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U.S. Army Corps of Engineers, Jacksonville District
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Jacksonville, Florida 32207-8175
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Re: Planned Deviation from the Lake Okeechobee Regulation Schedule

Dear Ms. Nasuti:

I am writing on behalf of Florida Crystals Corporation and its affiliates (including Okeelanta Corp. and New Hope Sugar Company), to provide comments regarding the U.S. Army Corps of Engineers' ("Corps") proposed planned deviation from the Lake Okeechobee Regulation Schedule ("LORS").

While we appreciate the Corps' desire to assist the state in addressing harmful algae blooms in Lake Okeechobee and the St. Lucie and Caloosahatchee Estuaries, operation of the Central and Southern Florida Project ("C&SF Project") did not cause this problem. Algae blooms are a national concern that are not unique to South Florida. They have occurred here for decades. The Corps does not cause them, and water quality is a state responsibility. Farmers like us in the Everglades Agricultural Area also did not cause the algae blooms, because our farms do not drain to the lake. Nevertheless, we do not want to see others harmed by the algae blooms and we respect the Corps' willingness to look for solutions to this water quality problem it did not cause.

The proposed deviation, however, appears to be a rushed effort that will cause major problems for water users and environmental interests in Lake Okeechobee and elsewhere while doing little to alleviate the problem. The proposal is to release more water from lake in the dry season so that the Corps does not have to release as much water to the St. Lucie and Caloosahatchee Estuaries in the summer wet season. The problem with this concept is that the Corps will be driving down lake stages to perilously

low levels without knowing whether there will be sufficient rain later to offset the releases. In a year with low rainfall, this could result in a water shortage disaster.

It does not appear that the Corps has conducted any hydrological modeling to see how this proposal will work over the long term. Preliminary modeling using tools developed by the South Florida Water Management District ("SFWMD") indicate that the proposed action will result in a significant increase in average annual releases to the estuaries, reduce lake stages to unprecedented low levels in multiple years, and cause a significant increase in water shortages for users such as us. Those hydrological effects could result in a variety of environmental consequences that are not acknowledged or analyzed in the Corps' draft Environmental Assessment ("EA").

The recent near-miss of Hurricane Dorian does not assuage our concerns. Just as there are periodic and unpredictable wet years in South Florida, there are periodic and unpredictable drought years as well. Experience shows that short-term droughts in South Florida have a three-to-five year recurrence interval and sustained droughts have a ten-year recurrence interval. The last significant drought in South Florida was 2011. Statistically, we are overdue for a drought, so this a bad time to take risks with water supply.

We assume that the Corps is proposing to take such risks because it believes the new operations will make a significant difference on algae blooms in the St. Lucie and Caloosahatchee Estuaries. Yet, nowhere in the draft EA is there an explanation of exactly how or how much this will reduce downstream algae blooms. To the contrary, the draft EA says that this plan will have only "negligible or minor" effects on the algae blooms, which makes us question why the Corps is rushing forward with this proposal.

We are among the people that this proposal endangers the most. Our companies have been farming in the Everglades Agricultural Area for decades with vested water rights. We rely on water from Lake Okeechobee to irrigate our fields during droughts. The C&SF Project was designed in large part to assure agricultural water supply. Consistent with the project's design, the Corps has managed Lake Okeechobee for half a century to keep enough water in the lake so that there is a water supply buffer if drought conditions develop. If a drought were to come without enough water stored in the lake, then we would be unable to irrigate our fields, which would have devastating impacts on our business.

We ask that the Corps not put us at this serious risk without taking a hard look at all of the issues. Our comments on the draft EA are set forth below. In summary, we believe the proposed action is poorly defined, and would allow algae operations every year with few constraints. The draft EA does not satisfy the requirements of the National Environmental Policy Act ("NEPA") in its consideration of alternatives, evaluation of

environmental impacts, or assertion that impacts will be insignificant. It also appears that the Corps has not properly identified its authority to undertake this action, and has not complied with other relevant statutes. To minimize redundancy, we incorporate by reference the comments of other water user interests that are consistent with the comments below, including those of U.S. Sugar Corp.

I. The Proposed Algae Deviation Is Poorly Described and Would Place Few Limitations on the Corps' Discretion

Water users need clarity and predictability in understanding how the Corps manages Lake Okeechobee. It is important that the public know exactly what the Corps is proposing to do, what will trigger the new operations, where the water will go, and other factors that affect local communities. However, the proposed deviation is poorly described and vague. This makes it difficult to fully evaluate the proposal based on the draft EA, and would appear to give the Corps carte blanche to manage Lake Okeechobee with very few limitations.

A. The Terms Used to Describe the Deviation Are Unclear

1. "Harmful Algae Bloom"

The proposed action is intended to address "harmful algae blooms," but the Corps has not indicated exactly what it means by that term. In the draft EA, "Harmful Algae Bloom (HAB)" is defined as "freshwater blue/green algae bloom causing adverse environmental, economic, or health effects." Draft Environmental Assessment ("DEA"), at A-1. It is unclear whether this term includes only algae or something else. The State of Florida has indicated that organisms that are commonly called "blue/green algae" are often not algae (eukaryotes), but cyanobacteria (prokaryotes). [Visit Florida 2019.] In describing the problem of harmful algae blooms, the draft EA states that "cyanobacteria [is] also called commonly blue green algae," that "algae ... can be either protists, bacteria, or simple plants that live in water," and that "[c]yanobacteria (Cyanophyceae or blue-green algae) and dinoflagellates (Dionphyceae) have been traditionally been associated with HABs." DEA, at 1-6 and 1-7. One cannot tell whether the term includes algae (or something else) that is blue or green in color, or any kind of organism that can be loosely referred to as "blue green algae" even though they are of different colors. [Visit Florida 2019.] To the extent that what the Corps really means to address is cyanobacteria, the agency has not said whether it intends to act based on the presence of toxin producing cyanobacteria or also based on the presence of non-toxic species of cyanobacteria as well. DEA, at 1-6 (noting issues with both toxic and nontoxic cyanobacteria). Since the presence of "blue green algae" presumably will be determined based on analysis of water samples, we believe that the Corps should identify the specific species of organisms that could trigger a water management response.

Whatever the Corps means by "blue/green algae," the draft EA is unclear whether it is just responding to algal levels in freshwater or also in brackish and saltwater areas. The draft EA says that the "harmful algae blooms" the Corps seeks to address are "freshwater blue/green algae blooms." Yet, the focus of the Corps' proposal is on algae conditions in the St. Lucie and Caloosahatchee Estuaries. Estuaries, by definition, are water bodies where fresh and saltwater mix. In the St. Lucie and Caloosahatchee Estuaries, salinities vary by season and the line between freshwater and saltwater moves in response to environmental conditions. Algae and cyanobacteria can live in freshwater, saltwater, and brackish water. [FDEP 2019c; Visit Florida 2019]. The draft EA is unclear whether the Corps is only going to focus on HAB's in areas that consist of freshwater, based on its definition of HAB as a "freshwater blue/green algae bloom," or whether the Corps is going to act also on blooms in brackish or saltwater areas of the St. Lucie and Caloosahatchee Estuaries.

The draft EA does not say what it means by a "bloom." If "bloom" refers to an accumulation of algae, bacteria, or something else, then the proposed deviation should clarify how much of that material qualifies as a "bloom." Algae and bacteria exist in many waterbodies, most of the time. [VisitFlorida 2019]. Even when these organisms accumulate, the duration of time that they are present in higher concentrations can vary greatly. The draft EA is silent as to how many organisms must be present, for how long, to qualify as a "bloom."

The term "harmful," as used in the term "harmful algae bloom," also is vague. Not all types of organisms commonly referred to as blue-green algae produce cyanotoxins, which is the primary source of concern. [FDEP 2019c.] It is not possible to identify algal type or if it is producing toxins by looking at it, which is why the State of Florida takes algae samples and analyzes them for species identification and toxicity. The Corps should clarify what it means by a "harmful" algal bloom, and whether it will be acting only on the presence of cyanotoxins or whether it assumes that all algae blooms to be harmful.

The term "harmful" is qualified by the phrase "causing adverse environmental, economic, or health effects," DEA, at A-1, but that does not resolve the ambiguity. Blue-green algae is part of the natural environment, and is found all over the world, so its mere existence cannot constitute an "adverse environmental effect." The Corps presumably means something more than its presence, but the draft EA does not explain what constitutes an adverse environmental effect. Similarly, the draft EA does not explain or provide any criteria to determine what constitutes an "adverse economic effect," or who decides when such an effect has occurred. The same is true for the phrase "adverse health effect," which presumably refers to human health even though the media sometimes uses injuries to family pets as evidence of health effects. [Miami Herald 2019] The draft EA does not indicate whether the Corps will need documentation that a person's

health actually has been harmed in order to trigger a water management decision; whether there simply needs to be a risk of harm; and who decides what level of algae poses unacceptable risk to humans.

2. Identification of the Geographic Area Relevant to HAB Deviation

The draft EA indicates that water management actions could be triggered when HAB may be in "Lake Okeechobee, the St. Lucie or Caloosahatchee Estuaries, or the system of canals that connects them." DEA, at A-1. The precise geographic scope of these waterbodies relevant to this determination is unstated. This matters because the Corps presumably will be relying on water samples taken from certain locations in determining whether a relevant HAB has occurred, and the public should know where HABs must be present in order for the Corps to start the new water management operations.

Nowhere does the Corps define exactly what waterbodies it considers to be part of the St. Lucie Estuary. The St. Lucie Estuary is a complex and connected body of different waters, including forks of the St. Lucie River, at least a portion of the Indian River Lagoon, and other tributaries. The estuary includes areas that are typically fresh, brackish and saltwater, and the salinities can vary across the estuary over the course of the year. The SFWMD defines the St. Lucie Estuary Watershed as a large area that includes the C-23, C-24, C-25, C-44, S-153, Basin 1, North Fork and Tidal St. Lucie basins. We ask that the Corps indicate which specific areas are included in its definition of the St. Lucie Estuary for purposes of the deviation, and in particular, whether the North and South Forks of the St. Lucie River, the Indian River Lagoon, and canals leading into the river system are included.

We have a similar issue with the definition of the Caloosahatchee Estuary. The Caloosahatchee River extends more than 65 miles west from Lake Okeechobee to the Gulf of Mexico, which the final 25 miles being subject to tidal influences. Depending on the source one reviews, the Caloosahatchee Estuary includes all or portions of the river, San Carlos Bay, Pine Island Sound, Estero Bay, and waterbodies that drain into those waters. The watershed that drains into the Caloosahatchee River and connected waters covers an enormous area of Southwest Florida. Like with the St. Lucie Estuary, the Corps needs to indicate which specific bodies of water are included in its definition of "Caloosahatchee Estuary" so that water users know where detection of HABs can result in the lowering of Lake Okeechobee pursuant to the proposed deviation.

B. The Conditions On Use of the Deviation Provide No Substantive Limits

We are concerned that the release of water from Lake Okeechobee in the spring dry season, when lake levels already are low, effectively drains away water supply that will be needed if there is a drought in the following months. For that reason, we would

hope that the Corps will only implement the proposed water management operations in very limited circumstances. However, the conditions that trigger the deviation are so general that they would appear to allow HAB operations at any time.

The first condition that would warrant the new operations is "[i]f a HAB is currently in Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary." DEA, at A-2. As discussed above, the definition of "harmful algae bloom" is so vague that it could include a wide variety of conditions, and the definition of the water bodies where an HAB could be present could include a wide geographical area. The draft EA is silent regarding who would decide that an HAB is present, and what evidence would be sufficient to make that determination. Algae is normally present in the aquatic environment as part of the natural ecosystem. The FDEP and SFWMD now test regularly for the presence of algae and they find it across Florida. So if this condition is met by the presence of any such algae, then it will likely always be met somewhere in the vast area running from the Gulf of Mexico, up the Caloosahatchee River to Lake Okeechobee and down the St. Lucie River to the Atlantic Ocean.

We are concerned that the Corps will rely on satellite imagery to determine whether blue green algae is present, based on the discussion in the draft EA. *See* DEA, at 1-8 to 1-10 (discussing satellite imagery of algae in Lake Okeechobee). Investigations to date indicate that such visual evidence of algae is unreliable, because it can indicate algae is present when in fact it is not. The SFWMD recently sent a team to sample a location in Lake Okeechobee that satellite imagery indicated had blue green algae, but when they took samples and had them analyzed, they found that no such algae was present. [SFWMD 2019b]. Furthermore, remote sensing cannot accurately assess nor predict cyanobacteria biovolumes or microcystin concentrations in large lakes. [Lunetta, et al. 2015; Stumpf et al. 2016.] Specific thresholds for any large lake must be based upon the validation of satellite imagery for that system using long-term on-lake monitoring of cyanobacterial biomass and bloom toxicity. [Davis, et al 2019]. This tool is not yet reliable enough to make accurate judgments regarding the presence of blue-green algae.

The second condition is "[i]f the State of Florida declares a state of emergency due to HAB's on Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary." DEA, at A-2. This is the clearest of the conditions for implementation of the proposed deviation. We note, however, that a declaration of emergency does not necessary mean that harmful algae blooms are caused by any water management decision on Lake Okeechobee.

The third condition is "[i]f a HAB is anticipated to occur on Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary." DEA, at A-2. This condition seems fraught with risk that the Corps will implement the new deviation without basis. It shares the vagueness of the basic terms used in the proposed deviation (e.g.,

"harmful algae bloom," the definition of the affected waterbodies). In addition, this condition calls for forecasting something which is poorly understood. The FDEP has indicated that predicting algae blooms is very difficult. [FDEP 2019c]. This is proven by the draft EA itself, which states that in the second week of July 2019, NOAA forecasts indicated that there was a medium to high potential for an algae bloom. DEA, at 1-9. Yet, subsequent FDEP testing indicated that there were only small amounts of blue green algae on the lake. [FDEP 2019f]. Current science is simply not capable of accurately predicting an algae bloom, so this condition calls for the Corps to make a guess. As longtime water users, who rely on water supply from the lake during times of drought, we disagree with the Corps draining the lake without reliable technical basis.

The fourth condition for implementation of the proposed deviation is "[i]f a HAB has occurred and caused harm, or have impacted public safety during the last 12 months within Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary." DEA, at A-2. We believe this condition will effectively allow the Corps to arbitrarily implement the proposed operations whenever it wants. (The National Park Service agrees, based on correspondence attached to the draft EA.) Like the other conditions, it suffers from the vagueness of key terms, and does not state what it means for algae to have "caused harm" or "impacted public safety," or who would make those judgments. More importantly, because this condition could be triggered by HAB's anywhere over a vast area over the course of a year, the trigger likely will constantly occur. The continual occurrence of a legal trigger allows the Corps unfettered discretion to arbitrarily determine what if any further action is needed. For example, there could be a HAB in a corner of the Caloosahatchee Estuary once over the course of a summer, and that could allow the Corps to release water from the lake to the west, east and south for the following year. Algae is ubiquitous and the FDEP and SFWMD are constantly testing for it, so a 12-month rolling average for this condition is no limitation at all.

C. How the Corps Will Actually Implement the Deviation is Unclear

It is unclear exactly what the Corps will do when it implements the proposed HAB operations. This is an important concern, because the release of even small quantities of water from Lake Okeechobee when stages are low can have an outsized effect on public water supply during times of drought.

The Corps apparently would not be required to do anything in particular. The draft EA indicates that the Corps would just be given greater "flexibility" than is contemplated in LORS 2008, in particular, freedom to drain water from the lake during the spring dry season. DEA, at 1-11, 2-1, A-1. This means that the Corps could make all releases allowed in the proposed deviation, none of the releases in the proposed deviation, or just some of the releases. The draft EA indicates that each release decision will be unique, so we do not know exactly what the Corps will do. *E.g.,* DEA at 1-11, A-3. (For purposes

of our review of the draft EA, we assume that the Corps will engage in similar operations to those of the past year under the "additional operational flexibility" program, modified to include the additional features of the proposed deviation.)

It is unknown when and for how long the deviation would be implemented. In the same sentence, the draft EA makes the seemingly contradictory statements that "[t]he planned deviation would be implemented as soon as possible," but "action may not be taken immediately." DEA, at 1-11. The draft EA states that the deviation will be in effect for a "minimum of one year," *id.*, but there is no maximum period of time that it will be in effect. Later, the document states that it "may be extended until LORS 2008 is replaced by a new water control plan (LOSOM) anticipated in 2022." *Id.* (emphasis added). We take this to mean that the proposed deviation will be effect as long as LORS is in effect, which likely will be years. The length of time HAB operations occur matters, because the draft EA does not take into account long-term effects of managing the lake in this way.

The recent history of water management in Lake Okeechobee is that the Corps leaves short-term plans in place for years. In 2008, the Corps adopted LORS, which replaced the previous regulation schedule for Lake Okeechobee known as WSE. When the Corps adopted LORS in 2008, it stated that it was an interim schedule that would be in place for approximately three years. U.S. Army Corps of Engineers, Lake Okeechobee Regulation Schedule Study, at ix & App. C (2008) ("LORS 2008 EIS"). However, the Corps has been operating under LORS ever since, eleven years later, and now says that it will stay in place until at least 2022, when a replacement schedule (to be called LOSOM) is "anticipated." For planning purposes, the Corps assumes that LORS will be in place even longer, as it is the "future without project" assumption during the fifty year planning horizon for other Comprehensive Everglades Restoration Plan ("CERP") projects. Given this history, we ask that the Corps state whether it intends to make operations under the proposed deviation the proposed action for purposes of the LOSOM planning process, with the implication that this will be in place for many years.

Where the lake water will be sent also is uncertain. The draft EA states that "[r]eleases may be done east, west or south depending on where releases could be beneficial or have minimal impacts." DEA at 2-3. The decision as to where impacts would be "beneficial" or have "minimal impacts" has no stated criteria, so the Corps would appear to have granted itself unlimited discretion. The draft EA has a non-exclusive list of factors that might be considered ("Needs may include, but not limited to, environmental releases to maintain salinities within the estuaries or to hydrate the WCAs during important nesting periods"), but even those listed are so vague that they provide no meaningful guidance (e.g., what salinities should be maintained in the estuaries, what species have important nesting periods in the WCAs that need hydration, etc.).

The criteria identified in the draft EA place no clear boundaries on the Corps' discretion regarding where to send the water. The draft EA indicates that releases to the south would be made to the "maximum practicable," based on "the capacity in the Miami River, North New River, and Hillsborough canals to deliver water south while still providing the authorized flood control and the capacity in the state of Florida STAs to meet downstream water quality standards." DEA, at 2-1. This does not indicate what capacity is required, the flood control levels the Corps believes are authorized (and what this means for actual water levels in those canals), and what limits are imposed by the need to meet water quality standards. (We note that the Environmental Protection Agency appears to agree that this is vague, based on correspondence attached to the draft EA.) Additional limitations on releases south have no detail and are subjective. The draft EA states that the Corps would not make releases that "would cause any of the WCA's to rise more rapidly than is preferable" (not indicating what is preferable), or that would "create or exacerbate high water conditions" there (not indicating what it believes constitute high water conditions in a yearly-inundated marsh). *Id.* The draft EA also indicates that "[h]ydrological, ecological and water supply conditions within the WCAs would be taken into account," *id.,* again no stating what it means by "ecological conditions" (which could be almost anything) or what "water supply conditions" even means for the WCAs (which are downstream of most agricultural users and are not the direct source of any urban or agricultural water supply).

The concept of the "water bank," while well meaning, is also vague. It would not be a true bank, where stored water would be segregated from other water in the lake. Instead, it would be an accounting system that tracks releases in a ledger. Not all of the water released from the lake to the south apparently would be tracked in the ledger: "only lake water sent south to the STAs/WCAs as part of HAB operations would be tracked and banked." DEA, at 2-3. Presumably this means that the Corps will decide what to include and exclude from the ledger, and will keep more than one set of books. The Corps may not even follow the ledger all the time, as the draft EA describes the zero-balance ledger at the end of the accounting year to be a "goal." DEA, at 2-2. Unless the water bank includes all releases and holdbacks, we are concerned that it could be made to look successful through accounting maneuvers when in fact there is a net loss of water supply.

Interagency discussions are no substitute for clear criteria. The draft EA repeatedly discusses how the Corps will consult with other agencies before acting. *E.g.,* DEA, at 2-2. Such meetings do not give equal treatment to all stakeholders. Although we are among the primary parties harmed by water shortages during droughts, we have no say at such governmental meetings, so this intention to engage with other agencies gives us little comfort. More importantly, since the factors to be considered in deciding whether the drain the lake are so vague, these meetings may simply result in ad hoc

decision making that makes it very hard for us to understand the full parameters of what is likely to occur.

D. The Lack of Definition to the Proposed Deviation Indicates that the Corps Is Seeking to Modify the Regulation Schedule

It appears that the Corps is not proposing a deviation but a major revision to LORS. The Corps should process this new proposal as a revision to the water control plan.

A deviation is a short-term departure from normal operations. The word "deviation" generally means a departure from a standard or norm. Corps regulations make clear that a deviation from a water control plan is a "temporary operation consistent with the project authorization, all other applicable laws and policies, and the objectives for system and project operations." Engineering Regulation 1110-2-240, at F-1 (May 2016). Water control plans define "normal operations," *id.* at 3-2, and any departure from normal operations is a deviation. Nothing in Corps regulations indicates that a permanent change to a water control plan (i.e., one that would be in place as long as the water control plan is effective) is a deviation.

Here, the Corps is proposing operations that would occur virtually every year in the spring and summer months. The Corps has not indicated any end date for the new operations; the draft EA also states that the new operations will be in effect until the LOSOM is finalized, which is only "anticipated in 2022." The recent history of Corps water management of Lake Okeechobee is that the Corps leaves in place water control plans longer than originally indicated. The proposed new operations also depart from the project authorization (discussed below). For all of these reasons, it is apparent that the Corps is not proposing a temporary departure from LORS, but rather is permanently revising that regulation schedule.

This affects the Corps' administrative process. We question whether the Corps can make essentially a permanent change to LORS with just an Environmental Assessment. Since LORS was implemented after a full Environmental Impact Statement ("EIS"), a major revision to LORS should also be subject to an EIS. We also question whether this operational change can be approved as a deviation, because "[s]ignificant, recurrent or prolonged deviations from operations prescribed by an approved water control plan may indicate a need for formal change to operations prescribed by an approved water control plan." Engineering Regulation 1110-2-240, at 3-7 (May 2016). Corps regulations require the agency to hold public hearings, and engage in other procedural steps, when it revises a water control plan. 33 CFR § 222.5(g)(2)(i) ("Conditions that require public ... meetings include ... revision or update of a water control manual that changes the water control plan"). Given the significance of what is being proposed, we ask that the Corps follow the proper procedures in advancing this latest proposal, conduct public hearings, and prepare an EIS.

II. The Corps Has Not Complied with NEPA

The Corps appears to be planning to implement the proposed action based on the draft EA, given its simultaneous release of the draft finding of no significant impact ("FONSI"). This is not sufficient to comply with NEPA. NEPA requires preparation of a more detailed EIS, with more opportunities for public input, for all major actions significantly affecting the quality of the human environment. 42 U.S.C. § 4332(2). The draft EA does not sufficiently consider alternatives, does not analyze all reasonably foreseeable environmental impacts and does not make a convincing case that there will be no significant impacts.

A. The Corps Has Not Sufficiently Considered Alternatives

To make an informed decision, the Corps must consider a reasonable range of alternatives so that it can see the environmental effects of different choices. The draft EA compared the environmental effects of two alternatives: the no action alternative (i.e., current LORS operations) and the proposed action (Alternative B). For each topic of concern, the draft EA identifies and compares the effects of only those two alternatives.

Two additional alternatives were identified but not analyzed in the draft EA. Alternative C would be similar to the proposed action, but would have fewer limitations on draining the lake during the spring dry season. DEA, at 2-5. Alternative D would be similar to the proposed action in that it would hold back releases from Lake Okeechobee to the estuaries during the summer, but it would not seek to preemptively drain the lake during the spring dry season. *Id.* The two alternatives were briefly discussed in the draft EA and then "eliminated from detailed evaluation." *Id.* at 2-7. For Alternative C, the draft EA has two paragraphs of conclusory statements about its effect on water quality in the estuaries and the ecology of the lake, and two sentences related to its water supply effects. *Id.* at 2-5 to 2-6. For Alternative D, the draft EA has seven sentences of unsupported assertions about its alleged effects on lake ecology, the Herbert Hoover Dike, and flood protection. *Id.* at 2-6 to 2-7. Since both of those alternatives were "eliminated from detailed evaluation," the draft EA did not take a hard look at their effects.

The draft EA's consideration of alternatives is insufficient under NEPA. The Corps is required to consider a sufficient range of reasonable alternatives in its environmental assessments. *See, e.g.,* 33 CFR § 230.10(b) (EAs should discuss "appropriate alternatives if there are unresolved conflicts concerning alternative uses of available resources"); 40 CFR § 1500.2(b) ("Federal agencies shall to the fullest extent possible... [u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of those actions"). Reasonable alternatives include those which meet the project purpose and need and which are "not within the jurisdiction of the lead agency." 40 CFR 1502.14(c). The Corps cannot dismiss an alternative from detailed consideration simply because it already has decided that it does not want to implement it.

1. The Corps Needs to Better Define its Goals

The draft EA needs to better define the goals for the proposed action. An agency's purpose defines the range of alternatives, because alternatives are different ways of achieving a goal. The draft EA contains no clear statement of the agency's purpose and need for action, which makes it difficult to determine whether any specific alternative meets the goal. In general terms, the draft EA states that the Corps' goal is to "reduc[e] the risk to public health and safety associated with HABs." DEA, at 1-6. More specifically, the draft EA indicates that the Corps wants to increase its flexibility to respond to HABs and also to reduce releases to the St. Lucie and Caloosahatchee Estuaries during the summer when HABs may be present. DEA, at 2-5 (describing the goal as "enhance the ability of the Corps to respond to HABs within its authority" and to "provide operational flexibility to manage water to reduce the risk of transporting a HAB from Lake Okeechobee to the Northern Estuaries and/or exacerbating a HAB in the Northern Estuaries"), 2-6 ("reducing releases to the estuaries during HABs"), 2-7 ("purpose of allowing greater flexibility with water management decisions when HABs are forecasted or present in Lake Okeechobee, the St. Lucie or Caloosahatchee Estuaries, or the system of canals that connects them").

To the extent that the statements about reducing releases from the lake represent the Corps' project purpose and need, we believe that the Corps has defined its purpose too narrowly. The underlying problem to be addressed is HABs, and there may be many ways to address that problem which do not involve draining away water supply for local communities. An agency cannot define its goals so narrowly as to justify selection of only its preferred course of action.

We are concerned that the latest focus on HABs may obscure an unstated Corps goal, which is simply to lower average water levels in Lake Okeechobee. Our concerns are based on history. Until approximately 2000, the Corps managed the lake to maintain much higher water levels in order to assure the availability of water supply during droughts. As discussed below, the Corps did this pursuant to Congressional project authorizations, in particular, the Flood Control Acts of 1948, 1954 and 1968.

When CERP was developed in the late 1990s, the agencies decided that it would be better for environmental reasons if the average water levels in Lake Okeechobee were lower, both for the ecology of the lake and to reduce regulatory releases to the St. Lucie and Caloosahatchee Estuaries. Congress authorized such operations in the Water Resources Development Act ("WRDA") of 2000, but prohibited the Corps from undercutting the longstanding project purpose of water supply by requiring it to assure there would be alternative sources of water before eliminating an existing source. Pub. Law No. 106-541, § 601(h), 114 Stat. 2680 (Dec. 11, 2000).

Ever since CERP was developed, every Corps revision to or deviation from Lake Okeechobee regulation schedules has been to lower the average water level in the lake. In each case, the Corps identified as part of its purpose the goals identified in CERP, i.e., the improvement of ecology in Lake Okeechobee and/or environmental impacts in the downstream waters (e.g., the Northern Estuaries). Even with LORS 2008, where the Corps indicated that it was lowering lake levels to protect the Herbert Hoover Dike while it was being rehabilitated, the Corps also identified an environmental purpose that lower stages would help the lake recover from high water years in 2004-2005. *See, e.g.,* LORS 2008 EIS, at ii. For this latest proposal, while the draft EA discusses HABs in particular, the focus of discussion is on environmental conditions in the lake and downstream estuaries, with barely a mention of water supply. The Corps' current proposal therefore appears consistent with the Corps' 20-year policy direction to just lower lake stages.

We ask that the Corps be very clear about its goals with the proposed action. If the draft EA accurately states that the Corps' only goal is to address HAB conditions in the downstream estuaries, then we ask that the Corps demonstrate that by considering alternatives that address that problem without reducing lake stages.

2. The Corps Should Take a Hard Look at Alternative D

The draft EA should not have eliminated Alternative D from detailed consideration. That alternative deserves a hard look so that the Corps (and public) can better understand the environmental tradeoffs being considered.

Alternative D meets the agency's goal, however that goal is formulated. Even assuming that the statements in the draft EA about wanting "flexibility" and "reducing releases to the estuaries" are the proper formulation of the Corps' goals, Alternative D would stop releases from the lake during the time when HABs are more likely to be present. (The Corps probably already has that flexibility now, because LORS defines the maximum discharges to the estuaries, not the minimum discharges. *See* DEA at 1-6 (LORS 2008 Part D).) It also would avoid the risk to water supply, so we see no reason why the Corps should not take a hard look at that option.

The reasons given for eliminating Alternative D lack factual support. The Corps appears to have conducted no hydrological modeling of any of the alternatives to determine the effects of different operations on water levels in the lake, total releases downstream, or other considerations. The Corps and SFWMD have several hydrological models that can analyze the effect of changing operational rules, with a robust multi-decade period of record that allows one to see what would happen in different years if various rules were in place. The Corps developed at least one of those models based on a specific authorization from Congress in WRDA 1988. Pub. L. No. 100-676, § 11, 102 Stat. 4012 (Nov. 17, 1988). Over the past quarter century, the Corps has not made any significant change to water management in South Florida without extensive hydrological

modeling. It is therefore surprising that the Corps would consider draining the lake each year during the spring dry season without conducting hydrological analyses using those models.

Hydrological modeling conducted by nongovernmental experts using the same models and assumptions that are used by the Corps and the SFWMD in analyzing lake operations, indicates that statements in the draft EA about hydrological effects used to dismiss Alternative D are false. MacVicar Consulting conducted a preliminary analysis of the proposed action using the SFWMD's Lake Okeechobee Operations Screening Model ("LOOPS Model"). That modeling analysis indicates that the following statements in the draft EA about Alternative D are incorrect:

"[T]his alternative poses the most risk to increased frequency of high lake stages." DEA, at 2-6. The LOOPS model shows that Alternative D only increases by 1% the percentage of time that lake stages are over 15.0 feet NGVD. 15.0 feet is within the acceptable lake stage envelope, so this is not even a high lake stage, and a 1% increase is a negligible effect. The maximum stage for every alternative (including current operations and Alternative D) is essentially the same, at 17.65-.66 feet. Nothing the Corps is considering will change that.

"Stages higher than 15.5 feet NGVD are harmful to Lake Okeechobee emergent and submerged aquatic vegetation that are critical habitat to the endangered Everglade snail kite and provide critical ecological services for fish and wildlife, reduce water quality, and fisheries." DEA, at 2-6. This statement of impact is based on the false premise that Alternative D will significantly increase the time the lake stage will be over that level. This statement also is incorrect to the extent that it implies that any period of time over 15.5 feet causes lasting harm to lake vegetation. Water levels in Lake Okeechobee go up and down seasonally in response to rainfall and water management decisions. High lake levels and low lake levels are not ideal when viewed in isolation from one another, but variation in water levels is normal and healthy for the lake. LORS 2008 EIS, at 146 ("Although the stage envelope is optimal for Lake Okeechobee, it is necessary for the system to occasionally experience the extreme highs, and particular the extreme lows, which would mimic more natural conditions."). Water levels above 15.5 feet for short periods of time do not cause real harm. *Id.* ("In Lake Okeechobee, water level management that mimics natural conditions will have the greatest benefits to plant communities (FFWCC, 2003)."). Without further analysis of how long lake levels might be over 15.5 feet, one cannot draw conclusions about environmental harm. That is why the Corps needs to take a harder look at its options.

"This alternative would also increase the flood risk to surrounding Lake Okeechobee communities, agriculture and downstream Rotenberger, Holeyland, and WCAs." DEA, at 2-6. No factual basis is provided for this statement. The only way that

Alternative D could create flood risk is if the Herbert Hoover Dike were to fail. As noted above, Alternative D would increase lake stages over 15 feet NGVD – well within the current range of acceptable water levels – by 1%, which means that it would have no effect on integrity of the Herbert Hoover Dike. If there is some other mechanism by which Alternative D would increase flood risk, then the Corps should explain what that is and the factual basis for the conclusion.

"This alternative would increase the lake stage and dam risk during and following actions to hold water back in the lake. The HHD has the highest possible Dam Safety Action Classification (DSAC) rating of 1 and it is not appropriate to alter lake operations such that they would increase risk to the HHD." DEA, at 2-6. As noted above, modeling shows that Alternative D would not increase the highest lake stage compared to current operations, and would increase stages over 15 feet by only 1%. The current regulation schedule allows for water levels in the operational band up to 17.25 feet. DEA at 1-4. In the 2016 EIS for the Herbert Hoover Dike Dam Modification Study ("HHD EIS"), the Corps indicated that risks to the unrepaired dike "become more prevalent at lake elevations above 17 feet [NAVD88] and are cause of increasing concern when operating at or above these levels for any significant period." HHD EIS, at 1-1. Alternative D would not cause lake stages to go anywhere near that level. That same study indicated that lowering lake levels further compared to current operations would have no significant effect on water levels in a standard project flood, which indicates that the proposed deviation would have no significant effect on the risk of dike failure. HHD EIS, at 2-12 ("even with an initial lake stage of 9.1 ft. (NAVD88), the Standard Project Flood (SPF) event results in peak lake stage of 23.7 ft. ... [t]herefore, implementing a modified operational schedule would not significantly reduce lake stages during large storm events"). This 2016 analysis by the Corps also suggests that if Hurricane Dorian had crossed the Florida peninsula as was briefly forecasted, the lowering of lake stages as part of the "additional operational flexibility" program would not have had a significant effect on the risk of dike failure.

Over the last 15 years, the Corps has conducted approximately $1 billion of work to strengthen the dike, and the most vulnerable locations already have been rehabilitated. There may be a few locations to complete before the dike can handle the higher lake stages that occurred prior to LORS 2008, but it is our understanding the work to date has increased the stages the dike can handle safely. Corps officials reportedly have stated that the dike already can safely handle at least an additional six inches of average lake stage. If the Corps has done an analysis of how much Alternative D would increase the risk of dam failure, then it should provide that analysis for public review. However, conclusory statements that the dike cannot handle any increase in water levels, even within the currently acceptable stage envelope, lack credibility and are not a reason to avoid detailed evaluation of Alternative D.

3. The Corps Should Consider Other Alternatives that Address the Actual Problem of HAB

In addition to Alternative D, the Corps should consider other alternatives that do not jeopardize our water supply. It is Corps policy in developing water control manuals to prioritize conservation of water to protect against drought. 33 CFR § 222.5(f)(4) ("Development and execution of water control plans will include appropriate consideration for efficient water management in conformance with the emphasis on water conservation as a national priority. ... Balanced resource use through improved regulation should be developed to conserve as much water as possible...."). The proposed action does not meet this requirement. Addressing HABs does not require the Corps to reduce water supply that protects nearby communities in times of drought. We recommend that the Corps consider alternatives that address the issue of HABs without draining the lake.

a. Alternatives That Could Allow More Lake Storage Without Draining Water Supply

The Corps should consider alternatives that increase the storage capacity of Lake Okeechobee without reducing water supply. Instead of releasing more water from the lake in the spring dry season, the Corps should consider the potential to reduce inflows to the lake from upstream basins. Virtually all surface inflows come from north of the lake, and at least some are subject to some kind of water control pursuant to Corps regulation schedules. If some of that water were held back so that it did not flow into the lake immediately, it could create additional capacity in the lake to hold back summer releases to the estuaries. The advantage of such an approach would be that if a drought developed, then the water still would be available to replenish the lake and supply water users. The failure even to identify such options is an obvious weakness of the draft EA.

Another alternative the Corps should consider is expediting the last key repairs to the Herbert Hoover Dike. The Corps is close to completing repairs to the dike that would allow for much higher water levels associated with water control plans that preceded LORS 2008. We have been informed that the dike already can handle half a foot (at least) of additional water without any increased risk. But if there is some specific location that requires work to raise lake levels, the Corps should consider an alternative that would expedite that work so that more water could be held back during the summer.

b. Alternatives That Address HABs Directly

The Corps also should fully consider alternatives that address the problem of HABs directly without draining the lake of water supply. First, the Corps should consider alternatives that remove algae before it flows from the lake into the C-43 and C-44 canals. The Corps is testing this concept nationally and has done some tests in South Florida. It seems obvious to us that the Corps could reduce the algae flowing from the lake through a system of skimmers or booms similar to those currently used near water control

structures to fend of floating aquatic plants. EPA also has a national program to address HABs under the Harmful Algal Bloom and Hypoxia Research and Control Act, which might present opportunities for the Corps to approach HABs in South Florida differently than it proposes to do so now.

Second, if the concern is HABs in the Caloosahatchee and St. Lucie Estuaries, then the Corps should consider alternatives that would reduce algae in those estuaries. The formation of HABs is a worldwide phenomenon that is not limited to Lake Okeechobee. Releases from Lake Okeechobee are not the sole or even primary cause of HABs in the St. Lucie and Caloosahatchee estuaries. FDEP sampling indicates that HABs can form in the estuaries even when no water is being released from the lake. [Moisander, et al. 2002; FDEP 2019f]. This suggests that if the Corps wants to eliminate algae in the estuaries, reducing discharges from the lake will not solve the problem. The Corps should consider whether it could reduce discharges from other C&SF Project canals that drain local basins to the St. Lucie and Caloosahatchee Estuaries during the algae season, remove HAB from the estuaries using skimmers or some other technology, or take some other measures to address the HAB problem without jeopardizing our water supply.

Third, the Corps should look at alternatives to prevent HABs from forming in Lake Okeechobee in the first place. The draft EA indicates that several factors may contribute to HABs, including nutrients, "warm water temperatures, reduced water flow, and lack of animals that eat the algae." DEA at 1-7. We are not responsible for any of those factors in Lake Okeechobee. Water from Everglades Agricultural Area flows south – away from the lake – and nutrients from our farms are removed by on-farm best management practices and STAs. SFWMD statistics show that 95+% of the nutrients in Lake Okeechobee come from basins north, east and west of the lake --- in other words, somewhere else. [SFWMD 2019g]. Rather than jeopardize our water supply for a problem that we did not cause, the Corps should consider alternatives that would address the nutrient levels in the lake by reducing contributions from other sources or other measures that tackle the actual cause of the problem.

B. The Analysis of Impacts is Inadequate

The discussion of environmental impacts caused by the proposed action is inadequate. The draft EA is extremely cursory in its discussion of effects of the proposed action, addressing potential impacts mostly in generalities. The document does not even provide that level of consideration to obviously reasonable alternatives, such as Alternative D, which was eliminated from the detailed consideration. We recommend that the Corps substantially improve this aspect of the draft EA before it makes any final decisions. Our comments with regard to each potential impact category are as follows.

1. Effects on Harmful Algae Blooms

The draft EA has surprisingly little discussion of the effects of the proposed action on HABs. The whole purpose of the proposed action is to "reduc[e] the risk to public health and safety associated with HABs." DEA, at 1-6. To do this, the Corps is proposing to push water levels in Lake Okeechobee so low that it would undercut the ability to provide water supply in droughts and impair navigation in the lake. Presumably the Corps would be willing to do this only for a very compelling reason.

The Corps' judgment on the effects of its action on HAB is entitled to no special deference. The Corps admits that it has no expertise related to HABs. DEA, at 4-19 ("the expertise in water quality and the potential for presence of HABs lie outside the Corps"), A-3 ("the expertise and authority in water quality lies outside the Corps"). We therefore would expect the draft EA to present facts indicating the significance of the HAB issue in Lake Okeechobee and Northern Estuaries, and how the Corps' proposal will effectively deal with that issue.

The draft EA provides no such evidence. NEPA regulations require that environmental documents contain a "brief discussion of the need for the proposed action," 33 CFR 230.10(b), as well as a discussion of the existing environment. 40 CFR § 1502.15. There no real discussion of existing conditions related to HABs in the waterbodies at issue, and why HABs in recent years justify imperiling the project purposes of water supply and flood control. In particular, the draft EA does not provide the following basic facts:

- *How much do HABs from Lake Okeechobee travel to the St. Lucie and Caloosahatchee Estuaries in a typical year, and how many blooms were discharged to the estuaries in 2016 and 2018.* The draft EA indicates that there were HABs "on Lake Okeechobee and in the downstream estuaries" in 2016 and 2018, which appears to be why the Corps is proposing this action now. But HABs occur worldwide, and FDEP sampling indicates that HABs occur in Florida waters that are unconnected to Lake Okeechobee and in the St. Lucie and Caloosahatchee Estuaries when no water is being discharged from the lake. [FDEP 2019f]. The fact that HABs occur in the St. Lucie and Caloosahatchee Estuaries does not mean that they originated in Lake Okeechobee.
- *What proportion of HABs in the St. Lucie and Caloosahatchee Estuaries in 2016 and 2018 were caused by discharges from Lake Okeechobee.* The implication of the Corps' proposal is that lake releases are a significant cause of downstream HABs, but nowhere does the draft EA show that is the case. This suggestion runs counter to the statement in the LORS 2008 EIS that "it is unlikely that discharges from Lake Okeechobee are a prerequisite for HAB formation" in the Northern Estuaries. LORS 2008 EIS,

at 112 ("in some years, [downstream HABs] appear associated with discharges from Lake Okeechobee (e.g., Caloosahatchee 2001), while in other years blooms develop with virtually no discharge from the Lake (Caloosahatchee 2006)").

- *Why HABs in the St. Lucie and Caloosahatchee Estuaries are a more important problem than HABs in Lake Okeechobee.* The Corps is proposing to stop discharges in the summer months to prevent HAB from traveling downstream to the estuaries, which means that HABs will be concentrated in the lake. This signals that the Corps believes that HABs in the estuaries cause more harm than HABs in Lake Okeechobee, or that the people who live near the estuaries need to be protected more than people who live near Lake Okeechobee. There are no facts or discussions explaining why this is the case.
- *How much environmental and economic damage in 2016 and 2018 was caused by HABs caused or exacerbated by Corps operations pursuant to LORS 2008.* There is no description of exactly what harm occurred in those years as a result of HABs, and how much of that harm resulted from lake releases. If the damage from HABs would still occur regardless of water management on the lake, then the Corps will achieve no benefit from the proposed action.

In addition to not describing existing conditions that are the basis of the Corps' proposal, the draft EA also does not provide any critical analysis of how the proposed action will affect HABs in Lake Okeechobee and the downstream estuaries. The draft EA identifies several factors that cause or contribute to HABs. Those include elevated nutrient levels (it does not say whether that means phosphorus or nitrogen), salinity levels, warm water temperatures, "reduced water flow" / water stratification / "stagnant water conditions," and "the lack of animals that eat algae." DEA, at 1-7. Yet, the document does not analyze how each factor would be affected by the proposed action, which would lower average water levels in Lake Okeechobee, and lower flows from the lake into the St. Lucie and Caloosahatchee Estuaries during the summer months when water temperatures are highest. That action could affect the different factors in different ways. Specifically:

Nutrient levels. The draft EA states that "increased nutrient loading can be a factor in favoring freshwater bloom conditions in the estuaries," and "Lake Okeechobee freshwater releases can ... provide nutrients that promote blue green algae blooms," but acknowledges that "[n]utrient loading to the estuaries on the east coast and west coast from Lake Okeechobee is overshadowed by local runoff in most all conditions." DEA, at 1-7. If reduction in lake releases during the summer is intended to affect downstream HABs by reducing nutrients, then the EA should indicate how important nutrients from the

lake are in the formation of HABs in the estuaries. Some studies have found that once phosphorus levels are at 10 parts per billion or higher, the formation of HABs is driven by other factors. [Steinberg and Hartmann, 1988]. The draft EA does not indicate the nutrient levels in the two estuaries based on local runoff, and how releases from the lake affect those concentrations. If nutrient levels in the estuaries reach that threshold based on local runoff, then the incremental nutrient loading from the lake may not make any difference. We also note that the LOOPS Model indicates that the proposed action will increase average annual releases to the estuaries, and therefore increase total nutrient loads. If loading of nutrients in sediments is more important, the increase in total nutrient loads to the estuaries may make the HAB problem in the estuaries worse. The draft EA needs to be substantially revised to address these issues.

Water temperature. It is clear that water temperature is key factor that affects formation of HABs, and the increase in HABs in recent years may simply reflect the Earth's changing climate and not anything related to management of the C&SF Project. The draft EA states that "[t]he Corps does not have influence over ... temperature ... within Lake Okeechobee." DEA, at 1-7. There is no support in the document for this statement, and we note that by making the lake shallower on average, the Corps may increase the light penetration into the water column and therefore increase average water temperatures there. We recommend that the Corps provide actual data about water temperatures in the lake at different lake stages, controlling for cloud cover, rainfall, and other environmental factors that could affect water temperature. The draft EA also is silent on how lake releases affect water temperatures in the downstream estuaries. The draft EA should be revised to analyze whether there are different water temperatures in the lake and the downstream estuaries, whether lake releases could be conducted in such as a way as to draw water from lower in the water column where temperatures are lower, and whether lake releases affect downstream water temperatures.

Salinity Levels in the Estuaries. The draft EA states that "Lake Okeechobee freshwater releases can lower salinities in the estuar[ies]," and that "high steady discharges from Lake Okeechobee (similar to 2016 conditions) can increase the freshwater zone in the estuaries where the Lake Okeechobee freshwater blue greens can survive." DEA, at 1-7. Yet nowhere does the document indicate what salinity levels are necessary for freshwater HABs to survive, how much the proposed action will reduce salinities, and where the "freshwater zone" would change if the Corps were to implement the proposal. The proposed action may have a major effect or minor effect on downstream salinity levels, but one cannot tell from the document. This is the type of information that can be developed using hydrological models, which the Corps apparently has not used in connection with this proposal. In particular, the Corps should model the effect of the proposed action on summer releases if it were in effect in 2016, which was a high water year during which the Corps had little choice but to lower lake stages.

Water stratification in Lake Okeechobee and the Estuaries. The draft EA states that "[t]he Corps does not have influence over ... still/stagnant/stratified water conditions ... within Lake Okeechobee," and "cannot disrupt stratification conditions in Lake Okeechobee." DEA, at 1-7. The document provides no support for this statement. It runs counter to Corps statements over the years that deeper water levels in the Lake Okeechobee allows the water to become more turbid due to wind-driven mixing of the water column. It also runs counter to a study of HABs in the Ocklawaha Lakes in Central Florida conducted by Havens, et al. (2019). That study found that water depth was the most important variable affecting the formation of HABs, with shallow conditions associated with higher HAB levels and flushing of the lakes associated with disruption of blooms. Those results regarding cyanobacteria responses are similar in some ways to those reported by Noges, et al. (2003), who found that cyanobacteria were significantly reduced in biomass in high water years, and that during low water years, N_2-fixing cyanobacteria became more important. The Corps needs to give a hard look at such studies to evaluate how its proposal might affect HAB formation in the lake. If the Corps makes Lake Okeechobee shallower on average, and reduces the flushing releases associated with discharges to the estuaries, then that could increase the formation of HABs in Lake Okeechobee. The draft EA needs to be revised to actually analyze this issue with data, and not make assertions unsupported by facts.

With regard to water stratification to the estuaries, the draft EA states that "high steady discharges from Lake Okeechobee (similar to 2016 conditions) ... can increase stratification (enhances bloom conditions for Lake Okeechobee blue greens), reduces tidal flushing (disrupts freshwater HAB by circulation and increased salinity levels) and tends to create stagnant water conditions (favors blooms) in some areas." DEA, at 1-7. The document provides no factual support for these assertions, which run counter to common sense. Tidal action is driven by gravitational fields of the sun and moon, and is not affected by Corps water management. Whether there are high or low releases from the lake, tidal flushing will occur. Also, the release of water from the lake by definition flushes out the Caloosahatchee and St. Lucie Rivers, the opposite of stagnant conditions. Stopping lake releases in the summer will decrease flushing of the estuaries, make those waterbodies more stagnant, and increase stratification of the water column. Studies conducted by the Corps indicates that flushing of waters through releases from dams is one way to break up HABs. [Corps 2009]. Once again, the actual hydrological effects of the proposed action on conditions in both Lake Okeechobee and the St. Lucie and Caloosahatchee Estuaries needs to be modeled, and the Corps needs to present actual data instead of unsubstantiated assertions.

The draft EA also suggests that the proposed action will reduce HABs in the estuaries by not allowing them to travel from Lake Okeechobee. DEA, at 1-7. Yet, nowhere does it indicate how much HAB will be retained in the lake as a result of the

proposed action that otherwise would flow to the estuaries, or what effect this might have on HABs in the lake.

The flimsy discussion of HABs in the draft EA is confounding given the fact that the Corps is proposing this action specifically to address HABs. There is a conceptual gap between the lack of evidence connecting the proposed action to resolution of the identified problem, with is a hallmark of arbitrary and capricious government action. Presumably the Corps would only be willing to compromise water supply and navigation if it were going to significantly improve the HAB situation in the estuaries. The lack of any real discussion as to whether or how the proposed action will improve HAB conditions therefore is a glaring weakness of the document. The Corps needs to take a much harder look at this issue before it acts.

2. Water Levels in Lake Okeechobee

The draft EA states that the proposed action will have only "potential negligible effects" on lake stages, based on its assumption that the proposed "water bank" will result in no net change in water releases from Lake Okeechobee. DEA, at 4-2.

The discussion of hydrological effects appears to be entirely based on subjective judgments, not quantitative analysis. The Corps and SFWMD have a number of hydrological models which allow one to evaluate the effects of different water management actions using actual rainfall and climate data from a robust period of record. The Corps regularly uses such models to analyze the hydrological effects of its proposed actions; they are the centerpiece of most of the agency's NEPA documents prepared in connection with modifications to the C&SF Project. *See, e.g.,* Environmental Assessment and Finding of No Significant Impact, Temporary Planned Deviation from the 2012 Water Control Plan for Water Conservation Area 2A (July 2017); Supplemental Environmental Assessment and Finding of No Significant Impact, Temporary Emergency Deviation to Alleviate High Water Levels in Water Conservation Area 3A (May 2016); LORS 2008 EIS. Yet, for the current proposal, it appears that the Corps has conducted no hydrological modeling at all, which is a clear departure from its past practice. This means that the statements in the draft EA regarding the effects of the proposed action are subjective and have no quantitative support.

Preliminary modeling by the water resource management consulting firm, MacVicar Consulting, Inc., contradicts those assertions in the EA that appear to be inaccurate. MacVicar Consulting ran the LOOPS Model version 6.32, which is a hydrologic modeling tool developed by the SFWMD to provide screening-level testing of operating rules for Lake Okeechobee. It performs simulations using a multi-year period of record, so that one can see what would have happened under actual rainfall and climatic conditions if different operating rules were in place. While the Corps should conduct additional quantitative analysis of its proposed action using additional models,

these results from the LOOPS Model demonstrates that there will be significant hydrological effects from the proposed action that deserve detailed analysis.

With regard to lake levels, the LOOPS Model indicates that the proposed action will have no effect on the peak stage over the multi-decade period of record used for that analysis. This means that the proposed action would not have made a significant difference in a worst case scenario involving Hurricane Dorian. This is consistent with the Corps' modeling conducted for the Herbert Hoover Dike rehabilitation study, which indicated that lower lake sages do not make a significant difference in the standard project flood. HHD EIS, at 2-12.

However, the proposed action would result in a much lower minimum lake stage compared to current operations (8.96 feet), would increase the number of times that lake is less than 11.0 feet for more than 80 days (from 8 to 14 times), increase the amount of time the lake is below the navigation limit of 12.56 feet (37.8% of the time compared to 22.2% of the time under current operations), and would nearly quadruple the number of days when the lake is below 10 feet (845 days compared to 231 under current operations). With regard to releases the estuaries, while the proposed action would reduce releases in the summer but increase them in the spring, overall it would increase average annual releases the estuaries by 34% (from 762,000 acre feet to 1,020,000 acre feet). None of those effects would be "negligible" as asserted in the draft EA.

The draft EA appears to rely on the "water bank" concept for its claim that there will be a "net zero" balance in water releases over the course of the year. Under the proposed action, the Corps would drain water from Lake Okeechobee in the spring dry season, and then would hold back water during the summer wet season. The "water bank" concept is that the summer hold-backs will balance out the spring releases. The problem with this concept is that when the Corps drains the lake in the spring, it does not know whether or not there will be enough rain in the summer wet season to offset those earlier releases. Rainfall in South Florida varies widely from year to year, and there can be droughts in both the wet and dry seasons. The LOOPS Model indicates that if the Corps drained the lake similar to what it did this past year while using the additional flexibility identified in the proposed action, the "water bank" would have a negative balance in 38 years and a positive balance in only seven years. In addition, if the Corps were to drain the lake early in the dry season and drought conditions formed later that spring, it could result in water shortages that year even if there were sufficient rain later in the summer. The LOOPS Model indicates that for five historical drought years, if the proposed action were in effect, harmful water shortages could become devastating.

The two hypothetical scenarios identified in the draft EA do not undercut this modeling. In those scenarios, the draft EA assumes that the Corps would make only 30 days of "advanced releases" in the spring. DEA, at 4-2 to 4-3. Nothing in the current

proposal would limit the Corps to just 30 days of advanced releases. To the contrary, in 2018-19 with its "additional operational flexibility" operations (which are similar to the proposed action except that the Corps could release even more water with the deviation), the Corps made advanced releases from approximately October 2018 through June 2019, and discharged approximately 395,000 acre feet outside of LORS criteria. We believe that the Corps' most recent actions are a better basis to estimate the effects of the proposed action than the counterfactual 30-day assumption used in the draft EA.

The draft EA needs to be substantially revised to evaluate the effects of the proposed action on lake levels. The results for the LOOPS Model indicate that the Corps must conduct a much more detailed hydrological analysis using a variety of hydrological models to evaluate hydrological effects in average years, wet years, and dry years. The draft EA also needs to be revised to evaluate the effects of such different lake levels on different environmental media. Finally, we recommend that the draft EA analyze in detail the effect of the proposed action on achievement of the state minimum flows and levels for Lake Okeechobee.

3. Water Supply

The draft EA has virtually no analysis of water supply, and simply claims that there will be "no effect." DEA, at 4-4. The draft EA states that "[w]ater supply conditions would ... be evaluated through HAB operations," advanced releases "would not be implemented in the WSM band [i.e., when lake levels are critically low] or if significant impacts to water supply ... were high," there would be a "buffer of 0.25 feet above the WSM band," and "[a]dvanced releases would not be utilized if conditions such as drought or La Nina are forecasted." DEA, at 4-4.

These are well-meaning assurances, but they assume a greater ability to forecast future dry conditions than currently exists. The draft EA provides no data or quantitative analysis that indicates such reactive measures will be sufficient. As discussed above, preliminary analysis under the LOOPS Model indicates that the Corps will not be able to maintain a zero balance in the "water bank" even with these assurances.

More ominous to water users like us, the proposed deviation would maintain average lake stages so low that there would be no room for error. Using the 2018-19 "additional operational flexibility" operations as a guide, it is clear that the Corps will be pushing lake levels to the low end of the acceptable stage envelope. This past year, advanced releases drained enough water out of Lake Okeechobee to lower its stage by more than one foot compared to typical operations under LORS 2008. The result was that the lake stage dropped below 11.0 feet when the lake otherwise would have had a minimum stage closed to 12.0 feet, and the lake briefly entered the Water Supply Management band in July. If a drought were to start with the lake that low, it would lead to devastating consequences for water supply. Earlier modeling analysis shows that in

six drought years, if the Corps had been operating the lake with a target of achieving a lake stage of 11.0 feet (which is what the Corps did in 2019), it would have led to catastrophic water shortages and would have pushed lake levels below 9.0 feet on several occasions. [MacVicar Consulting 2019].

The LOOPS Model indicates that the proposed action would lead to major water shortages for agricultural and urban users in the Lake Okeechobee Service Area. The proposed action would result in 52 water shortage months (compared to 25 under current LORS operations), 19 years with water shortages out of the 45 years analyzed (compared to 14 years under LORS operations), and 13 severe water shortages (i.e., those with more than 100,000 acre feet of unmet demand) compared to five under LORS. None of these impacts are even acknowledged in the draft EA.

Even if the draft EA were correct that the worst case would be a 123,740 acre foot shortfall of water, DEA at 4-2 to 4-3 (discussing scenario 1), that confirms our fears about the risk to water supply. That is a substantial amount of water that would be enough to provide an entire month of irrigation water supply for the Lake Okeechobee Service Area. This is far from a "worst case" scenario, yet it underscores the need for close analysis of this issue.

These are major impacts to water supply which are papered over in the draft EA. We recommend that the Corps conduct a much more detailed analysis of this issue before it makes significant decisions. Nowhere does the draft EA discuss or analyze the negative effect on water supply of the proposed action. Nor does it evaluate how water shortages affect urban and environmental water users or environmental resources. The Corps must revise the draft EA to address those issues.

4. Navigation

The draft EA contains virtually no discussion of the effects of the proposed action on navigation. One of the original project purposes for the C&SF Project is to maintain a navigation channel through which vessels could transit Lake Okeechobee. The depth and therefore the availability of the navigation channel depends on lake levels. When lake stages are below 12.56 feet, the Corps cannot maintain authorized channel depths and achieve the Congressionally-authorized navigation purpose. [NWF 2012].

The draft EA does not even address whether in low water conditions, the proposed action would affect navigation. It only addresses navigation in the context of the hypothetical high water scenario, and states that there would be no risk to the navigation project purpose. DEA, at 4-3, A-9. It is improper for the Corps to ignore this important issue.

The proposed action would prevent the Corps for achieving this project purpose. This year, the lake stage was below 12.56 feet for approximately 4 months, mostly as a

result of the Corps' decision to drain the lake during the spring. The recent evaluation using the LOOPS Model indicates that the lake will be below the 12.56 feet navigation limit 37.8% of the time under the proposed action, compared to 22.2% of the time under typical LORS 2008 operations. A 68% increase in the time when Lake Okeechobee does not achieve a Congressionally-mandated project purpose is a major impact that deserves serious consideration. In particular, the draft EA should be revised to analyze specifically how and when navigation would be impaired, who would be affected by this (e.g., fishermen from local communities), and how this affects the local communities who rely on boating related activities for their economies. We recommend that the Corps take a hard look at this issue before it makes any final decisions.

5. Water Deliveries to Downstream Waters

The draft EA contains no substantive analysis of how the proposed action might affect water levels and flows in downstream waterbodies. It assumes that there will be no net change in releases to the St. Lucie and Caloosahatchee Estuaries, when modeling shows that there will be a significant increase in average annual lake discharges. There is no discussion of how exactly this will affect hydrology there.

The statements in the draft EA about hydrological effects on the Water Conservation Areas also appear to be unsubstantiated guesses. Nowhere does the draft EA calculate how much water would be sent to the Water Conservation Areas, or how it would affect the stages there. The draft EA also does not address whether the timing of additional lake releases could have unintended consequences, because those releases would be made during the winter dry season, when water levels should be decreasing in the Everglades. Everglades restoration is built on the concept of "getting the water right," which includes restoring the timing of water levels in natural areas. The proposed action would shift the timing of releases to the Water Conservation Areas to the dry season, which appears contrary to restoration goals. For instance, some scientists have indicated that one of the "keystone characteristics" of the Everglades is "ridge-slough topography," which requires a strong seasonal hydrology of wet and dry conditions. [SFWMD, 2019d]. We recommend that the Corps take a hard look at this issue, using quantitative tools like robust hydrological models, to see whether changing the timing of discharges to the Water Conservation Areas could affect restoration goals there.

6. Vegetative Communities

The cursory discussion of vegetation impacts is insufficient. With regard to the lake itself, the draft EA states that there will be "negligible effects on vegetative communities within Lake Okeechobee" based on the assumption that lake stages will stay within a range of 12.5 to 15.5 feet. DEA, at 4-4 to 4-5. It further states that "lake stage is not anticipated to drop below the extreme low stage [which it defines as 10 feet] more

frequently under HAB operations," and that "the frequency of extreme high stages is not anticipated to increase under HAB operations." *Id.* at 4-5.

As discussed above, it is a false assumption that the proposed action will not increase the time that water levels in the lake are outside of the 12.5 to 15.5 feet stage envelope. The statements in the draft EA about lake stages are unsupported by any computer modeling. The LOOPS Model indicates that the proposed action will cause lake levels to drop below 12.56 feet more than 37% of the time (compared to 22% under LORS 2008), and over the period of record would result in 845 days below 10.0 feet and 21 days below 9.0 feet. Those model results are confirmed by real world experience with the Corps' operations this past year, when it implemented a less radical version of the proposed action through its "additional operational flexibility" operations. In 2019, Lake Okeechobee was below 12.5 feet for more than four months, and dropped below 11.0 feet in June. The draft EA is just plain wrong when it assumes that the proposed action will not result in more frequent low lake stages.

The draft EA needs to take a fresh look at the effects of such lower stages on vegetation in Lake Okeechobee. The document admits that "[e]xtreme low lake stages (below 10.0 feet NGVD) can result in desiccation of the entire littoral zone," and cause other ecological changes. DEA, at 4-5. Unstated, however, is the fact that portions of the littoral zone dry out at 12.5 feet, that 95% of the littoral zone dries out at 11 feet, and that as much as 70% can dry out below 12.5 feet. FWS, Biological Opinion on Forward Pumps (2018), at 41, 43 ("Extremely low lake levels (less than 11 feet) expose 95% of the littoral zone to desiccation"). These areas will be drier for longer under the proposed action, which can affect vegetation communities. The draft EA does not look at any of these effects, and the single paragraph of discussion about low water effects on vegetation in the lake is insufficient.

There are similar errors in the discussion of the proposed action's effects on vegetation in the Water Conservation Areas. The proposed action will generally take water from Lake Okeechobee and send it elsewhere, including the Water Conservation Areas. It is apparent that sending additional water to the Water Conservation Areas can increase water levels there. The draft EA includes no hydrological modeling that shows what water levels can be expected in the Water Conservation Areas with the proposed action. Without such information, the draft EA is simply guessing when it says "Alternative B [the proposed action] is not expected to significantly change stages in the WCAs" and that "[p]otential effects to vegetation in the WCAs ... would not occur." DEA, at 4-6.

The discussion of vegetation effects in the estuaries also is flawed. The draft EA acknowledges that changes in salinities can affect submerged aquatic vegetation, but indicates that these effects will not occur because the releases will be "below the harm thresholds for the Caloosahatchee and St. Lucie estuaries." DEA, at 4-6. Elsewhere,

however, the draft EA asserts that the proposed action will reduce formation of HABs by reducing freshwater in the estuaries during the summer months that are "habitat area for freshwater blooms." DEA, at 4-11. These statements are inconsistent: the proposed action will either affect downstream salinities in a meaningful way, or it will not. The draft EA should be revised to indicate how much change to salinities will occur and where, both to show whether the plan will work to reduce HAB formation and to determine whether there may be unintended consequences to aquatic vegetation. We also recommend that the draft EA be revised to analyze how an increase in nutrient loads to the estuaries could affect vegetation there, an issue which the draft EA never discusses.

7. Fish and Wildlife

As with other impact topics, the draft EA's discussion of impacts to fish and wildlife is premised on the false assumption that the proposed action will not result in lower average water levels in Lake Okeechobee. DEA, at 4-7 ("lake stage is not anticipated to drop below the extreme low stage more frequently under HAB operations"). In fact, experience this year with the "additional operational flexibility" operations and hydrological modeling using the LOOPS Model indicates that the proposed action will greatly increase the amount of time when lake stages are low which dries out important wildlife habitat. The draft EA states that littoral zone habitat is "severely compromised" when it desiccates, DEA at 4-7, but sidesteps any real analysis of that effect with the claim that there will be no increases in dry down events. The draft EA should be revised to take a much deeper look into these effects, using correct hydrological assumptions, before it acts. That analysis should consider which areas of the littoral zone would be affected, which species use those areas, and how they would be affected.

With regard to the estuaries, the draft EA does not analyze how increasing out-of-phase freshwater flows in the spring dry season, and decreasing freshwater flows in the summer wet season, will affect the reproduction, recruitment and sustainability of fish and wildlife populations. The proposed action will seemingly change salinity regimes to the opposite of natural conditions, under which there are more freshwater flows into the estuaries in the wet season rather than in the dry season. Simply stating that the releases to the Caloosahatchee and St. Lucie Estuaries will be "below harm thresholds," DEA at 4-8, without any consideration of the timing and volume of those flows is a major conceptual and analytical gap.

The timing of freshwater flows into the estuaries affects salinities and the suitability of habitats for key aquatic species. Shallow coastal and estuarine waters in South Florida are primary nursery habitat for the ecologically important pink shrimp, a prominent member of the epibenthic community of small fishes and macroinvertebrates found most abundantly in vegetated habitats. [Browder, et al. 2002]. Pink shrimp juveniles occupy a key trophic position in the estuarine ecosystem as a primary food source for juveniles of top consumers that have an estuarine juvenile phase such as coastal and coral reef game fishes, food fishes, [Rutherford et al. 1989, Hettler 1989, Ault et al. 1999, 2005, 2014],

and wading birds [Palmer, 1962]. By feeding on detritus, smaller herbivores and omnivores, the pink shrimp transfers energy captured in primary production of mangroves, seagrasses, and algae, [Mason and Zengel 1996; Harrigan et al. 1989; Odum and Heald, 1972], and passes it up the food chain.

A variety of other fish and mollusks also rely on coastal estuaries and bays as nursery and natal areas. [Lindeman et al. 2000]. These species include crabs, spotted seatrout, mullet, red drum, bonefish, snook, permit and tarpon in coastal bays and nearshore flats of barrier islands; and, snappers, groupers, and lobsters in offshore hardbottom and coral reef habitats [Ault et al. 2014, Snyder and Burgess 2016, Stevens et al. 2019].

These species are evolved to use the estuaries during specific times of year, when certain environmental conditions are present under natural conditions. Pink shrimp spawn on the southwest Florida shelf during late spring, then migrate shoreward as larvae/postlarvae to spend their juvenile stages in critical nursery habitats such the Northern Estuaries. [Costello and Allen 1966, Browder and Roblee 2009]. Other species use the coastal estuaries seasonally as shown in the Table 1. The phasing of these species' use of the estuaries corresponds to the availability of their preferred foods and the appropriate environmental conditions that promote survivorship and growth. Many of these occupancies coincide with the abundance of pink shrimp, a favored food.

Table 1.- Temporal distribution of spawning and recruitment periods for key fishes and macroinvertebrates of the south Florida ecosystem during the "wet" late spring-summer and "dry" late fall-winter seasons.

Spring-Summer (April/May-October)	**Fall-Winter (November-April/May)**
Pink shrimp (April-June)	Bonefish (November-February)
Permit (May-July)	Black grouper (Feb)
Atlantic tarpon (May-September)	Mullet (November-March)
Snook (April-October)	Red grouper (February-May)
Spotted Seatrout (summer)	Gag grouper (January-May)
Gray snapper (June)	Nassau grouper (January-May)
Mutton snapper (June)	Goliath grouper (December-April)
Schoolmaster snapper (Summer)	Hogfish (December-April)
Red drum (Fall: Sept-Nov)	Largemouth bass (January-March)
Bay anchovy (summer)	
Atlantic silversides (Spring)	
Pompano (May-July)	
Blue crab (June-October)	

The availability and quality of conditions in the St. Lucie and Caloosahatchee Estuaries could be severely threatened by alteration of freshwater inflows. The Corps apparently is trying to affect salinities in the estuaries with the off-seasonal changes to releases. While that may potentially inhibit formation of HABs, that also likely will cause substantial out-of-cycle changes in the distribution and delivery of freshwater during critical periods of spawning and recruitment of key fishes and macroinvertebrates. This could make the habitat unavailable or degrade its quality, and significant deleterious effects on populations of aquatic fauna. The draft EA does not even acknowledge this issue, a major conceptual gap in its discussion.

The same is true of the increased releases from the lake to the Water Conservation Areas in the dry season. That is the wrong time of year to increase flows to the Everglades, because many types of wildlife are evolved to expect decreasing water levels in the spring dry season. The draft EA contains no consideration of this issue. It is imperative that the Corps model and evaluate how the proposed action would increase flows to the Water Conservation Areas overall and during the dry season, and how such unnatural flows would affect wildlife there.

8. Threatened and Endangered Species

The evaluation of impacts to threatened and endangered species appears to be incomplete because the draft EA indicates that the Corps continues to consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service and/or make its own determinations regarding effects of the proposed action on listed species. DEA, at 4-10. We recommend that the Corps thoroughly review impacts to listed species before it makes any final decisions on whether and how to move forward.

The discussion in the draft EA regarding effects on threatened and endangered species is also insufficient. The "no effect" determinations and discussion of impacts in the draft EA appear predicated on the false assumption that the "water bank" concept will be effective in achieving "net zero stage difference from LORS releases prior to the start of peak nesting season in February ... to avoid low stage effects on nest initiation." DEA, at 4-9. Experience with the Corps' operations this year using the "additional operational flexibility" and hydrological modeling indicates that the proposed action will significantly lengthen periods of low water levels in Lake Okeechobee, and significantly increase overall flows and nutrient loads to the St. Lucie and Caloosahatchee Estuaries. We note that over the past year, as the Corps drained the lake under the "additional operational flexibility" program (a less extreme version of the proposed action), the Everglade snail kite did not nest in Lake Okeechobee for the first time in years. This is consistent with statements in the draft EA that prolonged low lake levels "threaten the recovery of the Everglade snail kite, Florida bonneted bat, and the threatened wood stork," and "limit foraging opportunities for the snail kite, Florida bonneted bat, and wood stork, and impact nesting success of the snail kite." This record does not support the "no effect"

determinations, and indicates that the Corps should reevaluate this issue. This review should fit into a more thorough discussion of vegetative, hydrological and fish and wildlife impacts discussed above.

9. Water Quality Effects in the St. Lucie and Caloosahatchee Estuaries

Other than briefly discussing algae, the draft EA has no discussion of potential water quality impacts of the proposed action on the St. Lucie and Caloosahatchee Estuaries. This is a major deficiency because the proposed action clearly will have significant water quality implications.

First, the proposed action will increase total nutrient discharges to the estuaries. Preliminary analysis using the LOOPS Model indicates that average annual flows from Lake Okeechobee to the estuaries will increase 34%, from 762,000 acre feet to 1,020,000 acre feet. The additional water will bring with it phosphorus and nitrogen from the lake. Average phosphorus and nitrogen concentrations in releases to the C-44 and C-43 canals are 221 parts per billion and 99 parts per billion, respectively. That means that additional average annual releases from the lake will carry with them additional phosphorus and nitrogen loads. The additional nutrient loading to the estuaries merits close analysis, because it could cause a variety of impacts including (ironically) potential worsening of the HAB issue in the estuaries.

Second, the proposed action apparently will result in a seasonal shift in salinity levels in the St. Lucie and Caloosahatchee Estuaries. Under natural conditions, salinity levels would be higher in the dry season (spring), and lower in the wet season (summer and fall) in response to rainfall. Now, the Corps is proposing to greatly increase releases to the estuaries in the spring dry season and reduce those releases in the summer wet season, the inverse of natural conditions. This may have the effect of making the estuaries less saline for longer periods of the year (because wet season rainfall to the St. Lucie and Caloosahatchee basins would not be affected), and also could affect fish and wildlife that have annual life cycles based and dependent on natural hydrological conditions. Nowhere the draft EA is there any discussion or analysis of what this plan would do the salinities in the estuaries, and how the timing of water deliveries relates to ecological goals for those waterbodies. We note that the Florida Fish and Wildlife Commission highlighted this issue in correspondence with the Corps, stating that "we must collectively use caution so as not to disrupt natural hydrologic cycles or cause significant hydrologic reversals that affect wildlife populations." Email from Erskine to LoSchiavo (7-16-19) (attached to draft EA).

Our concerns with this issue are not hypothetical. This past year, the Corps did a less radical version of the proposed action through its "additional operational flexibility" operations, and released a great deal of additional water to the estuaries and stormwater treatment areas. The agencies have collected data on those releases, which allows one to estimate the water quality effects. Data from the SFWMD indicates that during the "additional operational flexibility" operations, the Corps released an additional 253,000

acre feet to the Caloosahatchee Estuary and 27,000 acre feet to the St. Lucie Estuary, which carried with it total phosphorus loads of 31 metric tons to the Caloosahatchee and 7 metric tons to the St. Lucie, and total nitrogen loads of 529 metric tons to the Caloosahatchee and 58 metric tons to the St. Lucie. The draft EA does not discuss the effects of such additional nutrient loading on the estuaries, calculate how much additional loads could be expected going forward, and how such loading rates relate to restoration plans.

The purpose of NEPA is for the agency to take a hard look at potential environmental impacts before it makes decisions. The Corps needs to fully evaluate these likely effects of its proposed deviation.

10. Water Quality in the Water Conservation Areas

The draft EA contains only two paragraphs of discussion regarding potential water quality impacts in the Water Conservation Areas. The draft EA states that the stormwater treatment areas ("STAs") were designed to handle 60,000 acre feet of water from Lake Okeechobee each year, but that over the past four years they "have been significantly overloaded ... with loading of 200 to 300 k-ac ft/yr over the past 4 years." DEA, at 4-11. The document claims that deliveries to the STA's are "not expected to change" under the proposed action, because "releases south will only be made to the maximum extent practicable," and at least in part based on "treatment capacity." *Id.* As with other impact topics, the draft EA assumes that the "water bank" concept will result in no net increase in releases from the lake each year. *Id.* at 4-11 to 4-12.

The Corps needs to take a harder look at this issue. As discussed above, the LOOPS Model indicates that the "water bank" concept will not work most years, and that the proposed action will increase total releases from Lake Okeechobee. This makes common sense: when the Corps sends additional water in the spring dry season, it does not know whether there will be sufficient rain in the coming wet season to offset the advanced releases. The multi-decade period of record indicates that most years there will not be enough summer rainfall to offset the spring releases. That is why for 60 years, the Corps managed Lake Okeechobee to maintain higher spring water levels than what currently are being proposed.

To the extent that the Corps sends more water to the STAs, it will be sending more phosphorus. Phosphorus concentrations in Lake Okeechobee are higher than the concentrations from the farms of the Everglades Agricultural Area. Continuing to overload the STAs could cause them long-term damage and affect their performance in future years. Even if the STAs achieve a target outflow concentration of phosphorus, the total load of phosphorus delivered to the Water Conservation Areas will be higher because load is a function of concentration and water volume. Phosphorus load is important, because over time it can drive ecological responses in downstream areas. The Corps

needs to evaluate how the additional loads affect the STAs over time, how much additional load of phosphorus will enter the WCAs as a result of the proposed action, and what will be the ecological effects of that additional load.

The National Park Service shares our concerns. In an email attached to the draft EA, a National Park Service representative stated that protection of the Water Conservation Areas "now and in the future hinges on protecting of the Storm Treatment Areas' (STAs) functionality." The Service representative noticed the same weakness in the draft EA, stating "[a]nalysis of potential risk to the STAs and the EPA is absent in the document and I recommend an expert analysis of this risk should be part of the NEPA process for the proposed deviation." Email from Rudnick to Nasuti (7-11-19) (attached to draft EA).

This has significant legal implications. Phosphorus discharges to the WCAs are addressed in the Consent Decree in *United States v. SFWMD,* Case No. 88-1886 (S.D. Fla.), and the compliance schedules contained in the Florida Department of Environmental Protection's ("FDEP") Consent Order for the NPDES permits for the STAs. The FDEP Consent Order was adopted in another federal case, *Miccosukee Tribe v. EPA*, Case No. 04-21448 (S.D. Fla.), as the basis for settling fifteen years of water quality litigation. *See id.* Docket Entries 784, 650, and 658.

In *Miccosukee Tribe v. EPA*, the U.S. District Court for the Southern District of Florida was presented with the compliance schedule, which sets out the state's "Restoration Strategies" suite of projects as the mechanism for addressing the water quality based effluent limitation ("WQBEL") for phosphorus in the NPDES permits for the STAs. This was based on modeling by the state and EPA showing that the projects would attain the WQBEL once built and fully operational. This modeling was based on flows to the STAs for the period 2000-2009 and did not contemplate the large increases in volumes implicated by the proposed action and other post-2012 actions by the Corps. [EPA 2012]. The Corps' proposed action threaten to undermine the assurance of attainment of the discharge limit for the STAs.

Similarly, in *United States v. SFWMD*, the U.S. District Court adopted the same Restoration Strategies projects as the remedy for attaining the maximum annual discharge limit ("MADL") for phosphorus under the Consent Decree. It adopted the same discharge limit from the NPDES permit as the MADL, and found the Restoration Strategies projects to be the remedy for its attainment, basing its decision on the same modeling. The new proposed changes to water management change the modeling assumptions and put all of that at risk, yet the impacts to attainment of water quality are not sufficiently analyzed.

The STAs and Restoration Strategies' enhancements were designed to achieve those downstream water quality criteria and water quality based discharge limits as set out in the NPDES permits. As the draft EA admits, the STAs were not designed to handle more than approximately 60,000 acre feet of water from Lake Okeechobee on average each year. DEA, at 4-11; *accord* SFWMD 2012. The modeling upon which the FDEP Consent Order, NPDES permits and federal Consent Decree remedy were all based on the assumption that lake water would be delivered to the STAs consistent with that design. The fact that the Corps already is sending 200,000 to 300,000 acre feet a year to the STAs – four to five times the design assumption -- and that it now plans to send even more water raises serious questions as to whether it will be causing a violation of those requirements. The Corps needs to fully evaluate the modeling of STA attainment of the WQBEL and whether its actions will derogate the assurance of attainment previously made by the agencies.

The statement in the draft EA that "the quantity and exact timing of those releases are determined by the SFWMD," DEA at 4-11, does not resolve the issue. We question whether the Corps can blame the SFWMD for increases in phosphorus loads to the Water Conservation Areas, or for long-term damage to the STAs resulting from overloading them, or for violating the Consent Decree, Consent Order, legal mandates and Restoration Strategies' principals), when the Corps is the agency that decides how much water to release from Lake Okeechobee and effectively decides that much of it will go to the STAs. Even if the Corps lacks legal responsibility for noncompliance with water quality standards, the fact remains that additional lake water would not be sent to the STAs but-for the proposed action. NEPA requires the Corps to take a hard look at all of the reasonably foreseeable environmental impacts caused by the proposed action.

11. Environmental Justice

The discussion of environmental justice in the draft EA is deficient. Executive Order 12898 requires federal agencies to consider whether their actions will have disproportionately high and adverse human health or environmental effects on minority or low income populations. The draft EA asserts in a single sentence that the proposed actions will have no such effects, DEA at 7-4, but that is plainly wrong.

The proposed action is intended to benefit exclusively people who live along the St. Lucie and Caloosahatchee Estuaries by inhibiting HABs in the estuaries, which the draft EA characterizes as a "public health and safety" issue. DEA, at 1-6. Some of the wealthiest, privileged communities in Florida are located along the St. Lucie and Caloosahatchee Estuaries, including places such as Hobe Sound and Sanibel.

On the other hand, the adverse effects of the proposed action will fall almost exclusively on communities around Lake Okeechobee. HABs will be kept in the lake instead of being allowed to flow the estuaries, which by the draft EA's logic means it will

seek to concentrate the public health and safety concerns there. The proposed action imperils the water supply for those in the Lake Okeechobee Service Area, which includes farmers such as us as well as other local residents. Lake levels will be kept so low that local residents will have a more difficult time navigating their boats on the lake (which is the basis of many people's livelihood as fishermen and guides), as modeling shows that the proposed action will impair navigation in the Okeechobee Waterway 37% of the time. The communities around Lake Okeechobee are much poorer and more disadvantaged. *See, e.g.,* HHD EIS, at 3-42 ("In general, these [communities around the HHD] are diverse, relatively low income communities ... [with] a relatively high proportion of households below the poverty line"). The Seminole Tribe of Florida Brighton Reservation also is located near the western shore of Lake Okeechobee.

There clearly will be a disproportionate effect on underprivileged populations, with the benefits (if any) flowing to the wealthy areas along the coast and the problems imposed on the poorer communities around the lake. The draft EA cannot simply dismiss this issue with one sentence. We recommend that the Corps conduct a much more detailed review of this issue before it makes any decisions, including a demographic analysis of the affected communities along both the estuaries and around the lake.

12. Aesthetics

The discussion of aesthetic impacts is weak. The draft EA states that currently, "HABs that have occurred on Lake Okeechobee and in the downstream estuaries, have detracted from current appearances (i.e., clarity of water column, fish kills)," and states that for the proposed action, "Alternative B may enhance the aesthetics of the aquatic environment as HABs are aesthetically unpleasing." DEA, at 4-12. This statement is based on the unsubstantiated premise that the proposed action will not have any effect on HABs, and fails to distinguish between effects in the estuaries and the lake.

As discussed above, there is no evidence that the proposed action will reduce HABs. The draft EA admits that "[l]ittle is known about exactly what environmental conditions trigger toxin production," DEA, at 1-6, and that Corps itself lacks any special expertise as relates to HABs, *id.* at 4-19. The document acknowledges that "[r]etaining water in Lake Okeechobee or releasing water from Lake Okeechobee has no known short term impacts to HAB conditions in Lake Okeechobee," *id.* at 1-7, and presents no evidence that the proposed action will have any effect on HABs in the estuaries. The suggestion that the proposed action will improve the aesthetic appearance of the estuaries by reducing HABs appears to be speculation.

The proposed action would do nothing to reduce HABs on Lake Okeechobee, so the aesthetic impacts there would not be reduced by the proposed action. To the contrary, the Corps proposes to concentrate HABs in the lake by preventing their release the estuaries during the summer months. We recommend that the draft EA be revised to acknowledge that the Corps is essentially prioritizing the aesthetics of the people near

the coasts in the vicinity of the St. Lucie and Caloosahatchee estuaries over those who use Lake Okeechobee.

13. Socioeconomics

The draft EA states that the proposed action will have "[p]otential negligible to minor beneficial effects," based on the possibility that the new operations would improve HAB conditions in the St. Lucie and Caloosahatchee Estuaries. The draft EA states that the Corps does not even know that "[e]conomic losses to the Caloosahatchee and St. Lucie estuaries associated with HABs in recent years ...[are] significant": it just "assume[s]" that they are and indicates that this is being studied. DEA, at 4-13. The fact that the draft EA indicates that the proposed action will only have "negligible to minor" effects, even with the assumption that HABs cause significant economic harm, indicates that the Corps does not think that its action will do much to address the HAB problem.

Completely unstated are the devastating economic effects to water users dependent on Lake Okeechobee that occur when there are water shortages. When the SFWMD declares a water shortage, the agency cuts back users' right to use water. For a farming company like us, this means that we cannot draw all of the water we need to irrigate our fields. This has direct effects on our ability to grow our crops and to run our businesses. In past water shortages, farmers in the EAA have suffered tens of millions of dollars in damages. If the modeling is correct, then past water shortages may be eclipsed in severity by the catastrophic ones resulting from the proposed action. Nowhere in the draft EA is there any acknowledgement of these socioeconomic impacts. Water shortages cause a variety of effects, and the draft EA should be revised to identify, quantify and evaluate them.

There are other socioeconomic impacts that likely will result from the proposed action. Boaters will not be able to safely navigate the Okeechobee Waterway 37% of the time under the proposed action, which will hurt local communities that rely on boating and fishing in Lake Okeechobee as part of their livelihood. In the discussion of recreation impacts, the draft EA says that such impacts "are not anticipated," DEA at 4-13, but there is no modeling to support this assertion and it is contradicted by the real world experience with the "additional operational flexibility" operations this past year.

For all of these reasons, the draft EA is insufficient and must be revised to take a hard look at the environmental impacts of the proposed action. Given that it is apparent that the proposed action will cause significant impacts, the Corps should consider moving straight to preparation of an EIS and include the more detailed analysis there.

C. The Proposed Finding of No Significant Impact is Unwarranted

Even with the deficient review in the draft EA, it is clear that the Corps should prepare an Environmental Impact Statement for this proposed change of water

management of Lake Okeechobee. Proposals such as this merit preparation of an EIS, and it is clear that there will be significant environmental impacts that deserve a searching review.

1. Corps Regulations Call for Preparation of an EIS

Corps regulations indicate that an EIS normally should be prepared where the agency proposes "major changes in the operation ... of completed projects." 33 CFR § 230.6(c). Draining Lake Okeechobee during the dry season is a major change to LORS 2008 because it eliminates the water supply buffer necessary to protect against droughts.

The regulations also indicate that an EIS normally is required where the Corps proposes a change in project operations that would "add additional purposes." 33 CFR § 230.6(b). The authorized project purposes are set forth in the C&SF Project Master Water Control Manual, Vol. III, pages 2-1 to 2-2, which states:

> "Lake Okeechobee and the Everglades Agricultural Area are designed and regulated for the following purposes within the overall C&SF Project: a. Flood control, ... b. Navigation., ... c. Agricultural Water Supply, ... d. Water Storage, ... [and] e. Salinity Control."

The Jacksonville District is on record stating that "addressing water quality is not a federally-authorized project purpose and is not a primary factor in determining how much water to release." Corps Letter to Rep. Mast, Attachment 1 (July 5, 2018). However, the announced purpose of the proposed action is to address a water quality concern in the St. Lucie and Caloosahatchee Estuaries. DEA, at 1-6 (the goal of the proposed action is to "reduc[e] the risk to public health and safety associated with HABs"). The Corps is adding a project purpose, and therefore should prepare an EIS.

2. The Proposed Action Will Cause Significant Environmental Impacts

Even with the limited facts disclosed in the draft EA, it is clear that the proposed action will cause significant impacts to the human environment, which is the trigger for preparation of an EIS. The CEQ regulations identify a number of factors that are relevant to a determination of significance. 40 CFR § 1508.27. Most of those factors weigh in favor of preparation of an EIS in this case.

The determination of significance must be made within the context of the affected region, the affected interests, and the locality. 40 CFR § 1508.27(a). The Corps is proposing to change water management in Lake Okeechobee, which is the hydrological center of the C&SF Project. The proposed action will drain away water supply during the dry season, which is stored as a buffer against droughts. Since Lake Okeechobee is the backup source of water supply not only for agricultural interests near the lake, but also

cities along the Lower East Coast of Florida, the Corps' proposal could not be happening in a more important context.

The Corps also must evaluate the severity of reasonably foreseeable impacts in determining whether they are significant. 40 CFR § 1508.27(b). There are multiple reasons why the severity of the impacts weighs in favor of preparing an EIS.

1. Effects on HABs

The Corps is proposing to drain away water supply so that it can address an issue which affects public health and safety – HABs. Presumably it would not take such risks with water supply if it were not going to significantly reduce HABs in the St. Lucie and Caloosahatchee Estuary. A significant beneficial effect on HABs is grounds to prepare an EIS. 40 CFR § 1508.27(b)(1) ("A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial."), -.27(b)(2) (the intensity of impacts can turn on "[t]he degree to which the proposed action affects public health or safety").

The draft EA suggests that the proposed action will have "negligible to minor beneficial effects" on HABs. DEA, at 4-12. As noted above, this calls into question why the Corps is taking such risks with water supply, and appears to reflect the scientific uncertainty that exists regarding HABS. The draft EA states that "[l]ittle is known about exactly what environmental conditions trigger toxin production," DEA, at 1-6, and that "no single factor has been identified as a root cause for fresh water HAB events," *id.* at 1-7. The Corps admits that it lacks expertise regarding the management of HABs, and the State of Florida is currently working with task forces to address algal blooms. DEA, at 1-8. In this context, the public would be better served if the Corps conducted a more searching review of potential environmental impacts in an EIS. 40 CFR § 1508.27(5) (the intensity of impacts can turn on "[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks"). An EIS is warranted if for no other reason than to evaluate whether the risks of environmental impacts are outweighed by the likely beneficial effects on HABs.

2. Impacts on Lake Okeechobee Water Levels

The proposed action will have a significant effect on water levels in Lake Okeechobee. Modeling of the proposed action using a 45-day period of record indicates that over the period of record, the lake stage will be less than 11.0 feet for more than 80 days 14 times (compared to 8 times under LORS operations); the lake stage will be less than 12.56 feet (the limit for safe navigation) 37% of the time (compared to 22% under LORS); and would increase the number of days the lake is below 845 days (compared to 231 days under LORS). These model results are confirmed by real world experience this year with the Corps' recent "additional operational flexibility" operations, which drove lake levels below 12.5 feet for more than four months, and caused lake levels to dip below

11.0 feet in June. If lake levels had been at 11.0 feet in June at the onset of major droughts over the past forty years, modeling indicates that Lake Okeechobee would have dropped to record low levels in six different years. [MacVicar Consulting 2019].

These reductions in lake stages will have significant environmental effects. The draft EA acknowledges that the littoral zone is important habitat, that most of it dries out when lake stages drop below 11-12 feet, and that when it dries out its habitat value is "severely compromised." *See, e.g.,* DEA, at 2-6. That habitat is used by multiple species, including threatened and endangered species such as the Everglades snail kite and the Okeechobee gourd, which means there will be adverse effects on listed species. 40 CFR § 1508.27(9) ("degree to which the action may adversely affect an endangered or threatened species or its [critical] habitat" is relevant to significance of impacts).

The regular low stages caused by the proposed action likely will cause a violation of the minimum flows and levels for Lake Okeechobee. Florida law requires the identification of minimum flows and levels for a waterbody, below which there will be "significant harm to the water resources or ecology of the area." Fla. Stat. § 373.042. For Lake Okeechobee, a violation of the minimum flows and levels occurs when an exceedance occurs more than once every six years. "An 'exceedance' is a decline below 11 feet NGVD for more than 80, non-consecutive or consecutive, days during an eighteen month period." F.A.C. § 40E-8.221(1). It seems highly likely that the proposed action will cause a violation of the minimum flows and level for Lake Okeechobee, because the LOOPS Model shows that it will cause lake stages to drop below 11 feet for more than 80 days 14 times over the 45-year period analyzed, or approximately once every three years. Florida law defines this as a "significant harm," and the violation of Florida law means it is significant for purposes of NEPA. 40 CFR 1508.27(b)(9) ("[w]hether the action threatens a violation of Federal, state or local law or requirements imposed for the protection of the environment" is a factor to be considered in determining significance of impacts).

3. Impacts to Water Supply

Lake Okeechobee is the backup source of water supply in droughts for agricultural businesses such as ours, communities near the lake, the Seminole Tribe of Indians, and cities along the lower east coast. If there is insufficient water in the lake during a drought, the SFWMD implements its Water Shortage Plan and can cutback the water use of all users, including those with valid water use permits. F.A.C. Ch. 40E-21. In the most recent droughts, the SFWMD cut back water users allocations by approximately 50%. Depending on the severity of the drought, this can prevent farmers from irrigating their fields, limit water supply to cities and risk allowing saltwater intrusion into urban drinking water wellfields, limit water to the Stormwater Treatment Areas (which can limit their long-term effectiveness), and other harms. [Florida Daily 2018].

Droughts are inevitable in South Florida, but they are unpredictable. Over the past century, short-term droughts have occurred on average once three years and sustained droughts every decade. (The last water shortage was in 2011, eight years ago.) That is why since the 1950s, the lake regulation schedules have sought to avoid having levels drop so low in the spring that there is no water supply buffer in case drought conditions set in.

The Corps' proposed action is designed to push down lake stages under normal circumstances, which will leave no margin of error if there is a drought. The LOOPS Model indicates over the 45-year period analyzed, the proposed action would result in 52 water shortage months for the Lake Okeechobee Service Area (compared to 25 under typical LORS operations), 19 years with water shortages (compared to 14 under LORS), and 13 severe water shortages with unmet demand of more than 100,000 acre feet (compared to 5 under LORS). These model results are confirmed by the real world experience of this past year, when the Corps drove down lake stages to lower than 11 feet under the "additional operational flexibility" program, which is a less extreme version of the action the Corps proposes now. If a drought were to set in this winter, the people who rely on Lake Okeechobee are at risk for significant harm.

Regulation schedules are inherently about balancing risk of high and low rainfall. In South Florida, rainfall varies widely from year to year. It is inevitable that there will be some very wet years – such as those when hurricanes unexpectedly drop large amounts of rain – and very dry years. The exact timing of wet and dry years cannot be predicted. To address those different risks, the Corps has managed lake levels in an intermediate zone so that there is enough capacity to absorb high inflows in a wet year and also enough water supply in case there is a drought. The proposed action tilts this balance in favor of planning for high water, and effectively discounts the risk of a drought. This is a departure from the long-term water management strategy for the lake.

The water supply risks created by the proposed action are without a doubt significant. The Corps should take a hard look at these issues in an EIS, and not rush forward with an ill-conceived plan based on superficial review.

4. Impacts to the St. Lucie and Caloosahatchee Estuaries

The proposed action would have significant environmental effects on the St. Lucie and Caloosahatchee Estuaries. First, the Corps would shift the timing of releases to the estuaries, decreasing releases during the wet season and increasing releases in the dry season. Modeling indicates that average annual releases in the spring dry season would increase 21%. The draft EA indicates that "Lake Okeechobee freshwater releases can lower salinities in the estuar[ies]," DEA, at 1-7, so the spring releases likely would lower salinities downstream. By reducing releases in the summer months, the Corps aims to reduce salinities downstream in an effort to inhibit HAB formation there, *id.* at 4-11.

The Corps is seeking to cause downstream conditions that are the exact opposite of natural conditions. Under natural conditions, salinities would be lower in the wet season summer months, and higher in the spring dry season months. This runs counter to general strategy in CERP to restore more natural timing to freshwater flows.

Second, the Corps' proposal would significantly increase total annual releases of water and nutrients to the estuaries, because in most years there would not be enough rain in the wet season to offset releases in the previous dry season. The LOOPS Model indicates that total releases would increase 34% to 1,020,000 acre feet a year. Nutrient levels in Lake Okeechobee are high – as a result of drainage from north of the lake – so additional releases means additional nutrients being sent to the estuaries. Over the past year during the "additional operational flexibility" program, SFWMD data indicates that the additional releases to the Caloosahatchee Estuary had average phosphorus concentrations of 99 parts per billion, total phosphorus loads of 31 metric tons, average total nitrogen concentrations of 1.7 mg/L (1700 parts per billion), and total nitrogen loads of 529 metric tons. For the St. Lucie Estuary, the data indicates average phosphorus concentrations of 221 parts per billion, total phosphorus loads of 7 metric tons, total nitrogen concentrations of 1.76 mg/L, and total nitrogen loads of 58 metric tons. Such increases in nutrient loads can cause ecological impacts in the estuaries, ironically including potential exacerbation of HAB formation.

The increased discharge of nutrients implicates Florida water quality standards. The numeric nutrient criteria for the Upper Caloosahatchee River Estuary for total phosphorus is 0.086 mg/L (86 ppb) as a long-term average, F.A.C. § 62-302.532(d)(14), and the total maximum daily load of total nitrogen downstream of S-79 is 9,086,094 pounds (4,121 metric tons), *id.*; F.A.C. § 62-304.800(2). This means that additional releases by the Corps this year had concentrations of total phosphorus that exceeded the concentration level (99 parts per billion compared to criterion of 86 parts per billion), and that the additional releases this past year constituted more than a quarter of the total allowable loads of total nitrogen without considering any other source.

There is a similar story for the St. Lucie Estuary. For the St. Lucie Estuary, Florida law applies a concentration limit for both total phosphorus and total nitrogen that are expressed as annual geometric means and cannot be exceeded more than once in a three-year period. F.A.C. § 62-302.532(z). For South Fork St. Lucie River WIBID 3210A (where the C-44 canal enters the St. Lucie Estuary, the criterion is 0.081 mg/L (81 parts per billion) total phosphorus. This criterion is much lower than the 221 parts per billion phosphorus in the additional releases made by the Corps this past year. The criterion for total nitrogen is 0.72 mg/L (720 parts per billion). F.A.C. § 62-304.705(7). That level is much lower than the 1700 parts per billion total nitrogen in the Corps' additional releases.

These are significant effects that the Corps must analyze in an EIS. The Corps cannot take action that could cause or contribute to violations of Florida water quality standards just based on a cursory review in a draft EA. 40 CFR § 1508.27(b)(10) (causing violations of state law is grounds for preparation of an EIS).

5. Impacts to the Stormwater Treatment Areas

The proposed action may cause or contribute to significant impacts to the Stormwater Treatment Areas and the Water Conservation Areas downstream. The Corps proposes to send additional releases south to the Water Conservation Areas up to the "maximum practicable" extent, DEA, at 4-11, A-1, all of which presumably would go through the Stormwater Treatment Areas.

The draft EA indicates that Stormwater Treatment Areas were designed to handle an average of 60,000 acre feet of water from Lake Okeechobee each year. DEA, at 4-11. The Corps has been sending 200,000 to 300,000 acre feet to the Stormwater Treatment Areas over the past four years. *Id.* The Corps now appears to propose sending even more water: this past year, when the Corps engaged in similar dry season releases under the "additional operational flexibility" program, SFWMD data indicates that the Corps sent an additional 74,000 acre feet to the Stormwater Treatment Areas. The average total phosphorus concentrations of those additional releases were 189 parts per billion, which indicates that the Corps sent an additional load of 17 metric tons of total phosphorus to the Stormwater Treatment Areas.

While the Stormwater Treatment Areas are designed to remove phosphorus, even if outflow concentrations are relatively low, the total load of phosphorus increases with total flows. This means that the Corps is increasing the phosphorus loading of the Water Conservation Areas. Nowhere does the draft EA analyze this issue.

This raises serious legal issues. The consent decree in *United States v. SFWMD,* Case No. 88-1886 (S.D. Fla.), requires flows to Water Conservation Area 1 and Everglades National Park to have minimal amounts of phosphorus based on formulas set out in the appendices to the decree. The Corps' actions in recent years to increase lake releases to the Stormwater Treatment Areas, and the proposal to continue and/or increase it in coming years, calls into question whether your agency will cause violations of the consent decree. In addition, the compliance schedules in the NPDES permits for the Stormwater Treatment Areas, which were presented to the Court by EPA as its basis for compliance in *Miccosukee Tribe v. EPA* (discussed above), assumed only 60,000 acre feet of Lake Okeechobee water each year on average [SFWMD 2012], so the routing of additional water southward calls into question whether the Corps may cause a violation of the compliance schedules. These kinds of concerns are highly significant, and merit consideration in an EIS. 40 CFR § 1508.27(b)(10) (causing violations of federal and state law are grounds for preparation of EIS).

Farmers in the Everglades Agricultural Area have done their part to reduce nutrient levels. On-farm best management practices remove most phosphorus before it ever leaves our farms, and we have contributed millions to the construction of the Stormwater Treatment Areas. Today, farm runoff in the Everglades Agricultural Area has much lower phosphorus levels than Lake Okeechobee. The high nutrient levels in Lake Okeechobee also were not caused by us: SFWMD documents indicate that no more than 5% of the nutrients in the lake over the past 30 years have come from the Everglades Agricultural Area. [SFWMD 2019]. Sending additional water from Lake Okeechobee to the Stormwater Treatment Areas threatens to undercut the state's substantial achievement of water quality targets for the Water Conservation Areas. This is the kind of significant effect that merits analysis in an EIS.

D. Other "Related" Environmental Documents Do Not Satisfy NEPA

The draft EA identifies three other "environmental documents relevant to the proposed action," which it "incorporate[s] by reference." DEA, at 1-11 to 1-12. None of these documents satisfies the Corps' obligations under NEPA as relates to the proposed new operations.

1. The 2008 LORS Environmental Impact Statement

The first document identified is the "Lake Okeechobee Regulation Schedule Study, Final Supplemental Environmental Impact Statement and Record of Decision, U.S. Army Corps of Engineers, 2008." DEA, at 1-11. The draft EA does not say what particular "information contained within" the 2008 EIS satisfies the Corps' NEPA obligations related to its current proposal. The LORS 2008 EIS did not evaluate the proposal identified in the draft EA. LORS reduced average lake levels compared to previous water regulation schedules, but not even LORS proposed to push lake levels as low as the new operations now being proposed by the Corps. The 2008 EIS did not analyze an alternative that would seek to push lake levels to such dangerously low levels in the dry season, and did not analyze the effect of such an operational strategy on downstream algae levels. Since the 2008 EIS did not specifically evaluate the effects of the operations proposed here, it does not satisfy the Corps' current obligations under NEPA.

Even if the 2008 EIS did address the effects of the current proposal, the Corps cannot rely on it now. Generally speaking, most EIS's cannot be relied on to satisfy NEPA after five years. CEQ, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026 (March 23, 1981) (response to Question 32: "As a rule of thumb, ... if the EIS concerns an ongoing problem, EIS's more than five years old should be carefully examined to determine if the criteria in [40 CFR] Section 1502.9 compel preparation of an EIS supplement."). The Corps prepared the 2008 EIS on the expectation it would be in effect for a three-year period. 2008 EIS, at ix ("LORS is intended to be an interim schedule."), App. C (FWS Oct. 15, 2007

biological opinion: "The revised schedule is intended to be active for three years, until around 2010"). Continuing to rely on that EIS today, eleven years later, goes beyond the Corps' own expectation when it prepared the document.

Even if the 2008 EIS were not stale, the Corps cannot rely upon it because it needs supplementation. NEPA regulations require preparation of a supplemental EIS if "[t]he agency makes substantial changes to the proposed action that are relevant to environmental concerns," and if "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 CFR § 1502.9(c)(1)-(2). Both of those criteria apply here.

The Corps has made substantial changes to how it manages water in Lake Okeechobee compared to what was discussed in the 2008 EIS. LORS was intended to be a three-year "interim" schedule, but the Corps has left it in place for eleven years (and counting). The Corps now sends much more lake water to the STAs serving the Water Conservation Areas (approximately 200-300,000 acre feet per year) than was assumed in the 2008 EIS (60,000 acre feet per year). DEA, at 4-11; *accord* SFWMD 2012. Since lake water has much higher level of nutrients than runoff from farms in the Everglades Agricultural Area, this means that the Corps is sending additional nutrients to the Water Conservation Areas, which affects compliance with the consent decree in *United States v. SFWMD,* Case No. 88-1886 (S.D. Fla.), and the compliance schedule in the NPDES permits for the STAs. The Corps also is managing lake levels at a lower level than even contemplated in LORS as a result of the past year of "additional operational flexibility" actions. The new proposed deviation would go even further, and drain the lake to an even greater extent than the Corps did in the spring 2019.

There also are significant new circumstances or information that relate to environmental impacts compared to what was considered in the 2008 EIS. The A-1 Flow Equalization Basin has been built, which provides greater practical capacity for flows from Lake Okeechobee to the STAs. The rehabilitation of the Herbert Hoover Dike is substantially complete, which allows for higher water levels in the lake. In the 2008 EIS, the Corps recognized that such repairs would constitute new circumstances that could merit a change in operations and storage of additional water in the lake. 2008 EIS, at iv-v (identifying progress of HHD repairs as a "changed circumstance"). Concerns about the endangered Everglade snail kite have changed, because the 2008 EIS focused on the effect of water levels on the native apple snail (the kite's original food source). In the past decade, more productive, drought-resistant exotic apple snails have begun to populate the lake, creating a more robust food source for the kite. In addition, the rise of concerns about HABs is a significant new circumstance which was not considered in any depth in the 2008 EIS.

For all of these reasons, the 2008 EIS cannot be relied upon any further. Independent of our concerns about the proposed deviation, we request that the Corps immediately supplement the 2008 EIS as relates to ongoing water management decisions in the lake.

2. The "Additional Operational Flexibility" Memoranda

The draft EA also cited two memoranda prepared in 2018 and 2019 related to its recent operations, "Lake Okeechobee Regulation Schedule Additional Operational Flexibility Justification and National Environmental Policy Act Coverage Determination, U.S. Army Corps of Engineers, Jacksonville District, October 26, 2018," and "Lake Okeechobee Regulation Schedule Additional Operational Flexibility Justification and National Environmental Policy Act Coverage Determination, U.S. Army Corps of Engineers, Jacksonville District, February 22, 2019," (the "AOF Memos"). DEA, at 1-12. Neither of these memoranda satisfy the Corps' NEPA obligations related to the proposed new deviation. First, they are not environmental assessments or EIS's. The AOF Memos do not consider alternatives, model the effects of the proposed action, analyze the environmental effects of those proposals, discuss potential mitigation actions, or do any of the other evaluations required by NEPA. They are not NEPA analyses that the Corps can rely upon to satisfy its obligations to fully consider the environmental impacts of this latest proposal.

Second, the AOF Memos are based on the false premise that the Corps' recent operations were analyzed in the 2008 LORS EIS. LORS contained vague references to the Corps' right to exercise "additional operational flexibility," but did not say exactly what that would mean. 2008 EIS, at A-11 to A-12. There was no modeling of any specific operations; no comparison of such operations compared to those analyzed in the 2008 EIS; or any other discussion that would constitute a consideration of environmental effects required by NEPA. The discussion was so amorphous that even other federal agencies commented in 2008 that they thought it was too vague. 2008 EIS, App. C, at 53 (FWS comments: "we find that the proposed operational guidance is too vague and provides too much uncertainty for stakeholders"). To the extent there was any real discussion of the "additional operational flexibility," it runs counter to what the Corps actually did in 2018-19. In the 2008 EIS, the Corps talked about using that flexibility to keep more water in the lake, not using it to drain away water supply. 2008 EIS, at iv-v ("the Corps will utilize the flexibility within the schedule to take advantage of potential opportunities to increase water supply benefits"). The 2008 EIS also talked about using that flexibility to make releases in order to achieve the goals of LORS, not to implement different operations to achieve new goals for the estuaries. *Id.* at A-11 to A-12. The Corps also indicated that the "additional operational flexibility" would only be used "occasionally," *id.* at A-11, and yet the Corps used it for nearly a year in 2018-19 and wants to continue

similar, more extreme, operations on an annual basis going forward through the proposed deviation. The language about "additional operational flexibility" in LORS is not a license to ignore the requirements of NEPA.

The Corps cannot announce that it is going to take some unidentified and undefined action in the future, later implement it without specific environmental analysis, and still comply with NEPA. The draft EA repeatedly says that each future deviation will be unique in nature and scope. DEA, at A-3. If that is the case, and the specific operations to be taken by the Corps are not analyzed here, then the Corps will need to analyze those proposed actions in the future before they are implemented. NEPA requires agencies to consider the environmental effects of their actions without regard to the label the agency puts on them. Just as the reference to "additional operational flexibility" in the LORS 2008 EIS did not satisfy NEPA for those operations, the reference to "HAB operations" in the draft EA will not satisfy NEPA if the Corp does not specifically analyze them.

III. Other Concerns

A. Corps Authority

The Corps must have statutory authority to implement changes to the regulation schedule. The source of authority for water control operations "is contained in authorization acts and supported by referenced project documents." Engineering Regulation 1110-2-140, at B-1 (May 2016). "Changes to a water control plan that could impact the fulfillment of authorized purposes or could result in operations which do not fall within existing authorities may require a feasibility or reallocation study." *Id.* at 3-4. "Any deviations must be consistent with the project authorization and within existing authorities." *Id.* at 3-5.

We question whether the Corps has authority to implement the proposed deviation. In 2018, in response to requests to reduce releases from Lake Okeechobee in an effort to inhibit downstream HABs, the Corps stated that "addressing water quality is not a federally-authorized project purpose." [Corps 2018]. The Corps now is proposing to address downstream water quality in the new deviation to minimize HABs, something that is not a federally-authorized project purpose.

The draft EA makes erroneous and incomplete statements regarding the Corps' authority to revise the regulation schedules for Lake Okeechobee. The Corps identifies two statutes which do not authorize the proposed deviation, and fails to identify the statute which does authorize modifications to the lake's regulation schedule for environmental purposes. The Corps should correct the record regarding its authority for taking this proposed action.

1. The Draft Environmental Assessment Does Not Identify a Valid Source of Authority for the Proposed Deviation

The draft EA identifies two sources of statutory authority for the proposed deviation. DEA, at 1-1. First, the assessment states that Congress authorized the Corps to construct the C&SF Project as outlined in House Document 643 in 1948, and that the Corps has general authority to refine and modify the original C&SF Project "within the scope and purpose of the authorization," citing the Flood Control Act of 1954, Pub. L. No. 83-780, § 203, 68 Stat. 1257 (Sept. 3, 1954). Second, the draft EA indicates that the Water Resources Development Act of 1992, Pub. L. No. 102-580, § 509(l), 106 Stat. 4844 (Oct. 31, 1992), "provided authority for the [2008] Lake Okeechobee Regulation Schedule study," Draft EA, at 1-1, with the implication that it provides authority to deviate from that regulation schedule. Neither of these statutes provides such authority.

a. The Flood Control Act of 1954 Does Not Authorize the Proposed New Operations

The Flood Control Act of 1954 only gives the Corps discretion to make modifications to the C&SF Project as that project was originally conceived in 1948, not to implement the current proposed action. The 1954 Act states:

> "The authorization for the comprehensive plan for flood control and other purposes in central and southern Florida given by the Flood Control Act of June 30, 1948, as amended, is hereby modified and expanded to include the entire comprehensive plan of improvement as recommended by the Chief of Engineers in House Document Number 643, Eightieth Congress, with such modifications thereof as Congress may hereafter authorize, or as in the discretion of the Chief of Engineers may be advisable..."

Pub. L. No. 83-780, § 203, 68 Stat. 1257.

Congress later modified the original C&SF Project authorization as relates to Lake Okeechobee in the Flood Control Act of 1968, Pub. L. No. 90-483, § 203, 82 Stat. 731 (Aug. 13, 1968):

> "The project for Central and Southern Florida, authorized by the Flood Control Act of June 30, 1948, is further modified in accordance with the recommendations of the Chief of Engineers in Senate Document, Numbered 101, Ninetieth Congress, ... and in accordance with House Document Numbered 369, Ninetieth Congress..."

The language in the 1968 Act makes clear that it is "modifying" the existing project and prior authorizations contained in the 1948 and 1954 Acts.

The Corps can only modify the project "within the scope and purpose of the [original] authorization." DEA, at 1-1. While the Corps may make non-major modifications to the project, it cannot make material changes without additional Congressional authorization. This is true even where there is "discretion" language such as in the Flood Control Act of 1954: the Corps' discretion is to make changes within the scope of the Congressional authorization.

The proposed deviation would be a material change to the original C&SF Project. The original C&SF Project authorized in the Flood Control Acts of 1948 and 1954 prioritized the maintenance of water supply and flood protection, with no discussion of environmental conditions in the St. Lucie and Caloosahatchee Rivers. For instance, the District Engineer's Report in House Document 643 stated:

> "Lake control: Due to the importance of control of Lake Okeechobee, this matter has been carefully studied in this and prior reports. Features of the comprehensive plan proposed for the Kissimmee Basin would accelerate discharge into the lake during flood periods and would assist in maintaining its levels during dry seasons. In addition, the present and prospective dry-season water needs of the Everglades area south of Lake Okeechobee indicate that some increases in lake storage may be required to more fully meet this increasing demand. Consideration of these factors has led to inclusion in the plan, of provisions for modification for lake control. Since all indications are that this could be obtained most economically by enlargement of the St. Lucie Canal and Caloosahatchee River, estimates have been based on such provisions." House Document 643, District Engineer Report 40 (1948).

The District Engineer's Report further described the purpose of the plan for Lake Okeechobee:

> "*Lake Okeechobee levees and outlets.* – Lake Okeechobee together with its outlets is, in effect, a multiple-use reservoir with flood control, navigation and water supply functions. Its improvement and operation for those purposes is the heart of the comprehensive plan. ... The modifications of levees and lake control now proposed in the comprehensive plan would result in large benefits by providing deeper navigation channels and providing a higher degree of flood protection to the thickly populated area around Lake Okeechobee. These modifications would also provide improved control and conservation of water which would be of substantial benefit to the agricultural area south and east of Lake Okeechobee." House Document 643, at 53 ¶ 76 (emphasis added).

The Divisional Engineer's recommendation in House Document 643 stated:

> "[B]oth for the planning and operation of works, provision for the storage of water should be made to the maximum practicable limit or the extent that will meet all foreseeable demands. Until the need for fresh water has been satisfied, only the irreducible minimum that cannot be conserved should be discharged to coastal waters to be lost to the area for useful purposes." House Document 643, Recommendations of the Division Engineer 60 (1948).

House Document 643 expressly stated that the plan was for the lake regulation schedule to target water levels in the 12.5 to 15.5 foot range. *See* House Document 643, Report of Board of Engineers 7 (1948) ("Lake Okeechobee originally had a surface elevation ranging from 12 to 19 feet above mean sea level. ...Control of the lake has been obtained by the construction of levees along the south and east shores, and by outlet canals connecting the St. Lucie River and several other small streams on the Atlantic Coast and the Caloosahatchee River on the Gulf Coast. Lake level is maintained insofar as possible between 12.56 and 15.56 feet above mean sea level."), *id.* at 8 ("The improvement includes control works in the St. Lucie Canal and Caloosahatchee River for regulating the level of Lake Okeechobee, and levees around the southern and northern shores of the lake having a total length of 68 miles. Present operating procedures for control of lake level contemplate a range of state of from 12.56 to 15.56 feet above mean sea level."), District Engineer's Report, at 28 ("In addition to its navigation feature, this project includes control works in the St. Lucie Canal and Caloosahatchee River for regulating levels of Lake Okeechobee, and levees around the southern and northern shores of Lake Okeechobee having a total length of 68 miles. ... Present operating procedures for control of Lake Okeechobee contemplate a range of lake stages of from 12.56 feet above mean sea level (14 to 17 feet former Okeechobee datum).")

The Flood Control Act of 1968 modified the original project to put an even greater emphasis on water supply. House Document 369, approved by Congress, called for much higher water levels in Lake Okeechobee for the purpose of water storage. House Document 369, ¶ 103 ("Summary of plan. – The principal features of the modification consist of raising levels in Lake Okeechobee about 4 feet"), ¶ 104 ("The plan of improvement would permit greater storage and carryover of excess waters which would meet the long-term needs for urban and agricultural uses and Everglades National Park."), ¶ 127 ("The plan of improvement recommended in this report is predicated on increased conservation and utilization of the available surface water supplies. The essential elements of the plan consist of storing and diverting, to the maximum extent practicable, waters which otherwise would be lost to sea."). House Document 369 also summarized the project purposes as relates to Lake Okeechobee:

"Project purposes. – The specific purposes that are to be served by the works of the authorized project plus those of the plan here recommended are summarized as follows:

(1) Increase the net water supply in the areas to be served from Lake Okeechobee and the three Everglades water conservation areas of the project, with the objective of providing water to meet the demands for continued development of agricultural and urban lands in the Lake Okeechobee and lower east coast areas.

(2) Provide water for Everglades National Park. ...

(3) Provide water for prevention of salinity encroachment in coastal areas, pollution abatement, and other necessary water uses, including water replenishment, when possible, of the Everglades water conservation areas for fish and wildlife and recreational purposes.

(4) Use a system-sharing concept of meeting any unsatisfied water demands in the area from Lake Okeechobee water service area southward by pumping or by gravity flow from water storage areas located at topographically higher levels, provided that in doing so Lake Okeechobee is not thereby drawn to levels below elevation 10.5 feet. In extremely dry periods, when all demands outlined above could not be met, the water available would be shared in order to meet the purposes of the project to the extent possible.

(5) Provide lands and facilities needed for preservation, development, and use of the project for public access and recreation." House Document 369, ¶127(b).

Consistent with these statements, the Corps managed water in Lake Okeechobee for decades to prioritize water supply.

Deviating from the current regulation schedule to prioritize the needs of the St. Lucie and Caloosahatchee Estuaries over water supply needs in the lake is a material change in the original C&SF Project. Nothing in House Document 643 or House Document 369 discusses managing the lake to improve ecological conditions in the estuaries. Proposing management of the lake to reduce algae conditions in the estuaries or "maintain salinities in the estuaries" (DEA, at 2-3) is completely different than the original plan. Changing the target elevation of water in the lake to lower than 12.5 feet also is material change to the project approved by Congress in 1948, 1954 and 1968. Managing lake levels so that they more regularly fall below 10.5 feet directly contradicts the plan approved by Congress in 1968. Furthermore, to make those changes based on

concerns over algae in the St. Lucie and Caloosahatchee Estuaries is to respond to circumstances unknown to Congress half a century ago. For all of these reasons, the Flood Control Act of 1954 does not provide authorization for the proposed deviation.

b. WRDA 1992 Does Not Operational Modifications Without Further Authorization by Congress

The second statute cited in the draft EA, the Water Resources Development Act of 1992, also does not provide authorization to modify water management operations in Lake Okeechobee. The provision cited in the draft EA only provides authority for the Corps to conduct a reconnaissance study – that came to be known as the "Restudy" -- to determine whether the agency should propose project modifications to Congress. WRDA 1992, Pub. L. No. 102-580, § 309(l), 106 Stat. 4844 (Oct. 31, 1992) ("Central and Southern Florida. – The Chief of Engineers shall review the report of the Chief of Engineers on central and southern Florida, published as House Document 643; 80th Congress, 2nd Session, and other pertinent reports, with a review to determining whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic or economic conditions, with particular reference to modifying the project or its operation for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability and conservation of urban water supplies affected by the project or its operation.") (emphasis added). Nothing in that language authorizes any kind of physical or operational modification of the C&SF Project. Instead, it invited the Corps to make recommendations to Congress as to whether such modifications should be authorized. To interpret this language to allow operational changes without Congressional authorization turns the statute on its head.

2. The Draft EA Fails to Identify and Follow the Requirements of WRDA 2000

The obvious authority for the Corps to modify operational plans in Lake Okeechobee is WRDA 2000. That statute authorized and directed the Corps to implement the CERP, which grew out of the Restudy authorized in WRDA 1992. § 601(b)(1)(A). CERP called for modifications to the Lake Okeechobee water control plan to reduce water levels in the lake and reduce large regulatory releases to the St. Lucie and Caloosahatchee Estuaries to improve environmental conditions in the lake and estuaries. *See, e.g.,* Central and Southern Florida Project Comprehensive Review Study, Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (April 1999) ("CERP Yellow Book"), at vii-viii ("The plan includes the following structural and operational changes to the existing C&SF Project: ... Manage Lake Okeechobee as an Ecological Resource. Lake Okeechobee is currently managed for many, often conflicting, uses. The lake's regulation schedule will be modified and plan features

constructed to reduce the extreme high and low levels that damage the lake and its shoreline. ... Improve Water Deliveries to the Estuaries. Excess stormwater that is discharged to the ocean and the gulf through the Caloosahatchee and St. Lucie rivers is very damaging to their respective estuaries. The recommended Comprehensive Plan will greatly reduce those discharges by storing excess runoff in surface and underground water storage areas."); page 3-22 (indicating that among the conditions to be addressed by CERP were algae blooms: "Conditions in the urbanized sections of the [Caloosahatchee] basin are influenced by nonpoint stormwater flows, and are manifested in the river by elevated chlorophyll levels, algal blooms, periodic fish kills and low dissolved oxygen levels."). CERP also identified a specific project to modify the Lake Okeechobee Water Regulation Schedule. *Id.* at 9-29. The specific type of actions identified in the proposed action (and LORS 2008) were contemplated in the CERP Yellow Book authorized by WRDA 2000. The draft EA should be revised to identify WRDA 2000 as the source of its authority to revise water management decisions in Lake Okeechobee for environmental purposes.

Even if WRDA 2000 were not the source of the Corps' authority to modify regulation schedules for Lake Okeechobee, the Corps still needs to comply with its requirements. Congress clearly stated, that "[e]xcept as modified by this section, the Plan is approved as a framework for modifications and operational changes to the Central and Southern Florida Project that are needed to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. WRDA 2000, § 601(b)(1)(A). The proposed action is an operational change to the C&SF Project intended to achieve environmental goals. WRDA 2000 also integrates the CERP with "ongoing Federal and State projects and activities" so that there is one plan for environmental protection going forward, not separate plans. *Id.* § 601(b)(1)(B). As a "framework," the CERP provides the overarching set of rules as to how the C&SF Project should be managed moving forward, and as a "comprehensive plan" that is "integrated" into all other ongoing activities, the CERP governs everything related to the C&SF Project.

WRDA 2000 requires the Corps to comply with its Savings Clause. Section 601(h)(5)(A) provides:

> "No Elimination or Transfer. – Until a new source of water supply of comparable quantity and quality as that available on the date of enactment of this Act [December 11, 2000] is available to replace the water to be lost as a result of the implementation of the Plan, the Secretary and the non-Federal sponsor shall not eliminate or transfer existing legal sources of water, including those for – (i) an agricultural or urban water supply...."

The Savings Clause makes clear that in addressing environmental concerns as provided in CERP, the Corps may not sacrifice the original water supply and flood protection purposes of the C&SF Project.

The draft EA is deficient because it does not demonstrate that the proposed deviation will protect the water supply of existing legal users. There is no discussion of this issue and whether the proposal holds harmless existing legal water users. The draft EA should be revised to include analysis and showings consistent with the Savings Clause.

B. Coastal Zone Management Act

The draft EA does not demonstrate that the Corps has complied with the Coastal Zone Management Act. That Act provides for state development of Coastal Zone Management Plans, and requires federal agencies engaged in activities that "affect[] any land or water use or natural resource of the coastal zone" to carry out their activities "consistent to the maximum extent practicable with the enforceable policies of the approved State management programs." 16 U.S.C. § 145(c)(1)(A). The Corps must provide a "consistency determination to the relevant State agency ... at the earliest practicable time, but in no case later than 90 days before approval of the Federal activity." 16 U.S.C. § 1456(c)(1)(C).

The Corps states in the draft EA that it "has determined that the proposed action is consistent to the maximum extent practicable with the enforceable policies of Florida's approved Coastal Zone Management Program." DEA, at 7-2. It is unclear whether that sentence is the "consistency determination," or whether that determination is made in a separate document. If that is the Corps' only statement, it is deficient under the Coastal Zone Management Act because it does not explain how the Corps' proposal relates to the Florida Coastal Zone Management Program and how it is consistent with it. As noted above, the Corps' proposal appears to run counter to basic principles of South Florida ecosystem restoration, and cause violations of Florida law related to protection of aquatic resources. We also note that the State has not made its own consistency determination, a point made in correspondence with state agencies attached to the draft EA. With this record, it appears that the Corps has not yet complied with the Coastal Zone Management Act.

C. Endangered Species Act

It does not appear that the Corps has yet complied with the Endangered Species Act in connection to the proposed action. The Corps determined that the proposed action would have no effect on any listed species. The draft EA attaches emails by the Corps sent on July 10, 2019 to the U.S. Fish and Wildlife Service and National Marine Fisheries Service, in which the Corps told the wildlife agencies that the proposed action would have

"no effect" on any listed species. The response of the wildlife agencies was that they do not "provide concurrence to another agency's 'no effect' determinations." Email from Bolden to Nasuti (7-15-19). This means that the wildlife agencies have not developed a view as to whether the proposed action will have no effect on listed species; this is entirely the judgment of the Corps.

The Corps' "no effect" determination is based entirely on the assumption that average water levels in Lake Okeechobee will not change, that total releases from the lake will not change and that the changes in timing of releases has no ecological effect. As discussed above, those assumptions are false and is not based on the best available scientific and commercial data. It would be arbitrary and capricious for the Corps to move forward based on insufficient factual support.

We note that the Corps has indicated that it will "maintain an open and cooperative communication with the USFWS and NMFS during the planned deviation, in addition to coordination with all agencies through periodic scientists calls." DEA, at 4-9. After-the-fact consultation is not sufficient under the Endangered Species Act. To the extent that the Corps is suggesting that it is continuing informal consultation with the wildlife agencies, we encourage the Corps to do so consistent with the Endangered Species Act.

D. Magnuson Stevens Fisheries Conservation and Management Act

The draft EA does not comply with the Magnuson-Stevens Fisheries Conservation and Management Act. 16 U.S.C. § 1801-1883. That Act requires federal agencies to prepare an Essential Fish Habitat Assessment and consult with the National Marine Fisheries Service regarding potential adverse effects on essential fish habitat. 50 CFR § 600.920. It appears that the Corps' assessment is four sentences in the draft EA, DEA at 4-11, that do not even address the effects on fish habitat associated with shifting the timing of freshwater releases so that they are inconsistent with natural conditions. As discussed above, changing the timing of salinities in the St. Lucie and Caloosahatchee Estuaries could cause significant adverse effects on the habitat value of those waterbodies. The Corps needs to address those potential effects, and convey that updated information to NMFS, in order to satisfy the Magnuson-Stevens Act.

E. Farmland Protection Policy Act

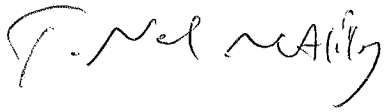
The draft EA does not adequately address compliance with the Farmland Protection Policy Act, 7 U.S.C. § 4201-4209. Since 1981, it has been federal policy to lessen the adverse effects of federal programs on the preservation of farmland. The Everglades Agricultural Area contains hundreds of thousands of acres of prime and unique farmlands. The proposed action here would have severe negative effects on those farmlands by creating water supply shortages that would prevent the adequate irrigation of crops. The draft EA does not address this issue, but simply states that "[n]o

prime or unique farmland would be impacted by implementation of the proposed action." DEA, at 7-2. That statement is inaccurate and reflects an insufficiently cursory consideration of this issue. The draft EA should be revised to address the impacts of the proposed action on the important farmlands south of Lake Okeechobee.

* * * * * * * * * *

Thank you for considering our views regarding the proposed algae deviation from LORS 2008. If you would like to discuss any matter related to this proposed action, we would welcome the opportunity. We have attached a list of references, and separately we are providing copies of those materials for the Corps' review.

Sincerely,



Neal McAliley

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Index of Documents Submitted by Florida Crystals
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