

AGENDA
REGULAR MEETING #10-2019
July 18, 2019 – 7:00 PM AT DISTRICT OFFICES
ALL MEETINGS ARE OPEN TO THE PUBLIC

1. Call to Order & Pledge of Allegiance
2. Administrative Matters
 - A. Roll Call
 - B. Previous Meeting Minutes **Page 5**
 - 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. Budget Assumptions - Fiscal Year 2020 **Page ~~34~~ 36**
 - C. Chapter 31-16 - River Enhancement Rule **Page ~~35~~ 40**
7. Reports (see next page) Pulled for Discussion
8. Future Business **Page ~~90~~ 95**
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 8, 2019

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. Turtle Creek Subsystem 2 Final Assessment – Resolution 2019-07 Page 14
- B. Turtle Creek Subsystem 3 Final Assessment – Resolution 2019-08 Page 22
- C. Change Orders - to approve modifications Page 29

7. REPORTS

- A. Neighborhood Sewering Page ~~45~~ 50
- B. Legal Counsel's Report Page ~~47~~ 52
- C. Engineer's Report Page ~~50~~ 55
- D. Busch Wildlife Sanctuary Page ~~53~~ 58
- E. Director's Report Page ~~54~~ 59

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
PUBLIC HEARINGS #8-2019
July 18, 2019 - 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 the Turtle Creek Subsystem 2 Final Assessment Roll
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."

A handwritten signature in blue ink, appearing to read "D. Albrey Arrington".

Submitted by:
Date: July 8, 2019

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AGENDA
PUBLIC HEARINGS #9-2019
July 18, 2019 - 6:57 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 the Turtle Creek Subsystem 3 Final Assessment Roll
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 8, 2019

MEMORANDUM

TO: Governing Board
FROM: Recording Secretary
DATE: July 8, 2019
RE: Approval of Meeting Minutes

Attached herewith are the minutes of the Regular Meeting of June 27, 2019. As such, the following motion is presented for your consideration.

“THAT THE GOVERNING BOARD approve the minutes of the June 27, 2019 Regular Meeting as submitted.”

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
REGULAR MEETING - MINUTES
June 27, 2019

1. CALL TO ORDER

Chairman Rostock called the Regular Meeting of June 27, 2019 to order at 7:00 PM.

2. ADMINISTRATIVE MATTERS

A. ROLL CALL

The following Board Members were in attendance.

Mr. Boggie
Mr. Rockoff
Mr. Silverman
Mr. Snyder
Dr. Rostock

Staff Members in attendance were Dr. Arrington, Mr. Dean, Mr. Howard, Ms. Fraraccio, and Mr. Campbell.

Consultants in attendance were Mr. Muniz from Hazen & Sawyer, Ms. Wood from Holtz Consulting, Mr. Pugsley from Mathews Consulting and Mr. Shenkman with Smith, Gaskill & Shenkman.

B. PREVIOUS MEETING MINUTES

The minutes of the Regular Meeting of May 16, 2019 were presented for approval and the following motion was made.

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

“THAT THE GOVERNING BOARD approve the minutes of the May 16, 2019 Regular Meeting as submitted.”

C. ADDITIONS & DELETIONS TO THE AGENDA

Items 5D and 5E were removed from the consent agenda and moved to the regular agenda.

3. COMMENTS FROM THE PUBLIC

No comments were received.

4. STATUS UPDATES

A. LOXAHATCHEE WATERSHED STATUS

Dr. Arrington reviewed the District's progress in implementing its Strategic Plan.

B. LOXAHATCHEE RIVER DISTRICT DASHBOARD

Dr. Arrington reviewed the District Dashboard.

5. CONSENT AGENDA

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

"THAT THE GOVERNING BOARD approve the Consent Agenda of June 27, 2019 as amended."

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

A. Turtle Creek Subsystem 2 Preliminary Assessment – Resolution 2019-05

"THAT THE GOVERNING BOARD approve Resolution 2019-05 adopting the TURTLE CREEK SUBSYSTEM 2 Preliminary Assessment Roll."

B. Turtle Creek Subsystem 3 Preliminary Assessment – Resolution 2019-06

"THAT THE GOVERNING BOARD approve Resolution 2019-06 adopting the TURTLE CREEK SUBSYSTEM 3 Preliminary Assessment Roll."

C. Fixed Asset Disposal – to approve disposal

"THAT THE GOVERNING BOARD authorize the Executive Director to dispose of tangible personal property including asset tag number 2665 in the schedule above."

F. Imperial Woods Cost Sharing Agreement – to approve amendment

"THAT THE DISTRICT GOVERNING BOARD authorize the Executive Director to immediately execute the attached Amendment to Cost Sharing Agreement with Imperial Woods Homeowners Association, Inc., and execute the Assignment (Exhibit A) upon complete payment of roadway improvement costs."

G. Seacoast Utility Agreement Amendment – to approve amendment

“THAT THE DISTRICT GOVERNING BOARD authorize the Executive Director to execute the First Amendment to Interlocal Agreement Between Loxahatchee River District and Seacoast Utility Authority for Provision of Sewer Service to Parcel 1 of the Palm Beach Country Estates Development.”

H. Construction Standards & Technical Specifications

“THAT THE DISTRICT GOVERNING BOARD ratify and approve the Loxahatchee River Environmental Control District’s “Manual of Minimum Construction Standards and Technical Specifications”, as of June 27, 2019, and authorize the District Engineer and Executive Director to update the Construction Standards and Technical Specifications from time to time, and periodically present it to the Governing Board for ratification and approval.”

I. Jupiter Farms Elementary Contract Contingency

“THAT THE DISTRICT GOVERNING BOARD authorize a contingency amount of \$35,000.”

J. Change Orders to Current Contracts – to approve modifications

No change orders were presented

6. REGULAR AGENDA

A. CONSENT AGENDA ITEMS PULLED FOR DISCUSSION

5D. Investment Policy - to approve update

Dr. Arrington reviewed the proposed updates to the Investment Policy.

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

“THAT THE DISTRICT GOVERNING BOARD ratify and approve the Loxahatchee River District’s Investment Policy as edited as of June 27, 2019.”

5E. Personnel Policies & Procedures – to approve update

Dr. Arrington reviewed the proposed updates to the Personnel Policies & Procedures.

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

“THAT THE DISTRICT GOVERNING BOARD ratify and approve the Loxahatchee River Environmental Control District’s “Personnel Policies & Procedures” as revised with an effective date of June 28, 2019, and authorize the District’s Executive Director to update the

Personnel Policies & Procedures from time to time, and periodically present it to the Governing Board for ratification and approval.”

B. Jones Creek LRPI Grant Application Collaboration

Dr. Arrington reviewed his Jones Creek LRPI Grant Application Collaboration memo. The Board expressed their support of the District’s ongoing water quality monitoring efforts and especially as they relate to improving understanding of water quality issues and impairments within Jones Creek. The Board expressed their concern for degraded water quality in Jones Creek and their general support for a grant proposal to address water quality issues within Jones Creek. The Board also expressed a need to fully evaluate the District’s authority and justification to potentially fund or co-fund a project like the Town’s proposed Jones Creek project. The Board suggested a workshop to more fully vet such an idea, and suggested delaying action until such a workshop could take place. No action was taken.

C. Budget Assumptions – Fiscal Year 2020

Dr. Arrington reviewed his memo on the Fiscal Year 2020 Budget Assumptions. 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. Mr. Snyder suggested a workshop to discuss the District’s future in stormwater management. Dr. Rostock suggested Dr. Arrington meet with the South Florida Water Management District.

9. COMMENTS FROM THE BOARD

Mr. Boggie suggested a joint District and Busch Wildlife Sanctuary meeting tentatively scheduled for Monday, October 28, 2019 at 1:00 PM in the Governing Board Room.

10. ADJOURNMENT

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

“That the regular meeting of June 27, 2019 adjourns at 8:56 PM.”

BOARD CHAIRMAN

BOARD SECRETARY

RECORDING SECRETARY

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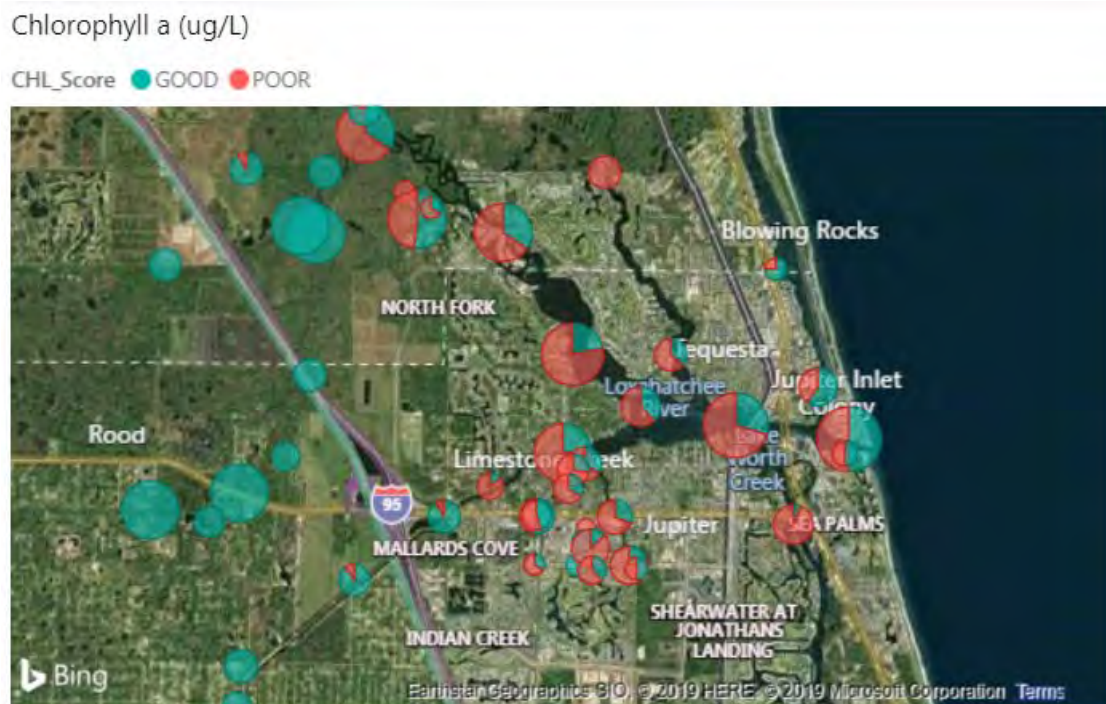


Loxahatchee River Watershed Status Report: Reasonable Assurance Plan Development Update

The Florida Department of Environmental Protection (FDEP), in coordination with the EPA, establishes water quality standards, determines which waterbodies do not meet the standards, and then works with local stakeholders to restore them.

For the past two years FDEP has been working with the members of the Loxahatchee River Management Coordinating Council (LRMCC) to develop a Reasonable Assurance Plan (RAP) to address water quality impairments in the Loxahatchee River watershed. The plan, still in development, includes pollution reduction targets for Nitrogen and Phosphorus based on computer models, as well as calculations of pollution reduction projects completed by various LRMCC members over the past 10 years and that are planned.

Last month FDEP staff presented the latest nutrient target and water quality improvement project information that they have compiled. While there has been a lot of great work completed – including our neighborhood sewer conversions – there is still work to do. At our meeting we will summarize the plan information, which may elicit thoughts for future work by the District.



Summary of LRD's water quality results showing the proportion of sample results meeting the EPA/DEP water quality criteria for chlorophyll from January 2017 through June 2019.

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	Sewer Overflow	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
Benchmark / Customer Expectation		% of Target	million gallons/day	# days demand not met	# blockages with damage in home	# occurrences	# 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	Zero	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	≥ 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	> 2	≥ 2	>1875	> 25	< \$5,557,057	< 90%	< 80% or > 105%	< 60%	< 60%	≥ 1	≥ 2	min < 10 ‰	≥ 2 sites > 400
2016 Baseline		2,169	6.7	0	0	1	0	1,063	12	\$ 33,223,653	96%	90%	100%	85%	0	not avail	18	1 > 200
2017 Baseline		104%	6.6	1	0	2	0	1,127	9	\$ 30,425,084	95%	85%	98%	85%	0	not avail	23	1 > 200
2018 Baseline		112%	6.8	1	0	2	0	1,216	8	\$ 33,683,858	99%	85%	95%	56%	0	42	23	1 > 200
2018	June	100%	7.1	3	0	3	0	1,061	6	\$ 30,357,463	100%	88%	93%	47%	0	0	8.6	6 > 200
	July	102%	6.5	0	0	3	0	987	5	\$ 36,393,890	100%	88%	93%	27%	1	0	11.0	0 > 200
	Aug	106%	6.6	2	0	0	0	1,039	7	\$ 36,911,972	99%	89%	93%	27%	1	0	15.8	7 > 200
	Sept	96%	6.3	3	0	5	0	1,219	8	\$ 35,472,108	100%	87%	93%	27%	0	0	17.6	1 > 200
	Oct	120%	6.4	1	0	2	0	1,296	7	\$ 35,973,349	96%	73%	100%	100%	0	0	29.1	1 > 200
	Nov	120%	6.6	0	0	3	0	1,226	8	\$ 37,075,977	95%	82%	100%	100%	0	0	29.2	1 > 400
	Dec	131%	6.8	0	0	1	0	1,310	5	\$ 37,311,234	103%	84%	100%	67%	1	14	33.3	0 > 200
	2019	Jan	105%	7.2	0	0	6	1,399	8	\$ 37,478,367	101%	84%	100%	67%	1	17	29.9	1 > 200
		Feb	106%	7.6	0	1	0	1,262	7	\$ 39,498,968	101%	86%	100%	83%	0	3	24.5	1 > 400
	Mar	119%	7.2	0	0	2	0	1,170	0	\$ 38,046,365	99%	88%	100%	75%	0	0	30.4	0 > 200
	Apr	79%	6.9	0	0	4	0	1,176	2	\$ 38,021,490	99%	89%	100%	73%	0	0	31.2	0 > 200
	May	113%	6.7	0	0	0	0	1,125	5	\$ 36,569,040	98%	90%	92%	50%	0	0	25.7	0 > 200
	June	98%	6.6	0	0	5	0	1,233	17	\$ 34,111,378	98%	89%	92%	42%	0	0	23.5	1 > 200
Consecutive Months at Green		2	121	9	4	0	71	106	0	120	84	6	45	0	5	4	9	10
Metric Owner		O'Neill	Campbell	Dean	Dean	Dean	Campbell	Campbell	Dean	Fraraccio	Fraraccio	Fraraccio	Dean	Dean	Campbell	Howard	Howard	Howard

Metric

Explanation

Sewer Overflow

This month we had 2 reclaimed water spills and three minor sewer spills. One reclaimed (IQ) water spill occurred at the plant site when a compression fitting on an above ground 2" IQ line broke after hours releasing 18,000 gallons of IQ water, and the other occurred as a contractor relocated a portion of our 16" IQ water force main adjacent to Donald Ross Rd. When the relocated force main was put into service approximately 5,000 gallons of IQ water escaped from the pipe into the excavated area. The contractor revisited the pipe joints and restored the integrity of the force main. The other minor sewage spills were caused by a failed air release valve on a low pressure sewer force main, a contractor damaged a 1.5" low pressure service line, and when District staff failed to properly seal the holding tank on our vacuum truck.

Grease Interceptors

This month we had a higher than usual percentage of inspected grease interceptors that, upon inspection, needed to be pumped out.

Capital Projects: On-time

Just over half (7 of 12) of our large capital projects are behind schedule: Jupiter Ocean Racket Club force main; installation of permanent generators at Lift Station 43 and 62; Island Country Estates neighborhood sewerage; Alt. A1A force main replacement; Master Lift Station rehabilitation; and Olympus force main replacement. We are working to bring these projects to a successful completion. See Kris' engineering report for additional details.

MEMORANDUM

TO: Governing Board
FROM: Administration Staff
DATE: July 8, 2019
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:

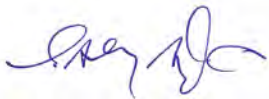
- A. Turtle Creek Subsystem 2 Final Assessment – Resolution 2019-07
- B. Turtle Creek Subsystem 3 Final Assessment – Resolution 2019-08
- C. Change Orders- to approve modifications

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 18, 2019 as presented.”**

Signed,



D. Albrey Arrington, Ph.D.
Executive Director

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TIMOTHY W. GASKILL

*Business, Probate
Family Litigation*

DONALD R. SMITH

*Personal Injury & Wrongful Death
Commercial Litigation*

CURTIS L. SHENKMAN

*Board Certified
Real Estate Attorney*

BROOKE A. GROGAN

BRANDON D. SMITH

SMITH, GASKILL & SHENKMAN, P.A.

ATTORNEYS & COUNSELORS AT LAW

ESTABLISHED 1973

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NORTH PALM BEACH, FLORIDA 33408

TELEPHONE (561) 622-2700 FACSIMILE (561) 622-2841

Shenkman@LawPalmBeach.com

June 28, 2019

LEGAL ASSISTANTS

**CIVIL TRIAL, PROBATE
AND FAMILY LAW**

KAREN M. BOYDEN-LOPATOSKY
MINDY VASSER

PERSONAL INJURY

BETH KOENIG

REAL ESTATE

JUDY D. MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

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

Loxahatchee River Environmental Control District

2500 Jupiter Drive

Jupiter, Florida 33458-8964

Re: Resolution 2019-07 and FINAL Assessment Roll for TURTLE CREEK
SUBSYSTEM 2

Dear Albrey:

Attached to this letter is Transfer of Property Lien, Resolution 2019-07, Exhibit "A"
Final Assessment Roll, Exhibit B Map, and the most recent list of property owners,
as part of the Resolution.

A SUGGESTED MOTION for the Board at the JULY 18, 2019 meeting is as follows:

"THAT THE GOVERNING BOARD approve Resolution 2019-07 adopting the
TURTLE CREEK SUBSYSTEM 2 FINAL Assessment Roll and Exhibits."

Sincerely,

Curtis L. Shenkman

Curtis L. Shenkman

RESOLUTION NO. 2019-07

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO THE **TURTLE CREEK SUBSYSTEM 2** ASSESSMENT AREA IMPROVEMENTS; ADOPTING THE ASSESSMENT ROLL FOR **TURTLE CREEK SUBSYSTEM 2** ASSESSMENT AREA IMPROVEMENTS; CONFIRMING SAID SPECIAL ASSESSMENT ROLL AS ATTACHED HERETO AS EXHIBITS “A” AND “B”; PROVIDING FOR ELLIS RULE COMPLIANCE; PROVIDING FOR DECLARING LINE AVAILABLE FOR CONNECTION; PROVIDING THE SPECIAL ASSESSMENTS SHALL BE COLLECTED AS NON-AD VALOREM SPECIAL ASSESSMENTS ON THE REAL ESTATE TAX BILL; AUTHORIZING THE DISTRICT CLERK TO PREPARE AND DELIVER THE NON-AD VALOREM SPECIAL ASSESSMENT ROLL TO THE PALM BEACH COUNTY AND MARTIN COUNTY PROPERTY APPRAISERS, TAX COLLECTORS, AND FLORIDA DEPARTMENT OF REVENUE; PROVIDING FOR CONSISTENCY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the “District”) has authorized the sewer improvements constructed in the **TURTLE CREEK SUBSYSTEM 2** Assessment Area; and

WHEREAS, The District’s previous Resolutions **2016-32 & 2019-05** were approved by the District’s Governing Board and directed the preparation of the Assessment Roll.

WHEREAS, the Governing Board, on the 18th day of JULY, 2019 at 6:55 P.M., sat as Board of Adjustment as provided in District Rule 31-11.005, and held the Public Hearings under Florida Statutes Chapter 197.

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

Section 1. The Governing Board confirms the Special Assessment Roll attached hereto as Exhibits “A” and “B” without further modification. The unit of measurement for each assessment area is that each parcel is assessed equally.

Section 2. The Special Assessment is in compliance with the “Ellis Rule” requirement of District Rule 31-10.011, and Resolution Nos. **2016-32 & 2019-05** of the District.

Section 3. In accordance with District Rule Chapter 31-11, and Florida Statutes Chapter 197, said Special Assessment Liens shall remain liens co-equal with the lien of all State, County, District and Municipal taxes, superior in dignity to all other liens, titles, and claims, until paid. Any failure to so pay these non-ad valorem Special Assessments shall be a default hereunder and will cause a tax certificate to be issued against the property which may result in a loss of title.

RESOLUTION **2019-07**

Loxahatchee River Environmental Control District

Section 4. Availability for Connection and Required Connection.

The waste water and sewerage system was “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 released the system for service on April 24, 2018, 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 5. The **District Clerk, as the designee of the chairman** of the Governing Board, **is directed to certify the non-ad valorem assessment roll, on a compatible electronic medium tied to the property identification number** and deliver it to the tax collector by September 15 of each year, or as otherwise provided for in the agreements with the tax collector. The certification shall be made on **Form DR-408A**.

Section 6. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 7. 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 18th day of JULY, 2019.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT:
VOTE

JAMES D. SNYDER

STEPHEN B. ROCKOFF

GORDON M. BOGGIE

HARVEY M. SILVERMAN

DR. MATT H. ROSTOCK

EXHIBIT "A"
FINAL ASSESSMENT ROLL
LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
TURTLE CREEK SUBSYSTEM 2 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 **TURTLE CREEK SUBSYSTEM 2** Assessment Area shall be **\$25,167.38** per parcel of property in the **TURTLE CREEK SUBSYSTEM 2** 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 **TURTLE CREEK SUBSYSTEM 2** Assessment Area Property in EXHIBIT "B", the **\$22,650.65** assessment may be paid, interest free, at the office of the District on or before May 1, 2020.

Owners who do not pay the \$22,650.65 assessment on or before May 1, 2020 shall have the \$22,650.65 principal added to the tax roll as a non-ad valorem assessment to accrue interest, beginning October 1, 2019, at six and seven eights percent (6.875%) per annum, to be collected in twenty (20) equal annual installments of \$2,117.33, commencing with the November 1, 2020 Real Estate Tax Bill.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

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

PREPARED BY AND RETURN TO: WC-53
Curtis L. Shenkman, Esquire
Smith, Gaskill & Shenkman, P.A.
11891 U.S. Highway One, Suite 100
North Palm Beach, Florida 33408

**TRANSFER OF PROPERTY LIEN TO NON-AD
VALOREM TAX BILL & CERTIFICATION OF SPECIAL
ASSESSMENT ROLL FOR TURTLE CREEK SUBSYSTEM 2 SPECIAL ASSESSMENTS**

THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, a special district of the State of Florida created and existing pursuant to Chapter 2002-358, Laws of Florida (the "District"), gives public notice that the District's Governing Board as of and effective on the 18th day of JULY, 2019, passed Resolution 2019-07 which is attached hereto, approving the non-ad valorem tax bill, AND TRANSFERRING THE RECORDED LIEN ON PROPERTIES IDENTIFIED AS BEING PART OF THE **TURTLE CREEK SUBSYSTEM 2** AREA LISTED IN THE FOLLOWING DOCUMENTS, as recorded in the Public Records of **MARTIN** County, Florida:

1. Pending Lien Notice of Intent to Assess, and Resolution 2016-32, recorded on **October 21, 2016 in Official Record Book 2885, Pages 2548 through 2555 in the Public Records of MARTIN County, Florida.**

Any inquiries as to payment of special assessments should be directed to:

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

IN WITNESS WHEREOF, the undersigned, Executive Director of the Loxahatchee River Environmental Control District, hereby certifies on JULY 18, 2019, 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 on July 18, 2019, by D. Albrey Arrington, Ph.D., 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\Final Asmt Forms & Instructions\Transfer of Property Lien.docx

Mr. Brian Muller
re: 134 SE Turtle Creek Dr
134 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00070-2

Mr. & Mrs. Kevin O Neil
re: 136 SE Turtle Creek Dr
136 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00080-0

Ms. Susan Maloney Tr
re: 138 SE Turtle Creek Dr
138 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00090-8

Mr. & Mrs. Charles Cramer
re: 140 SE Turtle Creek Dr
140 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00100-6

Mr. Douglas Faucher
re: 142 SE Turtle Creek Dr
142 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00110-4

Mr. Daniel Cronin Tr
re: 144 SE Turtle Creek Dr
144 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00120-2

Mr. & Mrs. Michael Topolka Tr
re: 146 SE Turtle Creek Dr
146 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00130-0

Mr. & Mrs. Thomas Manzi Tr
re: 148 SE Turtle Creek Dr
148 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00140-8

Mr. & Mrs. Charles Magrath
re: 150 SE Turtle Creek Dr
222 Ravencrest Rd
Yorktown Hts NY 10598
22-40-42-015-004-00150-5

Mr. & Mrs. Blake Schulman
re: 152 SE Turtle Creek Dr
152 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00160-3

Ms. Sherrie Perrelli
re: 154 SE Turtle Creek Dr
154 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00170-1

Mr. & Mrs. Michael Parrish
re: 156 SE Turtle Creek Dr
156 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00180-9

Mr. & Mrs. Michael Zambouros
re: 158 SE Turtle Creek Dr
158 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00190-7

Mr. & Mrs. David Stuart
re: 160 SE Turtle Creek Dr
160 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00200-5

Mr. & Mrs. Stephen Hall
re: 164 SE Turtle Creek Dr
164 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00220-1

Ms. Maria St Thomas
re: 166 SE Turtle Creek Dr
166 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00230-9

Ms. Frances Raymond
re: 168 SE Turtle Creek Dr
168 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00240-7

Mr. & Mrs. John Vallario
re: 137 SE Turtle Creek Dr
137 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00020-0

Mr. & Mrs. John Blackmon
re: 139 SE Turtle Creek Dr
139 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00030-8

Mr. & Mrs. John Prosuh
re: 141 SE Turtle Creek Dr
141 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00040-6

Mr. & Mrs. James Vidal
re: 143 SE Turtle Creek Dr
143 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00050-3

Mr. & Mrs. Arthur Hilly
re: 145 SE Turtle Creek Dr
145 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00060-1

Mr. John Porter Jr
re: 147 SE Turtle Creek Dr
147 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00070-9

Ms. Margarita Nikolis
re: 149 SE Turtle Creek Dr
149 SE Turtle Creek
Tequesta FL 33469
22-40-42-015-005-00080-7

Mr. & Mrs. Bruce Pickett
re: 151 SE Turtle Creek Dr
151 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00090-5

Mr. & Mrs. Ryan Hudson
re: 153 SE Turtle Creek Dr
153 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-005-00100-3

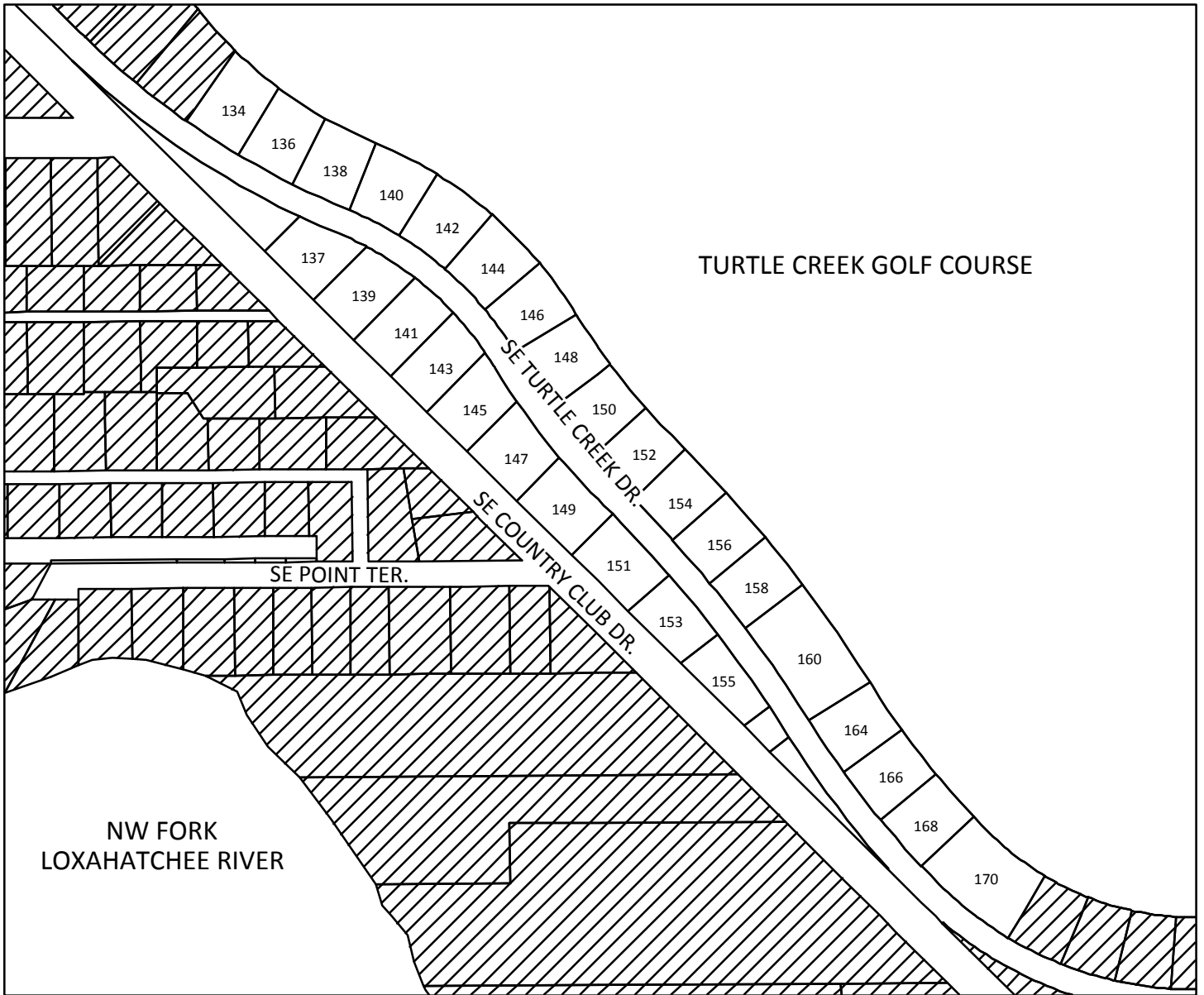
Mr. & Mrs. Steven Friedland
re: 155 SE Turtle Creek Dr
121 Regency Dr
Grand Island NY 14072
22-40-42-015-005-00112-9

Mr. & Mrs. Bruce Wiita
re: 170 SE Turtle Creek Dr
170 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-016-000-00010-2

EXHIBIT "B"

TURTLE CREEK - SUBSYSTEM 2

SEWER SYSTEM ASSESSMENT AREA



LEGEND

 NOT IN ASSESSMENT AREA

MARTIN COUNTY, FLORIDA

10-10-2016

SUB_2

TIMOTHY W. GASKILL

*Business, Probate
Family Litigation*

DONALD R. SMITH

*Personal Injury & Wrongful Death
Commercial Litigation*

CURTIS L. SHENKMAN

*Board Certified
Real Estate Attorney*

BROOKE A. GROGAN

BRANDON D. SMITH

SMITH, GASKILL & SHENKMAN, P.A.

ATTORNEYS & COUNSELORS AT LAW

ESTABLISHED 1973

11891 U.S. HIGHWAY ONE, SUITE 100
NORTH PALM BEACH, FLORIDA 33408

TELEPHONE (561) 622-2700 FACSIMILE (561) 622-2841

Shenkman@LawPalmBeach.com

June 28, 2019

LEGAL ASSISTANTS

**CIVIL TRIAL, PROBATE
AND FAMILY LAW**

KAREN M. BOYDEN-LOPATOSKY
MINDY VASSER

PERSONAL INJURY

BETH KOENIG

REAL ESTATE

JUDY D. MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

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

Loxahatchee River Environmental Control District

2500 Jupiter Drive

Jupiter, Florida 33458-8964

Re: Resolution 2019-08 and FINAL Assessment Roll for TURTLE CREEK
SUBSYSTEM 3

Dear Albrey:

Attached to this letter is Transfer of Property Lien, Resolution 2019-08, Exhibit "A"
Final Assessment Roll, Exhibit B Map, and the most recent list of property owners,
as part of the Resolution.

A SUGGESTED MOTION for the Board at the JULY 18, 2019 meeting is as follows:

"THAT THE GOVERNING BOARD approve Resolution 2019-08 adopting the
TURTLE CREEK SUBSYSTEM 3 FINAL Assessment Roll and Exhibits."

Sincerely,

Curtis L. Shenkman

Curtis L. Shenkman

RESOLUTION NO. 2019-08

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO THE **TURTLE CREEK SUBSYSTEM 3** ASSESSMENT AREA IMPROVEMENTS; ADOPTING THE ASSESSMENT ROLL FOR **TURTLE CREEK SUBSYSTEM 3** ASSESSMENT AREA IMPROVEMENTS; CONFIRMING SAID SPECIAL ASSESSMENT ROLL AS ATTACHED HERETO AS EXHIBITS “A” AND “B”; PROVIDING FOR ELLIS RULE COMPLIANCE; PROVIDING FOR DECLARING LINE AVAILABLE FOR CONNECTION; PROVIDING THE SPECIAL ASSESSMENTS SHALL BE COLLECTED AS NON-AD VALOREM SPECIAL ASSESSMENTS ON THE REAL ESTATE TAX BILL; AUTHORIZING THE DISTRICT CLERK TO PREPARE AND DELIVER THE NON-AD VALOREM SPECIAL ASSESSMENT ROLL TO THE PALM BEACH COUNTY AND MARTIN COUNTY PROPERTY APPRAISERS, TAX COLLECTORS, AND FLORIDA DEPARTMENT OF REVENUE; PROVIDING FOR CONSISTENCY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the “District”) has authorized the sewer improvements constructed in the **TURTLE CREEK SUBSYSTEM 3** Assessment Area; and

WHEREAS, The District’s previous Resolutions **2016-37 & 2019-06** were approved by the District’s Governing Board and directed the preparation of the Assessment Roll.

WHEREAS, the Governing Board, on the 18th day of JULY, 2019 at 6:57 P.M., sat as Board of Adjustment as provided in District Rule 31-11.005, and held the Public Hearings under Florida Statutes Chapter 197.

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

Section 1. The Governing Board confirms the Special Assessment Roll attached hereto as Exhibits “A” and “B” without further modification. The unit of measurement for each assessment area is that each parcel is assessed equally.

Section 2. The Special Assessment is in compliance with the “Ellis Rule” requirement of District Rule 31-10.011, and Resolution Nos. **2016-37 & 2019-06** of the District.

Section 3. In accordance with District Rule Chapter 31-11, and Florida Statutes Chapter 197, said Special Assessment Liens shall remain liens co-equal with the lien of all State, County, District and Municipal taxes, superior in dignity to all other liens, titles, and claims, until paid. Any failure to so pay these non-ad valorem Special Assessments shall be a default hereunder and will cause a tax certificate to be issued against the property which may result in a loss of title.

RESOLUTION **2019-08**

Loxahatchee River Environmental Control District

Section 4. Availability for Connection and Required Connection.

The waste water and sewerage system was “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 released the system for service on April 24, 2018, 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 5. The **District Clerk, as the designee of the chairman** of the Governing Board, **is directed to certify the non-ad valorem assessment roll, on a compatible electronic medium tied to the property identification number** and deliver it to the tax collector by September 15 of each year, or as otherwise provided for in the agreements with the tax collector. The certification shall be made on **Form DR-408A**.

Section 6. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 7. 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 18th day of JULY, 2019.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT:
VOTE

JAMES D. SNYDER

STEPHEN B. ROCKOFF

GORDON M. BOGGIE

HARVEY M. SILVERMAN

DR. MATT H. ROSTOCK

EXHIBIT "A"
FINAL ASSESSMENT ROLL
LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
TURTLE CREEK SUBSYSTEM 3 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 **TURTLE CREEK SUBSYSTEM 3** Assessment Area shall be **\$13,429.96** per parcel of property in the **TURTLE CREEK SUBSYSTEM 3** 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 **TURTLE CREEK SUBSYSTEM 3** Assessment Area Property in EXHIBIT "B", the **\$12,086.96** assessment may be paid, interest free, at the office of the District on or before May 1, 2020.

Owners who do not pay the \$12,086.96 assessment on or before May 1, 2020 shall have the \$12,086.96 principal added to the tax roll as a non-ad valorem assessment to accrue interest, beginning October 1, 2019, at six and seven eights percent (6.875%) per annum, to be collected in twenty (20) equal annual installments of \$1,129.86, commencing with the November 1, 2020 Real Estate Tax Bill.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

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

PREPARED BY AND RETURN TO: WC-53
Curtis L. Shenkman, Esquire
Smith, Gaskill & Shenkman, P.A.
11891 U.S. Highway One, Suite 100
North Palm Beach, Florida 33408

**TRANSFER OF PROPERTY LIEN TO NON-AD
VALOREM TAX BILL & CERTIFICATION OF SPECIAL
ASSESSMENT ROLL FOR TURTLE CREEK SUBSYSTEM 3 SPECIAL ASSESSMENTS**

THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, a special district of the State of Florida created and existing pursuant to Chapter 2002-358, Laws of Florida (the "District"), gives public notice that the District's Governing Board as of and effective on the 18th day of JULY, 2019, passed Resolution 2019-08 which is attached hereto, approving the non-ad valorem tax bill, AND TRANSFERRING THE RECORDED LIEN ON PROPERTIES IDENTIFIED AS BEING PART OF THE **TURTLE CREEK SUBSYSTEM 3** AREA LISTED IN THE FOLLOWING DOCUMENTS, as recorded in the Public Records of **MARTIN** County, Florida:

1. Pending Lien Notice of Intent to Assess, and Resolution 2016-37, recorded on **December 16, 2016 in Official Record Book 2896, Pages 1801 through 1807 in the Public Records of MARTIN County, Florida.**

Any inquiries as to payment of special assessments should be directed to:

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

IN WITNESS WHEREOF, the undersigned, Executive Director of the Loxahatchee River Environmental Control District, hereby certifies on JULY 18, 2019, 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 on July 18, 2019, by D. Albrey Arrington, Ph.D., 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\Final Asmt Forms & Instructions\Transfer of Property Lien.docx

Mr. & Mrs. Jason Lovelady
re: 122 SE Turtle Creek Dr
122 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00010-5

Mr. & Mrs. Paul Herchen
re: 126 SE Turtle Creek Dr
126 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00020-3

Mr. & Mrs. Robert Camp III
re: 128 SE Turtle Creek Dr
96 River Dr
Tequesta FL 33469
22-40-42-015-004-00040-9

Mr. & Mrs. Paul Hartman Tr
re: 130 SE Turtle Creek Dr
130 SE Turtle Creek Dr
Tequesta FL 33469
22-40-42-015-004-00050-6

Mr. & Mrs. Robert Wong
re: 132 SE Turtle Creek Dr
4 Gatehall Dr
Parsippany NY 07054
22-40-42-015-004-00060-4

EXHIBIT "B"

TURTLE CREEK - SUBSYSTEM 3

SEWER SYSTEM ASSESSMENT AREA



LEGEND



NOT IN ASSESSMENT AREA

MARTIN COUNTY, FLORIDA

11-30-2016

PHASE 3

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.
EXECUTIVE DIRECTOR

FROM: KRIS DEAN, P.E.,
DEPUTY EXECUTIVE DIRECTOR/DIRECTOR OF ENGINEERING SERVICES

DATE: JULY 16, 2019

SUBJECT: IMPERIAL WOODS LOW PRESSURE FORCE MAIN: CHANGE ORDER TO
ENGINEERING SERVICES

On May 13, 2019 we issued the Notice to Proceed on the referenced project. During the course of the project it was determined that contract required root pruning of the entrance oak trees and root barrier installation could result in permanent damage to the trees through failure of the root system in a wind event. We engaged, through the consultant, with a landscape architect to determine viable options. This change order incorporates plans and bidding documents to facilitate the required tree anchoring and root pruning procedure to ensure the best chance of success. The increased cost of this change order is \$2,415.00. Note this change order does not include the price to perform the anchoring or additional costs for staged root pruning. Please see attached Change Order # 1.

The following motion is offered for the Governing Board's consideration:

“THAT THE GOVERNING BOARD authorize Change Order 1 to Holtz Consulting Engineer’s contract for Imperial Woods Low Pressure Force Main in the amount of \$2,415.00.”

6-11

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458
(561) 747-5700 FAX (561) 747-9929

CHANGE ORDER #1

DATE: July 5, 2019

PROJECT NAME: IMPERIAL WOODS LOW PRESSURE FORCE MAIN SYSTEM

OWNER: Loxahatchee River Environmental Control District

CONTRACTOR: Holtz Consulting Engineers, Inc.

THE FOLLOWING CHANGES: Provide professional planning and landscape architectural services for a root pruning plan for the live oaks at the entrance median in the Imperial Woods Neighborhood

IUSTIFICATION: Need a professional root pruning plan for the existing live oaks to ensure the installation of root barrier at this location will not negatively impact the trees.

CHANGE TO CONTRACT PRICE:

Original CONTRACT PRICE: \$88,481.00

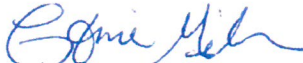
Current Contract Price including C.O. # 1 \$88,481.00

Contract Price due to this Change Order
will be INCREASED/DECREASED by: \$2,415.00

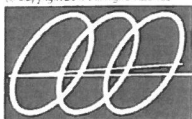
The New Contract Price including
this Change Order will be: \$90,896.00

CHANGE TO CONTRACT TIME:

The DATE OF COMPLETION of all work will be: N.A.

APPROVED BY CONTRACTOR:  7/5/19
DATE

APPROVED BY OWNER: _____
LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT DATE



Gentile Glas
Holloway
O'Mahoney
& Associates, Inc.
Landscape Architects
Planners and
Environmental Consultants

1907 Commerce Lane
Suite 101
Jupiter, Florida 33458
561-575-9557
561-575-5260 FAX
www.2GHO.com

CONTRACT FOR PROFESSIONAL PLANNING AND LANDSCAPE ARCHITECTURAL SERVICES

Client: **Christine Miranda, P.E.**
Principal Engineer
Holtz Consulting Engineers, Inc.
270 South Central Boulevard, Suite 207
Jupiter, FL 33458
PH. (561) 575-2005 C. (772) 708-6165
F. (561) 575-2009
Christine.Miranda@holtzconsulting.com

Re: Professional Planning and Landscape Architectural Services for the Imperial Woods entry landscape in Palm Beach County, Florida.

Job Name: Imperial Woods Entry LRD

Job Number: 19-0512

Date: May 29, 2019

This is to confirm the authorization to the **business entity Gentile Glas Holloway O'Mahoney & Associates, Inc., Landscape Architects, Planners, Environmental Consultants (Consultant)** for the performance of Professional Planning and Landscape Architectural Services. The scope of requested services is described herein:

1. Agreement for Services:

The Consultant agrees to provide conceptual design and planning services to the Client as more fully described in the Scope of Work, and the Client agrees to compensate the Consultant for those services under the terms of this Agreement. The Consultant's services shall be performed in a manner consistent with that degree of skill and care ordinarily exercised by practicing design professionals performing similar services in the same locality, at the same site and under the same or similar circumstances and conditions. The Consultant makes no other representations or warranties, whether expressed or implied, with respect to the services rendered hereunder.

- A. The Consultant shall provide landscape plans for bidding purposes identifying the process for root pruning four (4) existing Live Oaks remaining within the entry landscape median of the subject site that are being affected by utility improvements/modifications within the entry drive. This proposal includes one (1) site visit and one (1) revision to the landscape plans.
- B. Construction administration, permitting, municipal approvals, and any additional revisions or site visits will be billed hourly as additional services.

Compensation by Client to Gentile Glas Holloway O'Mahoney & Associates, Inc. for these professional services will be based upon:

Compensation:

- A. Compensation for services rendered by the Consultant for Scope of Work Item A shall be a fixed fee of: Twenty-Three Hundred Dollars (\$2,300.00) plus reimbursable expenses.
- B. Compensation for services rendered by the Consultant, for additional services requested by the Client shall be hourly based upon the following hourly rates plus reimbursable expenses as described herein.
 1. Senior Partner time at an hourly rate of Two Hundred Thirty-Five Dollars (\$235.00) an hour.
 2. Partner time at an hourly rate of One Hundred Ninety-Five Dollars (\$195.00) an hour.
 3. Certified Planner time at an hourly rate of One Hundred Fifty Dollars (\$150.00) an hour.
 4. Senior Planner time at an hourly rate of One Hundred Twenty Dollars (\$120.00) an hour.
 5. Planner time at an hourly rate of Eighty-Five Dollars (\$85.00) an hour.
 6. Planner Technician time at an hourly rate of Sixty-Five Dollars (\$65.00) an hour.

7. Sr. Landscape Architect time at an hourly rate of One Hundred Forty-Five Dollars (\$145.00) an hour.
8. Landscape Architect time at an hourly rate of One Hundred Ten Dollars (\$110.00) an hour.
9. Senior Landscape Designer/Planner time at an hourly rate of One Hundred Ten Dollars (\$110.00) an hour.
10. Landscape Designer/Planner time at an hourly rate of Eighty Dollars (\$80.00) an hour.
11. Senior Landscape Designer time at an hourly rate of Ninety-Five Dollars (\$95.00) an hour.
12. Landscape Designer time at an hourly rate of Eighty-Five Dollars (\$85.00) an hour.
13. Senior Technician time at an hourly rate of Sixty Dollars (\$60.00) an hour.
14. Technician time at an hourly rate of Fifty Dollars (\$50.00) an hour.
15. Administrator time at an hourly rate of Thirty Dollars (\$30.00) an hour.

*With thirty day notice hourly rates may be increased to current compensation levels.

The Client and or Owner/Defendant are responsible for all services and reimbursable expenses relative to the case/project, even if the Consultant/Expert Witness is subpoenaed by other parties (including the Plaintiff or Defense) involved in this case/project or due to a ruling by an officer of the court hearing such matters.

1. Reimbursable Expenses:

Reimbursable expenses include actual expenditures made by the Consultant in the performance of the Scope of Work for: a) expense of transportation and living expenses concerning out-of-town travel, authorized by the Client; b) expense of transportation concerning local travel, billed to Client at the current IRS rate; c) long distance communications; d) fees paid for securing approval of authorities having jurisdiction over the subject project; e) graphics, presentation materials, renderings and models requested by the Client provided by the Consultant or outside Consultant's office; f) mailers, postage and handling of drawings and specifications; g) printing and reproductions; h) expense of any additional insurance coverage or limits, including professional liability insurance requested by the Client more than that normally carried by the Consultant; i) out of pocket expenses for materials obtained to perform the services of this Agreement.

2. Client's Responsibilities:

The Client shall be responsible for the following:

- A. The Client shall provide full information concerning the Scope of Work, shall set forth the Client's objectives, restraints, and criteria.
- B. The Client shall provide the Consultant with a certified copy of a survey. The Consultant shall rely on the accuracy of this survey in the performance of his work under this Agreement.
- C. The Client shall provide the Consultant with all other engineering studies, reports and architectural drawings as may be necessary for submission to the local governments having jurisdiction over the development of the property. The Consultant shall rely on the accuracy of these items in the performance of his work.

3. Payment for Services:

The Consultant shall bill the Client for its services and reimbursable costs due under this Agreement at such times as it shall deem proper. All invoices are due and payable upon receipt by the Client. Interest, at a rate of 1.5% per month, shall accrue on invoices outstanding more than 30 days. The Consultant will stop all work per this Agreement on invoices past due 30 days. Work will not commence until all past due invoices are paid in full. The Consultant assumes no responsibility for damages, financial, physical or other, because of work being stopped.

4. Termination of Agreement:

This Agreement is terminable anytime upon notice of the Client or the Consultant to the other party. Termination of this Agreement, however, shall not relieve the Client of any responsibility for payment for any services performed by the Consultant before receipt of the notice of termination.

5. Extent of Agreement:

This Agreement represents the entire Agreement between the Client and the Consultant concerning the Scope of Work and may be amended only by written instrument signed by the Client and the Consultant. In all respects, the laws of the state shall govern this Agreement of Florida and venue concerning any dispute that may arise under it shall be in Palm Beach County, Florida.

6. Limits of Liability:

The Consultant or his consultants shall not be liable to the Client for indirect, special, reliance, incidental, consequential or exemplary damages (other than personal injury damages) arising out of or concerning the performance of the services for this Agreement beyond the amount of fees paid for such services. Pursuant to this section, **an individual employee or agent of the Consultant may not be held individually liable for negligence arising out of or concerning the performance of the services for this Agreement.**

The Consultant shall not be responsible for monitoring site plan approval status beyond the date of approval by the local jurisdiction having authority over the project. (Most site plan approvals expire 18-24 months after final approval.)

7. Miscellaneous Provisions

- A. This Agreement is governed by the law of the Consultant's Principal place of business.
- B. This Agreement is the entire and integrated agreement between the Client and The Consultant and supersedes all prior negotiations, statements or agreements, either written or oral. The parties may amend this agreement only by a written instrument signed by both the Client and the Consultant.
- C. In the event that any term or provision of this agreement is found to be unenforceable or invalid for any reason, the remainder of this agreement shall continue in full force and effect, and the parties agree that any unenforceable or invalid term or provision shall be amended to the minimum extent required to make such term or provision enforceable and valid.
- D. Neither the Client nor the Consultant shall assign this agreement without the written consent of the other.
- E. Irrespective of any other term in this agreement, the Consultant shall not be responsible for construction means, methods, techniques, schedules, sequences, or procedures; or for construction safety, or any other related programs; or for another party's failure to complete their work or services in accordance with the Consultant's documents.
- F. Client agrees to indemnify, defend and hold harmless the Consultant from and against any and all claims, liabilities, suits, demands, losses, costs and expenses, including, but not limited to, reasonable attorneys' fees and all legal expenses and fees incurred through appeal, and all interest thereon, accruing or resulting to any and all persons, firms or any other legal entities on account of any damages or losses to property or persons, including injury or death, or economic losses, arising out of the Project and/or this agreement, except that the Consultant shall not be entitled to be indemnified to the extent such damages or losses are found by a court or forum of competent jurisdiction to be caused by the Consultant's errors or omissions.
- G. Should any legal proceeding be commenced between the parties to this agreement seeking to enforce any of its provisions, including, but not limited to, fee provisions, the prevailing party in such proceeding shall be entitled, in addition to such other relief as may be granted, to a reasonable sum for attorneys' and expert witnesses' fees, which shall be determined by the court or forum in such a proceeding or in a separate action brought for that purpose.

H. The Client and the Consultant waive consequential damages for any claims, disputes or other matters in question arising out of or relating to this agreement. The Consultant's waiver of consequential damages, however, is contingent upon the Client requiring the contractor and its subcontractors to waive all consequential damages against the Consultant for claims, disputes or other matters in question arising out of or relating to the project.

I. To the extent that damages are covered by property insurance during construction, the Client and Consultant waive all rights against each other and against the contractors, consultants, agents, and employees of the other for such damages. The Client or Consultant, as appropriate, shall require of the contractors, consultants, agents and employees of any of them similar waivers in favor of the other parties described in this paragraph.

J. The Client acknowledges and agrees that proper Project maintenance is required after the Project is complete. A lack of improper maintenance for this Project may result in damage to property and or persons. The Client further acknowledges that, as between parties to this agreement, the Client is solely responsible for the results of any lack of or improper maintenance.

K. Nothing in this agreement shall create a contractual relationship for the benefit of any third party.

8. Ownership of Instruments of Service:

Drawings, specifications and other documents, including those in electronic form, prepared by the consultant and the Consultants Sub-consultants are Instruments of Service for use exclusively to this Project. The Consultant and the Consultants Sub-consultants shall be deemed the authors and owners of their respective Instruments of Service and shall retain all common law, statutory and other reserved rights, including copyrights.

9. Retainer:

The Client shall pay a retainer in the amount of Five Hundred Dollars (\$500.00) upon commencement of services or authorization of additional work under this Agreement. Said retainer shall be credited to the last invoice for service.

Confirmation Order

Holtz Consulting Engineers, Inc.

By:

Name:

Title:

Date:

**Gentile Glas Holloway O'Mahoney
& Associates, Inc. (Consultant)**

By:

M. Troy Holloway, PLA, ASLA
LEED AP®BD+C

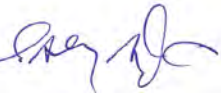
Title: Partner

Date:

May 29, 2019

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MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D. 
DATE: JULY 11, 2019
SUBJECT: FISCAL YEAR 2019-2020 – 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 2020 budget, which goes into effect on October 1, 2019. 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:

FY2019 (\$)	FY2020 (\$)	Change	Budget Category
\$ 5,868,771	\$ 6,157,070	4.9%	Admin., Legal, Accounting, Information Services, and Engineering
\$ 9,875,250	\$ 9,586,951	(2.9%)	System Operation and Maintenance
<i>\$ 15,744,021</i>	<i>\$ 15,744,021</i>	<i>0%</i>	<i>Operating Expense Sub-Total</i>
\$ 11,113,500	\$ 7,244,600	(34.8%)	Capital Improvements
\$ 7,478,500	\$ 5,774,450	(22.8%)	Renewal & Replacement
\$ 18,592,000	\$ 13,019,050	(30.0%)	Grand Total

The draft budget operating expenses are flat (no increase) and the Capital and Renewal & Replacement budgets represent a 30% decrease. Staff are still working on the budget, and we expect it to be tweaked over the next two months, but we are excited at the potential of keeping our operating expenses on par with our FY2019 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** from \$24,314,620 in FY2019 to \$23,475,686 in FY2020; a 4% decrease. This decrease is driven by an anticipated slowdown in development (plant charges) and capital contributions (expected reimbursements by others for capital costs, e.g., road paving in Imperial Woods). Operating revenue is projected to increase by 1.8% due primarily to new connections.

Salary & Wages – An increase of \$160,800 (2.8%) is shown in the matrix. This increase is driven by the addition of a new employee, COLA, potential merit increases, promotions and overtime.

1. Number of Employees: Presently, the District has 81 full time positions budgeted. I propose adding one new full-time position to improve our institutional performance with asset management and the associated strategic objectives (i.e., Operational Excellence, Increase system reliability, refine preventative maintenance/rehabilitation/replacement program to include all assets with effort based on industry standards, failure analysis, and cost considerations).

2. Proposed Cost of Living Adjustment: The June consumer price index (CPI-U) was 1.6%; therefore, I have included a 1.6% cost of living adjustment (COLA) for our employees to maintain their purchasing power given the present rate of inflation.
3. Proposed Merit Increase: I recommend the budget include 3.0% to be disbursed to employees exhibiting meritorious performance during their annual performance review.

Payroll Tax – An increase of \$8,800 (2.1%) is budgeted.

Retirement – An increase of \$19,300 (2.7%) is budgeted based on an assessment of vested employees.

Employee Health Insurance – A decrease of \$31,000 (-2.3%) is budgeted for health insurance. While we expect health insurance costs to rise, we are able to decrease this budget line because our health insurance renewal in January included a 6% premium decrease. We will continue to look at this budget category, but at this time we are confident in the amount we are budgeting for FY2020.

Workers' Compensation Insurance – A decrease of \$15,300 (-13.4%) is budgeted based on the favorable renewal rate we received this year and the expectation that our performance has been much better than in the past.

General Insurance – An increase of \$17,264 (5%) is budgeted for our Property, General Liability, Automobile Liability and Physical Damage, Workers Compensation, and Fiduciary Liability insurance policies. While we recently renewed these policies with a 2-year rate lock. A portion of this increase is to address the larger than expected increase during our recent renewal as well as the increase anticipated in our next renewal based on the increasing value of insured assets.

Supplies & Expenses – A decrease of \$7,985 (-0.7%) is budgeted. I am pleased with the efforts of our staff to work efficiently and cost-effectively.

Utilities – A decrease of \$14,500 (-1.0%) is budgeted. This decrease is driven by the rate reduction we received this past year.

Chemicals – A decrease of \$195,570 (-29.1%) is budgeted. Kris and Tony appear to have identified a \$235,000 savings opportunity regarding our chemical costs. We are excited about this potential savings and hope to have more details next month.

Repair & Maintenance – A decrease of \$6,059 (-0.3%) is budgeted. We believe the budgeted amount will allow staff to continue our proactive efforts to effectively maintain our assets.

Outside Services – An increase of \$64,250 (3.5%) is budgeted.

Contingency – Our Operating Expense contingency remains unchanged.

Capital – is projected to **decrease** by **\$3,888,900 (-35%)**. In FY2020 neighborhood sewerage is nearing the end of major projects and will decrease by nearly \$3 million, and the Alternate A1A force main will be completed. A significant new project for FY2020 will be a comprehensive effort to install fall protection at all of our lift stations (\$1 million).

Capital Accounts	FY2019	FY2020	% Increase
Equipment	\$ 955,000	\$ 350,000	-63%
Information Services	\$ 30,000	\$ 5,000	-83%
Sub-Regional Collection & Transmission System	\$ 7,398,000	\$ 3,500,000	-53%
Regional Collection & Transmission System	\$ 2,270,000	\$ 1,795,000	-21%
Treatment System	\$ 350,500	\$ 850,000	143%
Reclamation & Disposal System	\$ 75,000	\$ 76,000	1%
Expansion	\$ 10,000	\$ 10,000	0%
Contingency	\$ 25,000	\$ 658,600	2,534%
Total	\$ 11,113,500	\$ 7,244,600	-35%


Renewal & Replacement – is projected to **decrease** by **\$1,704,050 (-23%)**. The largest decreases are in Transmission System and Treatment System. The Transmission System decrease is due to completion of the Master Lift Station rehabilitation project and the Treatment System decrease is due primarily to completion of the deep bed filter project. While this category has decreased, we continue to budget adequately to allow systematic evaluate and rehabilitate our aging assets.

Renewal & Replacement Accounts	FY2019	FY2020	% Increase
Collection System	\$1,400,000	\$1,375,000	-2%
Transmission System	\$3,770,000	\$2,479,500	-34%
Treatment System	\$1,439,000	\$697,000	-52%
Reclamation & Disposal System	\$367,000	\$163,000	-56%
Vehicles & Equipment	\$302,500	\$535,000	77%
Contingency	\$200,000	\$524,950	162%
Total	\$7,478,500	\$5,774,450	-23%

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. FYI - the U.S. Department of Labor Statistics' Water and Sewerage Maintenance Index June 2018 to June 2019 increase is 3.3%. 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	2019	467,800.00	508,900.00	199,000.00	1,019,700.00	710,400.00	353,300.00	214,300.00	724,600.00	1,230,400.00	129,400.00	129,900.00	\$ 5,687,700.00		
Salaries & Wages	2020	562,600.00	467,000.00	248,300.00	1,138,600.00	691,300.00	355,900.00	151,700.00	749,900.00	1,212,700.00	135,100.00	135,400.00	\$ 5,848,500.00	\$ 160,800.00	2.83%
Payroll Taxes	2019	30,100.00	37,600.00	14,800.00	75,500.00	51,600.00	26,200.00	15,900.00	54,000.00	91,500.00	9,600.00	9,700.00	\$ 416,500.00		
Payroll Taxes	2020	36,200.00	34,500.00	15,400.00	84,200.00	50,800.00	26,400.00	11,200.00	55,900.00	90,400.00	10,000.00	10,300.00	\$ 425,300.00	\$ 8,800.00	2.11%
Retirement Contributions	2019	60,000.00	67,100.00	23,100.00	126,200.00	93,500.00	47,200.00	20,100.00	86,800.00	151,900.00	17,400.00	17,600.00	\$ 710,900.00		
Retirement Contributions	2020	68,200.00	61,500.00	24,000.00	140,500.00	89,400.00	43,600.00	18,200.00	96,700.00	151,800.00	18,100.00	18,200.00	\$ 730,200.00	\$ 19,300.00	2.71%
Employee Health Insurance	2019	72,100.00	134,100.00	42,600.00	257,800.00	174,400.00	85,800.00	55,100.00	166,600.00	289,200.00	34,200.00	27,900.00	\$ 1,339,800.00		
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	\$ (31,000.00)	-2.31%
Workers' Compensation Insurance	2019	1,500.00	1,500.00	500.00	13,900.00	14,800.00	11,000.00	3,600.00	22,200.00	37,600.00	4,000.00	4,000.00	\$ 114,600.00		
Workers' Compensation Insurance	2020	1,600.00	1,100.00	400.00	12,400.00	13,900.00	9,400.00	2,900.00	19,200.00	31,200.00	3,600.00	3,600.00	\$ 99,300.00	\$ (15,300.00)	-13.35%
General Insurance	2019	22,066.00	-	4,450.00	3,200.00	-	-	317,000.00	-	-	-	-	\$ 346,716.00		
General Insurance	2020	22,330.00	-	4,450.00	3,200.00	-	-	334,000.00	-	-	-	-	\$ 363,980.00	\$ 17,264.00	4.98%
Supplies & Expenses	2019	87,690.00	40,960.00	112,550.00	106,500.00	65,550.00	53,000.00	142,875.00	106,650.00	386,510.00	17,500.00	18,375.00	\$ 1,138,160.00		
Supplies & Expenses	2020	87,515.00	38,490.00	112,960.00	106,000.00	69,150.00	52,500.00	118,625.00	113,800.00	403,610.00	19,600.00	7,925.00	\$ 1,130,175.00	\$ (7,985.00)	-0.70%
Utilities	2019	49,550.00	-	25,000.00	65,000.00	-	-	52,100.00	330,000.00	564,700.00	323,000.00	-	\$ 1,409,350.00		
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	\$ (14,500.00)	-1.03%
Chemicals	2019	-	-	-	-	-	-	-	470,000.00	2,000.00	80,000.00	120,570.00	\$ 672,570.00		
Chemicals	2020	-	-	-	-	-	-	-	240,000.00	2,000.00	80,000.00	155,000.00	\$ 477,000.00	\$ (195,570.00)	-29.08%
Repair & Maintenance	2019	50,950.00	6,000.00	62,505.00	54,500.00	23,200.00	75,000.00	98,860.00	480,000.00	743,100.00	145,000.00	91,500.00	\$ 1,830,615.00		
Repair & Maintenance	2020	66,800.00	6,000.00	60,675.00	54,500.00	25,000.00	60,000.00	92,260.00	510,000.00	741,321.00	145,000.00	63,000.00	\$ 1,824,556.00	\$ (6,059.00)	-0.33%
Outside Services	2019	306,100.00	96,500.00	12,000.00	251,000.00	-	-	35,000.00	40,000.00	57,610.00	215,000.00	838,900.00	\$ 1,852,110.00		
Outside Services	2020	323,100.00	103,500.00	14,000.00	252,000.00	-	-	37,500.00	35,000.00	57,610.00	221,500.00	872,150.00	\$ 1,916,360.00	\$ 64,250.00	3.47%
Contingency	2019	225,000.00	-	-	-	-	-	-	-	-	-	-	\$ 225,000.00		
Contingency	2020	225,000.00	-	-	-	-	-	-	-	-	-	-	\$ 225,000.00	\$ -	0.00%
Prior Year Total	2019	\$1,372,856.00	\$892,660.00	\$496,505.00	\$1,973,300.00	\$1,133,450.00	\$651,500.00	\$954,835.00	\$2,480,850.00	\$3,554,520.00	\$975,100.00	\$1,258,445.00	\$15,744,021.00		
Current Year Total	2020	\$1,532,645.00	\$833,290.00	\$548,785.00	\$2,106,100.00	\$1,136,250.00	\$633,900.00	\$855,285.00	\$2,331,550.00	\$3,494,941.00	\$991,000.00	\$1,280,275.00	\$15,744,021.00		0.00%
Dollar Increase/(Decrease)		\$159,789.00	(\$59,370.00)	\$52,280.00	\$132,800.00	\$2,800.00	(\$17,600.00)	(\$99,550.00)	(\$149,300.00)	(\$59,579.00)	\$15,900.00	\$21,830.00	\$0.00		
Percent Increase/(Decrease)		11.64%	-6.65%	10.53%	6.73%	0.25%	-2.70%	-10.43%	-6.02%	-1.68%	1.63%	1.73%	0.00%		

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D. 
DATE: JULY 8, 2019
SUBJECT: CHAPTER 31-16, RIVER ENHANCEMENT RULE

As part of our ongoing review of our Rules, I have conducted a thorough review of LRD Chapter 31-16, River Enhancement Rule, which was originally called the Pollution Prevention Rule and grew out of the withdrawn Chapter 31-14 Stormwater Rule. In short, Chapter 31-16, River Enhancement Rule was enacted January 20, 1994, withstood legal challenges throughout 1994, and became effective in January 1995. The following page provides a historical summary of the development and challenges to Chapter 31-16.

After the historical summary, I have attached the actual Chapter 31-16, River Enhancement Rule, which can also be found our official list of LRD Rules:

<https://loxahatcheeriver.org/governance/rules/>

At the June Governing Board Meeting, Mr. Snyder suggested we schedule a Board Workshop to delve into Chapter 31-16 and discuss how we might move forward in a manner that is consistent with our Enabling Act and our recent Strategic Plan. I think this is an excellent idea, and I hope you will come to the Board meeting prepared to offer a few days in which you could be available for such a workshop. Also, I hope you will carefully read through Chapter 31-16 and provide staff any questions or ideas we might begin evaluating as preparation for the workshop.

No specific action is sought this month. Thank you for your concern about the environmental health of the Loxahatchee River, and your objective to have clear rules that govern our activities. I look forward to your public discussion of this rule, and I look forward to scheduling a public workshop to further advance this effort.

Relevant Excerpts of LRD Minutes and associated documents regarding Chapter 31-16

04/17/1991 LRD Governing Board passed Resolution #91-1 stipulating “that the Loxahatchee River Environmental Control District shall actively carry out its powers and duties with regard to storm drainage and storm water management under the Loxahatchee River Environmental Control Act.”

05/20/1993 LRD Governing Board unanimously approved the following motion: “THAT THE GOVERNING BOARD reaffirms its Charter and the initiative to implement a pollution prevention program which deals with stormwater on a community wide basis and in cooperation with all local governments.”

07/15/1993 LRD Board Meeting agenda includes Discussion of Chapter 31-16, Pollution Prevention. Information provided under this tab included a letter from Mr. Shenkman, dated 07/09/1993, to LRD Governing Board identified “LRECD - Pollution Prevention Program” as Chapter 31-16. This is the first occurrence of 31-16 I can find in Board Notebook or Board Minutes.

08/12/1993 Clint Yerkes’ memo to the LRD Governing Board explained that LRD staff were busy documenting the as built condition of stormwater structures and cleaning catch basins that were deemed in need of cleaning due to excessive sediment buildup. Following Clint’s letter was a draft outline of the proposed Pollution Prevention Rule (31-16).

09/10/1993 LRD Governing Board reviewed a draft of LRD Chapter 31-16 Pollution Prevention Rule, which was provided in the Board Notebook, with input from Rick Dent, Clint Yerkes, and Curt Shenkman.

10/21/1993 LRD Governing Board Agenda and Notebook included a revised draft of Chapter 31-16, which was significantly revamped and re-titled to “Chapter 31-16, River Enhancement Rule”. At this meeting, LRD Governing Board unanimously approved a motion instructing “staff to provide the Preliminary Draft of Chapter 31-16, the River Enhancement Rule to interested parties and sister governments, and seek their input prior to commencing the formal rule enactment procedures.” Fifty copies of the draft rule were mailed out on 11/05/1993, and a public workshop discussing the draft rule occurred on 12/02/1993.

01/20/1994 LRD conducted a Public Hearing on Chapter 31-16, River Enhancement Rule. At this public hearing, Northern Palm Beach County Water Control District stated they had filed a petition to challenge the Rule. Then, at the subsequent Board Meeting that same night, the LRD Governing Board approved the following motion “THAT THE GOVERNING BOARD of the Loxahatchee River District approve, adopt, and authorize Chapter 31-16 F.A.C. entitled River Enhancement.”

02/09/1994 South Indian River Water Control District, Northern Palm Beach County Water Control District, and Palm Beach County filed petition for formal administrative determination of invalidity of proposed Rule Chapter 31-16.

08/31/1994 Michael M. Parrish, Hearing Officer, Division of Administrative Hearings issued a Final Order stating “That all of the petitions in these three consolidated cases are hereby dismissed and all relief requested in those petitions is hereby denied.”

12/15/1994 4th District Court of Appeals ruled in LRD’s favor regarding Northern Palm Beach County Water Control District’s challenge of LRD Rule Chapter 31-16; thus, Chapter 31-16 went into effect in January 1995.

03/02/1995 LRD Governing Board confirms at a public workshop that Chapter 31-16, River Enhancement Rule reads the way the Board intended.

11/21/1996 LRD Governing Board expressed a consensus position that “staff should continue planning for the District to assume the roles of facilitator, regulatory support, and operation and maintenance support for Stormwater Management.”

Subsequent to this date, the majority of the District’s attention turned to neighborhood sewerage.

CHAPTER 31-16

RIVER ENHANCEMENT

31-16.001	Findings and Purposes
31-16.002	River Enhancement Program
31-16.003	River Enhancement Fees; Classification and Criteria; Collection; Accountability

31-16.001 Findings and Purposes

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.

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.

The neighboring government officials composed the Stormwater Advisory Committee of 1992, which recommended the District should undertake the role of facilitator and planner to coordinate the formation of the Loxahatchee River Basin Stormwater Management Plan, and that implementation of such a Plan should be by the most local form of government willing to undertake such responsibilities.

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 professional persons with technical expertise in water quality and surface water management composed the Technical Advisory Committee of 1992. The Technical Advisory Committee findings and recommendations are as follows: That the Loxahatchee River is afforded the highest level of protection available through State and Federal classifications under the following six State and Federal classifications and designations: NATIONAL WILD AND SCENIC, AQUATIC PRESERVE, OUTSTANDING FLORIDA WATER, MANATEE PROTECTION AREA, CLASS I PUBLIC WATER SUPPLY, AND CLASS II POTENTIAL SHELLFISH HARVESTING AREA. That the Loxahatchee River does not always meet all the State water quality standards, nor always meet the established water quality targets. That stormwater is a threat to the water quality of the Loxahatchee River and associated water bodies. That although a substantial amount of usable water quality data has been collected historically, and consolidated into a manageable database system, that there exists a need for the continuation of water quality monitoring within the Loxahatchee River basin. That the District should maintain and enhance its present water quality monitoring network and coordinate all future monitoring efforts undertaken within the Loxahatchee River basin.

The District has retained Consulting Professionals in connection with scientific investigations and studies to help determine that the River needs protection and enhancement. The Governing Board finds in order to enhance the Loxahatchee River, and to fulfill the mandate from the Loxahatchee River Environmental Control Act, Chapter 71-822 Special Acts of Florida, 1971, as amended ("Act"), that the District provide for a River Enhancement Program, coordination between local governments and the role of facilitator; and provide for greater accountability as to the ownership, operation and maintenance of the many Systems effecting the River basin.

The District, in accordance with the findings and recommendations of the Stormwater Advisory Committee, Citizens Advisory Committee, Technical Advisory Committee, and the Consulting Professionals, declares for the benefit of all the people of Florida, its purpose in developing a River Enhancement Program.

Specific Authority Chapter 71-822 Special Acts of Florida, 1971, as amended. Law Implemented, Chapter 71-822, as amended, Section 2, Sections 5(2), 5(6), 6(1), 6(2), 6(3), 6(4), 6(5), 6(6), 6(9), 6(11), 6(16), 6(17), 6(18), 6(19), 6(20), 6(21), 6(22), 6(23), and Sections 10, 12, 14. History-New_____.

31-16.002 River Enhancement Program

- (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.

- (2) The Loxahatchee River Basin Stormwater Management Plan shall consist of:
- (a) Inventory – To identify all stormwater System features and facilities relating thereto in the District, which exist now and in the future; and inventory the associated land use activities.
 - (b) Inspection – To evaluate all stormwater System features and facilities relating thereto in the District, which exist now and in the future. To assess conformance that Systems have been constructed in accordance with its design and permits issued by the Regulatory Authority, as well as to assess the maintenance condition and operational effectiveness of the existing Systems. When Systems are found to be non-conforming with regard to permit conditions for construction or operation, the District will work with the owner of the system and the Regulatory Authority to facilitate needed improvements.
 - (c) Mapping – To provide geographic representation of all stormwater System features and facilities relating thereto in the District, which exist now and in the future. Existing resources from other governments and private entities will be utilized to the greatest extent possible.
 - (d) Identification of Owners and Operators – The Plan will identify and the District will communicate with the owner and operator of each stormwater System which exists in the District.
 - (e) Water Quality Monitoring – To provide continued monitoring of the Loxahatchee River, and the ground and surface water discharges into the Loxahatchee River basin, under the unified management of a District-wide system for the purpose of, among other things, reducing or controlling erosion, sedimentation and turbidity, the excessive introduction of oxygen demanding substances, nutrients, harmful bacteria, toxics, and other pollution of water, danger and damage to life and property, and to protect and encourage the use of efficient natural and man-made means to these ends, and report and disseminate the results. The Water Quality Monitoring by the district shall not automatically relieve any private entity or Public agency in the District from the requirements for water quality monitoring, unless specifically agreed to by the private entity or Public agency and the District, subject to Regulatory Authority approval.
 - (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 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.
 - (g) Interlocal Agreements & Contracts – To work with and coordinate with the various Public agencies, Regulatory Authorities, and with the private sector. The purpose of such Agreements and Contracts is to formalize intergovernmental cooperation and private sector commitments in order to promote the River Enhancement Program of the District.
 - (h) Recommendations of the Plan – to provide a Loxahatchee River Basin Stormwater Management Plan; present recommendations for implementation to government

agencies and the private sector; coordinate the Plan and the recommendations for a uniform River Enhancement Program for the Loxahatchee River Basin as a means of complying with Federal, State and local mandated goals and priorities; to facilitate the implementation of a River Enhancement Program; and provide for the current and future needs of the District with respect to pollutant discharge elimination systems within the geographical boundaries of the District

- (3) The District's involvement with operation and maintenance of Systems shall include:
 - (a) Operation and Maintenance – To document that all public and private Systems have owners, and that all owners have operators implementing a program of operation and maintenance. Where operation and maintenance is being adequately performed in accordance with the Regulatory Authority, the District will not duplicate that function. The intent of the District is to have the most local form of governance, be it public or private, conduct operation and maintenance. Where operation and maintenance are not being performed in accordance with the Regulatory Authority standards, education and assistance will be made available to the owner and operator in order for there to be better operation and maintenance. If the operation and maintenance is not being performed adequately because of insufficient funding, the District will seek to facilitate funding for all owners and operators needing funding for operation and maintenance through Interlocal Agreements with Public agencies and Contracts with the private sector. As to owners, that, after education, assistance, and funding, find the owner conducted operation and maintenance too burdensome, said owner may voluntarily give the System to the District in accordance with the Act, whereby the district will own and operate the System.
 - (b) Compliance Programs – That the District will assist in the permitting and associated activities under local, regional, state, and federal programs, including the National Pollutant Discharge Elimination System (“NPDES”) Program, under Section 403.4885, Florida Statutes, as amended, and the United States Environmental Protection Agency. The intent of the District is to have the most local form of governance, be it public or private, conduct compliance programs, and where it is being performed in accordance with the Regulatory Authority, the District will not duplicate that function.
- (4) The District's involvement with construction, renewal and replacement of Systems shall include:
 - (a) Construction – To help coordinate and provide guidelines for construction practices, with specific provision for future operation and maintenance activities. The primary responsibility for the design, permitting, and construction of new Systems is with existing owners, and where it is being adequately performed, the District will not duplicate that function. The intent of the District is to have the most local form of governance, be it public or private, conduct construction, renewal and replacement activities. Funding for construction is still the responsibility of owners.
 - (b) District Funding – The District funding for capital, renewal, or retrofit facilities shall be in accordance with the Act.

Specific Authority Chapter 71-822 Special Acts of Florida, 1971, as amended. Law Implemented, Chapter 71-822, as amended, Sections 2, 5(2), 6(1), 6(2), 6(3), 6(4), 6(5), 6(6),

6(7), 6(9), 6(10), 6(11), 6(12), 6(13), 6(17), 6(18), 6(19), 6(20), 6(21), 6(23), 6(24), 6(25), 6(27) and Sections 8, 9, 10, 12, and 14. History – New _____.

31-16.003 River Enhancement Fees; Classification and Criteria; Collection; Accountability

- (1) Definitions: The following words, when used herein, shall have the meanings indicated, unless the context indicates otherwise:
 - (a) “Consulting Professionals” means a qualified professional or firm of professionals licensed in the State of Florida as defined in 403.0877, Florida Statutes, as amended, and retained by the District to perform the acts and carry out the duties relating to the River Enhancement Program, as required by the District.
 - (b) “ERU” shall mean Equivalent Residential Unit which is determined by the Governing Board of the district to be the standard unit of measurement for implementation of this Rule. An ERU is numerically equivalent to 2,844 square feet of Impervious Area, as determined by statistical analysis of the single family residential parcels in the District.
 - (c) “Exempt Property” shall mean that property not subject to the payment of the River Enhancement Fees, or constitutionally or statutorily exempt from imposition of same.
 - (d) “Impervious Area” shall mean an area which either prevents or retards the entry of water into the soil mantle. Common Impervious Areas include, but are not limited to, rooftops, sidewalks, walkways, patio areas, driveways, parking lots, storage areas and other surfaces which similarly impact infiltration and runoff. Roads and their related right of ways, and waterbodies and their related easements shall not be considered Impervious Areas.
 - (e) “Non-Residential Property” shall mean any improved land which does not have as its principal use a place of residence and is not classified as residential by the Property Appraiser of the appropriate County.
 - (f) “Regulatory Authority” shall mean the government agency or agencies with jurisdiction to regulate, license, or permit a System.
 - (g) “River Enhancement Fees” shall mean the non-advalorem fees, charges, and costs imposed by the District pursuant to this Rule and the Act, as amended and supplemented.
 - (h) “System “ or “Systems” mean the stormwater facilities which are implemented to control discharges which are necessitated by rainfall events, incorporating methods to collect, convey, store, absorb, inhibit, treat, use, or reuse water to prevent or reduce over drainage, environmental degradation, flooding and water pollution or otherwise affect the quantity and quality of discharges from the System into the Loxahatchee River basin.
 - (i) “Unimproved Land” shall mean land that does not have any Impervious Area within its boundary.
- (2) In addition to the Exempt Property defined in subsection (1)(c) above, the Exempt Property shall be those properties determined by the District to meet any one of the following classifications:
 - (a) Unimproved Land, or

- (b) Roads and their related right of ways, or
- (c) Waterbodies and their related easements.
- (3) For purposes of imposing the River Enhancement Fees, all properties, other than Exempt Property, shall be given an appropriate classification. The schedule of classifications is:
 - (a) Single Family Residential, further classified by Total Impervious Areas (“TIA”) as:
 - 1. Small (Less than 2,100 sq. ft. TIA) = 0.6 ERU
 - 2. Medium (2,100-3,100 sq. ft. TIA) = 1.0 ERU
 - 3. Large (greater than 3,100 sq. ft. TIA) = 1.4 ERU
 - (b) Multi-Family Residential including condominiums, townhouses, mobile home lots, recreational vehicle lots, and apartments = 0.6 ERU.
 - (c) Non-Residential Improved Property shall have the number of ERUs determined by the formula of the TIA sq. ft. divided by the numerical equivalent of an ERU of 2,844 sq. ft.
- (4) River Enhancement Management Fee – Upon the later of two years from the effective date of this Rule, or the completion of the Loxahatchee River Basin Stormwater Management Plan, the District will charge a River Enhancement Management Fee in an amount to be determined by subsequent amendment of this Rule.
- (5) River Enhancement Operation and Maintenance Fee – The primary responsibility for funding operation and maintenance services is with the owners and operators of Systems. Where the District assists with the funding for operation and maintenance, or where the District assumes the operation and maintenance, or where the District assumes the operation and maintenance of a private system, the District will collect an Operation and Maintenance Fee as to the cost, cleaning, minor repair, detailed inspection for problems, labor, equipment, supplies, administrative costs, and related expenses, in an amount to be mutually agreed to by Interlocal Agreement with a Public agency, or by Contract with a private entity, or to be established by subsequent amendment of this Rule.
- (6) River Enhancement Construction Fee – The primary decision for funding for construction and major rehabilitation of Systems is up to the owners and operators thereof. If the owners and operators desire the assistance of the District, the District will collect a River Enhancement Construction Fee as to the cost, design, construction, and major rehabilitation of stormwater management facilities, administrative costs, and related expenses where the District designs, constructs, or contracts for the construction of such Systems. The River Enhancement Construction Fee will be in an amount to be mutually agreed to by Interlocal Agreement with a Public agency, or by Contract with a private entity, or to be established by subsequent amendment of this Rule. It is not the intention of this Rule to restrict the design, funding, or construction of Systems.
- (7) Cooperation with other Stormwater Utilities – The intention of the District in providing for the River Enhancement Operation, Maintenance, and Construction Fees is to not duplicate or preclude other governments and private entities from collection of such Fees, and where said Fees are being collected to perform these functions, the District will not duplicate these Fees. The intention of the district is to not preclude other governments from forming their own "Stormwater Utilities", but rather to work cooperatively to enhance the River.
- (8) Interlocal Agreement as to Fees – In accordance with the “Florida Interlocal Cooperation Act of 1969”, Florida Statute 163.01, a Public agency and the District will utilize an Interlocal Agreement, in connection with collecting the River Enhancement Fees, or

utilizing the River Enhancement Operation and Maintenance Fee, or the River Enhancement Construction Fee.

- (9) Adjustments/Appeals – Any customer or property owner who feels that the River Enhancement Fees for his property have been assigned or computed incorrectly may petition in writing to the Executive Director of the District, for a review of said Fee. If not satisfied with the determination of the Executive Director, the petitioner may request a hearing before the Governing Board, whose decision shall be final.
- (10) Method Collection – The method of collection of the River Enhancement Fees include collection by the District, by Interlocal Agreement with a Public agency, by the County Property Appraiser's Office under Section 197.3632, Florida Statutes, or by a combination of the above. The property owner and user shall be jointly and severally liable for payment to the District. The remedies of the District as set forth in the District's Rules and the Act, as to the collection of amounts due the District, shall apply to this Rule.
- (11) Flood Prevention – Floods from storm events may occasionally occur which exceed the capacity of the Systems or other stormwater management system facilities which are operated, maintained, or construed by funds made available under this Rule. This Rule shall not be constructed or interpreted to mean that property subject to the River Enhancement Fees established herein will always (or at any time) be free from storm event flooding or flood damage or that systems capable of handling all storm events can be cost-effectively operated, maintained or constructed. This Rule does not create any liability on the part of, or cause of action against, the District, or any official or employee thereof, for any flood damage that may result from such storms or the runoff thereof. This Rule does not purport to reduce the need or the necessity for individual property owners, operators, and users obtaining flood insurance.
- (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.

Specific Authority Chapter 71-822 Special Acts of Florida, 1971, as amended. Law Implemented, Chapter 71-822, as amended, Sections 2, 5(2), 5(6), 5(8), 6(1), 6(2), 6(4), 6(5), 6(6), 6(7), 6(8), 6(9), 6(10), 6(11), 6(12), 6(13), 6(14), 6(15), 6(16), 6(17), 6(18), 6(19), 6(20), 6(22), 6(23), 6(24), 6(25), 6(27) and Section 8, 9, 10, 12, 14, 15, and 16. History-New_____.

Neighborhood Sewering Schedule

Rank *	Area Description	# Lots	Activity	Original Target Date	Revised Target Start Date
10	Turtle Creek Subsystem 3	5	Notified Owners – September 2012 Notice of Intent – December 2016 Notified to Connect – April 2018 Preliminary Assessment – June 2019 Final Assessment – July 2019	2016	2017
10	Turtle Creek Subsystem 2	28	Notified Owners – September 2012 Notice of Intent – October 2016 Notified to Connect – April 2018 Preliminary Assessment – June 2019 Final Assessment – July 2019	2016	2017
14	Whispering Trails	181	Notified Owners – January 2013 Notice of Intent – November 2016 Construction Started - October 2018	2017	2017
16	Limestone Creek Road-West	71	Notified Owners – January 2013	2018	2020
16	181 st St N Gravity	11	Notified Owners – January 2013 Notice of Intent to Assess – October 2018	2018	2018
20	New Palm Beach Heights	35	Notified Owners – January 2016 Notice of Intent to Assess – October 2018 Construction Started – July 2019	2019	2019
22	Bridgewater	70	In discussions with developer/engineer	2019	2019
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
C	FDOT Turnpike Station <i>(institutional)</i>	3 ECs	Notified to Connect – February 2016 Variance requested – May 2016	2012	2020
H	Olympus Dr, Juno (LP)	2	Notified Owners – June 2013 Prelim. Design started – August 2017 Survey - 2018	2016	2018
	18870+18890 SE Country Club Dr, Cove Pt	3	Notified Owner – April + Aug 2017 Design started – August 2017	2018	2019
	US Highway 1 (13440-13500)	3	Notified Owners – August 2017	2019	2019
	Admiral's Cove West Guard House	1	Communicated with Engineer - July 2016	2019	2019
	Thelma Ave. LPSS	4	Notified Owners – September 2017	2020	2020
	197 th PI N	3	Notified Owners – April 2019		2020

Private Road Areas – Page 2

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	171 st 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	66 th Terr+Way	19	Notified Owners – Aug 2010 *Private Roads Notice of Intent to Assess – February 2015	2014	AEO
D	Loggerhead Park <i>(institutional)</i>	6 ECs	Need Easements from Palm Beach County	2014	2017
DD	Taylor Road	38	Notified Owners – September 2011 Private Roads	2015	AEO
EE	Imperial Woods LPSS	47	Notified Owners – October 2010 Withdrew Notification – Feb 2011 Easements Obtained – Aug 2017 + June 2018 Notice of Intent to Assess – September 2017 Grant Authorized Construction Award – February 2019	2016	2018
EE	Hobart St SE (Martin Co.)	13	Notified Owners – October 2012 Private Road	2016	2019
FF	Rolling Hills	51	Notified Owners – January 2013 Private HOA	2017	2020
FF	Gardiner Lane	2	Notified Owners – July 2013 Private Road	2017	2019
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 <i>(north of Roebuck Road)</i>	10	Notified Owners – January 2013	2018	AEO
GG	Island Country Estates	47	Notified Owners – January 2013 Private HOA-Received Easement – Feb. 2018 Notice of Intent – July 2018 Engineering Award – September 2018	2018	2019
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
19	US Coast Guard Station Offices <i>(institutional)</i> PX Commercial <i>(commercial)</i>	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	2019	2020

* Rank based upon "2010 Septic System Inventory & Assessment"

TBD = To be determined

AEO = As easements are obtained

TIMOTHY W. GASKILL*

*Business, Probate
Family Litigation*

DONALD R. SMITH +*

*Personal Injury & Wrongful Death
And Civil, Business & Real Estate
Litigation*

CURTIS L. SHENKMAN

*Board Certified
Real Estate Attorney*

BROOKE GROGAN*

Personal Injury & Litigation

BRANDON D. SMITH

Personal Injury & Litigation

+ *Member of the Florida Justice Assoc.
and the Palm Beach Co. Justice Assoc.

*Members of the U. S. Federal Court -
Southern District, Florida

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INJURY/COMMERCIAL

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KAREN M.B. LOPATOSKY
Senior Litigation Paralegal

REAL ESTATE

JUDY D. MONTEIRO
DENISE B. PAOLUCCI
MELISSA KAJEEJIT

July 11, 2019

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

cc: Timothy W. Gaskill, Esquire
Karen Boyden, paralegal

OTHER LITIGATION

ACTION: In Re Estate of Israel Marquez et al ...Loxahatchee River Envir Control District
Owner: Estate of Israel Marquez **Property: 911 Hawie St.**
Case No. 50-2010-CP-004006XXXXSBIY

TYPE OF ACTION: **Mortgage** Foreclosure by Lender, LRD named for its (possible) lien interest –

COMMENCEMENT: Service of Summons/Petition

COMMENTS: Action foreclosing mortgage– LRD named for lien interest

STATUS: **Pending**

11/24/14	District served with Petition re Homestead and Real Property as Estate Asset; Filed Answer and Affirmative Defenses; Hearing to be held
12/10/14-1/6/15	No change in status
2/3/15	No change in status
3/6/15-5/11/15	No change in status; monitoring probate action; monitoring for activity;
6/8/15-7/9/15	No change in status
8/7/15 – 10/12/15	No change in status, continuing to monitor probate
11/10/15	There is a pending Motion to sell real estate set for hearing in December, continue to monitor
12/7/15	No change in status
1/18/16 – 7/7/16	Last Activity in Court Docket 12/17/14 requiring a paternity test; continue to monitor ; No change in status
8/8/16 – 10/13/16	No change in status
11/9/16-12/14/16	No change in status –probate proceedings continuing
1/10/17 – 9/20/17	No change in status – Probate proceedings continuing –no activity since 11/15/16 on docket
10/6/17-12/6/17	No change in status – Probate proceedings continuing –no activity since 11/15/16 on docket
1/8/18	No change in status - Probate proceedings continuing –no activity since 11/15/16 on docket
2/5/18	No change in status - Probate proceedings continuing –no activity since 11/15/16 on docket
3/5/18 – 4/2/18	Only new filings in March were Petition to determine Paternity and Petition to Sell Property and delay Tax Deed Sale
5/10/18	No change in status
6/10/18-7/10/18	Probate still ongoing; Hearing on Per. Rep’s Petition to Delay Tax Deed Sale scheduled for 7/12/18; no other change in status
8/7/18	Hearing on Sale of Property held and Order entered authorizing sale; to monitor re sale and estoppel for any outstanding charges to LRD

9/7/18- 1/18/19	No sale reflected in public records to date, continue to monitor; Order entered in Probate declaring property to be homestead property
1/19/19- 7/11/19	No change in status

LIEN FORECLOSURES

NONE

MORTGAGE OR LIEN FORECLOSURES / LRD COUNTERCLAIMS/CROSSCLAIMS

NONE

MEMORANDUM

TO: Albrey Arrington, Ph.D. / Loxahatchee River District

COPY: Kris Dean / Loxahatchee River District
Tony Campbell / Loxahatchee River District

FROM: Albert Muniz / Hazen and Sawyer

DATE: July 9, 2019

FILE: 42009-029.3.1.3

SUBJECT: Loxahatchee River District
Engineer's Monthly Status Report through June 30, 2019

The following is a summary of work performed by Hazen and Sawyer (Hazen) on Loxahatchee River District (LRD) projects through the above referenced date.

General Operational Assistance – This project involves providing LRD with engineering assistance related to wastewater operations.

- Hazen will be submitting task orders for an odor control study and an evaluation of Green Gas Emissions. Task Orders are currently being developed for review by LRD staff.
- Hazen is routinely communicating with LRD staff to discuss plant operations.

Deep Bed Sand Filters – Final Design and Construction Management Services –The following provides a summary of tasks that have occurred during the above reporting period:

- The Contractor has submitted all the remaining project closeout documents. The final Change Order and Pay Application have been processed.
- The filter sampling program to determine the effectiveness of removal of contaminants of emerging concern (CECs) and cryptosporidium/giardia filter was completed. A memorandum to discuss findings is being prepared for review and discussion with LRD staff.

Injection Well Operating Permit Renewal – The renewal operating permit application for the Class I Injection Well was submitted to FDEP on April 1, 2019. A request for additional information was received on May 24, 2019. Responses to FDEP's comments were prepared and submitted to FDEP on June 12, 2019.

BioWin™ Process Model Development and Training – Hazen has completed the DRAFT BioWin™ Technical Memorandum and training.. A copy of the draft Technical Memorandum was submitted to LRD for review. A meeting to discuss comments on the draft memo will be held in July.

As always, please feel free to contact us should you have any questions or need to discuss the progress of any of the above projects in more detail.

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 11, 2019

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 11, 2019. **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.**

Imperial Woods Low Pressure Sewer System

- Curbing restoration is currently underway and will be completed by July 12, 2019. Pavement milling and resurfacing is scheduled for the week of July 15, 2019. *It is anticipated all construction activities should be complete for the project by the end of July.*

Island Country Estates Low Pressure Sewer System

- The 100% submittal was delivered to District staff on June 25, 2019. All required permits have been issued. The project has been advertised for bidding with a bid opening date of August 6, 2019. The pre-bid meeting is scheduled for July 23, 2019 at the District office.

Lift Station No. 082 Master Plan and Improvements

- HCE is currently working on completing and calibrating the model. Upon completion of the model calibration, the different modeling scenarios will be completed. A technical memorandum summarizing the results of the modeling efforts will be provided to District staff by August 28, 2019.



Busch Wildlife Sanctuary

At Loxahatchee River District

Quarterly Dashboard - 2nd Quarter 2019



	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
2018 Qtr Results													
1st Qtr													
2nd Qtr													
3rd Qtr													
4th Qtr													
2019 Qtr Results													
1st Qtr													
2nd Qtr													
3rd Qtr													
4th Qtr													

2nd Quarter Items:

Projects Completed: Discovery Center Renovations Phase 2

Projects In Progress: River Otter Nighthouse & Exhibit Renovation, Walkway to Hospital, Mulching Pineland Nature Trail
Songbird Enclosure, Gator Swamp Habitat; Updating Signage

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:

WPTV Channel 12 interviews - gator, croc, bear, snake and sandhill crane; WPCE Channel 12 Forever Family/Adoption Story filming & bear sighting;
New branding & marketing materials, Marketing/Tourism grant from Palm Beach Cultural Council; BWS adopted 4 natural area in N. PBC through the Environmental Resource Mgt Division; Mgt attended statewide Zoo & Aquarium All Hazards Preparedness Training, Compassion Fatigue Training;
Staff Safety Trainings on Chlorine Safety, Electrical Safety, and Active Shooter; Renewed Discover the Palm Beaches and Northern Palm Beach Chamber of Commerce memberships; Environmental Scavenger Hunts; Surf Taco and Chili's Giveback Nights

Metric: Explanation

Gift Shop: Majority of the purchasing for the giftshop is conducted during the 3rd and 4th Quarters of the year.

Animal Care: 2nd Quarter is "Baby Season". Always have more animals than usual.

Financial: Annual Fundraising occurs in December and many contributions are received in 1st Quarter of each year.

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

J:\Board\Notebook\Directors Report

To: Governing Board
 From: Kara Fraraccio, Director of Finance and Administration
 Date: July 12, 2019
 Subject: Monthly Financial Report

Cash and Investments

Balances as of June 30, 2019

Certificates of Deposit:

Institution	Original Term	Maturity	Rate	Book Value	Monthly Interest Earned	Market Value
US Bank	1 Year	07/30/19	2.45%	1,500,000	3,083	1,534,077
TD Bank	5 Years	09/22/19	2.09%	2,000,000	3,789	2,209,593
Bank United	18 Months	02/04/20	2.65%	1,000,000	2,196	1,010,500
Bank United	2 Years	04/02/20	2.46%	2,000,000	4,061	2,012,563
US Bank	18 Months	05/01/20	3.00%	1,507,875	3,780	1,536,914
Bank United	18 Months	06/07/20	2.88%	1,500,000	3,600	1,524,432
US Bank	2 Years	01/29/21	2.71%	1,011,450	2,348	1,022,689
Bank United	2 Years	03/11/21	2.60%	1,000,000	2,146	1,007,918
Subtotal				\$11,519,325	\$ 25,003	\$11,858,686
Money Market Accounts:						
Synovus - Public Demand			2.28%		\$ 22,450	\$ 12,151,422
TD Bank - NOW			2.38%		15,654	8,120,286
Subtotal					\$ 38,104	\$20,271,708
Checking Account:						
SunTrust-Hybrid Business Account			0.50%		\$ 695	\$ 1,980,984
Subtotal					\$ 695	\$ 1,980,984
Total					\$ 63,802	\$34,111,378

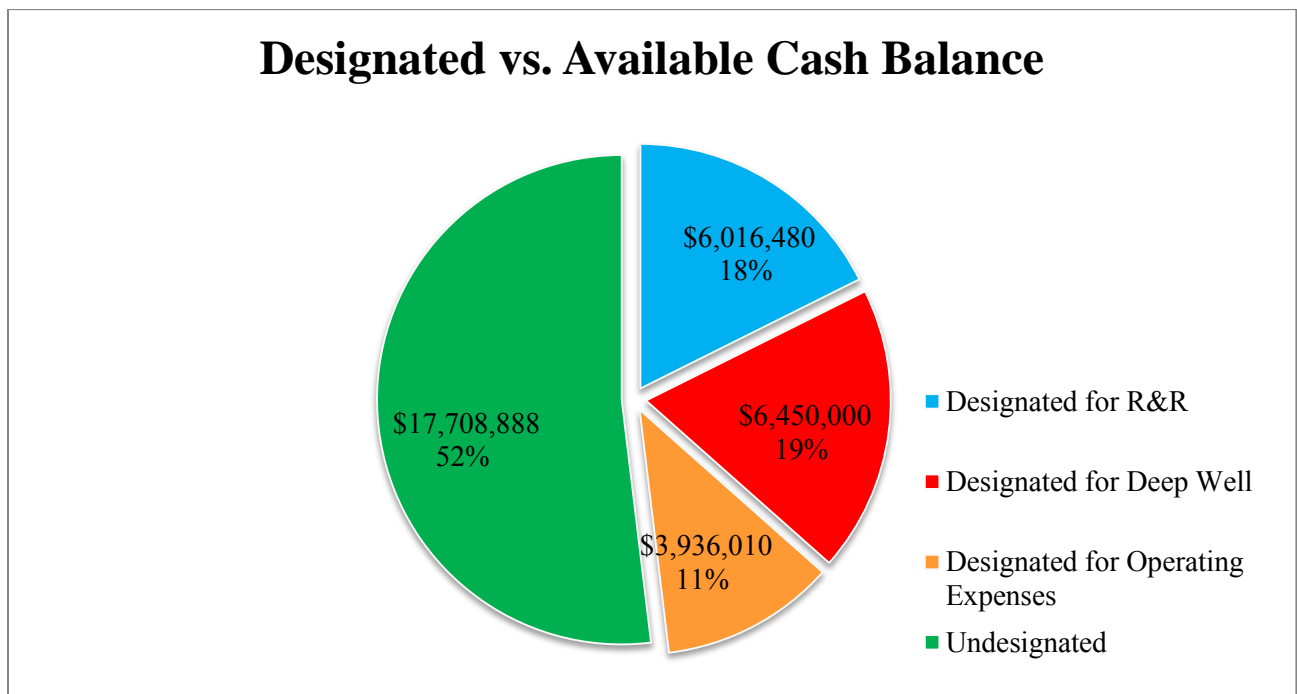
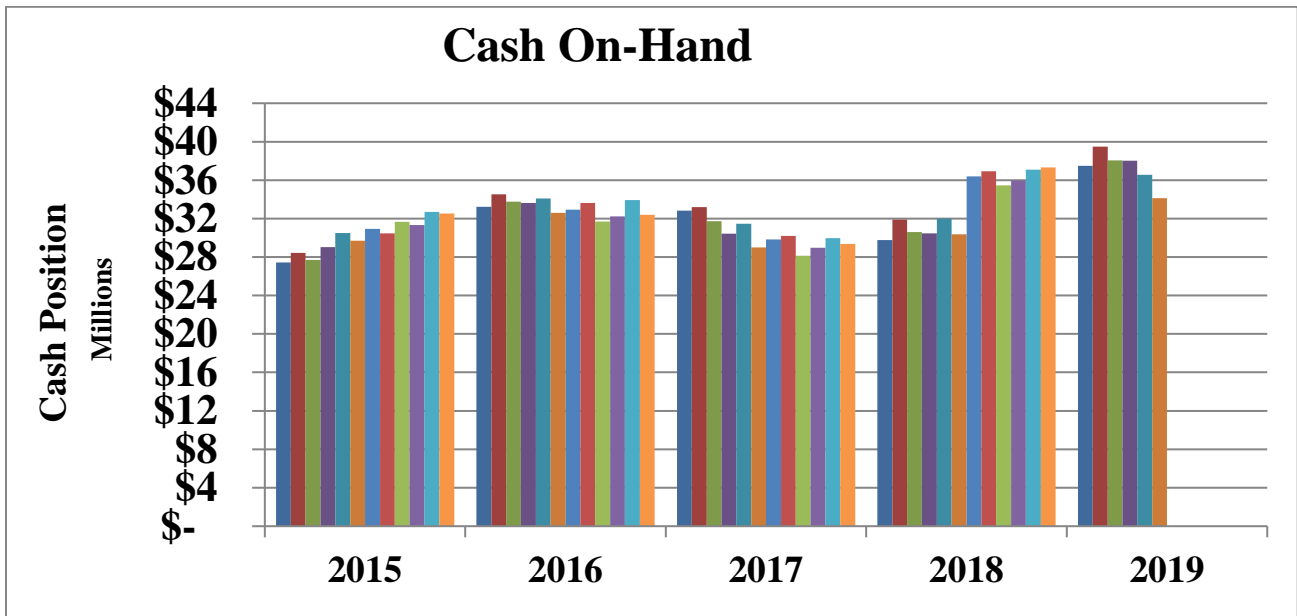
Average weighted rate of return on investments is: 2.30%

As of 6/30/19:

3 month Short Term Bond: 2.12%

1 month Federal Fund Rate: 2.40%

Cash position for June 2018 was \$30,357,463. Current Cash position is **up** by \$3,753,915.



Financial Information

- There were no Legal fees billed for the month of June. The fiscal year-to-date total is \$63,430.
- There was no Septage billing for the month of June. The fiscal year-to-date total is \$236.
- Developer's Agreement – No new Developer agreements were entered into in June.
- I.Q. Water Agreements – Abacoa POA, Island of Abacoa, and Osceola Woods are past due for June.
- Estoppel fees collected in June totaled \$8,175. The fiscal year-to-date total is \$68,350.

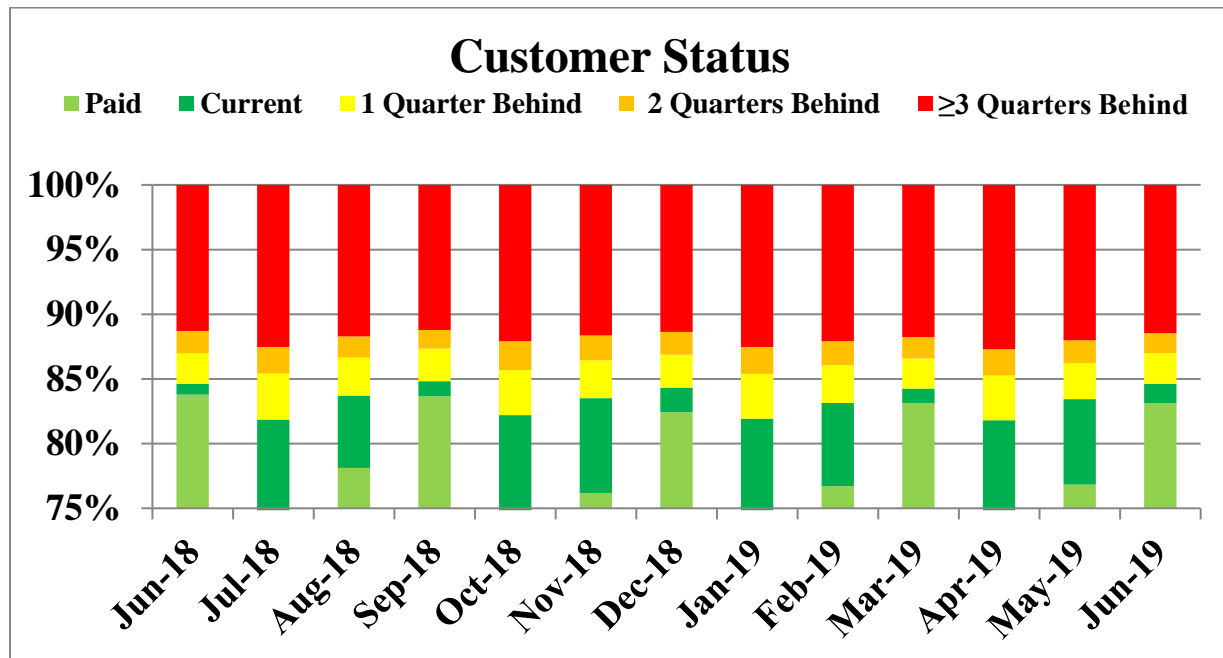
<i>Budget Benchmark</i> 75.00%	Jun-19 Actual	YTD Actual	FY 19 Budget	Favorable (Unfavorable)	Budget Expended	Jun-18 YTD
Revenues						
Operating Revenues						
Regional Sewer Service	\$1,406,372	\$12,582,885	\$ 17,067,530	\$ (4,484,645)	73.72%	\$12,551,043
Standby Sewer Service	8,417	74,102	157,550	(83,448)	47.03%	96,190
IQ Water Charges	196,205	1,773,167	2,264,000	(490,833)	78.32%	1,730,960
Admin. and Engineering Fees	436	35,112	48,865	(13,753)	71.86%	88,534
Other Revenue	40,047	318,173	183,000	135,173	173.87%	364,285
Subtotal Operating Revenues	1,651,477	14,783,439	19,720,945	(4,937,506)	74.96%	14,831,012
Capital Revenues						
Assessments	24,335	1,164,412	824,000	340,412	141.31%	106,647
Line Charges	1,494	169,917	232,575	(62,658)	73.06%	447,038
Plant Charges	11,555	368,868	1,402,600	(1,033,732)	26.30%	1,141,501
Capital Contributions		56,132	917,000	(860,868)	6.12%	467,434
Subtotal Capital Revenues	37,384	1,759,329	3,376,175	(1,616,846)	52.11%	2,162,620
Other Revenues						
Grants	837	25,569		25,569	100.00%	12,225
Interest Income	74,149	1,182,907	1,217,500	(34,593)	97.16%	307,538
Subtotal Other Revenues	74,986	1,208,476	1,217,500	(9,024)	99.26%	319,763
Total Revenues	\$ 1,763,847	\$ 17,751,244	\$ 24,314,620	\$ (6,563,376)	73.01%	\$ 17,313,395
Expenses						
Salaries and Wages	\$404,234	\$3,643,383	\$ 5,687,700	\$ 2,044,317	64.06%	\$3,523,014
Payroll Taxes	30,729	273,279	416,500	143,221	65.61%	264,709
Retirement Contributions	54,941	526,516	710,900	184,384	74.06%	541,100
Employee Health Insurance	94,206	816,537	1,339,800	523,263	60.94%	875,801
Workers Compensation Insurance		89,197	114,600	25,403	77.83%	85,488
General Insurance	723	338,102	346,716	8,614	97.52%	326,378
Supplies and Expenses	83,662	738,358	1,138,160	399,802	64.87%	806,229
Utilities	102,103	975,115	1,409,350	434,235	69.19%	1,000,270
Chemicals	33,178	404,381	672,570	268,189	60.12%	482,257
Repairs and Maintenance	109,881	1,395,365	1,830,615	435,250	76.22%	1,078,352
Outside Services	132,968	1,306,285	1,852,110	545,825	70.53%	1,315,064
Contingency			225,000	225,000	0.00%	
Subtotal Operating Expenses	1,046,625	10,506,518	15,744,021	5,237,503	66.73%	10,298,662
Capital						
Capital Improvements	847,190	5,378,652	11,088,500	5,709,848	48.51%	3,428,771
Renewal and Replacement	481,394	3,883,288	7,278,500	3,395,212	53.35%	2,267,916
Contingency			225,000	225,000	0.00%	40,495
Subtotal Capital	1,328,584	9,261,940	18,592,000	9,330,060	49.82%	5,737,182
Total Expenses	\$ 2,375,209	\$ 19,768,458	\$ 34,336,021	\$ 14,567,563	57.57%	\$ 16,035,844
Excess Revenues						
Over (Under) Expenses	\$ (611,362)	\$ (2,017,214)	\$ (10,021,401)	\$ 8,004,187		\$ 1,277,551

Pending/Threatened Litigation

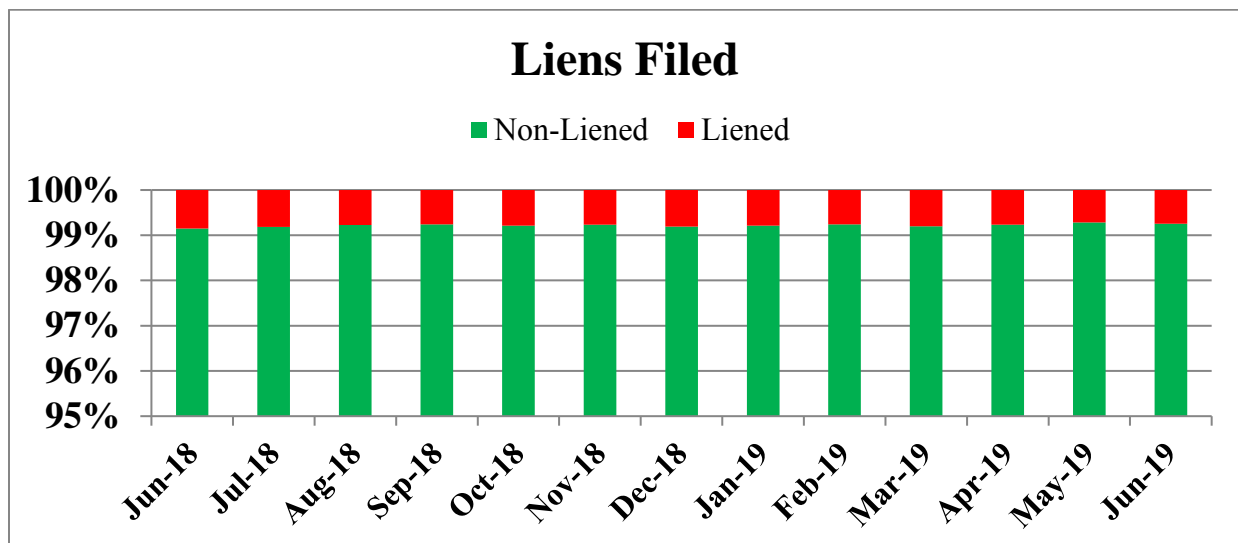
- No pending or threatened litigation.

Accounts Receivable

The chart below illustrates customers' receivable status as a percentage of quarterly sewer billing. Paid or current balances represent approximately 85% billing.



The District serves approximately 32,600 customers. Currently, the District has 243 liens filed which represent approximately 1% of our customers.



MEMORANDUM

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

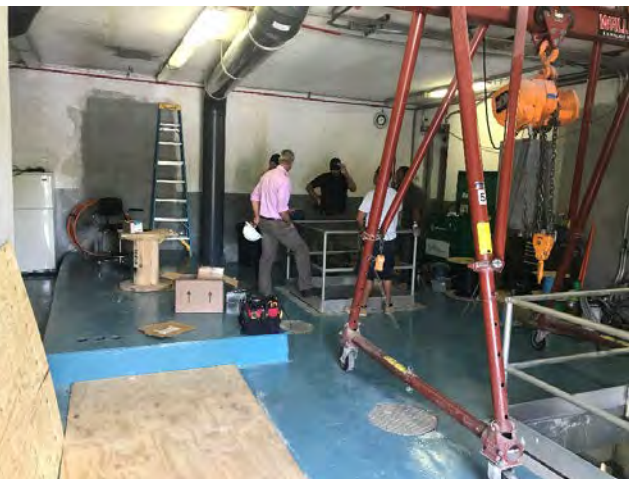
FROM: Kris Dean, P.E.
Deputy Executive Director/Director of Engineering Services

DATE: July 12, 2019

SUBJECT: Engineering Services Report - June 2019 Board Meeting

PROJECT HIGHLIGHTS

Master Lift Station Rehabilitation: The master lift station rehabilitation is nearing completion with start up activities scheduled for the month of July. The rehabilitation includes new pumps with 7,500 gallons per minute capacity, a new standby generator, new bypassing facilities and flow measuring. The image at left shows the SCADA screen as viewed from the plant, bottom left is an overhead view of the pump room, bottom right shows the top level with gantry crane after the old generator was removed. These images were taken during pump performance and vibration testing prior to start up activities.



ENGINEERING IN-HOUSE PROJECTS

Lift Station Fall Protection: After evaluating nets, hand rails and grates staff have agreed a retro-fitted safety grate is the preferred approach to providing fall protection at lift stations. The initial field evaluation is complete and staff are coordinating with the manufacturer to specify the preferred installation and 1-2 alternates for locations where the preferred option will not fit. Once the installation options are determined we will go out to bid and award a contract to have the fall protection installed at all lift stations.

Lift Station Rehabilitations General Construction Services: Rehabilitation requirements on three stations have been finalized and purchase orders issued for their rehabilitation. Staff are working with homeowners, the Town of Jupiter and FPL on street light relocation and driveway configurations at a fourth station.

Additionally, in EAM we have been accumulating condition data on lift stations and the various assets that make up the lift station. Staff are beginning work on a new tool to evaluate and prioritize this data for future rehabilitation work.

Cellular Telemetry: IT and Engineering staff are working on a project to test cellular telemetry installation at existing stations with no telemetry. The third alternate option is online and staff will begin working on the procurement process once the viability of the options is determined. It is anticipated that we will select up to three suppliers to source telemetry units through a competitive bid process.

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. One permit is pending. Staff are coordinating with the permit agency to resolve as well as discussing possible collaboration between PBC and the District to incorporate neighborhood improvements into the project.

New Palm Beach Heights Low Pressure Sewer System: This project will serve 36 lots located just off US 1 south of Donald Ross Rd. The new system will tie into an existing gravity system serving the commercial property to the north. This project was awarded at the April Board Meeting. Staff anticipate construction beginning by July 2019.

Olympus Drive Force Main Replacement: This project is part of our asbestos cement (AC) force main replacement program and will replace approximately 2,000 feet of AC force main in Juno Beach. Soft digs were completed but results were not conclusive. Staff are investigating further with GPR and potholing as required. This project has been significantly delayed from the original schedule but the importance of the utility locates given the nature of the proposed directional bore installation warrants the delay.

LS 43 Emergency Generator: A project to provide a permanent emergency standby generator at LS 43. This station is part of the cascading lift station system along Country Club Drive in Tequesta. This project bid on May 7, 2019. Staff are coordinating with the contractor for an anticipated start date.

LS 62 Emergency Generator: A project to provide a permanent emergency standby generator at LS 62. This station is a significant repump station serving areas Tequesta and Jupiter Island. This project bid on May 7, 2019. Staff are coordinating with the contractor for an anticipated start date.

Lift Station 57 and 58 Tie-in to Transmission System: Both cascading stations will be connected to an adjacent transmission force main relieving significant flow to the repump station. Staff are coordinating with the design engineer for final revisions. Construction has been pushed to August/September 2019.

Lift Station 70 Emergency Generator and Power/Control Panel: This project provides a permanent emergency generator at lift station 70 and a new power and control panel including variable speed pump drives. In an effort to

expedite the panel and complete this work with the emergency generator, staff included the panel as a design/build specification, with specific component and performance requirements, in the emergency standby generator project. Staff have placed the station on bypass and the new panel is installed. Start up services have continued into July and it is anticipated the station will go into service by the end of July.

Radio Telemetry System: The work is complete. We anticipate having a performance report to include in August's report.

Penn Park Lateral Lining: A PBC neighborhood repaving project. Paving has been postponed to allow the District to inspect their gravity system and perform any improvements prior to paving. Lateral lining is underway as well as final punch list items from the main lining and final cleanout installations. We anticipate this neighborhood lining project to be complete by the end of August.

Lift Station 097 Main Lining: Main lining in LS097 collection system began in June. We anticipate main lining to be complete in August.

CONSTRUCTION DEPARTMENT

Staff have been busy with scheduled maintenance and repair in the field and plant as well as emergency repairs.



Staff repaired a service in Greenwood Cove caused by a failed clay fitting. The repair included updating a double service to the District's new standard and relocating the cleanout behind the sidewalk. The image at left shows Unit 80 performing vacuum excavation.



Staff also repaired a double service in Jonathan's Landing. The clay wye fitting failed and allowed roots to enter the system. The piping failure also caused a depression under the driveway which staff were able to repair.



COLLECTIONS/REUSE



The District took the final delivery on portable generators for FY19. The last generator to arrive was a G130 (100KW) replacement generator for one of our older units. The new generator, shown at left in the forefront has a sound attenuated enclosure, a big plus when operating generators in residential areas. In the background you can see an older generator with louvered side panels. These were not sound attenuated and not the best option operating after hours in residential neighborhoods.



SANITARY SEWER OVERFLOWS

There were 4 sanitary sewer overflows in the collection/transmission system for the month of June.

One overflow occurred on Harbor Road South in Tequesta in the low pressure sewer system. After the overflow was stopped and the area cleaned up an evaluation determined that the installation of air release valve piping and box protection were substandard resulting in a piping failure. Further evaluation showed that due to fluid velocities in this section of low pressure force main an ARV was not needed. Staff removed the air release valve and appurtenant facilities.

The second overflow occurred when the rear door on the vac-con tank was not closed properly. During a routine station cleaning wastewater escaped through the door resulting in an approximately 50 gallon spill. Supervisors went through proper procedures to secure the rear door with staff to prevent a similar occurrence in the future.

The third overflow occurred on Urdea Drive. A contractor working in the area for the Town of Jupiter damaged a low pressure sewer lateral.

The fourth overflow occurred at Donald Ross and Max Plank. A contractor working for the developer installed a deflection in our 16" IQ main to accommodate a new light pole installation. After the system went back on line a joint failed resulting in an overflow of an estimated 5,000 gallons of IQ water. This particular overflow gave us an opportunity to discuss risk analysis and management since there were several contributing factors leading to the main going back into service prior to it being fully tested.

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: Albrey Arrington, Ph.D., Executive Director

FROM: Tony Campbell, Director of Operations

DATE: July 10, 2019

SUBJECT: Operations Department Monthly – Report for June 2019

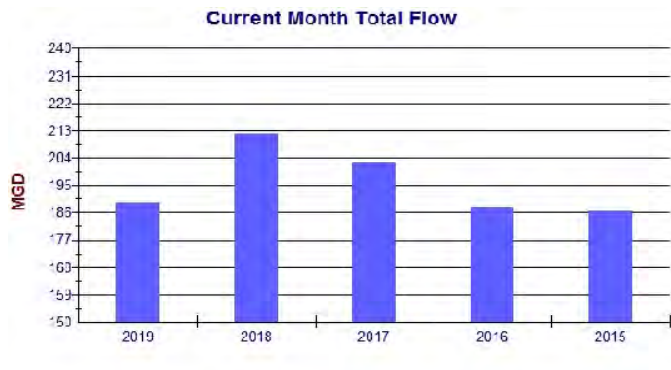
Treatment Plant Division

Strategic Plan and District Values:

In the month of June Operations moved one of its key operators into a new role as lead Operator. Brandon Collins an “A” Wastewater Operator has been cross training in Maintenance for the past few months, gaining knowledge in welding, fabrication, project management and Maintenance PM’s. While keeping the Districts Strategic planning objectives in mind and following our current strategy map, we feel Brandon is an excellent example of Operations following Strategic Objective 3.2, improving employee capabilities, along with maintaining employee satisfaction Strategic Objective 3.1. Operations plans to continue its successful cross-training program and looks forward in accomplishing more of our Districts strategic plan objectives and our District Core Values. Great job Brandon.



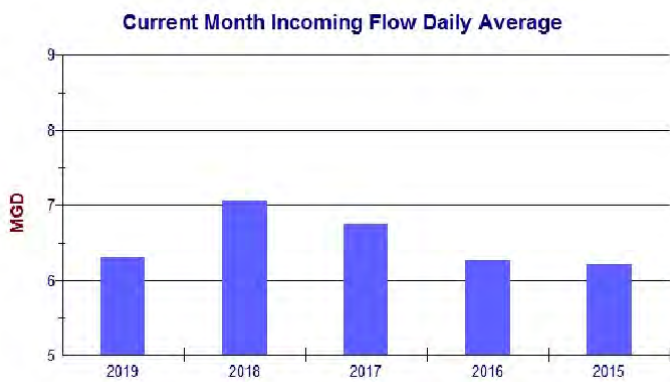
We’ve had another great month of no permit exceedances.



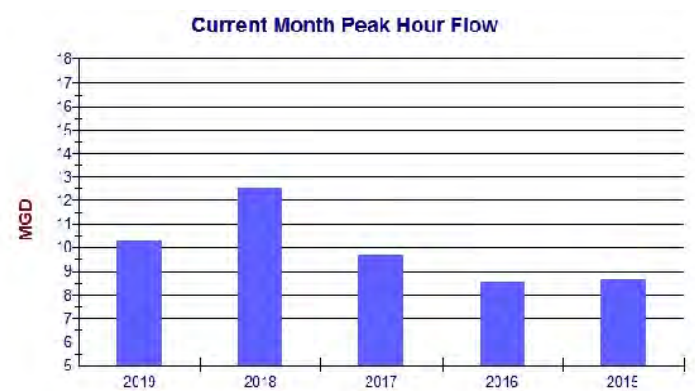
The plant total flow for the month of June was 189.09 million gallons.



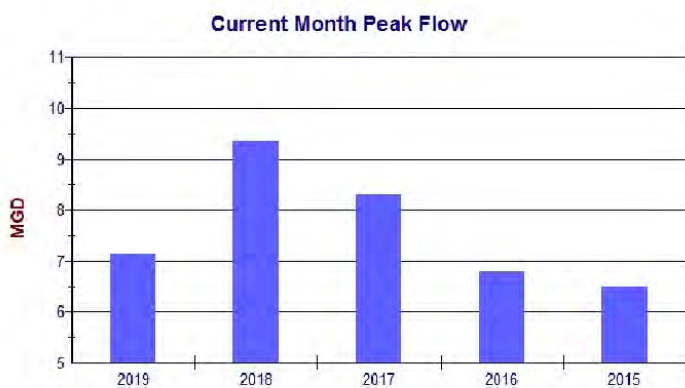
8.41 inches of rain was recorded at the plant site during the month of June.



The treatment plant incoming flow for the month of June averaged 6.30 MGD compared to 7.07 MGD one year ago, for the same month.



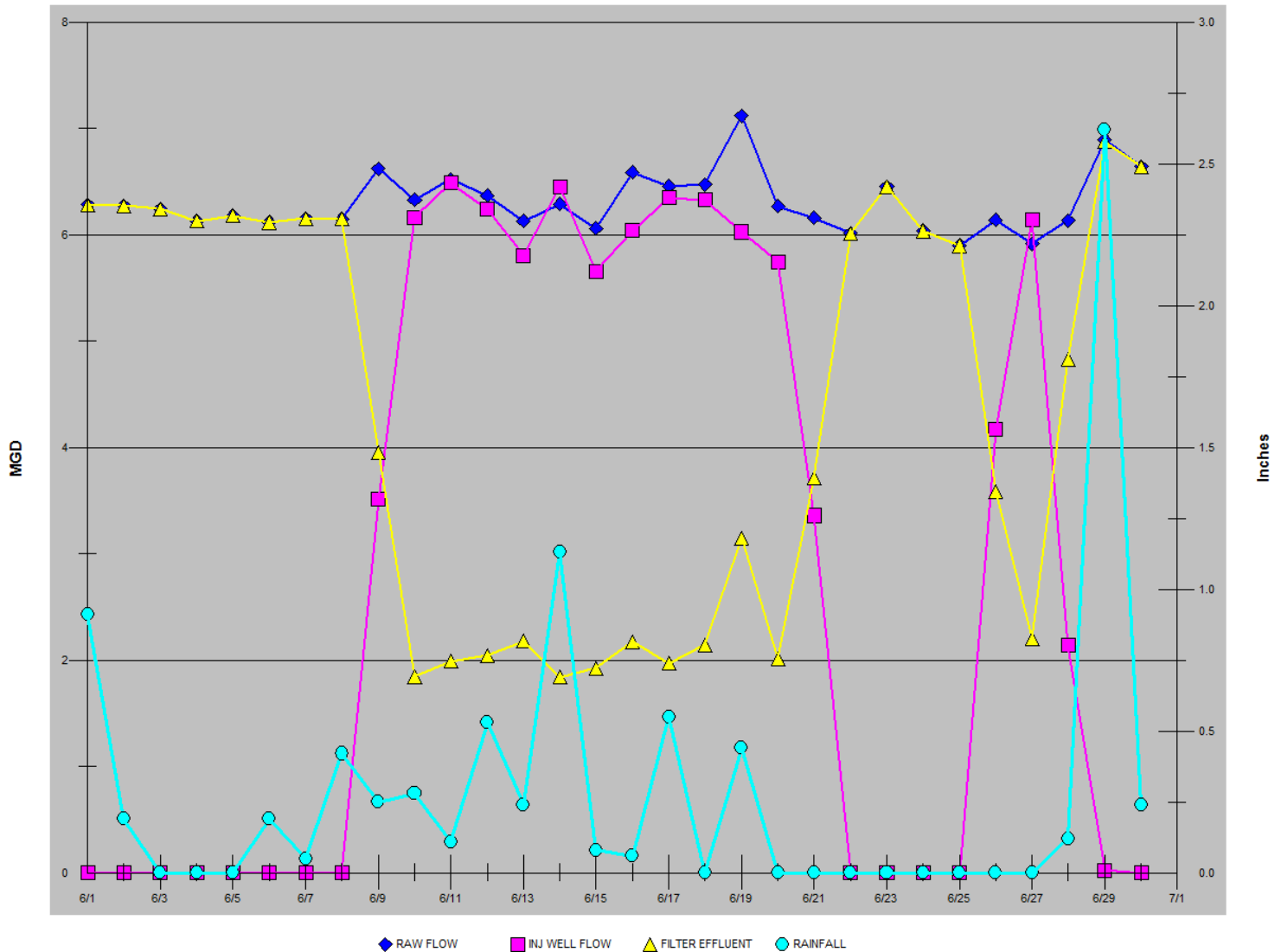
The peak hourly flow rate in June was 10.27 MG.



The greatest single day average flow in was 7.12 MGD.



For the month of June, the plant received 189.09 MG of influent flow of which 129.03 million gallons were sent to the IQ storage system where they were dispersed as needed to the various golf courses and the Abacoa development sites. We received 8.41 inches of rain during the month and 86.66 million gallons of blended effluent was diverted to the Injection Well. Overall, 68.24% of incoming flows were recycled for IQ use and the plant delivered 135.68 million gallons of IQ water to the Reuse customers.



Year to date, the plant recycled 67.35 of all incoming flow and the total amount of IQ water delivered to reuse customers stands at 881.74 million gallons.

All monthly reporting has been submitted on time.

Treatment Plant:



This month Operations successfully completed a shutdown of our both our Bar screens at headworks. Operations and Maintenance both worked side by side through this project in replacing an inadequate screening chute that catches rags and debris from the bar screens and diverts to a below dumpster. The picture above depicts an Operator manually cleaning a screen located on our bypass channel while our bar screens were out of service. We strategically planned this project for 4 AM due to incoming flows being at their lowest and this project was originally was planned to take two separate shutdowns, nonetheless our outstanding maintenance department led by Anthony Nicoletto was able to complete the entire project in one shutdown, saving both overtime and an additional shutdown.

Reclaimed water spill

In June Operations experienced a reportable Reclaimed water (IQ) spill caused by a 2 inch above ground coupling breaking afterhours at Clarifier #2. Approximately 18,000 gallons of Chlorinated IQ water was released and contained on the plant site. Operations is working with IT to add additional alarms to monitor pressure drops/fluctuations in plant service water, hopefully notifying operators of possible IQ leaks in the future. This spill was reported to DEP, Health Dept. and State Warning point.

Fuel Spill

In June our plant experienced a small reportable fuel spill at our plant Diesel tank. Approximately 20 gallons was released from a fuel nozzle while filling a District vehicle. The affected area was cleaned up and approximately 1 yard of contaminated soil and asphalt was removed and disposed of. This spill was reported as a pollution event to the DEP and Health Department.

Maintenance Department:



In the attached photos Maintenance Department's continuing our cross-training program with the operations assisting in the changeout of the primary drive system for number #1 belt press in dewatering. An initial work order was generated explaining an unusual noise coming from drive.



After a thorough inspection it was revealed there was a bearing issue and if ignored would have resulted in complete failure of drive. Fortunately, maintenance had a spare gearbox in the warehouse and schedule a shutdown to make the necessary repairs in a timely manner. The communication between the departments was critical and made for a textbook change out without any emergency downtime in presses.

MEMORANDUM

TO: Albrey Arrington, Ph.D., Executive Director
FROM: Bud Howard, Director of Information Services
DATE: July 11, 2019
SUBJECT: Monthly Governing Board Update for June 2019

WildPine Ecological Laboratory

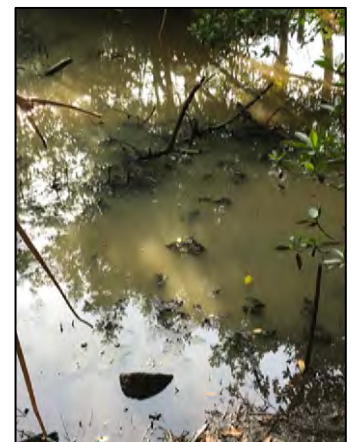
Riverkeeper Project

In June, District and Town of Jupiter staff collected water quality samples from 15 monitoring stations throughout the watershed and an additional 10 bacteria samples from Jones and Sims Creeks. Overall, water quality conditions worsened a bit this month with the rise in temperature and precipitation.

Fecal coliform bacteria scored “Poor” at 11 of the 25 stations when scored to DEP’s threshold of 800 MPN/100 mL - a notable increase of 44% of the stations in June compared to 6% in May. The Jones Creek station (TPJ), had the highest concentration of fecal coliform bacteria at 15,531 MPN/100 mL. This high bacteria count was sampled on 6/3/2019 during a visible turbidity event. Staff resampled two days later for bacteria and turbidity while the plume was still visible on 6/5/2019. The bacteria concentration dropped to 1,372 MPN/100 mL with a relatively high turbidity reading of 16 NTU. The Caloosahatchee Road bridge station (CALC) was similarly high on 6/3/2019 with fecal results of 12,991 MPN/100 mL, which dropped to 6,488 MPN/100 mL on 6/5/2019 with an associated turbidity reading of 35 NTU during the plume. Over the next six months staff will be working with residents and the FDEP laboratory to perform additional sampling and analysis to try and improve our understanding of the high bacteria and turbidity events in Jones Creek.



A resident who lives next to Caloosahatchee Road bridge (CALC) monitoring station in Jones Creek shared these pictures from June 5, 2019 showing algae clumps and the turbidity.

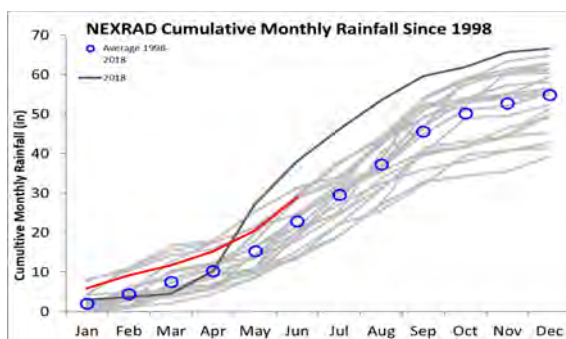


Chlorophyll (Chla) concentrations scored “Poor” at 8 of 17 (47% of the stations) Riverkeeper stations when compared to the stringent NNC for each river segment. The average chlorophyll value for all stations was 10 ug/L, with Station 72 (Southwest fork) having the highest concentration at 29 ug/L. These observations are similar to those we have reported in previous years, with the S-46 flood control structure mostly closed during the month. We believe that under these conditions the Southwest Fork functions somewhat like a dead-end canal. The longer hydraulic residence time and high temperatures appear to facilitate algal growth. Chlorophyll samples taken on 6/5/2019 in Jones Creek were also well above the 5.5 ug/L NNC for that river segment, with the CALC station was 28 ug/L and TPJ was 19 ug/L during the turbidity event.

Total Phosphorus (TP) concentrations in June worsened a little with 2 out of 15 (13%) of the stations exceeding the EPA/DEP’s Numeric Nutrient Criteria (NNC), up from 9% in May. Station 107 (River’s Edge) had the highest concentration at 0.131 mg/L, twice as high as the NNC (0.075 mg/L) for that region. The average for all stations in June was similar to May at 0.054 mg/L TP.

Total Nitrogen (TN) concentrations in June was good with all stations meeting the NNC. The average for all stations in June was similar to May at 0.7 mg/L TN.

Hydrologic Monitoring



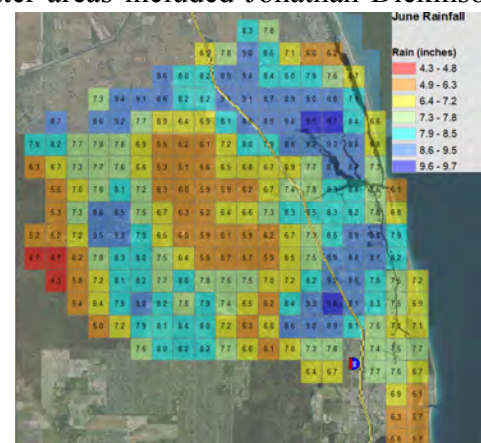
Cumulative annual rainfall using NEXRAD radar-based data. Red line indicates current 2019 cumulative rainfall total. Blue circles indicate mean cumulative rainfall since 1998. (2018 indicated as dark gray line).

to 9.7” of rain. Jupiter Farms and the far western portion of the watershed in J.W. Corbett wildlife management area received about 5” of rain.

Flows over Lainhart Dam ranged from 8 to 92 cfs with a mean flow of 55 cfs for June. There were four consecutive days during June (6/3 – 6/6) when flow was below the Minimum Flow and Level (MFL) of 36 cfs. Throughout June, salinity measured at River Mile 9.1 did not get above 0.5 ppt. There were no measured flows through the S-46 structure or the G-161 supplemental flow structure during June.

Rainfall in June continued our “wetter than normal” trend for 2019, with every month except March having higher than normal rainfall. June rainfall totaled 8.5” which was about an inch (or 12%) higher than the 7.6” normally measured in June. The highest daily total rainfall was 1.4” on June 29 with rain occurring on 26 out of 30 days. Cumulative rainfall for the year through June measured 29.0” which is 27% above the 22.9” typically observed January through June.

June rainfall was somewhat scattered across the watershed. The wetter areas included Jonathan Dickinson State Park and much of Abacoa, which received up



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.

Oyster Spat Monitoring

Oyster spat monitoring for the 23-day period ending June 27 is complete and the oysters are showing much higher than average oyster settlement in both river forks for this time of year. Average settlement density in the Northwest Fork was 5,930 spat m² with 59% of the settlement activity occurring at the downstream site. Average settlement in the Southwest Fork was substantially higher at 10,382 spat m². Spat density observed between the two sites in the Southwest was nearly even between the upstream and downstream sites. Interestingly, we have been observing a shift in oyster settlement patterns since adopting the oyster tile methodology in 2016. Throughout the literature and within our own data, oyster settlement typically peaked during the spring and fall. However, since 2016 we have noticed that the bimodal pattern has largely disappeared and has been replaced with a single uninterrupted season that starts in April and lasts through mid-November (see figure below).

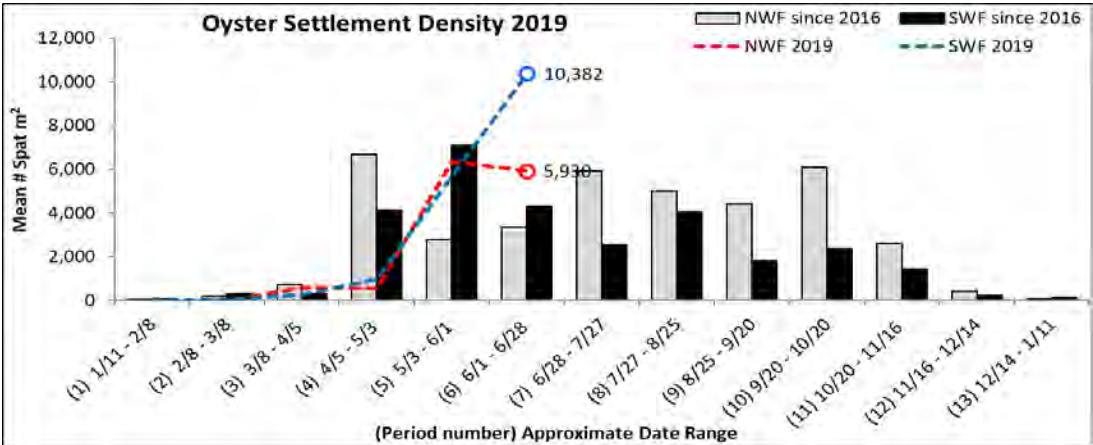


Figure shows mean oyster spat settlement for the Northwest Fork (gray bars) and the Southwest Fork (black bars) since 2016. Dashed lines show oyster spat settlement for 2019 in the NWF (red) and SWF (blue) with the most current density shown next to colored circles.

Seagrass Monitoring

Seagrass monitoring for June is complete. The seagrass declines observed at many of our seagrass sites since 2012 appear to have generally stabilized with no substantial changes over in seagrass presence since last year. In fact, seagrass has appeared to stabilize at all but the Northwest Fork (NWF) monitoring site (purple line in the figure below). At the NWF site, no seagrass was observed during April or June sampling. A reporter from the Palm Beach Post worked with Rachel and Jerry to develop a seagrass article that ran on July 4 ([Link to Story](#)).

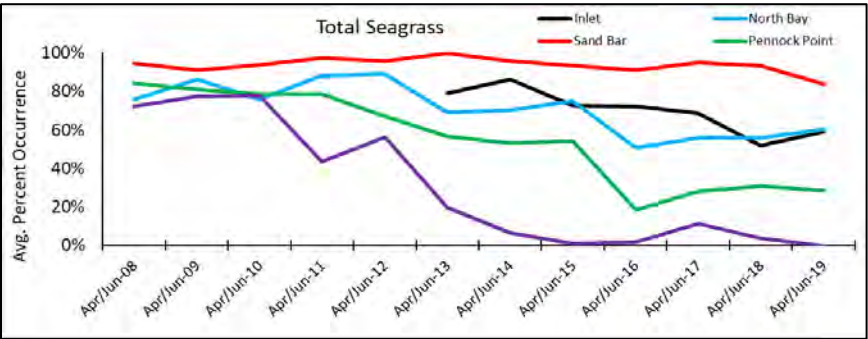
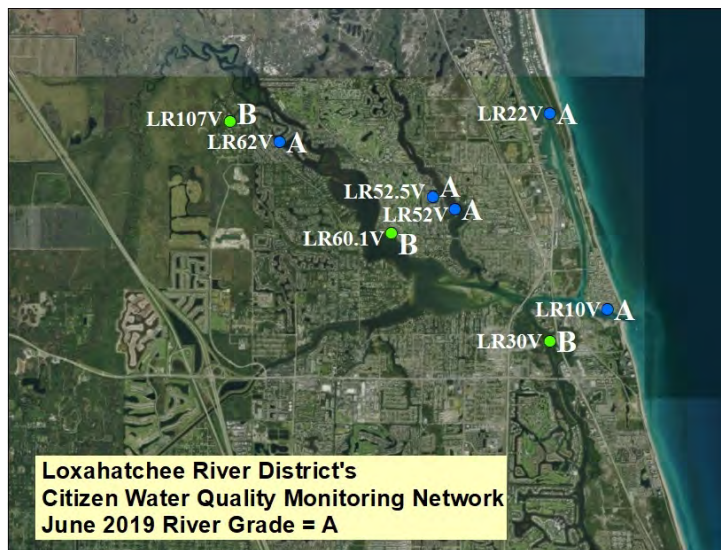


Figure shows mean percent occurrence of total seagrass at each monitoring site since 2008. Data from April and June for each year have been combined for a single average.

Volunteer Water Quality Monitoring Program



The Volunteer Water Quality Monitoring grade for June was again an “A”. The scores were mostly in the “Good” range with a few “Fair” scores for the other parameters at most stations. The water clarity was visible at the bottom (VAB) 73% of the time, with a maximum Secchi disk reading of 6.1 meters in the Jupiter Inlet!

June-19

Site	Temp (F)	Secchi	Salinity	pH	DO	DO%	Color	Vis	Salt	pH	DO	DO%	Color	Score	Grade
LR10V	82.4	VAB	34.4	8.3	6.4	98.2	1.0	VAB	Good	Good	Good	Good	Good	100.0	A
LR22V	82.4	VAB	34.0	8.6	5.5	84.9	1.0	VAB	Good	Fair	Good	Good	Good	90.0	A
LR30V	83.9	1.5	31.0	7.4	6.0	91.8	1.0	Fair	Good	Poor	Good	Good	Good	87.0	B
LR52V	84.2	VAB	15.0	7.9	4.8	67.8	1.0	VAB	Fair	Good	Good	Good	Good	90.0	A
LR52.5V	80.6	VAB	23.0	7.8	5.2	74.2	1.3	VAB	Good	Good	Good	Good	Good	100.0	A
LR60.1V	83.0	VAB	23.0	7.9	5.1	74.8	1.0	VAB	Good	Fair	Fair	Good	Good	87.5	B
LR62V	79.3	1.0	13.5	7.5	3.9	52.3	1.0	Good	Good	Good	Good	Good	Good	95.4	A
LR107V	81.0	VAB	6.4	7.2	3.5	45.5	1.0	VAB	Good	Good	Fair	Fair	Good	80.0	B
Average	82.1													91.2	A

VAB (Visible at Bottom)
DO (Dissolved Oxygen)

scale: 0=poor 2=fair 4=good

Customer Service

Payment Processing

In June we closed out the 2nd Quarter billing with staff processing over 31,300 payments totaling just under \$4.3M. After several consecutive years of gradual increases in the proportion of digital payments (online bill pay, autopay or website) versus manual payments (paper checks and cash) it appears we may have plateaued at 68% digital payments. This high proportion of digital payments are well above industry benchmarks of 45% to 56% digital. We will continue to encourage our customers to pay by digital means to help improve our efficiency that frees up time for our staff to perform other, important work.

The distribution of Q3 2019 bills started on July 12 and are due August 15.

Connection Charge Lien Consolidation

In our continuous efforts to streamline workflows and better serve our customers, we merged the management and processing of connection charge liens into our delinquent account workflow for sewer services. Previously, connection charge liens were managed separately by our attorney’s office. Now our customers can have instant answers to account balances, will see the total amount due to the District on each quarterly statement and other notifications, the total amount due will be clearly reflected on the public record annually, and all at a cost savings to the customers for delinquency processing.

Information Technology

As part of work to address our opportunities for improvement identified in our management assessment and strategic planning initiative, we have completed the configuration of the system for the District's new centralized Digital Library. The new Digital Library, accessible through our new Intranet site, will house all the District's Rules and Policies, SOP's, forms and checklists for each department, a YouTube-style video library, as well as other resources including HR and Safety documents, Training materials and our Analytics portal. The system utilizes Microsoft's SharePoint software and allows us to provide stringent controls over each of the documents by department or team.

An added benefit of the Rules and Policies section is that we have defined workflows to ensure access control through each step of development and approval process, version archival, and other benefits. We look forward to working with staff from all departments to load information into the new system. No more individual copies of procedures with notes in the margins – just one centralized document for everyone to work from!



Figure 1 - Published Personnel Policy with review dates

Figure 2 - Rules and Policies library listing on SharePoint

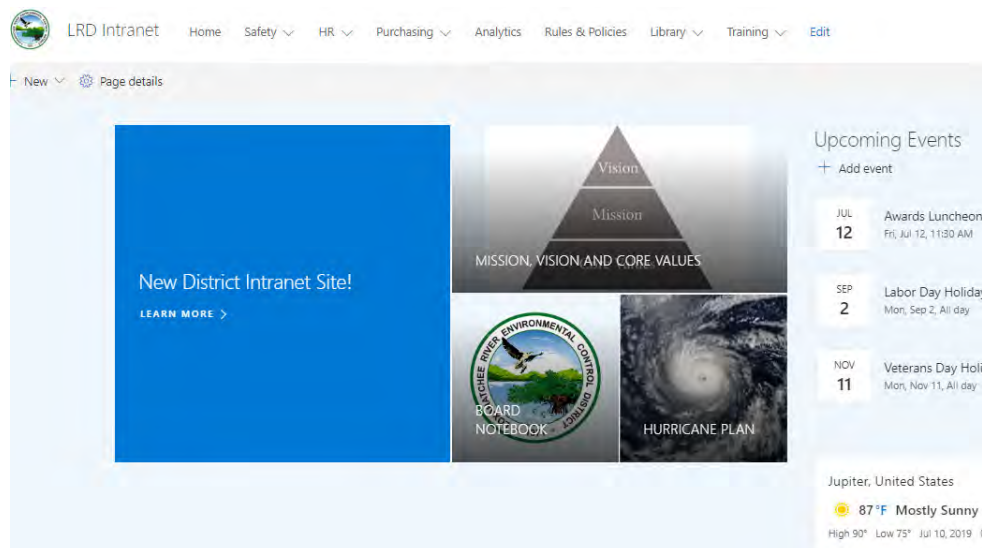


Figure 3 - New District Intranet homepage

Loxahatchee River Environmental Center

July 2019

River Center Summary Statistics



LRD'S ENVIRONMENTAL STEWARDSHIP DASHBOARD



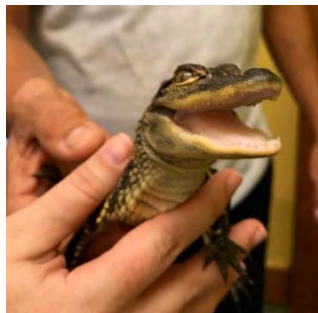
	Total Visitors	School & Camp Visitors	RC Offsite Programs	RC Onsite Programs	RC Staff Guest Appearances	Program Cancellations	Volunteer Engagement	1st Time Visitors	Visitor Satisfaction	Staff Assessment	Environmental Stewardship	Expenses	Program Revenue
Benchmark / Customer Expectation	% of Target	% of Target	% of Target	% of Target	% of Target	% of programs	% of Target	% of Target	Rating Average	Rating Average	Positive Responses	% within budget	% of Target
Green Level	≥ 90%	≥ 90%	≥ 90%	≥ 90%	≥ 90%	< 5%	≥ 90%	≥ 90%	≥ 4	≥ 4	≥ 90%	≥ 85% but ≤ 105%	≥ 90%
Yellow	≥ 75%	≥ 75%	≥ 75%	≥ 75%	≥ 75%	< 10%	≥ 75%	≥ 75%	≥ 3	≥ 3	≥ 80%	≥ 80%	≥ 75%
Red	< 75%	< 75%	< 75%	< 75%	< 75%	> 10%	< 75%	< 75%	< 3	< 3	< 80%	< 80% or > 105%	< 75%
2017 Baseline	103%	103%	179%	127%	141%		118%	50%	4.8	4.0	87%	102%	114%
2018 June	100%	113%	181%	108%	0%	13%	99%	79%	4.7	3.9	93%	93%	75%
July	102%	90%	202%	114%	0%	0%	145%	78%	4.8	3.6	97%	83%	41%
Aug	106%	59%	157%	109%	0%	11%	79%	136%	5.0	3.9	99%	87%	86%
Sept	96%	95%	168%	144%	0%	24%	138%	163%	4.8	3.9	98%	91%	78%
Oct	120%	163%	120%	214%	160%	0%	150%	150%	4.6	4.6	87%	88%	102%
Nov	120%	157%	780%	206%	430%	42%	142%	45%	4.8	3.3	93%	82%	100%
Dec	131%	89%	130%	203%	0%	9%	122%	49%	4.5	4.2	83%	101%	160%
Jan	105%	74%	450%	139%	70%	0%	281%	53%	4.5	4.2	83%	101%	160%
2019 Feb	106%	142%	129%	92%	103%	9%	238%	88%	4.9	4.4	97%	93%	62%
Mar	119%	112%	268%	148%	203%	0%	119%	156%	4.8	4.5	91%	86%	73%
Apr	79%	75%	553%	77%	282%	33%	270%	99%	4.7	4.1	93%	89%	66%
May	113%	113%	960%	164%	0%	0%	250%	74%	4.8	4.1	92%	97%	56%
June	98%	84%	151%	156%	0%	18%	121%	119%	4.6	4.5	94%	91%	61%
Consecutive Months at Green	2	0	13	2	0	0	10	1	13	7	5	5	0
Metric Owner	O'Neill	Harris	Harris/Duggan	Harris/Duggan	Duggan	Harris	Harris	O'Neill	O'Neill	O'Neill	O'Neill	O'Neill	O'Neill

Metric	Explanation
School / Camp Visitors	We had several cancellations resulting in an estimated 225 campers that did not attend a program.
RC Guest Appearance	We were invited to one outreach but had a scheduling conflict and could not attend.
Program Cancellations	Six programs cancelled or were no-shows. Total estimated campers were 225.
Program Revenue	We had an estimated revenue loss of \$1,050 due to cancellations. However, we are running low for the summer compared to last year regardless. We will need to take a look at field trips and see where it is lagging. We may need to adjust targets for next year.

River Center General

Operator and Gator Enrichment

Just before the AustinBlu Fishing Tournament, a few of the operators stopped by the River Center to set up a portable generator for the event. They took a little time to provide some "enrichment" for our new baby alligator. We think they enjoyed the experience too!



Lecture Series

There was no lecture this month due to the July 4th Holiday.

Special Programs

Estuary Exploration - Seine and Dip Netting Experience at Blowing Rocks Preserve



The River Center hosted our family friendly Estuary Exploration at Blowing Rocks Preserve on Saturdays, June 1st and June 22nd. These activities include 2 hours of seine and dip netting in our beautiful Indian River Lagoon. Guests discovered plenty of sea urchins, starfish, pufferfish! We had fun exploring the preserve and splashing around outdoors. We had 35 participants total for the programs. The River Center would like to thank The Nature Conservancy for their continued



support through this partnership.

Aquatic Adventure Summer Camp

The River Center's summer camp season is off to a great start. Already 65 campers, 12 counselors and staff have enjoyed the many activities during the summer (June 3-7, June 10-14, June 17-21, June 24-28).

Nature Navigators

We held two weeks devoted to our Nature Navigators, designed for children ranging from ages 6 to 8 entering 1st, 2nd, and 3rd grade. We traveled throughout Jupiter to visit all parts of the Loxahatchee River. Campers kayaked at Fullerton Island and Sawfish Bay, seine and dip netted at Blowing Rocks Preserve, explored the Lake Worth Lagoon at John D. MacArthur Beach State Park, and snorkeled at Dubois Park. These campers also went on special visits to Busch Wildlife Sanctuary, Jonathan Dickinson State Park, and a fishing trip to Burt Reynolds Park.



River Trekkers

The week of River Trekkers designed for children ages 9 to 10 entering 4th and 5th grades went kayaking, seine and dip netting, snorkeling, swimming, standup paddle boarding, fishing, and all around had a blast! The River Trekkers trekked to the Indian River Lagoon at Blowing Rocks Preserve, Dubois Park, Lighthouse Park, paddle boarded to Fullerton Island, and kayaked at Pine Glades Natural Area, and all the special locations throughout the Loxahatchee River watershed.



Snorkel Camp

The week of Snorkel Camp was designed for children ranging from ages 11 to 13 entering 6th, 7th, and 8th grade. We went kayaking, seine and dip netting, snorkeling every day, standup paddle boarding, fishing, and took a boat trip. We visited Blowing Rocks Preserve, kayaked at Coral Cove Park, Dubois Park, Jupiter Beach, as well as traveled by boat to the Central Embayment of the Loxahatchee River.

Family Fishing Clinic



On June 8th, 15 children and their parents attended our River Center Family Fishing clinic conducted at Burt Reynolds Park. Our fishing clinics are a great introduction for adults and children to learn fishing basics such as knot tying, important items to keep in your tackle box, various dehooking methods and conservation. Participants also tested their casting skills before heading out to the docks to put their new knowledge and skills to the test. Kids get to go home with a goody bag filled with information and giveaways from Florida Fish and Wildlife Conservation Commission.

Sandbar and Seashells Family Boat Tour

This month the River Center held a Sandbar and Seashells Family Boat Tour with Aqua Adventures on June 11th. This boat tour provided the opportunity for fourteen guests to open the throttle and speed around the central embayment visiting sites like the Jupiter Inlet Lighthouse, Bird Island, the sandbar, and the osprey nest. Visitors got the opportunity to anchor up and explore the mangrove island with dip nets and snorkeling equipment. This was the perfect experience to get out on the water and enjoy the Loxahatchee River. We conduct these family emersion opportunities throughout the summer.



AustinBlu Land and Sea Fishing Tournament



On June 15th, the River Center hosted the second annual Austin Blu Foundation Land & Sea Fishing Tournament. While there are numerous fishing tournaments each year, this tournament is unique because it is family friendly with the hopes of encouraging parent/child interactions. Anglers caught fish by land and sea submitting pictures for the release competition or bringing in to be weighed in the

harvest competition. Seventy-five people participated as an angler during the competition. The tournament benefited the Austin Blu Foundation and raised awareness about the importance of boating safety! The tournament awards ceremony was held at The River Center afterwards with 125 people attending with food trucks, a bounce house, different games and activities, and live music. Almost 1,000 fish were caught in the one-day fishing tournament. A special thank you goes out to all presenting, event, and in-kind sponsors that helped make this event a success.



Summer Kayaking

The River Center led a kayak tour from Coral Cove Park on June 20th. Participants explored the Indian River Lagoon along the Intracoastal Waterway and into the Jupiter Inlet Lighthouse Outstanding Natural Area. Kayakers explored the seagrass and mangroves with crystal clear water conditions, birds, fish, and got pictures with a Cushion Starfish. On June 21st, the River Center hosted our Introduction to Kayaking course. Participants in these workshops had the opportunity to practice basic kayak strokes, learn safety tips and demonstrate how to be a proficient paddler on the water. Our courses are conducted by one of our River Center Level 2 Kayak instructors and are great opportunities to become a better paddler. We had a total of 21 participants between the two kayak trips.



Blooming in the Garden

This summer the River Center modified our early learning program from Little Otters Family Fun to Blooming in the Garden. One June 29th we held our first family garden program with 18 children and 14 adults. The program started with a story time and a garden themed craft. Families then moved outside to our garden for a hands-on activity. Each child received a plant to take home to start their own garden!



About Boating Safely Class

The US Coast Guard Auxiliary Flotilla 52, Jupiter FL was pleased to announce at the About Boating Safely Class on Saturday, June 20th that it has **reached the milestone of teaching safe boating courses to over a thousand students in the last three and a half years.** The flotilla teaches the “About Boating Safely Class” at the Loxahatchee River Center in Jupiter, FL. Graduates from the eight-hour class will be eligible to receive the required Florida Boating Safety Education ID Card. June’s class was special because the Tequesta Police Department Youth Summer Program participated with 14 campers completing the class. Students then got the opportunity to go out on the water the following day in the patrol boats. We had a total of thirty-three people take the class.

Outreach

We were unable to participate in any outreach events this month due to scheduling conflicts.

Volunteer of the Month – Finn Rimay



The River Center would like to congratulate Finn Rimay as our Volunteer of the Month. Finn has been volunteering at the River Center since 2016 and has completed over 130 hours of volunteer service. Finn is going into his senior year at William T. Dwyer High School and has been a camp counselor for the past two years. Finn helped as the lead counselor of the River Center’s Aquatic Adventure Summer Camp with the 4th and 5th graders of the River Trekkers. Finn is always there to help in any capacity, anywhere, any time. His kind heart, willingness to serve, his great attitude with campers, and respect for all is what makes him a topnotch volunteer. On behalf of the River Center’s staff, volunteers, and visitors we would like to thank

Finn for his unwavering support and dedication to the River Center’s mission and look forward to his continued success in the future. Thank you, Finn, for all that you do!

Upcoming River Center Events

RSVP at www.lrdrivercenter.org/events-calendar
rivercenter@lrcd.org or 561-743-7123

July 20, 9 am – 11 am: Kayak Tour – Pine Glades Natural Area: Join the River Center for our Public Kayak Tour to Pine Glades Natural Area. Paddle along through the freshwater marsh on our naturalist led tour for great views of local wildlife. All equipment will be provided but interested participants should bring water shoes, sunscreen, and plenty of water! The cost for this program is \$20 per person. Make sure to reserve your spot today! Space is limited!

July 27, 10 am – 12 pm: Lagoon Exploration: Join the River Center in a day of estuary exploration at our Family Seine and Dip Netting Experience at Blowing Rocks Preserve! Activities will include exploring our local waterways through dip netting and seining. Guests are welcome to bring their own buckets and dip nets. Please make sure to bring sunscreen, water shoes, and plenty of water!

August 2, 12 pm – 1 pm: Lecture – **No lecture this month.**

August 3, 9 am – 12 pm: Family Fishing Clinic: Don't miss out on this exciting fishing opportunity with the River Center. Fishing clinics are a great way for kids to learn the basics of fishing methods and tactics! Make sure to join us for an engaging overview that includes knot tying, fish identification, and of course fishing! Parents are encouraged to accompany their kids and participate in the clinic. The cost is \$10 per child. Interested participants should bring water, sunscreen, a hat, and sunglasses.

August 7, 9 am – 11 am: Kayaking 101: Join the River Center for our Intro to Kayaking: Kayak 101 workshops! Participants in these workshops will learn basic kayak strokes, safety tips and how to be a proficient paddler on the water. This course will be conducted by a Level 2 Kayak instructor and all equipment will be provided. Registered participants need to bring water, water shoes, and comfortable clothing that can get wet. Registration is required to attend. Space is limited.

August 7, 10 am - 12 pm: Sandbar & Seashells Boat Tour: Join the River Center for an exciting family-friendly boat tour! Hop on-board the Osprey for a trip up the Central embayment of the Loxahatchee River. Hunt for shells and creatures at the sandbar and soak up some sunshine! Make sure to bring water, snacks, water shoes, and snorkel gear! The boat will launch from Burt Reynold's Park. Registration is required to attend. Space is Limited!

August 8, 9 am – 11 am: Kayak Tour: Join the River Center our public kayak tour to Coral Cove Park. Discover Jupiter's beautiful waterways on this naturalist led tour. Launching from of Coral Cove, guests will paddle through the beautiful blue waters of the Intracoastal. Don't miss out on this exciting kayaking excursion! Kayak Difficulty Level: Easy, all paddler levels welcome. All equipment will be provided but interested participants should bring water shoes, sunscreen, and plenty of water! The cost for this program is \$20 per person. Make sure to reserve your spot today! Space is limited!

August 9: Jr. Angler Fishing Tournament Fish Fry: The Loxahatchee River District's River Center, in partnership with Fishing Headquarters, is delighted to announce the winners of the 6th Annual Jr. Angler Fishing Tournament at the culminating Fish Fry Event. Prizes are awarded to first, second and third place in four different age group and then an overall Grand Prize winner. The contest is run over the course of several weeks instead of just a single day of competition. In addition, the contest awards points not only for the number of fish caught, but also for the number of different species represented in the submissions. These innovative guidelines encourage contestants to spend time throughout the summer exploring the diversity of habitats and fish species in our Palm Beach and Martin Counties.

August 10, 10 am – 11:30 am: Bloomin' in the Garden: Let's go explore! Join the River Center for our summer Bloomin' in the Garden program, designed for children ages 3-7. The program will start at 10:00 am in the River Center with a story time and a garden-themed craft. We will then move to our garden for a garden themed hands-on activity. When it's time to go home, children will receive a plant to take home to start their own garden! So, don't miss this exciting opportunity for your little ones to enjoy nature! Adults and children should come prepared and dress comfortable for being outside in the garden. All equipment will be provided, and this program is free of charge. Donations are always welcome. Please RSVP to attend!

August 17, 8 am – 4 pm: Boating Safely Class: The River Center continues to collaborate with the US Coast Guard Auxiliary "Flotilla 52" to provide a series of Boating Safely Classes targeted specifically to young boaters in our community. These classes are provided through a generous sponsorship by the AustinBlu Foundation, a not-for-profit dedicated to raising awareness and promoting educational programs to improve boater safety. There is no cost for this class, however a deposit is required to reserve a seat. The deposit of \$10 will be refunded in full to all students who complete the class. Recommended for children 12 years and up.



Effects of chronic pesticide exposure on an epibenthic oyster reef community

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ABSTRACT

In recent decades, oyster reefs have been deteriorating throughout North America as a result of multiple interacting anthropogenic stressors, including pesticide pollution. Here we elucidated the potential chronic effects of the commonly utilized pesticide, carbaryl, on oyster reef communities in the Loxahatchee River Estuary in southeast Florida. Though carbaryl had a limited effect on total epifaunal community diversity, species richness and evenness, the results of this experiment indicate that carbaryl significantly shifted crustacean community composition, resulting in a substantial loss in total crustacean abundance. One crustacean in particular, *Americorophium* spp. (tube building amphipod), was significantly less abundant within the carbaryl treatment, driving the shift in crustacean community composition. Ultimately, our results signal that pesticide pollution in estuaries will negatively impact crustaceans. Over time, this may shift benthic community composition, potentially disrupting species interactions and threatening valuable economic and ecosystem services.

1. Introduction

Coastal marine and estuarine ecosystems are among the most productive ecosystems globally (Kennish, 2002; Luisetti et al., 2014). Oyster reefs in particular play a critical role in providing valuable ecosystem services such as carbon sequestration, filtration of water along with improvement of water quality, and habitat provisioning for epifauna including crustaceans, mollusks, and other oysters (Grabowski and Peterson, 2007; Layman et al., 2014). Further, oyster reefs harbor a wide diversity of small cryptic species that stimulate secondary production and drive the transfer of energy within oyster reefs (Edgar and Aoki, 1993; Adams, 1976; Yeager and Layman, 2011; Abeels et al., 2012). Because of their proximity to developed coastlines and urban centers, oyster reefs are particularly susceptible to non-point and point source nutrient and chemical pollution from wastewater and stormwater runoff, septic tank discharges, and groundwater flow, which can have deleterious effects on population, community, and ecosystem dynamics (Kennish, 2002). As a result, oyster reefs have been rapidly declining throughout the world, largely due to anthropogenic activities acting in concert with shifting environmental conditions (e.g., freshwater discharge) (Jackson, 2008; Beck et al., 2011; Zu Ermgassen et al., 2012). An estimated 85% of oyster reefs have been lost globally, and many North American bays have lost over 99% of oyster reefs with

complete loss of function (Beck et al., 2011).

One stressor contributing to this decline may be pollution in the form of pesticide runoff. There is growing evidence that pesticides can accumulate to toxic levels in coastal marine habitats and degrade benthic invertebrate communities (Bay et al., 2005; Anderson et al., 2007; Ranasinghe et al., 2007; Holmes et al., 2008; Werner et al., 2010; Phillips et al., 2010a; Phillips et al., 2010b; Lao et al., 2010; Anderson et al., 2014). However, there are few studies describing the effects of chronic pesticide exposure on oyster reef communities in tropical-subtropical estuaries. There are several mechanistic pathways by which pesticides are transported into estuaries. Pesticides are widely used in agricultural settings as well as in many homes and residential gardens and may enter estuarine and coastal environments in stormwater runoff following heavy rain events, or through daily water use activities (Stoner and Arrington, 2017). Once in a water body, pesticides can exert both lethal and sub-lethal effects on aquatic organisms. For example, sediment and water samples collected from a Californian estuary contained highly toxic levels of organophosphate and pyrethroid pesticides driving mortality in various crustaceans in acute toxicity bioassessments (Anderson et al., 2014). Additionally, Schroeder-Spain et al. (2018) examined the effects of pesticides on the blue crab (*Callinectes sapidus*) which is both an important predator and prey species in estuarine systems. Following acute exposure to pesticides, blue crab

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mortality occurred at high concentrations of pesticides (100 µg/L), and exposure to low concentrations (1–10 µg/L) had sub-lethal effects on the crabs, resulting in altered behaviors, decreased muscle function, and increased reaction time (Schroeder-Spain et al., 2018). As such, pesticide pollution can influence invertebrate populations directly via toxicity or indirectly through decreased foraging, or by increasing predation risk (Schroeder-Spain, 2017). Although there is a need to understand the effects of acute pesticide toxicity on valuable species, few studies have examined the effects of chronic pesticide exposure on estuarine communities.

One common pesticide in the United States that could affect benthic estuarine organisms is carbaryl, a broad-spectrum organocarbamate (Donaldson et al., 2002). Carbaryl works by inhibiting acetylcholinesterase in arthropods, causing death by disrupting the nervous system (Dumbauld et al., 2001; Relyea, 2005). Commercially available as Sevin Insecticide, carbaryl was ranked as the number one most commonly used insecticide in the U.S. home and garden market (Grube et al., 2011). Although insecticides are more commonly used in terrestrial systems to deter insect predation on plants, carbaryl has also been used in intertidal oyster farming practices (Simenstad and Fresh, 1995). Since the 1960s oyster growers in Willapa, Bay (Washington State, USA), have treated farmed oyster beds with carbaryl in alternating cycles of short-term exposure to protect their stock from burrowing thalassinid shrimp (Feldman et al., 2000; Dumbauld et al., 2001). Numerous studies have evaluated the lethal and sub-lethal effects of carbaryl on marine organisms (Estes, 1986; Fulton and Key, 2001; Canty et al., 2007; Schroeder-Spain et al., 2018); however, there is a paucity of data regarding effects of chronic carbaryl exposure in estuarine ecosystems, especially oyster reefs. It is critical to identify the impacts of chronic exposure to pesticides because it is likely that prolonged exposure to pesticides could substantially degrade ecosystems through cascading and multiple-stressor effects. To this end, the goal of this study was to determine whether chronic carbaryl exposure would alter oyster reef community composition in a sub-tropical estuarine waterbody. In having a better understanding of the effects of carbaryl exposure on oyster reefs, we are providing resource managers with a holistic understanding needed to fully assess anthropogenic impacts on oyster reefs.

2. Methods

2.1. Study area

We conducted this experiment in the Southwest Fork of the sub-tropical Loxahatchee River Estuary in Jupiter, Florida (Fig. 1). At this site, salinities ranged from 0.1 to 34.7 ppt with a mean of 11.2 ppt and water temperatures ranged from 25 to 32 °C (available at: <https://loxahatcheeriver.org/river/river-keeper/>), providing suitable oyster habitat requirement (Barnes et al., 2007). The Loxahatchee River Estuary covers roughly 4 km², drains a watershed of approximately 700 km² and flows into the Atlantic Ocean at the Jupiter Inlet (Ridler et al., 2006). The watershed covers a variety of habitats including riverine wetland and cypress communities, and estuarine mangroves, oyster reefs, and seagrass beds. Although the system is currently flow managed, the combination of altered freshwater inputs and deteriorating water quality (see Stoner and Arrington, 2017) have driven shifts in oyster bed community composition and ecosystem function (Van Arman et al., 2005; Roberts et al., 2008; Parker et al., 2013; Jud, 2014), emphasizing a need for effective resource management and restoration. Although water quality is regularly monitored in the Loxahatchee River Estuary, monitoring for pesticides has been limited.

2.2. Experimental design

In order to test the effects of carbaryl on an estuarine oyster reef, we used a method developed by Poore et al. (2009) using slow-dissolving

plaster blocks containing carbaryl. The carbaryl blocks were made by mixing Plaster of Paris, 80% carbaryl wettable powder and cold water (Whalen et al., 2013). As a procedural control, additional plaster blocks were made using the same method without the addition of carbaryl. The blocks were allowed to dry and harden and were then removed from their molds and affixed to strings (Fig. 2).

To test the effects of carbaryl on oyster reef community composition in situ, we designed a field experiment to quantify how carbaryl exposure may influence epifaunal community composition. We tested three treatments in this experiment: carbaryl additions (using carbaryl dissolution blocks), a plaster-control treatment (using dissolution blocks made without carbaryl), and a double control group with no treatment of dissolution blocks. This double control method was implemented to analyze the procedural effects of plaster dissolution on response variables. To simulate the hard-bottom microhabitat of an oyster reef, a string of five, 100 cm² travertine tiles was hung off of T-shape structures constructed with PVC pipes (Fig. 2). We elected to use non-invasive removable tiles rather than a natural oyster reef in order to easily collect and quantify mobile and highly cryptic reef species without removing or damaging a section of natural reef. This method accurately simulates an oyster reef, allowing for oyster spat recruitment and settlement (Metz et al., 2015). Each tile was vertically separated by a 6.35 mm spacer. The lower tile of each string hung 30 cm above the sediment in the shallow sub-intertidal zone, and the top-most tile of each string was at least 30 cm below the surface at low tide. Each dissolution block was then hung directly adjacent (~3 cm) to a string of recruitment tiles.

Eighteen recruitment structures were deployed 2 m apart at the field site. The 2 m structure separation was chosen based on previously established methods to locally increase carbaryl concentrations relative to controls (see Poore et al., 2009; Cook et al., 2011; and Whalen et al., 2013). In total, thirty-six strings of recruitment tiles were hung, with one on each end of each T structure. Strings were randomly assigned to a treatment, and then assigned to a T structure. Dissolution blocks were replaced every 3–5 days and the time and date were recorded. Every dissolution block was weighed before deployment and after retrieval to measure dissolution rates. Sessile and epibenthic organisms were allowed to colonize the tiles for 28 days from September 13th–October 11th 2017, which is a time frame that allows for recruitment and settlement of eastern oyster (*Crassostrea virginica*) spat in the Loxahatchee River estuary (Metz et al., 2015).

2.3. Sample collection, processing, and data analysis

After the 28-day experiment, both sessile and vagile fauna associated with the recruitment tiles were collected by gently enclosing the entire string of tiles in a gallon bag before removing the T structures. All unattached organic material was rinsed off of the tiles and strained through a 500 µm sieve. All strained material was preserved in 70% ethanol and stained with a 10% Rose Bengal dye solution. All of the epifauna were then identified to the lowest taxonomic level practical, quantified, and recorded. After the tiles had been rinsed, they were allowed to dry overnight. A dissecting microscope was used to analyze and enumerate all sessile fauna on the middle three tiles as outlined in Haven and Fritz (1985).

The initial and final weights of the dissolution blocks, as well as the date and time of deployment and collection, were then used to determine the rate of dissolution of blocks (Thompson and Glenn, 1994) and dissolution of carbaryl (80% by dry weight). The following equation was used where D is dissolution rate, W_i is initial weight, W_f is final weight, and θ is total time (in days) dissolving:

$$D = \frac{W_i - W_f}{\theta}$$

$$D_{\text{carbaryl}} = D \times 0.8 \times 0.10$$

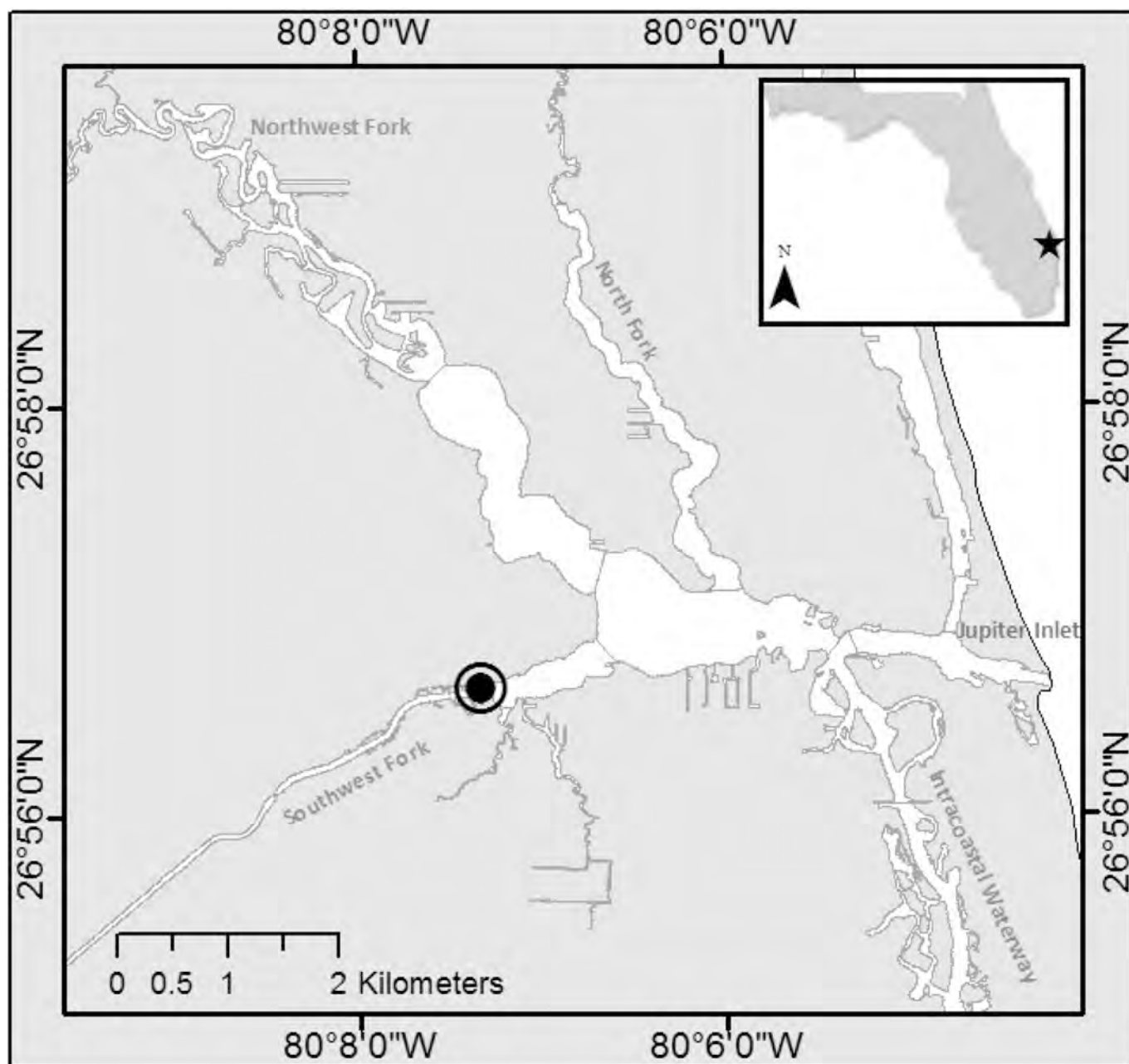


Fig. 1. Map of the study site, indicated with a bullseye, within the Loxahatchee River Estuary, Jupiter, FL.

When comparing overall mean density between treatments, each tile string was treated as a discrete sample in which mean standardized faunal densities were calculated across the middle three tiles for each tile string. One-way ANOVAs were used to test for difference in individual species densities between treatments, and the non-parametric Kruskal-Wallis test, was used when unequal variance was identified. p -Values ≤ 0.05 were considered statistically significant, while p -values between 0.05 and 0.10 were considered marginally significant.

Community composition dissimilarities were analyzed on a community wide basis (total fauna) and within the crustacean community. Multidimensional scaling (MDS) plots were used to visualize the similarity and dissimilarity of macrofaunal community compositions (based on a Bray-Curtis resemblance matrix) by carbaryl, plaster, and control treatments. The vectors on the MDS plots (set at a Pearson's R Value of 0.75) were used to identify which species were driving the similarities within and dissimilarity between treatments. Permutational Analysis of Variance (PERMANOVA) and post-hoc pair-wise PERMANOVA tests

(set at 999 unique permutations) were used to identify significant differences between treatments and similarity percentages (SIMPER) were used to verify the individual species driving community differences between treatments (Anderson, 2001). Community composition analysis was conducted using Primer PERMANOVA⁺v7.0 and all other analyses using with SPSS v24 statistical software.

3. Results

The initial and final weights of the dissolution blocks, as well as the date and time of deployment and collection, were used to determine the rate of dissolution of blocks as well as dissolution of carbaryl. When the carbaryl dissolution blocks were deployed, each contained approximately 15 g of carbaryl by dry weight and ended with approximately 8 g of carbaryl by dry weight, with an average carbaryl dissolution rate of 2.64 ± 0.3 g/day; the average dissolution of carbaryl blocks and plaster blocks was quite similar at 32.9 g/day and 30.0 g/day,

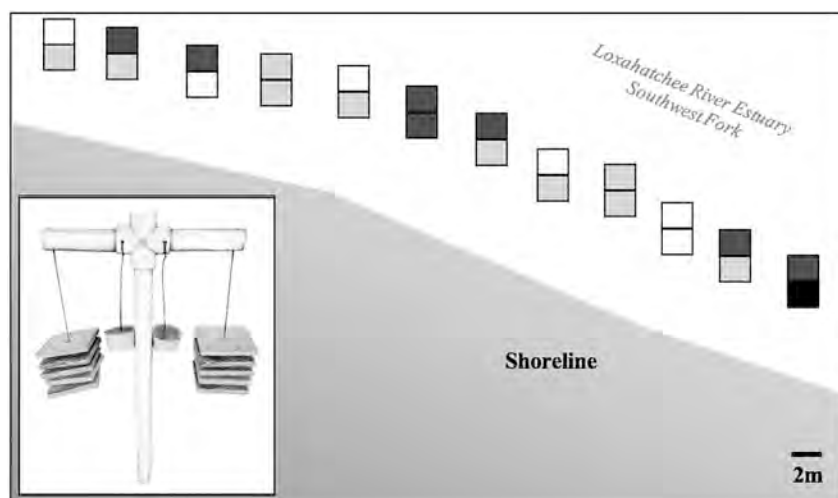


Fig. 2. Illustration of site layout showing paired experimental treatments: control (□), plaster (■) and carbaryl (■). Inset image of individual T-structure with attached recruitment tiles and carbaryl dissolution blocks.

respectfully. The carbaryl blocks dissolved approximately 9% faster than the plaster blocks. The differences in dissolution rates in both plaster and carbaryl (± 5 g day) varied between deployment periods, likely due to changing environmental conditions throughout the 28-day study period.

After 28 days, 27 taxa were collected from or observed on the recruitment tiles. The most abundant and frequently observed invertebrates were molluscs and arthropods (Table 1). The most abundant organisms were tube-forming serpulid worms (*Hydroides* sp.), eastern oyster (*C. virginica*), ivory barnacles (*Balanus eburneus*), gammaridean amphipods (*Hourstonius laguna*), and tube building amphipods (*Americorophium* spp.). Mean taxa richness, diversity, and evenness (based on the Shannon-Wiener Diversity Index) were lowest within the carbaryl treatment, although not significantly so (Kruskal-Wallis test, $p > 0.05$; Table 1). The overall mean density of individuals per sample was slightly lower within the carbaryl treated samples, showing a 5% decrease in total fauna compared to control samples. However, within the crustacean community, the mean density of individuals was 43% less in the carbaryl treatment compared to the control treatment (Fig. 3).

Multidimensional scaling (MDS) plots were used to visualize the dissimilarity between and similarities within the community compositions of the carbaryl, plaster, and control treatments where the vectors

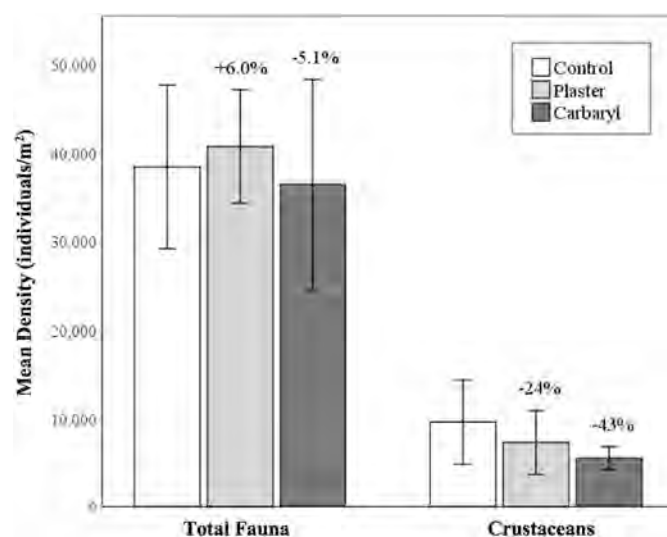


Fig. 3. Mean density of total organisms and crustaceans between treatments. Percentages indicate difference in organism density relative to the control treatment. Error bars indicate 95% confidence interval.

Table 1

Mean abundance (individuals/m²) \pm standard deviation of the most-abundant animals found on recruitment tiles between treatments. Species are listed by classification and order of abundance within the control treatment. * indicates marginal difference between treatments (ANOVA or Kruskal-Wallis, $0.05 < p < 0.10$). ** indicates significant difference between treatments (ANOVA or Kruskal-Wallis, $p < 0.05$).

Scientific name	Common name	Control	Plaster	Carbaryl
Mollusca				
<i>C. virginica</i>	Eastern oyster	18,560 \pm 1506	19,440 \pm 4343	20,450 \pm 7321
<i>G. demissa</i>	Ribbed mussel	1450 \pm 633	1060 \pm 396	1425 \pm 608
<i>Neritina</i> spp.	Nerite snail	118 \pm 84	152 \pm 104	76 \pm 39
Arthropoda				
** <i>Americorophium</i> spp.	Tube building amphipod	4392 \pm 3197	2406 \pm 765	998 \pm 175
* <i>B. eburneus</i>	Ivory barnacle	4960 \pm 1306	8170 \pm 3366	5616 \pm 826
<i>H. laguna</i>	Amphipod	2952 \pm 589	3026 \pm 1263	2708 \pm 1082
Insecta				
<i>S. stanfordi</i>	Insect larvae	2182 \pm 1122	1814 \pm 2293	1084 \pm 760
<i>B. amphitrite</i>	Amphipod	1574 \pm 740	1402 \pm 1059	1540 \pm 704
<i>B. amphitrite</i>	Purple striped barnacle	976 \pm 625	2273 \pm 1518	1670 \pm 215
* <i>Isopoda</i>	Isopod	176 \pm 65	190 \pm 45	110 \pm 49
Other				
<i>Membranipora</i> spp.	Encrusting Bryozoan	440 \pm 203	403 \pm 130	496 \pm 215
Nereididae	Nereid worms	74 \pm 30	80 \pm 70	68 \pm 33
<i>Hydroides</i> sp. ^a	Serpulid worm	55.6%	50.4%	50.6%

Notes: Sessile organisms were quantified on the tile surfaces from the middle three tiles totaling an area of 0.06 m². The vagile organisms were rinsed off the entire string of tiles from an area of 0.1 m².

^a Serpulid worms were quantified using percent cover because densities often exceeded 50,000 individuals/m².

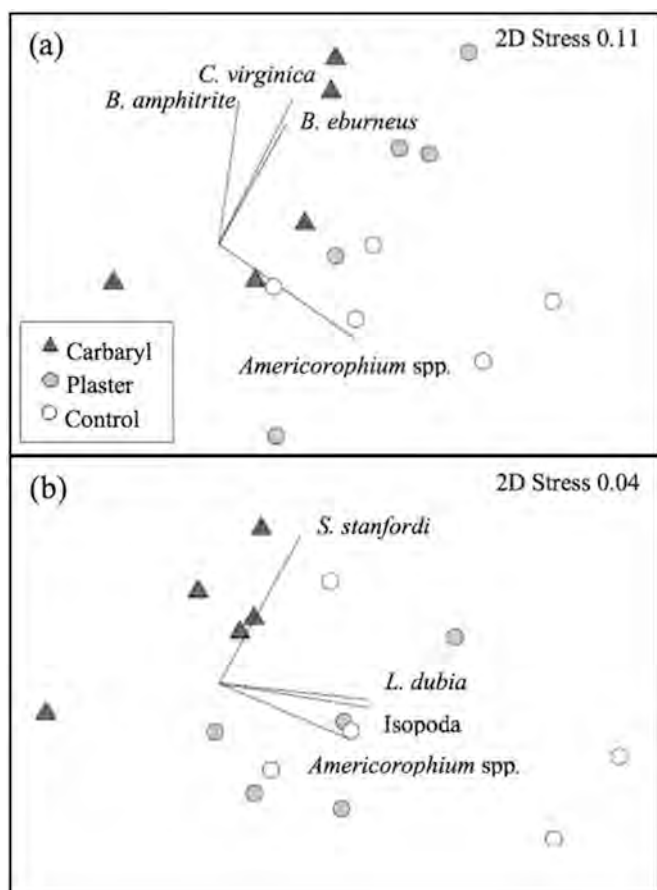


Fig. 4. Multidimensional scaling (MDS) plot illustrating dissimilarity in the community composition between treatments. The distance between two points is proportional to degree of dissimilarity (Pearson's $R = 0.7$, stress < 0.15). PERMANOVA used to measure significant difference between treatments. (a) represents dissimilarity between total fauna in the community ($p > 0.05$). (b) represents dissimilarity in crustacean community ($p < 0.05$).

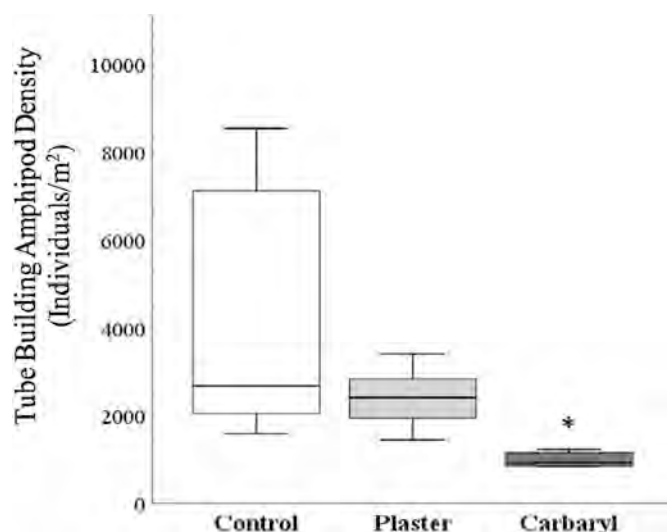


Fig. 5. Mean density of *Americorophium* spp. between treatments. * indicates significant difference in density between control and carbaryl groups at the $\alpha = 0.05$ level (Kruskal-Wallis test, $p = 0.008$).

indicate drivers of dissimilarity between treatments (Fig. 4). Among the entire community of fauna found on the tiles, the dissimilarity between the carbaryl treatment and the control treatment was marginally

insignificant (pair-wise PERMANOVA, $p < 0.10$; Fig. 4a). Among crustaceans, a significant dissimilarity was observed between the carbaryl group and both control groups (pair-wise PERMANOVA, $p < 0.05$; Fig. 4b). The primary drivers of these dissimilarities were the lack of *Americorophium* spp. and relative increase in abundance of tanaids (*Sinelobus stanfordi*) within the carbaryl treatment. As indicated by the vectors within the MDS plots (Fig. 4), one crustacean in particular, *Americorophium* spp., drove the dissimilarity in community compositions between treatments. Independent sample Kruskal-Wallis test results indicated that *Americorophium* spp. was the only individual species to show a significantly lower density within the carbaryl treatment, compared to the controls ($p < 0.05$; Fig. 5). The mean density of *Americorophium* spp. was 77% less in the carbaryl treatment when compared to the control, driving 56% of the overall dissimilarity in community composition between control and carbaryl treatments. Only one other species, *Grandidierella bonnieroides*, an amphipod, was marginally lower (Kruskal-Wallis tests, $p = 0.06$ – 0.10) in carbaryl treatments.

4. Discussion

In this study, we considered chronic carbaryl exposure on oyster reef fauna in a dynamic estuarine system. Overall, carbaryl influenced oyster reef communities, though the effects varied by species. The foundation species in the oyster reef community, *C. virginica*, was unaffected by carbaryl at the levels tested in this study. However, carbaryl exposure had a strong effect on crustacean community composition, reducing crustacean abundance by 43%. This trend may largely be explained by the deleterious effects carbaryl exerted on tube-building amphipods. Interestingly, carbaryl had less of an effect on overall oyster reef community composition in this experiment.

Short term exposure to pesticides can lead to a reduction in the activity and viability of cells in filter feeders (e.g., *Mytilus edulis*; Cauty et al., 2007). Here, we did not measure a dramatic decline in the common, filter feeding organisms encountered throughout the study (*C. virginica*, *G. demissa*, *B. eburneus*, *B. amphitrite*, *Hydroides* sp. or *Membranipora* spp.). Future studies should more closely evaluate potential effects of chronic pesticide exposure on these organisms, especially *C. virginica*, which is a foundation species and facilitates the development of oyster reef habitat for many species. However, we did measure a significant decline in *Americorophium* spp., which filter-feeds on phytoplankton (Croteau et al., 2005). Although evaluating specific mechanisms driving species-level differences from carbaryl loading were beyond the scope of this study, it is possible that the mode of filter feeding specific to *Americorophium* spp. may have contributed to the decreased numbers found in the presence of carbaryl. In addition, previous studies have shown that carbaryl is less stable in aqueous solutions and becomes concentrated in soils, subjecting organisms living within sediments to higher concentrations than organisms in the water column (Kanazawa, 1975; Estes, 1986). Since *Americorophium* spp. build their soft tubes out of local sediments and organic materials, this may explain the particularly strong impact of carbaryl on *Americorophium* spp. measured in this study. Whether by specific feeding mode or sediment reworking activity, it is likely that the physiology and ecology of *Americorophium* spp. are driving the differences between treatments. For instance, Anderson et al. (2014) found that *Americorophium* spp. in the San Francisco Estuary occurred in less polluted and least toxic field sites and Thompson et al. (2012) lists *Americorophium* spp. as sensitive taxa in tidal freshwater habitats. As investigation into pesticide pollution proceeds, the specific pesticide tolerances of these species will need to be measured. Based on the detected sensitivity of *Americorophium* spp. observed in this study, and similarly reported in Anderson et al. (2014), we recommend these species could be used as potential bioindicators to detect pesticide pollution, primarily, in oligo-mesohaline (0–18 ppt) habitats, where they occur in South Florida (Evans et al., 2010).

Within oyster reefs, crustaceans are among the most abundant taxa, second only to bivalves (Bahr Jr, 1976; Bahr and Lanier, 1981, Wells, 1961). It has been well documented that small crustaceans are a key link in the transfer of energy between primary producers and secondary consumers and that these species compose a large proportion of the diets of juvenile fish and other mid-level predators (Adams, 1976; Edgar and Aoki, 1993; Yeager and Layman, 2011; Abeels et al., 2012). A stable isotope study by Abeels et al. (2012) revealed that crustaceans are included in all lower trophic levels and were consumed by every secondary consumer studied on a sub-tropical oyster reef. An introduction of pesticides into an estuarine ecosystem could potentially impact the abundance and composition of crustacean communities. A shift at this trophic level could result in cascading effects throughout the ecosystem including a reduction in biomass, a loss of diversity, and a decrease in available prey for fish and other secondary consumers.

Although there were no significant differences in species diversity and richness between the treatments, there are several mechanisms that could potentially explain these variable results. Based on the average salinity (11.2 ppt) and the dissolved fraction of the dissolution blocks, we estimate an average flow velocity of 15 cm/s over the course of this study (Thompson and Glenn, 1994), which falls within the average range 5–25 cm/s of flow velocities reported on oyster reefs (Reidenbach et al., 2013), and within the maximum current velocities (17 cm/s) previously measured in the South West fork of the Loxahatchee River Estuary (Patra, 2003). Although low compared to high energy systems, over time, these flow rates would have caused the carbaryl to dissipate rapidly; averaging $2.6 (\pm 0.3)$ g carbaryl/day. Thus, we regularly replaced the blocks (every 3–5 days) to achieve chronic exposure over the 28-day study period. We did not measure carbaryl in ambient waters during this study. However, with a solubility of 110,000 µg/L in estuarine waters (Poore et al., 2009), and a dissolution rate of 2.6 g/day, we estimate that the average concentrations of carbaryl were approximately 8800 µg carbaryl/L; although the concentrations would have varied greatly throughout the tidal cycle (0–110,000 µg/L). On average the carbaryl concentrations reported here are much higher than 100 µg/L reported in well-mixed estuarine waters (Schroeder-Spain, 2017), and even on the high end of acute (24–48 h) exposure limits reported for invertebrate species (30–7200 µg carbaryl/L; Feldman et al., 2000). These mean concentrations of carbaryl (8800 µg/L) seem quite high compared to the acute toxicity studies, yet, unlike the acute toxicity studies, this experiment was not conducted in a closed system. Thus, despite regularly replacing the carbaryl dissolution blocks it is likely that the variations in flow direction and velocities dissipated the effectiveness of our carbaryl treatments (Whalen et al., 2013). Therefore, it is possible that some applications of carbaryl could enter the oyster reef at higher concentrations than those used here. In turn, this would magnify impacts to the oyster reef community.

Oyster reefs are one of the most ecologically and economically valuable habitats within estuaries. It is not well known why oyster reefs are in decline, yet it is apparent that a combination of stressors could be in effect. Here, we were able to detect the negative effects of chronic pesticide exposure on crustaceans. Additional studies must focus on acute versus chronic effects of pesticides on estuarine communities. Our exposure time was limited to 28 days and it is possible that carbaryl could have greater impacts on estuarine community composition over a larger time period. Furthermore, carbaryl could be a relatively mild pesticide in marine environments with variable toxicity and a relatively short half-life (Armstrong and Grosby, 1991). Future work must consider the response of both individual species and the entire community to various degrees of pesticides to determine specific toxicities and tolerances. Additionally, mixtures of pesticides commonly used in agricultural and gardening practices including pyrethroids and organophosphates could increase the toxicity to marine species, lingering in the water and sediment, or bioaccumulating through trophic levels. Future studies should incorporate other pesticides such as herbicides and algaecides to consider the impacts on sensitive marine habitats.

Pesticides such as carbaryl have the potential to significantly alter crustacean communities, which would have cascading impacts on oyster reefs, diminishing their economic and ecological value. In order to better understand these processes, we must place future efforts on the effects of combined stressors, including pesticides, on oyster reef community composition and overall ecosystem function.

CRediT authorship contribution statement

Samantha M. Iliff: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Visualization, Writing - original draft, Writing - review & editing. **Rachel J. Harris:** Conceptualization, Methodology, Project administration, Resources, Supervision, Writing - review & editing. **Elizabeth W. Stoner:** Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Visualization, Writing - review & editing.

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Declaration of Competing Interest

None.

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MEMORANDUM

To: D. Albrey Arrington, Ph.D., Executive Director
From: Travis Bains, CSHO, ENS, Safety Compliance Officer
Date: July 8, 2019
Subject: District Safety Report for June 2019

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 Metrics: June 2019

OSHA recordable injuries: **none**

Lost time injuries: **none**

The District has worked **80,427.3** hours without a DART (**D**ays **A**way **R**estricted **T**ransfer).

The District has worked **172** days without a DART (**D**ays **A**way **R**estricted **T**ransfer).

Safety Committee: *The Safety Committee did not meet during the month of June.*

Training

- Maintenance of Traffic (MOT aka temporary traffic control) – is important to the District because much of our work is conducted in public roads and right-of-ways. This month four staff received new or updated MOT certifications.
- Confined space entry – approximately 55% of District employees are expected to enter confined spaces as part of their job description. Approximately 68% of these staff completed confined space training with 32% still needing training.
- General first aid training is a valuable for the District; such training enables our workplace to be safer and employees to respond to injuries and illness with proficiency. First Aid training is ongoing with approximately 35% of the District employees have completed First Aid training.

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 staff to conduct targeted hazard analyses for the following projects:

Clarifier #1 Rehabilitation

Project includes removal of bridge, center tubes and outer ring plus replacement of degraded components

Primary hazards: confined space, crane rigging and signaling, pinch points, three-point contact while accessing ladders, personal protective equipment

Job Hazard Analysis: completed and reviewed by participating staff

Job site safety assessment conducted

Master Lift Station monthly clean-out

Project includes cleaning grease, grit, and debris that has accumulated in the wet well.

Primary hazards: confined space, hazardous atmosphere, assessing atmospheric conditions, personal protective equipment

Job Hazard Analysis: completed and reviewed by participating staff

Job site safety assessment conducted

Transmission System ARV Inspections

Project includes inspecting and assessing integrity and functionality of air release valves.

Primary hazards: maintenance of traffic, hazardous atmosphere, assessing atmospheric conditions, personal protective equipment

Job Hazard Analysis: completed and reviewed by participating staff

Job site safety assessment conducted

Low Pressure Inspections

Project includes inspecting assets associated with low pressure sewer systems.

Primary hazards: maintenance of traffic, hazardous atmosphere, assessing atmospheric conditions, personal protective equipment

Job Hazard Analysis: completed and reviewed by participating staff

Job site safety assessment conducted

Annual signage

This project includes inspecting appropriateness and sufficiency of safety-related signage associated with District-owned assets. For example, potentially hazardous or dangerous areas are reviewed for appropriate signage, e.g., hazard communication, chemical labeling, noise hazard, confined space, electrical hazard. To date we have completed approximately 40% of identified sites. We expect to have this project completed by August 1.

Safety Quote of the month: *“everyone’s excuse is validated by their opinion”*

MEMORANDUM

TO: Governing Board
FROM: Administration Staff
DATE: July 12, 2019
SUBJECT: Consultant Payments

The following amounts have been reviewed and approved for payment to our consultants for work performed during the prior month.

	<u>Prior Month</u>	<u>Fiscal YTD</u>
Smith, Gaskill & Shenkman, PA	\$27,672.63	\$112,046.26
Hazen	\$2,172.20	\$125,365.76
Holtz	\$17,328.00	\$103,516.45
Mathews		\$343,516.45

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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Neighborhood Sewering:

- 181st Street Gravity Construction Contract
- Island Country Estates Construction Contract

Other:

- Fiscal Year 2020 Budget Assumptions
- Low Pressure General Construction Services Contract
- Olympia Force Main Replacement Construction Contract
- Lift Station 82 Conversion
- LRD/BWS Workshop (Mon, 10/28 @ 1:00pm)