

Combined Structural and Operational Plan Advisory Team
Expert Technical Sub Team
Monday, November 22

MEETING SUMMARY

Broward County Service Center
8211 West Broward Blvd
Suite PH3 Plantation, FL

Members participating: Tom MacVicar (Ag); Shawn Sculley (SFWMD); Bob Johnson (ENP); Jerry Lorenz (Audubon, by phone); Marsha Levinson (Miami-Dade); Kim Taplin (USACE); Paul Linton (SFWMD); Bob Jones (by phone); Kate Elliott (SFERTF) Member unable to participate: Terry Rice (Miccosukee Tribe)

I. Introduction and General Comments

Bob Jones reviewed with the team the charge and the meeting agenda for the discussion. It was agreed to first take some overview comments and then proceed through each of the areas for which the CSOP Advisory Team had developed expectations and discuss the modeling results in light of the expectations.

Kim Taplin opened by informing the Sub-Team that the West Bookend model did not pass the QA/QC and will need to be re-run. Examples of problems encountered included those with the 356 pump barely operating at all (3% of the time) and the gradient based approach in the model. The Sub-Team agreed to proceed with the review of the relative comparison of the East and West Bookend modeling results with this in mind.

East Bookend Overview

Paul Linton offered some overview comments and indicated he would outline the East Bookend model. Among other comments, Paul offered:

- The East basically has a different condition than west. Run with what is in current budget. Doesn't use new rainfall formula for targeting flows across Tamiami Trail. Modified rainfall driven formula with only 30% of target flow of NSM.
- Intent is for East bookend run to evolve towards ERDO light.

West Bookend Overview

Bob Johnson offered the following overview remarks on the West Bookend approach:

- On the North end- move significant volumes of water through 355 and L29 weirs from 3A and 3B and match outflow from L67 into SRS. Passed 950,000 (What units?) volume of water (compared to East Bookend's 350,000 water passing
- Model tries to release NSM like flows across Tamiami Trail.
- About 70% of total flows out of weir in West Bookend. In East 45% flow.

- With so much in 3B it shows too much seepage in north.
- Adjust 356- closer to no action plan (80,000 acre feet) vs. east bookend
- Problem with the West bookend is that it moves lots of water south, raising water table in the south. From Ag and County perspective, this is a non starter. Will need to address and fix this. Using the 94GRR as the basis of the run won't be acceptable.

Sub Team General Overall Comments

- Southern part of CSOP in both models is hard to figure out. Marsh criteria are not set up yet. Detention area: marsh criteria didn't kick in. Need to check this.
- None of the model runs get us close to getting where we want to be.
- Problem in modeling Tamiami Trail. The 2X2 doesn't have it in it.
- West bookend was to try to determine impacts of Tamiami Trail. But the approach tested was very cumbersome and would require significant resources to run it. Should it be dropped from 2X2 modeling?
- Will need to develop a justification for a larger bridge opening supported by modeling.
- The Park's capital assets plan is looking at most expensive version e.g. 4 mile bridge is largest outside window short of a causeway. Culvert based plan for L67. What about a weir plan? Elevation 9.8. Total cost was \$130 for a 4 mile bridge. Estimates are now around \$398 million.
- Does the 4 mile bridge present an impediment to flow? Not really. Maybe don't need it.
- Do have to model the peak water level. Corp has lead on this.
- A lot to be fixed. Best piece is the weir design in L 67. Doesn't take big weirs.
- How much it is going to cost? This will continue to be a key question.
- May not be enough "hardware" to deal with the volume of water (authorized or simulated)
- We are trying to come up with a plan that achieves what everyone wanted for their areas.
- L67 and highway. Admission that you need to do the same thing on the east side.
- We'll need a bigger plan that does a lot more but it will cost more.
- Or: make a smaller plan to eliminate a lot of the flow and have CERP take care of things later.
- Can't have a part 2 happen much later.
- Tamiami Trail and L67 A mod waters by 2009: need seepage management plans in place. L30 is a gap. 3A/3B seepage management. Tam trail north is a gap.
- Principals made commitment to add pump stations to L30. Need a divide somewhere in the system. Can't be forced there by a structural deficiency.
- Have to have a 100% divide. Can't build a system that forces water south on a system that can't take it.
- Is the 356 Pump capacity big enough? Rates over 700 cfs common. Over 500cfs. Pumping into 3B downstream of 335.
- If scale back to minimal- and North SRS. Spent \$200 million. Scale it back? Build a good project is the only option.
- CSOP phase II? Not clear what this means. Seepage issue must be resolved.
- District: the project can't get ahead of impacts and seepage. Phased approach only if it can bring early benefits.
- 356 field data- need write up- shows 700-900cfs in the main project.
- Seepage out of 3B should go back to 3B. Big chunk has to be on Tamiami trail.

- Paul L: In Mod Branch run- they did 8 cross sections east to west to characterize what's happening flow wise. The way the East book end organized on-off levels are stacked 2/10s intervals. Higher canal levels turn more pumps on.
- Modified waters: flow modeling problems in general. Problems are evident. What is the current plan for resolving problems? Mod Branch underestimates pump flow at peak rates. Gives low value of flow into a canal. They underestimate need for a pump.
- Take seepage data- what to do. Not intending to use Mod Branch model. All environmental performance measures developed on this model. Mod branch uses field data and adjusts how to interpret it. Could go back to pen and paper model development.
- 8.5 SMA no field data. How will you use mod branch model in the detention.
- Look at how effective in separating canal from marsh levels.
- Comfortable with transivity. Buffers a 1/2 mile wide. Will the system work? In current – assume existing pump size and trying to get results from east and west side.
- There is concern about 357.

II. Review of CSOP Advisory Team – Project Areas

A. Water Conservation Areas 3A/3B

Member Comments

- **East Bookend**-- size of weirs off the ground a bit to deal with water quality issues. Size so that you wouldn't have an increase in stages in 3B. Not too big so that downstream structures get the water out that was passed through.
- Rainfall delivery schedule 333& 336: Overall they delivered less water.
- Surprised how close curves are from North Shark River Slough. (Which curves?)
- How do we pass more water without risk or water level rise in 3B. Seepage in L30 and L31 North
- 600,000 acre feet differences between East and West bookends
- Water moving from 3B into L30. 325 is “burping” (unintentional release).
- **West Bookend**- 900K (of what??) in West bookend. 600 acre feet at southern end of system. Lower conditions in 3B than East.
- Less seepage to east.
- Hydro connectivity, if you can control seepage. If you can take out as much as you put in.
- 50 day shorter hydro period between East and West bookends
- 3A. Take more water out of 3A by opening the weirs. Much drier than East B; if goal is to move water through system and reduce ponding.
- Match to take out and control re seepage (??)
- Why is water stacking up? The Water budgets are off.
- Huge difference in flow between the models.
- Can't have 3B lower than 3A and SRS.
- NSM is wrong on this. Model's topography in current model.
- Target is drier than today. Drier for which?
- With good outflow at down stream end, will still have 3B.
- Lowering of 3A in West bookend- 4 to 1 improvement in 3A by what's put in 3B.

- More flow out of 333 and less into 3B. West does this better. BUT you must note—Tribal, Recreation and air boating concerns and issues. West bookend impacts. Increase # days (of what??) from 15% to 50% of a time. Is NSM going to serve their needs?

B. 8.5 Square Mile Area

Member Comments

- East Bookend overview- history is challenging. 6D mistake in modeling run. Angels well criteria dictated when to use 331 trigger/331.
- Angel's well hard coated in model. On/off for 3 pump stations in East bookend. 2x2 results. Will look at Mod Branch results.
- Not increasing seepage out of Park. Not seeing dramatic increase.
- Still has a lot of seepage. Shows up in 2x2. Immediately east of STA. Looks better in Mod Branch which shows compartmentalization. Meaningful improvements but not a silver bullet
- Take lower control level and raise up a bit. Move 2nd pump down. Will look more carefully. Provide same performance as staged hydrography runs as 6D.
- 24 Culverts on south side of detention areas- north end of 222B.
- West Bookend. Essentially the no action plan. No changes
- Water budgets don't show volume for 357

C. Detention and Buffer Areas

Member Comments

- Both fail the inter-basin transfer tests
- If you use 94GRR then does West fail? If 94GRR is not what you want then it fails
- Harder to compare the east and west bookends than east bookend vs. the base condition.
- Concern is the CI area near the buffers.
- 94 GRR no longer relevant because assumptions don't apply. Not part of either of plans that are simulated.
- East does fine. West does not provide flood protection.
- If you move 357 down to south end, the volume will violate the divide no matter what you do.
- Canal stages don't work as you have water going south.
- East- tradeoffs- spread out vertically, and raised culverts to minimize discharges.
- Mod branch does a better job than 2x2 in this area.
- **Sub Team Agreement that neither model is meeting the divide goal in the detention and buffer area. 331 needs to be reduced.**
- What operational stages occurred downstream?

D. Shark River Slough (SRS)

Member Comments

- No plans putting increased depth into SRS- from 2 to 3 feet in wet (??) end.
- This is in the range of what was seen in modeling for 8.5 SMA.
- Mod waters will raise water levels
- More of a redistribution project where you have to control seepage.
- Both show significant improvement over base conditions
- Put water in NSRS- not passing enough water south- no changes in indicator regions.

- 133 range- East- slope on canal 2x2 assumes, need to adjust to allow for more outflow out of D.
- 332d over other pump stations would be better for Florida bay.
- Both ends have more water moving south. Taylor slough will have less water to work with. Need to address in subsequent runs.
- If plan incorporates higher amount of seepage- pump stations will have to deal with larger volumes of water.
- If larger % is seepage from east, less water can come south from 3B into the canal
- Downside of pump station in L25 canal.
- L29 doesn't decrease amount of flow to the marsh.
- Not a lot of difference between East and West
- Responding to inflows the same. But west inflow is L29 flows (S 355 and weirs) compare to East- 333 and 356.
- Downstream marsh responds basically the same.
- Pass more water to the west- to help Florida Bay. Not adding a lot of new water to Florida Bay.
- Jerry L. Effects on downstream? Differences between bookends or compared to base condition? Can't tell. Once you get to edge of 2x2 being able to discern any differences re salinity in Florida Bay. Two models don't show difference for Taylor Slough or C-111. Seasonal differences for canals? Can we get this? Important to know what to make of this re Florida Bay. Only have stage duration curves.
- Detrimental effects on flooding need to be addressed

E. Taylor Slough

Member Comments

- Limitations of 2X2 for Taylor Slough- not a great tool for TS. Limitation of the model.
- Not enough water is going to Taylor Slough.
- Want natural and consistent flows to Taylor Slough. Increase over the historical. Saw an increase not in right magnitude. Timing-wise was better but less than what was wanted.
- Quantity changes in wet season are not producing what we need- not close to NSM to what we've seen.
- 2 runs- show we are getting closer but still a good ways away.
- Indicator gauges on Rocky Glades- don't see significant increases in flow in either plan. Neither push enough over the ridge in a wet year to contribute to Taylor Slough. Doesn't look like a big connection. Concern there.
- Big gradient for 6 inches of depth- long way to go to get a meaningful flow
- Additional 356 CERP structures/ pumps in will produce this? (What does this refer to?)
- Not seeing the amounts (Of what?) in these models we expected.
- b, c, d, can be used in combination to help but it won't bring that much.
- Get the number lower S-18 c- target for minimum delivery very low.
- C-111 spreader when it comes on line will stack water up further east.
- Expect 40 K from 76K (of what??). What is success? Around an average of 42 (in a 31-59 range). Will mean we are pushing lots of water to the west.
- Timing is a huge issue here

F. Florida Bay

Member comments

- Salinity issue? Model outputs don't capture anything near the reality. They don't seem to reflect what you are seeing in models upstream. Question the runs themselves and their comparison.
- How salinity is being calculated in the model needs to be clarified.
- Better job using precedent (??) conditions in Florida Bay.
- Empirical data set that Jerry Lorenz collects over the year. Model output doesn't appear to be near on same location. E.g. Joe Bay data and model salinity curves. District funding for a comparison of Jerry's gauges will be done within the next 2 months.
- Paul/ Jerry will get with Dave Rudnick to better understand salinity modeling output; which data output to use.
- Suitability for crocodiles. East and West show they are not bad.

III. Next Steps

- Sub-team agreed that December meeting should be a 1 day review on the 15th
- Each member of the sub-team will prepare an overview of the East and West Bookends as updated from their perspective on how the models address the Team's expectations and present that to the Team in December.
- Kim will work with the PDT to produce an update of the modeling results for review by the Sub team in advance of the December 15 meeting.
- Members of the sub-team and Kim and Paul will then participate interactively with the CSOP Advisory Team in reviewing the model results and the area expectations on December 15.