

Response to Okeechobee News Article: Lake water cleaner than basin runoff
Sent via e-mail on 8/16/2017

Hello Katrina,

I applaud the concept behind your “Searching for the Truth About Lake Okeechobee” series, and would be happy to assist where I can; the more often we can agree on the facts, the closer we’ll be to cooperatively solving the problems facing the Lake. As an environmental engineer, I have been working to protect the south Florida environment, including Lake Okeechobee, for more than 30 years. I worked with the SFWMD for almost 20 years, and have had my own engineering consulting firm since 2005.

I am writing in regard to your August 13 column “Lake water cleaner than basin runoff.” The article appears to suggest that local basin runoff, and not the massive discharges from Lake Okeechobee, was the primary cause of the toxic algae blooms that occurred beginning in June 2016. I had never heard this postulated before – everyone I have spoken to unequivocally agree that Lake discharges was the cause. While runoff from the local watershed contains excessive nutrients, the toxic algae (a freshwater species) along with tons of nutrients and sediment came from the Lake. No one has ever disputed this – nor can they with the numerous aerial photos showing the algae bloom moving east through the C-44 Canal. While the estuaries have had algae blooms in the past, toxic algae blooms are associated with massive Lake discharges. Case in point - 2017: no Lake discharges and no toxic algae blooms, despite the legacy pollutants in the tons of Lake sediment that has filled the estuary with massive quantities of muck (that are re-suspended during storm flows).

The findings in Governor Scott’s Declaration of a State of Emergency, signed June 29, 2016, also point to the Lake discharges as the cause of the toxic algae blooms:

WHEREAS, there has been an increased number of algae blooms in the month of June 2016 in Martin and St. Lucie Counties; and

WHEREAS, the discharges from Lake Okeechobee to the St. Lucie River and Estuary have increased by 1200 cubic feet per second since May 27, 2016; and

WHEREAS, the release of these waters and increase in algae blooms that have been dominated by *Myrosystis*, an algae that can produce toxins, has unreasonably interfered with the health, safety, and welfare of the State of Florida and its residents; and

WHEREAS, the release of these waters and the toxic algae blooms has resulted in environmental harm to the aquatic ecosystem, by lowering oxygen levels needed by aquatic species such as fish; and

WHEREAS, the release of these waters and the algae blooms has increased the potential of harm to the health of our citizens; by producing harmful toxins that can cause adverse health effects; and

WHEREAS, the release of these waters, the algae blooms, and the issuance of health advisories including the closures of recreational areas has caused economic losses in the adjacent communities, including Martin, and St. Lucie Counties;

The 5-year average annual data (“2012-2016”) you present in your article ended in April 2016, prior to the beginning of the toxic algae bloom; hence the proportions of flow and nutrient load, while accurate in their proper context, are not germane to the 2016 toxic algae bloom.

Based on SFWMD data, the flow and loads to the St. Lucie River and Estuary during January-December 2016 are summarized below:

Table 1. Summary of 2016 flows and loads to the St. Lucie River & Estuary

| 2016 Source | Flow, Billion Gallons | TN loads, pounds | TP loads, pounds | TSS loads, pounds | TN conc ppb | TP conc ppb | TSS conc ppb |
|---------------------|-----------------------|------------------|------------------|-------------------|--------------|-------------|---------------|
| Lake Okeechobee | 219.7 | 2,781,973 | 299,270 | 55,834,658 | 1,517 | 163 | 30,446 |
| Ten Mile Creek | 51.9 | 461,438 | 138,463 | 6,203,871 | 1,065 | 320 | 14,321 |
| C-24 Canal | 62.0 | 657,226 | 126,806 | 1,295,500 | 1,270 | 245 | 2,502 |
| C-23 Canal | 39.3 | 596,847 | 190,849 | 1,681,886 | 1,819 | 581 | 5,125 |
| C-44 Canal | 59.7 | 792,010 | 146,616 | 567,378 | 1,590 | 294 | 1,139 |
| Coastal tributaries | 65.9 | 490,915 | 56,315 | 2,517,343 | 893 | 102 | 4,581 |
| Total | 498.5 | 5,780,410 | 958,318 | 68,100,636 | 1,389 | 230 | 16,368 |
| Lake Okeechobee | 219.7 | 2,781,973 | 299,270 | 55,834,658 | 1,517 | 163 | 30,446 |
| Agricultural Runoff | 196.1 | 2,411,283 | 560,150 | 9,752,434 | 1,474 | 342 | 5,960 |
| Natural Lands | 19.7 | 116,393 | 34,483 | 340,606 | 710 | 210 | 2,076 |
| Communities | 63.1 | 470,761 | 64,416 | 2,172,939 | 894 | 122 | 4,128 |
| Total | 498.5 | 5,780,410 | 958,318 | 68,100,636 | 1,389 | 230 | 16,368 |

What is not documented by State agencies is the massive volume of toxic blue green algae biomass flushed from Lake Okeechobee that created the public health, economic and environmental impact in the estuaries.

3. What is lacking in the media and in Tallahassee is more calls for protecting the public health from the known and potential health effects of toxic blue green algae: folks who drink the water – including the City of Okeechobee; and folks who come in contact with the water through recreation – communities around Lake Okeechobee and the estuaries. During my January testimony in Tallahassee, I asked for additional monitoring, but none was appropriated.

4. The heart of the problem is the continued pollution of Lake Okeechobee – we must address that fundamental problem. I feel that the primary reason that Lake Okeechobee is polluted is the inability of the State to establish, monitor and enforce water quality regulations in the Lake Okeechobee watershed. SFWMD staff have admitted they do not enforce water quality permits limiting discharge of phosphorus into the Lake. It is no wonder that phosphorus loads from the watershed routinely exceed 4-5 times the Total Maximum Daily Load (TMDL). Despite

this continued pollution of the Lake, in 2016 the Florida Legislature rolled back the date by which the TMDL for the Lake was to be achieved: from January 2015 to ... well, actually no date was set.

5. Regarding the small algae bloom observed recently west of Port Mayaca, I wholeheartedly agree with your article concerning the fact that the water quality in the C-44 Canal is of poor quality, and is worsening – no surprise with the lack of permit enforcement. As you’re probably aware, 59 percent of the C-44 basin is agricultural land use, 28 percent is natural lands with only 13 percent suburban or other land uses. Fortunately the algae in this relatively small bloom is not the toxic kind that impacted estuaries last year. Also as you reported in an earlier article, “A larger bloom has been reported on the northwest area of the lake.”

6. The local St. Lucie Estuary watershed clearly has a responsibility to clean up its own water, and landowners and local government are implementing projects. Of the local watershed, the predominant land use - 55 percent - is agriculture, 26 percent is natural lands, and less than 20 percent is urban and other land uses. Until the State of Florida establishes and implements an effective regulatory program throughout the Lake Okeechobee watershed that limits nutrient discharges, the Lake and estuaries will continue to be polluted with little to no accountability. The data consistently document that the highly urbanized Tidal Basins around the St. Lucie Estuary has the best water quality with the lowest concentrations of nutrients entering the Estuary – despite the tens of thousands of residents and their septic tanks. On that note, Martin County doesn’t get the credit it deserves for its decades-long program of replacing faulty septic tanks and small scale package treatment plants, and for its continuing aggressive program of converting septic tanks to centralized sewers. To be clear, owners of septic tanks have an obligation to maintain them with regular inspections and repairs. Where septic tanks contribute significant nutrient loading and human pathogens to the River and Estuary they should be repaired or replaced.

Please let me know if I’ve misinterpreted your article.

Again, I applaud the concept behind your “Searching for the Truth About Lake Okeechobee” series, and would be happy to assist where I can.

Thanks,
Gary Goforth
Stuart, Florida
www.garygoforth.net