

**Sylvan Lake, Seminole County**  
**Proposed Peer Review Resolution Document: Shaw, Wilson, and Upchurch**  
**May 18, 2010**

<b>Reviewer</b>	<b>Peer Review Comments</b>	<b>Resolution</b>
<b>Peer Reviewer Comments – April 2009</b>		
	<b>Shaw Comments Specific to Sylvan Lake Report</b>	
Shaw	1. Some additional minor editing is still needed throughout this document; for instance, paging is still missing from the List of Figures (Page x). Also, the reference for the hydrologic model report by CDM is cited erroneously as “CMD, 2005) throughout the document.	Minor editing was addressed during the document re-writing. Pagination and correct placement of figures and tables will be completed by the District editor.
Shaw	2. Page 1, Introduction -- it would be helpful to document any general criteria that are used by the District to trigger a re-evaluation and the specific reasons for re-evaluating Sylvan Lake. Also, in the introduction please include the reasons why Sylvan Lake was originally placed on the MFL priority list.	The Introduction section was expanded to explain the specific reasons why Sylvan Lake was prioritized for a MFLs determination and why the MFLs were scheduled for re-evaluation.
Shaw	3. Pages 1-2, Factors to be Considered When Determining MFLs and Pages 21-22, Consideration of Environmental Values Identified in Rule 62-40.473, <i>F.A.C.</i> – it would be helpful to indicate here which factors were considered in the development of the Sylvan Lake MFLs. Also, for riverine MFLs, the District typically contracts or conducts a water resource values (WRV) assessment in addition to preparing an MFL determination study. Because it is not mentioned in the Sylvan Lake MFL Report, I am assuming a separate WRV assessment will not be conducted for this MFL. However, it would be helpful if this were clarified in the MFL Report.	Report text was included to clarify that a separate WRV assessment was not completed as with riverine systems. Additionally, this report section was expanded to clarify which Environmental Values were considered in the development of the Sylvan Lake MFLs and why they are considered protected by the recommended MFLs.
Shaw	4. Pages 3-4, Sylvan Lake Background Information – Given that increased DCIA in the lake’s watershed appears to be a primary reason for re-evaluating the MFL, it would be helpful to include an estimate of impervious cover, if possible.	Report was edited to include an estimate of the impervious area (DCIA).
Shaw	5. Page 15, Field Transect Site Selection – general information regarding the site history survey indicates that occurrence records of rare and endangered flora and fauna, yet I can find nowhere in the report where such records, if any are documented. Please add a brief discussion of any rare or endangered species that were found on the Sylvan Lake site.	The report methods section was clarified to indicate that data collation may include the “occurrence records of rare and endangered flora and fauna” along with other information. No specific rare or endangered species were documented in information reviewed or observed during field data collection efforts.
Shaw	6. Pages 19-20, Surface Water Inundation/Dewatering Signatures (SWIDS) and accompanying figure (Fig 10, page 27) --- this MFL report includes an expanded and excellent discussion of the SWIDS approach here in the Methods section that is missing (or abbreviated) in all other lake MFL reports I reviewed. This discussion addresses some of my comments on the other reports regarding this approach and should be included, in its expanded form in all reports that make use of SWIDS.	All other reports utilizing SWIDS were edited to include the discussion of the SWIDS approach in the Methods section contained in the Sylvan Lake report.
Shaw	7. Pages 36-37, Structural Alterations and Other Changes -- In the last paragraph in this	Report text was edited to add documented support for

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	<p>section, it is stated that the soils and vegetation did not appear to be in transition due to anthropogenic changes. Can any evidence of this conclusion be cited here? Also, was there any evidence of changes in vegetation communities since the field work for the original MFL assessment was conducted?</p>	<p>these statements.</p>
Shaw	<p>8. Pages 39-41, Minimum Average (MA) Level (38.9 ft NGVD) – Comparison of the adopted and recommended MA indicates they are each the same value (38.9 ft), despite using different assessment techniques, and that this is the reason why no change is recommended to the adopted value. However, nowhere in the text does the District explicitly say this. Please add some narrative to this section explicitly stating that no change will be recommended and why. Also, it is not completely clear to me that this lake is different from the other sandhill lakes whose MFL assessment reports I reviewed for which no MA was recommended because of the large level fluctuations inherent to lakes in this kind of setting. If this lake is in a different setting or landscape context (e.g., a karst solution basin) then this should be made more clear in the text and an explanation given that distinguishes it from sandhill lakes.</p>	<p>Sylvan Lake has floodplain wetlands with deep organic soils. This is the main reason why setting a MA level was considered appropriate. Report text was edited to clarify why Sylvan Lake has a minimum average level recommended while other sandhill lakes do not. The report text was edited to clarify that no change is recommended regarding the minimum average level.</p>
Shaw	<p>9. Pages 37-39, Minimum Frequent-High (FH) Level (41.2 ft NGVD) and Pages 41-44 Minimum Frequent-Low (FL) Level (36.7 ft NGVD) – The method used for determining FH and FL relies on locations of existing wetland plant communities and SWIDS information from other similar sites, and is a conceptually sound approach. However, the SWIDS data for transitional shrub community shown in Figure 17 (page 65) and for shallow marsh shown in Figure 21 (page 69) display a wide range of variability that needs better explanation. Based on visual inspection of the graphs in Figs. 17 and 21, it appears that the data may include several sites that are hydrologically quite different from the others. Given this variation in the SWIDS for the same communities from different locations, should we always be using the driest of these signatures to define allowable hydrologic shifts when that signature could be, statistically, an outlier or represent a different population of sites? This outlier question becomes especially significant for communities like “transitional shrub” that are not always “natural” communities, but instead are often a successional stage indicative of an altered fire or hydrologic regime in another wetland community, like emergent marsh. So choosing the driest transitional shrub site could in fact be starting from a baseline that is already disturbed (possibly over-drained), perhaps even “significantly harmed.” These concerns could be addressed in several ways: (1) more careful statistical treatment of the SWIDS reference curves to minimize the possibility that any of the curves used to set the FH (or other minimum levels) are statistical outliers, (2) more detailed explanation of how the SWIDS reference sites were selected to ensure that no outliers or already-harmed sites are included. Also, in the legends of the figures, it would be helpful to indicate which of the reference sites are from sites that are the same landscape setting (e.g., sandhill lake or karst solution basin) as Sylvan Lake.</p>	<p>See response to Wilson Comment No. 31. The current SWIDS dataset was re-evaluated to “cull-out” any systems that were not considered “healthy,” to the extent possible. SJRWMD intends to refine the SWIDS analysis by expanding data collection by lake class in an effort to reduce data variability and uncertainty regarding SWIDS application.</p>
Shaw	<p>10. <b>Recommendation:</b> Improve Sylvan Lake MFL Report by addressing the editorial comments 1-9 above.</p>	<p>Editorial comments 1-9 were addressed during the report update. See responses to Shaw Comments Nos.</p>

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		1-9.
Shaw	11. <b>Finding:</b> Based on my review of the Sylvan Lake MFL Report and field inspection of transects, I feel that the environmental data from the site and the data collection procedures used to support this MFL determination are appropriate, repeatable and scientifically sound. As noted above, additional explanation of the observed variability of SWIDS data should be better explained to ensure that this method is applied and interpreted appropriately in this and subsequent MFL assessments.	See response to Shaw Comment No. 9.
Shaw	12. <b>Finding:</b> Similarly, the methods and procedures for data analysis, including selection, parameterization and calibration of the hydrologic model for Sylvan Lake are valid and appropriate, and the assumptions used in data analysis and MFL determination are reasonable and justified by the District's previous experience and literature citations.	No response necessary. Reviewer's comments support the District MFLs procedures and processes.
Shaw	13. <b>Finding and Recommendation:</b> The data interpretation and analyses, which build on the District's extensive previous experience setting MFLs for rivers, lakes and wetlands, is scientifically sound and supports the recommended minimum levels. The Sylvan Lake MFL determination relies on the natural inundation characteristics of vegetation communities and soils on site to set minimum frequent low and frequent high, with SWIDS data used to estimate an allowable hydrologic shift due to future consumptive use. However, as noted above in the comments, more attention should be focused on the selection of particular SWIDS curves from reference sites to ensure that no statistical outliers or already-harmed sites are used to set MFLs and explaining the apparent variability in SWIDS data.	SWIDS analysis and data presentation was clarified to ensure, to the degree possible, that statistical outliers or already-harmed sites are used to set MFLs and explaining the apparent variability in SWIDS data. See response to Shaw Comment No.9.
Shaw	14. <b>Recommendation:</b> Because this is a re-evaluation of a previously adopted MFL, I recommend that the District include a narrative section in the report that more directly compares the currently adopted and recommended minimum levels, documents the reasons why re-evaluation was warranted, explicitly identifies the baseline for the recommended MFLs and identifies any benefits to the resource of the new (recommended) levels. This is particularly important to avoid the erroneous impression that the District is merely changing the baseline for the minimum levels.	Discussion in the Introduction section was included to explain the specific reasons why Sylvan Lake was prioritized for a MFLs determination and why the MFLs were scheduled for re-evaluation.
	<b>Wilson General Report Comments</b>	
Wilson	1. As I have stated before, it is my opinion that the SJRWMD MFL program is scientifically sound and at the forefront of the application of ecological principles to protection of instream flows. The six lake reports are professionally done and in conformance to the District's MFL guidance.	No response required. Comment supports District approach.
Wilson	2. The fact that my comments are critical of certain aspects of the reports is a reflection of my assignment, which is to identify issues and find possible problems, and should be read in that spirit. Many of the comments are at the nit-picking level and others are aimed more at suggesting improvements to future reports rather than changes that need to be made in these drafts. Many comments reflect the fact that different authors addressed a given issue in different ways, which may not matter. Put another way, I don't expect all comments to be	No response required. Comment supports District approach.

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	responded to.	
Wilson	<p>3. There are two areas of substantive comments that I do need think to be addressed. One is that these reports all deal with sandhill lakes where hydrology is not as straightforward as SJR floodplains and lakes, but extremely important to how the MFLs were approached. Each report would benefit from an extended discussion of hydrology and its relation to soils and vegetation (see detailed comments below). Moreover, based on our field visits I expected similarities in MFL approach and results. However, the reports differ in this regard as much or more as they are similar. Each author needs to stand back and feel comfortable that his/her results are consistent with the sandhill lake literature.</p>	<p>The District recently developed a lake classification procedure (Epting et al. 2008) based upon statistical measures of exceedence and level change analyzed with principal component analysis. Stage range and stage rise/fall symmetry accounted for 88% of the variance of six original hydrologic variables. These indicators of hydrologic regime classified 135 lakes into eight lake classes. The generally close correspondence of the lake classes to geomorphic and landscape classification lends strong support to the utility of this classification approach.</p> <p>Each report now includes a discussion of the assigned lake class and more details regarding the geomorphic, landscape, and the relationship between hydrology and the observed patterns of soils and vegetation. While a number of the lakes are assigned to the same lake class, some difference in approach and results is clearly expected. For example, Sylvan Lake is very unusual for this lake class in that it has extensive areas of deep organics. As a result, a minimum average level was set focusing on protection of these soils. Also, different management practices at each lake may result in differences in the type of plant communities found a the lake “rim,” where the Frequent High levels were set. Mowing and cattle grazing would be expected to result in different plant communities than fire or the absence of any management scheme.</p>
Wilson	<p>4. The second substantive area is that the MFLs, and especially the FH, recommend a fairly large increase in “permanent drought” hydrology. I didn’t find the justifications for this to be sufficiently rigorous or entirely satisfactory. Again, there is more detail below.</p>	<p>More explanation was included in the reports Results and Discussion sections to clarify the justifications. See response to Wilson Comment No. 40.</p>
Wilson	<p>5. From this and other reports reviewed in the same timeframe, it appears that SJRWMD has gone a long way toward settling on a consistent outline for its MFL reports, but is not yet quite to the point of complete consistency. I encourage the District’s continued efforts toward settling on a “best” organization.</p>	<p>The report format and outline will be re-evaluated to achieve consistency across reports to the extent possible and within reason.</p>
Wilson	<p>6. One specific example where organization is not consistent is that in the section called “General Information” or “Background Information” (neither one a great title), wetlands are sometimes presented before soils, sometimes after. As the soils are the foundation, but</p>	<p>Comment is addressed in each report re-write.</p>

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	dependent on hydrology, I suggest soils go before wetlands.	
Wilson	7. Some reports provide a lot of detail on published soils maps and descriptions; others ignore this almost entirely. Since MFLs are based on field soils data, cutting out the details in this background section would help shorten some reports. A citation to the published soils survey, a map and perhaps a table would provide good routine content; or just the citation.	An effort was made to provide consistency between reports..
Wilson	8. Land use maps are in some reports and probably should be in all.	Comment was addressed in the current reports.
Wilson	9. Sylvan has a section on morphometry which was helpful, and I suggest something similar be in all future reports.	More lake morphometry information will be added to future reports, depending on data availability.
Wilson	10. There is quite a variation in Executive Summary content, detail and organization. It might be useful to develop a standard template that ensures that the essential information, and nothing more, appears at the beginning of the report. If there is already guidance to this effect, then please consider how best to ensure the guidance is followed in future reports.	Format and content will be standardized for future reports. Some effort has been applied to rectify this issue in the current reports.
Wilson	11. The Executive Summaries differ most dramatically in that some have extended discussions of each MFL, others simply contain the summary table. I think one paragraph on each MFL, plus the table, is about right.	Comment noted. Some effort has been applied to rectify this issue in the current reports.
Wilson	12. Another difference in the Executive Summaries is that some discuss methodologies (including SWIDs) and/or the hydrologic model; others don't really do much with that; and those that do have such discussions say different things. I think at least one somewhat consistent paragraph on the method and on the hydrologic compliance analysis is worth having, though it isn't essential in the current drafts.	Comment will be applied in all future reports.
Wilson	13. Two statements appear in some reports and probably should be in all. One is the "intended to support" (e.g. Avalon) paragraph and the other is the "not effective until" and "reassessment" text (e.g. Johns).	Reports updated to include similar language to address these issues.
Wilson	14. Of all the Executive Summaries, I thought Sylvan came closest to having the necessary material without too much else. I suggest it be reworked per specific comments and shared as an example for others to at least consider in future reports.	No response necessary.
Wilson	15. There are report sections that are effectively boilerplate, such as the description of the MFL program, but the language still varies a bit from report to report. Making this true boilerplate, where each author copies from a master, is probably advisable for future reports.	Comment will be applied in all future reports.
Wilson	16. All the reports have a location map early on (except Indian Lake). But they are too large in scale to allow most folks to know exactly where the lake is. I recommend a more regional location map. This is something for consideration in future reports, though it wouldn't hurt if it could be addressed now.	More regional location maps were added to the existing reports and will be added to future reports.
Wilson	17. Note that many of the color graphics are hard to read when printed or copied in black and white. Something to keep in mind as future graphics are prepared.	Staff believes that color figures provide more clarity for presenting data. Reports are made available to the public as digital copies on the District website or on cds from the District library.
Wilson	18. The next comments all relate to the fact that the reports use a large amount of verbiage to describe various aspects of MFLs in general and the MFLs of each particular lake. For future	Comment will be applied in all future reports.

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	reports, the more this information could be captured in text tables, and the text shortened, the better. By text table I mean something that is used where the same kinds of things are said repeatedly about different subjects -- in this case, for example, the text on each different MFL has the same pattern and is well suited for a table.	
Wilson	19. Three examples of text tables could be: what each MFL level is intended to protect and what they typically represent as to frequency and duration; the field transect results (all transects on one table); how the MFLs relate to observed vegetation, observed soils and modeled hydrology.	Comment will be applied in all future reports.
Wilson	20. It is not clear how the District intends to address the 10 factors. In these reports they are typically noted as part of the introduction and there is an expanded listing a bit later. But there is no standalone section that then discusses the role of the factors in setting MFLs, or the effect of the MFLs on the factors. At most there are mentions of individual factors somewhere in the body of the report. In other words, the factors are highlighted, but their application is buried. I suggest there be a section on the factors “as applied” near the end of each MFL report. This would state whatever is to be stated on this subject, even if it was judged that none of the factors required any in-depth study. This would be useful in the existing reports as well as future ones.	Reports updated to include language to address the issues regarding the assessment of the WRVs and clarify the reviewer’s comments.
Wilson	21. The essence of MFLs is the relationship between hydrology and soils/vegetation. Indeed MFLs are as much about hydrology as anything else. The reports present some information on hydrology (mostly stage data) without any analysis. I suggest there is a need to do more, and in particular to demonstrate an understanding of essential hydrologic relationships for each lake as a predicate for defending each MFL determination.	Each report was updated to include an expanded section on hydrology and to demonstrate an understanding of essential hydrologic relationships for each lake summarized in Wilson comment No. 22. However, staff believe the details regarding hydrologic modeling and compliance are more appropriately presented in the hydrologic modeling reports for each lake and the hydrologic compliance appendix in each report. These will be more extensively referenced in the MFLs determination reports.
Wilson	22. Specifically, each report should explain what it is that controls the hydrology (that then controls the ecology), and how the controls may have changed (or not changed) over time. For these lakes that discussion will consider runoff, surface precipitation/evaporation, outlets, and seepage. Since there are model reports for each lake, it might be possible to cut and paste at least some of this in-depth hydrology into the existing reports.	See response to Wilson comment No. 21.
Wilson	23. I understand most if not all the lakes are sandhill lakes. The characteristics of sandhill lakes receive extensive attention in some reports (e.g. Avalon, see pp. 19-21) and are barely mentioned in others (Indian Lake). The fact of sandhill lakes is justified as a reason for no MA in some lakes, making it unclear why MA is defined in others.	See response to Wilson Comment No. 3. A justification was added in each report to clarify why or why not a MA was determined.
Wilson	24. An issue that reflects sandhill lake hydrology is that one might expect the exceedence graphs to be similar and to not show the mean as representing a particularly common condition, i.e. (per CH2M-Hill 2005) “because they appear to lack a mean around which the system is	See responses to Wilson comments No. 3 and 23.

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	organized”, and this is used to justify no MA. In fact, several of the hydrographs suggest that conditions near the mean are common enough that they would impact vegetation but there is no MA (example Johns Lake) while others show the mean to be just another number in a highly variable system, but there is an MA (example Indian Lake).	
Wilson	25. Suggest putting the MFLs on the curves showing stage history (as done for Hiawassee).	Figures were updated to include MFLs labels.
Wilson	26. One particularly important aspect of hydrology is the compliance analysis. The use of MFLs to impose pumping limits creates impacts on the regulated community and offers opportunity for controversy and legal challenge. Therefore I think it is particularly important that the compliance analysis be as transparent as it can be. Rather than rewrite the compliance appendices, I suggest an expanded discussion in the text.	The compliance section of each report was expanded to clarify how MFLs constrain the regulated public. The interaction of the Floridan aquifer and lake levels was described and drawdown limits were referenced in each report.
Wilson	27. One specific element in this discussion would to summarize the causality relationships determined in the hydrologic model and in particular to present something that shows that aquifer levels predict lake levels.	See response to Wilson Comment No. 26.
Wilson	28. Only Indian Lake contains a statement as to the result of the compliance analysis. I recommend the aquifer drawdown limit be stated explicitly, with whatever caveats are needed. It should be clear that the value is a limit on the long-term average, i.e. it doesn't mean that the hydrograph can't decline more than the indicated level during droughts.	See response to Wilson Comment No. 26.
Wilson	29. The compliance analysis appears to assume constancy in other controls of lake levels, when the available information does not make that a certainty. Is this covered by the “reassessment” language?	See response to Wilson Comment No. 26.
Wilson	30. The bottom line results of the compliance analysis should be given a higher profile in the report, show up in the Table of Contents, and be stated in the Executive Summary. It might properly be the last item in the main body of the report.	See response to Wilson Comment No. 26.
Wilson	31. I'm not sure I understand how the District uses SWIDs. In some reports (Johns) it looks like a SWIDs graph was used to determine an appropriate duration-frequency and the MFL selected accordingly. In others the MFL was determined by vegetation and “supported” by the SWIDs.	More explanation of SWIDs was included in the methods section of each report. The SWIDs data are used as supporting evidence and not as the primary criterion. The reports were edited to reflect this more clearly.
Wilson	32. Whichever way, there seems to be a pattern in which it is considered appropriate for the MFL to allow future conditions to be in the “dry” part of a SWIDs. This is necessary for there to be allowable drawdowns, and I recall it reflects some prior peer review suggestions. Somewhere the approach needs to have rigorous justification and in particular the existing “dry” SWIDs need to be for healthy communities where the hydrology is comparable to the lake being assessed.	See response to Wilson Comment No. 31. The current SWIDs dataset was re-evaluated to “cull-out” any systems that were not considered “healthy,” to the extent possible. SJRWMD intends to refine the SWIDs analysis by expanding data collection by lake class in an effort to reduce data variability and uncertainty regarding SWIDs application.
Wilson	33. The shrub swamp SWIDs in Johns Lake and Prevatt are different.	The shrub swamp SWIDs graphs should be different for these lakes. The Prevatt report references the <u>maximum</u> elevation of the shrub swamp, while the Johns lake report references the <u>mean</u> elevation.

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Wilson	34. The Sylvan Lake report shows the effects of the proposed MFL compared to existing conditions on each SWIDs graph. I thought this was excellent and recommend it be used universally.	Reports containing SWIDS analysis graphs were updated to compare existing and MFL conditions as done in the Sylvan Lake report.
Wilson	35. For some lakes, sandhill lake stage indicators were evaluated, but this was not done at all lakes. Will the District be able to defend the absence of this approach in some reports?	Examination of the findings from the sandhill lake soils indicator method produced inconsistent results for these particular lakes. A decision was made to remove any reference to the approach from all reports.
Wilson	36. The discussions of sandhill lake indicators make it sound like these were used as the basis of the MFLs, but when the MFLs are actually presented, they are based on vegetation, with soils observations “supporting” the MFL determination. Perhaps there could be a clarifying sentence or two when the soil indicators are introduced that makes their role in the process more clear.	See response to Wilson comment No. 35.
Wilson	37. The soils sampling sections should probably all either have a “we looked for these indicators” description (Avalon is an example where this is done).	The sandhill lake soil indicators were not examined during routine field data collection efforts at each lake. See response to Wilson comment No. 35.
Wilson	38. Some reports discuss calculations of TWSV, others don’t. For those that do, it may help to indicate why this was done and how the results were used. For the others, perhaps the file needs to have a note as to why.	The TWSA analysis was only completed for the Sylvan Lake report. Results from the TWSA analysis can sometimes be spurious due to the occurrence of opportunistic plant species in communities where they do not typically occur, due to hydrologic excursions (high or low water levels) of various durations / frequencies. In attempt to make the report analyses / format consistent, the TWSA analysis was removed from reports where it occurred.
Wilson	39. For the vegetation sampling in particular, it seems as though there should be a standard methods reference that could be cited, so that the report could focus on the transect results.	The MFLs Methods Manual is referenced in each report and contains more information on vegetation sampling. The discussion of vegetation and other sampling in the methods section of each report is designed to orient the reader. The methods section will be stream-lined in future reports, where possible.
Wilson	40. I will repeat here my general concern that the MFLs seem to reflect a basic assumption that each and every ecosystem can [be] sustained even if it receives substantially less inundation. Is this supportable?	Yes, we do believe that this assumption is supportable. A key assumption of the SJRWMD method (Neubauer et al. 2008) is that steady state or dynamic equilibrium conditions do not exist between the hydrology and the ecology of a system. That is, not all measurable changes to system hydrology result in subsequent changes to the ecology or the water resources of a system. Thus, defining hydrologic thresholds of events (i.e., MFL return interval components) is more

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		important than developing response curves that describe relationships between flow alteration and ecological responses, habitat-flow curves that define habitat availability at a given flow, or species-discharge relationships that predict numbers of fish species from mean annual discharge. Steady state/equilibrium conditions and the importance of relatively short time scales are assumptions made when developing and using such curves. For the SJRWMD method, a threshold is the return interval of an event beyond which an effect begins to be produced.
Wilson	41. Each report contains (usually as Figure 1) a “Hypothetical percentage exceedence curve”. I strongly recommend that a “real” curve be developed which compares the existing versus MFL defined condition for each lake. This should be done for the current drafts.	An actual exceedence curve is available in each report. See the corresponding hydrologic modeling report for a more accurate exceedence curve based upon long-term modeled hydrology and the MFLs.
Wilson	42. The FH indicators vary considerably between the lakes - two shrub swamps, two wet prairies, one hardwood swamp, one transitional swamp. For future reports it might be of value to cite local edaphic or other factors that explain why a particular community is found at the dry end of transects on a particular lake.	Comment will be addressed in future reports.
Wilson	43. The return interval for the 30-day duration MFH ranges from 2 to 5 years. This seems like a large variation and the 5 year return (Sylvan) seems especially long.	Comment noted. See response to Wilson Comment No. 44.
Wilson	44. The changes in terms of percentage of years when the 30-day level will be reached also seem large - for Sylvan the frequency is cut in half, and for most others the change is one-third.	Sylvan has a unique hydrologic condition caused by a rather large increase in DCIA and concomitant rise in lake stage to produce a new hydrologic regime. Therefore, Sylvan Lake is an outlier when compared with the other lakes. The Sylvan Lake report was updated to clarify what changes occurred in the hydrologic regime due to increased basin runoff (~200% increase in DCIA) and why the MFLs statistics seem abnormal. The report text was expanded to try to clarify the reasons for these large changes in return intervals.
Wilson	45. I would judge the wet prairie analysis (Avalon, Hiawasse) is about as far as the District should go in using SWIDs to justify increased withdrawals.	We understand and agree with the reviewers’ concerns regarding uncertainty with the SWIDS analysis.
Wilson	46. See comment on astatic nature of sandhill lakes with respect to the MA MFL.	No response necessary.
Wilson	47. The return interval for the 120-day duration MFL ranges from 3 to 5 years. This seems like a large variation.	See response to Wilson Comment No. 44.

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	<b>Wilson Comments Specific to Sylvan Lake Report</b>	
Wilson		
Wilson	48. I had trouble keeping track of the tables and figures and am not sure I saw them all.	This will be clarified in the final edited version of the report.
Wilson	49. As noted in the general comments, I thought this report had one of the better Executive Summaries in terms of covering all the important points. However, it needs the “intent” language, could have a bit less detail, and could be more pointedly written. An example of extra verbiage is the paragraph on the hydrologic model where there is a historical account that really isn’t essential to a summary.	The executive Summary was edited to address this and other comments.
Wilson	50. It would be helpful to have page numbers for figures and tables, even in draft.	Page numbers were added for the figures and tables. The List of Figures and Tables were updated to include appropriate page references.
Wilson	51. Page 1. To be consistent other reports, standard language on the intent of MFLs should be included either in the first paragraph (where other reports have it) or in the program overview (which may make more sense).	Standard language addressing the “intent of the MFLs” was added to the Introduction section.
Wilson	52. The reports where figures and tables immediately follow the first citation come across as more reader friendly.	The District editor will place the figures and tables to immediately follow the first citation in the final published version. This is out of our control at this point in the report preparation process.
Wilson	53. P. 10. Figure 4 would go better when the actual transects are first introduced.	Figure 4 was moved to the Results and Discussion section where transects are first introduced.
Wilson	54. P. 18. TWSV analysis was not found in some other reports and its application isn’t clear.	See response to Wilson Comment No. 38.
Wilson	55. P. 40. I couldn’t follow the rationale for the extreme change in MA recurrence.	Report text was expanded to clarified this issue. A table was added comparing the hydrologic conditions expected under each modeling scenario for each MFL.
Wilson	56. Same on p. 42 for FL.	See response to Wilson comment No. 55.
Wilson	57. Based on Figure 6, the FH level is quite rare.	20% = not rare. <2% would be considered quite rare.
Wilson	58. Several of the graphs in Appendix B make it look like there is no margin of safety (or allowance for error) in the MFLs.	Figures B10-B12 depict the new long-term hydrologic conditions for Sylvan Lake, based upon the marked increase in directly connected impervious area (DCIA), resulting from recent land-use changes. These figures indicate a large amount of safety (“freeboard”) relative to the recommended MFLs. Figures B13 – B14 show a hypothetical decline in the Floridan aquifer head (2.1 ft decline) that shifts the lake hydrology to the MFLs conditions. I am assuming these are the figures you indicate show little margin of safety. That is expected because these figures depict the lake “driven” to the point where

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		MFLs are just achieved. Figure B13 shows that the Minimum Frequent Low level is the most sensitive MFL and will be “tripped” first, followed by the Minimum Average level (Figure B15). Comparison of these figures indicates there is a significant margin of “safety” currently allowed by the recommended MFLs.
	<b>Upchurch Comments Specific to Sylvan Lake Report</b>	
Upchurch	1. The report mentions CDM’s 2002 hydrologic model and an updated model many times. This is an important source of information about the lake, including water sources and sinks, land use issues, and other factors. I strongly suggest that the report(s) either include the model documentation as an Appendix or rephrase the report(s) with sufficient information that the reader can understand what was modeled, how the model(s) was constructed, and what the significant results of the model were.	See responses to Wilson Comments Nos. 3 and 21.
Upchurch	2. The Appendix (B) deals with stage duration curves and how they are constructed. It does not detail what was modeled in the hydrological model or how the hydrologic model was used. Robison’s text is excellent and very helpful for understanding how stage duration curves are constructed and used. The lay reader will greatly benefit from this appendix.	CDM’s hydrologic model report will be referenced more clearly so the reader can access details of the modeling approach. See response to Wilson Comment No. 21.
Upchurch	3. I think it is important that the water budget be presented so we can evaluate the relative sources and sinks for water, especially with respect to recharge to underlying aquifer(s) and seepage as opposed to inflows. This could be part of the description of the hydrologic model.	See responses to Wilson Comments Nos. 3 and 21.
Upchurch	4. There is a need to develop the geologic and hydrologic setting more. For example, what are the ages and geologic formations associated with the lake and its drainage basin? Is the lake connected to the Floridan or Intermediate aquifers? Are there sinkholes in the bottom of the lake? Have they been mapped (bathymetric map of the lake?)? Lake Watch has published bathymetric maps of many lakes in the District. Is one available to Sylvan? The section on lake morphometry mentions submerged ridges, etc. The bathymetric map would help understand the importance of these ridges (or are they what’s left after the sinkholes in the lake formed?).	Report updated to include some discussion of these topics. See response to Wilson Comment No. 21.  Lake Watch [ <a href="http://lakewatch.ifas.ufl.edu/MapList.htm">http://lakewatch.ifas.ufl.edu/MapList.htm</a> ] has not published a bathymetric map for Lake Sylvan and none exist in District databases.
Upchurch	5. It would be helpful to include a drainage basin map in the first section. This could be on the location map or one of the others. Looking at the topographic map and other sources, it appears that the basin may be fairly complex.	The drainage basin is shown on Figures 2 and 3. Notations were added to Figure 2 showing the connection of the Sylvan Lake basin to the Wekiva River and ultimately the St. Johns River and the location of the hydrologic control on Sylvan Lake.
Upchurch	6. I suggest that the Background Information be organized with a paragraph for each issue (physiographic province; aquifers, geology, sinkholes and karst, etc.). You talk about sinkholes, solution basins, sandhill karst, etc. These should be described (and defined).	The Background was left with original formatting. Future report swill consider a new format. Terms were not defined in the report. It was assumed most readers would have access to the internet or a dictionary to define unknown terms.

Reviewer	Peer Review Comments	Resolution
	<p>The physiographic designations (Casselberry-Oveido-Chulota Hills and Central Lakes District) are from Brooks' (1982) physiographic map. Brooks' map is not widely accepted by the geological community and it is not widely available, so the terminology will be foreign to many. I suggest that also include the physiographic designations by White and Puri and Vernon, as well.</p> <p>The citation of Boniol and others' recharge data is important, but there should be some discussion as to the role of the lake in this. I would guess that the average recharge is really largely focused in the lakes or other sinkhole areas. The water budget would help explain the importance of the recharge data.</p>	<p>We are currently working with the District librarian to obtain a copy of, <i>White, Vernon, and Puri. 1964. Proposed physiographic divisions. Unpublished manuscript.</i> This classification scheme will be evaluated for application in future reports.</p> <p>Report updated to include some discussion of these topics. See response to Wilson Comment No. 21. The reader is referred to CDM's hydrologic modeling report for more details regarding modeling methods and details like the water budget.</p>
Upchurch	7. The report mentions that the stage data for the lake had a period of record from 1978 to present. While these data appear to be more-or-less monthly, it would be helpful to include a period-of-record hydrograph or a hydrograph for a period of time sufficient to illustrate the temporal behavior of stage. How does the lake respond to rainfall?	A period of record hydrograph is depicted in the report. CDM's hydrologic modeling report includes a long-term simulated hydrograph that more clearly illustrates the temporal behavior of stage.
<b>Peer Reviewer Comments - August 2009</b>		
Upchurch	1. The revised MFL document reads well and is a great improvement over the first draft. Sonny Hall and other staff who worked on the document are to be complimented.	No response required.
Upchurch	2. The relationships of the proposed Sylvan Lake MFLs and the 10 environmental criteria are better developed in this version of the MFL report. The use of fish and wildlife habitats & passage of fish criterion is well justified in this edition. The new tables dealing with evaluation of the 10 criteria are very helpful.	No response required.
Upchurch	3. As noted in my April review of the first draft of the MFL report, I had some reservations about the lack of a brief summary of the setting of the lake, especially with respect to interactions with the underlying aquifer(s) and the geologic setting. For example, I recommended that the water budget be added to the report. I was not looking for a detailed discussion, just a simple context for the lake setting. Hall has gone a long way towards accomplishing this task. His general description on pages 4-6 are very helpful to me. A paragraph on the water budget would still be helpful.	Water budget discussion added to report.
Upchurch	4. I am satisfied that the MFL document is sufficient and accurately defends the proposed MFLs.	No response required.
Upchurch	5. The only remaining remark relates to lake classification. On page 5 Sylvan Lake is called an "isolated/intermittent outflow ridge lake" using Epting's classification, which makes	Comment noted.

Reviewer	Peer Review Comments	Resolution
	sense. On page 6 (3 <sup>rd</sup> paragraph), Sylvan Lake is called a sandhill lake. The drainage system and contiguous wetlands seems inconsistent with this latter classification.	
Shaw	I have read and reviewed the edited MFL reports for the above referenced lakes, as well as the peer review resolution documents for each. I believe the District has done a great job addressing both the spirit and the letter of my previous peer review comments on the original draft documents from April 2009. I particularly appreciate the additional explanation of how the SWIDS technique was used and additional assessment on the SWIDS data that was done in response to my and other peer reviewers comments. I also found the responses to other peer reviewers comments helpful and resulting changes added much to the readability of the latest drafts and the confidence in the results.	No response required.
Wilson	SJRWMD staff has done a good job in responding to my prior comments. For most instances where I might prefer a bit more be done, I don't see it necessary or appropriate that additional changes to the reports be made at this time. I have limited my comments to a few substantive issues, mostly for the record for the next round of reports, and to a few editorial matters specific to the Sylvan Lake report. I do not anticipate any need for further review on my part and believe that once editorial changes are finished, the reports are ready to go public.	No response required.
Wilson	1. By far the most important aspect of the MFL reports is the need to give further thought to the issue of how much change should be allowed. There is a systematic outcome of these MFLs which will allow significantly less inundation, especially for the FH. The response to my concern about the "less inundation is okay" underpinning of the MFLs was interesting and one I hope we will have a chance to discuss at some future time. In particular, while I agree with the response that the system is not steady state, that doesn't mean that systemic changes can be dismissed. We need some field data on modified systems to really figure this out.	Comments noted.
Wilson	2. The rewrites generally responded well to my request that the reports demonstrate an understanding of essential cause-effect hydrologic relationships for each lake. Sylvan Lake did a very good job on this.	No response required.
Wilson	3. Regarding my general comment on the need to explain how sand hill lake hydrology relates to soils and vegetation, the response documents indicate that the reports have been substantially changed. The Sylvan Lake report was among the best in this respect.	No response required.
Wilson	4. Over and above the issue in No. 1, there is a need for the reports to explain the logic of what is being proposed, i.e. to justify the changes (even if I don't agree with them!). I find the Sylvan Lake report to have done the best in explaining the rationale. Future reports should look at Sylvan for insights.	Comments noted.
Wilson	5. Regarding my comment on the inconsistent organization of reports, the new versions are	Comments noted.

Reviewer	Peer Review Comments	Resolution
	better but still show a fair amount of variation. There were many responses that attribute this problem (and other editorial issues) to an outside force. I'm not sure what your peer reviewers can do to help staff in this regard, but feel free to offer me up as an advocate for common sense and good practice, if that would help. For Sylvan, I also note it is the only report to still not have page numbers in the Table of Contents which suggests that at least some of the organizational issues are not outside of author control.	
Wilson	6. The reports generally did well in improving the executive summaries, the discussions of soils and land use, and more. I also appreciate the commitment to further improvements on future reports. Sylvan was one of the best of the initial reports and has only improved.	No response required.
Wilson	7. For future reference, it appears my comment regarding Figure 1 was not clear, as the response was not what I expected. My recommendation is that the hypothetical relationship in Figure 1 be made real in a separate figure, in which the actual exceedence curve is compared to one that has the frequency characteristics allowed by the proposed MFLs.	Comments noted..
Wilson	8. I was quite astonished (and very pleased) with the amount of information now presented on the 10 factors. I note the acronym WRV is used (twice) without definition.	Comments noted.
Wilson	9. Some general comments on the 10 factors are as follows. First, I suggest some sort of continuation title for multi-page tables. Second, the District may want to reconsider whether it wants to conclude that recreation water depths are adequate for "safe operation" given the lack of substantive analysis. Third, I'm not sure "navigation" shouldn't be NA given all the issues are covered under recreation.	Comments noted..
Wilson	10. I appreciate the new compliance discussion. I still am concerned that the current approach is not sufficiently clear in explaining the extent to which pumping controls lake water levels, and not sufficiently transparent in revealing the implications of the MFLs to the regulatory community.	No response required.
Wilson	11. With respect to SWIDs, the general response indicated that more explanations were included in the methods section of each report. Not much actually changed in the Sylvan Lake report, but it was ok to begin with.	No response required.
Wilson	12. My comments that were specific to Sylvan Lake all seem to have been addressed sufficiently for now.	No response required.
Wilson	13. Table 4, the EV matrix, is blank.	Table is suppose to be blank as part of the Methods section. Table is repeated later in report with values added.