

#### **MEMORANDUM**

TO:

Mayor Gunter and City Council

THRU:

Rob Hernandez, City Manager

TAR

FROM:

Kimberly Bruns, City Clerk

(KB)

DATE:

June 1, 2021

SUBJECT:

June 2, 2021 Regular Council Meeting packet – Additional Information

Please note the following additional information related to your meeting agenda:

Item	Additional Information	Attachment(s) Memo, Map & Presentation	
9.E.(1)	Water Quality Update		
10.A.(2)	LU 20-0011 - Fire and Police Impacts	Memo	

These materials will be uploaded online for iPad users and the public. Paper copies will be also be delivered to the Council Office for those utilizing paper packets.

Attachments (2)

cc: Dolores Menendez, City Attorney

### MEMORANDUM

### CITY OF CAPE CORAL PUBLIC WORKS DEPARTMENT

TO:

Rob Hernandez, City Manager

FROM:

Paul Clinghan, Public Works Director PRC

Michael Ilczyszyn, Assistant Public Works Director

DATE:

June 1, 2021

SUBJECT:

Water Quality Update

### Proactive City actions towards potential Blue Green Algae blooms in tidal canals:

See Attachment 1, Blue Green Algae Action Plan

### Current water quality conditions:

As of Monday, June 1, 2021, the stage of Lake Okeechobee has receded to 12.82 ft, comparable to the period or records 1965 to 2007 average for that day (13.18 ft) but is still higher than last year's stage (11.47 ft). Total inflows to the Lake are 303 cfs, and total outflows are 5,134 cfs. The majority (70%) of Lake outflows are going South through the Everglades Agricultural Areas, the rest is released to the Caloosahatchee River estuary for ecological flows. The releases have stopped to the St Lucie Estuary (S-80) since April 24, 2021, following algae sightings and toxins results. On May 15, 2021, following sightings of Blue Green Algae along the Caloosahatchee River, upstream of S-79, the US Army Corps of Engineers (USACE) reduced releases at S-79 from 2,000 cfs to 1,500 cfs. The intent was to let saltwater intrude up to the freshwater discharges downstream of S-79 and mitigate potential formation of Blue Green Algae blooms in the Caloosahatchee Estuary. On May 29, 2021, flows towards S-79 were further reduced to a weekly average of 1,000 cfs.

Blue Green Algae blooms are present on Lake Okeechobee. In Lee County, further sightings were reported last week. Following the analysis of those samples and the detection of microcystin toxins by the FL Department of Environmental Protection, the FL Department of Health issued health alerts on May 20, 2021, for Alva and Davis boat ramps and on May 21, 2021, for the Franklin Locks. As of June 1, 2021, toxins concentrations had decreased but the health alerts had not been lifted. The US Environmental Protection Agency criteria for Total microcystin toxins is 8 micrograms per liter.

Sample Location	Sampled 5/17-5/18	Sampled 5/24-5/27	
yddiod ar y februar y februar y februar a gymraeth a februar a feb	Total Microcystin Toxin (micrograms/L)		
Orange River - Orange Harbor RV	1.1	pending	
C43 canal - S79 (upstream)	0.891	0.45 1	
Caloosahatchee River - Alva Boat Ramp	4.6	0.301	
Caloosahatchee River - Davis Boat Ramp	35	1.1	

I qualifier indicates that the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

On Thursday, May 27, 2021, the South Florida Water Management District, in collaboration with the Florida Department of Environmental Protection, conducted Blue Green Algae remediation using a peroxide-based algicide application upstream of the Franklin Lock (S-79), in the freshwater portion of the Caloosahatchee River.

Visible Blue Green Algae flecks were reported at Horton boat ramp in Cape Coral during City staff survey on Thursday May 27, 2021 but not at any other sites.

Location	Date	Salinity (ppt)	Conditions
Rosen Park	5/28/2021	8.32	No visible algae
Horton Park	5/28/2021	10.67	Few algae flecks on surface
Jaycee Park	5/28/2021	14.09	No visible algae
Bernice Braden	5/28/2021	12.95	No visible algae
Yacht Club	5/28/2021	17.53	No visible algae

Residents are encouraged to report any sightings of Blue Green Algae to the FDEP website below or call 855-305-3903.

https://www.surveygizmo.com/s3/3444948/Algal-Bloom-Reporting-Form

The application of Nitrogen and Phosphorus fertilizers are regulated by City Ordinance 86-10 in Cape Coral and information can be found here: <a href="https://www.capecoral.net/department/public works/fertilizer ordinance.php">https://www.capecoral.net/department/public works/fertilizer ordinance.php</a>

A patchy bloom of Red Tide (*Karenia brevis*) is present off Southwest Florida. Out of the 26 samples collected in Lee County last week, 1 sample contained medium cell concentrations: Buck Key, NE of Pine Island Sound.

Attachment 1: Blue Green Algae Action Plan (2 pages)

Attachment 2: GIS Analysis Blue Green Algae Bloom Impact Assessment (1 page)

Attachment 3: Map showing drainage basins of the Lake Okeechobee (1 page)

Attachment 3: Current Lake's inflows and outflows from the USACOE (1 page)

PC/MI:mr (Weekly Lake Okeechobee Level and Release Information)

c: Maya Robert, Environmental Resources Manager

Attachment 1: Blue Green Algae Action Plan

### BGHAB-21 (Blue Green Harmful Algal Bloom) Action Plan

Cape Coral initiates Incident Command

Public Works Department in Command—Michael Ilczyszyn designated Incident Commander

Utilities, Fire, and City Manager's office supporting

Weeks 5/24 thru 6/1 Action Plan-Planning and Preparation Phase

#### 1. Scope:

GIS analysis was finalized and will be the basis of future bubble curtain procurement and deployments. A total of 22 openings to our canal network have been identified and considered.

Focus will be on planning and preparation for potential impact. Developing preventative measures within Saltwater Canal Systems adjacent to the Caloosahatchee Estuary. The South Spreader, North Spreader, and Freshwater Canal systems are not part of initial planning/preparation phase.

A separate business unit for BGHAB-21 will be created to procure and record all costs for time and material used for this incident.

GIS mapping and analysis was performed to locate the potentially impacted homes and canals with direct access to the river. Canals were categorized using an "interval scale" system. Potential costs and deployment schedules will be developed based on the GIS analysis.

#### 2. Public information:

The dedicated City website is operational and can be found via the City homepage or at www.capecoral.net/algalbloom

Last week's Waterway Advisory Board agenda was modified. The original discussion with the board was planned to be on Water Quality Improvements. We have amended this to be a presentation on our efforts related to Blue Green Algae.

Following the Board's recommendation, Information regarding a health study of the impact of Blue Green Algae air toxins conducted by contractors of the Center for Disease Control and Prevention has been added to the City website. Further distribution outlets were discussed.

A dedicated Blue Green Algae website with pertinent information on Blue Green Algae sightings, contact information, and reporting details will be republished. The Emergency Management Call Center will be activated to alleviate the 311 Call Center, if needed. Water quality reports will continue weekly with information regarding Blue Green Algae.

### Attachment 1: Blue Green Algae Action Plan (continued)

#### 3. Emergency Planning and Bloom Prevention:

Mandolin Canal Bubble Curtain compressor purchase order to be issued this week. There is a 3 weeks lead time on production and delivery. Estimated time for Mandolin Canal restart is late June.

There is a 3 week build time for all other air compressor cabinets upon issuance of PO, plus another four to six weeks to build the in-water bubblers, then the vendor schedules divers and delivers the product to the City.

Permitting has been discussed with the FL Department of Environmental Protection and the US Army Corps of Engineers.

Coordination and planning have been discussed with Lee County Division of Natural Resources.

Coordination and repartition of tasks has been clarified with FDEP and FDOH and planning coordination is underway with Lee County.

Contact lists will be developed for City, County, State, and Federal employees/elected officials involved in the incident.

FDEP, FDOH, ACOE, Lee County, State and Federal Elected Officials

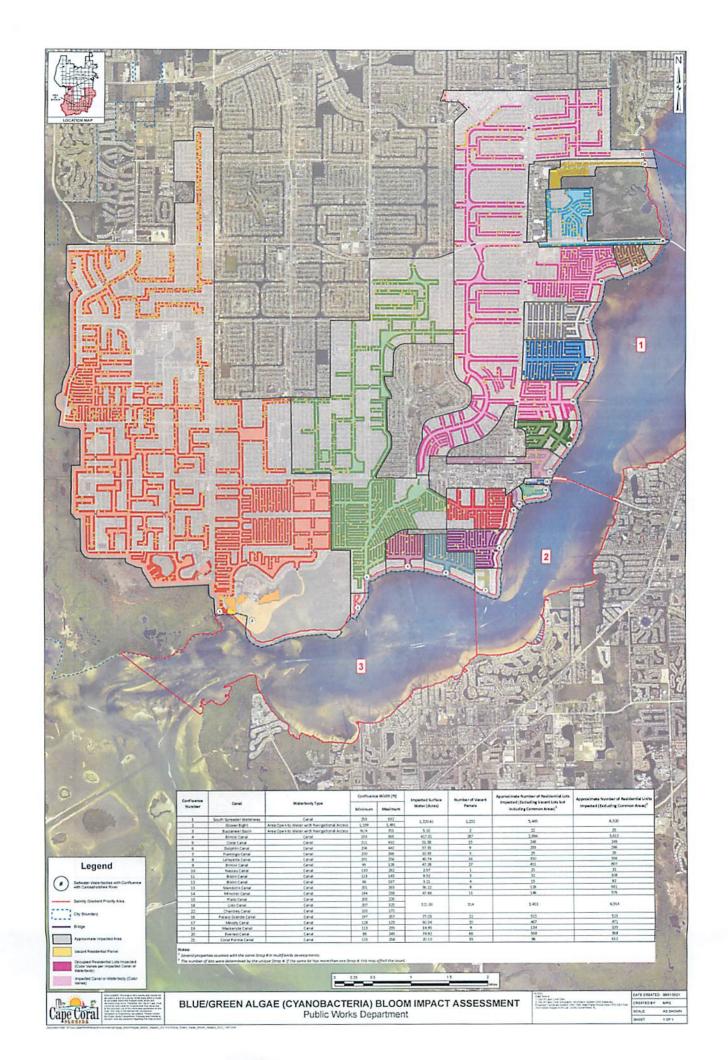
The bubble curtain at Mandolin canal will be reactivated. Contact with vendors will be made to develop and procure additional bubble curtains for high impact canals. City staff will investigate producing inhouse bubbler systems with coarse air and fine air diffuser plates from Aeration Basins.

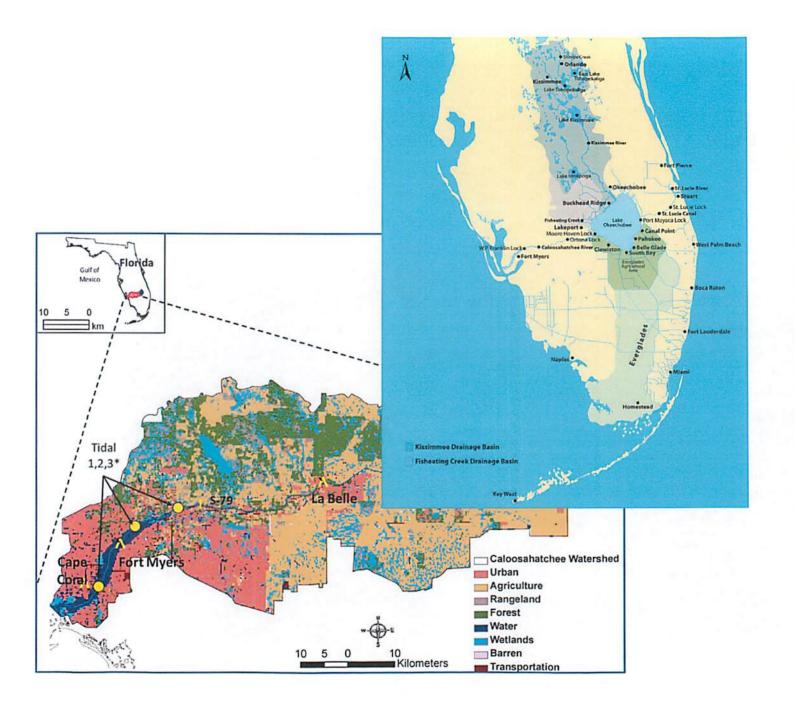
State and Federal Lobbyists will be contacted to discuss potential impacts to Cape Coral residents and businesses. Requesting watchlist for any emergency orders, declarations, executive orders, permitting exemptions, earmarks, or funding.

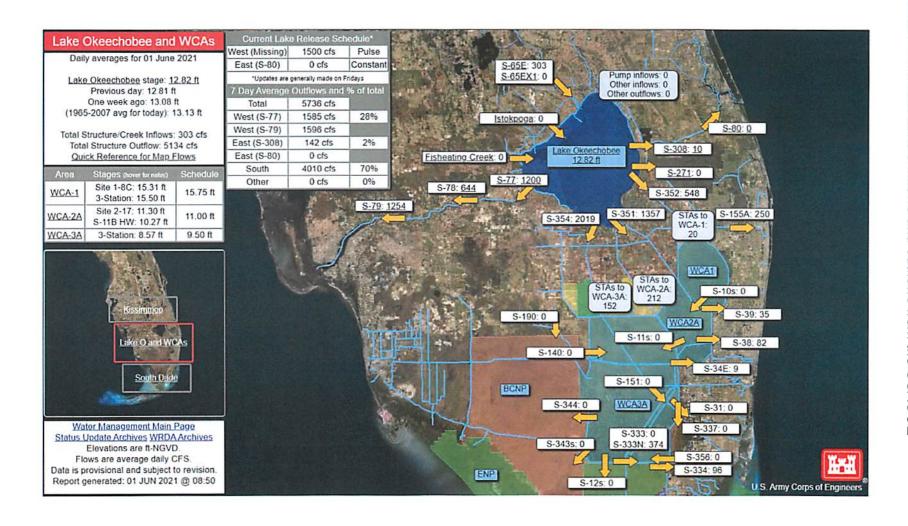
#### 4. Monitoring:

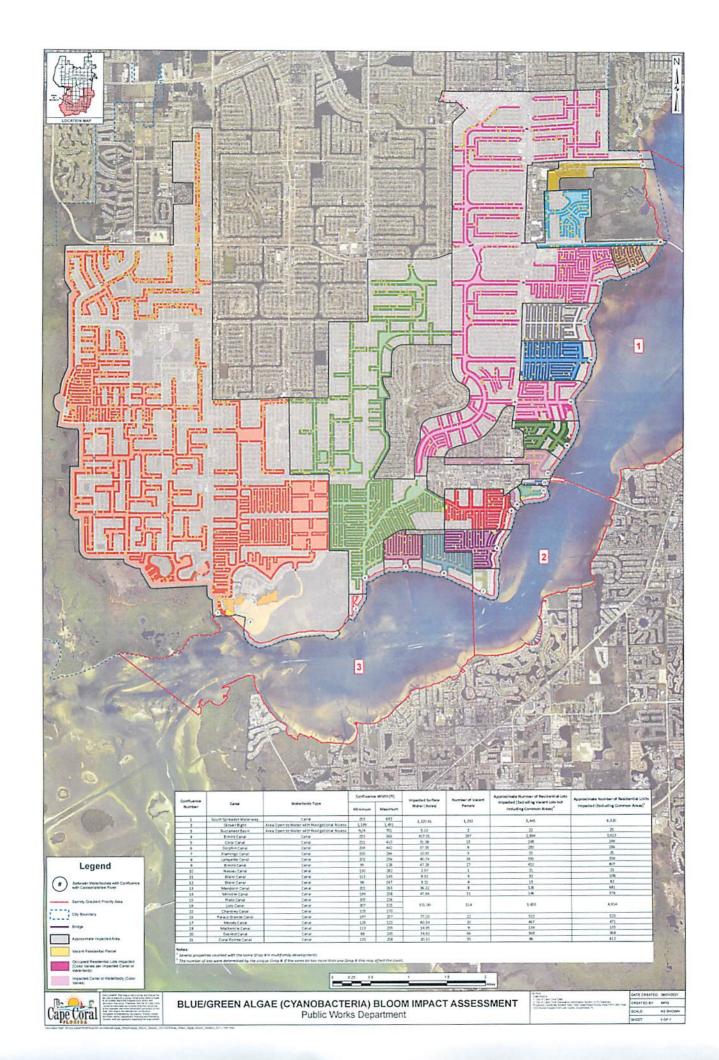
City staff perform blue green algae surveys on Mondays and Fridays, air quality samplers are ready to be deployed.

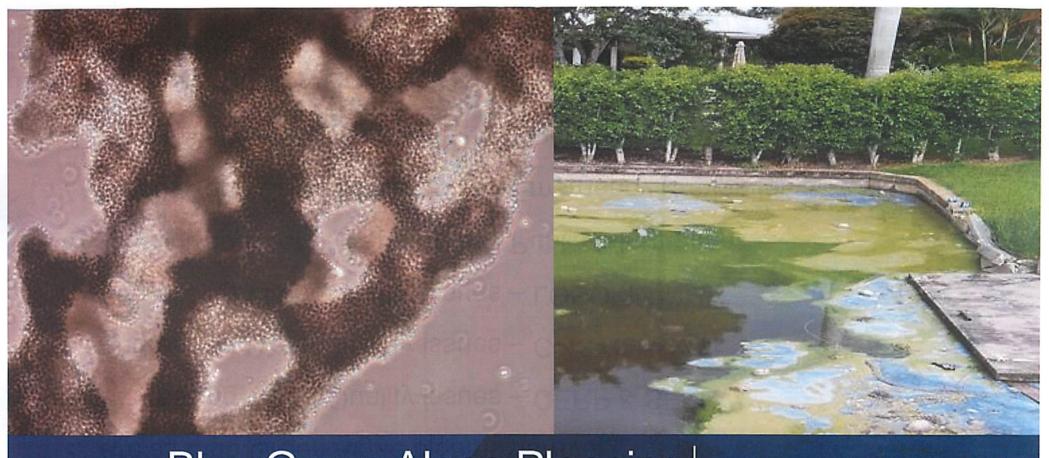
No focus on remediation efforts will occur in the preparation phase. Post impact phases may include the procurement of remediation technologies that are on the FDEP approved list of technologies











Blue Green Algae Planning City Council Meeting, June 2, 2021

Michael Ilczyszyn, Asst. PW Director

Maya Robert, ERD Manager



## **Presentation Outline**

- 1. What is Blue Green Algae?
- 2. Are all Blue Green Algae blooms harmful
- 3. Addressing Water Quality issues CERP & SFER
- 4. Addressing Water Quality issues C-43 Reservoir
- 5. Addressing Water Quality issues LOSOM
- 6. City of Cape Coral Preparation Public Information
- 7. City of Cape Coral Preparation Emergency Prevention and Planning
- 8. City of Cape Coral Preparation Monitoring & Policy
- 9. City Council Action Item



## 1. What is Blue Green Algae

- ➤Blue-green algae, or cyanobacteria, is found naturally all over the world in the environment
- ➤ This algae is a microorganism that functions like a plant.
- ➢ Growth depends on nutrients in water, sunlight, CO₂, weather conditions
- ➤ 'Niche': stagnant water, high temperatures, N/P ratio and species
- FL bloom season peak March-October, exacerbated by summer runoffs

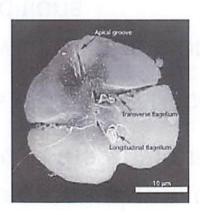
Sources: FL Department of Environment Protection, Department of Health, Florida Fish and Wildlife Conservation Commission, Florida Sea Grant, Bowling Green State University

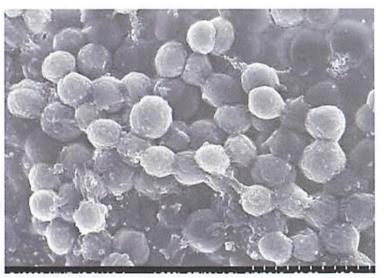


## 1. What is Blue Green Algae (continued)

Karenia brevis
Florida Red Tide
Produces brevetoxins
Mostly saltwater >24 PSU

Microcystis aeruginosa
One specie of Cyanobacteria
Produces cyanotoxins called microcystins
Mostly freshwater, <17 PSU





Sources: FL DEP, FWC



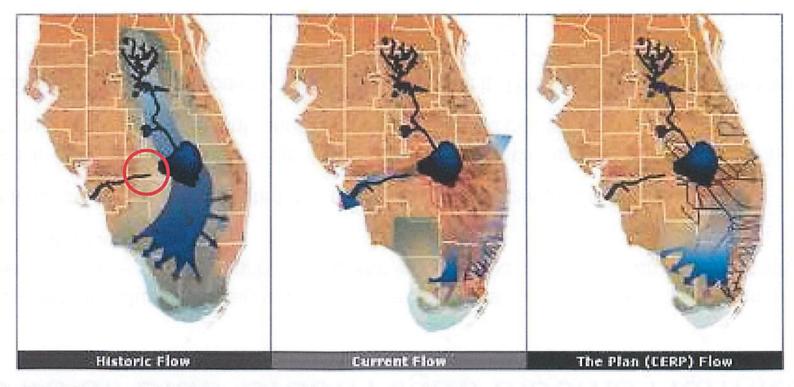
## 2. Are all Blue Green Algae blooms Harmful?

- ➤Some not all blue-green algae can produce toxins that can contribute to environmental problems and affect public health. Little is known about exactly what environmental conditions trigger toxin production.
- ➤ Over time, these toxins are diluted and eventually break down and disappear.
- Non-toxic blooms can also harm the environment by depleting oxygen levels in the water column and reducing the amount of light that reaches submerged plants.
- ➤ You cannot tell if BGA is producing toxins by looking at it. This is why the Florida Department of Environmental Protection (DEP) coordinates with the Water Management Districts to routinely sample observed and reported algal blooms and test for algal identification and toxicity.

Sources: FL Department of Environmental Protection, Department of Health



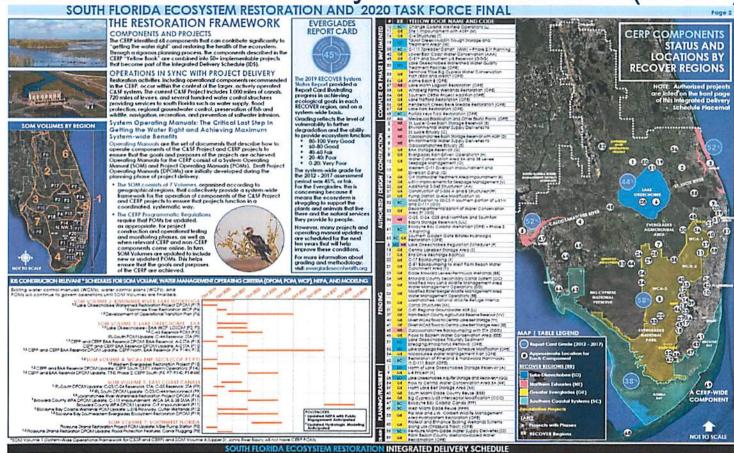
# 3. Addressing Water Quality Issues – Comprehensive Everglades Restoration Plan (2000 - ?)



Sources: Everglades National Park, South Florida Water Management District

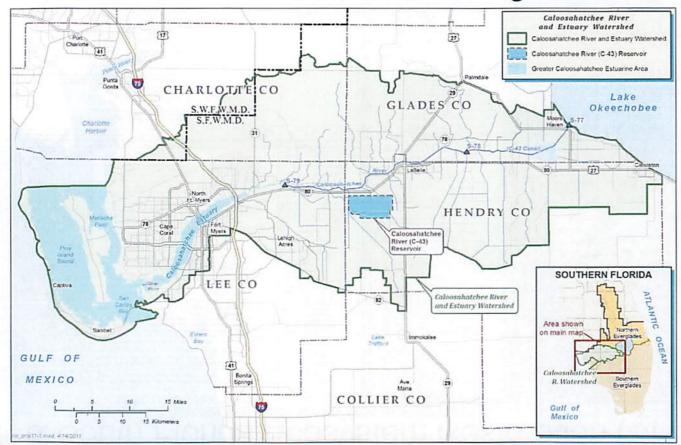


# Addressing Water Quality Issues – continued CERP & South Florida Ecosystem Restoration (SFER)



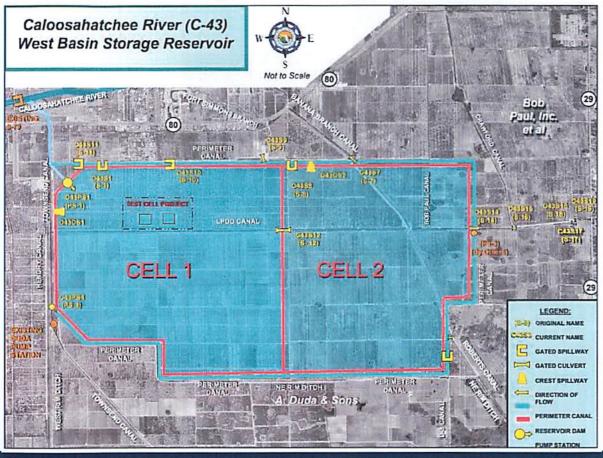


## Addressing Water Quality Issues – Caloosahatchee River C-43 West Basin Storage Reservoir (c. 2025)





Addressing Water Quality Issues – continued Caloosahatchee River C-43
West Basin Storage Reservoir (c. 2025)



Designed to meet the Caloosahatchee Dry Season Minimum Flow 80% of the time

Fill during wet season, discharge during dry season, water storage 170,000 acre-feet

Inflow capacity 1,500 cfs

Normal discharge target 450 cfs

Emergency discharge capacity > 2,500 cfs

> \$500M



 Addressing Water Quality Issues – Lake Okeechobee System Operating Manual LOSOM (2018-2022)



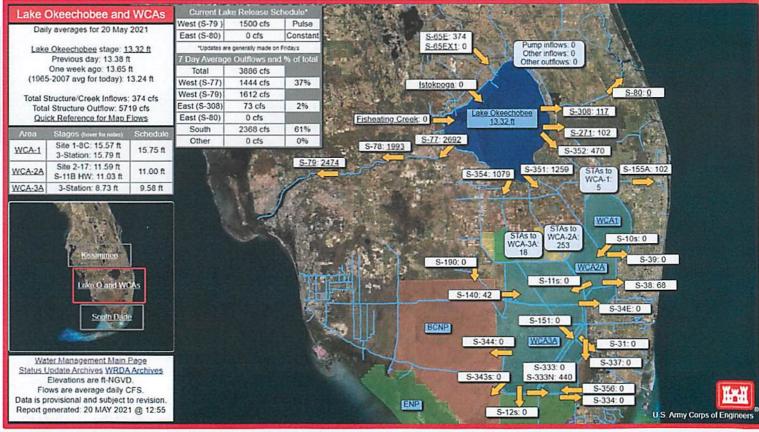
## EAA Everglades Agricultural Areas (crop fields, private land)

### STA Stormwater Treatment Areas

(man-made wetlands to clean-up nutrients from runoffs before redistributing South via canals, state land)

## WCA Water Conservation Areas (natural wetlands interested by canals for

(natural wetlands interested by canals for storage and redistribution, state & private land)





## 5. Addressing Water Quality Issues – *continued* Lake Okeechobee System Operating Manual LOSOM (2018-2022)

- ➤The US Army Corps of Engineers (USACE) is re-evaluating Lake Okeechobee operations to <u>coincide</u> with the completion of the Herbert Hoover Dike rehabilitation in 2022. The LOSOM effort will reexamine the opportunities to balance the congressionally authorized project purposes for flood control, water supply, navigation, recreation and preservation of fish and wildlife resources.
- ➤ Section 1106 of the 2018 Water Resources Development Act (WRDA) directs, "The Secretary shall expedite completion of the Lake Okeechobee regulation schedule to coincide with completion of the Herbert Hoover Dike project, and <u>may include all relevant aspects of the Comprehensive Everglades</u>

  <u>Restoration Plan</u> described in section 601 of the Water Resources Development Act of 2000 (114 Stat. 2680).
- ➤ Incremental regulation schedules will be developed to account for future infrastructure construction (C-43). Each increment will have National Environmental Policy Act documentation to allow for implementation when the infrastructure is operational.
- This study will not propose water quality improvement features, nor propose new infrastructure beyond evaluation of already authorized projects.



## 5. Addressing Water Quality Issues – *continued*Lake Okeechobee System Operating Manual LOSOM (2018-2022)

### **KEY MILESTONES**

Approved PMP and Review Plan	January 2019
Public Scoping/Plan Formulation	February - September 2019
Alternative Development and Evaluation	
Prepare Draft LOSOM/NEPA document	October 2021 - January 2022
Public Comment/Draft LOSOM/NEPA document	February – March 2022
Prepare Final LOSOM/NEPA document	April – May 2022
Final LOSOM NEPA document	July 2022
Signed Record of Decision (ROD).	October 2022





## 6. City of Cape Coral Preparation – Public Information

- ➤ Republish dedicated Blue Green Algae webpage on City Website <a href="https://www.capecoral.net/algalbloom">www.capecoral.net/algalbloom</a>
- Activation of the Emergency
  Management Call Center to
  alleviate 311 call center,
  TBD based on volume
- Weekly Water Quality reports monitoring Lake Okeechobee releases and BGA sightings/tests as summer rains progress







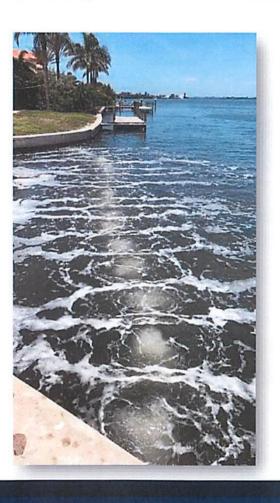
➤ Following Water Advisory Board's recommendation, added Algae Human Health Study to the City website



- ➤ Bubble Curtain reactivation at the Mandolin Canal underway, Sole Source procurement
- ➤GIS analysis completed, priority areas for bubble curtain technology identified
- ➤ Coordinated meetings amongst County, State, and Federal agencies to clarify tasks (testing, reporting, monitoring, posting sites, grants, emergency funding, permitting, treatments)
- ➤ Engaged State and Federal lobbyists to discuss communications with state and federal elected official to influence state and federal public policy regarding Lake Okeechobee discharges, water quality projects and emergency funding in Florida
- > 5-point scale developed in 2018 will be used to rank canal impact (1 lowest, 5 highest)











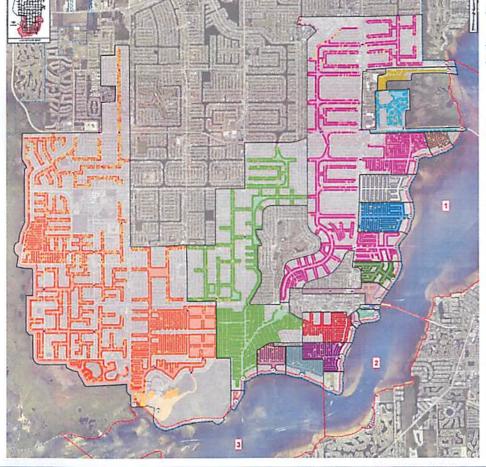


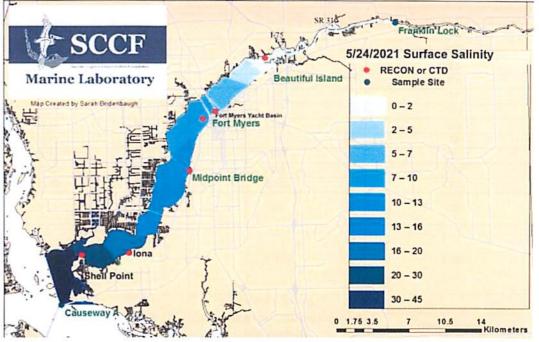




➤ Priority Zones ranked 1 to 3 based on salinity

➤Zone 1 is least saline, more prone to Blue Green Algae growth

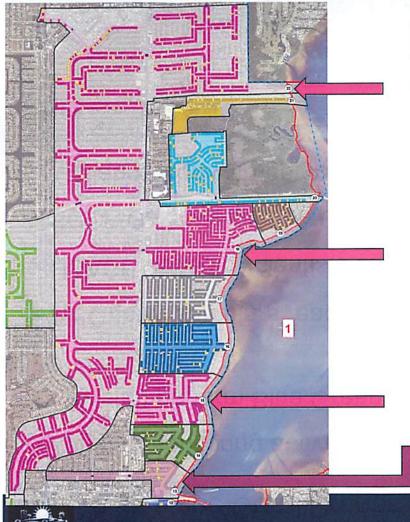






Priority	Confluence Number	Canal	Waterbody Type	Confluence Width (ft)		Impacted Surface	Number of Vacant	Approximate Number of Residential Lots Impacted	Approximate Number of Residential
Zone				Minimum	Maximum	Water (Acres)	Parcels	(Excluding Vacant Lots but Including Common Areas) <sup>2</sup>	Units Impacted (Excluding Common Areas) <sup>1</sup>
	1	South Spreader Waterway	Canal	253	692		1,232	5,445	6,320
	2	Glover Bight	Area Open to Water with Navigational Access	1,199	1,491	1,220.61			
3	3	Buccaneer Basin	Area Open to Water with Navigational Access	N/A	701	5.10	2	22	25
	4	Bimini Canal	Canal	253	365	417.01	287	2,894	3,613
	5	Coral Canal	Canal	211	410	31.38	15	248	249
	6	Dolphin Canal	Canal	204	442	37.35	9	283	286
	7	Flamingo Canal	Canal	200	266	10.93	3	25	25
	8	Lafayette Canal	Canal	201	256	40.74	16	350	356
2	9	Bimini Canal	Canal	95	128	47.28	27	411	807
2	10	Nassau Canal	Canal	130	282	2.57	1	21	21
	11	Bikini Canal	Canal	113	143	9.52	3	32	108
	12	Bikini Canal	Canal	96	167	3.21	4	15	82
	13	Mandolin Canal	Canal	201	263	36.22	8	126	681
	14	Minstrel Canal	Canal	194	238	47.84	11	146	576
	15	Plato Canal	Canal	205	226		314	3,453	4,914
	18	Lido Canal	Canal	207	325	521.00			
1	22	Chantrey Canal	Canal	103	170				
	16	Palaco Grande Canal	Canal	197	257	77.03	22	515	523
	17	Moody Canal	Canal	128	123	60.54	20	467	471
	19	Mackenzie Canal	Canal	113	235	14.95	9	134	135
	20	Everest Canal	Canal	88	245	74.92	66	368	368
	21	Coral Pointe Canal	Canal	135	258	20.10	35	86	612





Pink area = largest tidal basin

3 interconnected openings to the Caloosahatchee

Preliminary Cost estimate for per canal opening Range \$50,000 to \$75,000

If impacted, the other Systems will be treated by other mitigation and remediation technologies Funds to be determined

Mandolin Bubble Curtain Reactivation \$25,000 ETA: End June

### 8. City of Cape Coral Preparation - Monitoring & Policy

➤ Regular monitoring activities, regulatory (NPDES, MS4, BMAP)

➤ City staff perform Blue Green Algae surveys along Caloosahatchee on Mondays

and Fridays

➤ Air Quality samplers ready for deployment

- ➤ USACE periodic scientists call input
- SCCF Caloosahatchee Conditions in Collaboration with governments agencies



#### MEMORANDUM

To: USACE Colonel Andrew D. Kelly, LTC Todd F. Polk, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Drew Bartlett, Jennifer Reynolds, Lawrence Glenn, DEP Secretary Noah Valenstein

From: Periodic Scientists Conference Call Participants
Kevin Godsea & Jeremy Conrad - J.N. "Ding" Darling National Wildlife Refuge (NWR) Complex
Holly Milbrandt & Dana Dettmar - City of Sanibel
Lesli Haynes & Lisa Kreiger - Lee County
Harry Phillips & Maya Robert - City of Cape Coral
James Evans, Leah Reidenbach, & Rick Bartleson PhD - SCCF (Sanibel-Captiva Conservation Foundation)

Subject: Caloosahatchee & Estuary Conditions Report

Reporting Period: May 4 - 10, 2021

This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity, and function of the system.

Caloosahatchee Condition Summary: Flows to the Caloosahatchee Estuary had a 7-day average of 2,249 cfs at S-79 and a 7-day average of 2,132 cfs at S-77. The 14-day moving average flow at S-79 is 2,119 cfs and has been in the stress flow envelope (2,100 – 2,600 cfs; RECOVER 2020) for 1 day. Water clarity around Sanibel and Lee County remains good at this time. The harmful alga, *Karenia brevis*, persists in background to high concentrations in and offshore of Lee County.

Recommendation: We are concerned about the level of the lake prior to the beginning of the rainy season with the longrange forecasts indicating increased chances of above normal rainfall. We strongly encourage the Corps to utilize all options to reduce lake levels to prevent damaging releases to the estuaries while maintaining flows within the RECOVER 2020 optimal flow envelope of 750 – 2,100 cfs. Releases to the Northern Estuaries should utilize adaptive management to optimize ecosystem salinities while balancing the system as a whole. These decisions should be reevaluated regularly based on current and forecasted conditions in the lake and estuaries.

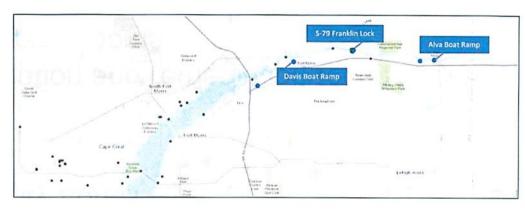


## 8. City of Cape Coral Preparation – Monitoring & Policy

FL Department of Environmental Protection

summary of results

Sample Location	Sampled 5/17-5/18	Sampled 5/24-5/27	
	Total Microcystin Toxin (micrograms/L)		
Orange River - Orange Harbor RV	1.1	pending	
C43 canal - S79 (upstream)	0.891	0.451	
Caloosahatchee River - Alva Boat Ramp	4.6	0.301	
Caloosahatchee River - Davis Boat Ramp	35	1.1	



### City staff Survey results

Location	Date	Salinity (ppt)	Conditions
Rosen Park	5/28/2021	8.32	No visible algae
Horton Park	5/28/2021	10.67	Few algae flecks on surface
Jaycee Park	5/28/2021	14.09	No visible algae
Bernice Braden	5/28/2021	12.95	No visible algae
Yacht Club	5/28/2021	17.53	No visible algae



## 9. City Council Action Item

- Staff is reactivating the Mandolin Canal bubble curtain \$25,000
- Deploy 3 additional bubble curtains as described Up to \$225,000
- Bubble curtains throughout Priority Zone1 10 total, including 3 above Up to \$750,000
- Authorize City Manager for mitigation and remediation technologies up to \$1,000,000 for Harmful Algae Blooms, following Procurement Regulations in Code Section 2-144



## THANK YOU

Any Questions?



### **MEMORANDUM**

### CITY OF CAPE CORAL DEPARTMENT OF COMMUNITY DEVELOPMENT

TO:

Mayor Gunter and City Council Members

THRU:

Rob Hernandez, City Manager

FROM:

Vincent A. Cautero, Community Development Director

Robert H. Pederson, Planning Manager

DATE:

May 27, 2021

SUBJECT:

Ordinance 37-21 - LU20-0011 - Police and Fire Impacts

Ordinance 37-21 involves a large-scale future land use map amendment from Single-Family/Multi-Family Residential (SM) to Commercial/Professional (CP). The City of Cape Coral Fire and Police Departments have indicated their departments will not experience impacts to their levels of service due to the future land use map amendment.

VAC/cwb(Ordinance 37-21 – LU20-0011 – Police and Fire Impacts.doc)