

# Continuing the Momentum

## Opportunities and Obstacles to Reducing Destructive Lake Discharges to the Estuaries

Gary Goforth  
Everglades Coalition  
January 2015



For more than 90 years, the coastal communities have sacrificed their health, economy, and environment in order to protect the health, safety and welfare of residents around Lake Okeechobee.

There was no connection between Lake Okeechobee and the St. Lucie River until the Everglades Drainage District completed construction of the St. Lucie Canal in 1923.

Unlike some Lake releases to the Caloosahatchee Estuary, there are no beneficial Lake releases to the St. Lucie River and Estuary.

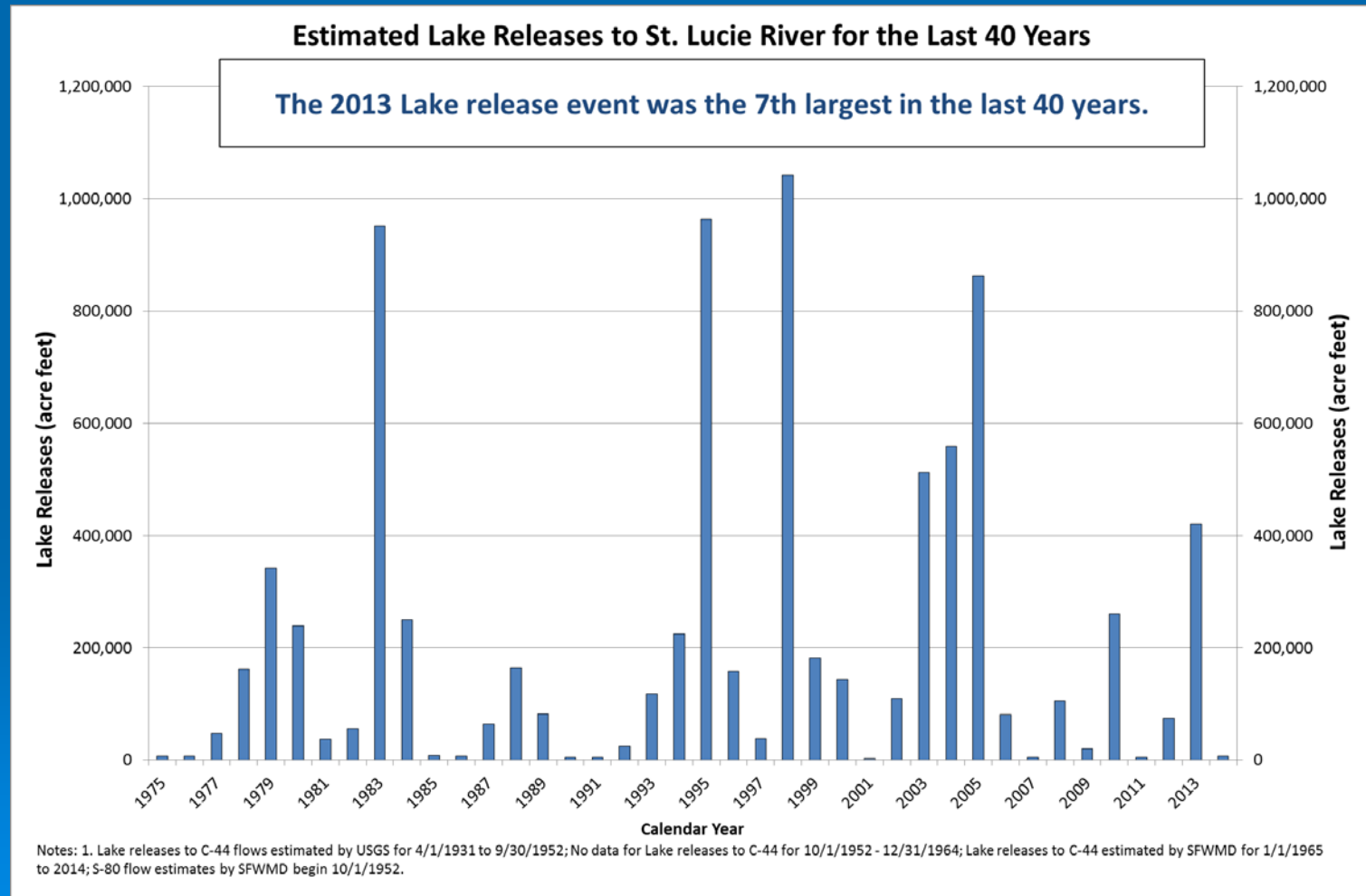


Photo courtesy of Jacqui Thurlow-Lippisch

Over the last 40 years, 70% of water entering the St. Lucie River and Estuary from C-44 Canal was from Lake Okeechobee – only 30% was local basin runoff.

**Obstacle:** *Neither the State nor District watershed protection plans include any projects to address these destructive discharges.*

**Opportunity:** State BMAP and District Watershed Protection Plan could add projects to treat Lake discharges, e.g., **sediment sump at S-80**, expedite shallow storage on public lands



# 2013 Lake Discharges to Estuaries

**St. Lucie River and Estuary: 420,000 acre feet (AF)**

Nitrogen – 1.4 million pounds - almost 6 times the TMDL

Phosphorus – 154,000 pounds - almost 6 times the TMDL

**Total Suspended Solids – 16 million pounds (rough estimate)**

**Caloosahatchee Estuary: more than 1 million AF**

Nitrogen – 4.2 million pounds – 36% more than the TMDL

Phosphorus – 235,000 pounds

**Total Suspended Solids – 20 million pounds (rough estimate)**

**Lake Worth Lagoon: 105,000 AF & 37,800 pounds of TP**

**Total to estuaries: 426,800 pounds of TP --- *UNTREATED***

By contrast ...

***TREATED water sent to Everglades: 158,000 AF & 10,100 pounds TP ...***  
less than 3% of load to estuaries

# Stormwater Treatment Areas

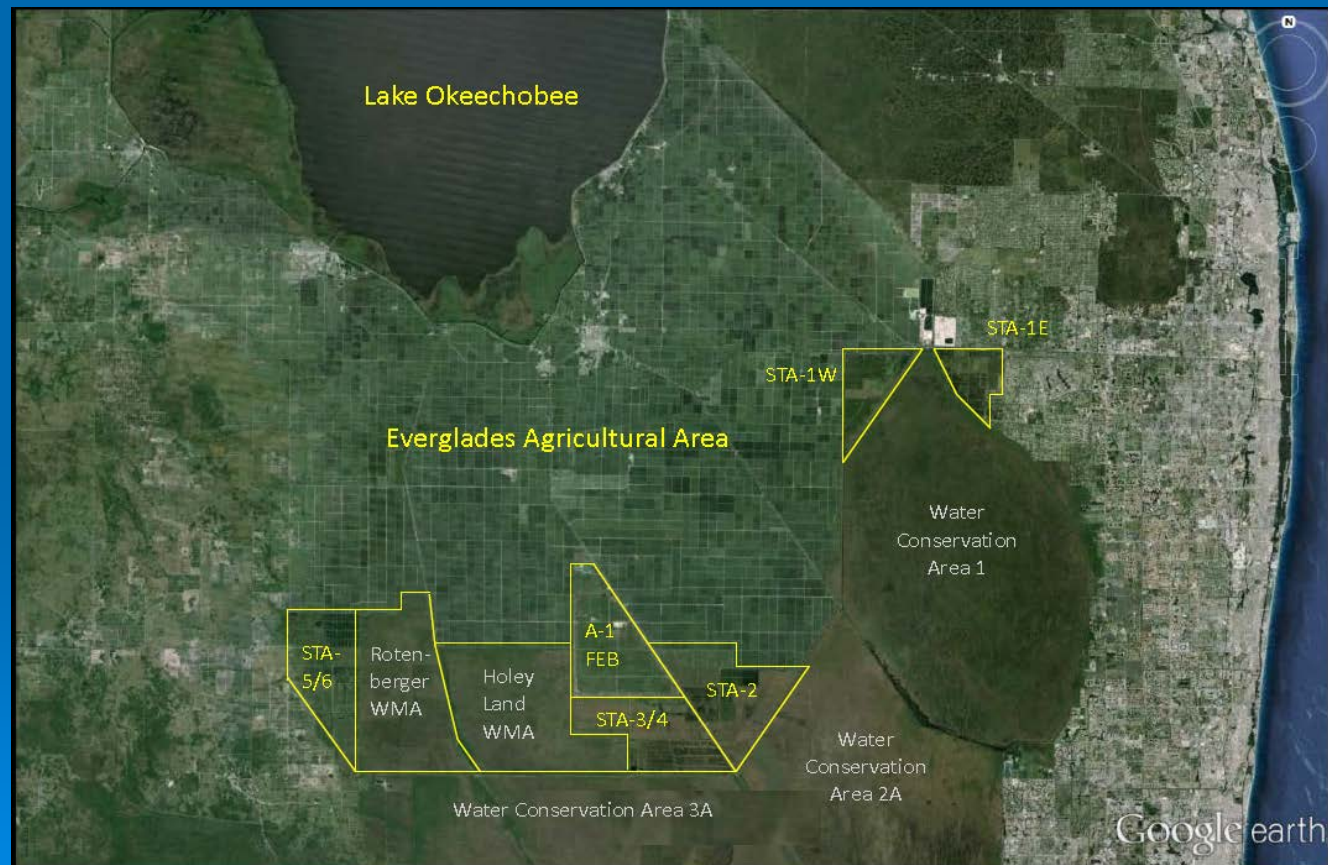
- More than 57,000 acres in five STAs
- Over \$1 billion in public investment to, in part, send more Lake water to Everglades
- 89% of inflow to STAs is agricultural runoff

**Existing state law**  
requires:

1. Send 28% more water to Everglades

2. Operate STAs in accordance with Conceptual Design, i.e., 256,000 AF/yr average to STAs, roughly 150% increase over baseline Lake flow – 100,931 AF/yr

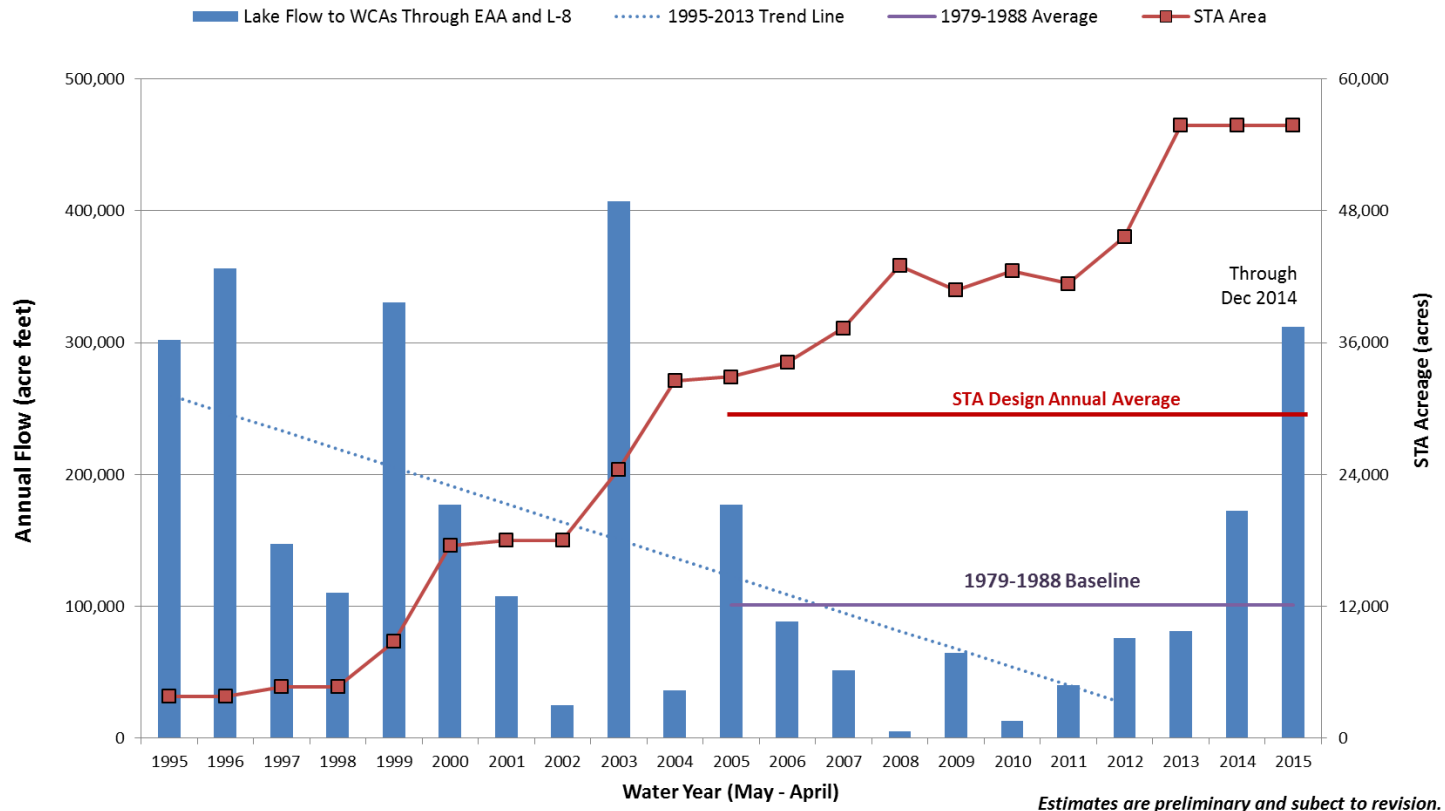
Today – 17,000 acre more STA acreage than contemplated



# Lake releases to the Everglades

Through 2013 Lake releases to the Everglades decreased dramatically despite more than \$1 billion of public investment to, in part, send more Lake water south.

Comparison of Lake Releases Sent to Everglades With Available Treatment Area



Lake releases south include regulatory releases and water supply that pass through the EAA and L-8 basins via the West Palm Beach, Hillsboro, North New River, Miami and L-8 canals; includes water not treated in STAs.

1979-1988 Base Period Lake flows to WCAs = 100,931 acre feet per year.

Estimates are preliminary and subject to revision.

Instead of 150% increase in flows to Everglades, there was a 24% reduction

8 years exhibited less than the historical baseline flow to the Everglades

# Water Year 2014 Lake Flows to STAs

## 170,000 acre feet of Lake water sent to STAs (5/1/2013-4/30/2014)

- Less than 10% of Lake water sent to estuaries
- STA performance improved with Lake releases – one of the best years in their history
  - Debunking the myth that well-managed Lake releases will adversely impact STAs
- No Lake water sent to STA-5/6: performance declined by 33%
  - STA-5/6 routinely suffers from lack of water
  - **Opportunity:** provide better connection from Lake to STA-5/6, e.g., US Sugar lands, and send Lake water to STA-5/6 to improve performance
  - **Obstacle:** \$124 million for temporary Alico dispersed water management project
    - Majority of project is in C-139 Basin which supplies STA-5/6 – will likely reduce STA-5/6 inflows and possibly cause adverse impacts to performance
      - Public has already paid once to capture and treat this water – now it will pay twice and possibly reduce treatment
      - Possibly over-estimated storage benefits to Caloosahatchee Estuary
    - This amount of \$\$ could fund acquisition of roughly 16,500 acres of US Sugar land for permanent solution, or other projects in C-43 basin
    - What alternatives were evaluated to determine the most cost-effective project?

# Water Year 2015 Lake Flows to STAs

- **More than 304,000 acre feet of Lake water sent to STAs to date**
  - Commend Corps and District for improving interagency collaboration and taking steps to reduce Lake releases in 2014
  - Net result: eliminated need to make regulatory releases to SLRE in calendar year 2014
  - ***On track to achieve target of 250,000 AF during dry season***
- **STA performance continues to improve:**
  - STA-1E : 15 ppb reduction in last 6 months (39,800 AF)
  - STA-1W: 3 ppb reduction (58,300 AF)
  - STA-2: 3 ppb reduction (76,300 AF)
  - STA-3/4: holding steady (129,700 AF)
- ***Opportunity: Continue the slow and steady releases to Everglades during dry season to achieve target of 250,000 AF***
  - *Everglades needs additional water - facing irreversible damage (NAS 2012, UM 2013)*
  - *Capacity available in STAs and WCAs*
  - *Avoid dryout in WCAs and STAs*
  - *Aid in Lake recession*
  - *Minimize Lake regulatory releases to estuaries*



# Opportunities - When LORS2008 guidance is to send Lake water to WCAs, before releases to estuaries

1. ***Slow and steady year-round Lake releases to Everglades***
  - a. Set Target of 250,000 AF during dry season
  - b. Send 1.5 cm – 3 cm/day to STAs 1E, 1W, 2 and 3/4
  - c. Send 0.5 cm to STA-5/6 and Wildlife Management Areas  
Commend District for replacing Holey Land inflow pump in 2014
  - d. Maintain a minimum depth of 0.5 foot to avoid dryout
  - e. Obtain permits to avoid restrictions due to ground nesting birds
2. ***Consider declaring emergency and returning all STA cells to full operation***
3. ***Remove all state and federal policy restrictions to sending regulatory releases to the WCAs (subject to public safety consideration of WCA levees).***
4. ***Implement measures to temporarily reduce inflows to Lake Okeechobee***

# Opportunities - When Regulatory Releases to Estuaries are Unavoidable

Until the long-term solution is in place, estuaries will get destructive releases.

5. ***Declare emergency – notify permit holders and regulatory agencies of need for emergency operations associated with Lake releases***
6. ***Alert county health departments when algae is observed in Lake releases***
7. ***Return all STA treatment cells to full operation.***
8. ***Implement additional measures to reduce inflows to the Lake***
9. ***Weekly documentation of nutrient and sediment loads to estuaries during releases***
10. ***Terminate releases to St. Lucie Canal when Lake level is at or below 16 ft***

# Other Opportunities to Protect Ecosystems

11. ***Revise the Lake's regulation schedule – to balance environmental and economic impacts to estuaries at the same priority as impacts to other regions***
12. ***Begin conceptual design of long-term solution to send all destructive Lake releases Everglades***
  - Exercise option to acquire US Sugar lands using Amendment 1 funds
13. ***Consider suspending Dispersed Water Management Program until technical and financial issues have been resolved***
14. ***Complete the documentation - prepare environmental and economic impact analysis of 2013 Lake releases to estuaries***
15. ***Corps to complete updated risk assessment of Herbert Hoover Dike***
16. ***Continue working to remove all flow restrictions from WCA-3A and WCA-3B into the Park.***

# Other Opportunities to Protect Ecosystems

17. ***Emergency Management Workshop for agencies and stakeholders to identify water management operations to reduce regulatory releases to the estuaries.***

Participants will be asked to identify physical, legal or discretionary operational constraints to moving more water to the south, and to identify courses of action necessary to resolve the constraints.

18. ***Add projects to St. Lucie BMAP and Protection Plan to treat Lake regulatory releases***

1. Sediment sump upstream of S-80
2. Utilize public lands purchased for Allapattah Flats as shallow storage
3. Seek Congressional authorization to use C-44 R/STA to treat Lake regulatory releases

19. ***Expedite actions to achieve Lake Okeechobee TMDL***

18. Recent FDEP BMAP falls short of meeting TMDL

Questions  
or  
comments?



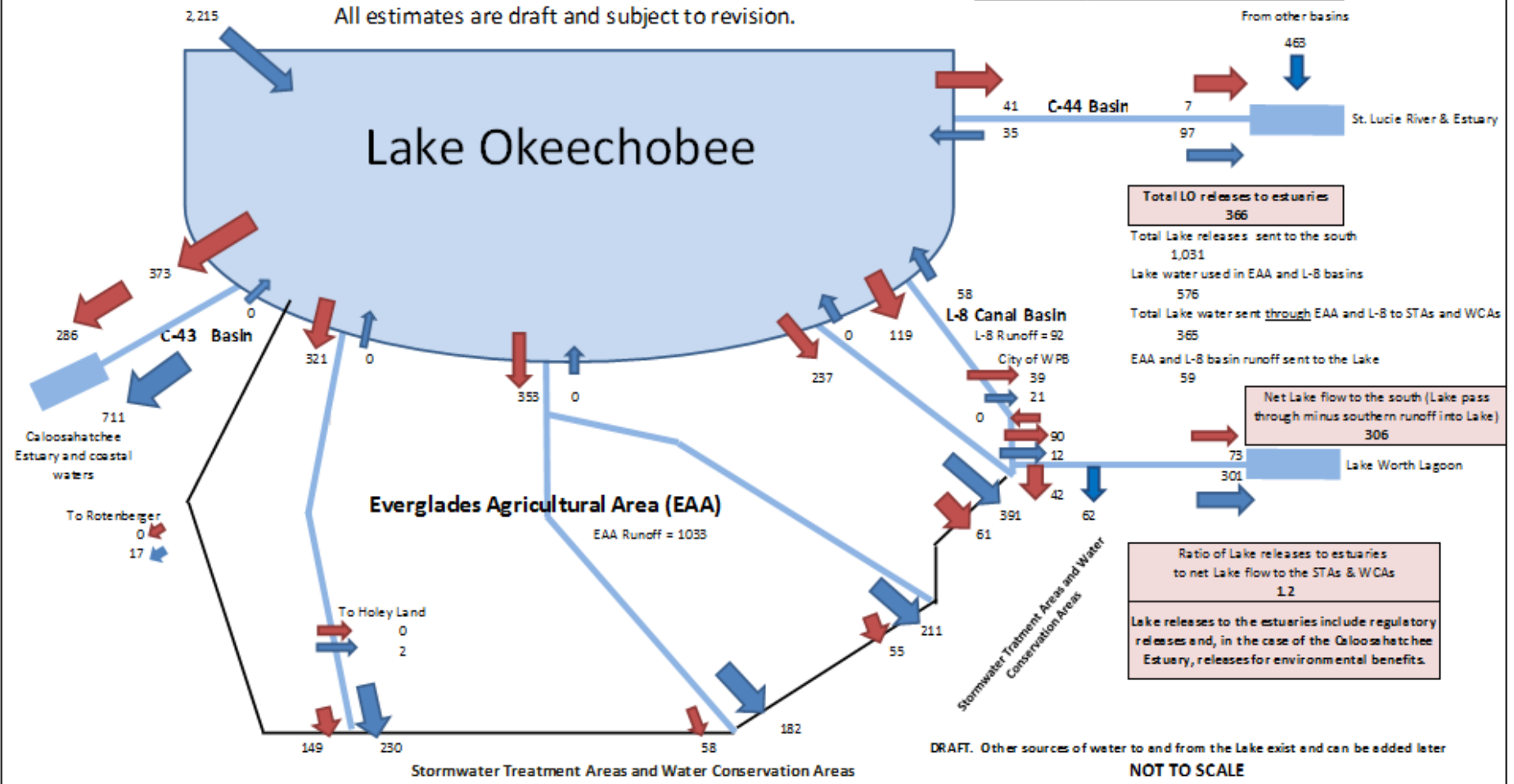
Photo courtesy of Jacqui Thurlow-Lippisch

Total Lake inflows 2,308

### Flows between January 1, 2014 and December 31, 2014

All flows in 1000 acre feet

All estimates are draft and subject to revision.



**Obstacle:** Competition for limited funds to restore Lake O, protect the estuaries and move water south:  
Dispersed Water Management Projects (DWMPs)

- **Initially, DWMPs appeared to offer positive benefits**
  - Quicker to implement than a few large regional storage and treatment projects
  - If located correctly, can provide direct water quality and quantity benefits to receiving water
  - Can provide associated habitat benefits on property
  - One of the better projects: Caulkins Water Farming Pilot Project
    - Location – adjacent to C-44
    - 2014 operation - about 50% of water pumped directly benefits SLRE; can be increased by operating to coincide with discharges to SLRE at S-80
- **DWM projects are temporary – not permanent like an STA**

# Is the DWMP program flawed?

- **Unfortunately, the DWMP program appears to be seriously flawed**
  - District's Inspector General audit –
    - Lacking analyses to identify those projects that provide most cost-effective storage and treatment
    - Considerably more expensive: averaged \$104 per AF on private lands vs. \$8 per AF on public lands
    - Program continuing despite Audit's recommended revisions
  - Generally a lack of independent technical assessment of proposals' claims of benefits – rely on modeled baseline flows
  - Lack of accountability – no recourse if project doesn't live up to advertised flow reduction benefits
  - Public funds and District staff required to monitor performance
  - Diverts funds and staff resources from regional storage and treatment projects not being built due to lack of funding, e.g., Lakeside Ranch STA Phase II
- **Not all storage retention is beneficial.** For example, if there are no discharges to estuary, say during dry season, then pumping into DWMP is not benefitting the estuary. Resulting \$/AF actually higher



# Alico, Inc. DWMP

## ➤ **\$124,000,000 for temporary benefit**

- Could funds have been better spent? No alternatives analysis ...
  - More cost effective projects in C-43 Basin to protect estuary?
  - \$124 million could acquire perhaps 16,000 acres of land to construct storage/treatment area to permanently send Lake water to the Everglades
- Proposal touts benefits to Caloosahatchee River Watershed, yet majority of project in the C-139 Basin, not in the C-43 watershed.
  - Potentially overestimates benefits by 37 percent - \$38.3 million over life of project
  - Will likely deprive water-starved STA-5/6 of ~ 20,000 AF/yr from C-139 Basin runoff
    - Public paying twice for treating this water – once for STA-5/6 and now for DWM
    - No analysis of impacts to STA-5/6 treatment performance
  - Appears to be a lack of accountability - Contract has no provision for compliance with flow reduction benefits to Caloosahatchee Estuary

## ➤ **Consider suspending DWMP program until technical and financial issues have been resolved**