Minimum Flows and Levels Reevaluation for the Wekiva River at State Road 46, Wekiwa Springs, Rock Springs, Sanlando Springs, Palm Springs, Starbuck Springs and Miami Springs; and MFLs Determination for the Little Wekiva River, Lake, Orange, and Seminole Counties

Prepared for:



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1.0 Introduction

1.1 Overview

The St Johns River Water Management District (District) has included a re-evaluation of the minimum flows and levels (MFLs) for Wekiva River, Wekiwa Springs, Rock Springs, Palm Springs, Sanlando Springs, Starbuck Springs, and Miami Springs; and a new MFLs determination for Little Wekiva River in its current priority list and schedule for the establishment of MFLs based on the provisions of Subsection 373.802, Florida Statutes (F.S.). Also, based on the provisions of this subsection, the District has identified these MFLs for independent scientific peer review.

The MFLs document reviewed is titled: *Minimum Flows and Levels Re-evaluation for Wekiva River, Wekiwa Springs, Rock Springs, Palm Springs, Sanlando Springs, Starbuck Springs, and Miami Springs; and MFLs determination for Little Wekiva River Draft Report 2024,* by Andrew Sutherland PhD, Fatih Gordu PhD PE, Jane Mace, and Awes Karama PhD.

Barnes, Ferland and Associates, Inc. (BFA) was contracted by the District to provide Independent Technical Peer Review of Wekiva River Basin MFL's.

1.2 Approach

Section 373.042, F.S., provides that MFLs shall be calculated using the best information available, that the Governing Board shall consider and may provide for non-consumptive uses in the establishment of MFLs, and when appropriate, MFLs may be calculated to reflect seasonal variation. The law also requires that when establishing MFLs, changes and structural alterations to watersheds, surface waters, and aquifers shall also be considered (Section 373.0421, F.S.). The State Water Resource Implementation Rule (Chapter 62-40, Florida Administrative Code) includes additional guidance for the establishment of MFLs.

Section 373.042, F.S., also addresses independent scientific peer review of MFLs, specifying the review of all scientific or technical data, methodologies, and models including all scientific and technical assumptions employed in each model, used to establish a minimum flow or minimum water level. In addition, the law requires that the Florida Department of Environmental Protection (FDEP) or the Governing Board should give significant weight to the final peer review panel report when establishing the minimum flow or minimum water level.

This report is the first draft of the BFA's Peer Reviewers report updating the status of the peer reviewer's ongoing peer review for the Wekiva River system (Wekiva River and Little Wekiva River and its associated priority springs (Wekiwa, Rock, Sanlando, Palm, Starbuck, and Miami springs). The first public meeting occurred on January 23rd, 2024. The public meeting provided an opportunity for the public to make comments. BFA's peer reviewers presented their initial findings and recommendations during the second public meeting, an online meeting that occurred on March 14th, 2024.

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2.0 Summary of BFA's Peer Reviewer's Findings and Recommendations

This report section provides a summary of individual and collective findings and recommendations based on the substantive comments made by the two reviewers:

The two independent technical peer reviewers with their respective fields of expertise are:

- Dr. Don Rao Water resources engineering, MFLs compliance, watershed hydrology and hydraulics.
- Dr. William Dunn MFLs development, systems ecology, wetland & aquatic ecology, assessment and management of uncertainty, and adaptive management

Importantly, in this peer review Drs. Rao and Dunn identify substantive comments which are those that have the possibility of causing a change to the report's conclusions including its recommended MFLs. The determination of substantive comments is embedded in a simple Yes or No question for the detailed individual review comments compiled as Table 1, Appendix 1.

2.1 Summary of Substantive and Non-substantive Review Comments

For this peer review BFA defines substantive comments as those that could directly and materially affect the conclusions of the report. Each yes-flagged comment is thus an issue of concern, a problem, a question, a need for additional information, or a recommendation for an alternative. These are the sources of uncertainty in the eyes of each reviewer. Individually and collectively, they are the active part of the peer review.

BFA's reviewer's compiled their general and specific review comments (table 1, Appendix) on SJRWMD's Wekiva River MFLs reevaluation report along with any recommended change or follow up action. In Table 1 (Appendix) each comment is treated as a separate row. Comments are grouped by sections of SJRWMSD's MFL document. The MFLs report has seven sections and six appendices. Drs. Dunn and Rao developed 66 total comments (Table 1, Appendix). In Table 1, Appendix 55 out of 66 comments are flagged yes, 83% of the total. These are arrayed across sections 2 through 7 of the MFLs report.

Lack of comments on a given section of the MFLs report, and a predominance of No-flags given by peer reviewers in tables are taken as general approval of those report sections. The District's MFLs report gets good grades on overall water resources engineering and hydrology. Reviewers generally concurred with the data sources used, statistical and analytical methods applied, and the surface water and groundwater modeling selected, applied and presented.

2.2 Summary of Peer Review's Findings and Recommendations

The peer reviewers as a group have not formally commented or adopted any public comment. The outcome of Drs Dunn and Rao's further internal discussion will be captured in the subsequent revised report, the final draft. This initial draft presents BFA's findings and recommendations for the District's re-evaluation of the minimum flows and levels (MFLs) for Wekiva River, Wekiwa Springs, Rock Springs,



Palm Springs, Sanlando Springs, Starbuck Springs, and Miami Springs; and MFLs determination for Little Wekiva River.

BFA's two Peer Reviewers found that all sections of the MFLs report (full text and six appendices) of are on solid basis technically. The resource inventories, data and analytical approaches are scientifically reasonable and appropriate, including data collection, development hydrological data time series, surface water (HEC-RAS etc.) modeling, and the development of the no pumping (NP) reference flow regime are acceptable. The WRV screening process is well done. The general approach to habitat modeling and assessment using SEFA is also an excellent effort. The addition of The Nature Conservancy's Indicators of Hydrologic Alteration (IHA) to the MFLs toolbox is commended. Conclusion regarding zero freeboard, begets the designation that the Wekiva System is in recovery. Authors also do a good job documenting the need for the adaptive management plan.

The substantive issues raised collectively by the reviewers are distilled into 24 sets of questions/concerns with recommended actions. Greater detail on the issue and action can be found in the detailed comments from each reviewer (see Appendices). Reviewers have also indicated where BFA's findings and recommendations align with those submitted by stakeholders. BFA's findings and recommendations are:

- 1. Wekiva River System Protections this set of recommended MFLs are one of the best efforts BFA's peer reviewers have studied. District staff are to be highly commended for this effort to protect the abundant water resources and environmental human support provided by the Wekiva River system.
 - a. **The Wekiva River System is an iconic system.** Historically, etc. Thus, warrants high levels of protection. Easily demonstrated by the protected lands within the Wekiva River's watershed.
 - b. SJRWMD's MFLs Toolbox provides robust tools for establishment, revision, and development of MFLs for water bodies in the District toolbox applied in the report:
 - i. Five (5) Standard event-based metrics, IFH, FH, MA, FL, and IFL.
 - ii. Specialized adaptive event metrics
 - iii. Wildlife habitat analysis with System for Environmental Flow Analysis (SEFA)
 - iv. Evaluation of 10 Water Resource Values (WRVs)
 - v. Indicators of Hydrologic Alteration (IHA)—developed by Nature Conservancy
 - vi. Uncertainty management. Adaptive Management Plan for managing identified sources of risk and uncertainty for Wekiva River system's MFL water bodies MFLs Prevention and Recovery plans.
- 2. Uncertainties uncertainties remain and may potentially affect outcomes. Several critical concerns are identified by this peer review, and other submitted comments. Key aspects of uncertainty are identified in several of the following findings and recommendations. These uncertainties should be discussed, and then develop a plan to address negative effects. BFA proposes that uncertainties be addressed in two phases:

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- a. Phase 1 uncertainty assessment should focus on addressing the immediate identified issues of uncertainty. The District should explicitly assess risks to the completion of MFL as part of the ongoing technical peer review process.
- b. Phase 2 could be a detailed, formal AM Uncertainty Management Plan that is forward looking into the implementation and monitoring post adoption.
- 3. **Statistical Analysis of Data** Comments submitted by OUC. BFA recommends that this be addressed in the recommended Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (comment 13), Liquid Solutions (comments 1 through 4), Mr. Angel Martin (comment), and Mr. Milke Cliburn (comment X).
- 4. Peer Reviewers also Evaluated original set of MFLs, adopted in 1992 Both Drs. Rao and Dunn produced, separately, independent, technical review of the establishment of the initial set of MFLs for the Wekiva River System, adopted in 1992 (see Hupalo et al. 1994). Dr. Dunn led a formal peer review of the adopted MFLs. That peer review is published as District's Special Publication SJ99 SP1. Dr. Rao conducted and evaluation of the flows and levels at the key gaging station, State Road 46 bridge. He characterized the dynamic effect on flows due to changing channel geometry at the bridge. This work is published as District's Special Publication SJ2008-SP3.
- 5. **AMO signal** Reviewers note that report addresses need to include effects of climate change, including the predictable, such presence of an AMO signal. They point to the range of AMO patterns observed by Kelly 2004 for rivers in Florida, and the harder to predict, such as changes to rainfall and temperature regimes, seasonal, annual, decadal, and longer behavior. Rao (2008 Draft) shows a strong qualitative correlation between the north Atlantic Sea Surface Temperatures (SSTs) and Northeast Florida rainfall. SSTs for a specific region of the North Atlantic adjacent to Florida are found to be better correlated to northeast Florida rainfall. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments.
- 6. **Review Comments Submitted by Stakeholders -** As of the date of this draft report's submittal (April 10, 2024) five sets of submittals were reviewed by BFA's team of experts:
 - a. Dan Smutz of Greeman Peterman-- 3 comments, all three cover issues of uncertainty that could impact the outcomes of the Wekiva River system MFLs re-evaluation.
 - b. Arcadis on behalf of Orlando Utilities Commission (OUC) 32 comments, 21 comments cover concerns of effects of identified sources of uncertainty.
 - c. Mr. Mike Cliburn on behalf of Friends of Wekiva 8 comments, all 8 raise questions, or issues of uncertainty.
 - d. Rob Denis of Liquid Solutions, on behalf of Orange County Utilities (OCU) four topics of concern detailing unresolved uncertainties,
 - e. Mr. Angel Martin--4 comments, each identifying a potential uncertainty risk.

Peer review identified stakeholder comments that could potentially be significant sources of uncertainty. Those uncertainties aligned with this report's list of 24 findings and recommendations



and can be addressed in the Phase 1 Uncertainty Evaluation.

- 7. Anomalies in application of some standard MFL metrics please expand discussion explanation of anomalies in applying FH and MA event metrics to the Wekiva and Little Wekiva Rivers. Similar comment submitted by Dan Smutz/GPI. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Several stakeholders submitted similar comments.
- 8. **Impacts of septic to sewer conversion projects in watershed** Add details. Similar comment submitted by OUC. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (comment 8)
- 9. Process and method assume that recent period of record for hydrologic regime components will remain the same in the 20 years. We know that this is hopeful thinking with our current trends in climate change. POR stationarity. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (comment 13), Liquid Solutions (comment X), Mr. Angel Martin (comments 1 and 4)
- 10. **District applies a 15% parameter reduction value threshold for a number of MFLs metrics -** long-term data supporting this generic threshold is less robust, as compared to event-based metrics. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.
- 11. Water Quality Nexus to Flow Regime Reviewer notes that there are clearly identified water quality impairments of concerns in these rivers and springs. These key water quality issues remain largely divorced from consideration in this MFL. Several recent research findings indicate however, that some water quality problems do have a link with flow regimes. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (comments 31 and 32 X)
- 12. **Climate Change** Reviewer asks about impact of climate change. Climate change is not addressed in the document. MFLs are by their nature our estimates of sustainable resource management. If we are indeed in a time of climate change, then the assumptions upon which we base MFL type sustainability may not hold in the future. In statistical hydrology this is a question of stationarity of the statistical populations comprising our climate driven time series data for temperature, rainfall, runoff, aquifer recharge, etc. The consensus of climate experts is that key time series are in flux, which is they are statistically non-stationary. Climate change is another element of uncertainty, it needs to be discussed, and likely impacts identified and planned for. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments.
- 13. Keep Abreast of Innovations in Science Environmental Flows It is prudent for MFLs program staff stay abreast of potentially beneficial new developments in the field of environmental flows. For example, a very good, very detailed review of the state of science and practices is a recent book *Water For The Environment* (Horne et al. editors, 2017) provides in-depth reviews of current status of theory practice, research and application. This book's citation is Water for the Environment:



From Policy and Science to Implementation and Management, Edited by Avril C. Horne, J. Angus Webb, Michael J. Stewardson, Brian Richter and Mike Acreman. Academic Press, 2017, 720 pages. For example, wildlife habitat evaluation methods continue to evolve, and some other methods may prove useful additions to the already strong SEFA modeling. Finally, in complicated hydrologic-ecologic-hydraulic systems like the Wekiva the ability to address the overall health of the Wekiva ecosystem is often difficult to capture. There are several tools that might prove useful additions to the toolbox. District should consider use of calibrated and validated ecosystem models of the watershed, this case the Wekiva System. Ecosystem models are available that can provide more detailed analysis of energy and material flows, trophic complexities and interactions, network complexity and recycling, and much more.

- 14. **Managing Uncertainty** Reviewers note that the report would benefit from an integrated treatment of the sources of uncertainty. An inventory, characterization and sensitivity assessment of sources, then yields a process to manage uncertainty effectively, such that its negative effects can reduced, or eliminated. Uncertainty issues are discussed throughout the report, and are key to many of key decisions made for choosing methods of analysis, time series data, etc. Management of uncertainty moving forward is noted by authors but should be explicitly addressed as risks that could potentially affect outcomes of the MFL reevaluation. Sources of uncertainty in this MFL setting process include:
 - a. Groundwater and surface water modeling
 - b. Surface water modeling
 - c. Water budgets develop, including hydrologic time series needed
 - d. Reference flow developed for assess impacts of historic consumptive use
 - e. Selection of relevant WRVs, and subsequent parameterization of the assessment's metrics
 - f. Water quality Impairments affected by flow or level
 - g. Effects of climate change
- 15. This requested uncertainty assessment and management should be done as part of the Phase 1 Uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (20 comments), Liquid Solutions (comments 1 through 4), Mr. Angel Martin (comments 1 though 4), and Mr. Mike Cliburn (comment 1 through 8).
- 16. District should proceed cautiously in applying MFL metrics to springs with very low average/median flows. Same comment submitted by Rob Denis of Liquid Solutions, on behalf of Orange Conty Utilities (OCU). BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (comment24), Liquid Solutions (comments 1 through 4).
- 17. Applying Adaptive Management (AM to District's ongoing MFLs establishment for the Wekiva River system) reviewers notes that the report does include adaptive management (AM) framework into subsequent phases of this MFL reevaluation. BFA PRs recommend that AM approach be applied to this MFL setting effort and used as a guiding principle. BFA recommends



that this be addressed in the Phase 1 AM uncertainty evaluation. Stakeholders submitted similar comments: Arcadis (comment X), Liquid Solutions (comment 2),

- 18. **MFLs Recovery Plan** Consider using the Adaptive Management Plan, as first cut at the recovery plan for the Wekiva River. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.
- 19. Develop and implement broad AM to MFLs program. Consider application to water supply planning, and TMDLs & BMAPs.
- 20. **Equity and Fairness** BFA recommends that these concerns for equity and fairness be addressed during the recommended Phase 1 uncertainty evaluation.
 - a. if declaring the whole area in recovery when some show free board, does this raise questions regarding legal defensibility?
 - b. In their reevaluation Wekiva River system recommend several MFLs overlapping in the area when some are clearly not regionally significant, this seems potentially problematic.
 - c. For example, could projects be required unnecessarily or in areas that provide little to no benefit to the actual recovery of waterbodies?
 - d. Along the same lines, if District identifies 2-3 MFLs driving the whole system, then those and all regionally significant ones (OFSs and rivers) should be emphasized in all tables, etc.

Stakeholders submitted similar comments: Arcadis (32 comments), Liquid Solutions (4 comment X), Mr. Angel Martin (4 comments) , and Mr. Milke Cliburn (8 comments).

- 21. **Implementing Adaptive Management** Based on Dr. Dunn's experience with applying AM to water resources management problems. BFA presents a general format for how AM of how this works within the statutory framework. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.
- 22. Time Series Records: Do critical time series inputs have stable statistical distributions? -climate change, data distribution stationarity, etc.
 - a. There's still the comment about the period of record, whether it is stable? (Climate change, etc), representative, etc.
 - b. Even though as part of an overall AM plan for the Wekiva River system the District could do the mandatory 5 year relook, but actually because it was 2014-2018, Therefore BFA recommends that District should address in the Phase 1 inventory and assessment of uncertainties.
 - c. So if that answer is already known, the BFA recommends District's MFLs staff address the problem now, during the Phase 1 Uncertainty Assessment

Stakeholders submitted similar comments: Arcadis (comment X), Liquid Solutions (comment X), Mr. Angel Martin (comment x), and Mr. Milke Cliburn (comments 5 through 8).

23. Uncertainty: Sensitivity of Wekiva River system to short duration changes in time series - Wekiva System is complex, the entire system is definitely complicated, and SJRWMD has done a ton of very



defensible work. But in addition to the wild storms, another possible contributing reason for this system being seemingly "sensitive" to shortchanges in data records could be because the difference between the no pumping condition and the MFL is quite small for some of the driving metrics. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.

- 24. Period of Record (POR) Uncertainty statistically significant differences, BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation. . Stakeholders submitted similar comments: Arcadis (12 comments), Liquid Solutions (comments 1 through 4), Mr. Angel Martin (comments 1, 2, 3, 4), and Mr. Milke Cliburn (comments 1 through 8).
 - a. if we look at other River or springs to compare, we may find unusually close (e.g. a few inches of water depth, for example).
 - b. The District is certainly following accepted assumptions as best I can tell, but it could matter in this case, compared to many others where there is more actual (measurable) difference between the states.
- 25. With the delivery of this Draft report, BFA's Peer Review Team successfully addressed the elements of its scope of work, see Appendix Table 2:
 - a. Determine appropriateness of environmental criteria, hydrologic analyses and recommended minimum flows and levels,
 - b. Determine validity and appropriateness methods and procedures used for data analysis assumptions used and conclusions drawn regarding the recommended minimum flows and levels,
 - c. Determine adequacy of data used to support conclusions and recommendations; and
 - d. Identify and make recommendations regarding any deficiencies in the development of the draft recommended minimum flows and levels for the Wekiva River basin systems

This constitutes BFA's PRs synthesis of their findings and recommendations. This report identifies an array of 24 issues of significance, sources of uncertainty, that could directly and materially affect the proposed MFLs. The peer reviewers have received, reviewed and completed an initial evaluation of uncertainties and potential risk in the public stakeholder's submitted comments.

2.3 BFA's Peer Review Team's Recommended Path Forward for Implementing Uncertainty Management Using Adaptive Management

This report's inventory and evaluation give the District a start on a comprehensive analysis of identified uncertainties. Uncertainties can pose risks. The primary risk is that the water resource values will not be protected from significant harm. Reducing the potential for significant harm from the identified problematic uncertainties is the management challenge now. How should we approach this next challenge?

We have been here before, during the development of the District's 2000 Water Supply Plan a number of uncertainties were identified as risks, affecting the Distirct's ability to predict the future conditions of its water resources via simulation modeling. At that time Dr. Dunn, then with CH2M Hill proposed using



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an AM approach to manage uncertainty risk. Concurrence came quickly from high level staff Division and Department heads.

Dr. Dunn facilitated a formal project chartering processing which a team of experts gathered to develop key questions/uncertainties. goals, an initial set of work tasks to kickoff the effort, staffing and responsibilities, were developed and became the chartering document for the AM Project.

Dr. Dunn had previously developed an AM manual of practice for water resources and environmental management in CH2M Hill, for applying AM approach to water resource, watershed and environmental management problems. Next, he produced a guidance document (CH2M Hill 1999) for the applying AM to the District's water management programs, MFLs and water supply planning more specifically. Details of chartering/kickoff were distilled into several key action items, which subsequently became the first work elements in the AMP.

Initially, Dr. Dunn carried out extensive field inspections of wetlands, lakes, ponds in CFWI in east central Florida. A health condition assessment was made at each site. Results are reported in district publication (CH2 2003. This effort was further evaluated to rank candidate sites for reestablishing MFLs. This work is summarized in (Dunn, et al. 2005).

The site assessment database was later added to that used by the CFWI's Wetlands Impact Assessment Team's survey of water dependent eco systems within the CFWI.

Adaptive Management is designed to assist resource managers with managing in the face of uncertainties and associated risk, the risk of significant harm to the water resources of the District. Table 1 makes the path forward on this challenge look quite manageable.

There is a clear path forward to the completion of this MFLs reevaluation for the Wekiva River system. Effective water resources management, including setting and implementing MFLs occurs adaptively once we understand and manage risk and uncertainty. This document's synthesis of substantive review comments is an inventory and analysis/evaluation of sources of uncertainty affecting the setting of MFLs for the water bodies in Wekiva River's watershed. Each substantive, problematic uncertainty has downside risk potential to the sustainable management of the WR and LWR, and their priority springs, and their protection from significant harm as directed in Chapter 373 F.S.

This inventory of risk from substantive uncertainties is an excellent rtarting point for moving forward, continuing to develop MFLs for these water bodies that do meet the directives of Chapter 373 F.S. It is also an essential step in an AM approach. As water resource managers the District and the State must do the best possible job managing the District's water resources, but do so under clear regulatory constraints, specifically to develop MFLs that protect from these water bodies from significant harm. This is a tough challenge, but it is one that can be conquered. To rise to this challenge the PRs request that the District give particular weight to PR's call: 1) for uncertainty and risk analysis to identify problematic sources of uncertainty that could increase the risk of significant harm occurring, and 2) the use AM to smartly manage these precious water resources in the face of risk and uncertainty. In applying to AM, we hope to do the best job we can under limits of uncertainty but use structured learning to be better managers in the future. Adaptive learning yields adaptive management.

2.4 What's Next in Peer Review Process?



This draft report once submitted and accepted by the District will be made available to public. The ongoing peer review process will likely include at least one, and possibly two more public meetings. The subsequent public meetings will serve: 1) to present updated findings and recommendations, 2) allow the PRs to discuss findings and recommendations, and 3) to take public comment. Following the next public meeting, BFA's peer reviewers will refine their findings and recommendations, as needed, and will produce a revised draft, the final draft of the PR report covering the reevaluation of Wkiva River system MFLs.

At this juncture in the technical peer review process BFA's reviewers reiterate that they have not formally commented or adopted any public comment. The peer reviewers have however, received and evaluated stakeholder's review comments submitted to date.

3.0 References

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Water for the Environment: From Policy and Science to Implementation and Management, Edited by Avril C. Horne, J. Angus Webb, Michael J. Stewardson, Brian Richter and Mike Acreman. Academic Press, 2017, 720 pages.



SPECIFIC AND GENERAL COMMENTS - DISTILLATION OF COMMENTS BY PEER REVIEWER'S

TABLE 1 - SUMMARY REVIEW COMMENTS ON WEKIVA RIVER SYSTEM MFL DOCUMENTS

	r Page	r Page terially ons of	To be completed by Ro	To be completed by Reviewer(s)	
Comment No.	Figure, Table, o and Paragraph Number	Does Comment Directly and Ma Affect Conclusi report? (Yes/No	A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment
1	General Comment		Overall, the reevaluation is well done, and comprehensive	Report and conclusions and recommendations may need to be revised, or updated depending upon how uncertainties are addressed.	
2	General Comment	Yes	 Peer Reviewers the Wekiva MFLs reevaluation Robust analysis of the watershed's condition Weight of Evidence is compelling, and rich Six independent analyses reach the same conclusion. Standard SJRWMD Event based metrics (IH, FH, MA, FI, IL) applied New Adaptive Events developed to address protections of key structural/functional components of Wekiva River's natural systems SEFA habitat assessments was extensive WRVs assessments were extensive Addition of the widely applied Indicators of Hydrologic Alterations (IHA) gives District greater insight into hydro-ecological dynamics 	BFA recommends that this peer review process include the recommended uncertainty management approach.	
3	General Comment	Yes	SJRWMD standard MFL Events	Clarify, why two event based metrics were not applicable	
4	General Comment	Yes	New Event-based Metrics Required	This comment linked to the previous one, Please clarify the need to develop new, adaptive metrics?	
5	General Comment		WRVs	The Districts WRV assessment was also very extensive and sufficiently detailed to address all ten WRVs. No further action is requested at this time.	

	r Page terially		To be completed by Reviewer(s)		To be completed by Report Author(s)
Comment No.	Figure, Table, o and Paragraph Number Does Commen Directly and Mi Affect Conclus report? (Yes/N	A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment	
6	General Comment	No	SEFA very critical/ beneficial tool in the MFLs toolbox, and critical for this MFLs analysis and assessment	SEFA analysis was extensive, no further action requested at this time	
7	General Comment	Yes	IHA very critical/ beneficial tool in the MFLs toolbox, and critical for this MFLs analysis and assessment	IHA is a valuable addition to the MFLs Metrics toolbox. Its application in this reevaluation shows high value into hydro- ecologic factors of known value to ecosystem health.	
8	General Comment	Yes	Adaptive Management	Uncertainty management is needed, as a next evaluation step for this reevaluation	
9	Executive Summary Page	No	Well written, Sufficient content covered.	The MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Assessment	
10	Page vi	No	Please add the appendices to the Table of Contents (TOC)	Add list of Appendices to table of contents	
11	Pages xii-xv Glossary and Acronyms	No	Glossary and Acronyms are well written and will be highly explanatory to the general public	No further action required at this time.	
12	Introduction Pages 1-7	No	Well written, Sufficient content covered.	The MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Assessment	
13	Pages 3&4	No	Helpful map figures (Figures 1,2, and 3)	No further action needed.	
14	Page	No	Explain rationale for exclusion of Blackwater Creek	Blackwater Creek was included in the MFLs adopted for the Wekiva Basin in 1994. This report does make it clear why the Blackwater River system is excluded?	
15	Pages 6-7	Yes	 BFA's reviewers find that some issues of uncertainty risk still need to be addressed: Many assumptions are embedded, these should be all be verified, and revised as warranted Definition of Significant Harm Event based metrics Freeboard assessment Prevention and Recovery 	The MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Assessment	

	r Page terially ons of		To be completed by Reviewer(s)		To be completed by Report Author(s)
Comment No.	Figure, Table, o and Paragraph Number	Does Comment Directly and Ma Affect Conclusi report? (Yes/Nc	A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment
16	General Comment	No	BFA's peer review assignment did not cover independent peer review of surface and groundwater models hydrology models underpinning the MFL's reevaluation	No further action required at this time	
17	Setting and Description Pages 7-	No	Setting for the Wekiva system is well covered.	No further action required at this time.	
18	Location and physiographic Setting, Page 8-10	No	Location and Setting are well defined with the text and Figures 4 and 5.	No further action required at this time.	
19	Hydrology Pages 11-25	Yes	Sufficient streamflow and spring flow data were used in deriving the MFLs results for the Wekiva River basin. These data were both observed and modeled: District staff used an HSPF watershed model for discharges and the HEC-RAS model for river stages. These data, discharges and river stages, were comprehensively presented by figures and tables. Spring flows were simulated by groundwater models.	The MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Assessment	
20	Surface Water Basin Characteristics Pages 26-46	No	 Land Use & Vegetation—including Tables 5 and 6, and Figures 18 and 19, Hydric Soils—text and Figure 22, 23, and 24 Water Quality—pages 33-46, including Tables 7-11, and Figures 25-30. Wekiwa and Rock Springs Wekiva River Little Wekiva River 	The MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Assessment	
21	MFLs Determination Pages 47-89	Yes	Overview of hydrologic and ecological-environmental Hydrological Analyses-pages 47-54 Environmental Analyses pages 54-89	The MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Assessment	
22	General Comment	Yes	Statistical Analysis of Data – BFA concurs with Comments submitted by several: OCU, Friends of Wekiva, GFI, and Mr. Angel Miller, and OUC. BFA recommends that this be addressed in the recommended Phase 1 AM uncertainty evaluation.	Statistical Significance between time series, and other key comparisons are identified as sources technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	

	r Page	Figure, Table, or Page and Paragraph Number Does Comment Directly and Materially Affect Conclusions of report? (Yes/No)	To be completed by Reviewer(s)		To be completed by Report Author(s)
Comment No.	Figure, Table, o and Paragraph Number		A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment
23	General Comment	Yes	AMO signal - Reviewers note that report addresses need to include effects of climate change, including the predictable, such presence of an AMO signal. They point to the range of AMO patterns observed by Kelly 2004 for rivers in Florida, and the harder to predict, such as changes to rainfall and temperature regimes, seasonal, annual, decadal, and longer behavior. Rao (2008 Draft) shows a strong qualitative correlation between the north Atlantic Sea Surface Temperatures (SSTs) and Northeast Florida rainfall. SSTs for a specific region of the North Atlantic adjacent to Florida are found to be better correlated to northeast Florida rainfall. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	Climate cycles, such as the AMO are a general category of identified technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
24	MFLs Assessment Pages 91-111	Yes	Anomalies in application of some standard MFL metrics - please expand discussion explanation of anomalies in applying FH and MA event metrics to the Wekiva and Little Wekiva Rivers. Similar comment submitted by Dan Smutz/GPI. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	BFA recommends that this be addressed in the Phase 1 Uncertainty Management Assessment.	
25	Conclusions and Recommendations Pages113-117.	Yes	Reviewers concur that this work effort resulted in recommendations to modify the adopted MFLs for the Wekiva River, Wekiwa Springs, Rock Springs, Sanlando, Palm, and Starbuck Springs, and develop new minimum flows for the Little Wekiva River. Recommended MFLs are based on application of SJRWMD's MFL development methods. BFA's reviewers and the review comments submitted by stakeholders have identified sources of uncertainty and risk. These should be evaluated and potential risks minimized and/or eliminated.	The District's Wekiva MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Management Assessment	
26	Recommended Minimum Flows Page 113-116	Yes	 Major sources of uncertainty identified include: Validated assumptions: Minimum flows developed with a variety of metrics to protect important ecological environmental, and human beneficial uses. 	The District's MFLs reevaluation document may need to be revised pending outcomes of the Phase 1 Uncertainty Management Assessment	

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			 Importance of Wekiva River @ SR46—the most downstream station in the watershed. WR @ SR 46 along with Wekiwa Springs are determined to be most constraining. Both have MFLs equal to the current pumping condition. All other MFL water bodies and Wekiwa Springs are upstream of WR@SR46. Since the minimum flow for the most downstream station (WR@SR46) is equal to the CP, then so do the MFLs for the other water bodies. SJRWMD deemed this necessary, because any further reduction on flow from the CP condition will result violation of the MFLs at that location This will also define the MFLs condition for Wekiwa Springs. Table 32 provides a comparative summary MFLs, original and currently recommended) eight water bodies: Wekiva River, Little Wekiva, and Rock, Wekiwa, Miami, Palm, Sanlando, and Starbuck springs. Original MFLs did not include an event-based metric for Wekiva River SR46, and Little Wekiva River ECFTX model used, but not reviewable in this assignment Recommended MFLs (Table 32) are at their threshold for significant harm, and the added increases in recent pumping, these MFLs are predicted to be violated over the next 20 years. Current pumping is defined as 2014-2018. MFLs are thus based on climatic conditions experienced in that period. If these conditions are repeated in the future, and average pumping remains the same, CP condition flows are expected to reflect the future flow regime. 		
27	Allowable flow reductions from NP conditions Page 115, para 2	Yes	Text summarizes the allowable flow reductions from the NP condition, see also Table 29, page 98.	Freeboards are a general category of identified technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	

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Comment No.	Figure, Table, o and Paragraph Number Does Commen Directly and Mi Affect Conclus report? (Yes/N	A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment	
28	Freeboard p. 115, para 3	Yes	Basin wide freeboard for each water body in the Wekiva River system is zero cfs.	Freeboards are a general category of identified technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
29	Wekiva Systems are in recovery p. 115, para 4	Yes	Wekiva River system is in recovery. District and stakeholders are required to develop and MFLs recovery plan	MFLs status as being in recovery is identified as a technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
30	Comparison of Wekiva River system with other MFL rivers p.115, para 5	Yes	See Table 27, 8.7% reduction compared to NP condition	Issue identified as general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
31	WRVs protected p. 115, para 6	Yes	MFLs protect the ten WRVs	Issue identified as general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
32	IHA Analysis p. 116, para 1	Yes	Results of IHA analysis	Issue identified as general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
33	Weight of evidence, from WRV and IHA analyses p.116, para 2	Yes	Weight of evidence from WRV and IHA analyses	Issue identified as general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
34	p. 116. Para 3	Yes	Until the critical uncertainty concerns are addressed authors do not conclude that the recommended MFLs will assure protection of the Wekiva basins WRVs, Rule 62-40.473. F.A.C.	Issue identified as general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
35	General Comment	Yes	Statistical Analysis of Data - Comments submitted by OUC. BFA recommends that this be addressed in the recommended Phase 1 AM uncertainty evaluation.	Issue identified as general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management	
36	Ongoing Status/Adaptive Management Page 116-117	Yes	Prudent to test implicit assumption that the Wekiva River hydrologic history will repeat itself in the future. This uncertainty should regularly tested by implementing adaptive management (AM) 1. The SJRWMD should implement an AM strategy for regular testing.	Issues have been identified as a general category of technical uncertainty. These issues should be addressed during Phase 1 Uncertainty Management Assessment	

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			 District should implement an AM strategy to address continuing challenges and uncertainties in ecohydrological data and tools District should perform analysis at least every five years, as well as cases in which permit applications are considered that could impact the adopted MFLs. If the average long-term flow for a given water body falls below its adopted minimum flow, then more detailed analysis will be triggered. If the average long-term observed flow falls below an adopted MFL, more detailed analysis is triggered to determine whether reduction in flows is caused by groundwater pumping, rainfall, or other. If this analysis shows that the MFL is being met, then no further action is required beyond continued monitoring. If, however, analysis finds that adopted MFLs, or are trending towards not being met, then the District will conduct a cause-and-effect analysis to independently evaluate the impact of various stressors on the water body in questionsee details p.117. 		
37	General Comment	Yes	Impacts of septic to sewer conversion projects in watershed - Add details. Similar comment submitted by OUC. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
38	General Comment	Yes	Uncertainties remain - uncertainties remain and may potentially affect outcomes. A number of critical are identified by this peer review, and other submitted comments. Key aspects of uncertainty are identified in several of the following findings and recommendations. These uncertainties should be discussed, and then develop a plan to address negative effects. BFA proposes that uncertainties be addressed in two phases: Phase 1 uncertainty assessment should focus on addressing the identified issues of uncertainty. The District should explicitly assess risk to the completion of MFL reevaluation as part of the ongoing technical peer review process, while Phase 2 could be a detailed, formal AM Uncertainty Management Plan that is forward looking into the implementation and monitoring post adoption.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	

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39	General Comment	Yes	Review Comments Submitted by Stakeholders - As of the date of this draft report's submittal (April 10, 2024) five sets of submittals were reviewed by BFA's team of experts: -Dan Smutz of Greeman Peterman: 3 comments -OUC; 32 comments prepared by Arcadis -Friends of Wekiva: 6 comments -OCU: 4 major issues identified by Liquid Solution's Rob Denis -Mr. Angel. Martin-4 comments Peer review identified stakeholder comments that could potentially be significant sources of uncertainty. Those uncertainties aligned with this list of 24 findings and recommendations and can be addressed in the Phase 1 Uncertainty Evaluation.	BFA's reviewers identified stakeholder's questions of risk and uncertainty as a general category of technical uncertainty. These issues should be addressed during Phase 1 Uncertainty Management Assessment	
40	General Comment	Yes	Process and method assume that recent period of record for hydrologic regime components will remain the same in the 20 years. We know that this is hopeful thinking with our current trends in climate change. POR stationarity. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
41	General Comment	Yes	District applies a 15% parameter reduction value threshold for a number of MFLs metrics - long-term data supporting this generic threshold is less robust, as compared to event-based metrics. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
42	General Comment	Yes	Water Quality Nexus to Flow Regime - Reviewer notes that there are clearly identified water quality impairments of concerns in these rivers and springs. These key water quality issues remain largely divorced from consideration in this MFL. Several recent research findings indicate however, that some water quality problems do have a link with flow regimes. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	

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43		Yes	Climate Change is Upon Us - Reviewer asks about impact of climate change. Climate change is not addressed in the document. MFLs are by their nature our estimates of sustainable resource management. If we are indeed in a time of climate change, then the assumptions upon which we base MFL type sustainability may not hold in the future. In statistical hydrology this is a question of stationarity of the statistical populations comprising our climate driven time series data for temperature, rainfall, runoff, aquifer recharge, etc. The consensus of climate experts is that key time series are in flux, which is they are statistically non-stationary. Climate change is another element of uncertainty, it needs to be discussed, and likely impacts identified and planned for. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
44	General Comment	Yes	Keep Abreast of Innovations in Science Environmental Flows - It is prudent for MFLs program staff stay abreast of potentially beneficial new developments in the field of environmental flows. For example, very good, very detailed review of the state of science and practices is a recent book <i>Water For The</i> <i>Environment</i> (Horne et al. editors, 2017) provides in-depth reviews of current status of theory practice, research and application. T For example, wildlife habitat evaluation methods continue to evolve, and some other methods may prove useful additions to the already strong SEFA modeling. Finally, in complicated hydrologic-ecologic-hydraulic systems like the Wekiva the ability to address the overall health of the Wekiva ecosystem is often difficult to capture. There are several tools that might prove useful additions to the toolbox. Finally, the District should consider use of calibrated and validated ecosystem models of the watershed, this case the Wekiva System. Ecosystem models are available that can provide more detailed analysis of energy and material flows, trophic complexities and interactions, network complexity and recycling, and much more. The software package ECOPATH with ECOSIM appears to a good initial candidate.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	

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45	General Comme General Comment	Yes	 Managing Uncertainty - Reviewers note that the report would benefit from an integrated treatment of the sources of uncertainty. An inventory, characterization and sensitivity assessment of sources, then yields a process to manage uncertainty effectively, such that its negative effects can reduced, or eliminated. Uncertainty issues are discussed throughout the report, and are key to many of key decisions made for choosing methods of analysis, time series data, etc. Management of uncertainty moving forward is noted by authors but should be explicitly addressed as risks that could potentially affect outcomes of the MFL reevaluation. Sources of uncertainty in this MFL setting process include: Groundwater and surface water modeling Surface water modeling Water budgets develop, including hydrologic time series needed Reference flow developed for assess impacts of historic consumptive use Selection of relevant WRVs, and subsequent parameterization of the assessment's metrics Water quality Impairments affected by flow or level Effects of climate change 	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
46	General Comment	Yes	District should proceed cautiously in applying MFL metrics to springs with very low average/median flows. Same comment submitted by Rob Denis of Liquid Solutions, on behalf of Orange Conty Utilities (OCU). BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation	Significance and sensitivity of flow regime of small volume springs is identified technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
47	General Comment	Yes	Applying Adaptive Management (AM to District's ongoing MFLs establishment for the Wekiva River system) - reviewers notes that the report does include adaptive management (AM) framework into subsequent phases of this MFL reevaluation. BFA PRs recommend that AM approach be applied	The issue should be addressed during Phase 1 Uncertainty Management Assessment	

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			to this MFL setting effort and used as a guiding principle. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.		
48	General Comment	Yes	MFLs Recovery Plan - Consider using the Adaptive Management Plan, as first cut at the recovery plan for the Wekiva River. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
49	General Comment	Yes	Develop and implement broad AM to MFLs program. Consider application to water supply planning, and TMDLs & BMAPs.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
50	General Comment	Yes	 Equity and Fairness - BFA recommends that these concerns be addressed during the recommended Phase 1 uncertainty evaluation. a. if declaring the whole area in recovery when some show free board, does this raise questions regarding legal defensibility? b. In their reevaluation Wekiva River system recommend several MFLs overlapping in the area when some are clearly not regionally significant, this seems potentially problematic. c. For example, could projects be required unnecessarily or in areas that provide little to no benefit to the actual recovery of waterbodies? d. Along the same lines, if District identifies 2-3 MFLs driving the whole system, then those and all regionally significant ones (OFSs and rivers) should be emphasized in all tables, etc. all regionally significant ones (OFSs and rivers) should be emphasized in all tables, etc. 	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
51	General Comment	Yes	Uncertainty: Sensitivity of Wekiva River system to short duration changes in time series - Wekiva System is complex, the entire system is definitely complicated, and SJRWMD has done a ton of very defensible work. But in addition to the wild storms, another possible contributing reason for this system being seemingly "sensitive" to short changes in data records could be because the difference between the no pumping condition and the MFL is quite	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	

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Comment No.	Comment No. Figure, Table, o and Paragraph Number Does Comment Directly and Ma		A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment
			small for some of the driving metrics. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.		
52	General Comment		Time Series Records: Do critical time series inputs have stable statistical distributions? -climate change, data distribution stationarity, etc.	Reviewers identified this issue as a general category of technical uncertainty. The issue should be addressed during Phase 1 Uncertainty Management Assessment	
			There's still the comment about the period of record, whether it is stable? (Climate change, stationarity, etc.), representative, etc.		
		Yes	Even though as part of an overall AM plan for the Wekiva River system the District could do the mandatory 5 year relook, but actually because it was 2014-2018, Therefore BFA recommends that District should address in the Phase 1 inventory and assessment of uncertainties outcomes of this reevaluation.		
			So, if that answer is already known District's MFLs staff should address the problem now because it could materially changes the answesr in this case.		
			The District is following accepted assumptions but it could matter in this case, compared to many others where there is more actual (measurable) difference between the states.		
53	General Comment	Yes	Implementing Adaptive Management - Based on Dr. Dunn's experience with applying AM to water resources management problems. BFA presents a general format for how AM of how this works within the statutory framework. BFA recommends that this be addressed in the Phase 1 AM uncertainty evaluation.	The issue should be addressed during Phase 1 Uncertainty Management Assessment	
54	General Comment	Yes	Period of Record (POR) Uncertainty—statistically significant differences, BFA recommends that this be addressed in the Phase 1 Uncertainty Management Assessment. For example, if we look at other rivers or springs to compare, we may find	Several statistical concerns regarding PORs are identified as sources of technical uncertainty. These should be addressed during Phase 1 Uncertainty Management	
			unusually close (e.g. a few inches of water depth, for example).		

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		Does Comment Directly and Ma Affect Conclusi report? (Yes/Nc	A. Reviewer's Specific Comments	B. Reviewer's Specific Recommended Corrective Action	C. Action to be Taken in Response to Comment
			The District is following accepted assumptions, but it could matter in this case, compared to many others where there is more actual (measurable) difference between the states.		
66	General Comment	Yes	 With the delivery of this Draft report, BFA's Peer Review Team successfully addressed the elements of its scope of work, see Appendix Table 2: Determine appropriateness of environmental criteria, hydrologic analyses and recommended minimum flows and levels, Determine validity and appropriateness methods and procedures used for data analysis assumptions used and conclusions drawn regarding the recommended minimum flows and levels, Determine adequacy of data used to support conclusions and recommendations; and Identify and make recommendations regarding any deficiencies in the development of the draft recommended minimum flows and levels for the Wekiva River basin systems 	This determination of completion of BFA's peer review of proposed MFLs for Wekiva River Basin may need to be revised based depending on outcomes of Phase 1 Uncertainty Management Assessment	

EVALUATION OF MFL SETTING PROCESS - DISTILLATION OF COMMENTS BY PANEL MEMBERS

Task		Subtask		Sub-subtask		Reviewer's Specific Comments
A. I	Determine whether the conclusions in the Wekiva River system MFLs report are supported by the analyses presented	1.	Supporting Data and Information: review the relevant data and information that supports the conclusion in the report to determine:	a.	data and information used was properly collected.	Peer Reviewers found that the Wekiva River systems MFLs detailed in the report are overall well supported by the analyses presented.
				b.	reasonable quality assurance assessments were performed on the data and information.	Yes, reviewers concur that reasonable quality assurance was performed.
				C.	exclusion of available data was justified.	Yes reviewers concur That data handling was done properly handled.
				d.	the data used was the best information available.	Yes, reviewers concur that best available information was used
		2.	Technical assumptions: review the technical assumptions inherent to the analysis used in the report to determine whether:	a.	the assumptions are clearly stated, reasonable and consistent with the best available information	Assumptions were evaluated; some were found to worth revisiting during the Phase 1 Uncertainty Assessment
				b.	the assumptions were eliminated to the extent possible, based on the available information.	Yes. Reviewers, however, note that a number of significant sources of uncertainty are identified. Reviewers strongly recommend that a complete assessment of impact risk posed by these significant uncertainty sources, should be addressed right away, as a next step in the reevaluation.
				C.	other analyses that would require fewer assumptions but provide comparable or better results are available.	None identified at this point.
		3.	Procedures and analyses: review the procedures and analyses used in the report to determine whether:	a.	the procedures and analyses were appropriate and reasonable based on the best information available.	Yes, reviewers found this to be true, found the weight of evidence from collective condition assessments to be compelling.
				b.	the procedures and analyses incorporate all necessary factors.	Yes, reviewers found this to be generally true.

TABLE 2 - SUMMARY REPLIES TO SJRWMD'S PEER REVIEW ASSESSMENT REQUIREMENTS

Task	Subtask	Sub-subtask	Reviewer's Specific Comments
		 c. the procedures and analyses were correctly applied. 	Yes, procedures and analyses were correctly applied.
		 limitations and imprecisions in the information were reasonably handled. 	Reviewers, however, note that a number of significant sources of uncertainty are identified. Reviewers strongly recommend that a complete assessment of impact risk posed by these significant uncertainty sources, should be addressed right away, as a next step in the reevaluation.
		e. the procedures and analyses are repeatable.	Yes, reviewers did find that procedures and analyses followed professional practices expected. Some valid concerns over a possible lack of significant statistical differences between some hydrologic data time series.
			Reviewers recommend that these statistical sources of uncertainty be included in the assessment of impact risk posed, and this should be addressed right away, as a next step in the reevaluation. The reviewers refer to this step as the Phase 1 Uncertainty Assessment.
		 f. conclusions based on the procedures and analyses are supported by the data. 	Reviewers note that several significant sources of uncertainty are identified. Reviewers strongly recommend that a complete assessment of impact risk posed by these significant uncertainty sources, should be addressed right away, as a next step in the reevaluation.
	 List and describe scientific deficiencies and, if possible, evaluate the error associated with the deficiencies. 	Scientific deficiencies.	Reviewers did not identify any major scientific deficiencies. Reviewers, however, identified issues that could have significant effect on the outcomes of this reevaluation.
B. If a proposed method used in the report is not	 Determine if the identified deficiencies can be remedied. 		Yes, the reviewers are confident that deficiencies can be remedied during the Phase 1 Uncertainty Assessment.
scientifically reasonable, then please provide:	 If the identified deficiencies can be remedied, then please describe the necessary remedies and an estimate of the time and effort required to develop and implement each remedy. 		Yes, the reviewers are confident that deficiencies can be remedied during the Phase 1 Uncertainty Assessment.

Task	Subtask	Sub-subtask	Reviewer's Specific Comments
	4. If the identified deficiencies cannot be remedied, then, i possible, identify one of more alternative methods that are scientifically reasonable		The uncertainties identified can be remedied. BFA's recommendations address this specifically.
C. If a given method or analysis in the report is scientifically reasonable, but an alternative method(s) is preferable, then:	 List and describe the alternative reasonable scientific method(s) and include a qualitative assessment of the effort required to collect data necessary for implementation of the alternative method(s). 	No obvious change noted at this time.	The method being recommended is the management of uncertainty using Adaptive Management.