

MC LOSOM Scoping Comments

The U.S. Army Corps of Engineers (Corps) issued a National Environmental Policy Act (NEPA) scoping notice letter on January 29, 2019 to seek public participation in the review and revision of the Lake Okeechobee System Operating Manual (LOSOM). The purpose of the LOSOM process is to reevaluate and define operations for a new water management schedule that addresses the congressionally authorized purposes that include flood risk management; water supply for agricultural irrigation, municipalities and industry, environment, and Native American tribes; navigation; enhancement of fish and wildlife; and recreation. On April 22, 2019, Martin County transmitted comments to the Corps which included the following:

- 1) A letter which laid out the environmental characteristics and economic value of St. Lucie River and Estuary, Indian River Lagoon, and the nearshore reef; the environmental and economic impacts due to the “forced lake discharges;” the human health and impacts to animals and aquatic life from the associated harmful algal blooms and freshwater discharges disrupting the salinity balance and estuary health; and the financial and land conservation investments the county has made to achieve better water quality.
- 2) Technical scoping comments that included specific comments on water quality, health impacts, climate and meteorological forecasting, estuarine and marine ecosystems, coral reefs, threatened and endangered species, economics, modeling, and performance measures.

Water quality was the county’s primary focus in its LOSOM scoping letter to the Corps. The bottom-line request was that the Corps not discharge lake water unless state water quality standards are met at the S-308 and the discharges do not disrupt the salt balance of the estuary and nearshore reef tract. Below is a summary of the main points made by the county:

Water Quality

- Nutrient and sediment loads to the St. Lucie Estuary and nearshore Atlantic Ocean are significant and should be considered during modeling efforts.
- Forced discharges cause the salinity levels in the estuary to drop to nearly zero, well below our critical salinity envelope of 12 – 20 ppt.
- The Corps should work with the state to establish a nitrogen Total Maximum Daily Load (TMDL) for the lake and other basins that drain into the estuary.
- The county’s letter raised the issue of the inapplicability of the “water transfer rule” by establishing the facts necessary to show that the water forcibly discharged through the S-308 and the S-80 does not meet the definition of a “water transfer.” Those facts raised are:
 - There is a chemical distinction between discharged, fresh lake water and salty brackish and ocean water.
 - The lake does not naturally flow through the man-made C-44, unlike the natural flow through the Caloosahatchee.
 - The discharges are inter-basin.
 - The discharged water is only discharged through the estuary for disposal, not water supply or flood protection for the surrounding communities.
- The goals of the Comprehensive Everglades Restoration Plan (CERP), which include water quality restoration, protection, and habitat protection for the coastal estuaries and coral reef tract,

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must be achieved. Forced lake discharges are thought to cause or contribute to harmful algal blooms (HABs) in the river, estuary, and nearshore environment.

- Considering Lake Okeechobee discharges appear to correlate with HABs of *Microcystis*, it is imperative that additional research and information is needed on its life cycle and persistence in estuarine and nearshore marine environments including its ability to survive in estuarine and marine habitats, the impact of salinity on its toxicity, the distribution of toxins throughout the estuary, the ability for the toxin to bioaccumulate in the food chain and in humans, and impacts when the toxin is carried through the air and inhaled.

Health Impacts

- Martin County reported local instances of human health, as well as canine ailments and mortality, as patients came into contact with or inhaled airborne toxins from blue-green algae.
- Recent studies have noted microcystin bioaccumulation in crops grown for human consumption.
- A recent study by ORCA indicates microcystin is bioaccumulating in local fish. Microcystin levels could be potentially three times the consumption guidelines recommended by the World Health Organization, depending on the accumulation in the specific fish.
- Consider impacts on human health from ALL HABs, including “red tide.”

Climate Forecasting

- The Corps needs to consider the significant improvement in climate science and forecasting (both short and long term) to predict expected precipitation in the region – inflows to the lake and capacity in other areas within the region (Kissimmee Chain of Lakes to Florida Bay) – and make decisions about what actions need to be taken and when. Climate change, extreme weather events, and sea level rise should be considered in lake operations. Although flood protection and human safety are of paramount importance, great effort should be taken in identifying operating procedures that also allow for protection of the entire system of affected environments that are tied to lake operation.

Marine and Estuarine Ecosystems

- Ecosystems have been shifted or destroyed by prolonged releases of freshwater carrying nutrients and suspended solids.
- LOSOM must comply with the Coastal Zone Management Act, which gives the state the responsibility to review federal actions for any reasonably foreseeable effects on land use, water use, or natural resources in its coastal zone.
- LOSOM must accelerate progress toward restoration goals of healthy oysters, fish, and seagrass, including both threatened and endangered species.

Coral Reefs

- Coral reefs need to be acknowledged as part of the affected system.
- Nitrogen is the limiting factor in the brackish estuary. The lake only has a TMDL for phosphorus, but nitrogen is the limiting factor in marine systems (estuaries and coral reefs) and must be considered in LOSOM.

Threatened and Endangered Species

- Various listed species were identified as being impacted by the lake discharges, including Johnson's seagrass, the Everglade snail kite, and the Florida manatee.

Economics

- True economic impacts of forced lake discharges to a smaller, water-dependent community such as ours must be ascertained and factored into lake management.
- Impacts are not limited to waterfront properties – forced lake discharges and HABs have an economic impact on property countywide.
- Repetitive, forced discharges multiply the impacts on the local economy.

Modeling

- Include ALL alternative water storage areas in LOSOM development, including the Kissimmee Chain of Lakes (KCOL), Everglades Agricultural Area (EAA), and stormwater treatment areas (STAs), as well as alternative ways to move water to tide.
- Consider continued navigability through the Okeechobee Waterway (a strategic intermodal system).
- Give proper weight to economic impacts and natural resource damages to coastal estuaries and the coral reef tract from four decades of Lake Okeechobee forced discharges when comparing against other alternatives.

Performance Measures

- It is recommended that the Corps employ multiple performance measures in the St. Lucie Estuary so that a "weight of evidence" approach can be used to evaluate scenarios or alternatives and ensure that levels established as essential for estuarine health are met.
- The CERP Northern Estuaries Salinity Envelope of 12-20 ppt needs to be a standard within the estuary that discharges cannot cause or contribute to a violation.
- The TMDL of total nitrogen at 0.72 mg/L and total phosphorous at 0.081 mg/L need to be standards that are met in the Lake prior to discharges through the S-308.
- Resource-based performance measures, such as those related to sustainable seagrass and oyster populations, as well as setting cyanobacteria levels, should be developed and incorporated into operations.
- Economic impact performance measures should be developed and incorporated into operations.