Menti Questions and Responses
C-43 West Basin Storage Reservoir Water Quality Feasibility Study Public Meeting
March 25, 2020

Questions	Responses
Please type in any questions you have related to the C-43 Storage Reservoir Project.	
Will the operational plan allow recycling of water within the reservoir?	Right now the reservoir allows flows in from one cell to another. Within the reservoir, the only economical option is to add aeration to help move water through the system.
Are there any ways the storage benefits can be increased by multiple fillings?	The operation plan is to fill the reservoir once in the wet season and discharge once in the dry season. Evaluations will be made whether the reservoir is able to take in more water or let more out depending on water availability any given year.
Will C-43 end up like another Lake Okeechobee with lots of phosphorus at the bottom?	The purpose of the C-43 West Basin Storage Reservoir Water Quality Feasibility Study is to identify options to treat and improve the quality of water associated with the C-43 Reservoir.
Need evaluation of seagrass restoration project.	The focus of the Study is on improving water quality associated with the C-43 Reservoir either within the reservoir or on unspecified upland area in the vicinity of the reservoir. The Study does not include an analysis of the potential benefits of in-river habitat restoration.
Will the restoration of submerged aquatic vegetation (SAV) post storage be considered as part of this feasibility study?	SAV are an option for constructed treatment wetlands and are being considered for both pre- and post-reservoir treatment, but not within the C-43 Reservoir itself.
How long after incorporating the chosen technology will it be studies to determine if it continues to work?	Part of the long term management of the water quality treatment feature will be monitoring of water quality leaving the system to ensure effectiveness.
Will the total maximum daily load (TMDL) in the Townsend Canal affect the reservoir operations?	The reservoir operations are not affected by the Townsend Canal TMDL.
How many funding sources?	The C-43 Reservoir is funded by State of Florida legislative appropriations and the U.S. Army Corps of Engineers (USACE).
Now that you are aware of the water quality issue, could a filter marsh be constructed within part of the reservoir footprint?	No. The reservoir must be constructed as authorized by Congress to receive the cost-share funding. Any filter marshes will have to be outside of the reservoir footprint.
How does the C-43 reservoir volume of water need to be treated compared to the treatment options presented?	The normal low water discharges will be in 457 cfs range. Any treatment would have to be sized to accommodate that flow to meet the demands of the river and estuary. Higher discharge rates may require larger treatment systems.

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How will this project be used in the Comprehensive Everglades Restoration Plan (CERP)?	This is a separate study being pursued by SFWMD and the Florida Department of Environmental Protection (DEP).
Will there be trade offs between the volume of water needed to meet the minimum flow and level (MFL) and water quality treatment? How will this be addressed?	The C-43 Reservoir will be operated to meet the MFL for the river. Any components for treatment of water quality leaving the reservoir will be sized for the MFL flows and will be designed so as not to interfere with reservoir operations.
Is the plan to empty the reservoir completely every year?	The reservoir will be filled during the wet season and will discharge during the dry season depending on the flows at the Franklin Lock. The reservoir may not be emptied every year.
Is the list of alternatives to be evaluated set, or will others be included in the future? Specifically, has dispersed water management (DWM) or other low-tech, low-cost alternatives been considered (or will they)?	The full list of water quality treatment alternatives that were considered are discussed in the Information Collection Summary Report. DWM projects are typically designed for water storage and not for water quality improvements.
Will there be any delays in construction due to the impacts of COVID-19?	Potentially, if contracting crews acquire the disease, resulting in a quarantine of the rest of the team or there is a forced shut down by the Government.
How many days of 457 cfs flow can the reservoir provide?	Approximately 180 days, if starting from a full reservoir.
Can nutrients removed be sold?	The residuals from the water quality treatment components may be sold as fertilizer. However, this will be depend on whether there are any contaminants present in the residuals and will be subject to demand as processing the residuals for use as fertilizer is an added cost.
Are you looking at phosphorus to nitrogen ratios when considering the treatment and water quality within the reservoir?	The next phase of the project will evaluate the nitrogen and phosphorus concentrations to be treated in more detail to estimate the removal benefits from each of the water quality treatment options.
Please type in any question you have related to the technologies that are being evaluated for the Study.	
Could you list the 10 one more time?	Constructed treatment wetlands, sand filtration, aeration, hybrid wetlands treatment technology, coagulation, ElectroCoagulation, MPC-Buoy, Bold & Gold, Nutrigone Biosorption Activated Media, and Aqua-Lutions.

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Is there more detail on the technologies on the website?	Yes. The Information Collection Summary Report includes more details on the technology and information available in the literature and provided by vendors. This report will be available on April 3rd and the literature library is currently on the website.
Have you considered the use of floating treatment wetlands in the reservoir?	Floating treatment wetlands were on the original list but did not make the shortlist because of the size of the reservoir and wind conditions. This technology would require a robust anchoring under these conditions, which would make it difficult to implement and would have greater uncertainty in the effectiveness. There are opportunities to look at floating wetlands as part of a constructed wetlands system or HWTT to provide polishing.
What happens if the chosen technology stops doing what it says it will?	We only want to present and select a short list of technologies that are robust and based on sound principles. When we get to final list, it will have a presumption of long-term application for this large-scale project. In the unlikely scenario that the technology does not operate as planned, contingencies will be built into the project.
Wouldn't nitrogen removal be the primary objective since the water ends up in the estuary?	The focus for treatment is on both nitrogen and phosphorus, which are the nutrients that drive algae growth, and also on suspended solids that include algae and organic matter.
Are you considering additional proposals?	At this time, additional proposals for water quality treatment options are not being considered.
Are the technologies to be evaluated set, or will any others be considered? Such as DWM?	The full list of water quality treatment alternatives that were considered are discussed in the Information Collection Summary Report. DWM projects are typically designed for water storage and not for water quality improvements.
Evaluate impacts to native wildlife and the possibility they might add invasive wildlife.	These may be considered as part of the detailed evaluation of the treatment options in the next phase of the Study.

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As nutrients are removed, will there be a discussion of how the chosen treatment might perform? For example, at 100 parts per billion (ppb) total phosphorus (TP), you might remove 70% but will that removal be expected at 20 ppb?	In the next phase of the Study, we will look at flows and nutrient concentrations coming into the reservoir, within the reservoir, and coming out of the reservoir to evaluate how the technologies perform under a range of concentrations. Some of the technologies could drop out because the nutrient concentrations are lower than what was found in previous studies.
Will there be any pilots ahead of choosing one to use?	This has not been determined at this time.
Do you have a comparison table of all the treatment technologies being considered?	Comparison tables for the treatment technologies are included in the Information Collection Summary Report.
Do chemical treatments create any undesirable environmental effects?	Excessive dosing of a coagulant compound, such as alum, could result in limited exceedance of recommended ecological toxicity thresholds or could cause the acidity of the water (as measured by pH) to decrease unacceptably. However, after 30 years of experience with alum dosing of stormwater and surface waters, these possible effects have been avoided with appropriate preliminary jar testing, and system management and monitoring. Any coagulant addition concept would be expected to be subject to preliminary testing, piloting, design and review.
Is one technology more beneficial or safer over others during a hurricane?	All technologies have costs and benefits (pros and cons) that will be evaluated as part of the feasibility study.
Are you considering phosphorus to nitrogen ratio in identifying water treatment within the reservoir?	The next phase of the project will evaluate the nitrogen and phosphorus concentrations to be treated in more detail to estimate the removal benefits from each of the water quality treatment options.
When is the next public meeting?	The next meeting is July 16th at 2:00 pm.
Where are the guidelines given by Congress available?	Congress authorized the C-43 West Basin Storage Reservoir Project in the Water Resources Reform Development Act (WRRDA) of 2014.
Please type in any additional questions you may have about the Study.	
Will the slides from this presentation be online?	Yes. The slides and the Menti questions and responses will be posted to the website.
How will this study tie into CERP?	This is a separate study being pursued by SFWMD and DEP.

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Can the district sell any of the nutrients that are removed to recover any costs?	The residuals from the water quality treatment components may be sold as fertilizer. However, this will be depend on whether there are any contaminants present in the residuals and will be subject to demand as processing the residuals for use as fertilizer is an added cost.
Will it help to only load river water into the reservoir when fairly clean?	The Study is evaluating options for water quality treatment pre-reservoir, in-reservoir, and post-reservoir.
When will it be published online?	All items related to the Study are posted on the SFWMD Working Group website under priority projects. The Information Collection Summary Report will be posted on April 3rd.
How will ecosystem services be incorporated into the cost/benefit?	The evaluation will include an assessment of anticipated ancillary benefits, including a technology's ability to provide valuable ecosystem services, such as habitat for fish and wildlife. Additionally, it is expected that the selected technology (or technologies) will require a DEP permit, which would include a water quality assessment.
Is there possible use of aquifer storage and recovery (ASR) for nutrient reduction?	We drilled some pilot wells for the CERP ASR Program to be co-located with the reservoir. Based on those data, ASR is not a good application in this location
When is the next public meeting?	The next meeting is July 16th at 2:00 pm.
Questions from Zoom Participants	
Are there any USACE constraints placing treatment within infrastructure of the reservoir or canals?	No. Depending on the treatment technology it may need a federal permit and the treatment technology can not adversely effect the purpose of the reservoir and the way that it is operated as a federal project.
Disposal for solids. Where can this material be disposed? Class I landfill, C&D sites, or compost?	This information will be determined during the upcoming phase of the project during the cost benefit analysis that we be conducted on the alternatives

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Have you determined the fate of alum in the environment in the hybrid wetlands system?	We are relying on literature prepared by existing studies of this technology. Floc is created and must be removed periodically. There have not been any findings of toxicity concerns in Florida or nationally. The U.S. Environmental Protection Agency released a new aluminum toxicity standard that we will consider.
Where does the floc residual get deposited?	Depending on the technology selected, there is the potential for a beneficial use of the floc (i.e. soil amendment), therefore it would not need to be disposed, but reused. However, in some cases the technology may produce a floc that requires landfill disposal.
How does the C-43 Reservoir volume of water needed to be treated compare to the tested outcomes of options presented?	It will be based on the anticipated deliveries to the river. The system must effectively perform under normal operations.
Floc removed to where? Have there been assessments in FL?	This is to be determined as part of the technology evaluation.
Is the planting of SAVs in the post-storage areas (just below Franklin Lock) considered as part of the treatment plan? Getting the 2000-plus grass beds that used to be there back up to help with filtering, nutrient uptake, etc. in particular. The high likelihood of maintaining a minimum flow thanks to C-43 means restoration projects should be sustainable. Based on research done before we started our project in that area last year, if enough grass is planted in strategic locations, it should be self-sustaining (or even self-expanding) once we get past a minimum coverage threshold.	The focus of the Study is on improving water quality associated with the C-43 Reservoir either within the reservoir or on unspecified upland area in the vicinity of the reservoir. The Study does not include an analysis of the potential benefits of in-river habitat restoration.
Has DWM (low-tech, low cost) been considered as a project alternative?	The full list of water quality treatment alternatives that were considered are discussed in the Information Collection Summary Report. DWM projects are typically designed for water storage and not for water quality improvements.
Can you make sure that ALL statements/answers to Menti questions are included in website vs just summarized?	This meeting is being recorded and we will do our best to post all questions/answers on the website. If you still have questions after reviewing the information posted for the 3rd public meeting on the website, please email your question to C43WBSRWQFS@sfwmd.gov.

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This is an operational comment more than water quality\ but they interact. If the Reservoir is meant only to meet the MFL, which is the level of "significant harm," that takes years to recover from, that does not make this a "restoration" project. We need to envision this to make the Caloosahatchee healthy, not at a level of multi-year harm. Water quality issues should be addressed at restoration volumes, NOT multi-year harm volumes.	MFL stands for Minimum Flows and Levels which is established in Chapter 373.042 Florida Statutes to *prevent* harm to water resources and ecology of the area.
Will this be available to watch online after?	Yes - the YouTube link for the meeting is https://www.youtube.com/watch?v=WDRWgYqme38.
Who is Jim currently presenting and who is he with?	Speaker is Jim Bays, with Jacobs Engineering, part of the J-Tech Joint Venture.
How does the C43 Reservoir volume of water needed to be treated compare to the tested outcomes of options presented?	The evaluation criteria developed for the Study includes "scalability" of the technology to treat the volume of storage in the reservoir.