Workshop Summary

South Florida Ecosystem Restoration Working Group Sponsored Public Workshop

Western Everglades Restoration Project Public Workshop

John Boy Auditorium
1200 S W C Owens Ave, Clewiston, FL 33440
June 22, 2017
10:00 AM- 4:00 PM

Attendees:

- ***Allyn Childress***
- ***Ann Cox***
- ***Anthony Federico***
- ***Armando Ramirez***
- ***Beth Ross***
- ***Bob Sobczak***
- ***Cara Capp***
- ***Cecilia Harper***
- ***Chris Johns***
- ***Chruch Roberts***
- ***Craig van der Heiden***
- ***Dennis Duke***
- ***Diana Umpierre***
- ***Eric Flaig***
- ***Gary Ritter***
- ***Inger Hansen***
- ***Irene Kennedy Quincey***
- ***James Erskine***
- ***Jeff Schmidt***
- ***Jennifer Leeds***
- ***Jim Kees***
- ***Karen Smith***
- ***Kent Loftin***
- ***Kim Taplin***
- ***Kyle Grandusky***
- ***Larry Brion***
- ***Linda Stanley***
- ***Lisa Kreiger***
- ***Lori Miller***
- ***Marissa Hodapp***
- ***Martha Musgrove***
- ***Megan Jacoby***
- ***Melissa Nasuti***
- ***Nyla Pipes***
- ***Patty Power***
- ***Pete Quasius***
- ***Pierre Massena***
- ***Rebecca Elliott***
- ***Robert Rooney***
- ***Sashi Nair***
- ***Shannon Estenoz***
- ***Steve Davis***
- ***Tim Brown***
- ***Walter Wilcox***
- ***Yogesh Khare***
- ***Zulamet Vega-Liriano***

1. ***Welcome and Introductions 10:00AM, James Erskine, Working Group Vice Chair and Allyn Childress, SFERTF***

James Erskine and Allyn Childress welcomed everyone to the workshop. James began introductions, Allyn explained the workshop is being recorded and will be available online at Evergladesrestoration.gov website.

2. ***Workshop Procedures and Ground Rules, Allyn Childress, SFERTF***

Link to presentation: Welcome and Ground Rules Presentation

Allyn explained the workshop is being hosted by the Task Force, an entity established by Congress to coordinate intergovernmental agencies in Everglades Restoration efforts. The information from workshops is gathered and the information is given to the South Florida Water Management District as well as the Army Corps of Engineers. Finally, Allyn outlined how to sign up for workshop and meeting information: Evergladesrestoration.gov- Blog

3. ***Brief Overview of the Western Everglades Restoration Project (WERP), Tim Brown, USACE, on behalf of Kelly O'Keefe, USACE***

Link to presentation: Brief Overview of WERP Project Presentation

Tim Brown provided a brief overview of the project, Western Everglades Restoration Project (WERP). WERP seeks to restore Quality, Quantity, Timing, and Distribution (QQTD) of western flows in the Western Everglades. Tim summarized the historical context of the area, particularly the Central & Southern Florida Flood Control Project (C&SF Project) and how it altered water flow by moving it East, which stressed the ecosystem. In 2000, the Comprehensive Everglades Restoration Plan (CERP) was passed after conducting a restudy the C&SF Project. WERP is part of the CERP and it seeks to restore the hydrology in the western flow way of the Everglades.

The three primary objectives identified in WERP are to restore freshwater flow paths, volumes and timing, season hydro-periods, and historic distributions of sheet-flow to reestablish ecological connectivity and ecological resilience of the historic wetland/upland mosaic, restore water levels to reduce wildfires associated with altered hydrology, which damage the geomorphic and associated ecological conditions of the western Everglades, and to restore aquatic low nutrient conditions to reestablish and sustain native flora and fauna. WERP has opportunities to improve water supply, system-wide operational flexibility, provide benefits to estuaries, and to include recreational areas.

Tim provided an orientation of the project study area and explained the planning process. The planning process began in August 2016. Currently, the US Army Corps of Engineers (USACE) is 10 months into their study of the area. The next milestone is to reach a tentatively selected plan (TSP). Today's presentations will include modeling assumptions and what will go into the modeling in order to lead to technical decision making, thus culminating in a selected plan. Tim explained that there is more detailed information available on the USACE website, or individuals can google: "Everglades WERP."

4. ***Modeling in WERP: Approach, Strategy, and Available Tools, WERP Modeling Team***

Link to presentation: Modeling in WERP Presentation

Walter Wilcox provided some background for the following presentations that will cover the team's modeling tools and their anticipated use in WERP. He stated that questions and discussion are encouraged throughout the group's presentation.

Walter explained the modeling work done for WERP, outlining the modelers' strategy and available tools. The model's building blocks and preparation include mesh/topography, land use, northern regions, levees, bridges, roads, and other areas of interest.

Walter described how the WERP study area is unique, as there had been very little data and modeling done of the area. WERP is approximately 772,700 acres. The modelers began by breaking the study area into 4 regions from North to South to assist in orientation, Region 1 begins in the northern area of the study area and Region 4 is in the southern-most area of the project.

A. Modeling in WERP - Strategy (Slide 7) and Available Tools (Slide 13), Walter Wilcox, SFWMD

Walter Wilcox stated that the generalized modeling approach was to begin with information currently available, then leverage available modeling tools, strategies, and concepts used in previous or concurrent CERP modeling. Next, using certified tools the modelers followed the model implementation standards and application guidelines. Then, they will build a model and run a historic rainfall period of record, taking into account climate variability, by adding features into the model with rainfall models the modelers will be able to see hydrology then provide the information for evaluation. The modelers have a variety of modeling tools to cover different area of the system, their primary planning tools include regional hydrologic models which are unique to South Florida, as well as sub regional and detailed models. Natural systems modeling is a tool available that mimics natural predrainage hydrology to provide insight into evaluating alternatives for future restoration initiatives.

B. Modeling preparation: Overall Approach and Fact Finding (Slide 28), Larry Brion, SFWMD

Larry Brion reviewed the highlights from the first workshop in August of 2016. The participants were asked to share their knowledge base and propose restoration actions. Following the workshop the team began coordinating with the Project Delivery Team and used the CERP Yellow Book as a reference. To gain a better understanding of the project area and its features, the modelers went on fieldtrips to various areas throughout the four regions of the study area. He then went on to describe what they saw in the field.

Discussion:

Gary Ritter asked whether the modelers had an opportunity to visit the 11-mile road and the 5 pads at Raccoon Point. Pierre Massena explained that the modelers were unfortunately unable to visit the 11-mile road and the 5 pads at Raccoon Point as there was special permissions needed to access this area, which they were unable to acquire at the time of their trip.

Bob Sobczak also explained that to travel to the 11-mile road would be a trip in and of itself. Bob explained about a month ago he accompanied two USACE surveyors to the 11-mile road where control points were taken at every culvert as part of the LIDAR work, so although the modelers were unable to visit, information has been gathered about this area.

Zulamef Vega-Liriano also mentioned that USACE has a scope of work for the 11-mile road. While the team was not able to completely survey it they did use special techniques in combination with the areas they were able to survey to put together a complete picture of the area to add to the project.

Pierre Massena concluded the discussion by explaining that his portion of the presentation will address and cover some of the concerns brought up.

C. Building Blocks & Model Preparation: Mesh and Land Cover Refinement (Slide 73), Robert Rooney, SFWMD

Robert Rooney presented some of the features of the modeling software and the adjustments that have been made to the software to better reflect the hydrology and features of the system. The mesh refinement feature for instance has added more detail within the WERP study area. The model domain has also been expanded to include the C139 Annex and the Feeder Canal Basins, and the canal network expansion includes canals, bridges, and culverts that will influence or be influenced by the proposed system changes.

D. Building Blocks and Modeling Preparation: Sub-Cell Detail (Slide 86), Eric Flaig, SFWMD

Eric Flaig began by underlining the complex landscape of the WERP project area. In addition to agriculture, there are many features and land uses to take into consideration. Eric explained how land use is represented in the model through the mesh feature in the model. He then explained how the system is divided into ground water hydrology and surface water hydrology. The model takes into account multiple land uses and can add or change how water is directed. Eric provided a comprehensive overview of water flow and water budgets through the various regions within the WERP project area.

Discussion

Kim Taplin asked for clarification between model calibration and verification and some of the new terms, such as history matching.

Walter Wilcox answered that calibration and verification is a standard practice in modeling where you set aside a period of history and use that portion of history to determine the model parameters and characteristics in order to try to create the same response as what you have observed. Then, you typically set aside another period of historical record to use as an independent check. If you utilized information you did not consider previously and ran through a different period of history that you are able to verify, that indicates that the model is robust. The team is struggling with the amount of data that is available in the western basin. In parts of the system where information is sparse the team will describe it as calibration-only, reasonableness, or history matching, it depends where the area is in the system and what level of check the team is able to do.

Eric Flaig also added, when the team conducts calibration frequently, it if for the entire time series, while other times the team is more interested in the peaks, seasonality, and the dry periods. The calibration methodologies are not always able to hit all those different factors. The team is not trying to fit everything into one method of calibration, rather they are trying to incorporate all the observed records using a variety of techniques.

Gary Ritter asked a follow up question about simulating irrigation water and if it was routed through the model along the Tamiami and where that water then goes within the system.

Eric Flaig replied that the irrigation is driven by the model which does optimal irrigation, essentially when the crop needs water the model sends the water. The model not only supplies the amount of water that is requested but also for the efficiency of the system. For example, due to efficiency losses, it may be necessary to put twice the amount of water on the surface than is requested by the plant. The total amount of water is calibrated against measured data supplied by the growers, the sites that have permitted water use are required to give monthly reports of irrigation pumpage, which the team uses to compare against the model. The extra surface water is attributed to recharge or to the surface

system based on the team's experience of where the water is likely to go. Essentially the team tracks where the water goes and most of the water comes from Tamiami Trail which in this model is a virtual lake.

Break

Additional Welcome, Shannon Estenoz, SFERTF

Shannon welcomed everyone back to the workshop and recognized Patty Power who represents the Seminole Tribe on the Task Force, Rebecca Elliot who represents the Florida Department of Agriculture and Consumer Services on the Working Group, Jeff Schmidt representing Russell Morgan and the US Department of Agriculture on the Task Force, and Cecilia Harper who represents the US Environmental Protection Agency on the Working Group. Shannon also stated that the workshops hosted by the Task Force are unique as they are exempt from the Federal Advisory Committee Act (FACA). Typical government meetings include audience seating, however the Task Force workshop motto is "if you are in the room, you are at the table" and attendees are able to interact with other government agencies such as the USACE which would not be possible if the Task Force were not hosting the workshop.

E. Building Blocks and Modeling Preparation: Roads, Bridges and Levees (Slide 106), Pierre Massena, SFWMD

Pierre Massena explained through the expansion of the model's canal network and that the team's goal is to adequately represent potential changes in flow characteristics, magnitude, timing, and spatial distribution through canal/levee modifications within the study area. The three features they are examining are Western I-75, Western Tamiami Trail, and Loop Road. To summarize the I-75 Investigation East and West of the L-28, the sheet flow and hydraulic capacity is similar and there is currently no need to model the bridges located along I-75. This conclusion may not be the same for Tamiami Trail and Loop Road, since the bridges along Tamiami Trail are smaller. Pierra stated that Bob Sobczak could elaborate on the status of the Loop Road and Tamiami Trail and how the water overtook Loop Road in some areas.

Discussion

Chris Johns requested clarification regarding the head loss being referred to in the presentation as being negligible and whether it was above versus below the bridge or somehow under the footprint of the I-75 bridges.

Pierre Massena explained the head loss is below the bridge. The water can act as a levee and obstruct the flow when head loss is high. Part of the scope is to examine the bridges along I-75 to determine if the bridges are able to sufficiently convey the additional flows in the WERP project or if anything additional is needed.

Bob Sobczak pointed out that on a previous slide it was shown that the primary mechanism is the existence of culverts under I-75 about every mile, which convey water. He pointed out that there are also stream crossings and wildlife crossings. The wildlife crossings don't typically convey water, although currently with the current high water event they are actually conveying water. There are 35 culverts spaced along I-75 and 12 bridges. I-75 is thought to be hydrologically invisible, although with the recent rain event, water has been pooling north of I-75. Water pooling was evident on the field trip, so perhaps I-75 can be considered as a barrier to sheet flow in the model.

Pierre Massena explained that they are examining the three roads, Tamiami Trail, Loop Road, and I-75. The team is in a way racing against time to deliver the model. So taking the parameters of the project into consideration they determined that I-75 didn't need modeling, however in the future if there are alternative performance measures then they will be able to move forward and plug it into the model. Currently, they decided not to include I-75 based on the study. However, if there are any red flags they can always return and reconsider.

Walter Wilcox added that they will happily take any new data and information as the recent rain event is very extreme. He said they have a good feel based on the information they have seen but they will examine new information. They are currently just basing their conclusion on the assumption that I-75 is hydrologically invisible. Walter agreed that the rain event was unusual and they are interested in seeing how the system is performing under these wet conditions.

Bob Sobczak agreed that is a good assumption to go off of, but that this may be good information to have.

Building Blocks and Modeling Preparation: Roads, Bridges and Levees continued, Robert Rooney, SFWMD

Robert Rooney gave an explanation of Tamiami Trail flows and whether it needs to be modeled. The size of the bridges is much smaller than those on I-75. Bob Sobczak pointed out the differentiations of bridge flows on the field trip. Taking the information Bob presented regarding how the water flows, the team determined it had to be included in the model. As a first test, Tamiami Trail was included in the model as a no flow boundary. Robert showed how adding Tamiami Trail presented challenges and how the challenges were addressed to correctly represent sheet flow. Robert explained that Loop Road has not yet been incorporated into the model, but it will be. The modelers will take into account that Loop Road is typically flooded and over topped. The Jetport is another feature that is incorporated into the model to determine any potential issues.

Discussion

Cara Capp requested clarification regarding I-75 as not being a constraint to restoration flows but that Tamiami Trail does impact flows and needs to be modeled and taking into consideration.

Robert Rooney clarified that Tamiami trail impacts a differentiation in flow. The flow amount is similar but is diverged into different areas, such as the L-29.

Pierre Massena elaborated that I-75 has sufficient conveyance within the WERP project. Tamiami Trail at the moment is not an impediment to flow however, with the alternatives presented this means there will be more water, so as the team wants to anticipate these changes and determine if the current structures along Tamiami Trail have the ability to convey the water.

Chris Johns followed up by mentioning that with I-75, negligible stage loss was shown however, with Tamiami Trial flow vectors indicate where the water is being routed. He asked what stage losses were observed along Tamiami Trail.

Walter Wilcox offered to go into detail regarding the calculations, but from a big picture perspective, the conveyance assessment was a comparative analysis, and the conclusion was we don't have to model the I-75 bridges. However, regarding Tamiami Trail, Loop Road, and the Jetport, the team

doesn't have a similar analysis and so they believe they will need to model all three features. Depending on which feature location you are examining, the team added the physics of those features. The model is informing the team as to where the water is traveling. The results seen today are preliminary, the team is hoping to ground it in the coming months through calibration efforts.

Bob Sobczak praised Robert's presentation and the assumptions regarding Tamiami Trail. Bob reminded the group about the recent rain event and how it has impacted water flow. It is not just water present in the canal but also water flowing, particularly how water has been flowing along Turner River Road.

F. Building Blocks and Modeling Preparation: Leverage Improvements from Other Efforts (Slide 125), Sashi Nair, SFWMD

Sashi Nair presented the L-28 Interceptor canal and seepage dynamics of the S-12s, WCA-3A and the Old Tamiami Trail. He explained the available tools to measure seepage as they noted in their study a difference between the model and readings received regarding seepage in the L-28 Interceptor canal. Sashin explained that the modelers incorporated the ECB16 in the model as it is part of the Everglades Restoration Transition Plan (ERTP) operations. He also outlined the improvements updated in the ECB16. Sashin explained that modeling hydraulics can be challenging when using a static location such as the S-12, but when using a regional target the model is able to provide improved representative data. The modelers also updated the model with improvements made along Tamiami Trail.

Discussion

Shannon Estenoz asked about the updated non-deviation ERTP. Kim Taplin clarified that it was regarding the updated biological opinion.

G. The Big Picture: Overall Reality Checks and Feedback (Slide 137), Walter Wilcox, SFWMD

Walter explained how overall the modelers have redefined the structure of the model and identified impediments to flow and the management in the northern area of the system and project areas. Walter provided a brief recap of the findings presented by the other models. He is confident that with the new findings incorporated into the model, they will have an accurate understanding of the study area as well as other areas which impact the study area. Walter outlined some of the challenges they are encountering in the Western area of the system, and how they hope to improve the models by using new techniques for capturing the volume and depth effects of micro-topography. The modelers are already observing improved representations from the updates to the modeling system. They expect the trend to continue when the LIDAR data becomes available in the coming months as it will help with model refinement and calibration updates.

5. Upcoming Modeling Activities (Slide 145), Walter Wilcox, SFWMD

Walter outlined the team's upcoming activities and general schedule in the coming months. Walter also underlined the differences in timeline of the first and second round alternatives. The first round is intended to be informational gathering while the second round is intended to wade through the alternatives collectively.

Discussion

Dennis Duke expressed concerns about the information presented regarding the S-12s, he wanted to know if they are considering the ramifications from the changes being made.

Walter Wilcox explained that the changes being made are to better match with history. The modelers are building on the work done by previous modelers and as they move forward they will determine if changes need to be made. The changes with the S-12s are an example of where another study, the ERTP study completed by the US Fish and Wildlife Service and the USACE, looked at that area of the system and determined that the legacy modeling was not effective. So the team's effort is to improve the modeling of the area. WERP is incorporating the updating information to better represent the area.

Kim Taplin confirmed that the changes made at the S-12s completed in the 2016 team efforts for the biological opinion is reflected in the models shown in the presentation. Kim also asked about the tram road culverts and whether they were part of the changes as well.

Walter Wilcox confirmed the tram road culverts were part of the changes as well. He also noted that the WERP project is building upon the Central Everglades Planning Project (CEPP). In CEPP, flows are moved to the East, which is continued in WERP, ensuring flows to Northeast Shark River Slough.

Shannon Estenoz had a concern regarding the timeline presented by Walter and whether there was enough time built in for optimization of the plan, as often that is the period of the planning process where you have the opportunity to get everyone onboard. She asked whether there be enough time for this process as often times you develop 4 or 5 alternatives but there is not a critical mass of individuals comfortable with just one of the alternatives.

Walter Wilcox acknowledged the concern and explained that the modelers understand the importance of team building, which is why they have presented a three step timeline to help refine the project. In WERP they don't have the same constraints as in the CEPP because there is no modeling for the western area, where as in the central Everglades there were other models brought forth to take into consideration.

Kim Taplin clarified that the process would be similar in WERP as previous processes. The first round would be presentation and information gathering and then honing into different plans within the subsequent rounds.

Zulamef Vega-Liriano clarified that for the USACE, the term optimization will be for the TSP only. Once a plan is selected then they will move forward towards optimizing it, thus tailoring the plan and making it the best.

Shannon Estenoz acknowledged that the plan has a built-in optimization plan. She raised concerns about how important the stakeholder process is and how often times, as we have seen in the past, it is not always a clean cut choice or decision which plan is favored and it is important to be prepared for that scenario.

Tim Brown explained that they recognize the importance for broad support and appreciate the comment. Their built-in schedule includes hybridizing the alternatives, as they move from round 1 into round 2. They plan to come up with hybrids, incorporating various perspectives as part of the SMART planning process.

Walter Wilcox thanked everyone for participating today and encouraged anyone with questions or interested in more detailed information to please reach out to him, the modeling team, or members of USACE.

Pierre Massena also wanted to recognize and thank Bob Sobczak for his support and assistance to the modeling team.

6. ***Closing Comments and Adjourn, James Erskine, FWC, Vice Chair, Allyn Childress, SFERTF***

James Erskine thanked the modeling team for the presentation and efforts thus far. He explained that next the floor will be open to any questions or discussion.

Diana Umpierre noted that explaining the uncertainty and error to stakeholders is important, even if it is complicated. She was concerned that she didn't hear a lot about how the modelers plan to address the uncertainty and error.

Walter Wilcox responded that they are cognizant of the uncertainty. Within the sub-teams they are working through some of those issues and sharing the data and modeling. They are making some efforts, however WERP is very different from the CEPP, as there is not a collective level of comfort and the lack of data and so the modelers are thinking about relative change.

Gary Ritter asked Walter whether the western edge of the project comes up against the eastern urban corridor, and as the population increases and demand for water supply increases, if that is going to impact the work being done now.

Walter Wilcox explained that they do not have a projection of the land use, but they are interested in working with individuals who have access to that information.

Steve Davis wanted to thank the presenters, the Task Force, and Working Group for hosting the meeting. He would like to see a similar workshop for ecological performance of the alternatives, perhaps a logical next step from where we are today, such as a performance metric for WERP.

The meeting adjourned at 3:30 PM.