the Project Location.

The following Scope of Work will be performed as part of this amendment.

SCOPE OF WORK

Hillers Electrical Engineering, Inc. (HEE) will perform the electrical engineering design and construction phase service associated with this amendment with support and coordination from B&W as a subconsultant to B&W. HEE performed the original electrical engineering design for Control Room #2. The tasks and subtasks as outlined in the original agreement between the District and B&W will be maintained and supplemented as follows:

TASK 1 – INVESTIGATIVE PHASE

Subtask 1.1 – Kick-Off Meeting

N/A

Subtask 1.2 – Project Management

N/A

Subtask 1.3 – Field Reconnaissance

Review of as-built electrical drawings and other relevant data collection.

TASK 2 – DESIGN SERVICES

Subtask 2.1 Construction Documents

Design electrical and Instrumentation and Controls associated with a new motorized gate at division structure “B” and refeed the existing motorized gate for the concentrate valve located near division structure “B”. Power and signals will be connected to the existing Electrical Room #2. HEE will coordinate with B&W and the District for control strategy description to be included within the drawing or specification. A new site light pole and fixture next to Division Structure B will be designed either using 480V, 1-phase or a stepdown transformer for 120V, 1-phase for new light pole. Duct bank will include handholes.

Drawings and specifications (one pdf copy) shall be submitted for District review at 90% and 100% stages. B&W and HEE shall meet with the District to discuss comments, and incorporate comments into final documents.

Subtask 2.2 Construction Cost Opinion

Preparation of construction cost opinion at 90% and 100% design stages. The construction cost opinion shall reflect changes in general scope, extent or character of design requirements incorporated during the various design review stages.

Subtask 2.3 Design Meetings

B&W and HEE shall attend two (2) design review meetings (90% and 100%) with the District and provide a written summary of the issues discussed.

Subtask 2.4 Quality Assurance

B&W and HEE shall provide internal QA/QC reviews on the 90% and 100% Design Documents (e.g. drawings, specifications, and cost estimates).

TASK 3 – PERMITTING PHASE

A building department permit will now be required. B&W will coordinate the submittal with HEE and the Town of Jupiter. HEE will respond to building department comments in regard to electrical design.

TASK 4 – BIDDING ASSISTANCE

Subtask 4.1 Bid Advertisement

No Changes

Subtask 4.2 Pre-Bid Conference

No Changes

Subtask 4.3 Bid Clarification/Addenda

HEE shall assist in the bidding process by respond to Requests for Information (RFI's) and in issuing addendums, if necessary.

Subtask 4.4 Contract Award

HEE will assist B&W with the bid reviews.

Subtask 4.5 Conformed Contract Documents

HEE will prepare conformed Contract Documents in regard to the electrical elements of the project for use by the Contractor and District during construction.

TASK 5 – CONSTRUCTION ADMINISTRATION SERVICES

The general administration services during construction of the IQ-511 Pump Station Piping Improvements project shall include the following tasks:

Subtask 5.1 Preconstruction Conference

No Changes

Subtask 5.2 Submittal Review

HEE shall review and process shop drawings submittals associated with the electrical deign which B&W will submit to the District for their records.

Subtask 5.3 Pay Estimate/Schedule Review

No Changes

Subtask 5.4 Construction Clarifications

Respond in writing to Contractor's Request for Information (RFI) regarding electrical design during the 5-month construction period. B&W shall issue interpretations and clarifications of the electrical design, along with associated support materials provided by HEE, as requested by the Contractor. Those interpretations will be rendered and a response prepared and submitted to the Contractor within ~~3 to~~ 5 working days.

Subtask 5.5 Review Change Orders

Provide services in connection with preparing change orders related to the electrical deign, limited to minor changes requested by Contractor. Analysis of major design modifications, including the preparation of significant Drawing revisions, are not included, and may require additional authorization.

Subtask 5.6 Progress Meetings

HEE will participate in site visits or meetings (maximum of 4 visits/meetings).

Subtask 5.7 Construction Administration

No Changes

Subtask 5.8 Certification of Construction Completion

No Changes

Subtask 5.9 Substantial and Final Inspections

HEE will assist with startup, testing, loop check and final inspection (maximum of 2 visits), and record drawing review. B&W will incorporate HEE's list of deficiencies into the project punch list.

TASK 6 – RESIDENT PROJECT REPRESENTATIVE SERVICES

No changes.

LIMITATIONS OF AUTHORITY

Except upon written instructions of Engineer, Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
2. Shall not exceed limitations on Engineer's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of Contractor, Subcontractors or Construction Manager, or expedite the Work.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.

5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.
6. Shall not participate in specialized field or laboratory tests.

ADDITIONAL SERVICES

B&W shall provide additional engineering as requested by the District for engineering services that are not covered under this Scope of Work. Services shall be reimbursed in accordance with Baxter & Woodman's fee schedule included in Exhibit B. Services performed under this task will be on as-directed basis in accordance with a written Notice-to-Proceed from District. The Notice-to-Proceed issued shall contain the following information and requirements.

- A detailed description of the work to be undertaken.
- A budget establishing the amount of the fee to be paid in accordance with the Agreement.
- A time established for completion of the work.

ASSUMPTIONS

Work described herein is based upon the assumptions listed below. If conditions differ from those assumed in a manner that will affect schedule or Scope of Work, B&W shall advise District in writing of the magnitude of the required adjustments. Changes in completion schedule or compensation to B&W will be negotiated with District. Services to be provided by the District and other related key assumptions include:

Assumptions:

1. No modification of the existing IQ pump station wetwell level and IQ pond level instrument is needed.
2. The wetwell and pond level signals are assumed already available on the SCADA system.
3. No electrical or instrumentation modification related to the IQ pumps and associated wiring.
4. No pre-bid and pre-con meetings are included in this proposal, but can be added at 4 hours per meeting.
5. All assumptions listed in the original agreement are still valid.

GENERAL CONDITIONS

1. B&W will invoice the District on a monthly basis for services completed to date. Payment of all applicable costs will be made by District to B&W within 30 days of receipt of invoice.

2. B&W shall purchase and maintain insurance for coverage's listed below:

a.	Workers Compensation State Statutory Employer's Liability	$100,000 / $500,000
b.	Comprehensive General Liability Bodily Injury and Property Damage, Combined Single Limit	$1,000,000
c.	Automobile Liability: Bodily Injury and Property Damage, Combined Single Limit	$1,000,000
d.	Professional Liability: Errors and Omissions	$1,000,000

CONTRACT PERFORMANCE

COMPLETION DATES

The duration of major work tasks (calendar days) are as indicated on the Project Schedule shown in Exhibit C.

SUMMARY OF PROPOSED FEES

Proposed labor costs and associated expenses for engineering services (Not-to-Exceed + Lump Sum) are tabulated below and detailed in Exhibit B.

ENGINEERING SERVICES	ENGINEERING FEE
Task 1 – Investigative Phase (LS)	$832.49
Task 2 – Design Services (LS)	$16,019.99
Task 3 – Permitting Services (LS)	$1,586.05
Task 4 – Bidding Assistance (LS)	$2,357.98
Task 5 – Construction Administration Services (LS)	$9,730.23
Task 6 – Resident Project Representative (NTE)	$0.00
Reimbursables (NTE)	$0.00
TOTAL ENGINEERING SERVICES	$30,526.74 (LS)

DELIVERABLES

TASKS	DELIVERABLES	QUANTITY
1. Construction Document Production	90% Drawings & Specs & Front-Ends 100% Drawings & Specs & Front-Ends Cost Estimate @ 50%, 90% & 100%	1 – pdf 22”x34”/11”x17” 1 – pdf 22”x34”/11”x17” 1 – Set (pdf)
2. Bidding Services	Bidding Sets Addenda if required	10- DVD (pdf) As required
3. Permitting Services	Building Department coordination and responses	1 – pdf each Permit
4. Construction Services	District Sets Contractor Sets	1 – pdf 22”x34”/11”x17” 4 – Sets (22” x 34”)

IN WITNESS WHEREOF, the parties have made and executed this agreement as of the date written below.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Witnesses:

_____

_____

By: _____
D. Albrey Arrington, Ph D, Executive Director Date

Date Executed: _____

BAXTER & WOODMAN, INC.

Witnesses:

_____

_____
Date

By: _____
Rebecca Travis, P.E., Executive Vice President

Date Executed: _____

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Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D.
DATE: JULY 6, 2020
SUBJECT: RULE 31-2 AGENDA AND SCHEDULING OF PUBLIC MEETINGS

In March, the Governing Board approved the LRD Rule and Policy Review Schedule and directed me to manage review of District Rules and Policies in accord with the schedule. Last month the Board reviewed and discussed suggested revisions to Rule Chapter 31-2 Agenda and Scheduling of Public Meetings. This month we will hold a public hearing (July 16, 2020 at 6:55 pm) to receive additional public input on the suggested rule revision, then at your regular Board Meeting I anticipate a final discussion before you vote on the suggested revisions to Rule Chapter 31-2.

The draft rule is the product of careful work by Mr. Shenkman and me. The draft rule is unchanged from what was presented to the Board last month. When you review the draft rule (following this memo), you will see the proposed new version of the rule on the first 3 pages followed by the old version of the rule in strike-through format.

We desire to conduct our business in an open and transparent manner. It is my opinion that the draft revised rule accomplishes this goal by requiring public notice and allowing electronic meeting participation. Also, we removed the specific form of the agenda from the rule, which will allow us to manage agendas in a form appropriate for the various types of public meetings we have (e.g., regular Board meeting, public hearing, Administrative Committee Meeting, Audit Selection Committee, etc).

I believe the draft rule is an improvement over the existing rule; therefore, I request the Board's consideration of the following motion:

> **"THAT THE DISTRICT GOVERNING BOARD approve the revised Rule Chapter 31-2 as presented and with an effective date of July 17, 2020."**

CHAPTER 31-2
AGENDA AND SCHEDULING OF PUBLIC MEETINGS

31-2.001 Purpose

The purpose of this rule is to promulgate requirements for conducting a Public Meeting in accord with Chapter 2002-358, Laws of Florida, and Florida Statutes 189.417 and 286.011.

31-2.002 Definitions

Except as discussed below, the general definitions set forth in the enabling legislation of the District, Chapter 2002-358, Laws of Florida, as amended, and as set forth in Loxahatchee River Environmental Control District Chapter 31 Rules apply to this Rule. Unless a provision explicitly states otherwise, the following terms and phrases, as used in this Rule, have the meanings hereinafter designated.

(1) "Communications Media Technology" means the electronic transmission of printed matter, audio, full-motion video, freeze-frame video, compressed video, and digital video by any method available.

(2) "District" means the Loxahatchee River Environmental Control District.

(3) "Public Meeting" refers to a meeting hearing or workshop that must be open to the public pursuant to Florida Statute. Such meeting may be open to the public by physical attendance in person or by means of Communication Media Technology.

(4) "Publish" means to provide on a publicly accessible website maintained by the District.

(5) "Reasonable Notice" will be provided by publication once in a newspaper of general circulation in Palm Beach and Martin Counties. Reasonable Notice also may be provided on a publicly accessible website maintained by the District. If published on a publicly accessible website, the notice must be continuously posted until the adjournment of the Public Meeting.

Specific Authority Ch. 2002-358;189.417 F.S.; 286.011 F.S.; New 07-16-20.

31-2.003 Notice of Public Meetings

(1) Except in the case of emergencies, the Loxahatchee River Environmental Control District must give at least seven (7) days Reasonable Notice of a Public Meeting by publication of the day, time, place, and purpose of the Public Meeting. New Reasonable Notice is not required for Recessed and Reconvened meetings that are announced at the end of a reasonably noticed Public Meeting.

(2) The advertisement shall be placed in that portion of the newspaper where legal notices

and classified advertisements appear. It is the legislative intent that, whenever possible, the advertisement shall appear in a newspaper that is published at least 5 days a week, unless the only newspaper in the county is published fewer than 5 days a week. It is further the legislative intent that the newspaper selected be one of general interest and readership in the community and not one of limited subject matter, pursuant to chapter 50 F.S.

(3) Such notice of Public Meeting must state:

(a) The date, time and place of the Public Meeting.

(b) A brief description of the purpose of the Public Meeting.

(c) The address where interested persons can write and website they can access to obtain a copy of the agenda.

(4) The District may utilize the following form in providing notice of the Public Meeting .

NOTICE OF PUBLIC MEETING

The Loxahatchee River Environmental Control District announces a Public Meeting to which all persons are invited.

DATE AND TIME:_____

PLACE:_____

ELECTRONIC ACCESS: _____

PURPOSE:_____

A copy of the Agenda may be obtained by writing to the Loxahatchee River Environmental Control District, 2500 Jupiter Park Drive, Jupiter, Florida 33458-8964, or on www. LoxahatcheeRiver.org.

(5) If a Public Meeting is to be conducted by means of Communications Media Technology, or if attendance may be provided by such means, the notice must state how persons interested in attending may do so, i.e., providing registration information or hyperlink to online Public Meeting.

(6) The District may also publish Notice of the Public Meeting on the District's website.

(7) The District must file quarterly, semiannually, or annually a schedule of its regular Public Meetings with the local governing authorities. The schedule must include the date, time, and location of each scheduled meeting.

Specific Authority Ch 2002-358, Laws of Florida, 189.417 FS.; History-New 7-16-20.

31-2.004 Agenda of Public Meetings

(1) At least seven (7) days prior to a Public Meeting, the District must prepare and make available an agenda for distribution on the request of any interested person.

(2) The agenda must list the items in the order they are to be considered. Items on the agenda may be considered out of their stated order with the approval of the person designated to preside. The agenda must list items to be considered at the Public Meeting. If the meeting will be held via Communications Media Technology, the agenda must provide registration information or hyperlink to the online meeting.

(3) The District may make specific additions or deletions to the agenda after it has been made available for distribution.

(4) The District must provide that the Public Meeting will be open to the public unless specifically provided otherwise by law.

Specific Authority Ch 2002-358, Laws of Florida, 286.011 FS. History-New 7-16-20.

31-2.005 Emergency Public Meetings

The District may hold an emergency Public Meeting, notwithstanding the provisions of 31-2.003 and 31-2.004 contained herein, for the following reasons:

(1) To address a Board Action to deal with an emergency situation affecting public health, welfare, or safety;

(2) To address a Board Action involving a ministerial act, including, but not limited to, approval of minutes and ceremonial proclamations;

(3) No approval of the annual budget may be granted at an emergency Public Meeting.

Whenever an emergency Public Meeting is scheduled to be held, the District may publish on the District's website and the District must notify, as soon as possible, at least one major newspaper of general circulation in the area where the Public Meeting will take place, of the time, date, place and purpose of the Public Meeting.

Specific Authority Ch 2002-358 Laws of Florida, FS. 189.417 FS. New 07-16-20.

31-2.001 Notice of Meetings

(1) Except in the case of emergencies, the Loxahatchee River Environmental Control District (hereinafter called District) shall give at least seven (7) days public notice of a regular meeting or workshop by publication in the Palm Beach Post of the day, time, place, and purpose of such meeting. New Public Notice is not required for Recessed and Reconvened meetings that are announced at the end of the meeting. If a bona fide emergency situation exists, the meeting to deal with the emergency may be held as necessary, with reasonable notice, so long as it is subsequently ratified by the Board.

(2) The advertisement shall be placed in that portion of the newspaper where legal notices and classified advertisements appear. It is the legislative intent that, whenever possible, the advertisement shall appear in a newspaper that is published at least 5 days a week, unless the only newspaper in the county is published fewer than 5 days a week. It is further the legislative intent that the newspaper selected be one of general interest and readership in the community and not one of limited subject matter, pursuant to chapter 50 FS.

(3) Such notice of meeting or workshop shall state:

(a) The date, time and place of the event.

(b) A brief description of the purpose of the event.

(c) The address where interested persons can write to obtain a copy of the agenda.

(4) The District shall utilize the following form in providing notice of the meeting or workshop.

NOTICE OF PUBLIC MEETING OR WORKSHOP

The Loxahatchee River Environmental Control District announces a public meeting or workshop to which all persons are invited.

DATE AND TIME:_____

PLACE:_____

PURPOSE:_____

A copy of the Agenda may be obtained by writing to the Loxahatchee River Environmental Control District, 2500 Jupiter Park Drive, Jupiter, Florida 33458-8964.

(5) The District shall file quarterly, semiannually, or annually a schedule of its regular meetings with the local governing authorities. The schedule shall include the date, time, and location of each scheduled meeting.

Specific Authority 120.53 (1) (d) FS. 189.417 FS. Law Implemented 120.53 (1) (d) FS. 189.417 FS. History-New 11-12-75, Formerly 31-2.01, Amended 4-5-87, 5-7-92, 5-18-00.

31-2.002 Agenda of Meetings and Workshops

(1) At least seven (7) days prior to a regular meeting or workshop, the District shall prepare

and make available an agenda for distribution on the request of any interested person.

(2) The agenda shall list the items in the order they are to be considered. For good cause stated in the record, items on the agenda may be considered out of their stated order with the approval of the person designated to preside.

(3) (a) The agenda shall be specific as to items to be considered. All matters involving the exercise of agency discretion and policy-making shall be listed and summarized on the agenda. Additions to agenda items such as "old business," "new business," "other business" or "other matters which may come before the District" or similar terms shall be for consideration of solely ministerial, or internal administrative matters which do not affect the interests of the public generally.

(b) The District may utilize the following, or a different form substantially the same in detail, in preparing its agenda:

[*remainder of page intentionally left blank*]

NAME OF AGENCY
MEETING TYPE AND NUMBER
TIME, DATE, AND PLACE OF MEETING
ALL MEETINGS ARE OPEN TO THE PUBLIC

1. Call to Order and Pledge of Allegiance
2. Administrative Matters
    A. Roll Call
    B. Previous Meeting Minutes
    C. Additions and Deletions to the Agenda
3. Comments from the Public
4. Status Updates
    A. Loxahatchee River Watershed
    B. Executive Dashboard
5. Consent Agenda
6. Regular Agenda
    A. Consent Agenda Items Pulled for Discussion
    B. Specific listing of all matters involving District discretion or policy-making
7. Reports
8. Future Business
9. Board Comments
10. Adjournment

(4) The person designated to preside may make specific additions to the agenda after it has been made available for distribution, only for "good cause" which shall include, but not be limited to, consent of the parties substantially affected by the item to be added to the agenda; provided, however, that the District may consider an item on an emergency basis.

(5) The District shall provide that the meeting or workshop shall be open to the public unless specifically provided otherwise by law.

Specific Authority 120.53 (1) (d) FS. Law Implemented 120.53 (1) (d) FS. History-New 11-12-75, Formerly 31-2.02, Amended 4-5-87, 5-7-92, 5-18-00, 10-17-13.

31-2.003 Emergency Meetings and Workshops

(1) The District may hold an emergency meeting or workshop, notwithstanding the provisions of 31-2.001 and 31-2.002 contained herein, for the purpose of acting upon internal administrative and ministerial matters, or where a bona fide emergency exists that involves the exercise of District discretion and policy making. No approval of the annual budget shall be granted at an emergency meeting.

(2) Whenever an emergency meeting or workshop is scheduled to be held, the

District shall notify, as soon as possible, at least one major newspaper of general circulation in the area where the meeting or workshop will take place of the time, date, place and purpose of the meeting or workshop, so long as it is subsequently ratified by the board.

Specific Authority 120.53 (1) (d) FS. 189.417 FS. Law Implemented 120.53 (1) (d) FS., 189.417 FS. History-New 11-12-75, Formerly 31-2.03, Amended 5-7-92, 5-18-00.

Curtis Shenkman, P.A.

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July 7, 2020

To: Dr. Albrey Arrington and the Governing Board
From: Curtis Shenkman, Esq.
RE: Attorney General Opinion -Additional Information

At the June 22, 2020 Governing Board meeting, the Governing Board authorized its attorney request an Attorney General Opinion with regard to:

Is the governing board of the Loxahatchee River Environmental Control District authorized by law to grant a 1-5 year lease, license, and/or other form of agreement for non-surplus real property to a nonprofit private organization? (Busch Wildlife Sanctuary).

The request was sent Federal Express on June 22. I have confirmed received by the AG's office. On Thursday June 25, 2020, I discovered Dr. Arrington's August 6, 2019 memorandum to the Board as to Chapter 31-16, River Enhancement Rule, which attached select pages from the Loxahatchee River Management Coordinating Council (LRMCC) development of the Loxahatchee River Management Plan. The Plan states:

"The River Center and the Busch Wildlife Sanctuary are used to educate our community and create better stewards of our beautiful river."

I prepared my attached email, dated June 25, 2020 7:15pm, to Dr. Arrington, bcc the Governing Board to inform the Board of this additional information.

I recommend the Governing Board authorize me to provide this additional information to the Attorney General.

I suggest the following MOTION:

"That the Governing Board authorizes its attorney to provide to the Attorney General Dr. Arrington's August 6, 2019 memorandum to the Board, and the selected pages from the Loxahatchee River Management Plan."

If you have any questions, please contact me or Dr. Arrington.

From:	Curtis Shenkman
To:	Albrey Arrington; Kris Dean; Bud Howard; Kara Fraraccio; Jason Pugsley
Subject:	LOXAHATCHEE RIVER NATIONAL WILD AND SCENIC RIVER MANAGEMENT PLAN to be provided to the AG
Attachments:	2019 August, Dr. Arrington to Governing Board Loxahatchee River District re Chapter31-16 & Loxahatchee River MANAGEMENT PLAN recognizing BWS+ River Center EDUCATION.pdf

Albrey, Kris, Bud, Kara, Jason, and bcc to the Governing Board:
For your information, I have researched and discovered additional evidence in connection with the District's request to the AG:

1. Dr. Arrington's August 6, 2019 Memorandum to you as a Governing Board Members, Subject Chapter 31-16. As usual, an outstanding Executive Director summary to the Board, regarding the LRD's MISSION of ENVIRONMENTAL STEWARDSHIP.
2. Dr. Arrington's memo attaches the LOXAHATCHEE RIVER NATIONAL WILD AND SCENIC RIVER MANAGEMENT PLAN, PLAN UPDATE 2010, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, SOUTH FLORIDA WATER MANAGEMENT DISTRICT (the "Plan").
3. Please note page ii of the Plan (page 3 of the attached PDF), the 21 LRMCC members of governments/stakeholders, as well as the list of other significant stakeholders that contributed to the Plan. This supports "scientific" and "objective" evidence as to LRD's Mission of Environmental Stewardship as an necessary mission to protect the River.
4. Please note page 16 of the Plan, which in the final sentence detailing the LRD's key role in LRD's MISSION of ENVIRONMENTAL STEWARDSHIP of the River: ***"The River Center and Busch Wildlife Sanctuary are used to educate our educate our community and create better stewards of our beautiful river."***

Be advised I am compelled to provide this additional piece of material EVIDENCE to the Attorney General to evaluate in connection with the District's request to the AG.

Curtis Shenkman, Esq.
Curtis Shenkman, PA
4400 PGA Blvd, Suite 301
Palm Beach Gardens, FL 33410
O: 561-822-3939 | 561-822-3933 | eFax: 561-898-2266
curtis@palmbeachlawyer.law
https://palmbeachlawyer.law
https://titletime.net
Our Paralegals:
judy@palmbeachlawyer.law ; melissa@palmbeachlawyer.law ; denise@palmbeachlawyer.law

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

2500 Jupiter Park Drive, Jupiter, Florida 33458-8964
Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org

D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D.
DATE: AUGUST 6, 2019
SUBJECT: CHAPTER 31-16, RIVER ENHANCEMENT RULE

As part of our ongoing review of our Rules, we are in the midst of evaluating LRD Chapter 31-16, River Enhancement Rule. Last month we discussed the history of the River Enhancement Rule. This month, I wanted to provide an overview of the Loxahatchee River Management Coordinating Council (LRMCC), which was established by Chapter 83-358, F.S. The LRMCC is comprised of federal, state, and regional agencies plus local representatives, which advise the Florida Department of Environmental Protection and the South Florida Water Management District on matters that affect administration of the Loxahatchee River, to identify and resolve inter-governmental coordination problems, and to enhance communications.

The Loxahatchee River Wild and Scenic Designation, approved in 1983 by the Florida Legislature, included the following Legislative declaration "*The Legislature finds and declares … the Loxahatchee River … possesses outstandingly remarkable ecological, fish and wildlife, and recreational values which are unique in the United States. These values give national significance to the river as one which should be permanently preserved and enhanced, not only for the citizens of the State of Florida, but for the citizens of the United States, of present and future generations. The permanent management and administration of the river, however, involves a complex interaction of national, state, regional and local interests which require balancing, coordination of purpose and continuing participation by and access to the public, through its elected representatives. It is the intention of the Legislature to provide for the permanent preservation of the designated segment of the Loxahatchee River by way of development of a plan for permanent administration by agencies of the state and local government which will ensure the degree of protection necessary for inclusion of that segment of the river in the National Wild and Scenic Rivers System but retaining that degree of flexibility, responsiveness, and expertise which will accommodate all of the diverse interests involved in a manner best calculated to be in the public interest.*"

The LRMCC's most significant role is development of the Loxahatchee River Management Plan. Below, I provide select pages from the Management Plan, which specify membership (pages ii and 12-24); authority and plan management (page 11); management principles (page 58); plan objectives and implementation (pages 59-64); implementation schedule (pages 65-69); summary of progress (pages 70-90); F.S. 83-358 (page 118-122); and 1983 Florida Cabinet Resolution endorsing inclusion of the Loxahatchee River into the National Wild and Scenic Rivers System.

No action is sought this month. My hope is that your review of the Loxahatchee River Management Plan will facilitate a fruitful and informed discussion of our best opportunities to fulfill our mission to protect public health and preserve the Loxahatchee River watershed and its natural habitats through innovative wastewater solutions, research, and environmental stewardship.

Loxahatchee River National Wild and Scenic River Management Plan

Plan Update 2010

Florida Department of Environmental Protection

South Florida Water Management District

This document is the result of a successful partnership of the Loxahatchee River Management Coordinating Council members and many other interested stakeholders.

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***Denotes LRMCC members that provided written comments to the development of the plan.**

Many thanks to other stakeholders that contributed to the plan:

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PERMITS AND RULEMAKING AUTHORITY

The Loxahatchee River Wild and Scenic Designation and Preservation Act provides for adoption of rules and for separation of regulatory authority between the FDEP and the SFWMD (FS, Chapter 83-358, Section 9.1 and 9.2):

> *9.1 The Department shall have full and exclusive authority to adopt rules concerning and to regulate activities within the river area having a direct and substantial adverse effect on any resource value within the river area.*
>
> *9.2 The Board shall have full and exclusive authority to adopt rules concerning and to regulate activities outside the river area having substantial impact on any resource values within the river area.*

In 2008, the SFWMD enacted the Loxahatchee River Regional Water Availability Rule, which will be discussed further in Chapter 5.

ROLE OF THE LOXAHATCHEE RIVER MANAGEMENT COORDINATING COUNCIL

The Act defines the role of the Council (FS, Chapter 83-358, Section 5.3[o]):

> *A permanent management coordinating council composed of one representative from each of the participants provided for in subsection (2). The coordinating council shall review and make recommendations, in the first instance, on all applications for permits required by this act, as well as all proposals for amendments or modifications to the permanent management plan, and render its nonbinding advisory opinion to the board* [Governing Board of the SFWMD] *and the department. Each participant shall appoint one member to the coordinating council. The coordinating council shall elect a chairman, vice chairman, and secretary to serve for a term of 1 year. The coordinating council shall adopt bylaws to provide for such other officers as it may deem necessary, election of officers, removal of officers for just cause, meetings quorum, procedures for the conduct of its business, and such other matters as the membership may deem advisable in the conduct of its business. Such professional staff as the coordinating council may require shall be provided by the South Florida Water Management District.*

PLAN MANAGEMENT

Management of the Wild and Scenic Northwest Fork is accomplished through partnerships and cooperative actions of vested federal, state and local agencies and the interested public. The *Loxahatchee River Wild and Scenic Designation and Preservation Act* established the Council to ensure the objectives of the management plan were achieved through interagency cooperation and coordination, as well as public input.

The Council advises the FDEP and the SFWMD on activities that may affect achieving the Management Plan objectives (refer to Chapter 3) within their authority as granted in Chapter 83-358. The Council follows the process and procedures as granted in Chapter 83-358 and the approved bylaws of the Council.

The Council also oversees and approves updates to the Loxahatchee River National Wild and Scenic Management Plan. All amendments to the plan must be approved by the FDEP and the SFWMD.

LEAD AGENCIES AND AUTHORITY

The FDEP and the SFWMD are the lead agencies responsible for implementing the management program for the National Wild and Scenic Loxahatchee River. However, there are a multitude of other federal, state and local government agencies that are key to the protection, restoration and management of the Wild and Scenic River. The following section describes the agencies, authority and role in managing the river.

Florida Department of Environmental Protection

Executive authority for administration and management of the National Wild and Scenic Loxahatchee River ultimately lies with the Governor and Cabinet, serving as both the Executive Board of the FDEP and as the Board of Trustees of the Internal Improvement Trust Fund, acting through the FDEP. The FDEP's basic authority for planning and implementing a program for managing the river is found in Chapter 83-358, FS (Addendum 2). This statute authorizes the FDEP, in cooperation with the SFWMD, to develop and periodically amend a river management plan, conduct necessary resource management activities, establish a visitor capacity for recreational use on the river and adopt rules to regulate activities in the designated river corridor area.

The FDEP is authorized to manage state-owned parks and recreation areas and to adopt rules for managing these areas (Chapter 258, FS). Section 258.034 declares the policy to be, in part, to acquire typical portions of the State's original environment for public access and to manage these areas so as to conserve the natural values which derive from them. In implementing this policy, the FDEP is authorized to cooperate with county governments in park and recreation matters (Section 258.041), and to negotiate interagency agreements with water management districts to manage district lands reserved for recreational purposes (Section 258.004).

Chapter 258 also clearly establishes the proprietary overview role of the Board of Trustees of the Internal Improvement Trust Fund in the management of sovereign submerged lands. The *Florida Aquatic Preserve Act* (Sections 258.35-258.46) authorizes the FDEP to establish aquatic preserves on sovereign submerged lands and to evaluate the use of submerged lands within preserves based on the public interest and on the merits of proposed projects within the context of environmental impact. Chapter 16Q-20, Florida Administrative Code, provides for

management of sovereign lands within a preserve primarily to maintain essentially natural conditions, promote development of fish and wildlife, and provide opportunities for public recreation, including hunting, fishing and boating where deemed consistent with the overall purpose of the Aquatic Preserve Act. The Trustees have also granted management authority of certain sovereign submerged lands to the Division of Recreation and Parks (DRP) under Management Agreement MA 68-086. The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation.

Chapter 403, FS, provides for the maintenance and enhancement of water quality and wetlands protection through programs administered by the FDEP. Section 403.061 authorizes the FDEP to perform a variety of functions with regard to waters of the State. As far as protection of the National Wild and Scenic Loxahatchee River is concerned, the most important FDEP responsibilities involve the establishment of ambient water quality standards, water quality sampling, regulation of known sources of pollution and enforcement of rules pertaining to Outstanding Florida Waters. The FDEP"s administrative rules concerning ambient water quality standards and Outstanding Florida Waters are contained in Chapters 17-3 and 17-4, Florida Administrative Code (FAC), respectively. Chapter 84-79, FS, *the Warren S. Henderson Wetlands Protection Act of 1984*, authorizes the FDEP to establish rules concerning water quality criteria for wetlands to enable the State to more effectively regulate use of wetlands under FDEP jurisdiction.

The *Florida Environmental Reorganization Act* of 1993 requires FDEP to develop and implement measures to "protect the functions of entire ecological systems through enhanced coordination of public land acquisition, regulatory, and planning programs." Within the FDEP, the Division of Recreation and Parks" Florida Park Service Operations Manual provides the guiding management philosophy (Chapter 10, Section 3):

Chapter 258, FS is understood to mean that, to the extent possible, the goal of natural resource management should be to protect, restore, and maintain functioning representative examples of the full diversity of natural communities within the state, while providing appropriate recreational and educational benefits. Attaining this goal not only requires acquisition and protection of representative lands within the Florida state park system, but also active restoration and maintenance of the natural processes that sustain complex and dynamic biological systems on those lands.

Against the background of climate, geology, and soils, Florida's ecosystems have evolved under and depend on the dynamic interaction of forces, or processes, associated primarily with hydrology, lightning-set fires, and competition between native species. However, human-caused disturbances have disrupted these processes. These have included large-scale drainage, lowering of water tables, disruption of sheet flow, exclusion of lightning-set fires, introduction of invasive exotic species, reduction or eradication of populations of predators and keystone species, landscape fragmentation, and large-scale habitat loss.

To the extent possible, the Division practices natural systems management, whereby the processes that shaped (and continue to shape) the structure, function, species composition, and relative species abundances of Florida's natural communities are restored and maintained. Because park units are often cornerstones of surrounding ecosystems, whenever feasible the Division adapts management practices to benefit the greater ecosystem, and encourages similar management practices and compatible land uses beyond park boundaries.

The task of the FDEP"s Florida Park Service is made more challenging by the two-pronged nature of its mission statement (Operations Manual, Chapter 1, Section 3):

"Provide resource-based recreation while preserving, interpreting and restoring natural and cultural resources."

The Operations Manual goes on to say:

"Public service is the central theme of every FPS endeavor. Traditional high standards of management and service are the FPS trademark. Quality resource-based outdoor recreational experiences assure that Florida's state parks will continue to serve as major tourist destinations, thereby contributing significantly to the State's economy."

Jonathan Dickinson State Park, through which the Loxahatchee River flows, provides abundant resource-based recreation opportunities to the public. These include camping in two different full-service family campgrounds, several different primitive camping choices, hiking, canoeing and kayaking, both on-and-off-road bicycling, picnicking, fishing and swimming. The park"s Elsa Kimbell Environmental Education and Research Center houses a visitor center in which the natural and cultural history of the park is presented and interpreted through a comprehensive series of interactive displays and exhibits. Two classrooms and a laboratory serve the area"s schoolchildren. Interpretive programs of numerous different kinds are presented here and throughout the park, explaining the park"s many storylines to visitors. Upriver, on the banks of the Loxahatchee, Park Rangers bring the story of the famous Trapper Nelson to patrons who arrive at his restored home site, either by small boat or in the park"s tour boat, the *Loxahatchee Queen II*, allowing them a glimpse into life along the river as it was many years ago.

In addition to regulatory and resource management portions of the FDEP, there is also a Division of Law Enforcement which has multiple functions including emergency response, investigating environmental violations and law enforcement on FDEP managed properties, including Florida State Parks. The Florida Park Police patrols properties with the full power of arrest as sworn state law enforcement officers.

South Florida Water Management District

In 1949, the Florida Legislature created the Central and Southern Florida Flood Control District, (the predecessor to the SFWMD) to manage the Central and Southern Flood Control Project; a regional flood control and water supply project being designed and built by the U.S. Army Corps of Engineers.

In 1972, with the Florida Water Resources Act (Chapter 373 FAC), the State created five water management districts, with expanded responsibilities for regional water resource management and environmental protection. In 1976, voters approved a constitutional amendment giving the districts the authority to levy property taxes to help fund these activities.

The Florida Water Resources Act gives the SFWMD authority to provide flood protection, regulate and manage surface water and groundwater supplies, conduct environmental restoration and to acquire property for water management purposes, including the conservation and protection of water resources.

The SFWMD is authorized to participate in the management of the National Wild and Scenic Loxahatchee River by the provisions of Chapter 83-358, FS (Addendum B). Chapter 83-258 authorizes the SFWMD to have regulatory authority outside of the designated river area on those activities that may affect the Wild and Scenic River.

The SFWMD is responsible for critical water resources management activities to help achieve the protection and enhancement objectives of the management plan. In summary, relevant activities include:

- Construction, operation and maintenance of Central and Southern Florida Flood Control Project water control structures and canals;
- Regulation of discharge of surface waters and consumptive use;
- Establishment and implementation of Minimum Flows and Levels;
- Timing, quantity, and quality of water flowing into the Northwest Fork;
- Development and implementation of a Restoration Plan for the Northwest Fork;
- Development and implementation of the Lower East Coast Regional Water Supply Plan;
- Local sponsor for the U.S. Army Corps of Engineers Northern Palm Beach County Comprehensive Everglades Restoration Plan project;
- Land acquisition and management; and
- Review of proposed amendments to local governments" Comprehensive Development Plans, as a commenting agency to Florida Department of Community Affairs.

The SFWMD plays an advisory role to the Department of Community Affairs by reviewing and commenting on amendments to local comprehensive plans. Comprehensive plans are the expression of a local government"s authority to designate the type, location, and intensity of development in the Loxahatchee River watershed. State oversight of local land use planning rests with the Florida Department of Community Affairs (DCA) under Chapter 163 Florida Statutes. The SFWMD is one of many resource-protection agencies providing review comments

to DCA. The SFWMD also provides technical assistance to local governments on an informal basis.

LOCAL GOVERNMENTS

Palm Beach County

Chapters 125, 162, and 163, FS, vests Palm Beach County (PBC) with the authority to regulate use and development of private property adjacent to its jurisdiction, including property within the wild and scenic river area. Specifically, Chapter 125, FS, authorizes PBC to adopt and enforce a comprehensive plan for development, zoning ordinances to implement the Comprehensive Plan and other regulations necessary for the protection of the public's health, safety and welfare. Section 125.01(f), FS, grants PBC the power to provide parks, preserves, playgrounds, recreational areas and other recreational facilities for the welfare of its citizens. It also allows for the Board of County Commissioners to promulgate rules for the use of its parks and recreational areas so as to provide for the effective utilization of such areas. Additionally, Chapter 125 empowers PBC to prescribe fines and penalties for violations of the regulations.

Chapter 162 authorizes PBC to establish a code enforcement board to enforce land development regulations. Chapter 163 (*Local Government Comprehensive Planning and Land Development Regulation Act*) expressly elaborates on the County's authority to establish and implement comprehensive plan programs to guide and control future development and growth. Rule 9J-5, FAC, provides the minimum criteria for the preparation, review and determination of compliance of comprehensive plans and plan amendments pursuant to Chapter 163, FS.

The 1989 PBC Comprehensive Plan provides for the protection and conservation of the Loxahatchee Slough area natural resources with the implementation of the land use, conservation and coastal elements. In 1992, PBC adopted the Unified Land Development Code to implement and ensure that all development orders approved in the unincorporated PBC are consistent with the comprehensive plan.

Riverbend Park is managed by the PBC Parks and Recreation Department under the authority of the Board of County Commissioners and the PBC „Parks and Recreation Ordinance' (No.89-34). This ordinance provides for rules and regulations for all recreation areas operated and maintained by PBC for control of park traffic, wildlife and recreational activity. It also defines prohibited acts, provides for sanitation and pollution control, public utility regulation, park hours, enforcement of traffic regulations, park rules, permit regulations and for penalties and the prosecution of offenders. Riverbend Park is a managing partner in the management of the National Wild and Scenic Loxahatchee River.

The PBC Comprehensive Plan identifies the Loxahatchee River as an "Area of Particular Concern" to be preserved in its natural state. County subdivision regulations provide two processes for approval of subdivision plans. The first process is applied in cases when the applicant demonstrates that the proposed activity satisfies standard subdivision requirements. The second process is utilized for evaluating applications with proposed Planned Development

Districts and other cases when an applicant seeks a Conditional Use Approval relating to use, density, drainage, or similar requirements. In the latter process, development standards may exceed code requirements based upon the conditions for approval. In these cases, PBC may require the applicant to meet certain performance criteria, such as higher-than-standard building setbacks from wetlands and other environmentally sensitive areas, as a condition of approval. This process has been effective in directing land development activities away from the river area.

Special regulatory protection is provided for the Loxahatchee Slough. Development adjacent to the Slough is subject to special performance standards and a review coordination process. The Slough is designated as a "Conservation Area" and is zoned to allow passive recreational uses. Owners of property in this area may transfer, using Palm Beach County"s Transfer of Development Rights (TDR) program, a density allotment of one dwelling unit per five acres to other property within the PBC Urban Service TDR Receiving Area to compensate for the loss of the right to develop their land for residential purposes.

Martin County

The general local government statutory authorities identified for PBC also apply to Martin County (MC). In addition to these authorities, the MC Comprehensive Plan prohibits development in wetland areas (since 1982, last revised in 2006), including the Loxahatchee River, Cypress Creek and Kitching Creek. This plan also applies the requirement for a 50-foot building setback in ecotonal areas adjacent to wetlands as a performance standard for new development (Chapter 9.4.A.7.d.1.e).

Although the land use regulatory methods utilized by MC are similar in many respects to those of PBC, several important differences exist. All development is prohibited in areas with wetland soils. In addition, a requirement for a 50-foot shoreline protection zone has been established in ecotonal areas adjacent to saltwater wetlands. No site alterations, including filling, grading or dredging, are permitted upland from the mean high water line in these buffer areas. Further, when subdivision approval or zoning exceptions are sought for activities in the vicinity of Cypress Creek, Kitching Creek or the Loxahatchee River, an application review process is used to require mitigation of adverse effects on water quantity and quality. If Planned Unit Development approval is sought, county regulations provide for the transfer of up to one-half of the permitted density for that portion of the property having wetland characteristics.

Town of Jupiter

The Town of Jupiter is authorized by applicable laws to regulate the use and development of private lands for the public health, safety and welfare. The Town has adopted a comprehensive plan in accordance with Section 163.3161, FS. This plan designates areas subject to flooding as Conservation Areas and discourages development in these areas. However, there is no ordinance in effect to enforce compliance. All wetlands and environmentally sensitive areas within the Town of Jupiter, especially those subject to flooding, are classified as "Conservation Areas" in the Town's comprehensive plan.

Village of Tequesta

In addition to PBC, MC and the Town of Jupiter, which exercise direct control over portions of the river area, the Village of Tequesta exercises control over land use and development within the vicinity of the National Wild and Scenic Loxahatchee River. The Village of Tequesta Comprehensive Plan includes a number of objectives and policies that address protection of the Loxahatchee River, including specific reference to the Loxahatchee River National Wild and Scenic Management Plan.

City of Palm Beach Gardens

Sections six (6) and seven (7) of the City of Palm Beach Gardens" Comprehensive Plan detail the City"s goals and objectives toward protection, management, and conservation of wetlands, recreation, and open space lands within the City. Policy 6.1.4.5 of the City"s Comprehensive Plan ensures protection of environmentally sensitive areas and listed species by implementing certain criteria; furthermore, wetland habitats are set aside as preserves, and development is prohibited in wetlands except under certain circumstances consistent with the Treasure Coast Regional Planning Council Strategic Regional Policy Plan. The City currently manages Sandhill Crane Park which permits access by water or land around major conservation areas to the Loxahatchee Slough. With such connections, the City has a link with the Florida Trail System and Palm Beach County"s Riverbend Park in Jupiter.

FEDERAL AGENCIES

National Park Service

This National Park Service administers the National Wild and Scenic Rivers System in accordance with the *Wild and Scenic Rivers Act* (Addendum 1). Under the broad authority of this act, the National Park Service conducts studies on the eligibility of rivers proposed for designation in the national system and coordinates with states in the development and implementation of management plans for rivers in the system. The National Park Service also reviews permits required by the U.S. Army Corps of Engineers under Section 404 of the *Clean Waters Act* of 1972 for potential environmental impacts on national wild and scenic rivers. Based on the authority of Section 7(a) of this Act, no federal agency may assist by loan, grant, license or otherwise in the construction of any water resources project that would have a direct and adverse affect on any of the resource values of the designated segment of the river.

United States Department of Interior, Bureau of Land Management

Section 202 of the Consolidated Natural Resources Act of 2008 (PL 110-229) charges the Secretary of Interior (through the Bureau of Land Management) with the management of the Jupiter Inlet Lighthouse Outstanding Natural Area (JILONA). JILONA lies within the Loxahatchee River watershed. In addition, the southern boundary of the Outstanding Natural

Area is the lower reach of the Loxahatchee River east of U.S. Highway 1. Lastly, PL 110-229 directs the Secretary to include objectives in the management of JILONA to ensure the restoration of native plant communities and estuaries in the Outstanding Natural Area, with an emphasis on the conservation and enhancement of healthy, functioning ecological systems in perpetuity.

United States Fish and Wildlife Service

Section 401 of the *Fish and Wildlife Coordination Act of 1958* (16 U.S. Code 661, as amended), authorizes the USFWS to participate in the review of dredge and fill permit applications. The USFWS"s participation in this activity is based on its vested interest in the conservation of wetlands as wildlife habitat for federally protected species. In addition, the Service is authorized to administer the *Endangered Species Act* of 1973 (10 U.S. Code 1531, as amended). This Act seeks to ensure the continued existence of endangered species by requiring federal agencies to consult with the Service whenever an agency's actions may be detrimental to an identified species or its habitat.

The *Migratory Bird Treaty Act* of 1918 (16 U.S. Code 703 to 712) and subsequent amendments implemented Conventions between the United States and Canada, Japan, Mexico, and Russia for the protection of migratory birds. Birds and their parts, including eggs, nests, and feathers are protected under this law.

In addition, the *National Wildlife Refuge System Administration Act* of 1966 (16 U.S. Code 668dd-668ee, as amended) provides for the administration and management of National Wildlife Refuges. Hobe Sound National Wildlife Refuge is an example of such a refuge within the Loxahatchee River watershed.

United States Army Corps of Engineers

Section 10 of the *Rivers and Harbors Act of 1899*, (30 Statute 1131, as amended), authorizes the United States Army Corps of Engineers to regulate dredging of obstructions and review proposals for channel construction and improvements in navigable waterways including the Loxahatchee River. This Act, together with Section 404 of the *Clean Waters Act of 1972* (33 U.S. Code 1344, as amended), relating to the regulation of dredge and fill activities in wetlands, involves the Corps indirectly in the management of the National Wild and Scenic Loxahatchee River.

OTHER STATE AGENCIES

Florida Department of Community Affairs

The Florida Department of Community Affairs ensures consideration of the Northwest Fork of the Loxahatchee River in local and regional planning efforts. The Florida Department of

Community Affairs is authorized to establish resource planning and management committees, coordinate designation of areas of critical state concern, and administer the review of developments of regional impact by Chapters 380 and 163, FS. Section 163.3184 authorizes the Department to coordinate state agency review of local government comprehensive plans.

Florida Department of State

The Division of Archives, History and Records Management hold title to historical and archaeological resources and artifacts on state-owned lands by Chapter 267, FS. The statute provides the Department with the authority to locate and arrange for the protection, preservation and restoration of historical and archaeological property of other governmental agencies.

Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission have administrative, management and enforcement authority with respect to Florida"s fish and wildlife by Chapter 372, FS. Specific sections which authorize Commission activities in the river management program include Sections 372.07(2) (enforcement of freshwater fishing laws), 372.072(4) (a) (1) (research and management of freshwater/upland species), and 372.77 (implementation of wildlife restoration projects).

The Florida Fish and Wildlife Conservation Commission manage John C. and Mariana Jones Hungryland Wildlife and Environmental Area (12,215 acres) and JW Corbett Wildlife Management Area (60,228 acres), both of which are headwater areas for the various parts of the Northwest Fork of the Loxahatchee River.

The Commission also has a multi-functional Division of Law Enforcement tasked with protection of wild animal and aquatic resources of the State, providing for boater safety, general enforcement of the law, and emergency response.

Florida Department of Agriculture and Consumer Services

The *Clean Water Act* (Section 303[d] and Section 403.067[7] [c] [2]) establishes and describes the implementation of the Total Maximum Daily Load (TMDL) program to promote improvements in water quality throughout the State through the coordinated control of point and nonpoint sources of pollution. In support of the TMDL program, the Florida Department of Agriculture and Consumer Services (FDACS) is responsible for the development and adoption of best management practices (BMPs) by rule for different types of agricultural operations. The adopted BMPs are then used in the FDACS BMP Program to provide a path for agricultural lands to comply with state water quality standards, including the load reduction allocations established by the FDEP TMDL Program. Farmers can also receive technical help and financial assistance to reduce their impacts to water quality through voluntary participation in the FDACS BMP Program and advance implementation of the adopted BMPs before an FDEP TMDL is established for their farm"s basin.

FDACS is required under Section 570.085, FS to promote agricultural water conservation programs to include provisions "for increased efficiencies in the use and management of water for agricultural production …"

FDACS has the authority under Section 576.045, FS, to address fertilization-management practices that could be a source of nitrogen and phosphorus residues contamination in groundwater, surface water and drinking water in various areas throughout the State. The law requires research to promote improved fertilization-management practices as soon as practicable in a way that protects the State's water resources and preserves a viable agricultural industry.

Pursuant to the Lake Okeechobee and Estuary Recovery Plan (LOER), FDACS revised its rule on fertilizer content standards for urban settings. In cooperation with manufacturers, the University of Florida Institute of Food and Agricultural Sciences, agencies and others, FDACS modified the rule provisions to require that all fertilizer products labeled for use on urban turf or lawns and sports turf be limited to the amount of nitrogen and phosphorous available to support healthy turf maintenance. This modification will help protect water quality by reducing the amount of phosphorus and nitrogen runoff from lawns and gardens, which often enters lakes, rivers, estuaries, and other water resources. More information about the rule is located at: http://www.flaes.org/pdf/Urban_turf_fact_sheet.pdf.

Florida Department of Transportation

The mission of the Florida Department of Transportation (FDOT) is to balance natural, human, cultural and physical considerations with sound engineering principles, with the goal of preserving the quality of our environment and communities. The Florida Turnpike and Interstate 95 cross the Loxahatchee River within the boundaries of the wild and scenic designation. The Florida Department of Transportation (FDOT) is authorized to operate and maintain these facilities in a manner that provides for safety and ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities under Sections 20.23(3)(a) and 334.048(3), Florida Statutes (F.S.).

When considering transportation improvements to these facilities, FDOT is required to coordinate with the National Park Service – Rivers, Trails, and Conservation Assistance (RTCA) Program and follow the Wild and Scenic Rivers Assessment process. This process was established under *Presidential Directive dated August 2, 1979*, "*Wild and Scenic Rivers and National Trails;*" *Council of Environmental Quality Memorandum dated August 10, 1980*, "*Interagency Consultation to Avoid or Mitigate Adverse Effects of Rivers in the Nationwide Inventory;*" and *Federal Register, Volume 47, Number 173 dated September 7, 1982*, "*National Wild and Scenic Rivers System-Final Revised Guidelines for Eligibility, Classification, and Management of River Areas.*" In order to understand and assess impacts that may occur to the resource, FDOT participates in the Loxahatchee River Management Coordinating Council.

Treasure Coast Regional Planning Council

Authority for the participation of the Treasure Coast Regional Planning Council in the river management program is based on Sections 380.06 and 163.3164, FS. The former provides for regional planning councils to coordinate the review of development of regional impact applications with affected governmental agencies. The latter mandates the Council to review and comment on the content of local comprehensive plans prior to their adoption by local governments. The Council reviews development proposals and planning documents for consistency with the Strategic Regional Policy Plan.

SPECIAL DISTRICTS

Two Special Districts are located within the watershed of the Northwest Fork of the Loxahatchee River.

Loxahatchee River Environmental Control District

The Loxahatchee River Environmental Control District (LRECD) provides water supply, wastewater management, storm drainage and various planning, regulatory and operational functions (Chapter 71-822, Special Acts of Florida, 1971, as amended). The jurisdictional area of the LRECD includes the majority of the developed portions of the Loxahatchee River watershed. The LRECD has active roles in wastewater management, aquatic monitoring, environmental education and public information.

LRECD"s wastewater management responsibilities include operation of a regional wastewater treatment and water reuse system that serves the municipalities of Jupiter, Tequesta, Juno Beach, along with the unincorporated areas of northern Palm Beach and southern Martin Counties. The wastewater treatment facility has a permitted treatment capacity of 11 million gallons per day (MGD), which is presently sufficient to meet anticipated needs of our growing community. LRECD"s reuse (water recycling) program uses reclaimed water to meet landscape irrigation needs at area golf courses, parks, and residential communities. This innovative water recycling program lowers the demands on natural water resources, and preserves untapped water to help meet the needs of the river. Since 1983, LRECD"s reuse program has saved over 33 billion gallons of freshwater for the natural environment.

For more than 20 years, the LRECD has served as one of the primary agencies conducting research and monitoring on the Loxahatchee River. Wild Pine Ecological Laboratory is the LRECD's state-certified laboratory, which provides the needed scientific staff, equipment and professional analysis to conduct research and monitoring. This laboratory is available to the public and scientific community for the purpose of advancing knowledge about the river.

LRECD also operates The Loxahatchee River Environmental Center, known locally as the River Center, which opened August 23, 2008. The River Center traces the Loxahatchee River from

its headwaters in Palm Beach County through the cypress dominated floodplain in the Wild & Scenic segment, into the central embayment and finally out through Jupiter Inlet into the Atlantic Ocean and the Gulf Stream. Visitors can explore the history of the watershed, its environmental value, modifications and problems associated with ever-increasing human population and development, and programs and projects underway to help preserve and restore this valuable and unique system. LRECD also hosts on its grounds the Busch Wildlife Sanctuary, a wildlife refuge and educational facility offering animal exhibits, including American Bald eagles, deer, panthers, osprey, reptiles, as well as rehabilitation program and nature trails. The River Center and Busch Wildlife Sanctuary are used to educate our community and create better stewards of our beautiful river.

Jupiter Inlet District

The Jupiter Inlet District has broad authority to construct and maintain an inlet at the mouth of the Loxahatchee River, to deepen and maintain the river where required, and to construct any improvements needed to accomplish these purposes (Chapter 8910, Special Acts of Florida, 1921).

DRAINAGE DISTRICTS

Under Chapter 298 and various special acts and amendments, these drainage districts are authorized to levy special taxes and to provide surface water management and control in areas not served by municipal or county agencies. The districts are also authorized to construct and maintain canals, ditches, levees, dikes, pumping plants and other works and improvements. The activities of the districts are subject to state regulation by the FDEP and the SFWMD under authority of Section 403.061 and Chapter 373, Part IV, FS. Six drainage districts are located within the Loxahatchee River basin:

Hobe-St. Lucie Conservancy District

The Hobe-St. Lucie Conservancy District was created in 1972 and services primarily agricultural areas, but also residential areas (Hobe Sound Polo Club) and public lands. In total, this District provides drainage, irrigation and road services for approximately 12,000 acres, of which 9,000 acres are located in the Kitching Creek and Cypress Creek watersheds. The balance of the properties covered in this district fall within the C-44 / St. Lucie River watershed.

Indian Trail Water Control District

Indian Trail Water Control District was created in 1957, serves over 40,000 people, and is approximately located from just north of Northlake Boulevard to Southern Boulevard in the south, 110th Ave N in the east, to M2 impoundment area in the west. The District provides drainage and road improvements.

Northern Palm Beach County Improvement District

The Northern Palm Beach County Improvement District was created in 1959 and covers 128 square miles, reaching from A1A west to the L8 canal, south to the Southern Boulevard area, and north to the Palm Beach County line. General responsibilities include waterway maintenance, storm water control, drought protection, roadway construction and utilities construction.

North Palm Beach Heights Water Control District

North Palm Beach Heights Water Control District was created in the late 1950s and its primary responsibility is to maintain canals for storm runoff. The District services the Heights of Jupiter community, an area bounded on the south by Donald Ross Road, on the west by I-95, on the east by Heights Road, and on the north by Egret"s Landing.

Pal-Mar Water Control District

Created in the 1960s, the Pal-Mar Water Control District serves an area of more 34 square miles (22,000 acres) in northern Palm Beach County and southern Martin County that was planned to be developed into a residential area called Rotunda. Currently, no one resides within the district, a majority of the land remains in a natural state and approximately 70 percent of the area is publicly owned while the rest remains in private lots that range in size from .25 to 1.5 acres.

South Indian River Water Control District

South Indian River Water Control District was founded in 1923 and provides road maintenance and water management for 13,000 people in Jupiter Farms, Palm Beach Country Estates, Egrets Landing and Jupiter Commerce Park. The South Indian River Water Control District covers 20 square miles and includes 60 miles of canals and 376 miles of swales.

Chapter 3

2010 LOXAHATCHEE RIVER MANAGEMENT PROGRAM

General Management Principles

Direction for the establishment and update of this management program, and the specific objectives and procedures to be implemented as a part of this program were derived from the legislative authorization and respective agency policy previously presented in this plan. In drafting this update, the FDEP researched and solicited a wide range of technical information and guidance to help in the refinement of principles. This information was obtained from state, federal and local environmental agencies and members of the Loxahatchee River Management Coordinating Council. This 2010 plan represents an updated document which reflects the original guidelines established when the river was designated as a component in the Wild and Scenic River system, as well as revisions based upon subsequent experiences in managing the Loxahatchee River corridor.

The recommendation of this plan for the day-to-day management of the river and its adjoining upland corridor are based on the general principles listed below:

1. The preservation and enhancement of the river‟s unique natural and cultural values are the primary purposes of the program.
2. Effective management of the river cannot take place in isolation from river basin management.
3. Management will be accomplished through a range of management tools, including but not limited to land acquisition, effective resource management activities, regulation of the corridor area, local government land use controls, and voluntary actions by citizens.
4. Management will be a continuing effort.
5. The specific management methods and the type of management provided by these methods may differ considerably from segment to segment (wild versus recreational).
6. Existing legal authorities and jurisdictions will not be curtailed or limited by any policy or action of the management program.
7. Coordination and cooperation between local, state, and federal agencies and private citizens are crucial to the success of the management program.
8. In conjunction with the above, the cooperation of the public is critical to the success of the management program.

2010 PLAN OBJECTIVES AND IMPLEMENTATION

This plan is required as a condition for designation of the Loxahatchee River as a component of the National Wild and Scenic Rivers program. The goal of this management plan is to ensure protection and enhancement of the natural and cultural values. The 2010 *Loxahatchee River National Wild and Scenic River Management Plan* objectives were developed through a series of meetings and workshops with the Loxahatchee River Water Management Coordinating Council, local and state agencies and other stakeholders:

Objective I: Preserve and enhance the river's unique natural and cultural values

Objective II: Restore the river's historical hydrologic regime and reverse deleterious saltwater intrusion

For each of the objectives the respective implementation strategies and tasks are listed below. The list includes incomplete tasks from the previous plan update and new strategies and/or tasks as a result of adaptive management.

Objective I: Preserve and enhance the river's unique natural and cultural values

The National Wild and Scenic Northwest Fork of the Loxahatchee River includes a multitude of unique natural and cultural resources. The natural resources in need of preservation, protection and enhancement include water resources, terrestrial and aquatic wildlife habitats, historical and archeological sites and the recreational value of the river.

Strategies

1. Prioritize land acquisition and acquire and manage select properties within the National Wild and Scenic Loxahatchee River watershed.
2. Develop and implement resource protection and enhancement management plans.
3. Develop and implement recreation and public use management plans.
4. Ensure relevant local, state and federal policies, regulations, plans, permits and approvals are consistent with objectives of the management plan.
5. Increase elected official, key stakeholder and public awareness of the need to protect and enhance the unique natural and cultural resources in the Wild and Scenic portion of the Northwest Fork.
6. Increase scientific understanding to improve adaptive management of the river‟s ecosystems.

Tasks

1. Prioritize land acquisition and acquire and manage select properties within the National Wild and Scenic Loxahatchee River watershed.

Continued land acquisition within the Loxahatchee watershed allows for increased connectivity for the purposes of hydrology, recreation and wildlife movement. Support for the land acquisition and review of land acquisition plans to local, state and federal agencies, where necessary, is deemed necessary for future improvements to the overall system.

a) Acquire 2,200 acre parcel east of Atlantic Ridge Preserve State Park to connect to Medalist property.
b) Acquire remaining private Pal Mar parcels through donations or acquisition of tax deeds.
c) Apply for land acquisition/restoration grants.
d) Partner with other stakeholders to leverage funds.

2. Develop and implement natural and cultural resource protection and enhancement management plans.

Many public land management agencies are required to have formal, publicly reviewed management plans that include an assessment of the property and desired future management activities. Obtaining stakeholder feedback in drafting these plans and during the evaluation process is necessary to maximize the utility of these plans. Specific actions for natural resource protection and restoration include, but are not limited to, non-native plant removal, prescribed fire and hydrological enhancements, elimination of adverse water quality impacts, and restoration (i.e. backfilling of agricultural ditches). Specific actions for cultural resource protections could include listing of sites with the Florida Division of Historical Resources or the U.S. Federal Register of Historic Places or general upkeep and restoration of historic sites.

a) Update the *Loxahatchee River National Wild and Scenic Management Plan* every five years amending strategies, tasks and schedules as needed.
b) Implement and update the restoration targets (as needed) set forth in the *Restoration Plan for Northwest Fork of the Loxahatchee River* (2006).
c) Monitor and provide input for management plans of specific properties within Loxahatchee River and evaluate the effectiveness of actions taken by agencies and provide feedback to management agencies.
d) Revise the watershed boundary map of the Loxahatchee River watershed.
e) Involve key state, federal and local agencies, advisory groups, organizations and the public in management decisions.
f) Support replacement of septic systems with sanitary sewers where demonstrated to be beneficial to the protection or enhancement of water quality in the Loxahatchee River.

3. Develop and implement recreation and public use management plans.

Many public land management agencies are required to have formal, publicly reviewed management plans that include recreational use components. Stakeholder feedback in terms of drafting these plans and evaluation are necessary parts of the process. A visitor capacity plan was included in the 1985 and 2000 versions of this plan but more specific knowledge needs to be acquired on the numbers of people using the upper part of the river before a visitor capacity plan can be implemented.

a) Implement and update the *Jonathan Dickinson Park Unit Management Plan* every 10 years (2010).
b) Assess current levels of recreational use on the Northwest Fork of the Loxahatchee River using methods that can be repeated.
c) Develop and implement a recreational public use capacity and management plan.
d) Involve key state, federal and local agencies, advisory groups, organizations, and the public in management decisions.
e) Integrate the riparian protection with recreational demands (e.g. role of downed snag removal in river).

4. Ensure relevant local, state and federal policies, regulations, plans, permits and approvals are consistent with objectives of the management plan.

The *Loxahatchee River Wild and Scenic Designation and Preservation Act* of 1983 confers regulatory roles to the FDEP and SFWMD and an oversight role to the LRMCC that includes commenting on specific issues outlined in that Chapter 83-358 and emphasized in previous portions of this plan. Review and comment on relevant:

a) Comprehensive plans.
b) Water supply plans.
c) Stormwater master plans.
d) Park and recreation plans.
e) Development regulations, permit applications and approvals.
f) Existing or needed state and local regulations.
g) North Palm Beach County CERP plan.

5. Increase elected official, key stakeholder and public awareness of the need to protect and enhance the unique natural and cultural resources in the Wild and Scenic portion of the Northwest Fork

As managers of public lands, we are responsible for informing the public and our stakeholders of park land enhancements, improvements and forward progress. Diverse efforts are underway to underscore accomplishments of specific tasks and the progress that is being made towards goals.

a) Implement and update programs and displays in the Loxahatchee River Environmental Center, Jonathan Dickinson State Park"s Elsa Kimbell Education and Research Center,

Trapper Nelson"s Zoo Historic District and Riverbend Park that highlight the importance of the Wild and Scenic River and watershed.
b) Develop and provide information on the river to recreational users and local educational institutions.
c) Host river tours for elected officials and legislative delegation members.
d) Encourage and support local initiatives such as Loxahatchee River Preservation Initiative (LRPI) and the Northeast Everglades Natural Area (NENA).
e) Update the Homeowners" Guide to the Protection of the Loxahatchee River.

6. Increase scientific understanding to improve management of the river's ecosystems

Scientific knowledge has allowed managers to put together various plans to restore the river and has documented the decline of freshwater swamp vegetation on the Loxahatchee River. Increasing the knowledge base of this river will provide for continued adaptive management of hydrological operations and restoration efforts.

a) Develop and implement a Science Plan for the river as identified in the *Restoration Plan for the Northwest Fork of the Loxahatchee River*.
b) Support grants to fund watershed research projects.
c) Encourage agencies to have work peer reviewed and published.

Objective II: Restore the river's historical hydrologic regime and reverse deleterious saltwater intrusion.

Restoration of the Northwest Fork"s historical hydrological regime and reversal of saltwater intrusion will require a multi-agency, multi-decadal effort. The hydrology of the watershed to the Northwest Fork has been severely altered from more than a century of local and regional flood protection, inlet improvements, wetland drainage, and development and water supply projects. It is not feasible to restore the exact hydrologic regime considering the magnitude of the alterations to the watershed and current development. However, the historical hydrologic regime can be better managed using several tools including restoring key drainage basins, acquiring and restoring select properties, establishing base flows, constructing linkages to new sources of water, land use regulations, and stormwater retrofits and rules. A comprehensive description of completed and planned restoration projects can be found in Addenda 4 and 5.

Strategies

1. Improve the quality, quantity, timing and distribution of flows to the Northwest Fork.
2. Restore and/or replace natural water storage and conveyance to the Northwest Fork.

Tasks

1. Improve the quality, quantity, timing and distribution of flows to the Northwest Fork.

Over the past decade several plans have been developed to provide protection to the Northwest Fork of the Loxahatchee River. It is imperative that these plans be fully implemented to maintain the level of protection that the river deserves. Failure to do so will lead to further impacts and deleterious effects on the river"s flora and fauna.

a) Meet minimum flow and level targets set in 2003.
b) Implement and update goals, strategies and projects within the *Restoration Plan Northwest Fork of the Loxahatchee River* (2006) by responsible agencies.
    i) Complete and implement North Palm Beach County CERP Part 1 Project.
    ii) Begin development of the North Palm Beach County CERP Part 2 Project.
    iii) Complete the L-8 storage project and develop a conveyance to the Northwest Fork of the Loxahatchee River.
    iv) Develop and implement an Operations Management Plan for L-8 and conveyance structures.
    v) Increase flows to the NW Fork over Lainhart Dam.
    vi) Increase tributary flows to the NW Fork.
    vii) Develop MFL"s for the tributaries, including Loxahatchee Slough, Cypress Creek, Hobe Grove Ditch and Kitching Creek.
    viii) Develop project water reservations for North Palm Beach County CERP Part 1 and 2.
    ix) Develop operational protocols for a proposed flow regime for NW Fork.
    x) Continue to monitor, assess and apply adaptive management.
c) SFWMD will implement the recommendations in the Lower East Coast Water Supply Plan.
d) SFWMD will establish and implement a water reservation for the Northwest Fork.
e) SFWMD will ensure that the Regional Water Availability Rule is strictly enforced.
f) Complete the Cypress Creek East Restoration project.
g) Complete the North Jupiter Flatwoods Restoration project.
h) Ensure that all governmental jurisdictions pursue compliance with stormwater management regulations and best management practices with the intent of enhancing the quality of stormwater runoff.
i) SFWMD, FDEP Parks and LRECD will continue to monitor and evaluate results on an annual basis consistent with the Loxahatchee River Science Plan.

2. Restore and/or replace natural water storage and conveyance to the Northwest Fork.

Natural water storage and conveyance of that water to the Northwest Fork is crucial to the success of the River"s survival. Some lands have been acquired but still need restoration and operational plans developed and implemented. Other lands are still needed for protection of the river corridor and those parcels with the most benefit to the river should be prioritized and targeted for acquisition.

a) Acquire and restore select properties adjacent to the Wild and Scenic River and its tributaries, including, but not limited to Cypress, Moonshine and Kitching Creeks, Pal Mar wetlands and Loxahatchee Slough.
b) Develop hydrologic restoration and enhancement plans for acquired and existing properties.
c) Complete the planned Hatcher/Jupiter Indiantown Venture water storage and conveyance project.
d) Complete the stormwater plan for the Hatcher-Halparin property adjacent to Jupiter Farms.
e) Complete the planned Mecca Farms Wetland Restoration project.
f) Complete a survey of Jonathan Dickinson State Park"s existing non-functional agricultural and drainage ditches and restore to natural hydrology within the park.
g) Update the Atlantic Ridge Preserve State Park"s survey of existing non-functional agricultural and drainage ditches and restore to natural hydrology.

Table 6 - 5-Year Implementation Schedule

	Lead Agencies	Target Completion Date
Objective 1: Preserve and enhance the River's unique natural and cultural values		
1. Prioritize land acquisition, acquired and manage properties within the National Wild and Scenic Loxahatchee River watershed		
a) Acquire 2,200 acre parcel east of Atlantic Ridge Preserve State Park to connect to Medalist property	MC and FDEP Parks	2020
b) Acquire remaining private Pal Mar parcels through donations or acquisition of tax deeds	MC	As available
c) Apply for land acquisition/restoration grants	All	As available
d) Partner with other stakeholders to leverage funds	All	Annually
2. Develop and implement resource protection and enhancement management plans		
a) Update the Wild and Scenic Management Plan every five years amending strategies, tasks and schedules as needed	FDEP/ SFWMD	2015
b) Implement and update restoration targets for the Northwest Fork of the Loxahatchee River Restoration Plan (2006)	SFWMD/ FDEP/ LRECD	2011
c) Monitor and provide input for management plans of specific properties within the Loxahatchee River watershed and evaluate the effectiveness of agency actions	LRMCC	Quarterly meetings and special workshops
d) Revise the watershed boundary map of the Loxahatchee River watershed.	LRMCC	2012
e) Involve key state, federal, and local agencies, advisory groups, organizations and the public in management decisions	LRMCC	Quarterly meetings and special

		workshops
f) Support replacement of septic systems with sanitary sewers where demonstrated to be beneficial to the protection or enhancement of water quality in the Loxahatchee River	LRECD	2015
3.Develop and implement recreation and public use management plans		
a) Implement and update the Jonathan Dickinson Park Unit Management Plan	FDEP Parks	2010
b) Assess current levels of recreational use on the river	FDEP	2011
c) Develop and implement a recreational public use capacity and management plan	FDEP and PBC	2012
d) Involve key state, federal and local agencies, advisory groups, organizations and the public in management decisions	LRMCC	Quarterly LRMCC meetings
e) Integrate the riparian protection with recreational demands	FDEP and PBC	2015
4.Ensure relevant local, state and federal policies, regulations, plans, permits and approvals are consistent with objectives of the management plan		
a)Review and comment on relevant local comprehensive plans	FDEP/ SFWMD/ LRMCC	As needed
b)Review and comment on relevant local water supply plans		As needed
c)Review and comment on relevant local stormwater master plans	FDEP/ SFWMD/ LRMCC	As needed
d)Review and comment on relevant local park and recreation plans	FDEP/ SFWMD/	As needed

	LRMCC	
e)Review and comment on relevant development regulations, permit applications and approvals	FDEP/ SFWMD/ LRMCC	As needed
f)Review and comment on relevant existing or needed state and local regulations	FDEP/ SFWMD/ LRMCC	As needed
g)Review and comment on North Palm Beach County CERP plan	FDEP/ SFWMD/ LRMCC/LRECD	Draft PIR Scheduled for 2010
5.Increase elected official, key stakeholder and public awareness of the need to protect and enhance the unique natural and cultural resources in the Wild and Scenic portion of the Northwest Fork		
a) Implement and update programs and displays in the Loxahatchee River Environmental and Jonathan Dickinson State Park"s Elsa Kimbell Education and Research Center, Trapper Nelson"s Zoo Historic District and Riverbend Park	FDEP/ SFWMD/ LRECD	As needed
b) Develop and provide information on the river to recreational users and local educational institutions	FDEP/ SFWMD/ LRECD/ LRMCC	As requested
c) Host river tours for elected officials and legislative delegation members	LRMCC	Bi-Annually
d) Encourage and support local initiatives such as Loxahatchee River Preservation Initiative (LRPI) and the Northeast Everglades Natural Area (NENA)	LRMCC	As needed
e) Update the Homeowners" Guide to the Protection of the Loxahatchee River	LRMCC	2012

6.Increase scientific and management understanding of the river's ecosystems		
a)Develop and implement a Science Plan for the river as identified in the Restoration Plan for the Northwest Fork of the Loxahatchee River	FDEP/ SFWMD/ LRECD	2010
b)Support grants to fund watershed research projects	All	As available
c)Encourage agencies to have work peer reviewed and published	All	As needed
Objective 2: Restore the river's historical hydrologic regime and reverse deleterious saltwater intrusion		
1.Improve the quality, quantity, timing and distribution of flows to the Northwest Fork		
a) Meet minimum flow and level targets set in 2003	SFWMD	2010
b) Implement and update the *Restoration Plan Northwest Fork of the Loxahatchee River* (2006)	SFWMD/ DEP/ LRECD	2011
c) Implement the recommendations in the Lower East Coast Water Supply Plan for the Loxahatchee Basin	SFWMD	2015
d) Establish and implement a water reservation for the Northwest Fork	SFWMD	To be determined
e)SFWMD will ensure that the Regional Water Availability Rule is strictly enforced	SFWMD	As needed
f) Complete the Cypress Creek East Restoration project	PBC	2011
g) Complete the North Jupiter Flatwoods Restoration project	PBC	2011
h)Ensure that all governmental jurisdictions pursue compliance with stormwater management regulations and best management practices with the intent of enhancing the quality of stormwater runoff	SFWMD/ FDEP/ LRECD	Annually
i) SFWMD, FDEP Parks and LRECD will continue to monitor and evaluate results on an annual basis	SFWMD, FDEP Parks, LRECD	Annually

consistent with the Loxahatchee River Science Plan		
2.Restore and or/replace natural water storage and conveyance to the Northwest Fork		
a) Acquire select properties adjacent to the Wild and Scenic River and its tributaries, including, but not limited to Cypress, Moonshine and Kitching Creeks, Pal Mar wetlands and Loxahatchee Slough as identified in the JDSP Unit Management Plan, CARL Priority One List, NPBC CERP Plan, and additional parcels as may be identified.	FDEP/ FFWCC/ MC/PBC/ SFWMD	As funds and properties become available
b)Develop hydrologic restoration plans for acquired properties	FDEP/ FFWCC/ MC/PBC/ SFWMD	Various dates
c) Complete the Hatcher/Jupiter Indiantown Venture water storage and conveyance project	PBC	2015
d) Complete a stormwater plan for the Hatcher-Halparin property adjacent to Jupiter Farms	PBC	2013
e) Complete the Mecca Farms Wetland Restoration project	PBC	2015
f) Complete a survey of Jonathan Dickinson State Park"s existing non-functional agricultural and drainage ditches restore to natural hydrology within the park	FDEP Parks	2020
g) Update the Atlantic Ridge Preserve State Park"s survey of existing non-functional ditches and restore to natural hydrology	FDEP Parks	2020

Chapter 4

2000 PLAN OBJECTIVES AND SUMMARY OF PROGRESS

In the preceding chapters, this plan has identified the key issues that must be addressed to effectively manage the Wild and Scenic River corridor. The plan, in Chapter 3, has also laid out key tasks that must be accomplished in the future to protect and enhance the biological and cultural values of the Northwest Fork of the Loxahatchee River. This chapter summarizes the progress made in completing tasks identified in the 2000 plan.

The 2000 *Loxahatchee River National Wild and Scenic River Management Plan* objectives were derived directly from the resolution passed by the Governor and Cabinet of the State of Florida on January 11, 1983:

Objective I: Protect and enhance natural and cultural values within the designated wild and scenic river corridor.

Objective II: Enhance the hydrologic relationship between the Wild and Scenic Northwest Fork of the Loxahatchee River and Loxahatchee Slough.

Objective III: Ensure that land use activities within the Loxahatchee drainage basins are conducive to maintaining the values of the Wild and Scenic River.

Objective IV: Facilitate public involvement in protecting the Wild and Scenic river corridor, including both planning and implementation efforts.

Objective I: Protect and enhance natural and cultural values within the designated wild and scenic corridor.

The evaluation of the Loxahatchee River for inclusion as a component of the Wild and Scenic River system identified several efforts necessary to support the designation, including public acquisition of the corridor, development of appropriate local management authorities and responsibilities, development and maintenance of this management plan and finally, periodic oversight of river conditions and management efforts. Progress to date is provided on the following strategies and tasks to reflect these obligations.

Strategy I-A: Acquire designated Wild and Scenic corridor.

Task 1: Consider adding Palm Beach County Loxahatchee River acquisition to the Wild and Scenic corridor.

The 2000 management plan proposed the possible addition of 367 acres adjacent to the river corridor to be added to the Wild and Scenic corridor. This parcel was purchased by Palm Beach County in 1995 and was formerly known as the Loxahatchee River Natural Area. Due to the existing public protections existing on this parcel, the primary management agencies, FDEP and SFWMD, have opted not to pursue this addition to the corridor.

In addition to the river corridor purchase, Table 7 identifies several properties that have been purchased for protection, restoration and public recreational use within and adjacent to the watershed.

Table 7 - Public Lands within and adjacent to the Loxahatchee River Watershed

Property Name	Initial Acquisition Date	Acres	Owner
"River Corridor" property – JDSP	1985	1,371	SFWMD
Acreage Pines Natural Area	2001	116	PBC
Atlantic Ridge Preserve State Park	1998	5,747	SFWMD
Banner Lake Conservation Area	2007	1.5	MC
C-18 Triangle Natural Area	2000	139	PBC
C-51 / L-8 Reservoir	2003	1,264	SFWMD
Cypress Creek Natural Area	1995	2,083	PBC
Delaware Scrub Natural Area	2005	16	PBC
Dupuis Reserve	1986	21,875	SFWMD
Grassy Water Preserve	1953	14,592	City of West Palm Beach
Gulfstream Groves / Cypress Creek	2003	3,547	MC and SFWMD
Halpatiokee Regional Park	1998	347	SFWMD
Hobe Sound National Wildlife Refuge	1969	1,035	USFWS
Hungryland Slough Natural Area	1997	2,896	PBC
John C. And Mariana Jones Hungryland Wildlife and Environmental Area	1994	19,349	MC and SFWMD
Jonathan Dickinson State Park	1947	10,108	Trustees of the Internal Improvement Trust Fund
JW Corbett Wildlife Management Area	1947	60,288	FFWCC
Limestone Creek Natural Area	2002	53	PBC
Loxahatchee Slough Natural Area	1996	12,836	PBC
North Jupiter Flatwoods Natural Area	2000	151	PBC
Pal Mar East		3,200	MC
Pal Mar Extension	2006	1,280	MC and SFWMD
Pine Glades Natural Area	1999	6,637	PBC
Pond Cypress Natural Area	1994	1,736	PBC
Riverbend Park	1985	888	PBC and SFWMD
Royal Palm Beach Pines Natural Area	1992	773	PBC
Winding Water Natural Area	2001	550	PBC
Total Acreage		**172,878.5**	

Strategy I-B: Develop and maintain corridor management plan

Task 1: Update management plan by 2005.

In late 2004, the staff of FDEP Southeast District Office, Florida Park Service – District 5 (FPS), LRECD and the SFWMD began working on a comprehensive restoration plan for the Northwest Fork of the Loxahatchee River. During this intensive effort to collect and analyze data to develop and evaluate restoration flow alternatives, all participating agencies agreed to delay the update to the Wild and Scenic River Management Plan. The *Restoration Plan for the Northwest Fork of the Loxahatchee River* was approved on April 12, 2006. The Loxahatchee River National Wild and Scenic Management Plan is scheduled for completion in 2010.

Strategy I-C: Develop detailed implementation plans in support of wild and scenic river management plan

Task 1: Develop upland vegetation management plan.

The Wild and Scenic River Management Plan has recognized the need to develop specific guidelines to achieve certain plan objectives. In support of this intent, FPS has completed plant community maps, a Fire Management Plan and an Upland Exotic Plant Management Plan. These maps and plans are contained within the encompassing Jonathan Dickinson State Park Unit Management Plan (JDSP UMP). The 2000 JDSP UMP is currently being updated and is scheduled for release in 2010.

Task 2: Develop archeological/historical survey.

Many of the archeological and historical sites within JDSP have been identified and Master site file forms have been prepared and are on file with the Division of Historical Resources (DHR). Prior to any ground disturbing activities within the river corridor or on adjacent parcels, the DHR must be consulted and guidance sought from their agency. JDSP maintains several staff members, as certified and trained “Archeological Resource Monitors,” who observe and monitor all ground disturbing activities within the river corridor and the park.

Task 3: Develop solid waste management plan.

A formal solid waste management plan has not been prepared for the river corridor. However, JDSP does remove solid waste on an ongoing basis. Park staff work with volunteer cleanup groups to collect and haul off debris during events such as National River Cleanup Day, Earth Day and International Coastal Cleanup Day. Trash receptacles are in place at Masten Dam and Trappers" interpretive site and waste is removed on a routine basis.

Task 4: Develop aquatic plant management plan.

This task needs to be updated and will be included in the updated 2010 JDSP UMP.

Strategy I-D: Develop rules and management agreements for river corridor.

Task 1: Include corridor within ecosystem management area.

In 1996, FDEP developed the Ecosystem Management Area (EMA) approach to working within watersheds. The EMA approach has enhanced the coordination of planning, acquisition and regulation within the watershed and has been afforded more attention and protection than ever before. As a result of the EMA effort the LRPI was created in 2002. This group has leveraged $34 million from the legislature to kick start water quality enhancement projects. As discussed in Strategy I-B, the river corridor and watershed are included in the approved *Restoration Plan for Northwest Fork of the Loxahatchee River* dated April 12, 2006.

Task 2: Develop FDEP/PBC agreement for Riverbend Park.

This task has not been completed; however, there is still a desire to have this task completed. There needs to be ongoing dialogue regarding visitor capacity for the river as Riverbend Park is the "gatekeeper" and the entity responsible for managing that aspect of river usage.

Task 3: Enact corridor administrative rule.

Previously, a proposal was offered for the District to consider a "special basin rule." The District does not believe this approach is warranted. Since the LRM was first developed, the District, Palm Beach County and Martin County have acquired more than 22,000 acres in the watershed. Only slight future development is expected that would have a potential to affect the river corridor. All watershed runoff is already subjected to increased water quality standards. The District, through adoption of its Regional Water Availability Rule, has taken a strong measure to protect the River, its tributaries and the watershed.

Task 4: Develop corridor use permit system.

The National Wild and Scenic River Corridor is intended for public use, consistent with protecting the natural resources of the river and esthetic enjoyment of the river experience. A basic premise of the river designation is that river use is to be carefully managed through the use of designated access points and facilities.

Since 1985, three Carrying Capacity surveys (now known as Visitor Capacity surveys) have been conducted to help develop a corridor use rule or permit system for the river. The 1985 plan recommended a "quiet" and a "group" period. The plan went on to state that FDEP and Palm Beach County "will develop a system for scheduling and monitoring use of the river and

enforcing the plan"s carrying capacity." This system will be jointly implemented by the Department and Palm Beach County in accordance with a formal interagency agreement."

In 1995, a *Visitor Use of the Loxahatchee River National Wild and Scenic River* report was completed by Cassy Lewis, SCA intern and Richard Roberts, FPS. Questionnaires were distributed to 825 river users, of which 227 were returned. The survey was designed to measure the proposed river"s carrying capacity, determine the degree of human impacts, identify recreational use levels, check on canoeist"s satisfaction levels and suggest further management approaches to protecting both the river and visitor.

In preparation for the 2000 Loxahatchee River National Wild and Scenic River Management Plan, a third carrying capacity survey was conducted. This was an on-site monitoring survey, rather than a questionnaire, and was conducted from April 2, 1999, until March 21, 2000, by Caroline Causey (SCA intern). The 52 page report was completed in March 2000 and titled *Visitor Use of the Loxahatchee River National Wild and Scenic River: Results of the Loxahatchee River Daily Use Level Survey*.

During the public meetings for the 2000 plan, the most debated discussion was the carrying or visitor capacity, especially as it related to the designated "quiet" period being impacted, what could be resolved about reverse or upstream paddling during the "quiet" period and maintaining a scheduled pickup for canoe and kayak users at the park dock.

In June 2001, Greg Rubin (SCA intern) continued the Causey and Roberts survey. He also tried to consider this 12-page report as more for an operational plan. There have been draft Annual Operational Plans presented to the Loxahatchee River National Wild and Scenic River Management Coordinating Council, with much discussion of the idea. However, the Council never supported the concept.

A Visitor Capacity Study is being planned for this next management plan cycle and to a larger extent, should be expanded to encompass the following subjects:

- The Restoration Plan for the Northwest Fork of the Loxahatchee River (stage and flow relationships for user safety and river impacts).
- Protection of the natural resources (accommodation of the visitor"s experience without impacting the river"s environment).
- Visitor education and outreach.
- Opening of Riverbend Park.
- More research on stream restoration using large wood (restore floodplain flow and measure the impacts on river use).

- Need to improve the semi-annually integrated monitoring trips to measure the adverse impacts by river users. (Review all portage sites, exotic vegetation and changes in riverine plant life.)

Strategy I-E: Develop and maintain appropriate public use facilities within river corridor.

Task 1: Maintain Lainhart and Masten dams.

Maintenance of both dams occurs in coordination with SFWMD and JDSP. Several major repairs and portages have been completed over the years to protect, maintain and enhance safety at these structures.

Task 2: Implement JDSP unit plan.

As per Chapter 18-2, Florida Administrative Code, the FPS is mandated to prepare and update unit management plans for all state parks. JDSP is working under the current approved 2000 unit management plan which is scheduled to be revised by 2010.

Task 3: Develop quantitative and qualitative evaluation of river use.

As discussed in strategy I-D above, a visitor capacity study is planned for this management plan cycle and will include a quantitative and qualitative evaluation of river use.

Task 4: Develop and staff Riverbend Park.

Riverbend Park was made possible through the cooperative efforts of Palm Beach County and the SFWMD. Now managed by the Palm Beach County Parks and Recreation Department, Riverbend Park features five miles of waterways and 15 miles of trails and access roads in 680 acres. Currently, 485 acres are open to the public to experience the parks" natural, historic and cultural resources through recreational hiking, bicycling, horseback riding, canoeing and kayaking.

An additional 195 acres within Riverbend Park will open to the public in early 2010. The staff at Riverbend Park includes a Park Coordinator, a Park Supervisor, and three full-time and one part-time maintenance employees. Contractual and volunteer instructors also provide recreational, historical and environmental education programming from August through May.

Task 5: Adopt and implement operation plan.

This task has not been completed; however, there is still a desire to have this task completed.

Strategy I-F: Create and maintain Loxahatchee River Management Coordinating Council.

Task 1: Staff and maintain LRMCC.

The SFWMD provides support staff for all four required council meetings and the annual tour of the watershed. Support staff coordinates meeting locations and agendas, provides legal advertising of meetings in the Florida Administrative Weekly, provides audio recording for all meetings, and is responsible for all e-mail correspondence to council members. All Council minutes, records, correspondence, and other documents are retained in the offices of the SFWMD.

Strategy I-G: Maintain resource monitoring programs.

Task 1: Develop biological monitoring protocols.

As per Chapter 10 of *Restoration Plan for Northwest Fork of the Loxahatchee River,* a Northwest Fork Science Plan (NWFSP) will be developed based on scientific questions that need to be answered to manage restorative flows. In 2009, the SFWMD, LRECD and FDEP began meeting together to develop the NWFSP. The plan will include specific monitoring programs and special projects to adaptively manage restoration flows on a real-time basis and establish a database for retrospective and predictive analyses. The NWFSP will be reviewed and updated on a five year basis and is scheduled to be released in 2010.

Task 2: Provide water quality and hydrologic monitoring.

The SFWMD and LRECD both perform water quality and other monitoring within the Loxahatchee Watershed. Water quality data can be accessed at LRECD"s website at http://www.loxahatcheeriver.org. For more information regarding ongoing monitoring efforts see Chapter 2, Water Quality in the Northwest Fork of the Loxahatchee River section.

Objective II: Enhance the hydrologic relationship between the National Wild and Scenic Northwest Fork of the Loxahatchee and the Loxahatchee Slough.

The Northwest Fork of the Loxahatchee River historically derived a substantial portion of its total flow from the Loxahatchee Slough. Construction of the SFWMD C-18 canal in 1958 diverted this flow away for the Northwest Fork to the Southwest Fork of the river, and significantly reduced groundwater levels in the Slough. As a result, prolonged reduced flows and resultant saltwater encroachment have generated undesirable changes in the biological community of the Northwest fork. Protection and restoration of biological components of the Northwest Fork requires the reconnection of the Loxahatchee Slough and river to provide historic flows, and

restoration of water levels within the Slough to provide adequate storage to sustain dry season flows down the river. An update to the following strategies and tasks is provided below.

Strategy II-A: Provide adequate baseflow from C-18 to the National Wild and Scenic Northwest Fork.

Task 1: Provide a minimum baseflow of 50 cfs to the Northwest Fork.

In April 2003, the SFWMD adopted a Minimum Flows and Levels Rule, Chapter 40E-8, Florida Administrative Code, with a minimum flow (MFL) of 35 cubic feet per second for the Northwest Fork of the Loxahatchee River. As required by legislation, a Recovery Strategy was incorporated into the MFL Rule, which included a commitment by the SFWMD to develop, in partnership with the FDEP, "a practical Restoration Plan and goal" for the Northwest Fork of the Loxahatchee River. As discussed in strategy I-B, the restoration plan was completed in 2006.

An exceedance of the MFL criteria occurs when:

1. Flows over Lainhart Dam decline below 35 cfs for more than 20 consecutive days; or
2. The average daily salinity concentration expressed as a 20-day rolling average exceeds two parts per thousand. The average daily salinity will be representative of mid-depth in the water column (average of salinities measured at 0.5 meters below the surface and 0.5 meters above the bottom) at river mile 9.2 (latitude 26.9839, longitude 80.1609).

Task 2: Evaluate the appropriateness of USGS 50 cfs minimum flow target and develop a new target as necessary.

A hydrologic evaluation of the riverine floodplain was performed during the development of the *Restoration Plan for the Northwest Fork of the Loxahatchee River*. Both controlled release and episodic field studies were performed and are discussed in Chapter 5 of the completed restoration plan.

Task 3: Define Loxahatchee Slough Hydrologic Restoration area.

The Loxahatchee Sough Natural Area is Palm Beach County"s largest natural area comprising a total of 12,836 acres. The property serves as the headwaters for the National Wild and Scenic Loxahatchee River. It lies south of Jupiter Farms and Palm Beach Country Estates, north of Northlake Blvd and west of Mirasol and PGA National.

Task 4: Acquire private lands necessary for restoration.

Since 2000, an additional 6,847 acres have been purchased by state and/or local agencies for restoration and enhancement purposes.

Palm Beach County ERM is currently in negotiations with Southpointe Palm LLC to acquire a 2.73-acre inholding within Cypress Creek Natural Area. ERM has also applied for a FCT grant

for $6.3 million for Cypress Creek Phase V, for the property known as Hatcher/Indiantown Jupiter Venture, which was acquired in 2008.

Task 5: Develop hydrologic restoration plan for Loxahatchee Slough (including NW Fork).

Included in the overall Draft Management Plan for the Loxahatchee Slough Natural Area (currently underway) is a section addressing Hydrological Restoration and Enhancement. One of the main goals of the management plan is to restore the hydroperiod at the Loxahatchee Slough Natural Area to a level that approaches the historic hydrograph as determined by Winchester (1989). Although the natural area reaches historic water levels during periods of heavy rains, the hydroperiod at this site has been reduced by excessive amounts of surface water leaving the site via internal and adjacent drainage ditches and canals. All of these ditches and canals empty into the C-18 Canal, which has a control elevation of 14.8 feet and drops as low as 12 feet during periods of low rainfall. Winchester‟s research has been used as the basis to determine proposed restoration targets for the natural area. The goal of natural area hydrological restoration is to achieve as much as possible target hydrograph water levels of approximately 17.5 feet during the rainy season months of July to October, with a gradual decline to a low of 15.5 feet at the end of the dry season in May, with a quick recovery of high water levels beginning in June when the rainy season commences.

In 2002, the Northern Palm Beach County Comprehensive Water Management Plan was developed that envisioned moving Lake Okeechobee water into the WCA and then north through the C-18 Canal and the natural area to provide additional water to utilities and the Loxahatchee River. As part of this regional conveyance system, the SFWMD constructed a control structure in 2004 on the east leg of the C-18 Canal, just below its juncture with the west leg. The structure would raise water levels in the C-18 Canal, and increase storage in the adjacent Loxahatchee Slough, while making the existing project culverts and riser boards unnecessary. Operation of the structure was delayed due to concerns regarding the PGA Blvd. roadbed and opposition from SIRWCD, NPBCID and John Bills. In 2005, the SFWMD bought a flowage and conservation easement over the John Bills property. Numerous studies and modeling were conducted to demonstrate that operating the G-160 structure would not flood neighbors. The G-160 began operating on August 10, 2005 under an interim schedule as follows: the dry season (Nov. 1 to May 31) operating schedule would maintain interim headwater stage of 15.5 ft. NGVD and the wet season (June 1 to Oct. 31) operating schedule would maintain an interim optimum headwater stage of 15.0 ft. NGVD in the C-18 Canal due to concerns from SIRWMD, NPBCID and PGA National. In 2009 FDEP mandated that SFWMD comply with its permit conditions for the G-160 to incrementally raise water levels in the C-18 Canal and the Loxahatchee Slough. The dry season stage remained at 15.5 ft NGVD while the wet season stage was raised to 16.5 ft NGVD on June 1, 2009 (practically operating between 16.3 and 16.7 ft NGVD). It is anticipated that the SFWMD will raise the controlling elevation of the G-160 in 2010 if there are no problems with the 16.5 ft level in 2009.

The SFWMD replaced the three project culverts on the west side north of the C-18 Canal north of PGA Boulevard in 1997, and the new culverts were boarded up to approximately 17 feet.

The project culverts on the east side of the C-18 Canal were replaced in the mid-2000s. This goal had been somewhat frustrated by riser boards either not being installed or disappearing after installation, but the risers are now boarded up to 16 feet. The northwestern tract project culverts were replaced in 2006, and the riser boards have remained in place. The project culverts south of the G-160 and north of PGA Blvd. in the Loxahatchee Slough are currently planned to be set at 16.0 ft NGVD.

The SFWMD began replacing the group of three project culverts that drained the Gentle Ben triangle in 2007, which allowed ERM to raise water levels in that area to 17 feet when the work was completed in 2008. The only remaining original project culverts are the four culverts on the west leg of the C-18 Canal where the main north-south internal drainage canal in the western portion connects to the canal. These culverts cannot be boarded up since they have rusted-through holes that bypass the risers. Since the holes create an uncontrolled connection to the west leg of the C-18 Canal, the water level of the drainage canal and connected wetlands are quickly drawn down to the control elevation of the C-18 Canal at14.8 feet. The County is working with the SFWMD to remove the four rusted-out culverts and replace them with no more than one new culvert with a functional riser.

The next step in hydrological restoration is to fill in and/or plug the internal drainage ditch systems. In the early 2000s, the County began the internal ditch restoration process by designating the County-owned eastern portions of the Gentle Ben triangle as the South Loxahatchee Slough regional off-site mitigation area. The focus of the restoration work funded by wetland mitigation funds was to remove heavy concentrations of melaleuca and other exotics and fill in the old MacArthur dredged canals. The exotic-dominated dredge spoil fans from the big east-west MacArthur canal were scraped down and pushed back into the canal in 2006 and 2007. Spoil ridges were also pushed back into the finger shell pits near the C-18 Canal.

In 2007, the county obtained funding from the Natural Resource Conservation Service to restore portions of the former agricultural areas in the western portion of the natural area to their historic wetland habitats. The exotic vegetation on the internal canals lying east of the main north-south canal was removed and mulched in 2008, and the spoil banks lining these canals are scheduled to be scraped down and used to fill in the canals in 2010. Additional perimeter and internal drainage ditches in the farmed areas are also scheduled for exotic removal and filling. SFWMD has already plugged many of the drainage ditches in the farmed areas of Sandhill Crane tract west of the main north-south internal canal, leaving this canal as the main barrier to restoring historic water flow pattern in the western portions of the natural area.

Additional improvements that have been made move water northward into the natural area and the C-18 Canal as part of the regional water conveyance system. The old Bee Line Highway bridge/culvert in the center of the Slough was replaced with an elevated bridge in 2006 as part of a road upgrade project. The elevated bridge spans allow better water and canoe movement between the northern portion of the WCA and the natural area. Three large culverts were placed under Northlake Boulevard in 2007 as part of the G-161 structure. This structure improves the water flow under the road from the main portion of the WCA to the beginning of

the C-18 Canal. A bridge across Northlake Boulevard that would increase water flows under this road from the southern to the northern portions of the WCA is under consideration.

The natural area"s role in the regional conveyance system is as a pass-through conduit only. The natural area is not intended to be either a water storage or water supply area. Water will be discharged from the natural area only when it is above the target hydrograph for that time of the year. When discharges from the natural area are needed to supply baseflow to the Loxahatchee River, these discharges will be balanced with an equivalent amount of water entering the natural area from the regional conveyance system. The natural area itself is expected to benefit little from the regional conveyance system as the natural area can meet nearly all of its hydrological needs through normal rainfall.

Task 6: Modify S-46 Operation Schedule.

No persistent changes to the S-46 operation schedule have been made since 2000. The SFWMD has continued to divert as much water to the Northwest Fork of the Loxahatchee River using the G-92 structure while not impacting drainage within Jupiter Farms. The structure has, however, experienced upwelling on the downstream side of the structure for the past several years. The most occurrences were documented in 2003 and 2006. Additionally, the S-46 has the highest head differential across the structure among all of the coastal structures within the SFWMD boundaries. The SFWMD has implemented a feasibility study on the S-46 to review several options for repair. A stakeholder meeting was held on November 16, 2009 at the Jupiter Community Center. The feasibility study is nearly complete and one potential recommendation is to repair the rip rap protection downstream of the sill of the S-46 and to install a downstream weir.

Strategy II-B: Maintain and enhance hydrology between the Loxahatchee Slough and National Wild and Scenic Northwest Fork.

Task 1: Improve Jupiter Farms Water Management System.

The Jupiter Farms water management system improvements were completed in 2004. Five sheet pile weirs, each with an operable sluice gate, were constructed to retain stormwater runoff within the management system to improve the quality of water reaching the Northwest Fork of the Loxahatchee River. These weirs are located at the east ends of Canals 2, 3, 4 and 5 in the C-14 Canal north of its intersection with the Canal 6. The weirs were constructed with stone rubble riprap upstream and downstream of the structure for both erosion control and aeration of discharges over the weir. The operable gates are equipped with radio telemetry for remote sensing of water surface elevations and gate operations. The gates also have electric motor operations and the provision for manual operation should the electric service be disabled during a storm event. The total project cost was $1,300,000.

Task 2: Develop and implement hydrologic restoration plan for the Reese Gildan properties.

The Palm Beach County Parks and Recreation Department has worked in partnership with South Florida Water Management District staff to develop and implement a hydrologic restoration plan for the Reese and Gildan properties that are managed by the County as part of Riverbend Park. Over the past ten years historic sheet flow patterns have been restored through the permitting and installation of a series of 4 weirs that help naturally cleanse, store and convey rain water and stormwater discharges water from the C-18 Canal as it moves north across this 400 plus acre property to where it joins the eastern slough at Indiantown Road and then flows into the Northwest Fork of the river. This restoration project has helped recreate and/or rehydrate over 115 acres of open water bodies, oxbows, marshes, sloughs and wetlands. Outfalls form the C-18 canal are controlled and operated by the SFWMD and the weirs within the park by the P&RD.

Objective III: Insure that land use activities within Loxahatchee drainage basins are conducive to maintaining the values of the National Wild and Scenic River.

The effective exercise of local government land use regulatory authority is an integral component of the river management program in two respects. First, in order for national designation to have been approved, the management plan was required to demonstrate that alterations which would degrade the natural or scenic values of the designated river corridor area would be prevented. In the short term, local land use regulations are the best management tool available for directing potentially harmful land alteration activities away from the river corridor area. Until such time as other rules to implement the management programs outlined in this plan might be promulgated by the FDEP and/or the SFWMD, local governments bear the responsibility for preventing development that would impair the natural or scenic qualities of the river.

Land use controls also play a critical role in the overall management of the river's drainage system as a hydrologic unit. Land use changes in the basin inevitably affect the quantity and quality of water in the river. Since local land use controls help direct the timing, location and character of land development activities in the basin, the application and proper coordination of such controls are of continuing importance to the long term management of the river.

During consideration of the National Wild and Scenic River designation, it was recognized that local government land use decisions for properties surrounding the river corridor could impact the attributes of the river system. Local governments (which supported the river designation), were expected to review their respective comprehensive plans to ensure consistency with river corridor management objectives. Local governments were to maintain currently allowed zoning densities in the river corridor and in other areas with a potential to generate adverse impacts upon the river area. Requests for increases in zoning density anywhere in the area should undergo careful and rigorous review. Increases should only be granted when it is shown that

such actions will not result in a reduction of water storage capacity or deleterious effects on the natural or scenic qualities of the river or adjoining upland corridor. Additionally, local governments and agencies are to ensure that stormwater management practices do not adversely affect the river corridor.

Public improvements such as drainage, utility and road facilities have a profound influence on the location, timing and extent of land development in the drainage basin. The provision of these facilities should be carefully managed to ensure that development takes place in an orderly, planned manner, and that development does not result in negative environmental impacts on the resource values of the river or the river corridor area. When new improvements such as water and sewer lines are necessary, they should be located and sized to prevent incremental connections that could result in additional demand for improvements. New major road construction, because of its potential for further fragmenting natural systems, disturbing drainage patterns, and encouraging "leapfrog" development, particularly should be avoided. When no alternative routes are available, however, the location and construction of new utility or road rights-of-way should be done in a manner that minimizes adverse effects on resource values in the river corridor.

If a land-use change is granted, every effort should be made to reduce the degradation of resources of the adjacent Jonathan Dickinson State Park and the Loxahatchee River National Wild and Scenic River. Potential impacts of newly proposed developments can include visual encroachment, noise pollution, edge effects, exotic pest plant invasions, stray dog or cat problems, interference with prescribed burns, and hydrological impacts. Whenever possible, a buffer on private lands should be established to minimize any impacts caused by the proposed development plan. This would be in keeping with the 660 foot buffer strip that Palm Beach County enacted for development adjacent to the Park and Loxahatchee River National Wild and Scenic River corridor in the land use element of their Comprehensive Plan.

Strategy III-A: Review/amend local government comprehensive plans to ensure consistency with corridor management goals.

Comprehensive plans are the expression of a local government"s authority to designate the type, location, and intensity of development in the Loxahatchee River watershed. Any stakeholder in the Loxahatchee watershed may petition a local government to affect comprehensive plan policies, or the use of land, in support of the River"s protection. Opportunities to amend comprehensive plans exist on an annual twice-per-year cycle under Florida"s growth management statutes. Proposed amendments to local comprehensive plans must follow established procedures for public participation and adoption. DCA reviews plan amendments with input from state and regional resource protection agencies, including DEP and the SFWMD.

Local governments are also required to periodically assess the need for improvements to their comprehensive plans. The first step in the process is completion of an Evaluation and Appraisal Report (EAR), the result of which is the identification of recommendations for changes to the

local plan. As of this writing, the local governments in Palm Beach County are beginning this process. Palm Beach County is leading the way by holding public workshops to identify county-wide issues as well as the suitability of land uses in the unincorporated area. Palm Beach County's jurisdiction includes portions of the C-18 basin, including the Jupiter Farms subdivision, Riverbend Park, and the Loxahatchee Slough. Palm Beach County will take the lead in revising as necessary, policies affecting its land use planning, stormwater planning, water quality protection, land acquisition, and other management activities within its portion of the Loxahatchee River watershed. Recommendations for changes to Palm Beach County's Comprehensive Plan, which may affect adjoining local governments in the Loxahatchee watershed, will be vetted through a coordinated review known as Intergovernmental Plan Amendment Review Committee (IPARC). Jupiter, Tequesta and Palm Beach Gardens will follow Palm Beach County in completing their EARs within the next two years. Following adoption of their EARs, each local government will have 18 months to draft and publicly workshop the changes to their comprehensive plan. EAR-based amendments to local comprehensive plans are submitted to DCA for review, with input from state and regional resource-protection agencies.

Task 1: Review Palm Beach County Comprehensive Plan.

Opportunities to review amendments to the Palm Beach County Comprehensive Plan occur biannually. Opportunities to participate in the development of the Palm Beach County EAR will occur in advance of the October 2011 deadline. Public workshops are scheduled at this time. The EAR-based amendments will be proposed by April 2013. Palm Beach County's EAR-related Comprehensive Plan amendments will then go through the formal DCA review process.

Task 2: Review Martin County Comprehensive Plan.

Opportunities to review amendments to the Martin County Comprehensive Plan occur biannually. Opportunities to participate in the development of the Martin County EAR will occur in advance of the October 2015 deadline. The County's EAR-related Comprehensive Plan amendments are anticipated to be submitted for DCA review in April 2017.

Task 3: Review Town of Jupiter Comprehensive Plan.

Opportunities to review amendments to Jupiter's Comprehensive Plan occur biannually. Opportunities to participate in the development of the Town's EAR will occur in advance of the June 2013 deadline. The Town's EAR-related Comprehensive Plan amendments are anticipated to be submitted for DCA review in December 2014.

Task 4: Review Village of Tequesta Comprehensive Plan.

Opportunities to review amendments to Tequesta's Comprehensive Plan occur biannually. Opportunities to participate in the development of the Village's EAR will occur in advance of the March 2014 deadline. The Village's EAR-related Comprehensive Plan amendments are anticipated to be submitted for DCA review in August 2015.

Task 5: Review City of Palm Beach Gardens Comprehensive Plan.

Opportunities to review amendments to Palm Beach Garden"s Comprehensive Plan occur biannually. Opportunities to participate in the development of the City"s EAR will occur in advance of the December 2013 deadline. The City"s EAR-related Comprehensive Plan amendments are anticipated to be submitted for DCA review in June 2015.

Strategy III-B: Develop stormwater management plan for areas contributing to the National Wild and Scenic corridor.

Task 1: Develop a stormwater management plan.

In 1999 the *Stormwater Management Plan for the Wild and Scenic Northwest Fork of the Loxahatchee River* (Hazen and Sawyer, June 1999) was prepared for the Loxahatchee River Environmental Control District. The report provides an inventory of existing stormwater management systems which discharge to the National Wild and Scenic River; identifies major water quality and quantity problems associated with the discharges; and development of a management strategy for reducing existing and potential future problems associated with stormwater management. The recommended management strategy also provides for a mechanism to increase the duration of freshwater deliveries to the River while improving the timing of those deliveries and reducing the pollutant loading. The strategy includes structural and non-structural recommendations.

Task 2: Encourage local stormwater planning/implementation.

The Town of Jupiter (TOJ) created a Stormwater Utility in 1994 with a dedicated funding source to enhance stormwater runoff quality. The TOJ has been implementing many community stormwater system retrofits within the past 10 years in the watershed. In addition, a Surficial Aquifer Recharge Project includes construction of the water conveyance facilities for excess stormwater runoff that otherwise would be wasted to tide, to percolate into the ground water table and maintain normal surface water elevations in times of drought to the greatest extent possible. Operation of this system acts to minimize the risk of harm to the Loxahatchee River and surrounding freshwater ecosystem. LRPI has provided grant funds for most of these projects.

The construction of Flora Avenue (a 2 lane local road that connects Bridge Road to residential and commercial sites) was identified as a significant impact to the natural surface flow patterns in the area. Martin County designed and permitted a stormwater retrofit project for the Flora Avenue area with the most significant improvement being the construction of a 3.35 acre stormwater treatment pond that flows water into the North Fork of the Loxahatchee River watershed. Construction of the project was completed in November 2007. The pond was

designed to capture and treat water to regulatory standards in a 221-acre drainage basin. Initial work suggests that the system is working well removing 96% of Total Suspended Solids and 95% of Total Phosphorus.

In 2004, three small agricultural ditches that flow into the Loxahatchee River were filled on Jonathan Dickinson State Park between Indiantown Road and the Florida Turnpike. The ditches totaled over one half mile (3,121 feet) in length and had direct outfalls into the floodplain of the river along River Miles 13.9, 13.6, and 13.3. Indian River Lagoon License Plate funds were used to complete this project.

In 2006, two large canals "Hell"s Canal" and "1 Mile Ditch" were backfilled. "Hell"s Canal" was directly adjacent to I-95 and ran east into the Loxahatchee River just downstream of River Mile 11.5. The drainage for that area now runs north into the South Fork of Cypress Creek, meets with up with Cypress Creek proper, which then flows into the Northwest Fork of the Loxahatchee River just upstream of River Mile 10.3. This canal was about 10 feet deep and was about 0.42 miles long. "1 Mile Ditch" was also about 10 feet deep and was 1 mile long and drained uplands and seasonal wetlands directly into Kitching Creek about 1.2 miles upstream of where it flowed into the Northwest Fork of the Loxahatchee River. Both these projects allow for greater retention of water in over-drained upland and seasonal wetland areas and provide for a slower release of water into the Loxahatchee River. LRPI funds were used to complete this project.

Task 3: Promulgate basin management rules (as needed).

The discharge of stormwater within the State of Florida has been subject to regulation since the early 1980s to prevent pollution of Waters of the State and to protect the designated beneficial uses of surface waters. Currently, stormwater management is regulated at the State level by the Florida Department of Environmental Protection (FDEP), at the regional level by water management districts, and at the local level by local governments.

The goals for stormwater management within the State of Florida are outlined in Chapter 62-40 of the Florida Administrative Code (FAC), titled "Water Resource Implementation Rule." This rule establishes that stormwater design criteria adopted by FDEP and the water management districts shall achieve at least 80% reduction of the average annual load of pollutants that cause or contribute to violations of State Water Quality Standards. When the stormwater system discharges to an Outstanding Florida Water (OFW), the design and performance criteria increases to 95% reduction.

A wide range of stormwater design criteria have been implemented within the State of Florida to achieve these minimum stormwater treatment performance standards. However, recent research on the performance efficiency of current stormwater management systems indicates a high degree of variability in the pollutant removal effectiveness of commonly used systems. In addition, stormwater design criteria for the same type of stormwater management system vary widely throughout the State of Florida, which can impact the performance efficiency of stormwater management systems designed in one area compared to another.

To address growing concerns about over-enrichment of Florida"s surface waters, ground waters, and springs by nutrients, the Department and the Water Management Districts are developing a statewide stormwater treatment rule. This rule represents a significant step forward in the control of nutrient loadings from stormwater discharges. Rule Development workshops are scheduled throughout the State of Florida between March and April 2010. Rule adoption is scheduled for the summer of 2010.

Strategy III-C: Acquire and manage natural systems important to protection of the Northwest Fork.

Task 1: Acquire Pal Mar wetlands.

Approximately 60% of Pal Mar is currently in public ownership. Lands have been acquired through tax sale acquisitions and donations.

Task 2: Develop management plan for Pal Mar and Cypress Creek basin.

Ongoing environmental restoration within the Pal Mar/Cypress Creek complex includes Cypress Creek, Pal Mar East (Nine Gems) and Culpepper Ranch. Cypress Creek is a cooperative effort including Martin Co., Palm Beach Co. and the SFWMD. Interim management for Cypress Creek has been developed by Martin Co. and the SFWMD. Restoration of Pal Mar East and Culpepper Ranch is a cooperative effort with Martin Co. and the SFWMD. The remaining portions of the Pal Mar complex will be addressed in the NPB-CERP plan.

Objective IV: Facilitate public involvement in protecting the National Wild and Scenic river corridor, including both planning and implementation efforts.

The designation of the Northwest Fork of the Loxahatchee River as a component of the federal Wild and Scenic river system was the result of a local grass-roots effort. Throughout the designation and plan development process, local public involvement was invaluable. Effective implementation of this management plan requires a continuing local interest and participation. Public education relative to river issues and efforts can be directed toward both users on the river, and the local community. A progress update on the following strategies and tasks is provided below.

Strategy IV-A: Provide educational information to river users.

Task 1: Develop and distribute educational materials.

One of the major functions of the former FDEP Loxahatchee River Watershed Management Planning Committee was to develop brochures, boating guides, plan guided boat tours and

organize the Loxahatchee River Science Symposium. Since 2000 there have been four science symposiums (2001, 2004, 2006 and 2008) and the fifth symposium is in the planning phase for 2011. The two day science symposiums attract over 200 scientists, consultants, government representatives and the general public per event.

In 2001, through funding from the Florida Fish and Wildlife Conservation Commission, Environmental Education Grant Program, the *Understanding the Loxahatchee River Watershed* brochure was produced. This document has been distributed at numerous events through the past several years. A reprinting of this document is needed at this time.

On June 27, 2003 the Decision Makers Forum hosted panel discussions on *Everglades Restoration: Can it Save the Loxahatchee River?* Over 125 scientists, consultants, government representatives, legislative staff, and general public attended this event.

In 2005, Elam Stoltzfus, director and cinematographer, filmed a documentary on the river entitled *Our Signature: The Wild and Scenic Loxahatchee River.* The LRPI funded this project and provided the DVD"s free to public and private schools, public libraries and environmental centers throughout Martin and north Palm Beach counties. During this same timeframe, Clyde Butcher, nature photographer, was shooting pictures of the Loxahatchee River for a poster to help promote the film. Mr. Butcher signed free posters at the premiere viewing of the film on September 28, 2005.

In March 2006, Jupiter Inlet District (JID) and Florida Sea Grant produced 5000 copies of a waterproof boater"s guide entitled *Navigational, Historical and Environmental Perspective of Jupiter Inlet and the Loxahatchee River.* All copies have been distributed and JID is revising the guide for a reprint during the summer of 2010.

On Saturday, May 15, 2010, local environmental leaders, managers, politicians and supporters gathered along the banks of the Loxahatchee River at Jonathan Dickinson State Park at the site of the historic dedication plaque. This year marks the 25th anniversary of the Loxahatchee River's national "Wild & Scenic" designation. The Loxahatchee River was the first river in Florida to receive this national designation, and remains one of only two National Wild & Scenic rivers in the State. The day was officially deemed "Loxahatchee River Day," including proclamations by the State of Florida, Palm Beach County, Martin County, the Town of Jupiter, Jupiter Inlet District, the Loxahatchee River District and the Village of Tequesta. Special guests for the ceremony included U.S. Congressman Tom J. Rooney, representatives for Florida Senator Joe Negron, Florida Representative Carl J. Domino, and Florida Representative William D. Snyder. In further celebration, the Loxahatchee River District is creating a time capsule to mark the anniversary event. The capsule will include environmental and historical data about the river, along with a collection of personal perspectives and experiences by local residents.

Task 2: Develop Otter Creek Environmental Learning Center.

Although no facility within the watershed is named “Otter Creek Environmental Learning Center” there are other facilities that have been developed and are dedicated to Loxahatchee River

environmental education. LRECD has developed and does distribute environmental education materials to the public through The River Center and Busch Wildlife Sanctuary and through their collaborative efforts with Friends of the Loxahatchee River. The Loxahatchee River Environmental Center (River Center) opened August 23, 2008. It traces the Loxahatchee River from its headwaters in Palm Beach County through the cypress dominated floodplain in the Wild & Scenic segment, into the central embayment and finally out through Jupiter Inlet into the Atlantic Ocean and the Gulf Stream. Visitors can explore the habitats and organisms found within the watershed, modifications and problems associated with ever-increasing human population and development, and programs and projects underway to help preserve and restore this valuable and unique system.

Busch Wildlife Sanctuary, an independent not-for-profit organization located on the LRECD grounds, operates a wildlife refuge and educational facility offering animal exhibits, including American Bald eagles, black bears, deer, panthers, osprey, reptiles, as well as rehabilitation program and nature trails. The Sanctuary provides wildlife rescue and rehabilitation through comprehensive medical care to thousands of sick, injured and orphaned wild animals each year, with the ultimate goal of returning recovered patients to their natural habitats. Rescued animals too injured to be released into the wild are maintained in one-of-a-kind opportunity to learn about Florida"s wildlife and natural environments. More than just a "zoo" exhibiting caged animals, this unique refuge combines a community nature center with a wildlife rehabilitation hospital. Nature trails lead visitors through pine flatwoods, oak hammocks, and cypress wetlands. The River Center and Busch Wildlife Sanctuary are open free to the public and are offered to educate our community and create better stewards of our beautiful river.

Task 3: Develop Jonathan Dickinson State Park Visitor Center.

The Elsa Kimbell Environmental Education and Research Center opened on September 7, 2007. The center includes a 3,000 square foot exhibit hall, with a theater, and reception area that is open 7 days a week and 365 days a year. In addition to the exhibit hall the center features an 800 square foot classroom and a 650 square foot laboratory for use during special programs, such as field days for school children.

Strategy IV-B: Coordinate efforts to insure that local environmental education and public information programs include river information.

Task 1: Encourage and support local initiatives.

The Northeast Everglades Natural Area (NENA) is an amazing collection of public lands providing a wide range of nature-based outdoor recreational opportunities from bird watching in an area open only to foot traffic to hunting in an area accessible by off-road vehicles. NENA stretches from Southern Boulevard in Palm Beach County north to Bridge Road in Martin County and from the Atlantic Ocean west to Lake Okeechobee. NENA includes more than 165,000 acres of natural Florida lands and more than a dozen different activity and education

centers that provide information about the area"s natural and human history. Each place in NENA is a different size, from a just a few to thousands of acres, and several different governmental and non-governmental organizations manage the individual NENA places.

Since the completion of the NENA Master Plan in 2005, NENA began connecting natural attractions by a unique shared-use trail system to create a world class destination. The Jesup Trail, one of NENA"s major connector trails, is planned as an improved, alternative transportation route connecting Riverbend Park, Cypress Creek Natural Area, Cypress Creek Management Area, and Jonathan Dickinson State Park. Included in the design of this 6-mile connector will be such amenities as chickee shelters, hitching posts, bicycle racks, information kiosks and trailheads with parking facilities. This trail travels through distinctive ecosystems sustained by the Loxahatchee River and educational information about the River and its watershed will be displayed within the kiosks. Planning, design and project coordination for the trail is currently ongoing and includes respective land managing agencies and user groups.

Starting at the sandy shores of Hobe Sound Beach and ending at Lake Okeechobee at Port Mayaca, the 72-mile Ocean to Lake Trail is one of the newest spurs of the 1,400 mile Florida National Scenic Trail currently under development. Portions of the hiking-only trail are complete and open to the public in Jonathan Dickinson State Park, J.W. Corbett Wildlife Management Area, Dupuis Management Area, and Hungryland Slough and Loxahatchee Slough Natural Areas. Working in conjunction with many of the local, state, and federal agencies, volunteers from the Florida Trail Association are trail building and finalizing preferred routes within critical sections such as waterway and railroad crossings.

NENA works to connect different places not only by land, but also through areas only accessible by water. Several blueways, or water trails developed with launch points and points of interests for small boaters, are planned to encourage family recreation, environmental education and preservation of wildlife resources. Historically, the water of the Grassy Waters Preserve carried into the Loxahatchee River. One of the major designated blue-ways within NENA follows the historic flow that connects Grassy Waters Preserve and the Loxahatchee Slough Natural Area to the Loxahatchee River utilizing small water trails and the C-18 Canals.

Task 2: Provide river information to river users and local educational institutions.

The Loxahatchee River Preservation Initiative supports two boat trips on the river per year. At least one of the trips involves educating the current legislative delegation on river issues.

For the fiscal year 08-09, JDSP has provided educational outreach opportunities to Martin, Palm Beach and other county schools:

Martin County - A total of 1,578 total students, which includes five elementary and middle schools, all 7th grade students from Anderson and Murray Middle schools, one high school and various homeschooled groups.

Palm Beach County - A total of 497 total students, including nine elementary and middle schools, three high schools, the University of Florida and various homeschooled groups.

Other Counties from around the State - A total of 63 students from two schools.

Similarly, nearly 20,000 people were engaged and educated about the National Wild and Scenic Loxahatchee River at the River Center during the 2009 calendar year. Furthermore, LRECD and Friends of the Loxahatchee River produced several new brochures for public consumption that communicated relevant river data to various groups including river users as well as wastewater customers.

The Palm Beach County Parks and Recreation Department provides information brochures to park visitors who are both river users and those with the potential to be river users. More than 2,000 informational brochures are distributed annually at Riverbend Park and through special events open to the public. In addition, the canoe vendor inside the park provides river information and a map to canoe and kayak enthusiasts taking day trips. Park staff leading guided canoe programs, walking and bicycle tours and school programs also provided river information both orally and in brochure format to approximately 200 people in 2009.

Addendum 2

Chapter 83-358, Laws of Florida

CHAPTER 83-358, Laws of Florida

Committee Substitute for Senate bill No. 459

An act relating to the Loxahatchee River; creating the Loxahatchee River Wild and Scenic Designation and Preservation Act; providing legislative declarations and intent; providing definitions; designating a portion of the river as a wild and scenic river; providing for development of a management plan; providing for a coordinating council; authorizing the Governor to apply for inclusion of the designated portion of the river in the National Wild and Scenic Rivers System; providing for preservation of existing governmental authority; providing for rules; specifying regulatory and permitting authority; providing for enforcement; providing for injunctions; specifying violations and penalties; providing for repeal; providing an effective date.

Be It Enacted by the Legislature of the State of Florida.

Section 1. Short title.--Sections 1 through 12 of this act may be cited as the "Loxahatchee River Wild and Scenic Designation and Preservation Act."

Section 2. Legislative declaration.--The Legislature finds and declares that a certain segment of the Loxahatchee River in Palm Beach and Martin Counties possesses outstandingly remarkable ecological, fish and wildlife, and recreational values which are unique in the United States. These values give national significance to the river as one which should be permanently preserved and enhanced, not only for the citizens of the State of Florida, but for the citizens of the United States, of present and future generations. The permanent management and administration of the river, however, involves a complex interaction of national, state, regional, and local interests which require balancing, coordination of purpose and continuing participation by and access to the public, through its elected representatives. It is the intention of the Legislature to provide for the permanent preservation of the designated segment of the Loxahatchee River by way of development of a plan for permanent administration by agencies of the state and local government which will ensure the degree of protection necessary for inclusion of that segment of the river in the National Wild and Scenic Rivers System but retaining that degree of flexibility, responsiveness, and expertise which will accommodate all of the diverse interests involved in a manner best calculated to be in the public interest.

Section 3. Definitions.--As used in this act:

(1) "Activity" means the doing of any act or the failing to do any act, whether by a natural person or a corporation.

(2) "Board" means the governing board of the South Florida Water Management District.

(3) "Coordination Council" means the council created by s.5(3)(o).

(4) "Department" means the Division of Recreation and Parks of the Department of Natural Resources.

(5) "Division" means the Division of Recreation and Parks of the Department of Natural Resources.

(6) "Executive Board" means the Governor and Cabinet sitting as the head of the Department of Natural Resources.

(7) "Resource value" means any one or more of the specific scenic, recreational, geologic, fish and wildlife, historic, cultural, or ecological features identified by the National Park Service, Department of the Interior, in its Draft Wild and Scenic Rivers Study/Draft Environmental Impact Statement as being outstandingly remarkable or worthy of note.

(8) "River area" means that portion of the Northwest Fork of the Loxahatchee River from river mile 6 to river mile 13.5, together with such abutting uplands as determined in the permanent management plan to form the corridor having visual impact on the river user, and which may be necessary to maintain the natural and scenic appeal of the river.

Section 4. Designation of wild and scenic river.--The Northwest Fork of the Loxahatchee River between river mile 6 and river mile 13.5 is hereby designated as a wild and scenic river for the purposes of this act and subject to all of the provisions of this act. Such designated portion is more particularly described as that portion of the Northwest Fork downstream of the southern boundary of Riverbend County Park located in Palm Beach County and upstream of an east-west line passing through a point where the southern boundary of Jonathan Dickinson State Park intersects the eastern shoreline of the river.

Section 5. Development of management plan.--

(1) The department and the South Florida Water Management District shall jointly develop a proposed management plan for the designated segment of the Loxahatchee River, which management plan, subject to and consistent with the provisions of this act, will be designed to qualify the designated segment of the river for inclusion in the national Wild and Scenic rivers System.

(2) The development of the proposed management plan shall include participation by the National Park Service, by all appropriate state agencies, by all appropriate or interested local governments, including but not limited to Palm Beach County, Martin County, the Jupiter Inlet District, the Town of Jupiter, the Loxahatchee River Environmental Control District, the South Indian River Water Control District, and the Northern Palm Beach County Water Control District, the Palm Beach County Farm Bureau, and by any others deemed advisable by the department or board. To the extent not inconsistent with the provisions of this act, the plan shall include such conditions as the United State Secretary of the Interior may require.

(3) The proposed management plan shall include provision for:

(a) Permanent protection and enhancement of the ecological, fish and wildlife, and recreational values identified by the National Park Service in its draft study of the river and for which the river was chosen for inclusion in the system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of those values; primary emphasis being given to protecting esthetic, scenic, historic, archaeologic, and scientific features;

(b) Continuation of land uses and developments on private lands within the river area which are in existence on the effective date of this act which are not incompatible with the purposes of designation;

(c) Periodic studies to determine the quantity and mixture of recreation and other public uses which can be permitted without adverse impact on the resource values of the river area;

(d) Regulation and distribution of public access where necessary to protect and enhance the resource values of the river area;

(e) Basic facilities to absorb user impact on the river area, including necessary toilet refuse containers, but located in order to minimize their intrusive impact;

(f) Location of major facilities such as developed campgrounds, visitor centers, and administrative headquarters outside the river area;

(g) Restriction of motorized travel by land vehicle or boat where necessary to protect the resource values in the river area;

(h) Agricultural and forestry practices similar in nature and intensity or less intensive than those present in the river area on the effective date of this act;

(i) Limitation of resource management practices to those necessary for protection, conservation, rehabilitation, or enhancement of river area resource values;

(j) Maintenance of existing water quality;

(k) Whenever alternative routes are unavailable, location and construction of new public utility or road, rights-of-way in a way which minimizes adverse effects on scenic, recreational, fish and wildlife, and other resource values in the river area;

(l) Continuance of existing drainage and water management practices, unless such existing practices will degrade or diminish existing water quality or existing practices will degrade or diminish existing water quality or existing resource values in the river area, and allowances of new water resource management practices which will not have a substantial adverse impact on resource values in the river area;

(m) Review and regulation of all activities conducted or proposed to be conducted which will or may have a substantial adverse impact on any of the resource values in the river area as provided n this act;

(n) Continuation of activities or developments below or above the designated segment which will not invade the river area or substantially diminish the scenic, recreational, and fish and wildlife resource values present in the river area on the effective date of this act; and

(o) A permanent management coordinating council composed of one representative from each of the participants provided for in subsection (2). The coordinating council shall review and make recommendations, in the first instance, on all applications for permits required by this act, as well as all proposals for amendments or modifications to the permanent management plan, and render its nonbinding advisory opinion to the board and the department. Each participant shall appoint one member to the coordinating council. The coordinating council shall elect a chairman, vice chairman, and secretary to serve for a term of one year. The coordinating council shall adopt bylaws to provide for such other officers as it may deem necessary, election of officers, removal of officers for just cause, meetings, quorum, procedures for the conduct of its business, and such other matters as the membership may deem advisable in the conduct of its business. Such professional staff as the coordinating council may require shall be provided by the South Florida Water Management District.

(4) To the extent not inconsistent with this act, the proposed management plan may also include any other provisions deemed by the department and the board to be necessary or advisable for the permanent protection of the river as a component of the National Wild and Scenic Rivers System.

Section 6. Authority for application for inclusion in National Wild and Scenic Rivers System.--Upon completion of the development of a proposed management plan, the executive director of the department shall forward the proposed management plan to the executive board. After the executive board has received, reviewed and accepted a proposed management plan, the Governor may apply to the United States Secretary of the Interior for inclusion of the designated segment of the Loxahatchee River into the National Wild and Scenic Rivers System.

Section 7. Preservation of existing governmental authority.--

(1) Nothing contained in this act shall operate to divest any agency, water management district, municipality, county, or special district of any authority or jurisdiction in existence on the effective date of this act.

(2) Construction and maintenance of improvements at the Jupiter Inlet and in the Loxahatchee River downstream from the designator segment for purposes of navigation, waterway flushing, or upland drainage, including creation or preservation of channels, maintenance dredging, jetty improvements, riprapping, construction of groins and similar improvements, and removal of sand or dead oyster shall bare when deemed to have a potential for substantial adverse impact on the resource values of the river area shall be undertaken using techniques which minimize adverse effects on scenic, recreational, fish and wildlife and other values of the river area.

Section 8. Rulemaking authority.--After approval by the Secretary of the Interior of an application by the Governor under this act for inclusion of the Loxahatchee River in the National Wild and Scenic Rivers System, the board and the department shall each have full authority under their separate jurisdictions as provided in s.9 to adopt rules deemed necessary for the discharge of the respective duties of each as provided herein, including the adoption of the proposed management plan as the permanent management plan, and including the power to adopt rules modifying or amending the management plan in accordance with the provisions of this act and rules providing for permanent management of the designated segment as a component of the National Wild and Scenic Rivers System.

Section 9. Separation of regulatory authority.--

(1) The department shall have full and exclusive authority to adopt rules concerning and to regulate activities within the river area having a direct and substantial adverse effect on any resource value within the river area.

(2) The board shall have full and exclusive authority to adopt rules concerning and to regulate activities outside the river area having substantial adverse impact on resource values within the river area.

(3) The department and the board shall coordinate all activities related to rule adoption and enforcement in order to avoid to the maximum extent possible any conflicts or duplication arising therefrom.

Section 10. Permitting authority.--

(1) No person or entity shall conduct any activity or do anything which will or may have an adverse impact on any resource value in the river area without first having received a permit from the board or the department, as appropriate.

(2) Any applicant for a permit shall file an application for a permit with the board or the department, whichever has regulatory authority, upon such forms and in such manner as the board or the department shall by rule require. The board and the department may require, with or in addition to such applications, the furnishing of any information deemed necessary or desirable for full and complete consideration of all factors relevant to informed decisions on the applications.

(3) A permit may be granted only after a finding by the board or the department, whichever has regulatory authority, that the activity for which a permit has been requested will not have a substantial adverse impact on resource values in the river area.

(4) the board and the department may adopt an application fee schedule providing for payment of reasonable fees to defray the cost of processing applications.

(5) the provisions of Chapter 120, Florida Statutes, shall apply to the board and to the department, but not to the coordinating council, in carrying out the functions and duties prescribed for each by this act.

Section 11. Enforcement.--

(1) Officers of the division shall have full authority to enforce any rule adopted under this act with the same police powers given them by law to enforce the rules of state parks.

(2) The board shall have full power to enforce this act or any rule adopted under this act by action for injunctive relief or by any other method available for enforcement of rules adopted under Chapter 373.

Section 12. Penalties.--Violation of any rule adopted under this act constitutes a misdemeanor of the second degree, punishable as provided in s.775.082 or s.775.083, Florida Statues. Continuing violation after notice constitutes a separate violation for each day so continued.

Section 13. This act is repealed on a date two years after the effective date of this act, unless the portion of the Loxahatchee River designated by this act as a wild and scenic river is included in the National Wild and Scenic Rivers System on or before that date.

Section 14. This act shall take effect upon becoming a law.

Approved by the Governor June 24, 1983.

Filed in Office Secretary of State June 24, 1983.

Addendum 3

Resolution by Florida Cabinet - January 11, 1983

RESOLUTION

WHEREAS the Governor and Cabinet sitting as Head of the Department of Natural Resources have considered a Loxahatchee River Wild and Scenic Rivers Study and draft Environmental Impact Statement prepared by the United States Department of the Interior; and

WHEREAS the Department of the Interior has concluded that a 7.5-mile segment of the Loxahatchee River in Palm Beach and Martin Counties meets the criteria for inclusion in the National Wild and Scenic Rivers System; and

WHEREAS it would be in the best interest of the State to preserve and, to the maximum degree possible, enhance this exceptional resource:

NOW, THEREFORE, BE IT RESOLVED that the Governor and Cabinet sitting as Head of the State of Florida Department of Natural Resources do hereby endorse in concept the inclusion of the identified 7.5-mile segment of the Loxahatchee River in the National Wild and Scenic Rivers System, and do direct the Department of Natural Resources staff, in concert with affected state, federal, regional, and local agencies, to develop a management plan which satisfies federal requirements for including the Loxahatchee River in the National Wild and Scenic Rivers System. The principal goals of the plan will be to preserve and enhance the river's unique natural values, restore the river's historical hydrologic regime, and reverse deleterious saltwater intrusion into the river. The staff is further directed to submit the plan to the Board for final consideration.

Adopted this 11th day of January, 1983, by the Governor and the Cabinet of the State of Florida as Head of the State of Florida Department of Natural Resources.

Governor

Secretary of State

Attorney General

Comptroller

Treasurer

Commissioner of Agriculture

Commissioner of Education

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D.
DATE: JULY 10, 2020
SUBJECT: BUSCH WILDLIFE SANCTUARY LICENSE AGREEMENT

At the June 18, 2020 public meeting of the Loxahatchee River District (LRD) Governing Board, you discussed the Busch Wildlife Sanctuary License Agreement. Representatives of Busch Wildlife Sanctuary (BWS) were in attendance, including Phil DiComo (legal counsel); Amy Kight (Director), and Lisa Wynne (Assistant Director). Through the discussion, with input from BWS representatives and LRD Governing Board members, staff were directed to continue negotiations on the draft LRD-BWS License Agreement while we are awaiting a response to our recently submitted request for an Attorney General Opinion.

At your June meeting, I presented a summary of eleven unresolved items that are sticking points in the ongoing negotiations of the draft LRD-BWS License Agreement. One additional item was added to the list during the discussion. Recently, I met with Lisa Wynne, BWS Assistant Director, to review and discuss these twelve items. It was my impression that Lisa and I had a positive, collaborative discussion of these issues. Below, I provide my perspective on each of the issues.

Key discussion items:

1. Deal breaker issue for both sides: LRD Board identified waiver of jury trial as a critical issue (deal breaker); previously the BWS Board voted 5-1 to reject waiver of jury trial. It is my opinion if we cannot come to agreement on this point, there is no need to continue discussions. I have asked Lisa Wynne to seek further guidance from the BWS Board on this specific point.
2. License agreement – LRD is seeking an Attorney General Opinion that confirms LRD's ability to enter into a license agreement. This AG opinion may take some time to receive. In an effort to allow both parties to move forward in a mutually beneficial manner, it is my recommendation that we negotiate a license agreement that includes a section that spells out the consequences of an adverse AG opinion. Such a section would stipulate the terms and conditions upon which the agreement would be annulled or terminated in the event an adverse AG opinion is received.
3. Lease vs license agreement – Based upon AGO 86-90 we need to ensure that any LRD-BWS agreement is truly a license agreement (in substance) and not a lease. In this spirit, I suggested to Lisa that I intend on adding back a clause that would require LRD to pay for 'structural' maintenance to buildings constructed by LRD (e.g., Discovery Center, Wildlife Hospital).
4. Term (duration) of agreement: LRD Board consensus is to seek a 2 to 5-year term with renewals. I understand BWS's desire to have as long of a term as possible, and I indicated I would accept a draft agreement with a 5-year term and renewal provisions.
5. Uninterrupted and quiet enjoyment of the premises: I continue to be uncertain why this is a specific concern to BWS. I trust we can overcome this concern, but keep in mind LRD has significant

underground infrastructure within the "Premises", which LRD must continuously be able to access and maintain.

6. Terms and conditions of escrow for removal and restoration costs: The amount to be placed in escrow is not in dispute. I suggested to Lisa that the escrow agreement be added as an exhibit to the draft license agreement. I assume including the escrow agreement as an exhibit would satisfy LRD's desire to understand the terms and conditions of the escrow agreement.
7. Relocation at LRD's expense: Based on the clear concern articulated by the LRD Governing Board at the June 2020 meeting, I informed Lisa these sections would need to be thoroughly revised.
8. Termination for cause: Agreement revisions will need to address LRD Governing Board's stated concerns about reimbursement or relocation costs.
9. Public entities crime act: Agreement revisions will need to address LRD Governing Board's position that this is an important component to include in the agreement as a best practice.
10. LRD Board member on BWS Board to have complete and equal access to BWS records as any other BWS Board member: Agreement revisions will need to include a solution addressing BWS's desire for privacy and LRD Governing Board's desire for equal access to information for LRD Board member on BWS Board. This may be a challenge, but I trust we can find a solution.
11. Re-evaluate financial contributions by LRD to BWS: I will develop a summary of the ways LRD contributes to BWS, so both organizations can review and consider each individually.
12. Public Records Law Acknowledgement: I am pleased that this is no longer a point of contention. This will be removed from this list as we move forward.

I trust I have moved forward in accordance with the direction you provided last month. I look forward to receiving your input on each of these issues.

Item 6E
Sonoma Isles Irrigation Quality Water Agreement

This item was not ready for Board consideration at notebook time.

Loxahatchee River District

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D.
DATE: JULY 7, 2020
SUBJECT: ENVIRONMENTAL EDUCATION POLICY

Staff have been working to improve governance of the District. In addition to reviewing and updating existing policies, staff are working to identify and draft 'missing' policies. One such 'missing' policy is an Environmental Education Policy. The Loxahatchee River District has been providing formal environmental education programs since at least 1992 (e.g., Marine Science Center, SeaQuest Summer Camp, the River Center). While we invest a significant amount of time, money, and effort in providing environmental education to the public, we did not have a clear policy document.

On the following pages you will find a draft Environmental Education Policy. This policy continues our systematic effort to identify and define policies as "a principle of action adopted by the LRD Governing Board." My goal in drafting this policy was to have it solidly rooted in the powers and duties explicitly authorized in our enabling act. The following quote from Nathaniel Reed, then Secretary of the Department of the Interior, in a speech on November 7, 1973, provides notable context to our Enabling Act and the efforts leading up to the creation of the Loxahatchee River Environmental Control District:

> "*The Loxahatchee River Environmental Control District was born, legitimized, and baptized while I was Chairman of the Department of Pollution Control. It was founded to protect the Loxahatchee, the last wild, basically unspoiled river on the East coast.*" … "*A river needs friends and protectors. If the Loxahatchee is clean fifty years from now, it will be because of you; you will have accomplished your mission.*"

Given the recent concern raised by Attorney General Opinion 86-90, I requested attorney Terry Lewis, Shareholder at Lewis Longman Walker to review the draft Environmental Education Policy and assess if the draft policy represents over-reach relative to the authority expressly granted in our enabling act. Mr. Lewis has served, on behalf of his Firm, as General Counsel to the Florida Association of Special Districts for over 30 years, and he is very familiar with the legal concept that "*special districts possess only such powers and authority as have been expressly granted by law or necessarily implied therefrom in order to carry out an expressly granted power*." Mr. Lewis' opinion is provided after the draft policy.

On May 21, 2021 we will celebrate the 50th anniversary of the creation of the Loxahatchee River District. I am proud to reflect on Secretary Reed's quote from so long ago and recognize the significant, positive role this organization has played in the preservation of the Loxahatchee River. I am certain our environmental education efforts have been instrumental in our successes, and I trust the draft Environmental Education Policy will help us sharpen our focus as we look to the next 50 years of service to our community.

Therefore, I request your approval of the following motion:

> **"THAT THE GOVERNING BOARD approve the attached Environmental Education Policy and direct the Executive Director to implement this policy with an effective date of July 17, 2020."**

ENVIRONMENTAL EDUCATION POLICY

Purpose

To document the mission-critical linkage between environmental education and the powers explicitly enumerated in the District's Enabling Act.

Policy

It is the policy of the Loxahatchee River Environmental Control District (LRD) to establish and support a program of environmental education, for the general population within the Loxahatchee River watershed and specifically including students and personnel working with students. The primary purpose of these environmental education efforts is to foster a sense of environmental stewardship for the Loxahatchee River's diverse watershed through quality education programs, exhibits, and meaningful events. The primary focus of these environmental education efforts is the environmental context, impacts, and solutions related to sewage disposal, solid waste management, stormwater drainage, or water supply, all of which broadly affect the health of the Loxahatchee River watershed. The desired outcome from these environmental education programs are citizens with:

1. increased knowledge concerning the environment and environmental problems;
2. increased awareness of potential solutions to such problems; and
3. increased motivation to work towards practical solutions for such problems.

Provision of environmental education concordant with this policy (e.g., the stated purpose, focus, and desired outcome) is deemed an essential element of achieving the intent of the Legislature in creating the LRD, i.e., "cause minimum damage to the area's resources and environment and prevent additional environmental problems from being created, as well as providing solutions to existing problems".

Authority

The authority for this policy is derived from the LRD Enabling Act, which states:

> "*An act relating to the Loxahatchee River Environmental Control District, … providing powers and duties with regard to sewage disposal, solid waste management, discharge of storm drainage and water supply drainage, and water supply within the district; providing for the financing of the district ….*"
>
> "*Section 2. It is hereby declared to be the intent of the Legislature that the best interests of public health, safety, and welfare of the area within the boundaries of the Loxahatchee River Environmental Control District necessitates the formation of a separate local agency of government with powers designed to meet the particular needs of said area. It is further the intent of the Legislature that such needs be met in such a way as to cause minimum damage*

Authority: LRD Enabling Act; LRD Rule Chapter 31-16
Date Approved by Governing Board: to be determined

to the area's resources and environment and prevent additional environmental problems from being created, as well as providing solutions to existing problems. Maximum use of existing systems shall be made whenever feasible and consistent with the purpose of this act. It is also the intent of the Legislature that current and long-range planning shall be carried out so that required services are made available at the lowest possible cost as the characteristics of the area change."

"*Section 14. The provisions of this act shall be liberally construed to effect its purposes.*"

Justification

Why conduct environmental education? Environmental education is a deliberate approach to the protection of the environment and the improvement of people's quality of life by identifying, developing, and strengthening efforts that are responsive, locally relevant, and aimed at understanding and improving environmental degradation and impairments for the benefit of present and future generations. Environmental education includes raising public awareness because a more aware citizenry is better able to assess and address threats to public health, safety, and welfare. There are few opportunities or approaches to address continuously evolving, water-related issues that are more cost-effective than successful environmental education programs. Thus, this policy is in direct response to the Legislature's stated intent, "*It is also the intent of the Legislature that current and long-range planning shall be carried out so that required services are made available at the lowest possible cost as the characteristics of the area change.*"

In a seminal work from 1969 (two years before LRD was created), William B. Stapp defined environmental education (Stapp, et al., 1969) as "*Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution* [emphasis added]." A knowledgeable, aware, and motivated citizenry is critical in any efforts LRD might pursue to improve the sustainability of our existing systems and plan for needed future systems, because "*Developing and implementing solutions to* [environmental] *challenges requires an environmentally literate populace that has the skills to understand, analyze, think critically about, and address existing and future environmental issues*" (ELTF, 2015).

Definitions

List definitions necessary to understand the policy statement (section above).

A. Drainage: the natural or artificial removal of surface water or groundwater from an area.
B. Ecosystem: an ecological unit in which the biological, physical, and chemical components of the environment interact.
C. Environment: the surroundings of an organism, including the plants, animals, and microbes with which it interacts.
D. Environmental Education: the process by which individuals develop a deeper knowledge of the environment, awareness of effective solutions, and increased motivation to implement solutions.
E. Environmental Stewardship: means the responsible use and protection of the natural environment through conservation and sustainable practices.
F. I. Q. Water: also known as 'reclaimed water' means water that primarily originated from a domestic wastewater treatment facility and has received at least secondary treatment and basic disinfection and is intended to be reused, e.g., to meet landscape irrigation needs.
G. Solid waste: means any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, resulting from industrial, commercial, domestic, and agricultural operations, and from community activities.
H. Stormwater: means rainwater or melted snow that runs off streets, lawns, and other sites.
I. Surface Water: means water upon the surface of the earth.

J. Wastewater: also known as sewage, means water containing wastes from households, commercial facilities, and industrial operations; it may be mixed with surface water, stormwater, or groundwater that infiltrated the collection system.
K. Watershed: the area drained by a given waterbody.
L. Water supply: a source, means, or process of supplying water as for a community.

Relevant Procedures

The following procedures guide staff in the appropriate implementation of this policy:

A. TBD

Relevant Policies

The following policies may relate to this policy:

A. TBD

Policy Questions

Questions regarding this policy should be directed to the author(s) listed above.

Citations

ELTF. 2015. California State Superintendent of Public Instruction Tom Torlakson's statewide Environmental Literacy Task Force. A Blueprint for Environmental Literacy: Educating Every Student In, About, and For the Environment. Retrieved from https://www.cde.ca.gov/pd/ca/sc/documents/environliteracyblueprint.pdf

Stapp, W. B. et al. 1969. The Concept of Environmental Education. The Journal of Environmental Education 1(1):30-31.

Albrey Arrington

From: Terry Lewis <tlewis@llw-law.com>
Sent: Wednesday, July 8, 2020 4:32 PM
To: Albrey Arrington
Cc: Michelle Diffenderfer
Subject: Special District Authority to implement Education Programs

Albery:

I have now reviewed the following documents provided by your office:

1. The Public Education publication.
2. Attorney General Opinion 86-90 (AGO 86-90).
3. The draft Proposed Environmental Education Policy for the Loxahatchee River District.
4. Chapter 2002-358, Laws of Florida.

My comments and opinion are that while, as stated in the Pioneer Boat Line Supreme Court opinion in 1919, Florida law governing special districts is clear that a special district has only those powers granted by statute or necessarily implied to exercise the statutory grant of authority, I am of the opinion that the Loxahatchee River Environmental Control District (the "District") may engage in environmental education program programs as an integral piece of implementation of its statutory authority. My conclusion at this point is based on the following:

1. Section 2 of Chapter 2002-358, Laws of Florida has 2 provisions that support for environmental education as a District function. The section expresses the legislative intent that it is in the best interests of "public health, safety and welfare"… of the area within District boundaries for a separate government be created to meet the particular needs of the District area. The statute later specifies those needs as implementation of comprehensive potable water and wastewater systems, stormwater management and solid waste collection and disposal. From the plain meaning of the quoted section, the District, once created, may do what is necessarily implied to implement those powers. However Sectio2 also states "It is further the intent of the Legislature that such needs be met in such a way as to cause minimum damage to the area's resources and environment and prevent additional problems from being created, as well as providing solutions to existing problems." So, in addition to a broad grant of authority to engage in environmental programs to protect the Loxahatchee River, The new agency was empowered to prevent additional environmental programs. This language was written in 1971 at the birth of the national environmental movement. Florida was booming and the State had no real environmental protection statutes. The District statute was an early harbinger of what was to come at the national and state level in the next 5 years after 1971. My common sense conclusion is that the environmental impacts to sensitive natural areas could not be successfully prevented without educational programs to demonstrate what needed to be accomplished.

2. Section 14 of Chapter 2002-358 also states "The provisions of this act shall be liberally constructed to effect its purposes.". Statutes may be construed either liberally (such as this act) or strictly construed. If a statute is strictly construed by a court, the court will not look beyond the four corners of the document for implied authority If a clear grant of authority can's be found. then If a statute is liberally construed, then a presumption of a questioned authority should be granted if the activity relates to another specific authority. Again, my conclusion is that environmental education programs are a fundamental tool in implementation of the District's statutory mandate to engage in an array of environmental protection and prevention programs.

3. As to AGO 86-90 concluding the District did not have the authority to sell surplus property to a private, not-for-profit entity, the opinion relies on a statutory section of the District's special act that specifically states that

surplus property could only be sold to other governments. So, I don't think has any precedential value to the question of whether the District can engage in environmental education programs.

4. Finally, in reviewing the proposed policy, my suggestion would be to add something like this to # 1 on page 1. "increased knowledge concerning the environment and environmental problems associated with protecting a safe potable water supply, providing efficient high quality treatment and disposal of waste water, area-wide stormwater management and solid waste collection and disposal." I know this is wordy but the intention is to tie educational programs back to the specific powers granted in Chapter2002-358.

If you have any questions, please let me know. Also, With your permission, I would like to have one of our associates spend some time providing me with some case law examples of necessarily implied powers if you don't mind. I haven't had time to do that research but would like to provide you with that also.

Terry

Terry E. Lewis | Shareholder
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vCard | Website | Bio | join us online

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D.
DATE: JULY 9, 2020
SUBJECT: FISCAL YEAR 2020-2021 – BUDGET ASSUMPTIONS

Our budget season is upon us. Over the next three months, we will work through our budgeting process to develop, review, and approve our Fiscal Year 2021 budget, which goes into effect on October 1, 2020. We are proceeding with the following schedule:

- July: Provide and review budget matrix
- August: Provide and review draft budget by each account number
- September: Provide and review Final Draft Budget and approve Final Budget.

From a comprehensive perspective, the Draft Budget includes the following:

FY2020 ($)	FY2021 ($)	Change	Budget Category
$ 6,162,197	$ 6,342,150	2.9%	Admin., Legal, Accounting, Information Services, and Engineering
$ 9,581,824	$ 9,853,425	2.8%	System Operation and Maintenance
$ 15,744,021	*$ 16,195,575*	*2.9%*	*Operating Expense Sub-Total*
$ 13,579,107	$ 14,293,950	(5.3%)	Capital Improvements
$ 29,323,128	**$ 30,489,525**	**(4.0%)**	**Grand Total**

The draft budget includes a 2.9% increase of operating expenses, a 5.3% increase of capital improvements, and a total budgeted increase of 4.0%. Staff are still working on the budget, and we expect it to be tweaked over the next two months, but we believe the draft budget represents reasonable increases to maintain our overall operations. For context, the proposed operating expense budget represents a cumulative increase of 5.7% over our operating expense budget from 5 years ago (i.e., our FY2017 budget). Below I provide a general discussion of each budget category as outlined in the budget matrix. The budget matrix is provided on the last page of this memo.

Revenue – Total revenue is expected to decrease by 0.4% from $23,975,686 in FY2020 to $23,877,000 in FY2021. This decrease is driven by declining interest rates and the resulting decreased interest income projections. Operating revenue is projected to increase by 3.0% due primarily to new connections and anticipated rate increases.

Salary & Wages – An increase of $61,200 (1.0%) is shown in the matrix. This increase is driven by the following factors:

1. Number of Employees: Presently, the District has 82 full-time positions budgeted. This year I propose to add a new 2-person crew to our Collections and Transmission Department. Given our aging infrastructure, increasing attention to asset management and associated documentation it has become apparent that we cannot meet expectations with existing staffing.
2. Proposed Cost of Living Adjustment: The May consumer price index (CPI-U) was 0.1%; therefore, I have included a 0.1% cost of living adjustment (COLA) for our employees to maintain their purchasing power given the present rate of inflation. This value will be updated to the June CPI-U value when it is available later this month.

3. Proposed Merit Increase: I recommend the budget include 3.0% to be disbursed to employees exhibiting meritorious performance during their annual performance review.
4. This year we have revised how we budget for retirement expenses. Historically, we have included the employee's 4% under salary and wages, but this year we are moving that cost to the Retirement line (see below). It should be noted that if we were not making this adjustment, then our Salary & Wages line would be up by an additional $215,331 or a total increase of 4.7%.

Payroll Tax – An increase of $400 (0.1%) is budgeted. As part of our transition to Empower-Retirement, we identified an opportunity to reduce our payroll tax obligation relative to our retirement plan contributions. We implemented this savings on June 1, 2020.

Retirement – An increase of $149,900 (20.4%) is budgeted. This disproportionate increase is driven by a change in how we have budgeted our retirement expenses (see #4 above), but it is not as large as expected because of recent turnover of fully-vested employees.

Employee Health Insurance – An increase of $188,000 (14.4%) is budgeted for health insurance. This increase is driven by anticipated increases in health insurance costs, as communicated by the Gehring Group, and by the uncertainty of the types of coverage to be elected by employees as we fill our several open positions. We will continue to look at this budget category, and hope to decrease this line over the coming months if possible.

Workers' Compensation Insurance – A decrease of $13,400 (-13.4%) is budgeted based on the favorable renewal rate we received this year and the realization that our experience has continued to improve over the last two years.

General Insurance – An increase of $22,788 (6.3%) is budgeted for our Property, General Liability, Automobile Liability and Physical Damage, Workers Compensation, and Fiduciary Liability insurance policies. We are in the second year of a 2-year rate lock, so we will have to go out to the market for renewal this year. Our budget estimates are based on specific input from our insurance agent.

Supplies & Expenses – An increase of $5,060 (0.5%) is budgeted. Once again, I am quite pleased with the efforts of our staff to work efficiently and cost-effectively.

Utilities – An increase of $875 (0.1%) is budgeted. This minimal increase is possible because of the rate reduction we received recently.

Chemicals – A decrease of $73,000 (-16.2%) is budgeted. Kris and Jason have contributed to the chemical cost savings identified last year. We are excited about this anticipated savings.

Repair & Maintenance – An increase of $135,141 (7.5%) is budgeted. This increase is driven by specific work we expect to achieve in our wastewater collection and transmission system, IQ Water distribution system, and our biosolids treatment system. The proposed work is necessary to maintain the integrity of these systems.

Outside Services – A decrease of $25,410 (-1.3%) is projected.

Contingency – Our Operating Expense contingency remains unchanged.

Capital – a summary of the draft capital budget is presented below and includes a 5% increase from FY2020. As we discussed last year, we have revised how we are formatting the capital budget.

Capital Accounts	FY2020	FY2021	Increase
Contingency	$ 1,234,464	$1,299,450	5%
Land	$ 10,000	$ 10,000	0%
Buildings	$ 20,000	$ 275,000	1275%
Improvements Other than Buildings (Infrastructure)	$ 93,000	$ 330,000	255%
Machinery and Equipment	$ 1,804,880	$ 1,094,500	-39%
Vehicles	$ 252,263	$ 135,000	-46%
Construction in Progress	$ 1,040,000	$ 1,590,000	53%
Construction in Progress – Neighborhood Sewering	$ 3,270,000	$ 2,650,000	-19%
Construction in Progress – Lift Stations	$ 2,354,500	$ 2,375,000	1%
Construction in Progress – Gravity System	$ 1,545,000	$ 2,275,000	47%
Construction in Progress – Force Mains	$ 1,515,000	$ 895,000	-41%
Construction in Progress – LPSS	$ 40,000	$ 40,000	0%
Construction in Progress – Permanent Generators	$ 170,000	$ 200,000	18%
Construction in Progress – Telemetry	$ 250,000	$ 1,125,000	350%
Total	**$ 13,599,107**	**$ 14,293,950**	**5%**

Budgeted capital projects ≥$200,000 include:

Project description	Cost
Renovation and rehabilitation of two houses at BLM site	$ 275,000
Improvements to Vac-Con dump pit	$ 200,000
Neighborhood sewering for Rolling Hills	$ 1,450,000
Neighborhood sewering for BLM property	$ 800,000
Neighborhood sewering for 181st Street	$250,000
Fall protection retrofit at all lift stations	$ 1,250,000
Conversion of lift station #82 to a wet pit station	$750,000
Rehabilitation of lift stations	$ 250,000
Service lateral renewal or replacement (including lining)	$ 525,000
Gravity mains renewal or replacement (including lining)	$ 1,000,000
Cleaning and TV inspection of gravity systems	$ 550,000
Rehabilitation of Olympus Drive force main	$ 400,000
Evaluation and rehabilitation of 24-inch sub-aqueous force main	$ 475,000
Adding permanent generator at 2 critical lift stations	$ 200,000
Adding telemetry to 50% of lift stations without telemetry	$ 1,125,000
Headworks odor control replacement/rehab	$200,000
Evaluation of odor control in our wastewater treatment plant	$ 250,000
Design plant service water system replacement	$ 250,000
Improving operational flexibility of our IQ System	$ 550,000

Budgeting is an important process, and we look forward to receiving your input. I am pleased to present this draft budget to you. Staff have invested significant effort into developing this budget, and we are pleased with our progress to date. I look forward to discussing our budgeting efforts with you and answering any questions you may have.

Matrix Category	FY	Executive	Finance and Administration	Public Education	Information Services (IT, Lab, Customer Service)	Engineering	Construction	General Operations	Collection & Transmission	Treatment & Disposal	IQ Water System	Bio Solids	Total	$ Increase (Decrease)	% Increase (Decrease)
Salaries & Wages	2020	562,600.00	467,000.00	248,300.00	1,138,600.00	691,300.00	380,900.00	151,700.00	749,900.00	1,212,700.00	135,100.00	135,400.00	**$ 5,873,500.00**		
Salaries & Wages	2021	568,500.00	458,500.00	251,900.00	1,110,400.00	730,800.00	292,700.00	207,400.00	853,200.00	1,180,500.00	141,200.00	139,600.00	**$ 5,934,700.00**	**$ 61,200.00**	**1.04%**
Payroll Taxes	2020	36,200.00	34,500.00	15,400.00	84,200.00	50,800.00	28,400.00	11,200.00	55,900.00	90,400.00	10,000.00	10,300.00	**$ 427,300.00**		
Payroll Taxes	2021	36,200.00	33,900.00	15,600.00	81,700.00	54,000.00	21,800.00	13,800.00	62,600.00	87,100.00	10,400.00	10,600.00	**$ 427,700.00**	**$ 400.00**	**0.09%**
Retirement Contributions	2020	68,200.00	61,500.00	24,000.00	140,500.00	89,400.00	47,600.00	18,200.00	96,700.00	151,800.00	18,100.00	18,200.00	**$ 734,200.00**		
Retirement Contributions	2021	91,500.00	75,200.00	29,200.00	161,800.00	92,800.00	44,500.00	27,200.00	121,400.00	194,300.00	23,200.00	23,000.00	**$ 884,100.00**	**$ 149,900.00**	**20.42%**
Employee Health Insurance	2020	90,700.00	121,200.00	43,600.00	249,700.00	196,700.00	86,100.00	39,500.00	170,200.00	261,300.00	35,100.00	14,700.00	**$ 1,308,800.00**		
Employee Health Insurance	2021	97,500.00	117,100.00	46,900.00	289,400.00	247,700.00	64,000.00	49,900.00	230,400.00	300,400.00	37,800.00	15,700.00	**$ 1,496,800.00**	**$ 188,000.00**	**14.36%**
Workers' Compensation Insurance	2020	1,600.00	1,100.00	400.00	12,400.00	13,900.00	9,900.00	2,900.00	19,200.00	31,200.00	3,600.00	3,600.00	**$ 99,800.00**		
Workers' Compensation Insurance	2021	1,700.00	1,000.00	400.00	11,000.00	8,900.00	6,700.00	3,900.00	19,500.00	26,800.00	3,300.00	3,200.00	**$ 86,400.00**	**$ (13,400.00)**	**-13.43%**
General Insurance	2020	22,330.00	-	4,450.00	3,327.00	-	-	334,000.00	-	-	-	-	**$ 364,107.00**		
General Insurance	2021	23,445.00	-	4,450.00	3,500.00	-	-	355,500.00	-	-	-	-	**$ 386,895.00**	**$ 22,788.00**	**6.26%**
Supplies & Expenses	2020	90,515.00	38,490.00	112,960.00	106,000.00	70,150.00	52,500.00	118,625.00	113,800.00	402,110.00	19,600.00	7,925.00	**$ 1,132,675.00**		
Supplies & Expenses	2021	97,450.00	33,990.00	112,585.00	110,000.00	70,150.00	52,500.00	114,475.00	136,800.00	380,760.00	19,600.00	9,425.00	**$ 1,137,735.00**	**$ 5,060.00**	**0.45%**
Utilities	2020	48,600.00	-	25,000.00	65,000.00	-	-	49,400.00	340,850.00	543,000.00	323,000.00	-	**$ 1,394,850.00**		
Utilities	2021	51,400.00	-	25,500.00	65,000.00	-	-	54,200.00	326,125.00	558,000.00	315,500.00	-	**$ 1,395,725.00**	**$ 875.00**	**0.06%**
Chemicals	2020	-	-	-	-	-	-	-	215,000.00	2,000.00	80,000.00	155,000.00	**$ 452,000.00**		
Chemicals	2021	-	-	-	-	-	-	-	140,000.00	4,000.00	80,000.00	155,000.00	**$ 379,000.00**	**$ (73,000.00)**	**-16.15%**
Repair & Maintenance	2020	66,800.00	6,000.00	60,675.00	54,500.00	25,000.00	60,000.00	92,260.00	505,500.00	735,694.00	145,000.00	63,000.00	**$ 1,814,429.00**		
Repair & Maintenance	2021	75,655.00	5,400.00	65,075.00	55,500.00	25,000.00	60,000.00	102,340.00	660,000.00	623,600.00	172,000.00	105,000.00	**$ 1,949,570.00**	**$ 135,141.00**	**7.45%**
Outside Services	2020	324,100.00	103,500.00	14,000.00	252,000.00	-	-	37,500.00	35,000.00	57,610.00	221,500.00	872,150.00	**$ 1,917,360.00**		
Outside Services	2021	305,100.00	103,350.00	14,000.00	257,000.00	-	-	37,500.00	35,000.00	61,000.00	206,000.00	873,000.00	**$ 1,891,950.00**	**$ (25,410.00)**	**-1.33%**
Contingency	2020	225,000.00	-	-	-	-	-	-	-	-	-	-	**$ 225,000.00**		
Contingency	2021	225,000.00	-	-	-	-	-	-	-	-	-	-	**$ 225,000.00**	**$ -**	**0.00%**
Prior Year Total	**2020**	**$1,536,645.00**	**$833,290.00**	**$548,785.00**	**$2,106,227.00**	**$1,137,250.00**	**$665,400.00**	**$855,285.00**	**$2,302,050.00**	**$3,487,814.00**	**$991,000.00**	**$1,280,275.00**	**$15,744,021.00**		
Current Year Total	**2021**	**$1,573,450.00**	**$828,440.00**	**$565,610.00**	**$2,145,300.00**	**$1,229,350.00**	**$542,200.00**	**$966,215.00**	**$2,585,025.00**	**$3,416,460.00**	**$1,009,000.00**	**$1,334,525.00**	**$16,195,575.00**		**2.87%**
		-	-	-	-	-	-	-	-	-	-	-	-		
Dollar Increase/(Decrease)		**$36,805.00**	**($4,850.00)**	**$16,825.00**	**$39,073.00**	**$92,100.00**	**($123,200.00)**	**$110,930.00**	**$282,975.00**	**($71,354.00)**	**$18,000.00**	**$54,250.00**	**$451,554.00**		
Percent Increase/(Decrease)		**2.40%**	**-0.58%**	**3.07%**	**1.86%**	**8.10%**	**-18.52%**	**12.97%**	**12.29%**	**-2.05%**	**1.82%**	**4.24%**	**2.87%**		

LOXAHATCHEE RIVER DISTRICT

Neighborhood Sewering Schedule-Revised February 2020

Rank *	Area Description	# Lots	Activity	Original Target Date	Revised Target Start Date
14	Whispering Trails	181	Notified Owners – January 2013 Notice of Intent – November 2016 Notified to Connect - February 2020 Preliminary Assessment – July 2020	2017	2020
16	181st St N Gravity	11	Notified Owners – January 2013 Notice of Intent to Assess – October 2018	2018	2020
11	Jupiter Farms (East)	708		TBD	TBD
11	PB Country Estates	1547		TBD	TBD

* Rank based upon "2010 Septic System Inventory & Assessment"
TBD = To be determined

Remnant Areas

Rank*	Area Description	Lots	Activity	Original Target Date	Revised Target Start Date
H	Olympus Dr, Juno (LP)	2	Notified Owners – June 2013 Prelim. Design started – August 2017 Notice of Intent to Assess – July 2020	2016	2020
	18870+18890 SE Country Club Dr	2	Notified Owner – April + Aug 2017 Design started – August 2017 Notice of Intent – December 2018	2018	2020
	US Highway 1 (13440-13500)	3	Notified Owners – August 2017 Notice of Intent – March 2019 Notified to Connect – June 2020 Preliminary Assessment – July 2020	2019	2020
	Thelma Ave. LPSS	3	Notified Owners – September 2017 Notice of Intent to Assess–September 2019	2020	2020
EE	Hobart St SE (Martin Co.)	13	Notified Owners – January 2013 Notice of Intent to Assess–September 2019	2016	2020
	197th Pl N	3	Notified Owners – April 2019 Notice of Intent to Assess – February 2015		2020
	605+607 Military Trl	2	Notified Owners – June 2020	2022	

Rank *	Area Description	# Lots	Activity	Original Target Date	Revised Target Start Date
AA	Peninsular Road	5	Private Road Notice of Intent – February 2010 Partial construction complete - June 2013 Soliciting easements for remainder of project	2010	AEO
BB	Rivers Edge Road (Martin Co.)	35	Notified Owners – August 2010 Private Road-Easements Solicited –May 2014 Notice of Intent – February 2014 Project Delayed	2013	AEO
CC	171st Street (Martin Co.)	7	Private Road - In House Design Owners notified October 2012 Easement rec'd from Church – April 2017 Grant received	2014	AEO
CC	Jamaica Dr	11	Private Road Owners notified Oct 2012	2014	AEO
CC	66th Terr+Way	19	Notified Owners – Aug 2010 *Private Roads Notice of Intent to Assess – February 2015	2014	AEO
D	Loggerhead Park *(institutional)*	6 ECs	Need Easements from Palm Beach County	2014	AEO
DD	Taylor Road	38	Notified Owners – September 2011 Private Roads	2015	AEO
EE	Imperial Woods LPSS	47	Notified Owners – October 2010 Notice of Intent to Assess – September 2017 Notified to Connect – August 2019 Preliminary Assessment – July 2020	2016	2020
FF	Rolling Hills	50	Notified Owners – Jan. 2013 - Private HOA Notice of Intent to Assess – October 2019	2017	2021
FF	Gardiner Lane	1	Notified Owner – July 2013 – Private Road Notice of Intent to Assess – October 2019	2017	2021
FF	North A1A	3	Postponed-Town activities in area	2012	AEO
GG	815 S US 1 (Yum Yum Tree)	9 ecs	Notified Owner – November 2014	2016	AEO
GG	Rockinghorse *(north of Roebuck Road)*	10	Notified Owners – January 2013	2018	AEO
GG	Island Country Estates	38	Notified Owners – January 2013 Private HOA-Received Easement – Feb. 2018 Notice of Intent – July 2018	2018	2020
GG	Castle Rd SE	5	Notified Owners – Jan 2013-private road	2018	AEO
GG	Jupiter Rd SE	4	Notified Owners – Jan 2013-private road	2018	AEO
HH	Harbor Rd. S. LPSS	6	Notified Owners – January 2014 Private Road	2017	AEO
HH	SE Indian Hills	12	Notified Owners – January 2016 Easement for Road & Utilities, No Dedication	2019	AEO
16	Limestone Creek Road West	71	Notified Owners – January 2013 Private Road	2018	TBD
19	US Coast Guard Station Offices *(institutional)* PX Commercial *(commercial)*	 2 ECs 2 ECs	US Government - private roads Albrey- mtg. w/BLM & Historical 3-2011 Prelim design prepared In House 4-2011 Working with Jupiter to obtain easement Working w/BLM for options to move forward	2019	2020

* Rank based upon "2010 Septic System Inventory & Assessment"

TBD = To be determined AEO = As easements are obtained

CURTIS L. SHENKMAN
Board Certified
Real Estate Attorney

CURTIS SHENKMAN, P.A.

4400 PGA BLVD, SUITE 301
PALM BEACH GARDENS, FLORIDA 33410
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LEGAL ASSISTANTS
REAL ESTATE
JUDY D. MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

July 6, 2020

Loxahatchee River Environmental Control District
D. Albrey Arrington, Exec. Dir. and Board Members (sent by email to DHenderson)
2500 Jupiter Park Drive
Jupiter, FL 33458

RE: PENDING LITIGATION STATUS REPORT

Dear Dr. Arrington and Board Members:

We are enclosing herewith a brief status report relating to the litigation in which the Loxahatchee River Environmental Control District is involved with our law firm as the attorney of record. This status report updates the last monthly status report previously submitted and consists of a summary of the record proceedings which have occurred in each of the pending cases since last month.

There are no analyses of the pending cases included, as the inclusion of such items might constitute a waiver of any attorney/client privilege that exists between our firm and the District. Therefore, if you would like to discuss the particulars of any specific case in more detail or would like to obtain more information concerning the strategy, status, or settlement posture of any of the individual cases, please feel free to contact me.

As always, we are available at any time to discuss any of these lawsuits with each individual Board Member by telephone or by conference, if there are any questions.

Respectfully submitted,

CURTIS L. SHENKMAN

CURTIS L. SHENKMAN

Attachments

OTHER LITIGATION

IN THE CIRCUIT COURT OF THE FIFTEENTH JUDICIAL CIRCUIT, IN AND FOR PALM BEACH COUNTY, FLORIDA
CASE NO. 50-2019 CA 014447 XXXX MB AB

FRED BEMAN, Plaintiff,
vs.
LOXAHATCHEE RIVER DISTRICT, Defendant.

December 6, 2017. Auto Accident involving District vehicle and vehicle driven by Fred Beman.
April 15, 2020. Summons & Complaint served upon the District.
April 20, 2020. Attorney Lyman Reynolds, appointed be District's Insurance Carrier to Defend the District
under the District's Insurance Policy.
May 4, 2020. District's Motion to Dismiss filed.

LIEN FORECLOSURES

NONE

MORTGAGE OR LIEN FORECLOSURES / LRD COUNTERCLAIMS/CROSSCLAIMS

NONE

BAXTER & WOODMAN
Consulting Engineers
Making a positive difference through innovative engineering solutions.

Loxahatchee River Environmental Control District
Monthly Status Report
July 9, 2020

Submitted To: Kris Dean, P.E, Deputy Executive Director/Director of Engineering

The following is a summary of work performed by Baxter and Woodman, Inc. (B&W), on District projects for the monthly period ending July 9, 2020.

Alternate A1A 16-Inch Force Main Extension

The following items were ongoing or completed during the last monthly period:

- A re-inspection to confirm punch list items have been corrected or completed was held on June 9, 2020. Per the re-inspection, the Contractor still has some remaining items to address.
- Health Department clearance was obtained, and B&W issued a Certificate of Substantial Completion.

Master Lift Station No. 1 Rehabilitation

The following items were ongoing or completed during the last monthly period:

- Close-out and final certification complete subject to receipt of a 1-year Maintenance Bond.

Olympus Drive Force Main and Low Pressure Sewer Replacement

The following items were ongoing or completed during the last monthly period:

- B&W receive the District's 50% comments on June 18, 2020.
- The 50% design review meeting was held on June 23, 2020.
- B&W is proceeding with the 75% design inclusive of the abandonment of the existing 10" force main from Lift Station No. 130 to the intersection of Rolling Green Road & U.S. 1. The District to provide pothole information for the existing 10" and 12" force mains on Rolling Green Road up to Lift Station No. 130 upon completion.

Alternate A1A 24-Inch Force Main Cleaning & Inspection

The following items were ongoing or completed during the last monthly period:

- B&W submitted the 100% design submittal on June 23, 2020.

Irrigation Quality 511 (IQ-511) Pump Station Piping Improvements

The following items were ongoing or completed during the last monthly period:

- B&W submitted Addendum No. 1 on May 29, 2020 to the District for the electrical design work by Hillers Electric. The District indicated that the Addendum No. 1 would be on the July 2020 Board Meeting Agenda for approval.

- B&W has made the 50% design revisions to the civil, mechanical and structural elements of the design. The electrical design will be incorporated into the 90% design submittal upon approval of Addendum No. 1.

Lift Station Fall Protection Improvements

The following items were ongoing or completed during the last monthly period:

- B&W performed field investigation on July 1, 2020.

Respectfully Submitted by:

BAXTER & WOODMAN, INC.

Rebecca Travis, P.E.
Vice President / Florida Division Manager

Holtz Consulting Engineers, Inc.

HOLTZ CONSULTING ENGINEERS, INC.

270 South Central Boulevard, Suite 207, Jupiter, FL 33458 (561) 575 2005

MEMORANDUM

To: Kris Dean, PE, Deputy Director/Director of Engineering, Loxahatchee River Environmental Control District

From: Christine Miranda, PE, Holtz Consulting Engineers, Inc.

Date: July 9, 2020

Subject: **Loxahatchee River Environmental Control District Monthly Status Report**

The following is a summary of work performed by Holtz Consulting Engineers, Inc. (HCE) on Loxahatchee River District projects through July 9, 2020. **Note: Any information that is historical or repeated from previous months are shown in italics. Otherwise, all information as shown below is newly reported information.**

Island Country Estates Low Pressure Sewer System

- The Contractor has completed all punchlist items. A final walkthrough with District and HCE staff, the contractor, and representatives from the HOA occurred on July 8, 2020. HCE has processed the final pay application, final change order, and final completion certificate and sent all paperwork to the District. Upon receipt of the signed forms from the District, the certification package to place the system into operation will be submitted to the FDEP.

Lift Station No. 082 Improvements

- The 100% submittal was sent to District staff on June 26, 2020. HCE is currently working with their electrical subconsultant to coordinate some minor potential electrical modifications. Upon resolution of the electrical changes, this project is ready to proceed with bidding and construction.

Lift Station #161 and Lift Station #291 Emergency Generator Project

- The 100% submittal was sent to District staff on June 26, 2020. Per the direction from the District, Lift Station #161 has been removed from the project. The revised plans and contract documents were transmitted to District staff on July 7, 2020. This project is scheduled to be advertised on July 12, 2020, pre-bid conference held on July 30, 2020, and bid opening on August 11, 2020.

SE Hobart Street Low Pressure Force Main System

- The preconstruction meeting for this project was held on June 23, 2020. HCE has assisted the District with verification of right-of-way ownership with Martin County. Construction is anticipated to commence within the next thirty days.

Holtz Consulting Engineers, Inc.

Rolling Hills Sewer System Evaluation

- The revised technical memorandum was provided to District staff on June 17, 2020. HCE received comments from District staff on June 24, 2020. We are currently working on incorporating the comments and will have the final technical memorandum transmitted to the District by July 15, 2020.

Country Club Drive Force Main Transmission System Preliminary Evaluation

- HCE is currently working on the modeling of the system. The District is currently assisting HCE with data collection for use in calibration of the model. Upon receipt of this information, HCE can proceed with the completion of the model.

Emergency Response ESRI Collection Tool & Synovia Vehicle Tracking Assistance

- HCE updated the existing lift station and low-pressure post storm collector maps used to collect data and perform inspections after an emergency storm event. The maps were updated with new stations that were constructed since the last emergency event, and re-created the relationships necessary to dynamically link the stations to their respective inspection tables. The maps and associated features were published and are hosted on LRD's ArcGIS Online Account and were modified for both online and offline use in the ESRI Collector application. Additionally, the maps were modified as necessary to work with LRD's existing scripts to download the map's geodatabase for use in LRD's Power BI software. HCE will be cleaning up the published maps to only show data useful to operations staff, field test the maps using the Collector application, and ensure that all collected data can be brought into Power BI seamlessly and without error.

Busch Wildlife Sanctuary

At Loxahatchee River District

Quarterly Dashboard - 2nd Quarter 2020

	Education				Animal Care			Financial Operations			Gift Shop	Volunteers	Safety
	General Public Visitors	Visitors Attending Public Programs	In-reach / Out-reach Program Attendance	Education Net Income	Injured Animals Received / Treated	Animals Released	Average Donation per Animal Admitted	General Donation Income	Grants/Major Donor Income	BWS Net Income	Net Income	Hours Logged	OSHA Recorded Incidents
Benchmark	# of People	# of People	# of People		#	%						#	#
Green	> 25,000	> 3500	> 5500	> $20,000	< 500	≥30%	≥ $15.00/Animal	> $25,000	> $100,000	≥ $100,000	> $10,000	> 2000	0
Yellow	≥ 20,000	≥ 2500	≥ 4000	≥ $10,000	≥ 500	≥25%	< $15.00/Animal	≥ $15,000	≥ $50,000	> $0.00	≥ $5,000	≥ 1500	1
Red	< 20,000	< 2500	< 4000	< $10,000	>1000	<25%	< $10.00/Animal	< $15,000	< $50,000	≤ $0.00	< $5,000	< 1500	>2
2019 Qtr Results													
1st Qtr													
2nd Qtr													
3rd Qtr													
4th Qtr													
2020 Qtr Results													
1st Qtr													
2nd Qtr													
3rd Qtr													
4th Qtr													

2nd Quarter Items:

Projects Completed: Re-opened Sanctuary with added COVID Safety Measures

Projects In Progress: Gator Swamp Habitat, Updating Signage, Mulching Pineland Nature Trail

Future Projects: Flight Cage Complex, New Raccoon & renovation of old Raccoon and Skunk Habitats, Wildlife Hospital Recuperation Enclosure, Outdoor Rehab and Recovery Enclosures

2nd Quarter Appearances, Notables, Trainings:

Trainings: All Staff Training on Emergency Preparedness

Onsite Educational Activities Included: 2 Virtual Programs, 2 VIP Tours, 10 Tours, 2 Bday Parties; 3 weeks/15 sessions of Junior Naturalist Camp Programming in June

Offsite Educational Activities: 7 Outreach Educational Programs provided to Chatsworth PBG, Keep Flippin' Gymnastics, Storybrooke Academy (2 programs), Pittman Preschool, World Class Academy, and the Village of NPB

Other Community Events: Daily Virtual Education Programming on Facebook, Pelican Poop Bingo Game/Fundraiser

COVID Related Update: Palm Beach County Emergency Management approved BWS Reopening Plan including conducting a Site Visit

Director's Report

- Admin. & Fiscal Report attach. #1
- Engineering Report attach. #2
- Operations Report attach. #3
- Information Services Report attach. #4
- Environmental Education attach. #5
- Safety Report attach. #6
- Other Matters (as needed) attach. #7

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

2500 Jupiter Park Drive, Jupiter, Florida 33458-8964
Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org
D. Albrey Arrington, Ph.D., Executive Director

To: Governing Board

From: Kara Fraraccio, Director of Finance and Administration

Date: July 10, 2020

Subject: Monthly Financial Report

Cash and Investments

Balances as of June 30, 2020

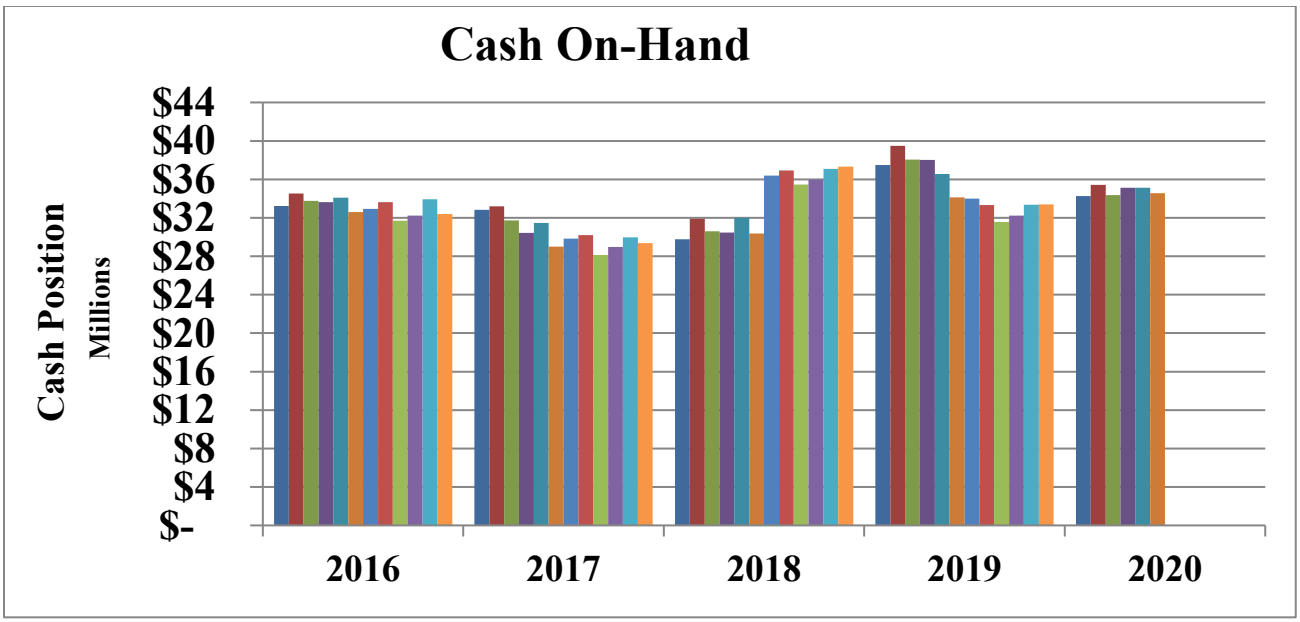
Certificates of Deposit:

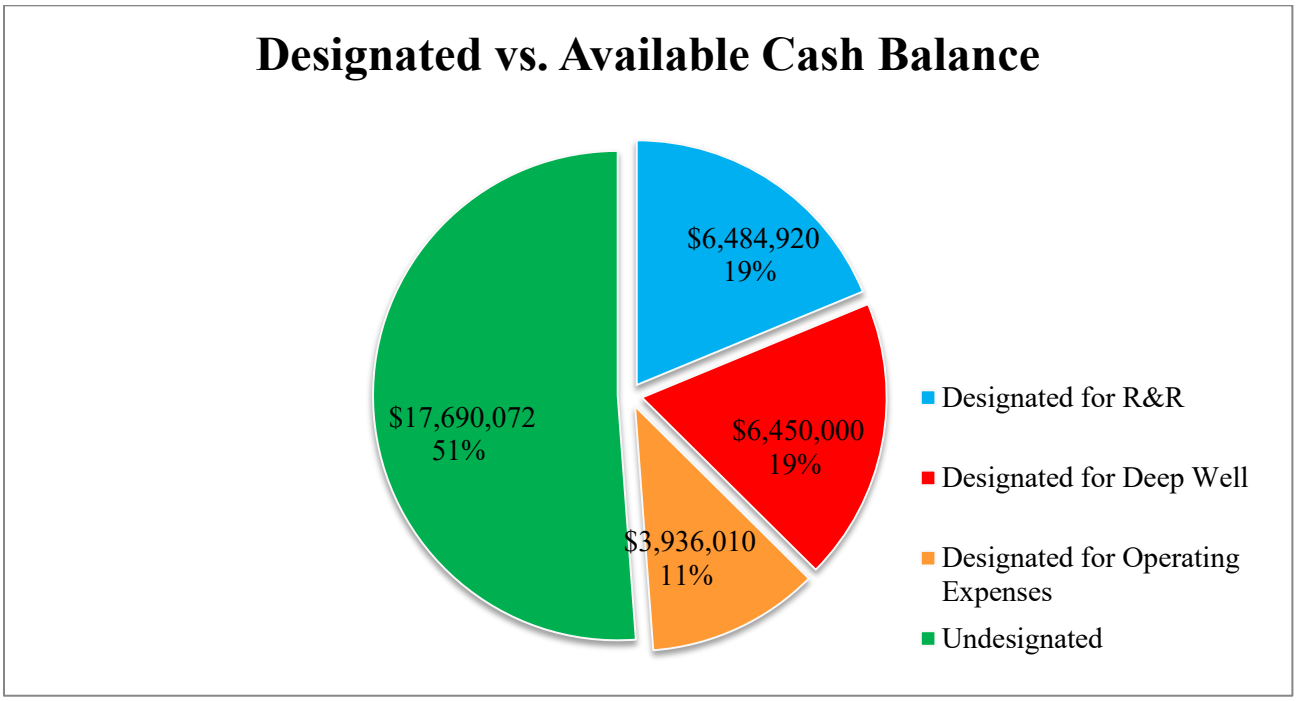
Institution	Original Term	Maturity	Rate	Book Value	Monthly Interest Earned	Market Value
US Bank	2 Years	01/29/21	2.71%	$ 1,011,450	$ 2,413	$ 1,050,751
Bank United	2 Years	03/11/21	2.60%	1,000,000	2,202	1,034,397
Bank United	9 Months	03/12/21	0.55%	1,565,316	423	1,565,739
Subtotal				**$ 3,576,766**	**$ 5,038**	**$ 3,650,887**
Money Market Accounts:						
Synovus - Public Demand			0.50%		$ 5,063	$ 12,323,072
TD Bank - NOW			0.25%		1,688	8,239,620
Subtotal					**$ 6,751**	**$20,562,692**
Checking Account:						
SunTrust-Hybrid Business Account			0.50%		$ 3,868	$ 10,347,423
Subtotal					**$ 3,868**	**$10,347,423**
Total					**$ 15,657**	**$34,561,002**

Average weighted rate of return on investments is: .57%

As of 06/30/20:
3 month Short Term Bond: .16%
1 month Federal Fund Rate: .08%

Cash position for June 2019 was $34,111,378. Current Cash position is **up** by $449,624.





Financial Information

- Legal fees billed for the month of June were $1,500. The fiscal year-to-date total is $60,790.
- There was no Septage billing for the month of June. The fiscal year-to-date total is $225.
- Developer's Agreement – There were no new Developer Agreements in June.
- I.Q. Water Agreements – Fairways of Jupiter is past due for April, May, and June; Martinique is past due for May and June; and WorkPlace Florida is past due for June.
- Estoppel fees collected in June totaled $8,500. The fiscal year-to-date total is $59,625.

Summary of Budget vs. Actual

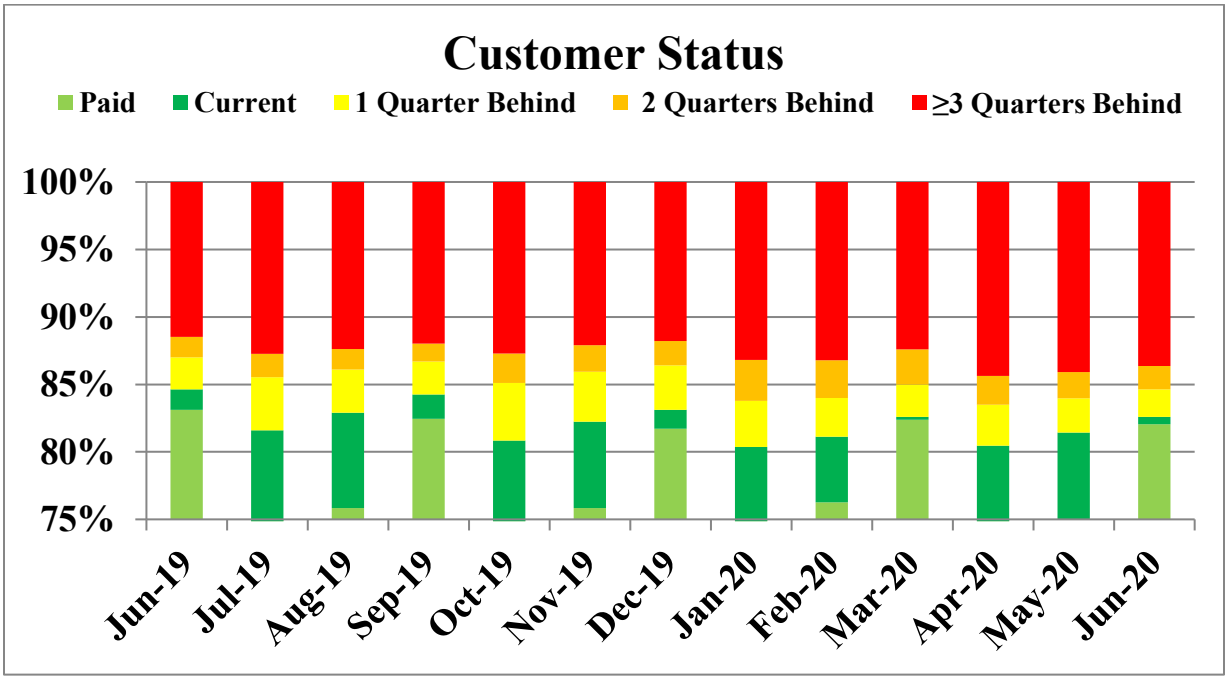
Budget Benchmark 75.00%	Jun-20 Actual	YTD Actual	FY 20 Budget	Favorable (Unfavorable)	Budget Expended	Jun-19 YTD
Revenues						
Operating Revenues						
Regional Sewer Service	$1,425,573	$12,746,624	$17,324,020	$ (4,577,396)	73.58%	$12,582,885
Standby Sewer Service	8,089	69,531	98,458	(28,927)	70.62%	74,102
IQ Water Charges	199,340	1,794,057	2,004,752	(210,695)	89.49%	1,773,167
Admin. and Engineering Fees	4,239	84,286	42,295	41,991	199.28%	35,112
Other Revenue	17,754	269,009	300,000	(30,991)	89.67%	343,741
Subtotal Operating Revenues	1,654,995	14,963,507	19,769,525	(4,806,018)	75.69%	14,809,007
Capital Revenues						
Assessments	16,548	1,079,174	864,897	214,277	124.77%	1,164,412
Line Charges	19,997	317,673	201,337	116,336	157.78%	169,917
Plant Charges	51,052	537,312	1,012,727	(475,415)	53.06%	368,868
Capital Contributions		163,877	1,000,000	(836,123)	16.39%	56,132
Subtotal Capital Revenues	87,597	2,098,036	3,078,961	(980,925)	68.14%	1,759,329
Other Revenues						
Grants				-	100.00%	
Interest Income	22,646	934,897	1,127,200	(192,303)	82.94%	1,182,907
Subtotal Other Revenues	22,646	934,897	1,127,200	(192,303)	82.94%	1,182,907
Total Revenues	$ 1,765,238	$ 17,996,440	$ 23,975,686	$ (5,979,246)	75.06%	$ 17,751,243
Expenses						
Salaries and Wages	$412,239	$3,757,462	$5,873,500	$ 2,116,038	63.97%	$3,643,383
Payroll Taxes	30,085	281,754	427,300	145,546	65.94%	273,279
Retirement Contributions	61,315	572,145	734,200	162,055	77.93%	526,516
Employee Health Insurance	106,669	906,460	1,308,800	402,340	69.26%	816,537
Workers Compensation Insurar	1,756	88,173	99,800	11,627	88.35%	89,197
General Insurance		360,233	364,107	3,874	98.94%	338,102
Supplies and Expenses	69,907	698,237	1,132,675	434,438	61.64%	738,358
Utilities	98,031	905,466	1,394,850	489,384	64.91%	975,075
Chemicals	34,075	287,144	452,000	164,856	63.53%	404,381
Repairs and Maintenance	150,168	1,350,462	1,814,429	463,967	74.43%	1,395,365
Outside Services	94,544	1,199,157	1,917,360	718,203	62.54%	1,306,285
Contingency			225,000	225,000	0.00%	
Subtotal Operating Expenses	1,058,789	10,406,693	15,744,021	5,337,328	66.10%	10,506,478
Capital						
Capital Improvements	423,696	5,302,287	13,579,107	8,276,820	39.05%	9,261,940
Subtotal Capital	423,696	5,302,287	13,579,107	8,276,820	39.05%	9,261,940
Total Expenses	$ 1,482,485	$ 15,708,980	$ 29,323,128	$ 13,614,148	53.57%	$ 19,768,418
Excess Revenues Over (Under) Expenses	$ 282,753	$ 2,287,460	$ (5,347,442)	$ 7,634,902		$ (2,017,175)

Pending/Threatened Litigation

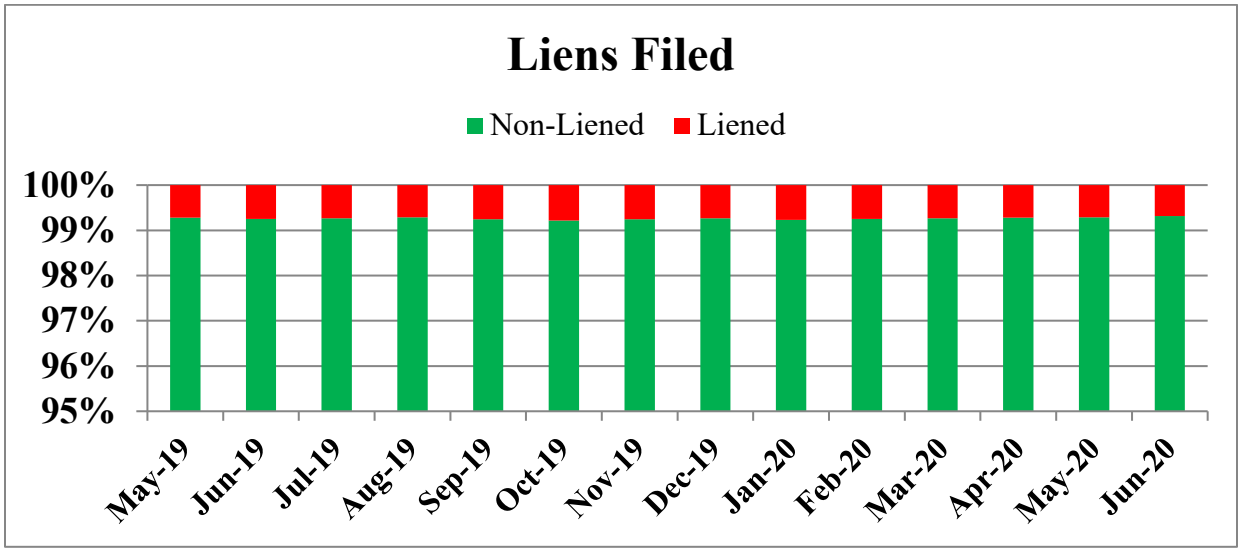
- Whispering Trails – The District received a formal notice that a negligence claim is being made on behalf of a resident of Whispering Trails as a result of a personal injury incident. We notified the District's legal counsel, the project engineers, the contractor, and the District's General Liability Insurance provider, PRIA. The contractor has filed a claim with their insurance company, where we are named as an additional insured.
- Vehicle Accident – The District received a legal summons related to a vehicle accident involving a District vehicle. This claim is currently being handled through the District's General Liability Insurance provider, PRIA. PRIA has assigned the firm of Roberts, Reynolds, Bedard & Tuzzio, PLLC to represent the District.

Accounts Receivable

The chart below illustrates customers' receivable status as a percentage of quarterly sewer billing. Paid or current balances represent approximately 83% billing.



The District serves approximately 32,700 customers. Currently, the District has 225 liens filed which represent approximately 1% of our customers.



Loxahatchee River District

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: D. Albrey Arrington, Ph.D., Executive Director

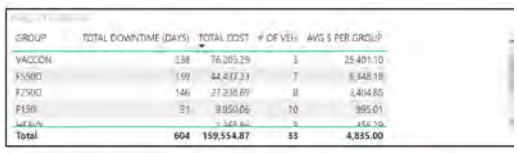
FROM: Kris Dean, P.E., Deputy Executive Director/Director of Engineering Services

DATE: June 11, 2020

SUBJECT: Engineering Services Report

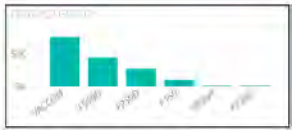
PROJECT HIGHLIGHT

VEHICLE	Year	DOWNTIME (HRS)	DOWNTIME (DAYS)	% of TOTAL	Total Cost
UNIT-50	1992				786.00
UNIT-78	2000				587.86
UNIT-80	2002	1021	43	00.84%	1,921.62
UNIT-85	2004				356.70
UNIT-03	2006				173.14
UNIT-10	2008	1661	69	11.46%	3,617.24
UNIT-11	2009	1104	46	7.61%	3,960.30
UNIT-13	2010	863	36	5.95%	2,745.99
UNIT-14	2010	2208	92	15.23%	13,040.67
UNIT-15	2011	2642	110	18.22%	12,044.61
UNIT-16	2011	143	6	0.99%	2,230.59
UNIT-17	2012	987	41	6.76%	10,624.86
Total		14498	604	100.00%	159,554.87



GROUP	TOTAL DOWNTIME (DAYS)	TOTAL COST	# OF VEH	AVG $ PER GROUP
VACCON	138	76,205.29	3	25,401.10
F5500	199	44,437.23	7	6,348.18
F2500	146	27,238.89	8	3,404.86
F150	31	9,950.06	10	995.01
HEAVY		1,347.40	5	449.13
Total	604	159,554.87	33	4,835.00

Vehicle	MILES	HRS
UNIT-03	121,622.00	100,623.00
UNIT-09	71,915.10	
UNIT-10	146,760.00	6,640.00
UNIT-11	97,285.70	9,044.00
UNIT-13	152,171.00	
UNIT-14	86,219.00	10,325.00
UNIT-15	53,520.00	7,415.00
UNIT-16	106,436.00	
UNIT-17	124,593.00	9,970.00
UNIT-18	136,211.80	
UNIT-19	90,312.00	
UNIT-20	86,862.90	5,791.00
Total	2,355,964.30	273,379.60



We took delivery of two new service trucks this month, an F550 crane truck and F550 dump truck. The crane truck will replace Unit 20 in the Maintenance Department, and the dump truck will replace Unit 78 and Unit 50 in Construction. The District's fleet program has been consolidated under Engineering with new purchase, maintenance/repair and disposal all being managed under one staff member. This consumes a significant portion of the staff member's time, but we believe this approach is ultimately more efficient and cost effective than having each crew responsible for maintenance and repair of their own service vehicle.

To aid in managing the fleet program staff has worked with IT to develop a PowerBI page for vehicle tracking. See image to the left. This page allows us to look at individual vehicle performance, model performance (gas vs. diesel, ½ ton vs. ¾ ton vs heavy duty and vac-con) and overall program performance including cost and reliability. As we closely monitor our fleet program we hope to fine tune our maintenance and renewal/replacement criteria to reduce costs while still maintaining a reliable service fleet.

IN-HOUSE PROJECTS

Lift Station Rehabilitations General Construction Services: Lift Station 101 and 56 should be complete by September 2020. Our overall lift station rehabilitation projects are slowly getting back on schedule and should be completed by the end of this fiscal year.

Cellular Telemetry: Staff are coordinating with a consultant for an evaluation of the proposed systems and pilot installations to determine the best value option for the District's 157 unmonitored stations. Based on the best value option(s) the District will standardize to this option and proceed with procurement and installation of the units. The new telemetry will provide power, pump and level status as well as offer battery backed up communication to the stations. The battery backup and level status will be key features used in managing an emergency response to significant power failure in our service area.

181st Street Gravity Sewer System: This project will serve 11 lots located just off Limestone Creek Rd. The new system will tie into an existing gravity system in Limestone Creek Rd. Design is complete. Staff will be working on bidding documents through June/July with a potential recommendation of award being brought to the Board at the August meeting.

Fiscal Year 2020 Main Lining Projects: Staff is coordinating with the contractor on a schedule for Lift Station 054 (awarded at the June Board meeting) and are also looking at contract options to perform system investigations in LS018, LS041, LS050 and the remainder of LS054. If suitable piggy-back options cannot be found we anticipate putting this work out to bid sometime late summer/early fall.

Fiscal Year 2020 Lateral Lining Projects: The contractor has mobilized and is working in the Brentwood/Weldwood system as well as Lift Station 057 and 58 with two crews. Staff are working in InforEAM tracking work completed for each system making monthly status reporting much simpler and more accurate.

Neighborhood Sewering/Remnant Properties: Staff has designed, permitted and issued purchase orders under our Low Pressure General Construction Services Contract to provide sewer service to 18870/18890 SE Country Club Drive, Thelma Avenue, 18205 Gardiner Lane and 197th Place North. These projects should be complete by the end of August, 2020.

CONSTRUCTION

After the heavy rains in early June, staff and continuing services contractors have been busy making repairs in our system. The image to the right shows an ill-fitting joint in a clay gravity main located in Country Club Drive that resulted in a roadway failure. The joint was not "damaged" and our system did not show evidence of an inflow of significant sand. It is assumed the joint had been leaking for a very long time and created a void above the pipe, below the roadbed. The heavy rains and elevated water table saturated the roadbed causing it to collapse into the void.

If you haven't noticed, it has been hot and the sun has been exceptionally strong, but Construction is still hard at it performing repairs in the collection/transmission system. Pictured right construction performs a repair in Jupiter Hills on a broken gravity main. They are utilizing an awning for shade and a forced air ventilation fan from our confined space entry equipment to keep relatively cool.

COLLECTIONS AND REUSE

Collections and maintenance collaborated to build new pump storage skids for the 330 HP submersible pumps used at IQ 511. The new skids make handling and transporting the submersible pumps safer and easier and secure the pumps and cables during storage.

Staff is focusing on repair and maintenance in the reuse distribution system including new panel racks, FPL meter cans, power distribution panels and junction boxes that were heavily deteriorated at three sites. As seen, this R&M did not include a new control panel, however the improvements can be used with a new control panel when a new standard is finalized. Staff has previously coordinated with designers for a new control panel design utilizing the same design concept as before (Programable Logic Controller); however, our recent investigations and experience in lift station telemetry have made us aware of alternatives that are ultimately cheaper and would standardize communication/control across all infrastructure in the field.

When pressure testing the Alternate A1A 16" Force Main Extension project we determined there was a failed gasket on the recently installed Damon Bridge force main. This caused some concern as this force main is less than 2 years old and has not been in service. Staff coordinated with the installing contractor and engineer for the project to investigate the flanged connections. The investigation was not conclusive as we found one joint with 2 loose bolts (not the joint with the failed gasket) and 6 joints with gaskets that appeared to have migrated (again not the joint with the failed gasket) and nothing specific to the failed joint indicating faulty installation. We replaced all suspect gaskets and 316SS bolts and used a sequenced tightening pattern and torque specifications specific to elastomeric gaskets.

Staff is coordinating now to re-pressure test the main and anticipate having the system available for service by the end of July.

SANITARY SEWER OVERFLOWS

There were four sanitary sewer overflows in the collection/transmission system in June.

During the heavy rain event on June 5, 2020 we experienced a 15,000 gallon overflow that entered the Southwest Fork of the Loxahatchee River. We are responding to an FDEP inquiry on the overflow and have summarized our findings below.

The overflow was a result of inflow/infiltration in what we believe is the LS160 collection system. During the event staff determined that reconfiguring the flow paths to the plant for LS160 and upstream stations would increase LS160's pumping capacity. Their determination was correct, resulting in a significant increase in the station's capacity. With the increased pump performance based on lower heads, minimum system flow velocities are being maintained and the system will stay in its current configuration, preventing similar overflows in the future.

Regardless, there is an obvious issue with inflow and infiltration in the LS160 system. We are preparing to perform a cursory system evaluation to inspect manholes and cleanouts in the system, followed by a more rigorous investigation if necessary. Staff also evaluated FPL bills for the month of June and have identified several other systems with significant increases in power consumption, correlating to increased pump runtimes due to inflow and infiltration. We will be looking at this data along with our other data currently being used as we prioritize our rehabilitation efforts.

The second overflow was 600 gallons from a gravity system. A PVC cap installed on a service lateral was chewed through by rats. Sand entered the collection system through the opening and plugged the gravity main resulting in the over.

The third overflow was 500 gallons from a gravity system. A broken clay service lateral allowed sand to enter the collection system, plugging the main and causing the overflow.

The fourth overflow was 5 gallons from a service lateral. The lateral was damaged by another utility as they performed work in the area.

Loxahatchee River District

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: Albrey Arrington, Ph.D., Executive Director

FROM: Jason A. Pugsley, P.E., Operations – Plant Manager

DATE: July 9, 2020

SUBJECT: Operations Department – Monthly Report for June 2020

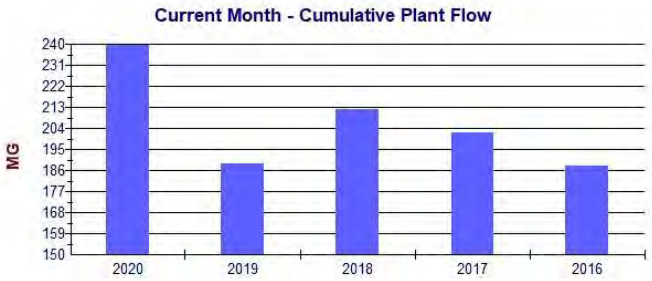
Treatment Plant Division/ Maintenance Department

Overall the month of June was successful and productive with no permit exceedances and all monthly reports prepared and submitted on time. The treatment plant ran well and was capable of meeting all treatment objectives. We experienced significant rainfall during the month of June. During the month we received a total of 12.92-inches of rainfall which exceeded the total rainfall received (10.86-inches) during the prior month (i.e. May 2020).

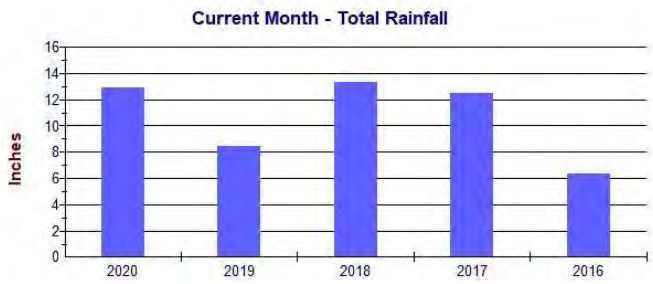
The plant experienced three (3) unauthorized discharges during the month of June. The first two (2) discharges occurred simultaneously because of a significant rainfall event. The rainfall event caused high hydraulic loads to the plant and higher than normal water levels in Filter Pump Station No. 1 and the effluent launder at Clarifier No. 2. The high-water level in Filter Pump Station No. 1 (FPS No. 1), which is hydraulically interconnected with Filter Pump Station No. 2 (FPS No. 2) revealed leaks between the buried pump suction cans and the pump discharge heads. The connection as these joints should be watertight, however; due to previous operational issues with the pumping units the heads were separated and shimmed to level/plumb them above the pump suction cans. This modification created a gap and potential point of leakage/SSO. As a result of this condition a total of approximately 915-gallons of secondary effluent was released to grade. Upon discovery, the valves between FPS No. 1 and the inlets to the pump suction cans at FPS No. 2 were closed to isolate the station. District Staff are planning to properly repair and reseal these connections as part of a proposed Fiscal Year 2021 project.

The second discharge resulted in approximately 7-gallons of secondary effluent being discharged to grade. The leak occurred at a construction joint on the effluent box of Secondary Clarifier No. 2. During the month of May the plant experienced a more significant leak at this location and a temporary repair was performed. The subsequent significant rainfall event which occurred during the month of June allowed District Staff to evaluate the status and effectiveness of the previous repair. Upon inspection, it was discovered that there was still a very minor leak at the joint which was quickly repaired via the epoxy injection method. District Staff have since received pricing from the tank manufacturer for the permanent tank repairs and the project will be completed as part of a proposed Fiscal Year 2021 project.

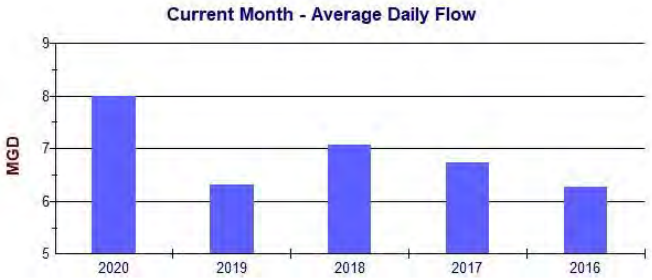
The third unauthorized discharge which occurred during the month of June was a result of accidental damage to a Schedule 80 PVC riser pipe on an IQ (i.e. reclaimed) water service connection. The riser was damaged when the District's lawn maintenance sub-contractor impacted the piping with a lawn mower. The discharge resulted in an unscheduled release of approximately 1,120-gallons of highly disinfected (Cl^- residual of 4.84 mg/L) reclaimed water to the ground. The leak was isolated using the service valve on the riser pipe which was not damaged. To prevent this from occurring in the future, the riser pipe and valving are scheduled to be replaced with a stainless-steel riser and valve. A safety bollard will also be installed at this location for added protection.



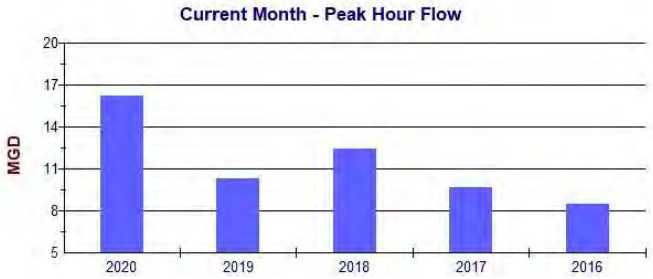
The Cumulative Influent Flow to the plant for the month of June was 239.77 million gallons (MG).



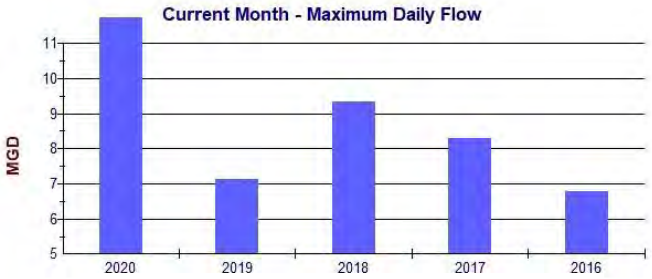
12.92 inches of total rainfall was recorded at the plant site during the month of June.



The Average Daily Flow (ADF) for the month of June was recorded at 7.99 MGD compared to 6.30 MGD one year ago, for the same month.

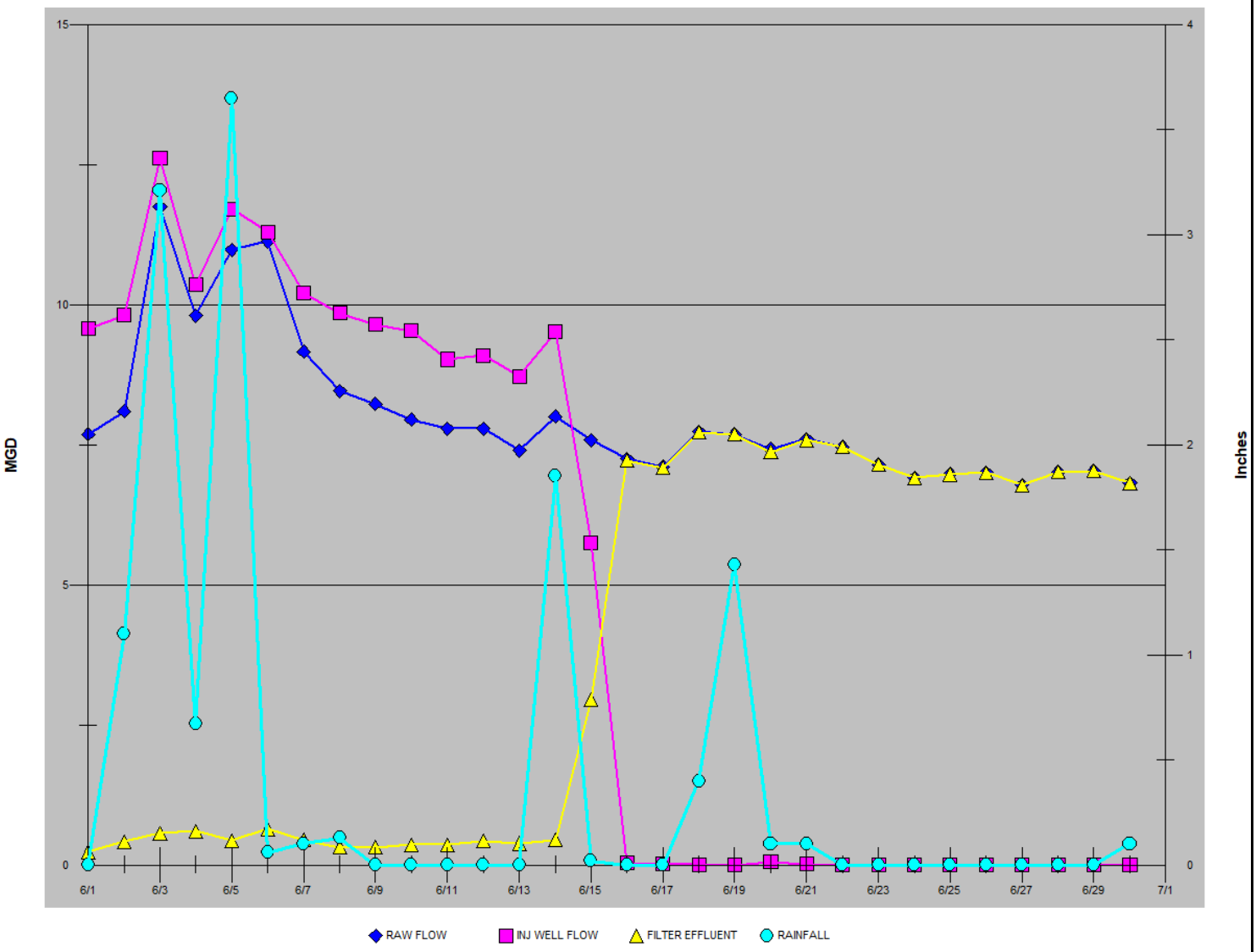


The Peak Hour Flow (PHF) for June was 11,285 GPM which equates to an equivalent daily rate of 16.25 MGD.



The Maximum Daily Flow (MDF) in June was 11.74 MGD.

For the month of June, the cumulative influent flow to the plant was 239.77 MG of which 116.76 MG was sent to the IQ storage system where it was distributed, as needed, to the various golf courses and the Abacoa development sites. A total of 12.92 inches of rainfall was recorded at the site during the month and 146.83 million gallons of blended effluent was diverted to the Deep Injection Well. Overall, 48.69% of the plant influent flows were treated and available for reuse as IQ water. The plant delivered a total of approximately 123.71 million gallons of IQ water to the reuse customers during the month of June.



Year to date, approximately 69.73% of all influent flow to the plant was treated and available for reuse as IQ water. The total volume of IQ water distributed to reuse customers for the year stands at 975.69 million gallons.

All monthly reporting has been submitted on time.

Treatment Plant:

During the month of June, the Operations Staff continued to work diligently to perform routine monitoring, sampling and general maintenance of equipment and structures. A few key projects completed this month were the clean-out of the Filter Backwash Return Basin (FBR Basin), inspection and clean-out of the injection well bar rack structure and cleaning of the grating at the Clarifier effluent discharge boxes.

During the month of May, Operations took advantage of the opportunity to drain and inspect the FBR Basin since the filter units were off-line and all effluent was being diverted to the deep injection well. Operations observed minimal deposits of sand and grit which required removal. This month Operations teamed up with Maintenance and Collections to remove the sediment observed during the inspection from the basin floor. A vac-con unit was used to eliminate the need for execution of a confined space entry program since personnel did not need to physically enter the tank. Using the vac-con also significantly reduced the amount of manpower required to complete the task.

FBR Basin – Clean-Out Photos

As discussed during this month's and last month's (May 2020) Operations Report, the plant experienced significant hydraulic loads because of heavy rainfall events which caused some operational issues. During these higher than normal flows it was observed that the liquid level within the injection well pump station influent bar rack structure was higher than anticipated and, more significantly, the hydraulic head loss across the two (2) bar racks was significantly greater than what it should have been. Based on these observations, District Staff took advantage of the next dry weather period, when the plant was shifted back to the production of reclaimed water and the deep injection well was taken offline, to inspect and clean-out the injection well bar rack structure. Upon inspection, it was discovered that there was significant sand/grit deposition within the structure. It was also discovered that each bar rack was significantly blinded due to significant scaling build-up. It is presumed that this scaling build-up is at least partially attributable to the nano-filtration concentrate water which is introduced to the structure just downstream of the bar racks. Staff from multiple District Departments worked seamlessly to clean-out all sediment and debris within the structure as well as to significantly clean the scaling deposits from the bar racks. Unfortunately, due to the magnitude of scaling, both racks will need to be removed in order to completely clean the bottom 2.5-ft +/- of each rack of all scaling deposits. A total of two vac-con truckloads of grit and debris were removed from the structure. Based on discussions with long tenured staff, this was the first time this structure had been cleaned and inspected. The inspection and clean-out of this structure will be added to the list of structures to be annually inspected within the District's CMS program. It is anticipated that a marked improvement in the hydraulic capacity of the structure will be observed because of the work completed.

I want to specifically recognize the efforts of the individuals who worked on this project:

- **Operations:** Paul Canzanella, Brandon Collins
- **Maintenance:** Vince Beatrice, John Smith
- **Collections:** Kenny Biro, Marshall McGuire
- **Safety Officer**: Travis Bains

Injection Well Bar Rack Structure – Pre-Clean-Out Photos

Injection Well Bar Rack Structure – Post-Clean-Out Photo

The last special project completed this month, which was led by the Operations Team, was the clean-out of the grating on the effluent boxes at each of the secondary clarifier units. As a result of the high hydraulic flows experienced at the plant there was an increase in the quantity of inorganics and floatables which passed through the headworks screenings units. Some of these screenings were captured by the effluent screens at the clarifier units. Operations worked with Collections to clean the grates using a vac-con unit. Cleaning the grates will decrease the head loss at the outfall from the Clarifiers as well as the liquid levels in the effluent launders.

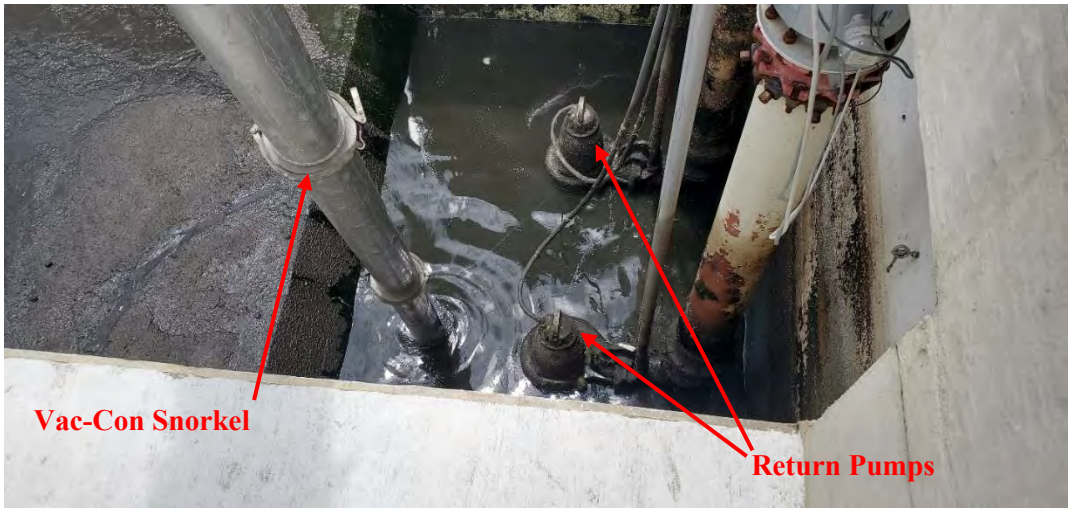
Clarifier Effluent Box Rack – Clean-Out Photo Nos. 1 and 2

Clarifier Effluent Box Rack – Clean-Out Photo No. 3

Maintenance Department:

The Maintenance Department continued to efficiently perform planned maintenance (PM) tasks over the last monthly period. In addition to the completion of standard PM tasks the Maintenance Department addressed non-routine maintenance items as well as "special projects". A few examples of these types of projects are presented below.

During the month of June, the Maintenance Department teamed up and work collaboratively with multiple District Departments to perform the inspection and clean-out of two critical treatment process units. First, Maintenance worked with Operations and Collections to pump down and clean-out the Filter Backwash Return (FBR) Basin. The FBR basin receives and stores backwash wastewater generated as part of the backwash process utilized at the deep bed sand and synthetic media filtration units to clean the media. The backwash of the filters occurs as the media because blinded. Backwash water is conveyed by gravity to the FBR Basin where it is then pumped to the Clarifier Splitter Box located on the downstream side of the Aerbay. To eliminate the need to have a worker within the basin, Collections provided vac-con truck assistance. Settled solids within the FBR Basin was vacuumed out and properly disposed of. The second structure Maintenance teamed up to accomplish was the inspection and clean-out of the injection well bar rack structure. This work activity was discussed in detail in previous sections of the Report.

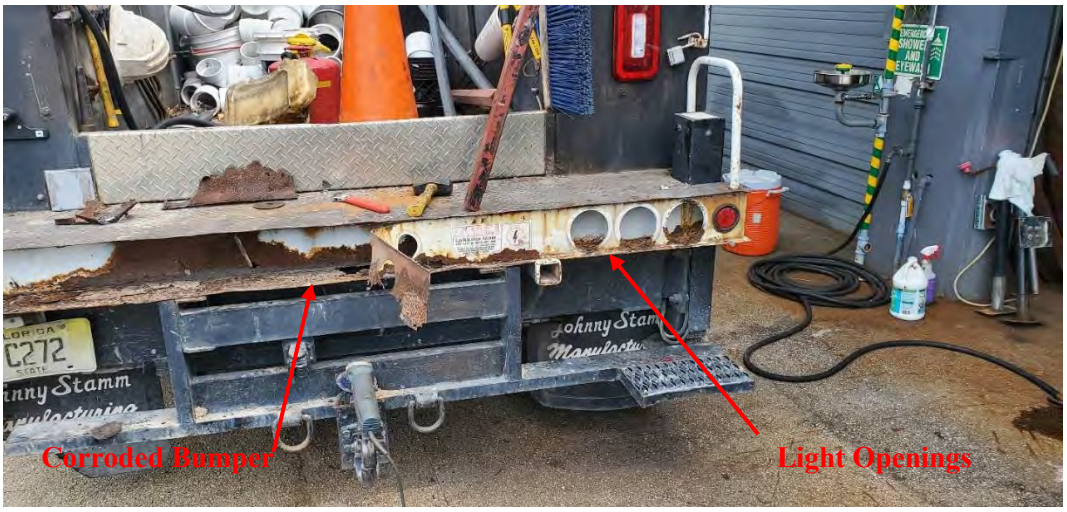


FBR Basin – Clean-Out Photo No. 1

FBR Basin – Clean-Out Photo No. 2

The Maintenance Department performs critical functions for the District that extend well beyond the fenced limits of the plant site. One good example of this work includes vehicle repairs and refurbishment. The District vehicle fleet includes custom equipment and components which are non-standard, and which are not readily available (i.e. off-the-shelf) for replacement.

Unit No. 14, which is used by one of the District's Collection crews, had a significantly deteriorated rear bumper and light bars. Upon inspection it was determined that the seals around the light bars had deteriorated which allowed water to infiltrate behind the lights and into the enclosed bumper cavity. The bumper was so deteriorated that a new plate was cut and bent to fit the opening. The plate was welded, sealed, and painted to match the existing color. Rhino lining was applied to the finished bumper to provide a durable and slip resistant working surface. To mitigate the potential for water to infiltrate the bumper in the future, the lights were relocated to the toolbox. This eliminated all penetrations in the refurbished bumper. To prevent impacting the productivity of the Construction crew, the work was performed outside their regular shift hours.



Unit No. 14 – Rear Bumper Repair Photo No. 1

Unit No. 14 – Rear Bumper Repair Photo No. 2

Unit No. 14 – Rear Bumper Repair Photo No. 3

Loxahatchee River District

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: Albrey Arrington, Ph.D., Executive Director

FROM: Bud Howard, Director of Information Services

DATE: July 9, 2020

SUBJECT: Monthly Governing Board Update for June 2020

WildPine Ecological Laboratory

Riverkeeper Project

In June, staff from the lab collected water quality samples from 16 monitoring stations throughout the watershed. We collected an additional 58 bacteria samples for several projects, including our weekly bacteria monitoring program and our partnership project with Town of Jupiter studying Sims and Jones Creeks. Overall, the results showed water quality throughout the watershed in June marginally declined relative to May. The "Water Quality Score Card" (below) that shows the total number of samples analyzed and then computes the percentage of samples scoring "Good" when compared to their FDEP/EPA water quality standards.

6/1/2019 6/30/2020

Loxahatchee River District Water Quality Scorecard

Results scored to FDEP/EPA Water Quality Criteria

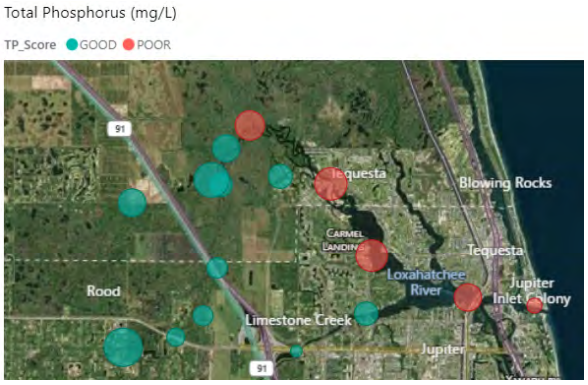
Green: 90% - 100%
Yellow: 75% - 89.9%
Red: < 75%

TN: Total Nitrogen, TP: Total Phosphorus, CLA: Chlorophyll a, BAC: Enterococci, E. coli and Fecal coliform bacteria

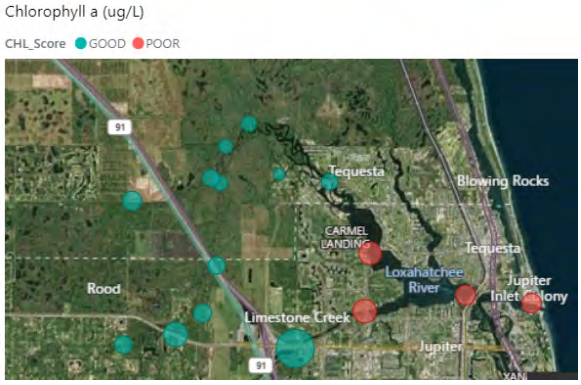
Year	Month	CountTN	PctGoodTN	CountTP	PctGoodTP	CountCLA	PctGoodCLA	CountBAC	PctGoodBAC
2019	June	15	100.0%	15	86.7%	17	52.9%	65	75.4%
2019	July	26	100.0%	26	73.1%	27	33.3%	76	85.5%
2019	August	44	93.2%	44	50.0%	44	47.7%	92	59.8%
2019	September	35	85.7%	35	45.7%	35	45.7%	79	87.3%
2019	October	33	93.9%	34	76.5%	32	43.8%	82	90.2%
2019	November	35	97.1%	35	77.1%	35	65.7%	82	80.5%
2019	December	16	100.0%	16	87.5%	16	87.5%	62	85.5%
2020	January	47	85.1%	47	55.3%	47	72.3%	98	76.5%
2020	February	25	96.0%	25	100.0%	25	72.0%	73	89.0%
2020	March	15	100.0%	15	100.0%	15	80.0%	64	87.5%
2020	April	25	100.0%	25	80.0%	25	52.0%	75	88.0%
2020	May	22	95.5%	22	86.4%	22	59.1%	70	65.7%
2020	June	16	87.5%	16	68.8%	16	75.0%	74	70.3%
Total		**354**	**93.8%**	**355**	**71.3%**	**356**	**58.4%**	**992**	**79.7%**

Total Nitrogen (TN) concentrations in June scored "Poor" at 2 out of 16 (12.5%) stations when compared to the NNC water quality standards and declined relative to May. Stations 40 and 60, both in the central embayment of the river, were just over their NNC water quality standard of 0.8 mg/L at 1.0 and 1.1 mg/L respectively. Station 100, at the mouth of Cypress Creek, had the highest TN concentration at 1.3 mg/L, but still scored "Good" for its region. The average TN for all stations throughout the watershed in June was 1.0 mg/L.

Total Phosphorus (TP) concentrations in June scored "Poor" at 5 out of 16 (31%) stations when compared to the NNC water quality standards and was also worse than May. Curiously, Stations 65, 62, 60, 40 and 10 all scored "Poor" when compared to their NNC standard for their regions. TP concentrations ranged from 0.08 mg/L at St. 65 to 0.04 at St. 10. Station 95, the main lateral canal in Jupiter Farms, had the highest concentration of TP at 0.10 mg/L, but was still "Good" for that area. The average TP for all stations throughout the watershed in June was 0.07 mg/L.



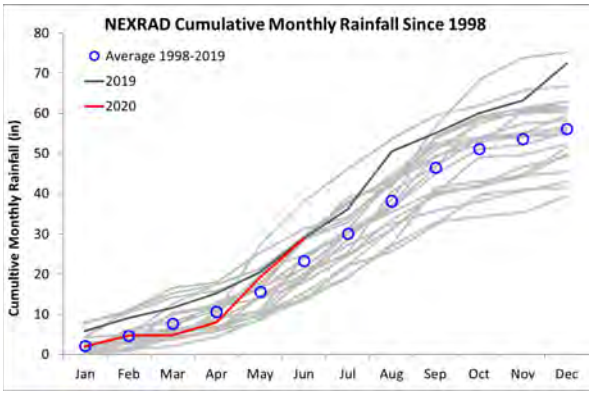
Chlorophyll (CLA) concentrations in June scored "Poor" at 4 out of 16 (25%) stations when compared to the stringent NNC water quality standard for each river segment and was better than May. The highest concentration was found at Station 81 in the C-18 canal upstream of the S-46 structure at 15.6 ug/L, but still scored "Good" for its region. All the poor stations were downstream in the marine section (72, 60, 40, and 10) and there was a visible freshwater lens covering them at the time of sampling. The average chlorophyll values for all stations was 6.4 ug/L.



For the combination of all Fecal Indicator Bacteria (FIB; enterococci in marine and brackish waters, E. coli and fecal coliform in fresh waters), 22 out of 74 (30%) samples collected scored "Poor" when compared to DEP's Surface Water Quality Standards for each parameter, which was slightly better than the results we measured in May. The highest FIB concentrations were found at CALC in Jones Creek where the fecal coliform concentration was 5,794 and E. coli was 3,448 per 100 milliliters of water, which is very high but not unusual for that site.

Hydrologic Monitoring

In June, average rainfall across the watershed was 9.8", a couple inches more than the historical average of 7.7". The NEXRAD radar-based rainfall measurements detected rain on 26 days throughout the month, with the largest single day total of 2.1" observed on June 3. Year-to-date cumulative rainfall through May is 29" which is 24% above the historical average of 23.3" and is nearly equal to the cumalative rainfall experienced by this time last year (see figure at right).

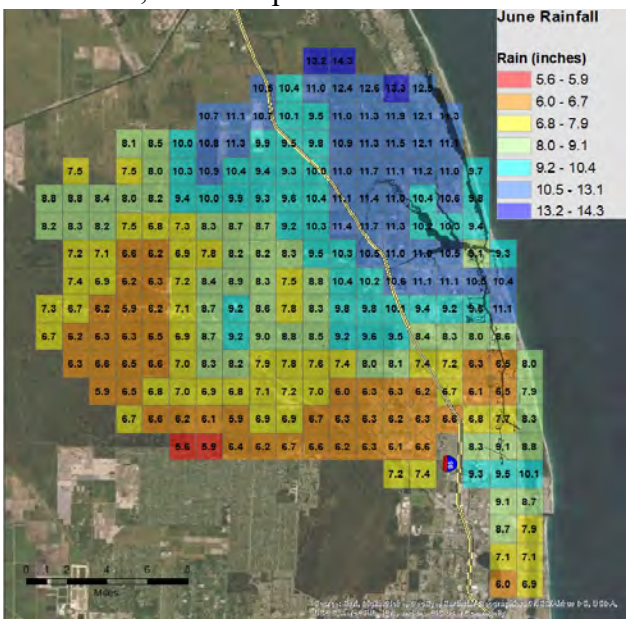


Cumulative annual rainfall using NEXRAD radar-based data. Red line indicates current 2020 cumulative rainfall total. Blue circles indicate mean cumulative rainfall since 1998. (2019 indicated as dark gray line).

Spatially, there was an 8.4" difference in rainfall totals across the watershed between the driest and wettest

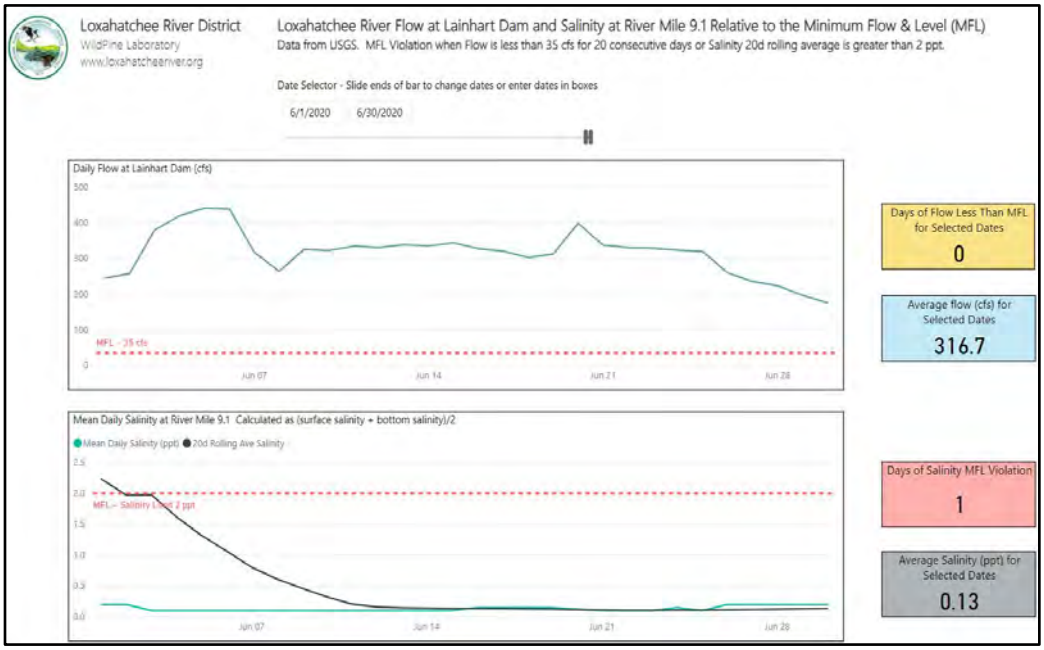
regions (see figure below right). As in May, the wettest region included Jonathan Dickinson State Park which experienced up to 14" of rain (much of the park remains flooded as of this writing) and extending southward to the estuary and urban Jupiter which experienced 8" to over 11" of rain. The driest regions continue to generally be in the south and western portion of the watershed, including J.W. Corbett Wildlife Management Area, Pratt & Witney, and Pine Glades Natural Area, which experienced 6" to 7" of rain.

Concurrent with continued high rainfall came increased river flows. River flow measured at Lainhart Dam throughout June ranged from 176 cfs measured on June 30 to a peak flow of 442 cfs measured on June 5, with an overall average for the month of 317 cfs. The minimum flow on June 30 came on the heels of a five-day downward trend (see figure below). To help alleviate some of the excessive flow through the Northwest Fork, water managers redirected flow into the C-18, through the G-92 bidirectional water control gate around June 6 with a peak reverse flow of 143 cfs. Flow measured at the S-46 stormwater control structure increased rapidly from zero flow through June 2 to a peak flow of 686 cfs on June 6. Since the peak on June 6, flow had gradually decreased until June 24 when flow ceased through the end of the month.



Rainfall distribution across the watershed using NEXRAD data. Each pixel represents an area of 2 km x 2 km. Blue colored pixels show highest rainfall and red pixels show lowest rainfall.

With the high flows, salinity is no longer a concern in the freshwater segments of the river and our focus shifts to monitoring reduced salinity in the estuary. With peak flows in both river forks near June 6, mean daily surface salinity at USGS US-1 bridge station measured 27 ppt (minimum of 3 ppt) during this time. As flows decreased through the remainder of the month, average daily salinity gradually returned to 33 ppt by month's end.



LRD's Minimum Flow & Level (MFL) data visualization tool available at www.loxahatcheeriver.org/river/. River flows measured at Lainhart Dam presented in the upper figure, Daily and 20-day rolling average salinity shown in the lower figure. A MFL Rule violation occurs when the black line crosses above the red dashed line in the lower figure.

Oyster Spawning and Settlement Monitoring

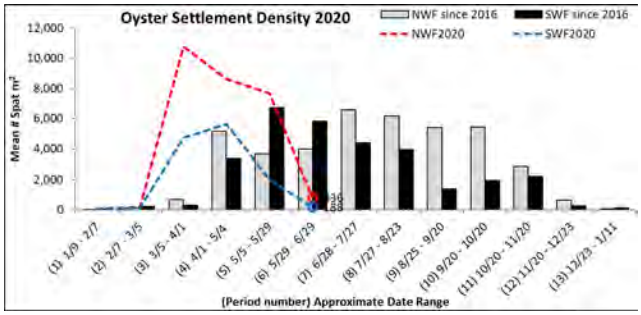
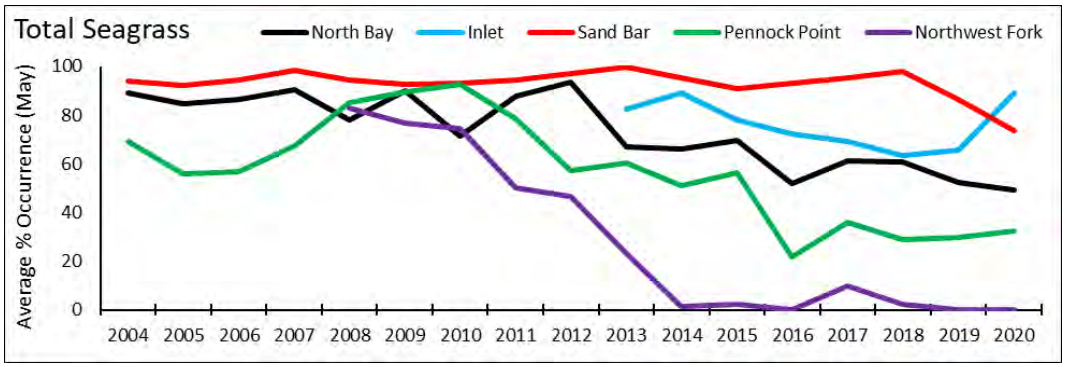


Figure shows mean oyster spat settlement for the Northwest Fork (gray bars) and the Southwest Fork (black bars) since 2016. Dashed lines show oyster spat settlement so far for 2020 in the NWF (red) and SWF (blue) with the most current density shown next to

The 31-day period ending June 29 saw a sharp decrease in oyster settlement activity in both river forks compared to last month. In the Northwest Fork, where oyster spat density was highest, average spat density was 836 spat m^2; substantially below the historical average (2016-2019) of 4,006 spat m^2 for this time period and down about 89% from last month (see figure at right). It should be noted that all settlement activity occurred at the downstream site as no oysters were observed at the upstream site, perhaps a result of the increased flows. In the Southwest Fork, average spat density was 188 spat m^2; a fraction of the historical average (2016-2019) of 5,845 spat m^2 for this time period and down about 90% from last month (see figure at right). In contrast to the NWF, settlement activity in the Southwest Fork the was evenly split between both the upstream and downstream sites. The most recent decline in spat density may indicate that oyster settlement activity is returning to a bimodal seasonal pattern observed prior to 2016 whereby a spike was seen during spring and fall with a slowdown during summer and cessation of activity during winter. It will be interesting to see what the coming months bring.

Bimonthly Seagrass Monitoring

June was the second of four monitoring events planned for the 2020 seagrass monitoring season. Seagrass presence this month was a mix of observations - some sites experienced an increase while other sites saw a decline compared to June of recent years. The greatest increase occurred at the Inlet site where mean total seagrass occurrence for June 2020 was 89% which equals the highest June mean total recorded in 2014 (see figure below) and is a 35% increase over June 2019. Pennock Point monitoring site showed a modest increase from 30% occurrence in June of 2019 to 32% in June 2020.



Total Seagrass percent occurrence during April of each year beginning in 2004. Data represent the average presence of seagrass regardless of species. North Bay (black), Sand Bar (red), and Pennock Point (green) were the original seagrass monitoring sites thus data go back to 2004. The sites Northwest Fork (purple) and Inlet (blue) were subsequently added in later years.

The Northwest Fork seagrass site continues to show very low seagrass presence with only a single shoot of Shoal grass observed for an average total occurrence of less than 1%. While only slightly higher than April 2019 total which was zero, this is still substantially below the average and certainly far from the peak of 83% in April 2009. Both Sand Bar and North Bay seagrass sites set new low benchmarks for average total seagrass occurrence for June. At the Sand Bar site, which historically been the most stable site in terms of seagrass presence, had 74% occurrence, down 15% from the 86% occurrence seen in June 2019. This is a particularly troubling trend that we are seeing at this site. Historically, across all months, the average percent occurrence here is well above 90%. However, since June 2018, there has been an

overall decline of seagrass at this site as during the last seven site visits since June 2018 none have been above 90% occurrence. The declining trend observed at North Bay is more long-term showing slow declines over the years corresponding to significant sediment accumulation.

Volunteer Water Quality Monitoring Program

Due to the pandemic, many of our volunteers are still not comfortable performing their water quality monitoring. Once again, we are very grateful to Mrs. Gates and Mrs. Siani, who monitored their sites 4 times this month.

The cumulative grades for all the parameters for June at Rivers Edge (site LR107V) was a grade of low "C" with unusually low salinity. The Inlet site (LR10V) was a "D", which was also affected by the significant freshwater flows that altered nearly all water quality parameters – most notably salinity and pH.

Volunteer water quality scoring.

June-20	Averaged results for the Month							Monthly Cumulative Scores						Cumul. Monthly	
Site	Temp (F)	Secchi	Salinity	pH	DO	DO%	Color	Vis	Salt	pH	DO	DO%	Color	Score	Grade
LR10V	82.9	1.2	29.1	8.6	6.2	93.6	1.3	C	D	F	C	C	C	68.8	D
LR107V	77.0	VAB	0.0	7.0	3.9	47.2	1.3	VAB	F	B	C	C	C	72.5	C
Average	79.9														

VAB (Visible at Bottom)
DO (Dissolved Oxygen)
ND (No Data)

Customer Service

Payment Processing

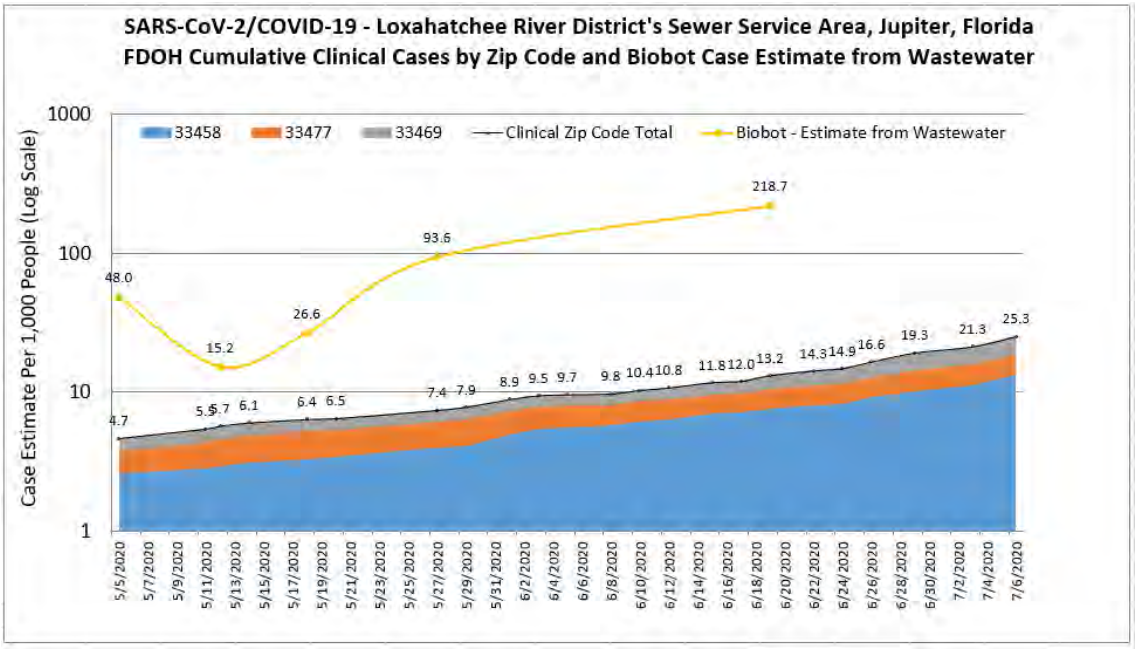
During June, the Customer Service staff sent out Past Due notices and processed the last of the 2nd Quarter payments consisting of 2,642 payments totaling over $321,000. This higher than usual number of payments during the 3rd month of the quarter further diminished the previous reduced payment counts and revenues to bring us to a 96% account satisfaction rate, which is right in line with our historical levels.

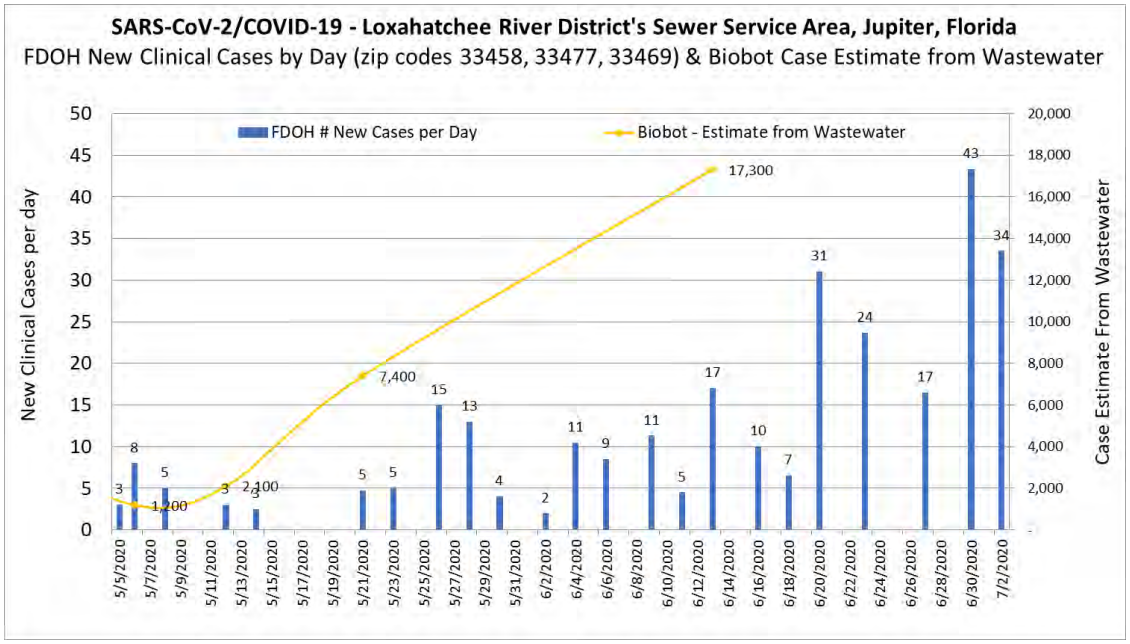
For the 2nd Quarter we saw a 40% increase in the numbers of payments paid over the phone (2,376). We also saw another increase in the proportion of digital payments (versus paper check or cash) at 71.7%, with more customers paying their bills through their bank's online bill pay service, over the phone, or through the District's web page. We also saw another increase in the numbers of Auto Payments to over 7,300 or 22% of our customers.

Staff have been preparing for the 3rd Quarter Billing, which is scheduled for distribution the week of July 13.

Testing for COVID-19 in our Wastewater

Because of the increased analysis costs to test for SARS-CoV-2 in our wastewater following the pro bono campaign in May, we shifted our sampling frequency to once per month. We sampled June 16 and Biobot measured significant increase the estimated number of cases to 17,300 in our sewer service area population of 79,100 people, or roughly 22% of the population. While the Biobot team is still refining the case count estimates, the trends appear to be ahead the the Florida Department of Health cumulative clinical case counts for the three zip codes that overlap with the bulk of our service area. The FDOH cumulative clinical counts by zip code are showing substantially increasing trends.

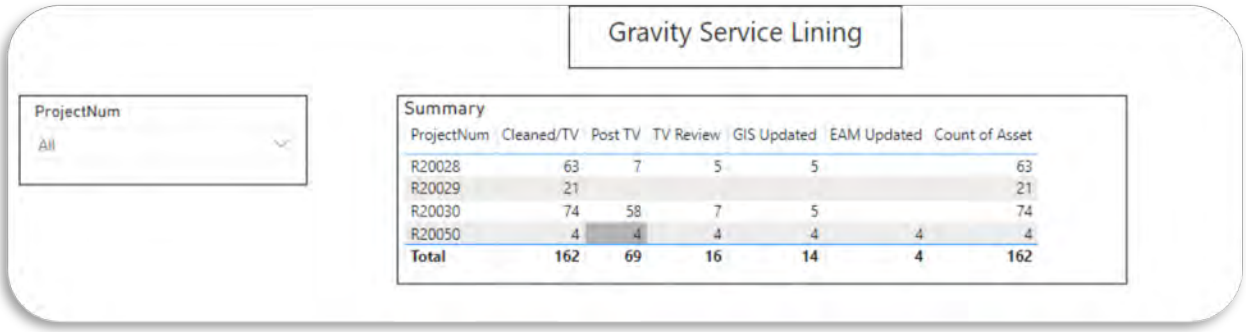




Information Technology (IT)

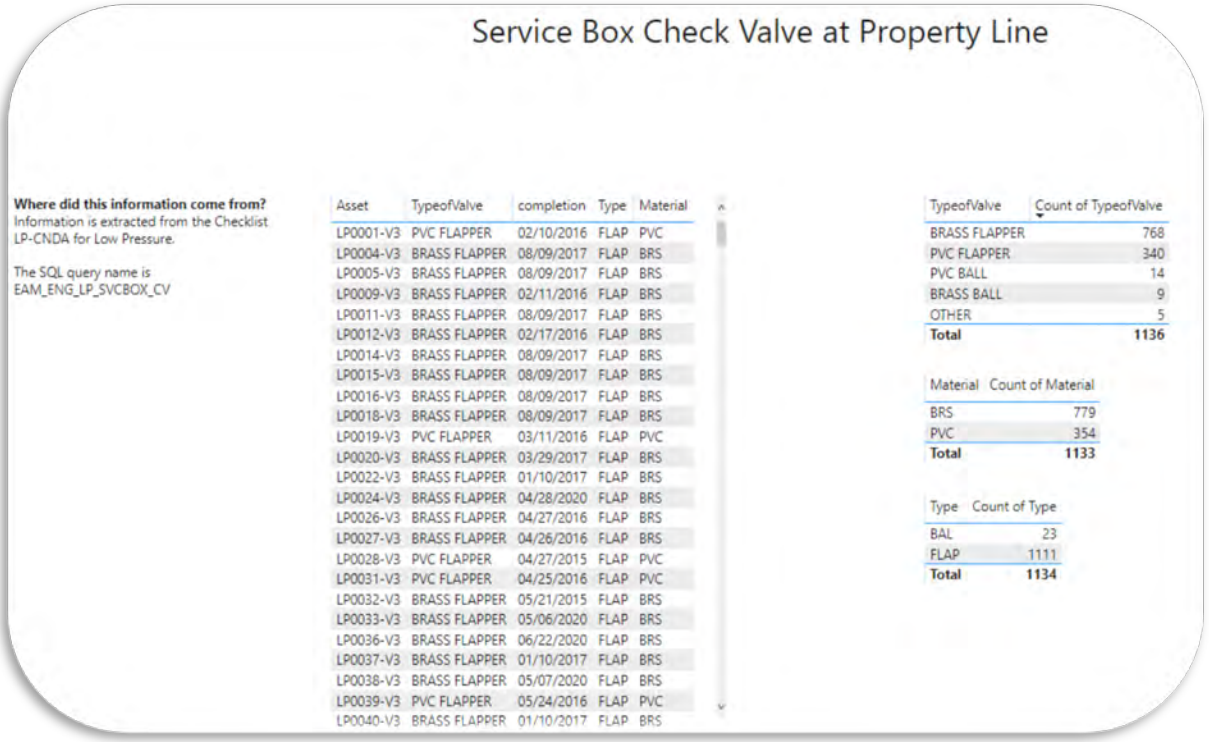
CMMS Reporting

The IT Staff continues to create new reporting functionality from our CMMS (Computerized Maintenance Management System) which can aid in tracking projects such as gravity service lining, or answer questions such as the number and types of service check valves in low pressure stations. Below are two examples of interactive reports that staff now have instant access to.



ProjectNum	Cleaned/TV	Post TV	TV Review	GIS Updated	EAM Updated	Count of Asset
R20028	63	7	5	5		63
R20029	21					21
R20030	74	58	7	5		74
R20050	4	4	4	4	4	4
Total	**162**	**69**	**16**	**14**	**4**	**162**

The Gravity Service Lining tool helps staff monitor the workflows and status of the District's lining projects including the completion dates of each segment or lateral, the inspection data, and the loading of the that information into our GIS and CMMS.



Asset	TypeofValve	completion	Type	Material
LP0001-V3	PVC FLAPPER	02/10/2016	FLAP	PVC
LP0004-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0005-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0009-V3	BRASS FLAPPER	02/11/2016	FLAP	BRS
LP0011-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0012-V3	BRASS FLAPPER	02/17/2016	FLAP	BRS
LP0014-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0015-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0016-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0018-V3	BRASS FLAPPER	08/09/2017	FLAP	BRS
LP0019-V3	PVC FLAPPER	03/11/2016	FLAP	PVC
LP0020-V3	BRASS FLAPPER	03/29/2017	FLAP	BRS
LP0022-V3	BRASS FLAPPER	01/10/2017	FLAP	BRS
LP0024-V3	BRASS FLAPPER	04/28/2020	FLAP	BRS
LP0026-V3	BRASS FLAPPER	04/27/2016	FLAP	BRS
LP0027-V3	BRASS FLAPPER	04/26/2016	FLAP	BRS
LP0028-V3	PVC FLAPPER	04/27/2015	FLAP	PVC
LP0031-V3	PVC FLAPPER	04/25/2016	FLAP	PVC
LP0032-V3	BRASS FLAPPER	05/21/2015	FLAP	BRS
LP0033-V3	BRASS FLAPPER	05/06/2020	FLAP	BRS
LP0036-V3	BRASS FLAPPER	06/22/2020	FLAP	BRS
LP0037-V3	BRASS FLAPPER	01/10/2017	FLAP	BRS
LP0038-V3	BRASS FLAPPER	05/07/2020	FLAP	BRS
LP0039-V3	PVC FLAPPER	05/24/2016	FLAP	PVC
LP0040-V3	BRASS FLAPPER	01/10/2017	FLAP	BRS

TypeofValve	Count of TypeofValve
BRASS FLAPPER	768
PVC FLAPPER	340
PVC BALL	14
BRASS BALL	9
OTHER	5
Total	**1136**

Material	Count of Material
BRS	779
PVC	354
Total	**1133**

Type	Count of Type
BAL	23
FLAP	1111
Total	**1134**

This new report mines the inspection data for tracking the numbers and locations of the various types of valves in the low pressure service boxes.

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Documenting the duration and chlorophyll pigments of an allochthonous *Karenia brevis* bloom in the Loxahatchee River Estuary (LRE), Florida

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ABSTRACT

In Fall 2017 a large bloom of the toxic dinoflagellate *Karenia brevis* developed in the Gulf of Mexico. After persisting for months, in Fall 2018 wind and water circulation patterns drove *K. brevis* towards the east coast of Florida. On September 29, 2018 Palm Beach County, FL beaches were closed due to respiratory and gastrointestinal issues associated with brevotoxins, and effects of brevotoxins were reported from within estuarine segments of the Loxahatchee River Estuary (LRE). This was the first apparent report of a *K. brevis* bloom impacting inshore portions of the LRE prompting us to question the longevity of *K. brevis* within a relatively shallow, well-flushed coastal-estuarine system. Within 3 days (October 1, 2018) of the first reported effects of toxins, *K. brevis* reached over one million cells/L and chlorophyll-a concentrations peaked at 13 μg L^{-1}. Within 11 days (October 9, 2018) both *K. brevis* and chlorophyll pigment concentrations significantly (p-perm ≤ 0.05) dropped to an average of ≤ 30,000 cells L^{-1} and < 4 μg L^{-1} chlorophyll-a, indicating that the bloom had diminished. Using distance-based linear modeling (DistLM) *K. brevis* abundance alone explained 66% of the variation in a multivariate measure of chlorophylls (driven by carotenoids and chlorophyll-c pigment concentrations), supporting a *K. brevis* dominated bloom. Following the *K. brevis* bloom, additional HAB species *K. mikimotoi* and *Pseudo-nitzschia* spp singularly explained 6% of the variations in the multivariate measure of chlorophylls. The low explanatory power of individual HAB species, including *K. brevis* (≤ 0%), signifies the recovery of the phytoplankton population, where non-HAB species likely contributed to the variability in the multivariate measure of chlorophylls and overall chlorophyll-a concentrations (average of 2 μg L^{-1} during non-bloom conditions). Finally, we evaluated ambient and historical water quality data to assess how these parameters changed before, during, and after the 2018 *K. brevis* bloom. Temperature, salinity, and nutrients in the LRE were comparable to reports of other *K. brevis* bloom events along the west coast of Florida. Reduced ammonia-nitrogen (NH_3-N) concentrations and increased tidal amplitude coincided with the end of the bloom in 2018. More work is needed to understand the specific mechanisms constraining *K. brevis* blooms in tidal estuaries. We suggest that future research focus on water residence times along with nutrient availability in controlling allochthonous HABs in lotic and tidally flushed estuaries. Also, we anticipate this work may stimulate additional efforts to characterize HABs using *in situ* observations coupled with multivariate measures of chlorophylls, though we recognize much work remains to fully define the value of this approach.

1. Introduction

1.1. Harmful algal blooms (HABs)

Harmful algal blooms (HABs) generally describe prolific monospecific growth of a microalgae species that produce noxious phycotoxins (Anderson et al., 2012). HABs can severely impact coastal systems where the magnitude of impacts is governed by HAB species, abundance, and persistence (Paerl, 1988). In shallow, sheltered systems with longer residence times HABs can persist for years (e.g., Buskey et al., 1997). Alternatively, in dynamic estuaries with high turnover, allochthonous HABs can be short lived (e.g., Phlips et al., 2012; Dix et al., 2013; Hart et al., 2015). Typically, an increase in algal biomass is linked to increasing phosphorous in freshwater systems, and a similar positive relationship between forms of nitrogen and HAB species in marine environments (Anderson et al., 2002; Heisler et al., 2008). Coastal eutrophication is thought to be a major contributor to the development of many HABs (Lapointe et al., 2015, 2017), but after

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initial development, bloom persistence may be driven by a combination of factors including nutrient availability, water circulation patterns and residence times, weather conditions, and grazer populations (Anderson et al., 2002; Smayda, 2008). In well-flushed estuaries, HABs should be constrained by tidal exchange (Ketchum, 1954). However, since tidal exchange may not be equal across an estuary, actual bloom dynamics may contradict a simplified model (Monson et al., 2002), especially where tidal asymmetry creates opportunities for HAB species to repopulate if/when beneficial light, nutrient, and tidal conditions persist (Roelke and Pierce, 2011).

1.2. Karenia brevis

At least twelve species within the dinoflagellate genus *Karenia* have been identified as potential HAB forming species (Brand et al., 2012). Blooms of *Karenia brevis* (formerly *Gymnodinium breve*) are common along Florida's Gulf Coast (Perkins, 2019) and, due to its toxic effects, *K. brevis* is arguably the most well-studied HAB species worldwide (Brand et al., 2012). Blooms are thought to initiate offshore in oligotrophic, near-bottom waters of the west Florida continental shelf in the Gulf of Mexico (Steidinger, 1975; Tester and Steidinger, 1997). Once formed, blooms can range from small, low-abundance ($\leq 10^5$ cells L^{-1}), short-lived patches to large blooms with high *K. brevis* abundance ($>10^6$ cells L^{-1}) that can span thousands of square kilometers (Steidinger et al., 1998; Walsh et al. 2003). *Karenia brevis* has been categorized as slow growing (0.1 to 0.36 divisions per day), with growth rates significantly influenced by light, salinity (Magaña and Villareal, 2006), and nutrient conditions (Steidinger et al., 1998; Sinclair et al., 2009). *Karenia brevis* is able to uptake various forms of nutrients (e.g., Anderson et al., 2002; Burkholder et al., 2008; Vargo et al., 2008), but preferentially uptakes ammonium and may rely on ammonium to maintain blooms (e.g., Bronk et al., 2014; Killberg-Thoreson et al., 2014). Freshwater inputs, high nutrients, and colored dissolved organic matter (CDOM) have all been associated with the presence and persistence of *K. brevis* blooms along Florida's west coast (Yentsch et al., 2008). In contrast, along the east coast of Florida, studies of well-flushed estuaries have found a lack of positive relationships between nutrients and *K. brevis*, where regional hydrodynamics and rainfall appear to drive phytoplankton assemblage and biomass (e.g., Hart et al., 2015). These inconsistencies suggest a location specific response of the phytoplankton community and underline the need to further investigate localized HAB dynamics.

Karenia brevis produce a suite of neurotoxins (brevetoxins) (Poli et al., 1986) responsible for mortalities in a diversity of marine organisms including fish, turtles, birds and marine mammals (Gannon et al., 2009; Landsberg et al., 2009). Brevetoxins can also cause illness in humans, primarily through ingestion of shellfish that have accumulated brevetoxins (neurotoxic shellfish poisoning – NSP) and inhalation of aerosol-borne toxins (Fleming et al., 2005; 2011; Hoagland et al., 2014; Kirkpatrick et al., 2004). The effects of brevotoxins on marine organisms appear to be species specific, causing reduced filter feeding in benthic invertebrates and/or accumulation of toxins in the tissues (e.g., Echevarria et al., 2012). In estuarine systems prolonged exposure to *K. brevis* can be particularly problematic for local fisheries, leading to reduced survivorship of economically important shellfish (e.g., *Menippe mercenaria*; Gravinese et al., 2018, *Crassostrea virginica*; Rolton et al., 2015) or large-scale mortalities (*Perna viridis*; Mcfarland et al., 2015). In addition to brevetoxins, *Karenia brevis* also produces a separate suite of allelochemicals which can negatively impact other phytoplankton, although the effects can differ widely among species (Kubanek et al., 2005, 2007; Granéli et al., 2008; Prince et al., 2008, 2010). As with other phytoplankton, *K. brevis* can be consumed by grazing zooplankton, though grazing may be negatively impacted due to toxicity and poor nutritive quality of *K. brevis*, further driving the dominance of *K. brevis* during blooms (Kubanek, et al., 2007; Turner and Tester, 1997; Wagget et al., 2012). These species-variable responses to *K. brevis* suggest that individual organism tolerance, along with the abundance and persistence of *K. brevis* cells, will dictate the degree to which a bloom will impact estuarine environments.

1.3. Chlorophyll pigments

Measurements of chlorophyll-a concentrations (μg L^{-1}) are frequently used as a proxy of phytoplankton biomass (e.g., Anderson et al., 2002; Boyer et al., 2009). Peaks in other light absorbing accessory chlorophylls can also be measured to identify specific groups of algae, where variations in peaks of light absorbance are attributed to unique algal compositions (Millie et al., 1995, 1997). Johnsen et al. (1994) used laboratory monocultures to quantify response in light absorbance across various groups of phytoplankton (diatoms, dinoflagellates, prymnesiophytes, euglenophytes, prasinophytes, raphidophytes, cryptophytes, chlorophytes, chrysophytes and cyanobacteria). Jeffrey and Humphrey (1975) expanded upon this to describe concentrations of different chlorophylls (a, b, c1, c_2) in mixed phytoplankton populations. Thus, proportional concentrations of chlorophylls may provide a general index, where individual chlorophylls can serve as potential indicators of certain phytoplankton groups. For example, in addition to chlorophyll-a, chlorophyll-c_2 is found in the Ochrophyta (diatoms and brown algae) as well as in photosynthetic dinoflagellates (Dougherty et al., 1970; Jeffrey et al., 1997). Similarly, chlorophyll-c_3 is found in some diatoms and haptophytes, as well as type-2 dinoflagellates (non-peridinin containing dinoflagellates, including *K. brevis*) (Fooks and Jeffrey, 1989; Jeffrey et al., 1975, 1997). While detailed estimates of phytoplankton taxa can be made by analyzing carotenoid accessory pigments (Higgins et al., 2011; Jeffrey et al., 2011), estimations of different chlorophylls along with estimations of broad accessory pigment classes (i.e. carotenoids and pheophytin) also can provide a useful way to track changes in phytoplankton community composition. Methods for analyzing chlorophyll and accessory pigments range from matrix factorization based on high-performance liquid chromatography (HPLC) identification of pigment concentrations (Mackey et al., 1996) to pattern recognition for *in-situ* classification of fluorescence spectra (Zieger et al., 2018). Although the specific methods vary, each use pigment information to identify groups of phytoplankton, useful in determining phytoplankton functional types (e.g., Moisan et al., 2017). Based on the above, we may expect a higher proportion of chlorophyll-c and/or carotenoids measured in the presence of dinoflagellate species, such as *K. brevis*. However, in regions with a diverse phytoplankton assemblage (i.e. many species contributing to total chlorophyll biomass), the composition of chlorophyll pigments will be an amalgamation, making it difficult to discern the presence or abundance of individual taxa or species (Millie et al., 1997) unless supplemented with additional analysis such as microscopy.

A very strong positive relationship between chlorophyll-a concentrations and *K. brevis* has been observed in offshore and nearshore coastal regions (Tester et al., 2008). This has allowed the successful use of remote sensing to locate and track *K. brevis* offshore (e.g., Carder and Steward, 1985; El-habashi et al., 2016). In Florida, U.S., the National Oceanic and Atmospheric Administration (NOAA)'s Harmful Algal Bloom Operational Forecast System (HAB-OFS) uses National Aeronautics and Space Administration (NASA)'s Moderate Resolution Imaging Spectroradiometer (MODIS) determined chlorophyll-a concentrations along with confirmatory cell counts from the Florida Fish and Wildlife Research Institute (FWRI) database to track *K. brevis* booms; the group, along with partner agencies, also applies winds, currents, and hydrodynamic models to forecast bloom transport offshore (https://habsos.noaa.gov/). Such methods of remotely tracking HABs typically focus on chlorophyll-a values, with similar algorithms used to identify accessory chlorophyll pigments and their associated phytoplankton functional types along the coast and offshore (e.g., Moisan et al., 2017). However, such remote sensing efforts have proven more challenging in nearshore and estuarine systems due to terrestrial inputs (e.g., CDOM, freshwater algal species, etc.) and shallow water

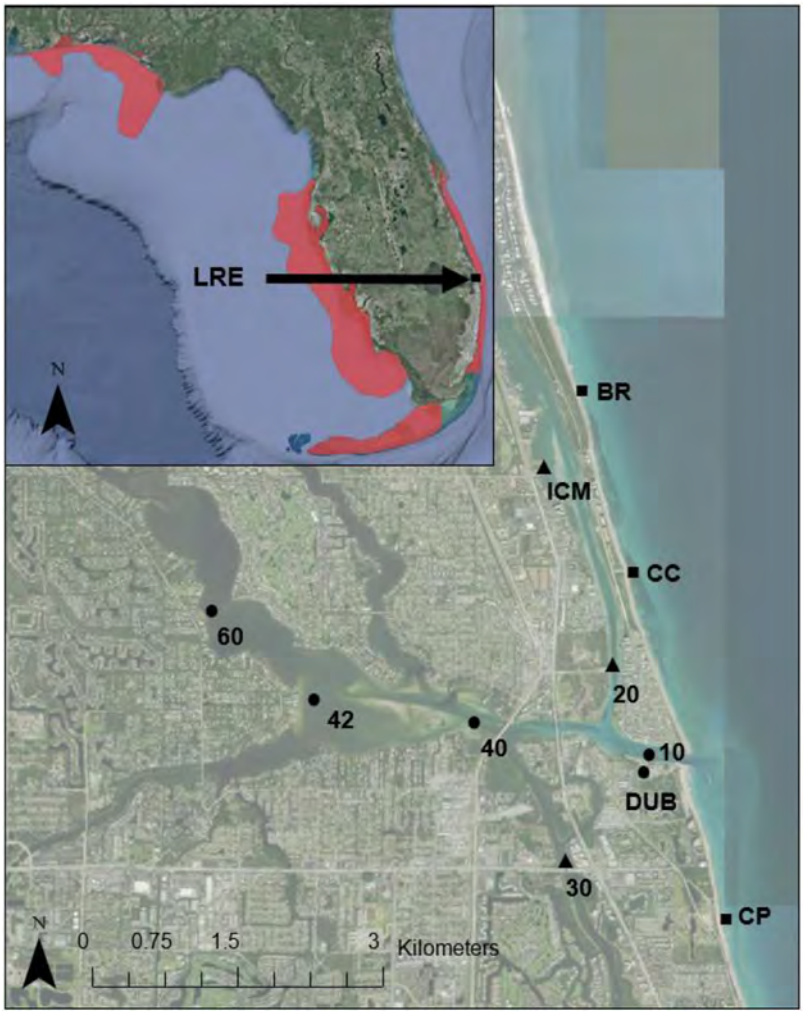

Fig. 1. Map of Loxahatchee River Estuary (LRE) and nearshore waters with coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)] shown as squares, intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] shown as triangles and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] shown as circles. Inset map of Florida with large arrow pointing to LRE (black square) and showing regions of confirmed *K. brevis* > 1,000 cells L^{-1} *K. brevis* from Oct 2017 (the first *K. brevis* occurrence off the West Florida Shelf) until Mar 2019 (when locations across Florida < 1,000 cells L^{-1}); inset map information from https://habsos.noaa.gov/.

features that confound satellite imagery (Carder and Steward, 1985; Elhabashi et al., 2016; Moisan et al., 2017). This creates a gap since we cannot currently account for HAB dynamics in nearshore/estuarine reaches using satellite-based models. Recent use of autonomous mobile platforms has proven effective in tracking chlorophyll-a in shallow near-shore/estuarine systems (Beckler et al., 2019). Therefore, understanding relationships between various chlorophyll pigments and *K. brevis* abundance (i.e., cell counts) will prove fundamental to tracking HABs in nearshore/estuarine systems as the technology advances. Due to the monospecific nature of *K. brevis* blooms, we propose that a multivariate measure based on combined chlorophyll pigment concentrations (i.e., multivariate measure of chlorophylls) during a *K. brevis* bloom will be distinguishable from background chlorophylls. Furthermore, we predict that tracking estuarine-wide trends using the multivariate measure of chlorophylls will provide much needed insight into spatial and temporal bloom dynamics in nearshore and estuarine systems.

1.4. Florida's east coast

A bloom of *K. brevis* was first documented on the West Florida Shelf within the Gulf of Mexico beginning in October 2017 (https://habsos.noaa.gov/). This bloom expanded north and south along the west coast of Florida through 2018, eventually extending into the southeastern part of the Gulf of Mexico (see Weisberg et al., 2019). As has occurred with previous blooms (Tester and Steidinger, 1997), a distinct set of wind and current circulation patterns transported a portion of the bloom to the South Atlantic Bight via the Loop Current. The bloom then entered the Florida Straits, and moved north along the east coast of Florida from Biscayne Bay to Vero Beach. On Saturday, September 29, 2018 coastal beaches in northern Palm Beach County, FL, along Florida's Atlantic coast, were closed due to respiratory and gastrointestinal distress presumed to be caused by toxins released by *K. brevis* and carried onshore by strong east winds (Capozzi et al., 2018). On September 30, samples collected by Florida Fish and Wildlife Conservation Commission identified *K. brevis* cells at an inshore estuarine location within the Loxahatchee River Estuary (LRE) exceeding 300,000 cells L^{-1}. This was the first documented encroachment of *K. brevis* into inshore estuarine segments of the LRE, providing a unique opportunity to study the extent and longevity of *K. brevis* within the system. Here, we tracked a *K. brevis* bloom along inshore/nearshore coastal waters on the east coast of Florida to (1) document the extent and persistence (spatial and temporal variability) of an allochthonous HAB in a well-flushed estuary, (2) establish a relationship between *K. brevis* cell counts and a multivariate measure of chlorophylls (i.e., unique chlorophyll pigment concentrations) for inshore/nearshore coastal waters, (3) note the co-occurrence of other potential HAB species, including other *Karenia* species and *Pseudo-nitzschia* spp., and (4) assess water quality parameters before, during, and after the *K. brevis* bloom in the LRE. The goal of this work was to document an allochthonous HAB event in the LRE. A multivariate chlorophyll (pigment based) resemblance matrix was used to confirm a *K. brevis* dominated bloom *a priori* and water quality parameters were examined to add context to the bloom scenario. Although this study did not test the effects of nutrients, ancillary water quality data was evaluated to consider any substantial differences in nutrient concentrations before, after, and during the bloom to add

context to the observed decline in *K. brevis* counts.

2. Materials and methods

2.1. Study site

The LRE is a shallow (< 10 m), microtidal (1 – 2 m), ebb tidal delta in Southeast Florida (Bacopoulos and Hagen, 2009). The estuary is dynamic, with current velocities reaching up to 36 cm s^{-1} during flood tides, and conditions vary from distinct salinity stratification (approx. 1 m depth) to well-mixed, depending on weather conditions, tidal stage, and river segment (Wanless et al., 1984). Nutrient concentrations generally decrease across the upstream to downstream gradient, with estuarine portions of the LRE being primarily oligotrophic and P limited (N:P > 30:1; Stoner and Arrington, 2017). With a tidal prism of 4.0×10^6 m^3 (McPherson et al., 1982), mean water residence time has been estimated at 1 day (Swarzenski et al., 2006). In this study we sampled 3 coastal beaches and 8 inshore estuarine locations throughout the LRE (Fig. 1). Sampling locations extended from coastal beaches [Blowing Rocks (BR), Coral Cove (CC) and Carlin Park (CP)], throughout the intracoastal waterway [Intracoastal Marina (ICM), station 20, and station 30], and in the river along an estuarine gradient [downstream to upstream: station 10, Dubois (DUB), station 40, station 42 and station 60] (Fig. 1). Both intracoastal and river locations are considered estuarine, receiving daily tidal inputs. Not all locations were sampled on each sampling date. On October 1 we began sampling the three beach sites (BR, CC, and CP) and station 10, station 40 and station 42 in the river. On October 3 we expanded sampling to include the previous sites as well as three intracoastal waterway sites (ICM, 20, and 30) and DUB. On October 9 we added station 60 to complete our estuarine gradient and sampled these same 11 locations throughout the remainder of the study. Station 60, the farthest upstream sample point is well within the estuarine portion of the Loxahatchee River (Fig. 1) and located in a transitional region between seagrasses and healthy oyster reefs.

2.2. Algal samples

Surface water samples were collected 3 days (October 1, 2018), 5 days (October 3, 2018), 11 days (October 9, 2018), 13 days (October 11, 2018), 18 days (October 16, 2018), 33 days (October 31, 2018), and 40 days (November 7, 2018) following the initial report of *K. brevis* on September 29, 2018. All surface water samples were collected at or near high tide (salinities at the time of each sample collection ≥ 24) to encompass the farthest upstream extent of *K. brevis*.

Algal samples were collected ≤ 0.3 m depth and processed for chlorophyll concentrations and HAB species cell counts. Chlorophyll samples were collected in 1 L plastic brown containers and transported on ice. Samples were filtered onto 47 mm glass microfiber filters (i.e. GF/A Whatman) within 48 hrs and filters were stored frozen. Within 28 days of collection filtered samples were homogenized, steeped in 90% aqueous acetone for 24 hours, centrifuged at 4,000 RPM for 20 min and read on a spectrophotometer before and after a 90 s digestion with 1 % HCL (Parsons and Strickland, 1963; Jeffrey and Humphrey, 1975). Specific wavelength settings were used to identify chlorophylls-a (440 and 675 nm), -b (470 and 650 nm), and -c (460 to 470, 586 and 635 nm Johnsen et al., 1994). Chlorophylls and accessory pigments were calculated using the standard equations for mixed phytoplankton populations described in Jeffrey and Humphrey (1975):

$$\text{Chl} - \text{a} = (((11.85*(MB_{664} - MB_{750})) - (1.54*(MB_{647} - MB_{750})) - (0.08*(MB_{630} - MB_{750})))*V_e)/V_f*(MA_{750}/MA_{750})$$

$$\text{Chl} - \text{b} = (((21.03*(MB_{647} - MB_{750})) - (5.43*(MB_{664} - MB_{750})) - (2.66*(MB_{630} - MB_{750})))*V_e)/V_f*(MA_{750}/MA_{750})$$

$$\text{Chl} - \text{c} = (((24.52*(MB_{630} - MB7_{50})) - (7.6*(MB_{647} - MB_{750})) - (1.67*(MB_{664} - MB_{750})))*V_e)/(V_f)*(MA_{750}/MA_{750})$$

$$\text{Pheophytin} = (26.7*(1.7*(MA_{665} - MA_{750}) - (MB_{664} - MB_{750})))*(V_e/V_f)$$

$$\text{Carotenoids} = ((4*(MB_{480} - MB_{750}))/V_f)*(V_e)*(MA_{750}/MA_{750})$$

Where V_e is equal to the volume extracted (L), V_f is equal to the volume filtered (L), MB is equal to absorbance measurement before acidification, MA is equal to absorbance measurement after acidification, and subscript numeric values are equal to set wavelengths (nm). Individual chlorophyll pigment concentrations were used to develop a multivariate measure of chlorophylls (i.e., a unique 'fingerprint' or signature derived from relative concentrations of each of the chlorophyll pigments) which was applied in further analysis (Section *2.4 Data Analysis*).

HAB samples were collected in 60 mL glass containers and preserved using approximately 1% Lugols solution immediately after collection. Aliquots of 2 mL were examined under 200x – 400x magnification in a 24-well tissue culture plate after an approximate 10 min. settling time. It was beyond the scope of this study to identify and enumerate all phytoplankton species. Instead, only target species, with an emphasis on *Karenia* spp. and two other targeted potential HAB species (*Pseudo-nitzschia* spp, and *Pyrodinium bahamense*) were considered. Abundance of *K. brevis* in each sample was determined by identifying and enumerating all *Karenia* cells in the 2 mL sample. Samples with abundances greater than 10^6 cells L^{-1} were enumerated in a Nageotte hemocytometer. In addition to *K. brevis*, other *Karenia* species were identified and enumerated when present including, *K. asteriochroma, K. longicanalis, K. mikimotoi, K. papilionacea, K. selliformis, K. umbella,* and other unidentified *Karenia*-like species, designated as *Karenia* spp. The domoic acid-producing diatom, *Pseudo-nitzschia* spp, was reported as absent (zero) or present (≥500 cells L^{-1}) in this study.

2.3. Water Quality

The Loxahatchee River District has a long history of monitoring surface water quality within the LRE (Stoner and Arrington, 2017). In this study we assessed the physical and chemical characteristics of inshore surface waters in the intracoastal waterway [station 20 and station 30] and in the river along an estuarine gradient [downstream to upstream: station 10, station 40, station 42 and station 60] (Fig. 1). Historical water quality data examined herein includes samples collected from the same sites during the months September, October, and November from 2005 to 2017. Prior to 2017 all six stations were sampled for water quality parameters over 2 days in September and November, while only the three stations (station 10, station 30 and station 60) were sampled in October. In 2018 algal measures (chlorophylls and *K. brevis* cell counts) were collected at one additional station [Dubois (DUB)]. In September and November 2018 water quality measures were collected from three stations in the river along the estuarine gradient (station 10, station 40 and station 60). In October 2018 water quality measures were collected from all six stations; except NH_3-N which was only collected at three stations (station 10, station 30 and station 60). In 2018 water quality data was collected on September 10 (pre-bloom), October 8 and 9 (immediately post-bloom), and November 13 and 19 (post-bloom).

All measures of water quality were collected at approximately 0.3 m depth. A Hydrolab© datasonde multiprobe was used to measure temperature, pH, salinity and dissolved oxygen, and a Secchi disk were used to measure water quality *in-situ*. Advanced analyses were

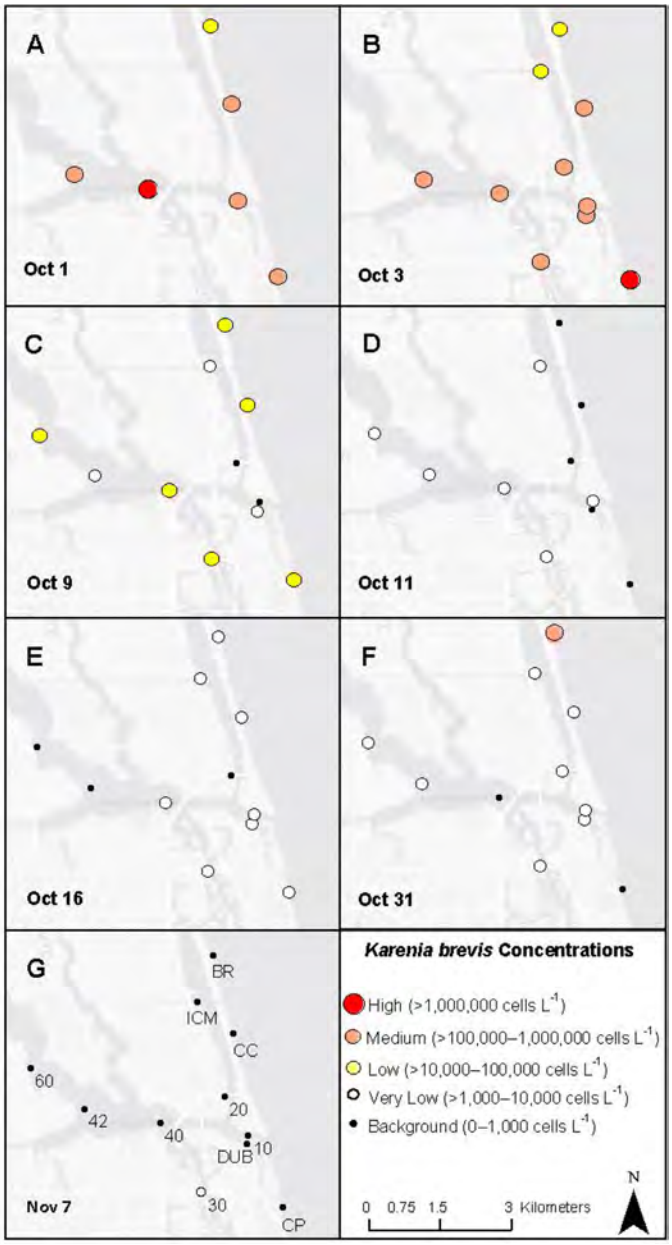

Fig. 2. Maps of Loxahatchee River Estuary (LRE) and nearshore waters showing *K. brevis* cell counts on each sampling date in 2018 per sample location. Site labels are shown in the last panel on Nov 7. Both colors and sizes correspond to *K. brevis* levels based on the scale used by Florida's Fish and Wildlife Conservation Commission (FWRI) (https://myfwc.com/research/redtide/statewide/).

conducted at Loxahatchee River District's WildPine Ecological Laboratory from surface water samples collected in acid-washed HDPE plastic sampling bottles. Samples were analyzed for: turbidity, chlorophyll-a (chl-a), colored dissolved organic matter (CDOM; true color reported as color in Platinum-Cobalt Units), total organic carbon (TOC), and nutrients [ammonia-nitrogen (NH_3-N), nitrate + nitrite nitrogen ($NO_2 + NO_3$), organic nitrogen (Org. N), total Kjeldahl nitrogen (TKN), total nitrogen (TN), orthophosphate (OP), and total phosphorous (TP)] following certified National Environmental Laboratory Accredited Program (NELAP) standard operating procedures (see Stoner and Arrington, 2017). Total nitrogen to total phosphorous ratios (N:P) were also included. Rainfall data was determined using NOAA and South Florida Water Management District's NEXRAD (Next-Generation Weather Radar) system, generating summary rainfall statistics across the Loxahatchee Watershed (data directly accessed https://loxahatcheeriver.org/river/rainfall).

2.4. Data analysis

Karenia brevis counts and the multivariate chlorophyll signature (i.e., chlorophyll pigment concentrations based on chlorophyll-a, b, c, carotenoid, and phaeopigment) were used to differentiate bloom from non-bloom conditions. Due to sample collection procedures and counting methods (Section 2.2, *Algal Samples*), in the HAB analysis, a count of ≥ 1,000 cells L^{-1} is equal to present. This quantification allowed for subsequent regression analysis of *Karenia* and *Pseudo-nitzschia* HAB species. The HAB species counts were log transformed to account for heteroscedasticity. An Euclidean's distance resemblance matrix was used to develop the multivariate measure of chlorophylls. This multivariate measure of chlorophylls was visualized using non-metric multidimensional scaling (nMDS). Similarity percentages (SIMPER) were used to determine the percent contribution of individual chlorophyll pigment concentrations to similarities in the multivariate measure of chlorophylls by sampling date. Permutational ANOVAs (PERMANOVAs), using 999 unique permutations, were generated to identify significant differences ($p \leq 0.05$) in *K. brevis* counts and the multivariate measure of chlorophylls by site and date. Step-wise distance-based linear models (DistLM) using the corrected Akaike information criterion (AICc) selection criteria, and 999 unique permutations, were used to determine which species, (if any) explained the greatest variability measured in the multivariate measure of chlorophylls. In post-hoc analysis bloom and non-bloom conditions were examined independently. In addition, a third model using both bloom and non-bloom conditions ('all') was also conducted. All HAB analysis and statistical tests were conducted using PRIMER v7.1 with PERMANOVA + (Anderson, 2014). Detailed pair-wise PERMANOVA results are provided as supplemental material (S1 and S2).

Water quality was compared by sample month (September, October, and November). Historical data included water quality values from September, October, and November for the years 2005 through 2017. Comparisons were made to characterize general seasonal patterns as well as identify differences between historical and 2018 conditions. Due to unequal sample sizes, non-parametric Kruskal-Wallis tests were employed and data was left untransformed. Monthly and time-period comparisons were conducted with the 'asbio' package in R v3.5 (Aho, 2014). The individual pair-wise Kruskal-Wallis tests are provided as supplemental material (S3).

3. Results

3.1. Karenia brevis

Karenia brevis was observed at low (>10,000–100,000 cells L^{-1}) and medium (>100,000–1,000,000 cells L^{-1}) levels along the beaches (BR, CC and CP) and medium (>100,000–1,000,000 cells L^{-1}) and high (>1,000,000 cells L^{-1}) levels in the river (station 42, station 40 and station 10) on October 1; station 60, station 30, ICM, station 20 and DUB were not sampled (Fig 2A; using the *K. brevis* levels assigned by FWRI). On October 3 the highest (>1,000,000 cells L^{-1}) level of *K. brevis* was located in the southernmost beach, CP, with medium (>100,000–1,000,000 cells L^{-1}) levels throughout a majority of the estuary (Fig. 2B). On October 9 *K. brevis* concentrations had declined, ranging from background (≤1,000 cells L^{-1}) to low (>10,000–100,000 cells L^{-1}) levels across the study area (Fig. 2C). On October 11 *K. brevis* was detected at very low (>1000–10,000 cells L^{-1}) levels in the river throughout the estuary (station 60, station 42, station 40 and station 10) and the intracoastal waterway (ICM and station 30) while the beaches and the remainder of the monitoring locations exhibited background (≤1000 cells L^{-1}) *K.. brevis* levels (Fig. 2D). This pattern shifted slightly on October 16 when *K. brevis* was

Table 1
Algal cell counts.

Date	n	K. brevis	K. mikimotoi	K. selliformis	Pseudo-nitzschia spp.
Oct 1	6	450,000 (64,000–1,202,000; 6)	-	-	-
Oct 3	10	370,600 (27,000–1,256,000; 10)	-	-	present (2)
Oct 9	11	15,750 (0–36,000; 7)	250 (0–1,000; 2)	125 (0–1,000,1)	present (3)
Oct 11	11	2,455 (0–10,000; 6)	91 (0–1,000; 1)	91 (0–1,000,1)	present (1)
Oct 16	11	1,818 (0–5,000; 9)	-	-	present (1)
Oct 31	11	25,455 (0–232,000; 10)	-	91 (0–1,000,1)	-
Nov 7	11	27 (0–2,000; 2)	-	-	present (1)

Mean (min.– max.; non-zero n) *Karenia* and *Pseudo-nitzschia* HAB species (cells L^{-1}) collected from coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)], intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] in 2018. Sample dates without identified HAB species are shown as '-'. PERMANOVA results provided in text.

detected at very low (>1000–10,000 cells L^{-1}) levels along the beaches (BR, CC, and CP), the intracoastal waterway (ICM and station 30), and the lower to mid estuary (DUB, station 10, and station 40) (Fig. 2E). On October 31 *K. brevis* levels increased at the northernmost beach [medium (>100,000–1,000,000 cells L^{-1}) at BR and low (>10,000–100,000 cells L^{-1}) at CC], with very low (>1000–10,000 cells L^{-1}) to background (≤1000 cells L^{-1}) levels throughout the remaining study area (Fig. 2F). By November 7 all locations returned to background (≤1,000 cells L^{-1}) or very low (>1000–10,000 cells L^{-1}) levels of *K. brevis* (Fig. 2G).

Measured *K, brevis* counts peaked at 1,256,000 cells L^{-1} at the CP beach sample site on October 3 (Table 1; Figs. 2; 3A). On average, *K. brevis* counts decreased from October 1 to November 7 (Table 1). *K. mikimotoi, K. selliformis* and *Pseudo-nitzschia* spp. were observed over the course of the study, although cell counts of these three potential HAB species never exceeded 1000 cells L^{-1} (Table 1). The saxitoxin-producing HAB forming dinoflagellate *Pyrodinium bahamense* was not detected in any analyzed samples. We identified significant differences in *K. brevis* counts between dates (PERMANOVA, df = 6, pseudo f = 15.8, MS = 151, p-perm = 0.001, perms = 998; Fig. 2A), but no significant differences between sites (PERMANOVA, df = 10, pseudo f = 0.72, MS = 6.8, p-perm = 0.73, perms = 999). Pairwise PERMANOVA results indicated no significant differences in *K. brevis* counts between October 1 and October 3 (t = 1, p-perm = 0.92, perms = 997). *Karenia brevis* counts on both October 1 and October 3 were significantly greater than all subsequent sample dates (pairwise PERMANOVA, t ≥ 2.5, p-perm ≤ 0.05, perms ≥ 996), signaling the bloom peak (Fig. 3). This was followed by a decrease in mean *K. brevis* counts from 15,750 cells L^{-1} (0 – 36,000 cells L^{-1}) on October 9, to 2,455 cells L^{-1} (0 – 10,000 cells L^{-1}) on October 11, to 1,818 cells L^{-1} (0 – 5,000 cells L^{-1}) on October 16 (Fig. 3; Table 1). *Karenia brevis* counts on October 31 were the exception, where we measured an increase in average *K. brevis* to 25,455 cells L^{-1} (0 – 232,000 cells L^{-1}); due to the high *K. brevis* count measured at BR (232,000 cells L^{-1} shown as outlier; Fig. 3A). All sites returned to background levels (≤ 1,000 cells L^{-1}) by November 7 (Fig. 2). This was supported in pairwise PERMANOVA results, where November 7 had significantly lower *K. brevis* counts than any other sample date (t ≥ 2.6, p-perm ≤ 0.03, perms ≥ 996). Fig. 3A illustrates average *K. brevis* bloom conditions in green, while Fig. 3B highlights average *K. brevis* cell counts by sample location (excluding bloom conditions, i.e., October 1 and October 3).

3.2. Chlorophyll pigments

Based on a comparison between the corrected and uncorrected chlorophyll concentrations (Person's r = 0.91), in 2018 phaeopigment was not a large component of chlorophyll-a. Hereafter, only the uncorrected chlorophyll-a concentrations are reported. In general, chlorophyll-a, chlorophyll-c and carotenoid pigment concentrations decreased over time from October 1, to November 7, and total chlorophyll-a concentrations remained below 15 μg L^{-1} (Table 2). Chlorophyll-b concentrations remained ≤ 0.5 μg L^{-1}, maximum chlorophyll-c concentrations reached 2.2 μg L^{-1}, phaeopigments concentrations ranged from 0 to 2.6 μg L^{-1}, and carotenoid concentrations 0.4 to 7 μg L^{-1} (Table 2). Site similarities in carotenoid concentrations decreased after the bloom, whereas site similarities in chlorophyll-a concentrations increased after the bloom (SIMPER results; Table 2). Carotenoid concentrations contributed > 60 % of the site similarities throughout bloom conditions (Table 2). Chlorophyll-c concentrations contributed > 20 % of site similarities during initial bloom conditions on October 1 while phaeopigment concentrations were inconsistent over time, contributing to > 20% of site similarities on October 3, 11, and 16 (Table 2). The contribution of chlorophyll-b concentrations to site similarities remained consistently low (≤ 2 %) throughout the study in both bloom and non-bloom conditions (Table 2).

Using the multivariate measure of chlorophylls, we identified significant differences between both dates (PERMANOVA, df = 6, pseudo f = 32, MS = 7.6, p-perm = 0.001, perms = 998; Fig. 4A) and sites (PERMANOVA, df = 10, pseudo f = 12, MS = 2.8, p-perm = 0.001, perms = 996; Fig. 4B). The vectors (showing Pearson's r ≥ 0.7) in Fig 4A depict bloom conditions driven by chlorophyll-a, phaeopigment, carotenoids and chlorophyll-c on October 1 and October 3. Fig. 4B highlights differences in the multivariate measure of chlorophylls between sites, where, aside from samples collected during bloom dates (October 1 and October 3), station 60, the farthest upstream site, had the strongest chlorophyll pigment concentrations. Regardless of differences between dates and sites, sample points did not cluster in isolation (Fig. 4A and B). This provided a gradient across both dates (temporal) and sites (spatial) for subsequent regression analysis. The multivariate measure of chlorophylls shown in Fig. 4 is a graphical depiction of the individual chlorophyll pigment concentrations in the samples summarized in Table 2. On average, chlorophyll-a, chlorophyll-c and carotenoid pigment concentrations were higher during bloom conditions (Table 2). The SIMPER results expand upon this, where site similarities in the multivariate measure of chlorophylls were driven by carotenoid pigment concentrations during the *K. brevis* bloom (≥ 60% on October 1 and October 3; Table 2). Significant differences in the multivariate measure of chlorophylls (pairwise PERMANOVA, t ≥ 2.5, p-perm ≤ 0.05, perms ≥ 996) between sample dates supports the high *K. brevis* cell counts during the initial bloom (October 1 and October 3); nonetheless, we measured additional differences in the multivariate measure of chlorophylls between sample dates that appeared to be related to site differences and did not reflect the patterns measured in *K. brevis* cell counts (Supplemental S2).

3.3. HAB species

Fig. 4A confirms the positive relationship between the multivariate measure of chlorophylls and *K. brevis* abundance during bloom conditions (October 1, 2018 and October 3, 2018). However, this relationship dissipates under non-bloom conditions (Fig. 5A). *Karenia brevis* was noted as far upstream as site 60, and present (i.e., ≥500 cells L^{-1}) at

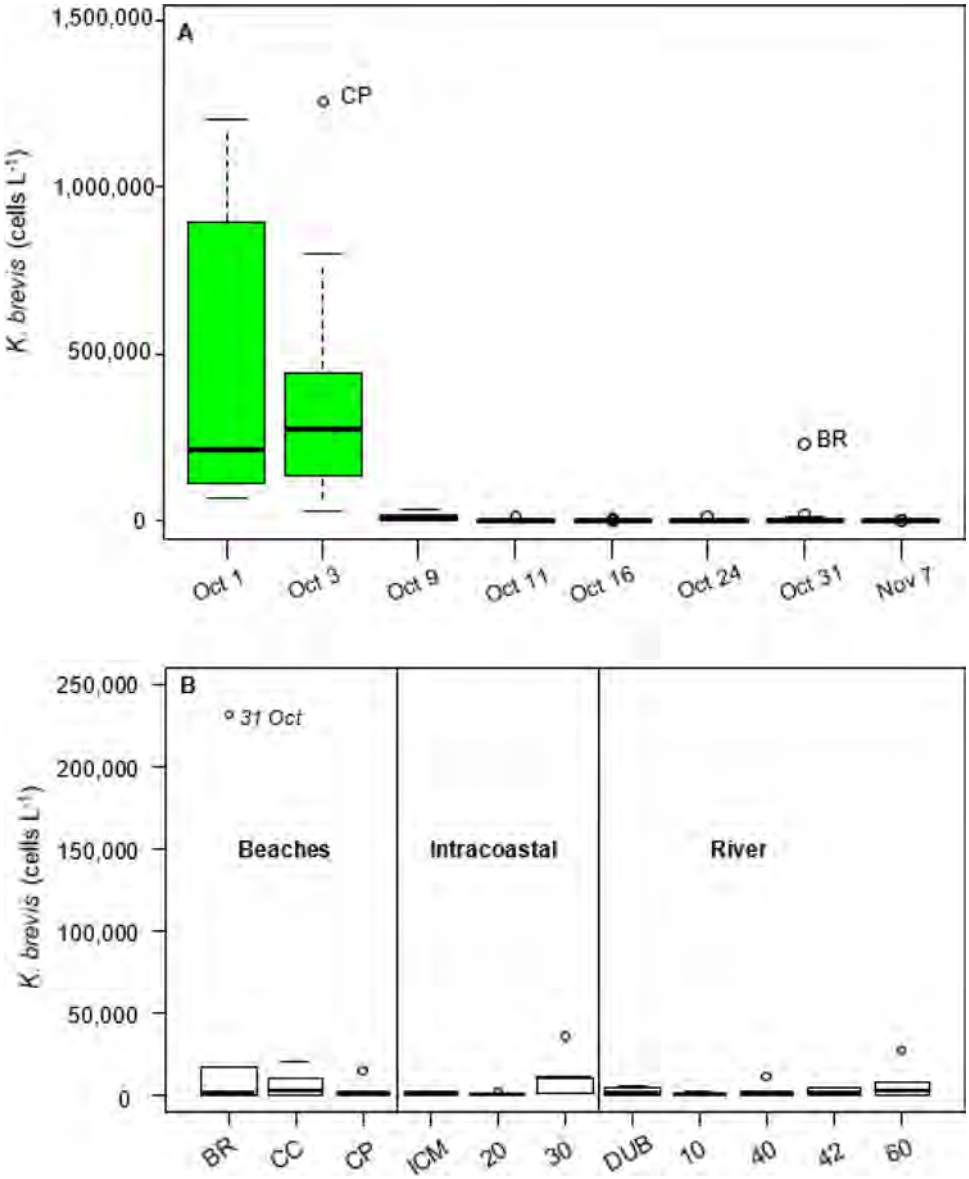

Fig. 3. Median (-), upper and lower quantiles (box), whiskers (upper and lower limits) and outliers (°) of *K. brevis* cell counts collected at coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)], intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] in 2018 by (**A**) sample date (bloom conditions on Oct 1 and Oct 3 are shown in light green with outliers labeled), (**B**) samples collected after the bloom by location.

Table 2
Chlorophyll pigments.

Date	n	chlorophyll-a	%	chlorophyll-b	%	chlorophyll-c	%	phaeopigment	%	carotenoids	%
Oct 1	6	8.1 (5.8–13.3; 6)	37	-	-	1.2 (0.7–2.2; 6)	23	0.9 (0.6–1.3; 6)	9	4.1 (2.9–7.0; 6)	63
Oct 3	10	7.6 (4.4–12.2; 10)	34	0.1 (0.0–0.2; 5)	2	1.2 (0.8–1.8; 10)	8	1.3 (0.7–2.6; 10)	23	3.0 (1.3–5.0; 10)	66
Oct 9	8	4.1 (2.0–8.4; 8)	43	0.1 (0.0–0.2; 4)	2	0.7 (0.3–1.1; 8)	9	1.1 (0.4–1.9; 8)	17	1.9 (0.9–3.8; 8)	57
Oct 11	11	2.4 (0.9–7.3; 11)	39	0 (0.0–0.2; 4)	1	0.4 (0.0–1.3; 10)	10	0.7 (0.0–2.3; 9)	31	1.0 (0.4–2.8; 11)	20
Oct 16	11	2.6 (0.7–8.6; 11)	42	0.1 (0.0–0.4; 3)	1	0.3 (0.0–0.9; 8)	8	0.6 (0.0–2.4; 8)	24	1.3 (0.4–4.3; 11)	25
Oct 31	11	2.1 (0.6–7.7; 11)	52	0.1 (0.0–0.3; 3)	1	0.3 (0.0–1.2; 8)	13	0.2 (0.0–1.4; 5)	14	0.8 (0.3–2.9; 11)	20
Nov 7	11	2.3 (0.8–6.3; 11)	51	0.0 (0.0 –0.3; 1)	2	0.3 (0.0–1.0; 10)	11	0.4 (0.0–1.1; 9)	14	1.0 (0.4–2.5; 11)	23

Mean (min.– max.; non-zero n) of chlorophyll pigment concentrations (μg L^{-1}) collected from coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)], intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] in 2018. % values note the SIMPER results showing the contribution of individual chlorophyll pigment concentrations to the multivariate measure of chlorophylls. Sample dates without specific chlorophyll pigments are shown as '-'. PERMANOVA results provided in text.

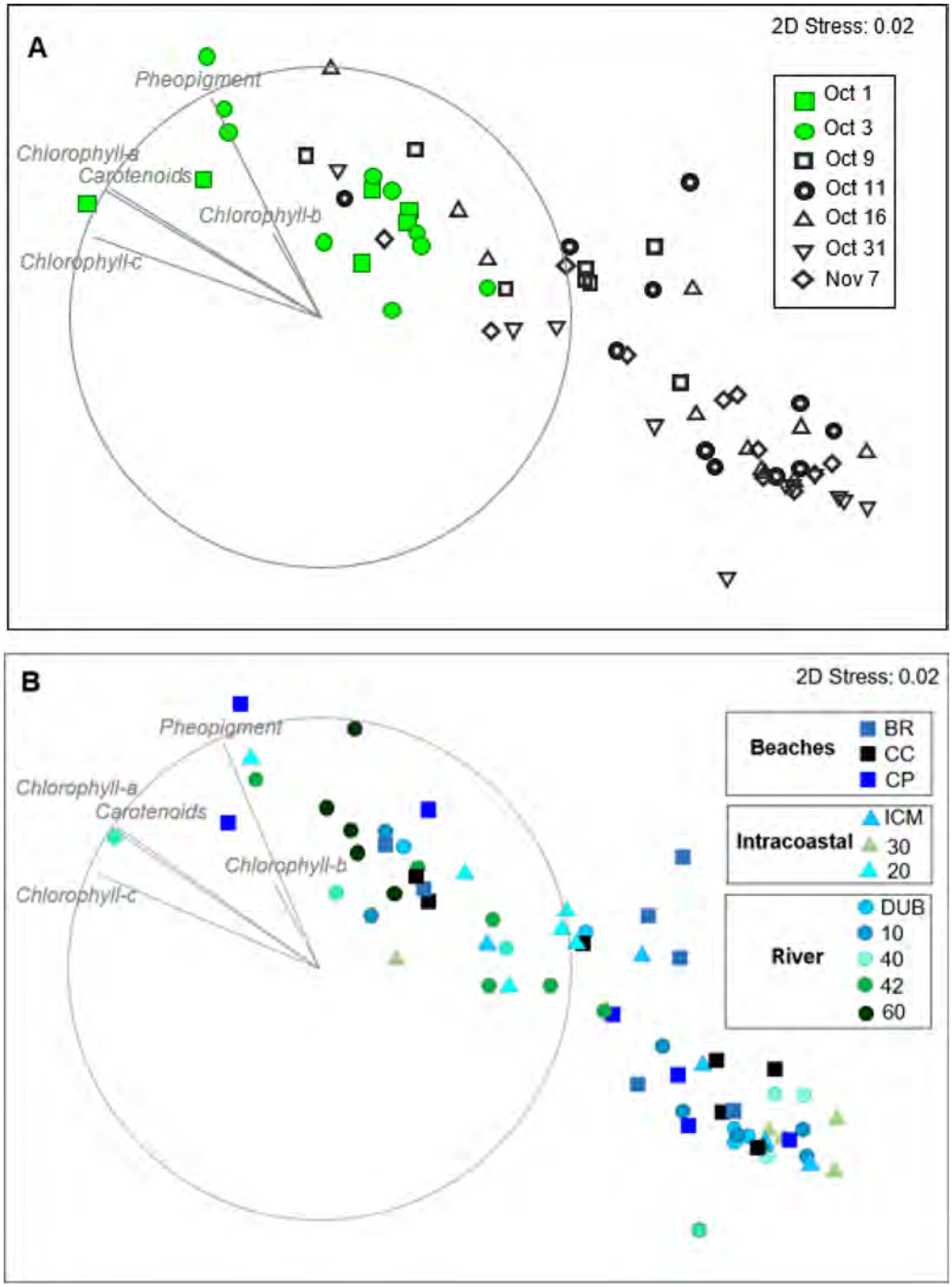

Fig. 4. nMDS (Log transformed, Euclidean distance) plots showing multivariate measure of chlorophylls collected at coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)], intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] in 2018 by **(A)** date and **(B)** site. Vectors (gray) show the individual chlorophyll pigment concentrations driving (Pearson's r ≥ 0.7) site similarities (SIMPER values of individual chlorophyll % contributions provided in Table 2).

each sampling site. The relationship between *K. brevis* counts and multivariate measure of chlorophylls was not driven by any single site (Fig. 5B). In a simple regression, *K. brevis* counts alone explained 66 % of the variation in the multivariate measure of chlorophylls during bloom conditions (proportional values; Table 3). In contrast, *K. brevis* cell counts were not an important explanatory variable of the multivariate measure of chlorophylls during non-bloom conditions (p = 0.31, prop. = 0.02; Table 3). During non-bloom conditions, *K. mikimotoi* was the only potential HAB-forming species showing a significant relationship to the multivariate measure of chlorophylls (p = 0.05, prop = 0.06; Table 3). Although not significant, *Pseudo-nitzschia* spp also explained roughly 6 % of the variability in the multivariate measure of chlorophylls (p = 0.08, prop. = 0.6; Table 3). Due to co-variation between *K. mikimotoi* and *Pseudo-nitzschia* spp (Pearson's R = 0.43), *Pseudo-nitzschia* spp was excluded so that both cumulative models included only one species; *K. brevis* during bloom conditions and *K. mikimotoi* post-bloom (Table 3). Similarly, when bloom and non-bloom conditions were grouped together, *K. brevis* explained 35% of the variations in the multivariate measure of chlorophylls, while *Pseudo-nitzschia* spp explained an additional 2% (cumulative total of 37 %;

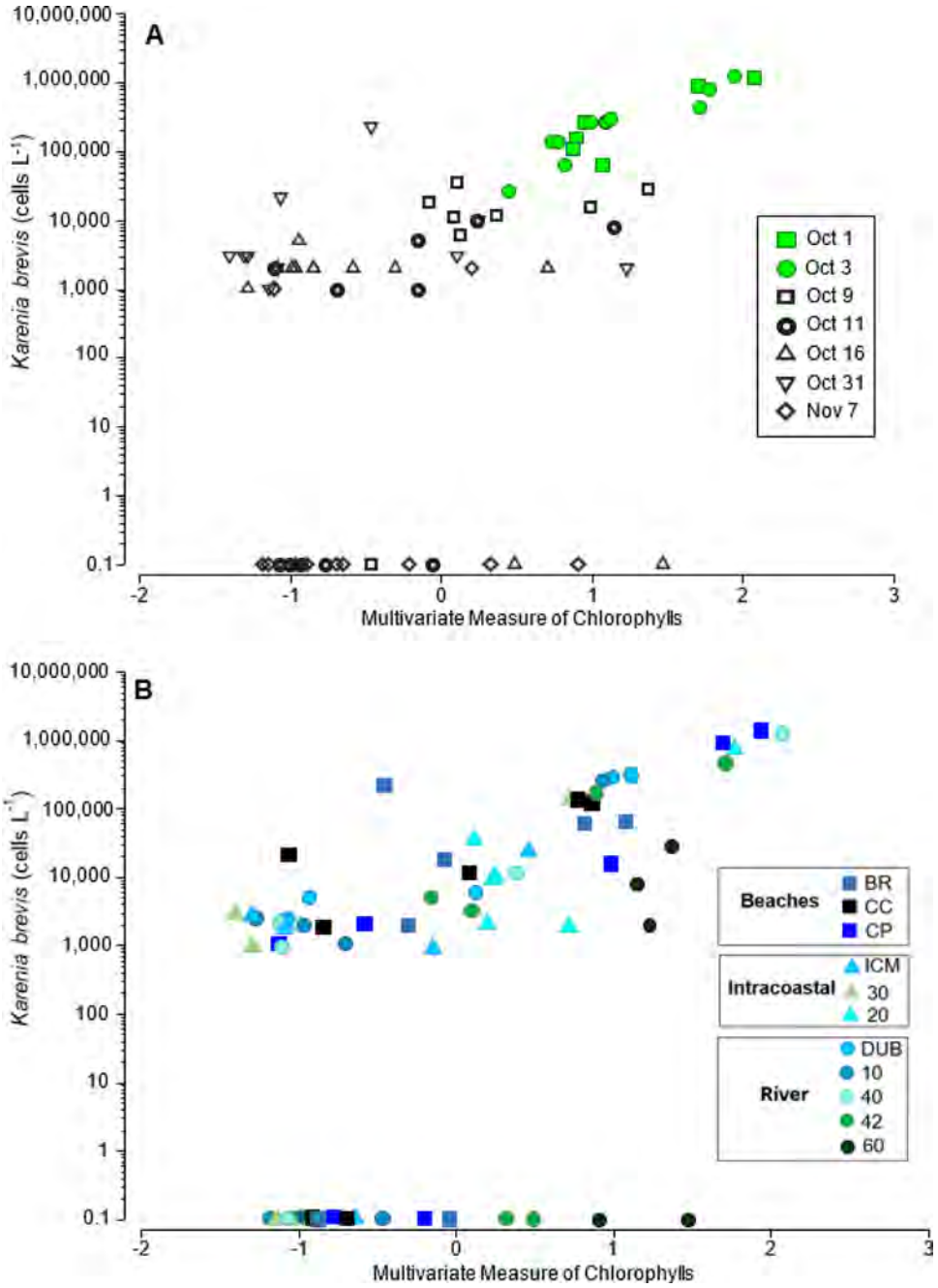

Fig. 5. Relationship between *K. brevis* counts and the multivariate measure of chlorophylls collected at coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)], intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] in 2018 by **(A)** date and **(B)** site.

Table 3).

3.3. Water quality

Summary statistics for 2018 and historical (2005 – 2017) water quality measures are presented in Table 4. In 2018 we measured a decline in mean rainfall and TOC from September (13 cm d^{-1} and 4 mg L^{-1}) to October (4 cm d^{-1} and 2 mg L^{-1}), and monthly decreases in temperature (29°C, 28°C, 26°C), pH (7.98, 7.83, 7.72), DO (6.03 mg L^{-1}, 5.99 mg L^{-1}, 5.96 mg L^{-1}), Secchi depth (3.4 m, 2.7 m, 1.7 m), chlorophyll-a (6.1 µg L^{-1}, 4.7 µg L^{-1}, 2.8 µg L^{-1}), CDOM (17 CPU, 12 CPU, 10 CPU), and N:P (22, 16, 15) from September to October to November (Table 4). In 2018 phosphorus remained low (mean OP below 13 µg L^{-1} and TP 22 µg L^{-1}) and nitrogens varied; decrease in NH_3-N from September (60 µg L^{-1}) to October (30 µg L^{-1}) and increases in $NO_2 + No_3$ (10 to 42 µg L^{-1}), Org. N (223 to 333 µg L^{-1}), and TN (267 to 397 µg L^{-1}) from September to October (Table 4). Similar monthly trends were observed in the historical data, with decreased rainfall (19 cm d^{-1}, 11 cm d^{-1}, 5 cm d^{-1}), temperatures (29°C, 28°C, 25°C), chl-a (6.9 µg L^{-1}, 5.9 µg L^{-1}, 4.9 µg L^{-1}), CDOM (32 CPU, 31 CPU, 21 CPU), TKN, (444 µg L^{-1}, 401 µg L^{-1}, 412 µg L^{-1}), TN (453 µg L^{-1}, 416 µg L^{-1}, 420 µg L^{-1}), and N:P (20, 18, 16) from September to October to November (Table 4). The Kruskal-Wallis tests confirmed significant differences between months that correspond to seasonal trends that we would expect to measure in South Florida (Table 5); a decline in rainfall and temperature and the associated increases in DO, nitrogen (Org. N, TKN and TN) and turbidity (Table 5).

Salinities measured in 2018 were significantly higher than historical

Table 3
DistLM.

	Variable	SS (trace)	$_{Pseudo}$-F	P	Prop.	Cum.	AICc	res.df
Bloom	*K. brevis*	3.51	26.90	0.001*	0.66	**0.66**	**-29.81**	**14**
	K. mikimotoi	0.00	-	-	0.00			
	K. selliformis	0.00	-	-	0.00			
	Pseudo-nitzschia spp.	0.29	0.80	0.43	0.05			
Non-bloom	*K. brevis*	0.80	0.99	0.31	0.02			
	K. mikimotoi	2.61	3.38	0.05*	0.06	**0.06**	**11.13**	**50**
	K. selliformis	0.13	0.16	0.79	0.003			
	Pseudo-nitzschia spp.	2.37	3.04	0.08	0.06			
All	*K. brevis*	28.2	35.14	0.001*	0.35	0.35	-12.7	66
	K. mikimotoi	0.96	0.79	0.43	0.01			
	K. selliformis	0.49	0.40	0.58	0.006			
	Pseudo-nitzschia spp.	1.46	1.21	0.27	0.02	**0.37**	**-13.6**	**65**

Distance-based linear models (DistLM) showing the proportion of variability of the multivariate measure of chlorophyll explained by individual plankton (prop.) during 'Bloom' and 'Non-bloom' conditions from coastal beaches [Blowing Rocks (BR), Coral Cove (CC), and Carlin Park (CP)], intracoastal locations [Intracoastal Marina (ICM), station 20 and station 30] and river locations [Dubois Park (DUB), station 10, station 40, station 42 and station 60] in 2018; 'All' includes both 'Bloom' and 'Non-bloom' conditions. Step-wise cumulative (cum.) results selected using AICc, and significant relationships shown (*). Final cumulative model shown in bold.

measures (Tables 4 and 5). We also measured significantly lower chlorophyll-a concentrations, CDOM, TOC and NH_3-N in 2018 compared to historical data (Table 4 and 5). On average, the chlorophyll-a concentrations in 2018 (6.1 μg L^{-1}, 4.7 μg L^{-1}, and 2.8 μg L^{-1}) were significantly lower than historical values (6.9μg L^{-1}, 5.9 μg L^{-1}, and 4.9.24 μg L^{-1}, respectively) (Table 4 and 5). Historically, average CDOM ranged from 21 to 32 PCU in fall months, compared to the 10 to 17 PCU in 2018 (Table 4). Similarly, monthly average TOC ranged from 4 to 6 mg L^{-1}, compared to the 2 to 4 monthly average measured in 2018 (Table 4). Historical NH_3-N values typically remained between 47 and 63 μg L^{-1} (Table 4) whereas in 2018 NH_3-N concentrations were significantly lower (Table 5), driven by the low NH_3-N values measured in October and November 2018 after the HAB (30 and 33 μg L^{-1}; Table 4).

Table 4
Water quality parameters.

		Sept	Oct	Nov
Rainfall (cm d^{-1})	Historical	19 (4–37)	11 (0–45; 14)	5 (0–30; 14)
	2018	13 (6–23)	4 (2–9)	8 (5–14)
Temp. (°C)	Historical	29 (27–32; 75)	28 (24–30; 36)	25 (20–28; 75)
	2018	29 (29–30; 3)	28 (28–28; 6)	26 (25–27; 3)
Salinity (psu)	Historical	26 (3–37; 75)	27 (4–38; 37)	31 (8–39; 75)
	2018	33 (24–38; 3)	33 (28–38; 6)	32 (24–37; 3)
pH	Historical	7.88 (7.30–8.26; 75)	7.84 (7.39–8.14; 37)	7.92 (7.10–8.27; 75)
	2018	7.98 (7.95–8.00; 3)	7.83 (7.56–7.93; 6)	7.72 (7.48–7.88; 3)
DO (mg L^{-1})	Historical	5.87 (3.41–7.64; 75)	6.13 (4.28–7.53; 37)	6.39 (5.11–7.88; 75)
	2018	6.03 (5.78–6.29; 3)	5.99 (4.94–6.54; 6)	5.96 (5.32–6.40; 3)
Secchi Depth (m)	Historical	2.3 (0.5–6.8; 73)	2.0 (0.6–7.0; 37)	2.0 (0.7–7.3; 75)
	2018	3.4 (1.8–6.6; 3)	2.7 (1.3–6.3; 5)	1.7 (1.3–2.2; 3)
Turbidity (NTU)	Historical	3 (0–28; 75)	3 (1–19; 37)	4 (1–15; 75)
	2018	2 (1–3; 3)	3 (2–5; 6)	3 (2–4; 3)
chl-a (μg L^{-1})	Historical	6.9 (1.0–40.9; 77)	5.9 (1.0–16.6; 37)	4.9 (1.0–16.3; 74)
	2018	6.1 (1.0–12.7; 3)	4.7 (0.7–13.3; 31)	2.8 (1.0–6.3; 10)
CDOM (PCU)	Historical	32 (3–140; 74)	31 (3–130; 37)	21 (3–90; 75)
	2018	17 (5–40; 3)	12 (8–20; 6)	10 (5–20; 3)
TOC (mg L^{-1})	Historical	5 (1–15; 67)	6 (2–14; 31)	4 (1–18; 68)
	2018	4 (1–8; 3)	2 (1–4; 6)	3 (2–6; 3)
NH_3 (μg L^{-1})	Historical	47 (<20–130; 48)	53 (<20–130; 34)	63(30–410; 47)
	2018	63 (30–130; 3)	30 (30–30; 3)	33 (30–40; 3)
NO_2+NO_3 (μg L^{-1})	Historical	22 (10–70; 73)	21 (10–60; 35)	22 (<10–80; 71)
	2018	10 (10–10; 3)	42 (10–180; 6)	27 (10–60; 3)
Org. N (μg L^{-1})	Historical	457 (<200–1,240; 47)	380 (200–880; 34)	386 (170–2,230; 52)
	2018	223 (<200–270; 3)	333 (<200–500; 3)	280 (<200–460; 3)
TKN (μg L^{-1})	Historical	444 (<200–1,240; 71)	401 (<200–960; 34)	412 (<200–2,440; 72)
	2018	267 (<200–400; 3)	222 (<200–500; 6)	300 (<200–500; 3)
TN (μg L^{-1})	Historical	453 (<200–1,260; 71)	416 (<200–1,020; 34)	420(<200–2,450; 72)
	2018	267 (<200–400; 3)	397 (205–505; 6)	323 (205–559; 3)
OP (μg L^{-1})	Historical	17 (10–50; 53)	17 (10–60; 31)	17 (10–100; 47)
	2018	10 (10–10; 3)	10 (10–20; 6)	13 (10–20; 3)
TP (μg L^{-1})	Historical	35 (<5–90; 75)	30 (<5–111; 37)	26 (6–63; 75)
	2018	17 (<5–33; 3)	22 (10–36; 6)	22 (11–35; 3)
N:P	Historical	20 (3–100; 74)	18 (6–100; 37)	16 (4–53; 75)
	2018	22 (12–40; 3)	16 (9–23; 6)	15 (10–19; 3)

Mean (min.– max.; total n) historical (2005 – 2017) and 2018 surface water and environmental measures collected during monthly monitoring program from inshore estuarine sites (DUB, 10, 20, 30, 40, 42 and 60); Rainfall data calculated per month across entire watershed (see methods). Sept 2018 samples were collected pre-bloom, Oct 2018 samples were collected as the bloom declined and Nov 2018 samples were collected post-bloom.

Table 5
Monthly and historical comparisons.

	Month Chi^2	p-value	Pairwise	Period Chi^2	p-value	Pairwise
Rainfall (cm d^{-1})	2.8	< 0.001	*Sept > Oct, Nov <Sept	0.2	0.68	
Temp. (°C)	148.6	< 0.001	*Sept > Oct > Nov <Sept	0.4	0.54	
Salinity (psu)	5.7	0.06		4.1	0.04	*2018 > Historical
pH	3.6	0.16		1.2	0.28	
DO (mg L^{-1})	21.9	< 0.001	*Sept < Oct < Nov >Sept	0.8	0.37	
Secchi Depth (m)	1.6	0.44		1.6	0.20	
Turbidity (NTU)	29.9	< 0.001	*Sept < Oct < Nov >Sept	2.3	0.13	
chl-a (μg L^{-1})	5.2	0.08		4.0	0.05	*2018 < Historical
CDOM (PCU)	3.5	0.17		5.7	0.02	*2018 < Historical
TOC (mg L^{-1})	3.8	0.15		3.9	0.02	*2018 < Historical
NH_3 (μg L^{-1})	3.4	0.18		3.9	0.05	*2018 < Historical
NO_2+NO_3 (μg L^{-1})	0.1	0.96		0.2	0.69	
Org. N (μg L^{-1})	8.5	0.01	*Sept > Nov	0.2	0.24	
TKN (μg L^{-1})	9.4	0.01	*Sept > Nov	0.8	0.37	
TN (μg L^{-1})	10.3	0.01	*Sept > Nov < Oct	0.1	0.81	
OP (μg L^{-1})	0.6	0.75		0.6	0.45	
TP (μg L^{-1})	3.2	0.20		2.5	0.12	
N:P	4.2	0.12		0.8	0.36	

Results of the Kruskal-Wallis tests detailing significant (*) differences in measures between months and time periods of samples in Sept, Oct, and Nov collected during monthly monitoring program from inshore estuarine sites (DUB, 10, 20, 30, 40, 42 and 60). Individual Kruskal-Wallis pairwise results between months provided in Supplemental S2.

4. Discussion

4.1. Karenia brevis bloom

In October 2017 *K. brevis* was detected in water samples collected off the West Florida Shelf and developed into a massive *K. brevis* bloom that persisted throughout many parts of Florida until March 2019 (https://habsos.noaa.gov/). After persisting in the Gulf of Mexico for nearly a year, wind and water circulation patterns distributed *K. brevis* to the east coast of Florida (Weisberg et al., 2019). On September 29, 2018 northern Palm Beach County, FL beaches were closed due to respiratory and gastrointestinal issues associated with brevotoxins, and the effects of brevotoxins also were reported from within estuarine portions of the Loxahatchee River. From September to October 2018 there was a noticeable decrease in rainfall and freshwater inputs (https://loxahatcheeriver.org/river/algae/) as well as strong easterly winds (https://tidesandcurrents.noaa.gov). The strong onshore winds are believed to have aerosolized brevotoxins and blown them onshore (e.g., Fleming et al., 2005), causing significant beach closures in northern Palm Beach County, Florida (Capozzi et al., 2018). In early stages, *K. brevis* cell counts reached over 1 million cells L^{-1} at individual sites and 28,000 cells L^{-1} at the farthest upstream sampling location (station 60 – approximately 5 km upstream of the mouth of the Loxahatchee River). In approximately 11 days, *K. brevis* abundance retreated from obvious bloom conditions and generally remained under 20,000 cells L^{-1}. The exception was a high *K. brevis* count on October 31, 2018 at the northernmost beach [Blowing Rocks (BR)]. This isolated event corresponded to a period of strong winds from the north and northeast that redistributed high *K. brevis* counts from Cocoa Beach, FL south towards Jupiter inlet. However, the bloom did not reach inshore estuarine locations within the LRE (https://habsos.noaa.gov/); likely because wind conditions shifted from north/northeast to a strong east wind while the patchy bloom was approximately 3.5 km north of Jupiter Inlet (i.e., where inshore transport could have occurred).

Our results document a rapid decrease of *K. brevis* abundance within the LRE. The short-lived (< 11 days) bloom in the LRE is in stark contrast to the persistent 2018 bloom conditions that occurred off the West Florida Shelf; which lasted up to 16 months in isolated regions (https://habsos.noaa.gov/). National Oceanic and Atmospheric (NOAA) tidal predictions show the bloom decline in the LRE coincided with a king tide event peaking on October 8, 2018, when the tidal amplitude increased from 0.3 to 0.9 meters. Previous studies have shown well-flushed estuaries can be resilient to allochthonous HABs (Phlips et al., 2012; Dix et al., 2013; Hart et al., 2015) because phytoplankton and nutrients are flushed from the estuary to nearshore waters through tidal exchange (Ketchum, 1954). Our findings reinforce this, suggesting that after the initial allochthonous HAB input the very short water residence time in the LRE (approximately 1 day; Swarzenski et al., 2006) likely diluted *K. brevis* populations, so that the slow growing *K. brevis* was unable to persist. Our data suggests that tidal flushing prevented a longer-duration HAB within the LRE. This same tidal flushing transported terrestrial nutrients to nearshore waters, which may explain why the presence and persistence of *K. brevis* blooms have been associated with freshwater inputs (Yentsch et al., 2008). While it was outside the scope of this study, it is important to note that terrestrial-derived nutrients flowing through estuaries may play a key role in sustaining and promoting HABs in waters with much longer mean residence times (e.g., nearshore waters; Bronk et al., 2014).

Although the October 2018 HAB in the LRE was short-lived, during the bloom there were reports of respiratory issues from residents (including two of the authors), of gastroenteritis from recreational swimmers, as well as confirmed reports of dead fish in the LRE. This suggests that despite the short duration, abundances of *K. brevis* were of sufficient magnitude and duration to impact the estuary. For example, during this HAB event, average *K. brevis* abundances (450,000 and 370,600 cells L^{-1}; Table 1) were within the same order of magnitude ($5 \cdot 10^5$ cells L^{-1}) that has been associated with decreased feeding and growth followed by recovery in eastern oysters (*Crassostrea virginica*) larva after 4 days of exposure and 4 days of recovery (Rolton et al., 2015). Since the 2018 LRE bloom was short-lived, we do not anticipate any lasting impact on *C. virginica* populations. However, future works must expand upon the impacts of individual and cumulative episodic blooms to determine specific effects on foundation species such as *C. virginica*.

4.2. Chlorophyll pigments and HAB species

During the 2018 bloom, chlorophyll-a concentrations in the LRE did not exceeded 15 μg L^{-1}. Chlorophyll-a concentrations farther north in the Indian River Lagoon range from 1 μg L^{-1}at reference sites to 175 μg L^{-1} during algal blooms (Gobler et al., 2013; Lapointe et al., 2015). In

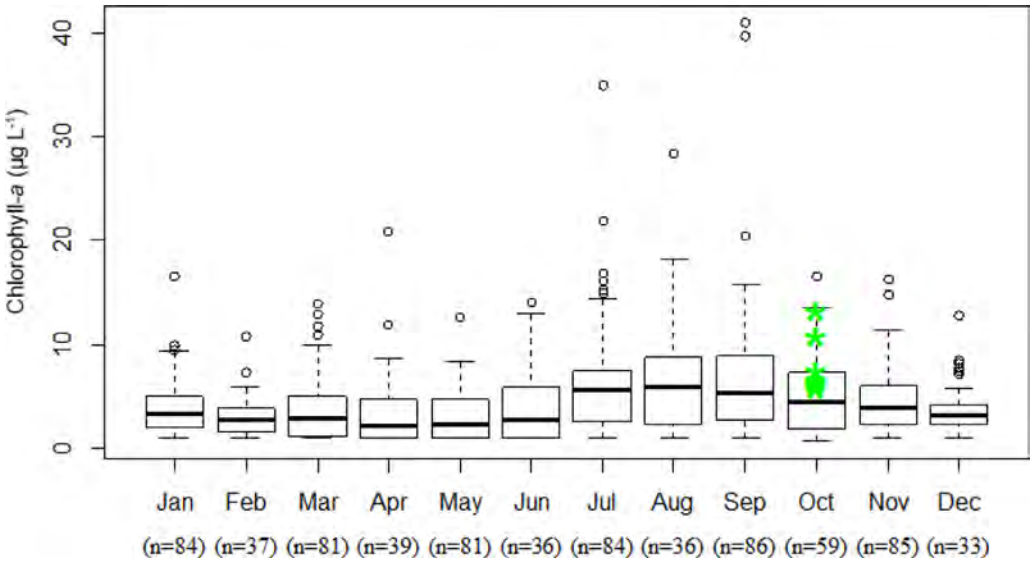

Fig. 6. Median (-), upper and lower quantiles (box), whiskers (upper and lower limits) and outliers (°) of historical (2005 – 2018) chlorophyll-a concentrations collected measured at inshore estuarine sites DUB, 10, 20, 30, 40, 42 and 60 from 2005 – 2018. All values > 20 µg L^{-1} were measured at site 60. '*' indicates chlorophyll-a values collected during the 2018 *K. brevis* bloom (Oct 1 and Oct 3).

the northern Gulf of Mexico *K. brevis* blooms have the potential to yield approximately 20 µg L^{-1} chlorophyll-a in offshore regions (Lenes et al., 2008). Here, chlorophyll-a concentrations were significantly lower in 2018 than LRE's historical site records. In fact, when chlorophyll-a concentrations measured during the 2018 *K. brevis* bloom are plotted against historical chlorophyll-a concentrations, it is clear that chlorophyll-a concentrations alone cannot be used as an indicator of *K. brevis* concentrations for inshore waters (Fig. 6). This, as well as the higher chlorophyll-a concentrations observed farther upstream (station 60, shown as circle outliers in Fig 6), suggests that non-HAB related estuarine phytoplankton species are present within the LRE and periodically produce significantly elevated chlorophyll-a concentrations during non-bloom conditions. Abundance of *K. brevis*, as quantified by microscopy, explained 66% of the variations measured in the multivariate measure of chlorophylls during the bloom, signaling a *K. brevis* dominated bloom. Since *K. brevis* has been demonstrated to be allelopathic towards some phytoplankton species (e.g., Prince et al., 2008; Poulin et al., 2018), we expected *K. brevis* to dominate chlorophyll pigment composition during bloom conditions. In contrast, neither *K. brevis* nor any other HAB species identified here explained a significant portion of the variations in the multivariate measure of chlorophylls under non-bloom conditions, demonstrating the importance of non-*Karenia* species to chlorophyll concentrations during non-HAB conditions. These findings show the potential of fingerprinting of chlorophylls (i.e., our multivariate measure of chlorophylls) for identifying shifts in phytoplankton assemblage structure in inshore waters.

Unique carotenoids such as gyroxanthin diester can be an identifying feature of certain dinoflagellates (non-peridinin type-2 dinoflagellates), including *K. brevis* (Higgins et al., 2011; Millie et al., 1997), whereas higher chlorophyll-c concentrations can suggest the presence of diatoms, haptophytes, as well as non-peridinin containing dinoflagellates such as *K. brevis* (Dougherty et al., 1970; Fooks and Jeffrey, 1989; Jeffrey et al., 1975, 1997). Although we did not specify compounds, higher average carotenoid concentrations on October 1, 2018 and October 3, 2018 (≥ 3 µg L^{-1}) in addition to the similarities in our multivariate measure of chlorophylls across sample locations (> 60%), suggests carotenoids, in general, were associated with this *K. brevis* bloom (Table 2). Like carotenoids, chlorophyll-c pigments demonstrated higher concentrations on October 1, 2018 and October 3, 2018 (≥ 1 µg L^{-1}; Table 2). Collectively the chlorophyll-c and carotenoid pigment concentrations demonstrate the same pattern as *K. brevis* cell counts. The observed proportional concentrations of chlorophyll-c and carotenoids indicate the prevalence of *K. brevis* rather than diatoms, haptophytes, and/or other non-peridinin containing dinoflagellates. In contrast, chlorophyll-b, which indicates green algae, eukaryotes or marine cyanobacteria, was nondetectable during the *K. brevis* bloom and then consistently ≤ 0.4 µg L^{-1} throughout the study, indicating that a marine photosynthetic bacteria such as *Prochlorococcus* are likely present at background levels throughout the LRE (Goericke and Repeta, 1993). The multivariate measure of chlorophyll pigments used here is similar to previous pigment-based approaches (e.g., use of 'CHEMTAX' program to relate pigments from HPLC output; Mackey et al., 1996) which have proven useful in determining the abundance of *K. brevis* based on gyroxanthin diester (Örnólfsdóttir et al., 2003). Here we used a simplified version, where a multivariate measure of chlorophylls obtained from spectroscopy was correlated with *K. brevis* cell counts during a bloom. Similar to earlier works, this study demonstrates the potential of a multiple pigment parameter to characterize changes in phytoplankton assemblage structure through a bloom event in shallow nearshore environments. Additional studies are needed to fully evaluate the effectiveness of the current multivariate approach. For example, future works should consider using a diversity of cultured monospecific phytoplankton samples to more fully ascribe specific multivariate chlorophyll signatures to given monospecific algae blooms. Furthermore, significant work will be required to quantify intra-specific and inter-specific pigment dynamics (e.g., pigment photo-acclimation) and how such pigment dynamics may confound pigment-based approaches to quantifying phytoplankton assemblage structure. While the current work has shown that multivariate characterization of chlorophyll pigment concentrations can be useful in characterizing phytoplankton assemblage structure, meaningful basic research remains necessary to fully realize the broadest potential of this approach.

It has been suggested that *K. brevis* has evolved mechanisms to deter grazing (e.g., *Acartia tonsa*; Waggett et al., 2012). Although toxic and/or nutritionally devoid to/for some species, at least one rotifer species can persist grazing on *K. brevis* (e.g., *Brachionus ibericus*; Kubanek et al., 2007). Here the increasing phaeopigment after the initial bloom and steady decline over time reinforces the idea of post-bloom algal degradation and/or zooplankton grazing (Shuman and Lorenzen, 1975; Head and Harris, 1992). Not all phytoplankton species were enumerated over the course of this study. We documented the presence of the potentially HAB forming *Karenia* spp. and *Pseudo-nitzschia* spp. to report species co-occurrence, or lack thereof. During non-bloom conditions, none of the HAB species groups explained more than 6% of the variations in the multivariate measure of chlorophylls; *K. mikimotoi* and *Pseudo-nitzschia* spp. explained a relatively low proportion of the multivariate measure of chlorophylls following the *K. brevis* bloom. Both *K.*

mikimotoi and some *Pseudo-nitzschia* species are considered HAB species; *K. mikimotoi* a potentially neurotoxin-producing 'red-tide' dinoflagelette and *Pseudo-nitzschia* spp. are a complex of pennate diatom species, some of which produce domoic acid. Although allelopathic, *K. mikimotoi* are sensitive to competitors and their toxins (Gentien et al., 2007). *Pseudo-nitzschia* spp. are notorious for their role in paralytic shellfish poisoning in some regions, where typical blooms exceed 100,000 cells L^{-1} (Bates et al., 1998). Here, no HAB species, aside from *K. brevis*, reached bloom levels (Table 1). Perhaps not surprisingly, the phytoplankton community recovered quickly following the *K. brevis* bloom, as evidenced by the recovery of chlorophyll-a concentrations and the multivariate measure of chlorophylls (Table 2). In a well-flushed estuary, we might expect the phytoplankton community to recovery quickly from a HAB event purely based on hydraulics (e.g., mean residence time, tidal prism, tidal flushing rate) where the rate of recovery likely will be proportional to the difference in the rate of phytoplankton influx plus growth versus the rate of phytoplankton export plus senescence. In the LRE it appears that the very short water residence time (< 1 day) promoted a rapid phytoplankton community recovery. Moving forward, we suggest it will be helpful to monitor plankton assemblage and species composition following HABs to evaluate what role HABs may play in regulating phytoplankton assemblage dynamics, especially during post-bloom recovery.

4.3. Water quality

Using monthly water quality data collected in September, October and November, we evaluated ambient (2018) and historical (2005–2017) water quality characteristics to consider how these parameters changed before, during, and after the 2018 *K. brevis* bloom in the LRE. Throughout fall 2018, environmental conditions in the LRE appeared conducive for *K. brevis* growth. Average temperatures decreased from 29°C in September to 28°C in October and 26°C in November (optimum growth occurs 22 – 28°C; see Steidinger et al., 1998). Average salinities 32 – 33 were well within the 24 – 46 reported salinity range for *K. brevis* growth (Magaña and Villareal, 2006). Recent studies have shown that *K. brevis* productivity is limited by nutrients, with low N:P equating to low carbon-fixation (Gross et. al., 2017), yet many *K. brevis* blooms form in oligotrophic waters, suggesting that *K. brevis* can utilize a wide range of nutrient sources (e.g., Anderson et al., 2002; Burkholder et al., 2008; Vargo et al., 2008; Bronk et al., 2014; Killberg-Thoreson et al., 2014). The LRE has been classified as P-limited, but high N:P (≥ 30:1) can occur with relatively heavy nitrogen loading in freshwater segments of the river (Stoner and Arrington, 2017). In this study, sample sites were tidally euryhaline/marine, with average N:P (15 – 20), near the idealized Redfield ratio (16:1), suggesting a N + P co-limited system (Redfield et. al., 1963). Vargo et al. (2008) and Brand et al. (2012) explain that in real-world systems 'recycled' inorganic nutrients will be more biologically available to *K. brevis*, whereas the growth of other phytoplankton (e.g., diatoms) are more likely to occur with 'new' organic nutrients. Using cultured populations and controlled conditions Killerberg-Thoreson et al. (2014) elaborated, suggesting that *K. brevis* may selectively uptake NH_4 followed by NO_3^- and urea. In 2018 inorganic nitrogen (nitrate, nitrite and ammonium) in the LRE ranged from 60 to 73 μg L^{-1} (3.53 to 4.31 μmol-N), with highest concentrations occurring farthest upstream. These values are well above background concentrations noted during blooms in the central West Florida Shelf [inorganic nitrogen 0.02 to 0.2 μmol-N with > 1 day turnover (Vargo et al., 2008), suggesting ample nutrient supply in the LRE. In their literature review Vargo et al. (2008) noted that TP ranged from 6 – 120 μg L^{-1} and TN from 45 – 120 μg L^{-1} in surface waters during *K. brevis* blooms. Based on these published values, average TP (20 μg L^{-1}) and TN (270 – 320 μg L^{-1}) measured in the LRE during and immediately following the *K. brevis* bloom should have been adequate to support a population of *K. brevis*. Yet, regardless of sufficient nutrients, the *K. brevis* bloom in the LRE was short lived, suggesting that dilution (e.g., tidal exchange), rather than a lack of nutrients, limited *K. brevis* abundance.

Previous work in the LRE has noted seasonal averages of approximately 60 μg L^{-1} NH_3 (3.52 μmol-NH_3-N) in saline portions of the river (Stoner and Arrington, 2017). In 2018 the three locations sampled for NH_3-N represent a small sample size (Table 4) extending across the estuarine gradient (10, 40 and 60; Fig. 1) and show a significant reduction from 63 μg L^{-1}(3.72 μmol-NH_3-N) in September to 30 and 33 μg L^{-1} (1.76 and 1.96 μmol-NH_3-N) in October and November 2018 (Table 4). The decrease in average NH_3-N in this study (1.96 μmol-NH_3-N) was just above the half saturation constant of NH_4^+ (1.78 μmol-N; Killberg-Thoreson et al., 2014). The decreased NH_3-N concentrations in October and November 2018 may have been the result of increased *K. brevis* uptake (e.g., Sinclair et al., 2009; Bronk et al., 2014; Killberg-Thoreson et al., 2014) or an artifact of increased tidal amplitude, i.e., marine waters generally have lower nutrient concentrations than upstream freshwaters (Ketchum, 1954; Stoner and Arrington, 2017). Differentiating *K. brevis* uptake and/or assimilation rates from background concentrations was outside the scope of this study, therefore we cannot pinpoint the cause of the NH_3-N decline. Regardless, in this study the *K. brevis* bloom declined or dissipated — as measured by the decreased *K. brevis* cell counts — in spite of sufficient background nutrient concentrations and water quality conditions.

4.4. Conclusions

This is the first documented *K. brevis* bloom within the LRE. The bloom originated in the Gulf of Mexico, was transported to the Florida Straits, then carried north by the Gulf Stream (see Weisberg et al., 2019). While offshore of northern Palm Beach County, FL strong east winds pushed *K. brevis* laden waters nearshore where aerosolized toxins began causing respiratory and gastrointestinal distress in the local human population. Tidal action distributed *K. brevis* cells throughout downstream sections of the LRE, including the intracoastal waterway north and south of Jupiter Inlet. Within the LRE *K. brevis* abundance peaked on October 1, 2018 and abated to background levels within 11 days. Our results show that chlorophyll-a concentrations alone were a poor indicator of *K. brevis* blooms in these nearshore estuarine waters. Nonetheless, *K. brevis* abundance explained 66% of the variations measured in the multivariate measure of chlorophylls, suggesting the potential of multivariate characterization of chlorophylls to characterize spatial and temporal dynamics of anomalous algal blooms. Analysis of historical water quality parameters show optimum temperature and salinity persisted throughout the bloom whereas decreased NH_3-N concentrations and increased tidal amplitude coincided with the end of the bloom. While more work is needed to understand mechanisms constraining *K. brevis* blooms in tidal estuaries, it appears this bloom was significantly constrained by tidal flushing in this small estuary with a very short mean water residence time. Future research should focus on how variations in both water residence times and nutrient availability control allochthonous HABs in lotic and tidally flushed estuaries. Furthermore, we encourage future efforts to understand the importance of estuarine-derived nutrients in sustaining and promoting HABs in nearshore and offshore waters. Finally, we are optimistic that multivariate characterization of chlorophylls will prove a useful approach in distinguishing substantial shifts in phytoplankton assemblage structure in inshore waters, though we recognize much additional work is needed to validate this approach.

Declaration of Competing Interest

By attaching this document all authors confirm that this research:

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- Was funded internally by the Loxahatchee River District and Mote Marine Lab staff.

- Has not been published elsewhere.
- Is not a conflict of interest.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.hal.2020.101851.

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Loxahatchee River Environmental Center
July 2020

River Center Summary Statistics

LRD'S ENVIRONMENTAL STEWARDSHIP DASHBOARD

		Environmental Stewardship Impact [% ES Impact = (Total Visitors x ES Index)/Monthly Target]	Environmental Stewardship Index	Total Visitors (incl. Visitors, Field Trips, Onsite Programs)	Average Program Participation [Actual participants/Capacity of Program]	Volunteer Engagement	1st Time Visitors	Visitor Satisfaction	Staff Overall Program Assessment	Expenses	Program Revenue
Benchmark / Customer Expectation		% of Target	Monthly Average [Max Rating is 9]	% of Target	% of Capacity	% of Target	% of Target	Rating Average [Max Rating is 5]	Rating Average [Max Rating is 5]	% within budget	% of Target
Blue Level		≥ 110%	≥8	≥ 110%	≥ 95%						
Green Level		≥ 90%	≥7	≥ 90%	≥ 75%	≥ 90%	≥ 90%	≥4	≥4	≥ 85% but ≤ 105%	≥ 90%
Yellow		≥ 75%	≥5	≥ 75%	≥ 50%	≥ 75%	≥ 75%	≥3	≥3	≥ 80%	≥ 75%
Red		<75%	<5	<75%	<50%	<75%	<75%	<3	<3	< 80% or > 105%	<75%
2018 Baseline		98%	7.3	109%	84%	121%	154%	4.8	4.1	90%	165%
2019 Baseline		102%	7.3	98%	96%	131%	218%	4.7	4.4	96%	100%
2019	June	109%	7.5	98%	154%	141%	184%	4.6	4.5	91%	83%
	July	106%	7.3	91%	153%	151%	180%	4.8	4.4	110%	111%
	Aug	89%	7.4	89%	115%	78%	310%	4.7	5.0	100%	97%
	Sept	98%	7.1	92%	86%	197%	190%	4.8	4.3	93%	94%
	Oct	98%	7.3	110%	78%	139%	290%	4.6	4.3	100%	185%
	Nov	99%	7.4	98%	95%	108%	190%	4.5	4.7	96%	176%
	Dec	97%	7.3	93%	81%	91%	188%	4.7	4.4	84%	158%
2020	Jan	152%	7.4	103%	76%	157%	94%	4.8	4.5	101%	185%
	Feb	128%	7.4	128%	89%	147%	313%	4.8	4.5	84%	201%
	Mar	60%	7.7	36%	30%	32%	82%	5.0	3.8	83%	135%
	Apr	0%	0.0	0%	0%	21%	0%	0.0	0.0	80%	112%
	May	0%	0.0	0%	0%	17%	0%	0.0	0.0	82%	67%
	June	0%	0.0	0%	0%	9%	0%	0.0	0.0	84%	25%
Consecutive Months at Green		0	0	0	0	0	0	0	0	0	0
Metric Owner		O'Neill	O'Neill	O'Neill	Harris / Duggan	O'Neill	O'Neill	O'Neill	O'Neill	O'Neill	O'Neill

The River Center was closed all month due to COVID-19, therefore, all our program and visitation metrics are showing in the red. One volunteer per day has been coming in to do animal care, but all other volunteer shifts are cancelled. The River Center staff has been hard at work even though we have been closed.

River Center General

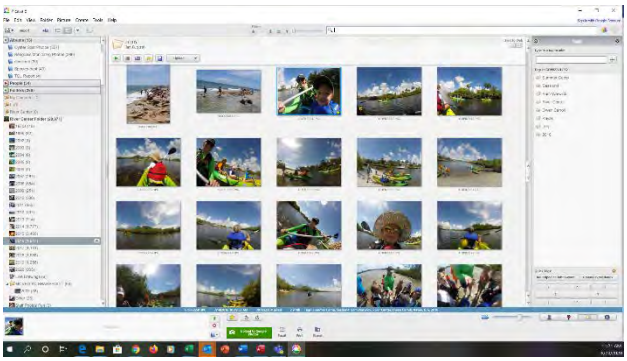
COVID-19

The River Center was closed for the entire month of June and anticipates being closed through the end of August. Currently, the park has reopened to boat traffic only. Playground and pavilion use are prohibited. Non-county operated nature centers are allowed to open according to Palm Beach County, but only if we can provide safe, social distancing and groups have to be limited to 10. They recommend not doing any educational programming at this time. We will continue to produce environmental education videos. You can check them out on our Facebook and YouTube pages.

https://www.facebook.com/loxahatcheerivercenter/

https://www.youtube.com/channel/UCwtVsfFCrjRq-uFkUG5wVUw

River Center Photo Library



This month we have been working to trim down, organize and tag all the River Center's photographs to make our library searchable. Once complete, our plan is to move the library to the District's SharePoint site and create a searchable library there. This will give all employees the ability to search for River Center photographs. We have many habitat and wildlife photographs that may be of benefit to other employees. We started the project with approximately 60,000 photographs, of which 13,900 were duplicates. We have also deleted bad photographs and any unnecessary photos. We are currently at 32,000 photographs with approximately 13,000 photographs still to process (tag or delete).

Kayak Instructor Certification Level 1 & 2

At the beginning of June, Environmental Educator Samantha Warwick took part in an American Canoe Association (ACA), Kayak Instructor certification course out at Everglades Youth Conservation Camp. She completed training in levels 1 & 2 where students practiced water rescues, paddling skills, group management skills, proper PFD and equipment, and how to handle emergency situations while on the water. Samantha completed her certifications within the three days and now can lead kayak groups solo once we are able to offer them. The ACA is a national nonprofit organization serving the broader paddling public by providing education related to all aspects of paddling, stewardship support to help protect paddling environments, and sanctioning of programs and events to promote paddlesport competition, exploration, and recreation.

Bureau of Land Management Grants River Center Temporary Use of Two Units

The Bureau of Land Management (BLM) announced on July 1st that the River Center, along with two other organizations, have been asked to provide a full proposal to renovate and use the old Coast Guard housing units. The River Center was granted units H and I (the northern most units) on the property. We are extremely proud to have been selected and look forward to developing the full proposal for consideration by BLM.

From BLM, "Furthermore, the proposed temporary use was determined to have the broadest public benefit, while your sensitivity to the other values of the ONA described in your proposal was deemed to afford them in protections in line the BLM management strategies for the site."

Special Programs

Jr. Angler Fishing Tournament

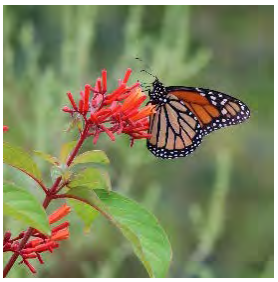
On June 27th, our 7th annual Jr. Angler Fishing tournament began! We are excited to be able to host this event again this summer. With the uncertainty around the current pandemic, we are not able to host other summer events. Our tournament, however, has little to no contact involved and is a great way for families to spend time together outdoors. We have made a few changes to the schedule to abide by CDC recommendations. Our Captain's Meeting will be substituted by a posted video covering the rules and instructions. We will not host a fish fry this year, instead we will announce winners through our various social media platforms and provide a drive-thru pickup of awards and prizes. While this is not how we would normally do things, it is the safest option. Currently we have 85 anglers registered to participate, which is a dramatic increase from last year's starting numbers. We hope to reach about 90 by the time the tournament is over. We also have 4 sponsors including: Fishing Headquarters, Bass Pro, West Palm Beach Fishing Club, and the Cisek Family.

Virtual Environmental Education

Sara Duggan is editing and posting our educational videos to the River Center's social media. Since summer has started, we have adjusted our ideas to focus on outdoor activities which includes more videos highlighting our natural areas and waterways. We are creating video content specifically to inspire people to get outdoors. Our "Outdoor Explorations" have taken viewers on a boat trip to the central embayment of the Loxahatchee River, hiking with Palm Beach County ERM at Jupiter Ridge Natural Area, and throughout the River Center's pollinator garden. On June 9th and June 22nd, we have added in two new locations in our que to share: North Jupiter Flatwoods and Frenchman's Forrest Natural Area.

- Facebook views in June were 2,500. Total Facebook views for all of our virtual education programs (60 videos) to date are 28,813.
- Our YouTube views for the month of June are 122 and overall views since March are 662. We have 21 new subscribers to our River Center's YouTube channel.
- We have added our current videos to the LRD intranet on Stream so other LRD employees can enjoy our current selection of virtual learning experiences.

Nature Hike: North Jupiter Flatwoods



On June 9th, the River Center staff hiked throughout North Jupiter Flatwoods, or to be more specific, tromped through the swamp in the natural area. Since rain levels have been high during this rainy season, the trails were flooded making filming all the more challenging but unique. We filmed a variety of plants and animals, had four different educators providing their expertise to what we found, and created a fun and laughable experience for viewers to appreciate. This natural area is a 160-acre natural area that preserves mesic flatwoods, wet flatwoods, depression marsh, and dome swamp ecosystems. It is located within a system of linked conservation lands creating a wildlife corridor adjacent to the Loxahatchee River.

Nature Hike: Frenchman's Forest

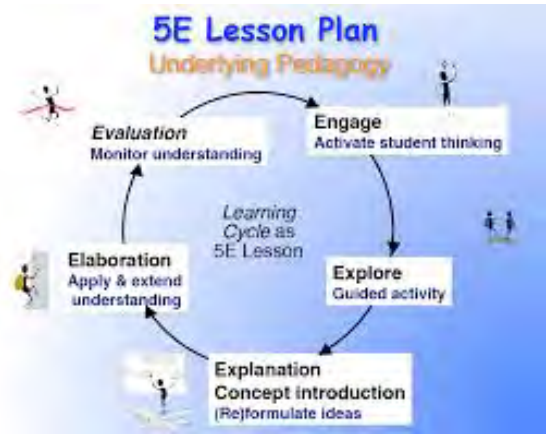
On June 22nd, the River Center staff hiked, or to be more specific, ran from mosquitoes, at Frenchman's Forrest located in Palm Beach Gardens. We grabbed our filming equipment, bug spray, and water to spend the morning exploring the hardwood hammock, the pine flatwoods, cypress swamp, and the blackwater creek leading out to the Lake Worth Lagoon. Frenchman's Forrest is a natural area managed by Palm Beach County Environmental Resources Management and part of the Northeast Everglades Natural Area and the Great Florida Bird and Wildlife Trail.

Kayaking the Wild & Scenic Loxahatchee River

On June 16th the River Center staff embarked on a new virtual kayaking experience on the headwaters of the Loxahatchee River. We started our trip in Riverbend Park, launching from Picnic Island, and we paddled our way up the river finding lush vegetation and tons of wildlife! We paddled all the way to Masten Dam where we encountered 2 manatees, a mom and her baby. While we watched, they maneuvered themselves over the dam to continue downriver. We hope that with the video footage we captured we can share the beauty and importance of this river with everyone. Whether they have been on this river a thousand times or just discovering it, this river is a special place and we want to be able to share that with as many people as possible. We hope that they will not only appreciate this waterway for its recreational value, but also for the great habitat and place that it is.

Program Lesson Plans

Over the past four months, the River Center has devoted time to lesson planning and program development. The School District of Palm Beach County requires approved organizations to have lesson plans in a 5E model: Engage, Explore, Explain, Elaborate, and Evaluate. Also, items like vocabulary, standards, and benchmarks, as well as pre and post activities are included. This month, all our school field trip educational programs offered at the River Center now have updated and completed 5E lesson plans. These plans will then be reviewed, edited, and approved by the Education Manager before being posted on the River Center's website as a resource for educators.



Upcoming River Center Events

RSVP at www.lrdrivercenter.org/events-calendar
rivercenter@lrecd.org or 561-743-7123

ALL PROGRAMS HAVE BEEN CANCELLED THROUGH THE END OF SUMMER based on the Palm Beach County Park Closures.

We Love the River Center!

Thank you so much for the personalized letter to Ahava and Orly, and the photos. With this sort of legitimate caring and connection, it's no wonder you're such a sought-after camp.

Needless to say, Ahava and Orly are disappointed about missing camp, and missing a visit to Florida etc. We are all riding through this crisis together....

We love River Center! Hopefully we will be able to register for next year's camp. Thanks Again!

Stay strong and take care,

Deb Young

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Eastern States
Southeastern States District Office
273 Market Street
Flowood, Mississippi 39232
www.blm.gov/eastern-states

IN REPLY REFER TO:
2930 (020) SB

June 16, 2020

Certified Mail
Return Receipt Requested: 7017 2680 0000 3193 4001

Dr. Arrington, Ph.D., Executive Director
Loxahatchee River Environmental Control District
dba River Center
2500 Jupiter Park Drive
Jupiter, Florida 33458

Dear Dr. Arrington,

Thank you for your interest in partnering with the Bureau of Land Management (BLM) at the Jupiter Inlet Lighthouse Outstanding Natural Area (ONA). The BLM appreciates your efforts in developing and submitting a proposal for temporary use of the available structures within the ONA. Your proposal, along with the others received, were published, and shared with congressionally identified partners, community members and subject matter experts for their feedback. They were also reviewed internally by the BLM.

Through the review process the BLM has determined that your proposed use of Units H & I is compatible with the ONA's values, existing partners, and the BLM's operations. Your proposal aids in achieving the congressional direction for the ONA as laid out in the Consolidated Natural Resources Act of 2008 and will greatly enhance recreational and educational values. Furthermore, the proposed temporary use was determined to have the broadest public benefit, while your sensitivity to the other values of the ONA described in your proposal was deemed to afford them protections in line with BLM management strategies for the site.

The BLM believes your temporary use can successfully be accommodated at the ONA for the mutual benefit of all involved in site management and the wider communities we serve. As such, the BLM wishes to further pursue a partnership to bring the proposed temporary use by Loxahatchee River Environmental Control District (dba River Center) to the ONA. We invite you to move forward collaboratively with the BLM and existing onsite partners to formalizing your plans and address some minor concerns with modification of the original structures.

The BLM will pursue this partnership through the use of its authority to enter into "Friends Agreements." These multiple part agreements provide the groundwork and foundation for the partnership and are a collaborative effort between the agency and the partner. In addition to this agreement, the BLM will require participation in a joint Memorandum of Understanding (MOU) between all parties operating on the site. Finally, a Special Recreation Permit may also be needed prior to starting operations.

At this time, the BLM would like to schedule a meeting at your convivence to cover all these details and chart the course forward. Please reach out to the Program Manager for the ONA, Peter De Witt, with your availability at pdewitt@blm.gov or via telephone at 561-295-5955.

Sincerely,

Robert S. Swithers
District Manager

Public Education

At the
Loxahatchee River District

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
1971

TABLE OF CONTENTS

PURPOSE

To understand the link of environmental education to the health of the river and ultimately how the Loxahatchee River District (LRD) is responsible for the water quality of the river through wastewater treatment.

SUMMARY

"Environmental Education is the last best hope for the future."

Marjory Stoneman Douglas

This document communicates the Loxahatchee River District's Public Education (environmental education) Program in relation to the District's Enabling Act, Rule 31-16 and Mission. Below are key points to consider. Full explanations are contained within this document.

Enabling Act

- The Enabling Act for the Loxahatchee River Environmental Control District (LRD) provides powers and duties with regard sewage disposal, solid waste management, discharge of storm drainage, water supply drainage, and water supply within the district.
    - The River Center actively supports these duties by educating the public about the need for these different duties.
    - The River Center attempts to affect change in behavior in support of water conservation, stormwater and water supply.
- It is the intent of the Legislature [Enabling Act] that the best interests of public health, safety, and **welfare of the area** within the boundaries of the Loxahatchee River Environmental Control District necessitates the formation of a separate local agency of government with powers designed to meet the particular needs of said area.
    - The River Center is serious in its approach to the welfare of the Loxahatchee River [watershed].
    - Community involvement is the only way that the welfare of the area can be maintained or improved. The River Center is the LRD's delivery method for community engagement.
- It is also intended that such needs be met in such a way as to cause minimum damage to the area's resources and environment and **prevent additional environmental problems from being created, as well as providing solutions to existing problems**.
    - Public education is a cost-effective means to prevent additional environmental problems.
    - Public education also represents a meaningful aspect of providing solutions to existing problems.
- **The provisions of this act shall be liberally construed to effect its purposes.**
    - Using Public Education as a tool to gain support for implementing solutions within the core duties of the LRD as well as preventing further environmental problems and affecting solution is not only effective but cost-effective as well.

- For example, past efforts to educate the public about the need for and benefits of effective sewage disposal lead to improved acceptance of neighborhood sewering efforts.

Rule 31-16: River Enhancement Program

- That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
- That there are three major threats to water quality in the Loxahatchee River: stormwater discharges, septic tank discharges, and wastewater point source discharges. That the best approach to managing stormwater is a three tiered approach, beginning first with planning, monitoring, inspection, mapping, information gathering and public education, to be followed secondly by operation and maintenance activities, with the third tier being retro-fitting or construction of capital improvements.
- Protecting the river is not an any one individual or organization's sole responsibility. It is a community effort. The LRD is effective in creating partnerships that work to protect the river. The River Center also uses partnerships to promote the welfare and protection of the river.
- The River Center uses a variety of education programs, exhibits and events to educate the public (of all ages, backgrounds, and demographics) about the condition (welfare) of the Loxahatchee River watershed.
- That the District continue its service as **a coordinator of all information** relating to the environmental condition of the Loxahatchee River basin.
    - There are many ways that the LRD serves as a coordinator of all information. One of those ways is through the River Center.
- The theme of the Program is to keep the river clean.
    - The River Center actively supports this effort by organizing clean ups.
- **Public Education - To provide a public education program** and coordinate with other stormwater management entities.
    - The River Center is the primary public education program. Our list of partner organizations includes stormwater management entities including: South Florida Water Management District, Palm Beach County Environmental Resources Management, and Florida Department of Environmental Protection.

LRD Mission

We are dedicated to protecting public health and preserving the Loxahatchee River watershed and its natural habitats through innovative wastewater solutions, research, and **environmental stewardship**.

- Environmental Stewardship was discussed at length in 2018 when the LRD's mission was revised.
- Environmental education was a key component of that discussion.
- Re-envisioning the River Center was listed as a priority SWOT issue. Subsequently, there was a Governing Board workshop in 2019 here options for the future of the public education program (the River Center).

- The River Center's mission statement directly aligns with the mission of the LRD by focusing environmental stewardship: To foster a sense of **environmental stewardship** for the Loxahatchee River's diverse watershed with quality education programs, exhibits and meaningful events.

Other Points to Consider

- Historically, environmental education recognized that environmentally related attitudes, values, knowledge, and skills are critical to informing citizen action.
- **Environmental stewardship** refers to the responsible use and protection of the natural environment through conservation and sustainable practices. The River Center's mission is to promote environmental stewardship.
- Our community has a history of fighting for the Loxahatchee River. It is what led to the formation of the LRD, the Wild and Scenic Designation and a management plan for the river.
- The generation that spent their weekends, holidays and summers playing and exploring the Loxahatchee River is passing. Who will now carry the torch for the river? We hope that it will be our youth, but we know that they are not going outside and are less exposed to these special places. It is up to us to provide opportunities for them grow-up loving the Loxahatchee River like the generations before. The LRD's public education program provides those opportunities.
- Author Richard Louv introduced the term "Nature-Deficit Disorder" in 2005 with the publication of his book, "Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder." He coined the phrase to serve as a description of the human costs of alienation from nature. Louv's 2011 book, "The Nature Principle: Reconnecting with Life in a Virtual Age," extended the conversation to include adults, and explored this key question: "What could our lives and our children's lives be like if our days and nights were as immersed in nature as they are in technology?"
- Scientific evidence suggests that **nature-deficit disorder** contributes to a diminished use of the senses, attention difficulties, conditions of obesity, and higher rates of emotional and physical illnesses. Research also suggests that the nature-deficit weakens ecological literacy and stewardship of the natural world (Louv 2008). These problems are linked more broadly to what health care experts call the "epidemic of inactivity," and to a devaluing of independent play. Nonetheless, we believe that society's nature-deficit disorder can be reversed (.
- The Loxahatchee River District creates **place and community-based education** opportunities. The struggle in American education today is the alienation of children and youth from the real world outside their own homes and classrooms. They are nature deprived and community deprived, but place and community-based education is a teaching and learning concept that connects learning to the local (Saylan 2012). The goal is to understand that positive change happens because local citizens make it happen. Sharing in the responsibility between the classroom teachers and the community educators creates new roles for community members and gives them more responsibility for the education of local students. (Smith & Sobel 2010). Place and community-based education seeks to achieve a greater balance, foster a set of understanding and patterns of behavior essential to create a society that is both socially just and ecologically sustainable (Saylan & Blumstein 2011).

- Our legacy should be that we led our community to protect the river. That we passed the torch to the next generation.

WHO WE ARE

To understand how the LRD environmental education programs fit into our mandate, we must explore the different levels to the structure of the LRD.

ENABLING ACT 2002-358 | HOUSE BILL NO. 971

INTRODUCTION

An act relating to the Loxahatchee River Environmental Control District, in portions of Palm Beach and Martin Counties, including the Town of Jupiter, Jupiter Inlet Colony, Juno Beach, and the Village of Tequesta, generally defined as the Loxahatchee River Basin; providing for codification; providing legislative intent; providing the district is an independent multicounty special district; providing district status and boundaries; providing for applicability of chapter 189, Florida Statutes, and other general laws; providing for the election of a five-member Board; providing powers and duties with regard to sewage disposal, solid waste management, discharge of storm drainage and water supply drainage, and water supply within the district; providing for the financing of the district, including the levying of ad valorem taxes if approved at a referendum; providing for liberal construction; codifying, amending, reenacting, and repealing special acts relating to the district; providing severability; providing an effective date.

SECTION 2

It is hereby declared to be the intent of the Legislature that the best interests of public health, safety, and ***welfare of the area*** *within the boundaries of the Loxahatchee River Environmental Control District necessitates the formation of a separate local agency of government with powers designed to meet the particular needs of said area. It is further the intent of the Legislature that such needs be met in such a way as to cause minimum damage to the area's resources and environment and* ***prevent additional environmental problems*** *from being created, as well as* ***providing solutions to existing problems.*** Maximum use of existing systems shall be made whenever feasible and consistent with the purpose of this act. It is also the intent of the Legislature that current and long-range planning shall be carried out so that required services are made available at the lowest possible cost as the characteristics of the area change.

- The River Center directly addresses the welfare of the Loxahatchee River Watershed in all of our programs.
- The best way to prevent additional environmental problems is to educate people about their role and impacts to our environment. They will then be able to make more informed decisions.

SECTION 14

The provisions of this act shall be liberally construed to effect its purposes.

RULE 31-16 – RIVER ENHANCEMENT

31-16.001 Findings and Purposes

Paragraph 1

The Loxahatchee River has great ***environmental and historical significance*** for the communities and citizens on its shores, as well as to the people of the State of Florida. ***The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.***

Paragraph 2

The Governing Board ("Governing Board") of the Loxahatchee River Environmental Control District ("District") in seeking to protect and enhance the Loxahatchee River ("River"), has obtained the advice and recommendations of its neighboring government officials, ***citizens living near the River,*** professional persons with technical expertise in water quality and surface water management, and Consulting Professionals.

Paragraph 3

Individual citizens from different walks of life, all of whom live within the Loxahatchee River basin, composed the Citizens Advisory Committee of 1992. Their findings and recommendations are as follows: ***That pollution prevention and river enhancement should be the objectives of the District's efforts. That the public wants the Loxahatchee River protected, and that the District is the organization chartered to protect the River.*** That the District is the only government agency whose enabling legislation has as its primary purpose to protect the River basin. ***That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.*** That there are three major threats to water quality in the Loxahatchee River: stormwater discharges, septic tank discharges, and wastewater point source discharges. ***That the best approach to managing stormwater is a three tiered approach, beginning first with planning, monitoring, inspection, mapping, information gathering and public education,*** to be followed secondly by operation and maintenance activities, with the third tier being retro-fitting or construction of capital improvements. That the eastern and western portions of the Loxahatchee River basin are significantly different with respect to stormwater. That by working with other units of government in the River basin, the District is the logical entity to provide the most cost-effective management of stormwater. That there are costs to protect the River, and a tiered approach in the eastern urbanized portion of the basin can provide needed services at the lowest possible cost. That the District should work with other government entities to provide a coordinated approach to understand options and opportunities in the western ruralized portion of the River basin. ***That the District continue its water quality monitoring program and its service as a coordinator of all information relating to the environmental condition of the Loxahatchee River basin.***

- The community wants to protect the Loxahatchee River and the LRD is chartered to protect the river.

- The River Center uses a variety of program types and caters to different audiences. Ware giving information "on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system."
- The River Center functions as a coordinator of information relating to the environmental condition of the Loxahatchee River Basin.

31-16.002 River Enhancement Program

Section 1

Pursuant to the mandate in the Act, the District hereby implements the River Enhancement Program with elements set forth herein. ***The theme of the Program is to keep the River clean*** and provide coordination to assist other local governments and owners of Systems in order for the Program purposes to be accomplished by the most local form of governance. ***The Program will be conducted in coordination and cooperation with such other governments, owners, and operators of Systems*** in the District. The Program will have three elements including the Plan, Operation and Maintenance, and Capital Improvements.

Section 2 (f)

Public Education – ***To provide a public education program and coordinate with other stormwater management entities.*** To provide means whereby the District encourages, supports, and conducts research to improve stormwater Systems. To provide a forum for periodic meetings of all public and private sector owners and operators of Systems in order to better coordinate and facilitate the River Enhancement Program.

- The River Center is the primary public education program. Our list of partner organizations includes stormwater management entities including: South Florida Water Management District, Palm Beach County Environmental Resources Management, and Florida Department of Environmental Protection.

31-16.003 River Enhancement Fees; Classification and Criteria; Collection; Accountability

Section 12

Accountability – The Loxahatchee River can be enhanced to the extent the owners, operators, and users of Systems are accountable in the construction, operation, and maintenance of their Systems. ***The District seeks to educate, coordinate, and facilitate the River Enhancement Program***, and assist with the operation, maintenance, and construction of Systems. If there is not accountability for a System, ***the District will take such remedial measures authorized by law, the District's Rules, or the Act in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.***

- The Loxahatchee River is a valuable resource that is worth preserving.
- The LRD is accountable for the protection and enhancement of the river through the River Enhancement Program.
- The River Center supports the LRD in achieving the River Enhancement Program through public education.

MISSION (REVISED 2018)

We are dedicated to protecting public health and preserving the Loxahatchee River watershed and its natural habitats through innovative wastewater solutions, research, and environmental stewardship.

VISION

Inspiring and achieving a healthy environment

CORE VALUES - SELECTED

These values shape and guide our day-to-day actions and our relationships with co-workers, customers, partners, and stakeholders.

Spirit of service to our community and the environment: We willingly work with a sense of diligence and devotion because we understand the importance of our work.

Collaboration: Our greatest successes come when we work as a team. We eagerly collaborate with colleagues throughout the District, sister governments, and others to advance our mission.

AGENCY DESCRIPTION (WHO WE ARE)

The Loxahatchee River District is an Independent Special District created by the Florida Legislature in 1971. It is governed by a five-member publicly elected Governing Board. We operate an award-winning facility that collects wastewater from the community and recycles it for irrigation needs, preserving fresh water supplies for the environment. By engaging the public with relevant and compelling environmental education opportunities, such as the River Center and Busch Wildlife Sanctuary, we foster stewardship among residents and visitors. As the leading authority on the Loxahatchee River, we also spearhead ongoing water quality studies and collaborate on river restoration projects.

RIVER CENTER MISSION

To foster a sense of environmental stewardship for the Loxahatchee River's diverse watershed with quality education programs, exhibits and meaningful events.

RIVER CENTER PHILOSOPHY

Explore | Experience | Connect

It is our belief that environmental stewardship (community led protection and conservation) of the river can only be accomplished by connecting people to the River. If a person knows the river and connects with the river in a personal way, they will come to love the river. When a person loves the river, they will actively work to protect it (environmental stewardship).

OTHER AGENCY COMMITMENTS

LOXAHATCHEE RIVER MANAGEMENT PLAN

The Florida Department of Environmental Protection (FDEP) and the South Florida Water Management District (SFWMD) were directed through legislation to create a management plan for the Wild and Scenic Loxahatchee River. In 1983, the FDEP established an interagency planning committee to assist in the development and review of the plan. The LRD is listed as one of the "Other Agencies" in reference to the interagency planning committee. The description for the LRD states: "The LRD has active roles in wastewater management, aquatic monitoring, ***environmental education and public information***." The LRD has a responsibility to the FDEP and SFWMD to support the Objectives and Strategies put forth in the management plan.

2000

Objective IV: Facilitate Public Involvement in Protecting the Wild and Scenic River Corridor, Including both Planning and Implementation Efforts

The designation of the Northwest Fork of the Loxahatchee River as a component of the federal Wild and Scenic river system was the result of a local grass-roots effort. Throughout the designation and plan development process, local public involvement was invaluable. Effective implementation of this management plan requires a continuing local interest and participation. Public education relative to river issues and efforts can be directed toward both users on the river and the local community.

Strategy IV-A: Provide Education Information to River Users

- **Task – Develop and Distribute Educational Materials – LRD Responsibility**
- **Task – Develop Otter Creek Environmental Learning Center – LRD Responsibility**
- Task – Develop Jonathan Dickinson State Park Visitor Center _ FDEP Responsibility

The Loxahatchee River District completed the initial phase of the Otter Creek Learning Center in 1999. Included are educational displays and an annual rehabilitation facility. Additional educational components are planned, but still incomplete.

Strategy IV-B: Coordinate Efforts to Insure that Local Environmental Education and Public Information Programs Include River Information

- **Task – Encourage and Support Local Initiatives – All Parties Responsible**
- Task – Provide River Information to River Users and Local Educational Institutions – FDEP and SFWMD Responsibility

Objective V: Facilitate Public Involvement in both Planning and Implementation of Efforts to Protect the Wild and Scenic Loxahatchee River

2010

Objective I: Preserve and enhance the river's unique natural and cultural values

The National Wild and Scenic Northwest Fork of the Loxahatchee River includes a multitude of unique natural and cultural resources. The natural resources in need of preservation, protection and enhancement include water resources, terrestrial and aquatic wildlife habitats, historical and archeological sites and the recreational value of the river.

Strategy V: Increase elected official, key stakeholder and public awareness of the need to protect and enhance the unique natural and cultural resources in the Wild and Scenic portion of the Northwest Fork

As managers of public lands, we are responsible for informing the public and our stakeholders of park land enhancements, improvements, and forward progress. Diverse efforts are underway to underscore accomplishments of specific tasks and the progress that is being made towards goals.

- **Implement and update programs and displays in the Loxahatchee River Environmental Center (LRD Responsibility),** Jonathan Dickinson State Park's Elsa Kimbell Education and Research Center,
- Trapper Nelson's Zoo Historic District and Riverbend Park that highlight the importance of the Wild and Scenic River and watershed.
- **Develop and provide information on the river to recreational users and local educational institutions. (LRD Responsibility)**
- Host river tours for elected officials and legislative delegation members.
- Encourage and support local initiatives such as Loxahatchee River Preservation Initiative (LRPI) and the Northeast Everglades Natural Area (NENA).
- Update the Homeowners" Guide to the Protection of the Loxahatchee River.

FRIENDS OF THE LOXAHATCHEE RIVER

MISSION

To advance the stewardship of the Loxahatchee River watershed through environmental education, research, and public involvement.

The Governing Board of the Loxahatchee River District founded Friends of the Loxahatchee River in 1995. ***The Jupiter Marine Science Center was the first environmental education program supported by the Friends*** and provided outdoor, environmental education programs for students and families for well over a decade. They funded exhibits for the River & Marsh Room in compliance with their 1996 action plan.

ARTICLES OF INCORPORATION

Article III. Purpose

The purposes for which the Corporation is organized are exclusively charitable, scientific, literary, and educational within the meaning of Section 501(c)(3)of the Internal Revenue Code of 1986 and the corresponding provision of any future United States Internal Revenue law:

To provide assistance for the preservation, education, and enhancement of the Loxahatchee River Basin.

To provide assistance to the Loxahatchee River Environmental Control District, a special district of the state of Florida ("District"), in connection with the District's efforts for the preservation, education and enhancement of the Loxahatchee River Basin.

To engage in any activity incidental or conducive to the attainment of the purposes of this Corporation.

To engage in any activity that lawfully can be conducted by a Corporation organized under Chapter 617.001, et. seq., Florida Statutes.

To engage in other activities and functions as are proper and in furtherance of the goals and purposes of the Corporation.

To accept gifts and contributions and to conduct fund raising activities in furtherance of the goals and purposes of the Corporation.

BYLAWS

The "Purpose" as stated in the Bylaws is identical to the purpose in the Articles of Incorporation.

SUPPORT

The Friends of the Loxahatchee River, Inc. (Friends) actively supported, through funding, environmental education efforts at the Jupiter Marine Science Center. Later, they also supported the Otter Creek Environmental Learning Center located on the LRD property. Their purpose was in supporting both centers was to provide "a holistic and comprehensive environmental education opportunity to explore the marine, estuarine, freshwater and upland ecosystems of South Florida." (RiverKeepers Newsletter, Spring 1998)

LOXAHATCHEE RIVER PRESERVATION INITIATIVE

The Loxahatchee River Preservation Initiative (LRPI) was formed in 2000 to provide funding for regional watershed restoration projects within northeastern Palm Beach County and southern Martin County. The LRPI, a multi-agency partnership, has effectively leveraged state funds with local funds in a cost-share program which has a proven track record of delivering tangible environmental benefits aimed at preserving and protecting the resource for future generations to enjoy.

LOXAHATCHEE RIVER PUBLIC OUTREACH PROJECT II (2006-2007)

Project Description (200 words):

The Loxahatchee River District (LRD) is developing a new opportunity to educate the public about the Loxahatchee River watershed and its associated natural resources. On or about October 2006 the LRD will move its environmental outreach program into the building being vacated by the Loxahatchee Historical Society in the Burt Reynold's Park in Jupiter. This new facility will be completely renovated to provide a state-of-the-art environmental education facility for the local community. This facility, named the Loxahatchee River Environmental Center, will provide interested persons the opportunity to (1) experience the entire range of habitats that occur in the Loxahatchee River watershed, (2) learn about the current health of the system, and (3) understand what is being done to restore and preserve this valuable community asset.

The new center will have approximately 2,500 square feet of exhibit area featuring exhibits that showcase the beauty and biological diversity of the natural system, and interactive displays that challenge participants to solve real-world environmental problems such as balancing water supply. The facility will be open for general admission, field trips for school children, and evening lectures for adults.

Project Benefits (100 words):

The proposed public outreach project will achieve immediate and long-lasting benefits by providing an interactive educational opportunity for adults and children to experience the entire range of ecosystems found throughout the Loxahatchee River watershed. ***In particular, the project will educate interested public about the state of the Loxahatchee River and efforts currently underway to preserve and restore it.*** By further educating local community members and visitors, we hope to advance stewardship of the Loxahatchee River – our valuable community asset.

LOXAHATCHEE RIVER PUBLIC OUTREACH PROJECT III (2008-2009)

Project Description:

The Loxahatchee River District (LRD) is developing a new opportunity to educate the public about the Loxahatchee River watershed and its associated natural resources. On March 13, 2007 the Loxahatchee River District entered into a 10-year lease with Palm Beach County for the building in Burt Reynold's Park vacated by the Loxahatchee Historical Society. This facility is being renovated and converted into the Loxahatchee River Environmental Center, i.e., the 'River Center', and will provide a state-of-the-art environmental education facility for the local community. ***This facility will offer interested persons the opportunity to (1) experience the entire range of habitats that occur in the Loxahatchee River watershed, (2) learn about the current health of the system, and (3) understand what is being done to restore and preserve this valuable community asset.***

The new center will have approximately 2,500 square feet of exhibit area featuring exhibits that showcase the beauty and biological diversity of the natural system, and interactive displays that challenge participants to solve real-world environmental problems such as balancing water supply. Proposed exhibits will demonstrate how LRPI funded projects have offset various human impacts to the systems. The facility will be open for general admission, field trips for school children, evening lectures for adults, and other informal or non-traditional education programs.

Project Benefits:

This public outreach project will achieve immediate and long-lasting benefits by providing an interactive educational opportunity for adults and children to experience the entire range of habitats and organisms found throughout the Loxahatchee River watershed. In particular, the project will educate interested public about the state of the Loxahatchee River and efforts currently underway to preserve and restore it. By further educating local community members and visitors, we hope to advance stewardship of the Loxahatchee River – a valuable community asset.

RELEVANT HISTORY TO THE LOXAHATCHEE RIVER DISTRICT'S EDUCATION PROGRAM

OUR "GRASSROOTS"

It is clear when reading through the newspaper articles from the 1960's – 1990's that our community fought hard for the Loxahatchee River. A few brave souls led the charge. Without their leadership, none of this would have been possible. They did not do it alone. Our community stood behind them and added their voices to our leaders and brought about meaningful change to protect the river securing the future and legacy of the Loxahatchee River. The only way that the community knew there was a problem was from education and outreach. These leaders wrote letters and newspaper articles, attended public meetings and talked with residents at length about the plight of the river. This inspired them to take action. Without public education then, where would the river be today? Without public education now, where will the river be in another 50 years?

1960'S

"The treat to pollute with drainage, poison, silt, to disturb the balance of nature of the Loxahatchee River is abhorrent to all except a very few who wish to use this river to dispose of their wastes." "Please use every influence within your power to protect this river and the people who have settled here because of it, as well as the others who seek the natural beauty which our country is so rapidly losing." (Letter to Congressman Paul G. Rogers from resident James Patton White, March 23, 1966)

"I am also interested in conservation and it is for this reason that I write you. The Loxahatchee River is one of the most naturally preserved areas in the entire country – mainly because Jupiter citizens have fought to keep it that way." "I believe you have the power to stop this waste and destruction and, if possible, would you please try to do something about it?" (Letter to Congressman Paul Rogers and copied to Joel Daves, April 1966)

1970'S

"The Loxahatchee River Environmental Control District was born, legitimized, and baptized while I was Chairman of the Department of Pollution Control. It was founded to protect the Loxahatchee, the last wild, basically unspoiled river on the East coast." "A river needs friends and protectors. If the Loxahatchee is clean fifty years from now, it will be because of you; you will have

accomplished your mission." (excerpts from a speech given by Secretary Nathaniel Reed, Department of the Interior, November 7, 1973)

"Last week, the Florida Cabinet voted unanimously to begin negotiations toward the purchase of the river corridor. The action would place the northwest headwaters in public hands, just like the section of the Loxahatchee already part of the park. It's a decision that sits well with many of the river's lifelong devotees." **"We've got to save it. People just don't know what we've got here. If we don't do something to protect it, then it will be developed out of existence." Bill Lund.** "I sure hope you save it. You know sometimes people destroy what they want to live on just in order to live on it. And I only know of one or two other spots like this... and they're gone." Dave Whitney (Miami Herald: Palm Beach News March 28, 1976)

"The latest skirmish in the fight to save the Loxahatchee River points up once again that the struggle will be long and hard. That does not make it any less essential, however." "The Loxahatchee River is of legitimate public concern; it's fate is everyone business. To leave it to those who own land along its banks would be like letting adjacent property owners determine the future of Lake Worth or Indian River." "The best long-term solution is Wild and Scenic Rivers designation. In the meantime, however, local governments must make sure there will be something to preserve." (Palm Beach Post, 1977)

1990'S

"If we don't teach our children the importance of the environment as it relates to our future, then we're sunk." State Representative Sharon Merchant. (Jupiter Courier, 1995)

2000 AND BEYOND

"Under his [Rick Dent's] leadership, the Loxahatchee River Environmental Control District has exemplified innovation and excellence, even receiving the Environmental Protection Agency's "Best in Nation" designation in 1995." "Dent also enabled the district to fulfill its mission to preserve and protect the Loxahatchee River and its natural habitats for future generations by designing innovative wastewater solutions, furthering river research effort, **fostering environmental stewardship and developing environmental outreach programs** with the Busch Wildlife Sanctuary and the River Center." "We also recognize Mr. Dent's contribution not only to the district, but to the community and out beloved Loxahatchee River." Paul Whalen (Jupiter Courier, 2009)

"As part of its mission, the **Loxahatchee River District strives to make environmental education a priority for our community to promote better stewardship of the Loxahatchee River**. The Loxahatchee River District has conducted environmental education programs in our community for over 15 years. Many local residents may remember attending our first education program, SeaQuest camp, at the Jupiter Marine Science Center near the Jupiter Lighthouse. This program has been significantly renovated, updated, and expanded into what is now the River Center." (Abacoa Community News, March 2009)

"The day is coming when today's youngsters will take over control of the fate of Florida's fish, wildlife, and habitats. **We must first introduce them to these treasures before we step aside, or we risk entrusting them with things they have never learned to love and protect."** (Jupiter Courier Community Viewpoint, 2009)

HISTORY OF THE ENVIRONMENTAL EDUCATION PROGRAM

A brief history of the Public Education program for the Loxahatchee River District.

The environmental education program of the Loxahatchee River District has been evolving since 1992; over 25 years of educating our community about the importance of the Loxahatchee River.

JUPITER MARINE SCIENCE CENTER – 1992

The Jupiter Aquatic Institute began at the Coast Guard "Barracks Building" in 1970. It was later renamed to the Jupiter Marine Science Center and eventually became a program of the Palm Beach County School District and the Town of Jupiter. The Jupiter Marine Science Center (JMSC) became a program of the LRD in 1992. Later, in 1995, the Friends of the Loxahatchee River began supporting the operations of JMSC. Housed in the old Coast Guard barracks building on the lighthouse property, this program was made available to educate local students (sometimes over 6,000 per year) and offer volunteer opportunities. This location and the programs are remembered fondly by local residents that grew up going to that location. This program continued until the building was damaged by the 2004 hurricanes.

BUSCH WILDLIFE SANCTUARY

After the hurricanes damaged the building, the Loxahatchee River Historical Society and Jupiter Inlet Lighthouse consolidated their operations on the lighthouse property and took over the barracks building. The environmental education program of the District had to adapt until a new property and situation could be determined. During this time, the environmental education program reinvented itself and leveraged its partnership with the Busch Wildlife Sanctuary. Using a combination of the LRD plant site and the Busch facilities, education programs were continued.

BLOWING ROCKS PRESERVE

For two summers, the SeaQuest Summer Camp continued through a partnership with Blowing Rocks Preserve (BRP). BRP leased their meeting to room to the LRD for the summer so that we could continue to run our summer camp program while we awaited the completion of the River Center.

RIVER CENTER

When the Historical Society moved to the lighthouse property, the old museum building became available. The Loxahatchee River District, through a partnership with Palm Beach County and the Loxahatchee River Preservation Initiative, renovated the building to be an aquarium and took over operations. The environmental education program evolved again into what is now the River Center. Planning started in 2006 and the River Center opened in 2008. Since that time, the River Center has received 250,000 visitors.

THE CONNECTION BETWEEN ENVIRONMENTAL EDUCATION AND ENVIRONMENTAL STEWARDSHIP

The Loxahatchee River District protects the Loxahatchee River by preventing wastewater pollutants from entering the Loxahatchee River watershed. By engaging the public with relevant and compelling environmental education opportunities, such as the River Center, we foster stewardship among residents and visitors, gathering community support for the Loxahatchee River District.

In our experience, as a person becomes exposed to and relates to a natural environment (i.e. Loxahatchee River watershed), there becomes a greater understanding, knowledge, and appreciation to that environment. These experiences will increase a connectedness to that natural environment. If a participant feels connected to "nature," they will be more likely to respect and take care of it (Mayer 2009). We suggest that if there is an increase in environmental connectedness, there is an increase in environmental stewardship as well (Mayer 2004).

Historically, environmental education recognized that environmentally related attitudes, values, knowledge, and skills are critical to informing citizen action (UNESCO 1977). Feeling connected to the environment can occur during environmental educational programs and can therefore be used in evaluation as important steps towards the long-term goal of fostering and enhancing environmental learning and stewardship (Zint 2013) (Updated RC Benchmarks to evaluate ES 2019).

Stewardship of the environment refers to protecting the environment through recycling, conservation, regenerations, and restoration (Chapin 2009). It means taking responsibility for our choices. The responsibility for environmental quality should be shared by all those whose actions affect the environment. ***Environmental stewardship refers to responsible use and protection of the natural environment through conservation and sustainable practices (Markowitz 2012).***

Environmental stewardship can start with individual actions such as best management practices in managing your home, landscape, neighborhood, and community. Actions that reduce waste, clean-up water, and provide for biological diversity are all examples of environmental stewardship. Good stewardship means living in such a way that your life, your needs, and wants are such that they do not negatively influence the world around you (Markowitz 2012).

The Environmental Connectedness Perspective proposes a place-based application of a nature encounter-environmental behavior relation. This perspective reveals that environmental connectedness is rooted in a material/objective perspective, neglecting the human domain of perceptions, values, and representations (Schultz 2002). The environment as "nature" has the inherent power to change human attitudes and behavior. It can change based on one's experience with nature meaning the more time an individual spends in nature, the more connected they feel to nature, and the more concern they may feel for nature (Dutcher 2007).

HOW THE RIVER CENTER CONNECTS TO THE DISTRICT'S MISSION, THE RIVER ENHANCEMENT PROGRAM AND ENABLING ACT

EXHIBITS

Loxahatchee River Watershed Timeline Exhibit

"Our community, Our River." Welcome to the Loxahatchee River Environmental Center, a program of the Loxahatchee River District. The Loxahatchee River District was created in 1971 with the mission to preserve the Loxahatchee River and its natural habitats, through wastewater treatment. In following with the District's mission, the River Center opened in 2008 to increase appreciation and awareness of the Loxahatchee River through education and increased community involvement with the river.

Aerial Photographs – Lobby

These photographs show the Loxahatchee River and some of the changes over the last 80 years. Looking at any of the photographs, you will notice that the Loxahatchee River has several parts. There are three forks on the river: the southwest fork, the north fork, and the northwest fork. ***As you look at each photo in sequence, we, as a community, have changed the river over time, but the river has also shaped our community.*** Looking at the photograph from 2007, the Northwest Fork is the longest fork and contains the Wild and Scenic portion of the river. Notice how it is green and there are no houses and very few roads in the western portion? That is the Wild and Scenic part of the northwest fork. All three forks flow together into the Central Embayment area and flows out through Jupiter Inlet. All of these parts of the Loxahatchee River are connected. What happens in one part of the river will ultimately affect every other part.

Water Budget Exhibit (Balancing Water Uses – Supply v. Demand)

People, farms, and the environment are all competing for a limited supply of freshwater ***(water supply)***. We need to work towards the best possible way to balance those needs. We all draw on these natural water resources trying to meet the needs of our population, farms, and natural areas. Some of the natural resources we use for water for our farms and towns include surface water (such as wetlands), ground water (or aquifers), river water, and rainwater. The Loxahatchee River District also recycles water that may be used in limited ways ***(water supply and solutions to existing problems)***. What are some ways you use water in your home? (sprinklers, showers, drinking, toilets, etc.) What are other things we need water for? Yes! Growing crops for people and watering livestock. We also need water for the environment. If we took all the water out of the river for people and farms, there would not be any for the river and we would lose fish, plants, alligators and more.

Can you balance the water budget? It is very difficult to balance the water resources with the needs. But do not forget about the Loxahatchee River District. They actually recycle water! You cannot drink it, but it is used on golf courses and in some residential areas to water landscaping. You can think of it as another water resource! ***(water supply)***

The Human Water Cycle and the Loxahatchee River District

How does our community fit into our environment and the water cycle? When it rains ***(stormwater)***, we get pools of water called surface water found in lakes, river, and wetlands. That surface water eventually percolates down through the sediments into the surficial aquifer. The surficial aquifer is an underground body of freshwater located just below the surface of the earth. Deeper underground is another aquifer called the Floridan aquifer. Unlike the surficial aquifer, the Floridan aquifer does not fill with surface water and is brackish.

Here in Jupiter we do not use surface water to supply our drinking water ***(water supply)***, we use both the surficial aquifer and the Floridan aquifer (managing water supply). The Town of Jupiter balances the use of the two types of water. When we are in the dry season or in a drought, they will use more of the Floridan aquifer water. It is more costly to bring this water to the surface from a deep well and using reverse osmosis membranes is more expensive than other standard filtration membranes. When we are in the rainy season, however, they will use more surficial water because more freshwater is available near the surface. In this way they can balance the cost of water in our community.

What are some ways you use water at home? We take a shower, we flush the toilet, we clean and cook with it, we water the lawn and our plants with it. Most people can survive on a gallon of water per day, but on average each person uses about 175 gallons per day. What are some ways you can think of to save water? Only water plants when they need it. Grass can survive with watering twice per week in the dry season. Only run your washing machine and dish washer when they are full. Get low flow shower heads and toilets and fix any leaky faucets. Plant native plants that require less water.

So, now we have used the water, where does it go? ***Wastewater*** will go to the Loxahatchee River District to be cleaned, filtered, and process into irrigation quality water ***(water supply and solutions to existing problems)***. The water that enters the storage ponds will then go back into the water cycle through evaporation. The remaining recycled or reclaimed water will be used for the community. The Loxahatchee River District has recycled well over 13 billion gallons of water as Irrigation Quality Water since the beginning of the program ***(sewage disposal, water supply and solutions to existing problems)***. Imagine being able to use water that was recycled from wastewater, so we are not using water from our aquifers. This is water conservation on a grand scale, and we can all do are part at home and in our community.

Wild and Scenic Portion of the Loxahatchee Exhibit

The Loxahatchee River was the first Wild and Scenic River, receiving its designation in 1985. What is a Wild and Scenic river? Select rivers and their immediate environments which possess outstandingly remarkable scenic, recreational, fish and wildlife, historic, or other similar values, are preserved in free-flowing condition. This federal designation provides the rivers and their immediate environments with federal protection for the benefit and enjoyment of future generations. The protection and management plan prohibits major structures or development in or around the river, ensures that water quality is maintained **(sewage disposal)**, and outstanding natural, cultural, and recreational areas and values are protected.

Freshwater Floodplains Exhibit

Floodplains are flat or depressed areas along the course of a stream or river that are naturally subject to flooding. Floodplains actually serve a number of functions. During our wet season, May-October, excess water floods into the floodplain where it is stored. Floodplains also reduce the amount of sediment and nutrient erosion into our estuaries. They slow water flow and store excess water ***(stormwater disposal and water supply)***, giving the particles suspended in the water time to settle back to the ground, leaving the cleaner water. A portion of the stored water will seep into the ground into the underground water systems called aquifers, recharging our freshwater resources.

Estuary Exhibits (Oyster Reef, Mangroves and Seagrass)

There are three critical habitats in our estuary: the mangroves, seagrasses, and oyster reefs. Oysters are an important nursery habitat for juvenile fish. Their small crevices and spaces provide hiding places for small fish to avoid predators. They also provide shoreline stabilization helping to prevent erosion and protecting our homes. Oysters are important because they are filter feeders. One oyster filters and cleans 30-50 gallons of water per day. They are critical to having good water quality and keeping our river clean. That is why the Loxahatchee River District in partnership with Martin County restored 4.5 acres of oyster reefs that had been previously removed in the Loxahatchee River. ***(water quality and solving existing problems)***

Red mangroves have a number of adaptations in order to survive in the salty, brackish coastal areas. Because of these adaptations, they are able to grow along the shoreline stabilizing and protecting against erosion. Mangroves are extremely important as they protect shorelines from high seas during tropical storms and hurricanes ***(stormwater and protect the river)***. Mangroves are an important habitat providing shelter for birds and small mammals above the water as well as providing nursery grounds for small marine organisms below the water.

There are 7 species of seagrass that occur in the Loxahatchee River ecosystem and most of them occur in salty or brackish water. The three most abundant grasses are turtle grass, manatee grass and shoal grass. Seagrasses are important because they provide a nursery habitat for juvenile fish, are excellent sediment stabilizers preventing erosion, and remove nutrients from the water leaving it cleaner ***(water quality)***.

Dock Piling Exhibit (Human Impacts)

The dock piling exhibit represents a family dock on the southern portion of the Northwest Fork of the river. Notice the bottom of the boat above your head, the wooden dock, and the round "dock piling" in the center of the aquarium. Dock pilings are not "natural habitats", but barnacles, algae, corals, oysters, sponges, and other organisms are living on these manufactured structures. So here we have a family that probably did not think they were doing much for the environment around them, but by building their concrete dock with better materials and design, they have now created a whole new habitat for marine organisms. **The environment is not a destination; it is where you and I live *(protect the River)*.** Humans can have a positive or negative impact on their environment; it is up to us. Can you think of some ways that you will have a positive impact on your environment today?

Coral Reef (Deep Marine) Exhibit

As we look at the large coral reef exhibit, we are now headed out the Jupiter Inlet into the saltwater ocean to our natural Florida coral reefs. Corals are very sensitive to changes in environmental conditions that maybe caused by climate change, disturbance of watersheds, or pollution. The fish that live here are colorful and diverse. Coral reefs are one of the most biodiverse places on earth and are important to all of us. It is also important to note that many of the fish that we enjoy seeing on the reef, spend at least some portion of their life in an estuary habitat such as seagrasses, oyster reefs, or mangroves. If we want to protect our reefs, we also need to protect our estuary habitats. One of the best ways we can protect our estuary habitats, is to protect our freshwater rivers feeding those estuaries by preventing pollution from **storm water run-off, marine debris, and poor water quality *(sewage disposal)*.** All of these habitats are connected together into one large ecosystem. They are all very different but rely on the others to function.

PROGRAMS

We achieve environmental stewardship outcomes by using our three-step philosophy.

EXPLORE: Often unguided interaction with exhibits, instructors, and natural areas. Inquiry based learning. These programs are usually a visitors first exposure to the River Center and an introduction to other programs. (Introduction to the Loxahatchee River)

EXPERIENCE: Guided hands-on learning with more structure and program based. These programs can be both at the River Center as well as at offsite locations. (Actively learning, understanding, and appreciating the Loxahatchee River)

CONNECT: Creating a physical and emotional relationship with nature. These are full emersion programs, often in smaller groups, offsite in a natural environment. Tend to be more physical and directly connected to nature. (Fully connected to the Loxahatchee River and active Environmental Stewardship)

GENERAL PROGRAMS

Below will include the name of the River Center program, the partnerships involved for these programs to run successfully, and the connection to LRD and the River Enhancement Program.

1. Archery
    a. Florida Youth Conservation Centers Network Partnership through FWC
    b. *Highest rated in EXPERIENCE:* hands-on instruction and equipment use, unique activity, wide range in demographics participate, **a bridging program that usually leads families to other programs**.
2. Art in Nature
    a. Partnership with Brenda Nickolaus
    b. *Highest rated in EXPERIENCE:* Hands-on lesson with a professional art and environmental educator. Participants learn art techniques then view and learn about

a specific animal in the River Center's aquarium. Combining exhibits with instruction for a project-based program.

c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (appreciation).

3. Atala Butterfly Festival
   a. Partnership with Native Plant Society, Jupiter Tequesta Garden Club, Master Gardeners
   b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* – Participants explore the River Center's exhibits and pollinator garden, they experience guest lectures, hands-on activities, and expert lead garden tours. They connect what they have learned to make change at their own homes and communities.
   c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (environmental consequences).
4. AustinBlu Fishing Tournament
   a. Partnership with AustinBlu Foundation
   b. *Highest rated in EXPERIENCE* – Not only are families getting out on the river fishing in the tournament, they come explore the River Center, experience the hands-on activities, and community unity at the tournament award ceremony held at the center.
   c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
5. Blooming in the Garden for Early Learners
   a. In-house River Center Program
   b. *Highest ranked in EXPERIENCE:* Designed as a family program for children 3-6 that includes a garden themed story time, exploration the pollinator garden with a hands-on activity included, the creation of a themed craft, and the opportunity to take plants/seeds for their home garden.
   c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
6. Boat Tour
   a. Partnership with Aqua Adventures Boat Tours
   b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* – Participants get out on the Loxahatchee River with a guided naturalist touring the different parts of the river. Families have the opportunity to explore and experience the sandbar and mangroves in the river and connect the community to the Loxahatchee River.
   c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels and appreciation).
7. Boating Safely Class
   a. Partnership with AustinBlu Foundation and U.S. Coast Guard Auxiliary
   b. *Highest ranked in EXPERIENCE* – The class is run by the Coast Guard Auxiliary with decades of experience in boating. Sections of the class focus on being stewards of the water, maintaining vessels properly to avoid pollution and litter, and abiding by

laws in local waterways (manatee zone, seagrass areas, navigational channels, Jupiter Aquatic Preserve).

c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (safe enjoyment and conservation).

8. Camp Group Field Trips – #3 highest in the Environmental Stewardship Index Impact
   a. Providing programs to camp, schools, and organizations throughout Palm Beach and Martin County
   b. *Highest ranked in EXPLORE and EXPERIENCE* – Students receive a guided tour of the River Center's aquariums and exhibits learning about the different ecosystems of the Loxahatchee, understanding our water resources, and water conservation. They are also provided a selected hands-on activity based on the natural, life, or environmental sciences of the Loxahatchee River.
   c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
9. Cleanups
   a. Partnership with Keep Palm Beach County Beautiful and PBC Parks & Recreation
   b. *Highest ranked in CONNECT* – Cleanups include the Great American and International Coastal Cleanup hosted at Coral Cove Park and open to the public. Kayak and shoreline cleanups at Burt Reynolds Park are organized with local companies and organizations that partner with the River Center throughout the year. This is Environmental Stewardship in action.
   c. *River Enhancement:* The theme of the Program is to keep the River clean.
10. Craft-a-palooza
   a. In-house River Center Program
   b. *Highest ranked in EXPERIENCE* – This is a very general program open to the public with several different hands-on activities and crafts focused for K-5th grade students. This is a family program that many first-time visitors come to during school breaks. **This creates an exploration opportunity at the River Center and leads families to learn more about River Center programs (bridging program).**
11. Documentary Night
   a. In-house River Center Program
   b. *Highest ranked in CONNECT* – Participants are usually older in demographics and have the opportunity to watch different environmentally focused documentaries with a Q & A and group discussion before and afterwards. They are connecting the global and state issues presented in the documentary to our local community and personal choices.
   c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (environmental stewardship and appreciation).
12. Fishing Clinic
   a. Florida Youth Conservation Centers Network Partnership through FWC
   b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* – Participants and their families are provided hands-on instruction to fishing techniques, safety, rules,

and regulations. This program has different tools, equipment, and items throughout the program. Students get the opportunity to actually go fishing with River Center equipment at Burt Reynolds Park. Every child goes home with FWC regulation books.

c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).

13. Girl Scout Way Event
    a. Partnership with Girl Scouts of Southeast Florida
    b. *Highest ranked in EXPERIENCE* – Girls travel throughout the River Center and surrounding property completing different activities to earn their Girl Scout Way Badge. They also have the opportunity to meet different women leaders of today that are involved in STEM career. For many of these girls, it is there first time visiting the River Center. **This is a bridging program leading to other Girl Scout Workshops.**
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (celebrate tradition, value of STEM careers and outdoor women).
14. Girl Scout Workshops
    a. Partnership with Girl Scouts of Southeast Florida
    b. *Highest ranked in CONNECT* – Girls travel throughout the River Center and surrounding property completing different activities to earn a specific skill badge. Each rotation is facilitated by a River Center educator and has a hands-on component. There is usually a service or group project at the end bring all the girl participants together for a common goal. All the workshops are designed with a local environmental theme and focus.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (environmental stewardship and appreciation).
15. Halloween Campfire
    a. In-house River Center Program
    b. *Highest ranked in EXPLORE and EXPERIENCE* – This event is our largest event of the year and open to the public. The River Center offers several different hands-on activities and crafts, a campfire, hayride, and different Halloween theme fun throughout the River Center property. This family event focuses on pre-K-5th grade students with many first-time visitors that learn about the evening through word of mouth. **This is an introductory program connecting families to the River Center and their variety of programs offered.**
16. Hikes
    a. Partnership with Palm Beach County Environmental Resource Management, South Florida Water Management District
    b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* – Participants join a guided naturalist tour throughout different local natural areas. The explore ranking was the highest in the sense that we are passively exploring the trails sometimes with a focus on bird watching, nature photography, wildflowers, local history, restored wetlands, etc.

c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (appreciation).

17. Homeschool Workshops
    a. In-house River Center Program
    b. *Highest ranked in EXPERIENCE* – These are classroom, schoolyard, or lab based hands-on activity designed for homeschool students. Each workshop has a natural, life, or environmental science focus. pre and post lessons are available as a resource for parents. Emphasis is placed on human impacts, human connections, and a call to action to become environmental stewards.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
18. Jr. Angler Fishing Tournament
    a. Partnership with FWC, Fishing Headquarters, West Palm Beach Fishing Club, Bass Pro, DOA Lures, Juno Bait, Marine Industries
    b. *Highest ranked in EXPERIENCE* – Due to the nature of this catch and release photo tournament, participants are fishing individually throughout the Loxahatchee River Watershed. They are out on the water, exploring and experience our local water resource.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
19. Kayak Tours
    a. Partnership with Palm Beach County Environmental Resource Management, SFWMD, FWC
    b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* Participants join a guided kayak tour throughout different local natural areas. Participants are exploring local waterways while experiencing it with a guide and connecting to these special and unique locations that are preserved and protected.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (appreciation) and the theme of the Program is to keep the River clean.
20. Monthly Lectures - #4 highest in the Environmental Stewardship Index Impact
    a. In-house River Center Program, but could only be successful with guest lecturers donating their time to come and speak
    b. *Ranked highest in EXPERIENCE and CONNECT* – These lectures draw an older demographic with a guest speaker that focuses on environmental, life, marine, animal sciences or local history. These speakers are often sharing their current research and results with a call to action and be connected as Environmental Stewards.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (environmental stewardship and community involvement).
21. Public Fish Feeding

a. In-house River Center Program
b. *Highest ranked in EXPLORE* – This weekly family program is a guided aquarium tour that drawls many first-time visitors. Please see How does the River Center exhibits connect to the Loxahatchee River District's mission and the River Enhancement Program?
c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).

22. School Group Field Trips - #1 highest in the Environmental Stewardship Index Impact
    a. Partnership with the School District of Palm Beach County - Providing programs to private and public schools, homeschool co-op groups and families throughout Palm Beach and Martin County
    b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* - Students receive a guided tour of the River Center's aquariums and exhibits learning about the different ecosystems of the Loxahatchee, the local water resources, and water conservation. They are also provided a selected hands-on activity based on the natural, life, or environmental sciences of the Loxahatchee River. These programs are based on standards with pre and post lessons available as a resource for teachers. More emphasis is placed on human impacts, human connections, and a call to action to become environmental stewards.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
23. Science Day
    a. In-house River Center Program
    b. *Highest ranked in EXPERIENCE* – This is a very general program open to the public with several different hands-on activities focused on 2nd-6th grade students. This is a family program that many first-time visitors come to during school breaks. This creates an exploration opportunity at the River Center and leads families to learn more about River Center programs.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
24. Science with Sam
    a. In-house River Center Program
    b. *Highest ranked in EXPERIENCE* – These are classroom, lab, schoolyard, or outdoor based hands-on activity designed for students K-5th grade. These lessons are designed to have themes that have a wider range in science topics.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
25. Seine & Dip
    a. Partnership with The Nature Conservancy at Blowing Rocks Preserve
    b. *Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT* – Exploring the lagoon at Blowing Rocks Preserve by snorkeling, dip, and seine netting along with a naturalist facilitating. This family program allows guest to get up close and

experience animals in their natural environment. Educators bring portable collection equipment to share and teach about what folks found. Through this experience, participants are connecting to the nature.

c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (appreciation).

26. Storytime - #2 highest in the Environmental Stewardship Index Impact
    a. In-house River Center Program
    b. *Highest ranked in EXPLORE and EXPERIENCE* – Families take part in stories, music, activities, and touch tank demonstrations during Story Time. This is geared towards early learners and is usually one of the first programs families will come to after visiting the River Center for the first time. They explore the aquariums and experience the fun and often silly stories, many of which are connected to animals, the environment, and the beach.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).
27. Summer Camp
    a. Partnership with Palm Beach County Parks & Recreation, The Nature Conservancy, Palm Beach County Environmental Resource Management, the Florida Park Service, South Florida Water Management District, Blueline Surf & Paddle, Aqua Adventures Boat Tours, Hobe Sound Nature Center, Busch Wildlife Sanctuary
    b. Ranked high in all sections; EXPLORE, EXPERIENCE, CONNECT – This is the River Center's most immersive program as an aquatic adventure summer camp. Campers snorkel, swim, seine and dip net, kayak, standup paddleboard, go on boat trips, hike, and participate in numerous lesson and activities at the River Center.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels, appreciation, environmental stewardship).
28. Virtual Education Program
    a. Partnership with the School District of Palm Beach County – will be providing these program opportunities to public and private schools as well as homeschool families
    b. *Not yet ranked ESI Impact* – Our virtual education videos were a response to COVID-19 and trying to stay connected to families. The River Center also wanted them to be used as a resource for teachers and parents having to teach from home in a virtual environment. We will be providing virtual education programs for the 2020-2021 school year in response to COVID-19. These will be interactive, in real-time, with a particular topic and targeted grade levels.
    c. *River Enhancement:* Educate the public to the environmental condition of the Loxahatchee system on many levels (age levels).

FIELD TRIP PROGRAMS

- Going on a Crab Hunt (Grade VPK, a.k.a. pre-Kindergarten)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Turtle Tots (Grade VPK)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Fish Morphology (Grade K-1)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Sea Urchin Lab (Grade K-1)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Shark Senses (Grade K-1)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Reptiles of the Loxahatchee (Grade 1-4)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Wildlife is Everywhere (Grade K-2)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.

    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
- Shark Habitats (Grade 2-3)
    - The theme of the Program is to keep the River clean.
    - That pollution prevention and river enhancement should be the objectives of the District's efforts. That the public wants the Loxahatchee River protected, and that the District is the organization chartered to protect the River.
- Ocean Current and Plastic Voyages (Grade 4-5)
    - That pollution prevention and river enhancement should be the objectives of the District's efforts. That the public wants the Loxahatchee River protected, and that the District is the organization chartered to protect the River.
- Habitat Conservation (Grade 2-4)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.
- Water Cycle (Grade 2)
    - The theme of the Program is to keep the River clean.
- Mangrove Adaptations (Grade 3-5)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.
- Bird Basics and Migration Headache (Grade 3-5)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.
- Water Properties Lab (Grade 3-5)
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.
- Shark Conservation (Grade 4-5)
    - That public education and information is needed on many levels to inform and educate the public to the environmental condition of the Loxahatchee River system.
- Oyster Reef Ecology Lab (Grade 3-5)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.
- Seine and Dip Netting Experience: Estuary Exploration (Grade K-12)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.

    - That pollution prevention and river enhancement should be the objectives of the District's efforts. That the public wants the Loxahatchee River protected, and that the District is the organization chartered to protect the River.
    - Having a first-hand interaction with an animal connects the student to its habitat encouraging environmental connectedness leading to environmental stewardship and promoting the theme of the Program which is to keep the River clean.
- Water Quality of the Loxahatchee River (Grade 7-8)
    - The Loxahatchee River is a valuable natural resource worthy of protection and enhancement.
    - That pollution prevention and river enhancement should be the objectives of the District's efforts. That the public wants the Loxahatchee River protected, and that the District is the organization chartered to protect the River.
    - That the District continue its water quality monitoring program and its service as a coordinator of all information relating to the environmental condition of the Loxahatchee River Basin.
    - The theme of the Program is to keep the River clean.
- LRD Wastewater Tour: A Biological Process (Grade 9-12)
    - That there are three major threats to water quality in the Loxahatchee River: stormwater discharges, septic tank discharges, and wastewater point source discharges.
    - The District will take such remedial measures in order to preserve, keep and enhance one of Florida's most valuable natural resources, the Loxahatchee river.
    - That pollution prevention and river enhancement should be the objectives of the District's efforts.

THE FUTURE OF PUBLIC EDUCATION

OUR COMMUNITY

Community, or "grass roots", involvement is still the best way to make real, beneficial changes for the Loxahatchee River. The River Center remains committed to fostering the relationship with our community into the future. Quality environmental education can **"prevent additional environmental problems"** by encouraging residents to make changes in their daily lives and to express their desires for a healthier river to decision makers. In the same way, it can address **"existing problems"** by garnering support from residents for solutions and projects that the LRD is doing.

OUR PROGRAMS

THE RIVER CENTER

The River Center will continue to provide programming at the same level and quality that we have been. Program development is an integral part of our operations so that we always have fresh materials and stay abreast of changes and issues in our community. The River Center has a 10-year lease with PBC Parks and Recreation. The current lease expires in 2027.

THE JUPITER INLET LIGHTHOUSE OUTSTANDING NATURAL AREA

The LRD / River Center has recently been awarded the opportunity to expand outdoor, environmental education programming through a partnership with the Bureau of Land Management (BLM) at the Jupiter Inlet Lighthouse Outstanding Natural Area (JILONA). This is an exciting new chapter in the public education program for the LRD. The LRD has the opportunity to formalize a partnership with BLM. The River Center has a strong track record of working with partners to complete program goals. We know that we can accomplish more by working together than we can by working separately.

The renovated units (old Coast Guard housing) would provide a base of operations for River Center staff to provide managed, on-site recreational, scientific, and educational experiences to the public, students, and organized groups. These experiences would be used to fuel active environmental education efforts with a clear and specific goal of improving environmental stewardship among participants, i.e., increasing the environmental ethic of those we serve. We are confident we can provide managed environmental education effort that will improve understanding of natural resources (BLM Core Value) dependent upon this site and increase participants willingness and desire to preserve and protect these valuable resources.

Outdoor programs continue to score high on "connection" to our environment, making these types of programs the most impactful to individuals. It is here that we can spark interest and caring for the Loxahatchee River watershed.

RELOCATION TO VACANT LRD PROPERTY IN JUPITER FARMS

Relocation would allow us to design and build a campus that will quickly become the go-to environmental education facility in the Loxahatchee River watershed. We desire a highly functional facility intentionally designed with sustainability in mind. This area could be utilized to make environmental education by the River Center a "destination" in north county. More outdoor space for trails and outdoor education, means more connection for residents and visitors alike. We can show them the true value of the Loxahatchee River and why our community has (as proved by the grassroots movement in the 1960s) and always will cherish the Loxahatchee River. Once they see the beauty and the importance of our river, they will come to love it. Once they love it, people will be concerned about their impacts on the river and will be inspired to work for good on the behalf of the river. If the LRD wants to **solve existing problems** and **prevent future environmental problems,** the easiest way to do that is to make sure this community understands their role. **This philosophy is what saved our river in the past and it will be what saves it in the future.**

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Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

To: D. Albrey Arrington, Ph.D., Executive Director
From: Travis Bains, CSHO, ENS, Safety Compliance Officer
Date: July 8, 2020
Subject: District Safety Report for June 2020

Safety Metrics: June 2020

OSHA recordable injuries: **None**
Lost time injuries: **None**
Actual TRIR: **6.4** [TRIR Goal <4.4]
TRIR = Total Recordable Incident Rate

Safety is a Core Value at LRD

Our conduct is shaped by a personal commitment to protect the health and safety of ourselves and our colleagues. Safety is driven through education, training, planning, protective equipment, and individual accountability.

Safety Training

Safety training conducted for the month of June consisted of Electrical Safety Training. Electrical Safety in the workplace may seem simplistic, however, electrical hazards is a front runner for OSHA's Focus Four (Electrical Hazards, Fall Hazards, Struck-By Hazards, & Caught-in or Between Hazards) with an average of 2,395 injuries yearly from 2003 through 2018. In 2018, there were 1,560 injuries alone with 160 electrical fatalities. Of the 1560 injuries, 20% of them were Construction related and 16% were Administration and Office Personnel. Through statistical data, OSHA has shown that training along with general awareness has decreased the number of injuries throughout the years.

Electrical Safety hazards range from cuts in cord, wet/damp areas, to overloading currents, and improperly grounded equipment. It is important to know the basics of what not-to-do and have a healthy respect for all electrical equipment. The District had a 93% completion rate.

Hazard Analysis & Individual Accountability

The District Safety Officer works daily with supervisors and staff throughout the organization to assess and evaluate potential hazards by addressing the 4 Qs:

1. What am I about to do?
2. How could I get hurt?
3. What am I going to do to prevent injury?
4. What do I need to do this job and how will I do it safely?

This month the District Safety Officer worked with relevant crews to conduct targeted hazard analyses for the following projects:

Removal of 6,200 gallon storage tank from Master Lift Station (Collections, Safety and Evoqua)

Primary hazards: Crane and rigging failure, muscle strains, close quarter lifts, dehydration, pinch points, overhead hazards, failure to Lock Out/Tag Out

Evoqua personnel were primary to task, LRD personnel were present to assist.

Job Hazard Analysis: Yes

Checking manholes and cleaning (Collections, Construction)

Primary hazards: temporary maintenance of traffic; oncoming unseen traffic, lifting of manhole covers, raw sewage, debris, environmental.

Mechanical hazards: Pinch points, hose integrity (cuts, rashes, scrapes, and broken jackets), noise hazards, jetting hi-pressure from vac-con through lateral lines, possible back-up to customers

Onsite training: Procedures, temporary maintenance of traffic, set-up, Personal Protective Equipment, tools and their uses, job hazard analysis and toolbox talk forms.

Job Hazard Analysis: Yes

Job site safety assessment conducted.

Draining/Cleaning of Injection Well Screen (Safety, Ops, Maintenance, Collections)

Preamble: During recent high flow events, it became apparent that the bar screen was becoming blinded (clogged). The objective was to clean grit, waste, and trash from the screen allowing for improved functionality of the structure.

Primary hazards: dehydration and heat stress, pre-check of atmosphere, deep wet well with water accumulation, pump failure, fall to lower level hazards, lock out/tag out failure, splashes from raw sewage.

Mitigation: situational awareness of each crew member, constant monitoring of atmosphere, group lock-out and tag-out, mechanical ventilation installed, inspection on davit arm, harness and fall protection, ladder tie-off, barricades, personal protective equipment

Onsite training: Atmospheric testing, inspection of entry tools, permit required confined space and procedures, job hazard analysis. Lock-out and Tag-out training.

Job Hazard Analysis along with Confined Space Permit.

Confined Space and Excavation (Construction)

Primary hazards**:** dehydration and heat stress, slough off/cave-ins, asphalt cutting, crane and rigging failure, close quarter lifts, muscle strains,

Mechanical Hazard**:** well pointing, vac-con operation, crane lifts, maintenance of traffic

Onsite training**:** inspection of entry tools, excavation hazards, job hazard analysis and toolbox talk forms.

Job Hazard Analysis: toolbox talk.

Job site safety assessment conducted.

Safety Quote of the month: *Error is normal. Even the best people make mistakes.*

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: Governing Board

FROM: Administration Staff

DATE: July 8, 2020

SUBJECT: Consultant Payments

The following amounts have been reviewed and approved for payment to our consultants for work performed during the prior month.

	Prior Month	Fiscal YTD
Shenkman, PA	$8,646.25	$101,704.20
Holtz	$18,364.05	$183,928.35
Baxter & Woodman	$20,899.37	$154,889.11

Should you have any questions in regard to these items, please contact Kara Fraraccio concerning the attorney's invoice, and Kris Dean concerning the engineers' invoices.

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Future Business

Neighborhood Sewering:

- 181st Street Gravity Construction Contract
- Preliminary Assessment – Country Club Drive
- Preliminary Assessment – Thelma Avenue
- Preliminary Assessment – Island Country Estates

Other:

- Budget Assumptions
- Lift Station 82 Conversion
- Greenhouse Gas Emissions Evaluation
- Odor Control Improvements Study
- Master Lift Station Bypass Study
- Continuing Services Contract
  - Collections and Transmission
  - Wastewater Treatment Facility
  - Reuse System
  - Admin, Education and Maintenance Facilities
- Merchant Services Contract