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August 16, 2010

John Huisman
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Raleigh, NC 27699-1617

RE: Comments on Falls Rules

Dear Mr. Huisman,

On behalf of the Durham County Board of County Commissioners, let me say that we appreciate the opportunity to comment again on the draft Falls Lake Rules. Durham County has long recognized the importance of protecting water quality. We have in the past and will continue to be a leader in implementing regulations that work towards this goal. We feel this rule-making process has suffered due to a greatly accelerated timeline, and we also have grave concerns about the financial impact this could have on our community. We hope you, your division, the Environmental Management Commission, the Department of Environmental and Natural Resources, and the General Assembly will all take note of the general and specific concerns contained herein. It must be a goal for all of us to arrive at a reasonable and cost-efficient set of rules that achieve good water quality in Falls Lake while balancing that need with the many other pressing needs of our community.

Sincerely,

Michael D. Page, Chairman
Durham Board of County Commissioners

Durham County Falls Lake Rules Comments – Aug.16, 2010

Durham County appreciates the opportunity to comment on the draft Falls Lake Rules (FLR). Our comments here are organized by rule in the same order as the proposed rules, with an additional section at the end commenting on the fiscal analysis submitted by DWQ in June 2010.

Durham County is concerned about water quality in general as well as improving water quality in Falls Lake, and we have been a leader in the area of watershed regulation and protection. We believe, however, that what constitutes “good” water quality does and must depend on the nature of the body of water in question. We are also greatly concerned about the financial impact these rules will have on the citizens of Durham County, some of it spread out among all taxpayers and some of it landing squarely on certain individuals and sectors. The citizens of Durham County have paid to create their own drinking water reservoirs and to protect the land surrounding them. Now we are being asked to shoulder a great deal of the burden of protecting the drinking water of the large and rapidly growing population in Raleigh and other parts of Wake County, a population which did not pay to construct its reservoir and which will not, it seems, be asked to contribute much to the protection of the watershed around their reservoir.

Durham County is concerned that a great deal of money is proposed to be spent on each of several different sources of nutrients to Falls Lake without an adequate understanding of the relative magnitude of the contributions of each source. Despite the availability of the tools required to answer these questions, we are leaping into an expensive regulatory scheme before we know the answers. Given the evident stability of water quality in Falls Lake over the past five years, we believe that there is time to achieve a better / smarter Stage I (without materially delaying nutrient reducing activities) and no excuse for not *mandating* a better / smarter Stage II based on better monitoring data and improved models and procedures. We ask the state to give the highest priority – especially for this, their model watershed regulatory scheme – to improving the science behind these regulations. *The most important aspects of this improved science would be greatly increased and more sophisticated monitoring in the lake and its tributaries as well as the adoption of site-specific standards for at least two if not more sections of the lake.*

We do not believe that anything we are asking here compromises our commitment in the so-called Consensus Principles, which is primarily to achieve good water quality in the portion of the lake “beneath” NC 50 / nearest the dam and drinking water intake in Raleigh.

Comments on 15A NCAC 2B .0275 – “Purpose and Scope”

We believe that considerable improvements in the purpose and scope of these rules, and thus their (cost-)effectiveness, are possible and thus necessary. Improvements prior to the implementation of Stage I would be ideal. Improvements prior to implementation of Stage II are an absolute necessity. There is no other public policy realm in which state or local government would consider spending billions of dollars without more scientifically / appropriately established goals and more carefully vetted means. Section 1 of the proposed rule states, “Neither do these rules address sources on which there is insufficient knowledge to base regulation.” While definitions of “insufficient” may vary, there are certainly areas regulated by these rules where the available data and modeling hardly justifies the proposed expense.

Adaptive Management

The use of the phrase “adaptive management” throughout the text of the proposed rules suggests a much more sophisticated model and process than has actually been presented. As a result, Durham County is requesting here and will continue to press for a *more* adaptive, *more* sophisticated approach to implementing and updating these rules. Given the characteristics of Falls Lake and the estimated costs of compliance with the rules, site-specific standards arrived at using a more sophisticated approach are absolutely necessary.

The Falls Lake Rules as currently written do not lay out a robust role for DWQ in reviewing and possibly modifying the rules as Phase I draws to a close, and in fact seems to resist it. It defends (either directly or by omission) the models and methods used to create these rules when the errors and uncertainty contained in those models and methods have been well established. *This is not the way the state should proceed with their model watershed regulation process.*

Improved adaptability would also include a much more sophisticated method of determining the status of the lake (as measured by levels of nutrients and chlorophyll A). Currently, there is a single “compliance point” in Falls Lake at which achievement of water quality goals is proposed to be established. Given the nature of the lake, which is actually a series of basins with very different characteristics (see next paragraph), the most appropriate adaptability would come through standards that are site-specific (i.e. adaptive) to the part of the lake where they are. The top-most section of the lake (NE of I-85) - a shallow, poorly circulating body that is more accurately described as a seasonal wetland AND which receives the most direct nutrient loading from the major tributaries of Falls Lake - should not have to meet (and, in fact, cannot meet) the same standard as the deeper, narrower sections further downstream.¹

Falls Lake is More Like Six Lakes Than One

There are five road crossings over Falls Lake, each of which has a causeway and a narrow (300 – 450 ft.) area where water can move through and down the lake – *see Appendix A for a map showing the location of the road crossings and width of each opening.* Water quality noticeably improves downstream of each of these crossings, reinforcing the concept that Falls Lake’s separate

¹ Raleigh has recently requested access to the lower, “sedimentation” pool of water in Falls Lake. If granted, this will lower average lake height over time and accentuate the fact that the uppermost portion of Falls Lake is really not a lake but a seasonal wetland.

basins make it more like six lakes (or large, urban detention basins in series, if you will) than one. In addition to not being an established best practice for assessing water quality in a lake, using a single compliance point so close to the worst part of the lake creates an undue and thus unfair burden on the taxpayers of Durham. It is particularly unfair to the recipients of services that would have to be cut to pay for currently proposed reductions measured in the currently proposed manner.

Site-Specific Standards

Durham County's primary concern with the Purpose and Scope of the FLR is that it proposes a single water quality standard for all six basins of Falls Lake and uses a single compliance point located in the basin second-nearest to the top of the lake (where water quality, through the design and nature of the lake, will always be the worst). As fleshed out in the above section on adaptive management, site specific standards for the various basins would be far more appropriate. This is true because of the very different characteristics of the basins, but also because additional tributaries further down the lake which could confound analysis of improvements made in upper portions of the watershed and lake. Even if site-specific standards cannot be implemented, a more sophisticated approach averaging water quality in the basin(s) nearest Raleigh's water intake would be a vastly more appropriate method of assessing compliance in the lake than the currently proposed method.

Modeling Errors

In addition to the fact that the regulatory approach and models have been shown to be problematic in so many ways, a further, major modeling error has been recently discovered by an unbiased reviewer (TetraTech). DWQ did not include reductions in algae-fixed nutrients going into the lake as they modeled reductions in the nutrients going into those tributaries. Though Durham County is still essentially in agreement with the Consensus Principles presented to DWQ in the early Spring of 2009, this specific error could have significant effects on the scope and means of achieving Stage I goals and thus should be addressed prior to implementation of Stage I.

Mandatory Revisiting of FLR Prior to Stage II

Per the Consensus Principles, Durham County is requesting here and will continue to press for a *mandatory* revisiting of all available data as well as the tools used to analyze it prior to the implementation of Stage II of the FLR. The Consensus Principles propose that this happen *during* the last three years of Stage I, by which time much better data is available. *No delay in Stage II measures is proposed*, though the entire point of revisiting the data and models is that the state could end up revising goals and almost certainly will revise the methods we are pursuing to achieve those goals.

Watershed-Wide Water Quality Monitoring

Greater clarity is needed regarding means and ends. Maintaining high water quality at the City of Raleigh water intake should be the primary goal of these rules, with reasonably attainable and stable water quality in the upper sections of the lake as a secondary goal. The various reductions in nutrient loadings in the various tributaries are the means to these ends. Progress in both areas must be tracked in much greater detail than it has heretofore.

Current Monitoring Data

Water quality in Falls Lake has been relatively stable over the past five years, and thus the rushed approach to this rule-making has been is unwarranted and unwise. Unadjusted water quality data from USGS monitoring stations throughout the lake show flat or improving water quality since 2005 (see Appendix B for graphs with trendlines added). Statistically adjusted data show neither statistically significant improvement *nor* degradation. In addition, those years included both drought *and* some of the most rapid housing construction this region has ever seen, both factors which would have stressed water quality.

Increased / Improved Monitoring in Future

DWQ is embarking on such a vast regulatory initiative covering a 700+ square mile watershed but is only directly involving itself in monitoring water quality in the 20 square miles of Falls Lake. Given the uncertainty already acknowledged to be inherent in the model, the complexity of what might be going on in those hundreds of square miles of watershed now and in the future, as well as DWQ's espousal of an "adaptive management" model, it makes every bit of sense for DWQ to participate intellectually AND financially in setting up a more comprehensive and sophisticated water quality monitoring regime throughout the watershed. We suggest that the adopted rules reflect an expanded to commitment to such a regime.

However DWQ eventually chooses to involve itself, the local governments affected by the FLR have already begun meeting to form a compact that will provide for greatly increased monitoring in the tributaries of Falls Lake. This monitoring should provide greatly improved information about the exact sources of the problem. *It may be that septic or livestock or farming or certain jurisdictions / developments/ WWTPs are more or less problematic than we thought. This information could greatly assist in the targeted expenditure of public funds if DWQ is willing or required to consider it as soon as possible. In any case, this information should be taken into account prior to the implementation of Stage II of the FLR.*

Comments on 15A NCAC 2B .0277 – “New Development”

Durham County agrees strongly that new development should be net neutral with regard to nutrient loading on Falls Lake. There may be less new construction as a result, and what is built may well be more expensive. Some developers and some buyers may bear this disproportionately, but all Durham County taxpayers will contribute through higher tax rates and increased average housing costs.

Land Disturbance Threshold Options

Durham County prefers Option A, where an approved stormwater plan will be required for new development over one acre (vs. 5,000 s.f.) in size. The average area required for a single family lot is 8,000 s.f., and these smaller lots are usually part of a larger subdivision that requires a land disturbance permit and approved stormwater management plan anyway.

Onsite Treatment Options

Durham County prefers Option A, where new development is required to meet 60% of both its required nitrogen and phosphorus reductions before seeking offsite offsets.

Redevelopment

Durham County agrees with sections 3(v) and 3(vi) of this rule. It is appropriate that a proposed redevelopment that does *not* increase the net built-upon area would only have to achieve the level of stormwater control reached by the previous development. Even when there *is* a net increase in impervious surface during redevelopment, it is still appropriate that a lower level of N and P reductions would be required onsite (compared to new development) before the developer would be eligible to purchase offsite offsets.

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Comments on 15A NCAC 2B .0278 – “Existing Development”

Durham County is concerned that DWQ accepted the aspects of the Consensus Points where Durham County agreed to swifter Stage I action vis-à-vis onsite wastewater but failed to integrate the mandatory reviewing of new data and revisiting of the lake / watershed models before implementation of Stage II. Strong regional consensus (especially between those being regulated and those benefiting from a regulatory scheme) is something that DWQ and the EMC should seek as they roll these kinds of watershed regulations out across the state. *Durham re-states its position that without this mandatory review prior to Stage II, the Falls Lake Rules will represent exceedingly costly and simplistic public policy.*

Durham County would also like to register concern that the state is moving so quickly with these proposed rules that none of the accounting tools that the state and local governments will need are yet available. We can't yet calculate our 2006 baseline and we don't yet know what kinds of credit various activities will get Durham. It is ironic that we don't yet have any of that specificity, yet the draft rules present the assumption that we have good, specific information about the levels / sources of nutrients going into the lake.

Economic Feasibility

Section 5 of this rule indicates that regulated entities are to “achieve the maximum level of reduction that is technically and economically feasible.” Economic feasibility is in the eye of the beholder, and so one concern is simply that this criterion is too vague. Durham County (and all the regulated jurisdictions) have many competing problems and priorities – the hungry, the unemployed, the uninsured, the mentally ill, and children who need a better education than we can afford. It is clear that Durham County will end up paying a lot to meet these new standards. *If the state is going to make every affected jurisdiction pay as much as possible to make Falls Lake as clean as possible, the state has the reciprocal responsibility of making these rules as smart and as adaptive as is technically and economically feasible.*

The language in Section 5 is actually strangely reminiscent of EPA guidelines describing when a Use Attainability Analysis (UAA) would be appropriate. Spending however many *billions* it turns out to be will undoubtedly have, as the EPA puts it in their criteria for a UAA, “widespread economic and social impact.” Site-specific standards should be established for different parts of the lake, maximum costs per pound/year reduction should be established, and that is how we should move forward achieving the greatest reductions possible. Much depends on what that maximum cost per pound reduction is, but we may have more guidance than we have previously thought. NCDOT, the City of Raleigh, and others have all argued in certain cases (either explicitly or implicitly) that remediation costs above a certain threshold (in terms of \$ per pound of N or P reduction) are simply too high. DWQ should evaluate how it (or other state and federal agencies) has handled those claims and at least consider targeting reduction schemes that can be achieved under a certain cost per pound threshold.

Septic / Onsite Wastewater

Durham County is concerned that nutrient loading from septic tank systems has been substantially over-estimated. Past research on nutrient attenuation rates from Falls Lake soil types is

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sparse, but indicates attenuation rates are high. More research is needed to formulate a sound fiscal strategy. Very low nutrient loads from septic systems would direct funding to other areas of greater need. For example, data may show there is no advantage gained by connecting residences served by onsite septic systems to municipal sewer.

The nutrient impact from DWQ discharging systems needs to be reviewed. While county health departments have no jurisdiction over these systems, the proposed rules make local governments accountable for the nutrient loading from these DWQ systems. A mechanism for calculating nutrient loads from DWQ systems needs to be developed. The counties should not be held responsible for these pounds.

Comments on 15A NCAC 2B .0279 – “Wastewater Discharge Requirements”

Durham County believes that concentration limits make the most sense for all point-source dischargers. Creating mass limits by multiplying a concentration limit by a *permitted* flow, however, would seem to benefit most those jurisdictions that have the greatest current gap between actual flow and permitted flow (which tend to be those jurisdictions that have already engaged in more rapid growth in the past). A more equitable method, if any movement away from permitted flows is conceivable, would be to base the mass limits for each jurisdiction on the concentration requirement times a percentage increase in current flow. Thus, in the same way that Stage I requirements are currently based on flows slightly larger (110%) than current flows, Stage II requirements might be based on a somewhat higher percentage of current flow. This wouldn't give any community an undue allowance for future growth – *at least not without correspondingly vigorous water use reduction and re-use programs.*

Durham County has a question about Section 5 of this rule. Do sections ii) and iii) of this section mean that the mass allocation / limit of a WWTP might increase if, say, a house formerly using a septic system connects to that WWTP? If we give the WWTP “credit” for this addition, will “existing development” be able to take a credit for the reduction as well or would that constitute double-counting? *More generally, the rules should clarify how transfers between sectors will be accounted for.*

The option described at the end of Section 5 of this rule seems reasonable – WWTP reductions in the Falls that exceed Neuse Rules reduction requirements could be sold / used in trade below the Falls dam (thereby giving Falls watershed communities some additional resources to help pay for reduction efforts here).

Comments on 15A NCAC 02B .0280 – “Agriculture”

Durham County believes that both commercial and “hobby” farming (including livestock) are important to the sustainability, livability, and attractiveness of this community. We remember and acknowledge that the farmers have already had to achieve significant and costly nitrogen loading reductions per the Neuse Rules. We are therefore concerned about regulations that would hurt such operations and strongly desire that such regulations be based on solid science and take into account the likely consequences of further regulation on these activities.

P.122 of the most recent fiscal note states that the accounting tool for phosphorus coming from agriculture is “qualitative in nature” and “would not allow for meaningful cost estimation.” This isn’t very reassuring. We need *quantitative* accounting tools (working in tandem with much better actual water quality data) and we need meaningful cost estimation. Far better information about the locations and sources of all loading to Falls Lake, including agricultural / livestock loading, is both needed and either is available or could soon be available.

Currently available technology, if used more widely in the tributaries of Falls Lake, would help further determine the relative contributions of fertilizer, livestock, onsite wastewater, and WWTP effluent to the overall loading in the lake. Such data would help us see, for example, how much a role the agricultural sector (and its sub-sectors) within different jurisdictions really play in nutrient loading. It will help establish more accurate Stage I baseline targets and also help target expenditures of public funds. The rules should allow (or possibly *require*) the Watershed Oversight Committee and Local Advisory Committees to make use of new data as they construct their Stage I and Stage II plans.

It is also important that technical and economic feasibility concepts be worked into this rule, as with the existing development rule, to further help our community avoid unintended consequences. Finally, some flexibility for trading between sectors such that a community might overtreat one area (say, existing development) in order to give some leeway to its agricultural sector would be valuable.

Durham County believes that collective compliance should be a permanent feature of both Stage I and Stage II for “agriculture” (as it is with “existing development”). Mandatory exclusion of livestock from all intermittent and perennial streams by each “individual operator” may sound good in theory but, given the very strict definitions of these “surface waters,” many livestock operators would have to implement such a maze of fencing on their rolling hills as to render their pasture unusable. *Trading and offset options should be available to individual operators throughout Stage I and Stage II.*

Further comments about concerns with credit trading – concerns valid for the agricultural sector as well as for other sectors – are contained in our comments on 15A NCAC 02B .0282 – “Options for Offsetting Nutrient Loads.”

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Durham County is still concerned about the burdens being placed on the Watershed Oversight Committee (WOC) and Local Advisory Committees (LAC), all of which the current draft rules propose to staff with volunteers and which will thereby have a limited capacity to analyze, develop, coordinate, and account. They will require paid staff to assist them in most if not all stages of this work and the proposed rules ought to propose some mechanism(s) by which that assistance would be given.

Comments on 15A NCAC 02B .0281 – “State and Federal Entities”

The state must be clearer that it is requiring the same reductions of itself as it is of local governments and landowners. While the “Purpose” statement for this rule suggests that NCDOT and other state / federal entities are meant to achieve the same percentage reductions as other regulated entities, language in the remainder of this rule is far more relaxed and vague when compared to the rule language regulating WWTPs as well as new and existing development.

- Distinctions between NCDOT’s Stage I and Stage II requirements are not fully fleshed out.
- Section 4(d) simply says that “The *long term objective* of this effort shall be for the NCDOT to achieve the nutrient load objectives in 15A NCAC 02B .0275 as applied to existing development under its control, including roads and facilities.”
- Section 4(d)(ii) says NCDOT’s “schedule shall provide for proportionate annual progress towards reduction goals *as practicable...*”.
- Section 4(d)(iv) states that “NCDOT may meet minimum implementation rate and schedule requirements by implementing a combination of *at least six stormwater retrofits* per year for existing development in the Falls watershed or some other minimum amount based on more accurate reduction estimates...” The size or nutrient reduction capacity of these retrofits is not specified. At the June 30th public hearing at Neal Middle School, DWQ staff defended this by saying that NCDOT only had to 3 retrofits per year under the Jordan Lake Rules, but this is obviously immaterial.

If NCDOT is truly going to be required to meet the same reductions as local governments (as they should be), then there should be no “as practicable,” no sufficing through a few retrofits, and generally speaking none of the extra flexibility they are given in the currently proposed rules.

Comments on 15A NCAC 02B .0282 – “Options for Offsetting Nutrient Loads”

The unintended consequences of buying and selling credits, particularly between sectors (e.g. between new development and agriculture) will have to be considered very carefully both before these rules become final and after they start to be implemented. Some entities and/or entire sectors may be able to achieve and sell excess reductions during Stage I that they will end up needing to meet their Stage II reductions requirements (either individually or collectively). As Triangle land use shifts away from agriculture and more towards housing and commercial development, trends may arise through this kind of activity during Stage I and Stage II that may subvert the goal of keeping a viable agricultural sector. What replaces agriculture may also, despite the intent of the rules, be more damaging to Falls Lake than the rural land uses that preceded them. Of course, this shift might just be the free market speaking, but some officials and citizens have an interest in facilitating the preservation of certain sectors (and/or making it easier for them to preserve themselves).

Per the EMC’s first request for public comment (following Section 2 of this rule), it is not really conservation per se but *improvement* of a given parcel’s current loading rate that would qualify it for a nutrient reduction credits. Current land use, whatever it is, is associated with a certain loading rate. If an entity acquires a meadow for the purpose of keeping it a meadow, they have done a good deed and will be doing their part to keep Falls Lake from getting worse, but they will not have done anything to actually *reduce* the current loading and thus should not get credit for it. *Decreasing* a piece of land’s loading rate by changing its use, however, *would* qualify for a credit. This credit could be used to decrease overall loading towards a reduction target. It could also be used, however, by a developer as an offsite offset so that they can build more / more intensely on a different site, thereby not achieving any net improvement in Falls Lake.

Per EMC’s second request for public comment (following Section 3 of this rule), both options seem reasonable *if the local government has authority to approve credit trades*. Whether an individual trade would make sense depends on how the discussions about site-specific standards play out. For example, if we stick with the single compliance point 13b (just down-lake of the I-85 crossing), keeping or moving as many credits *above* that point would be the most (cost-)effective thing to do. If we end up with two or more site-specific standards, however, that calculus might change. In any case, a local government would probably want to have authority to regulate these trades as it, ultimately, will be responsible for achieving whatever reduction targets are required wherever they are required.

Comments on 15A NCAC 02B .0283 – “Fertilizer Management”

An unspoken and unaddressed factor in the nutrient problems faced by Falls Lake is unregulated and unmonitored application of fertilizer to the lawns of individual homeowners. While the proposed rules do gently regulate (through education) commercial fertilizer application, there is very little understanding of the role that non-commercial application may play or of how regulation of this area might help improve conditions in Falls Lake. While Durham County realizes both the political and logistical difficulties of trying to address fertilizer application by individual homeowners, it is potentially too large a component to ignore. At the very least, future monitoring of tributaries should include at least some more specific analysis of the types of nitrogen and phosphorus contained therein so that both the state and local governments can better assess the magnitude of this activity's impact on Falls Lake's nutrient problems.

Comments on Fiscal Analysis

Durham County has many concerns about the process and various outcomes arrived at by DWQ staff in their fiscal analysis. The first fiscal note estimated a total cost for the FLR of \$3.3 billion, though it did not use discount rates, inflation rates, etc. The second version of the analysis arrived at a lower number (\$1.54 billion) through the use of discount rates required by the state, though use of the rates at all *as well as* the magnitude of the discount confuse this particular issue.

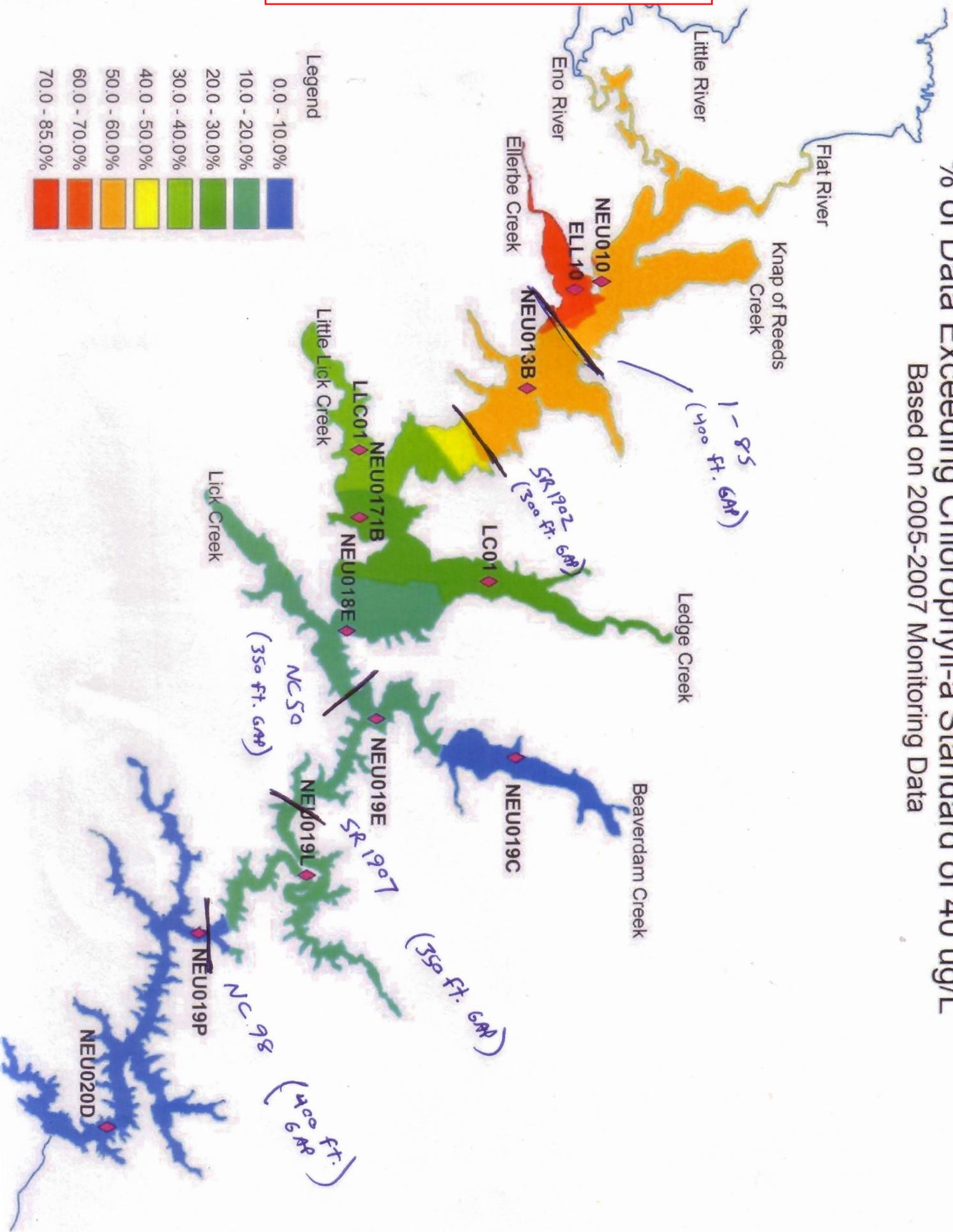
In truth, the only appropriate discount rate would be the average annual inflation rate – e.g. \$200,000 raised through fees or taxes in 2025 might be the equivalent of \$100,000 today *not* because we invest \$100,00 today to get \$200,000 later (which local governments don't do) but because of inflation, which has averaged 3.4% over the past 30 years (<http://data.bls.gov/cgi-bin/cpicalc.pl>). Using a discount rate of 7% is much higher than appropriate, particularly because no money is being invested now to pay future costs.

Different discount rates were used in different portions of the fiscal analysis with no explanation, though they had the practical effect of minimizing the future cost of complying with the Falls Lake Rules and unduly inflating the value of Falls Lake as a drinking water reservoir. Additionally, comparing the cost of compliance with the FLR to the cost of a completely new reservoir is misleading. Falls Lake's water quality is stable and will continue to be used as a drinking water reservoir. By far the most likely reason that Raleigh/Wake would need to develop a new reservoir is their own population growth.²

² The average growth rate by decade for Wake County census tracts *in the Falls watershed* between 1960 and 2000 was 100%. For the Durham County census tracts in the Falls Watershed, the average growth rate was less than 17%.

**APPENDIX A - FALLS LAKE ROAD
CROSSINGS WITH CAUSEWAY GAP SIZES**

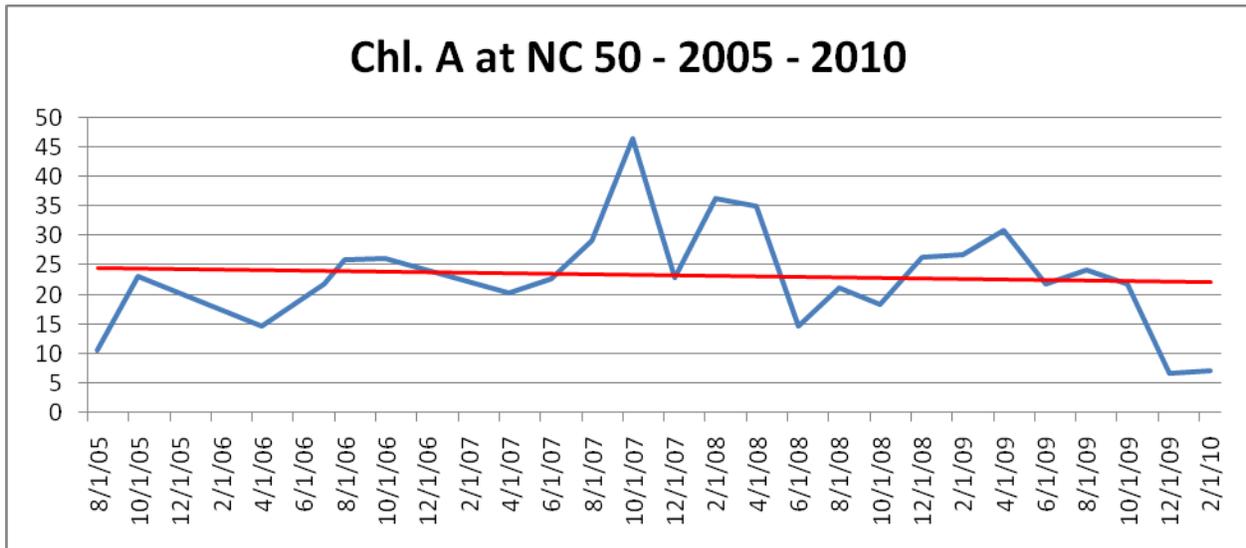
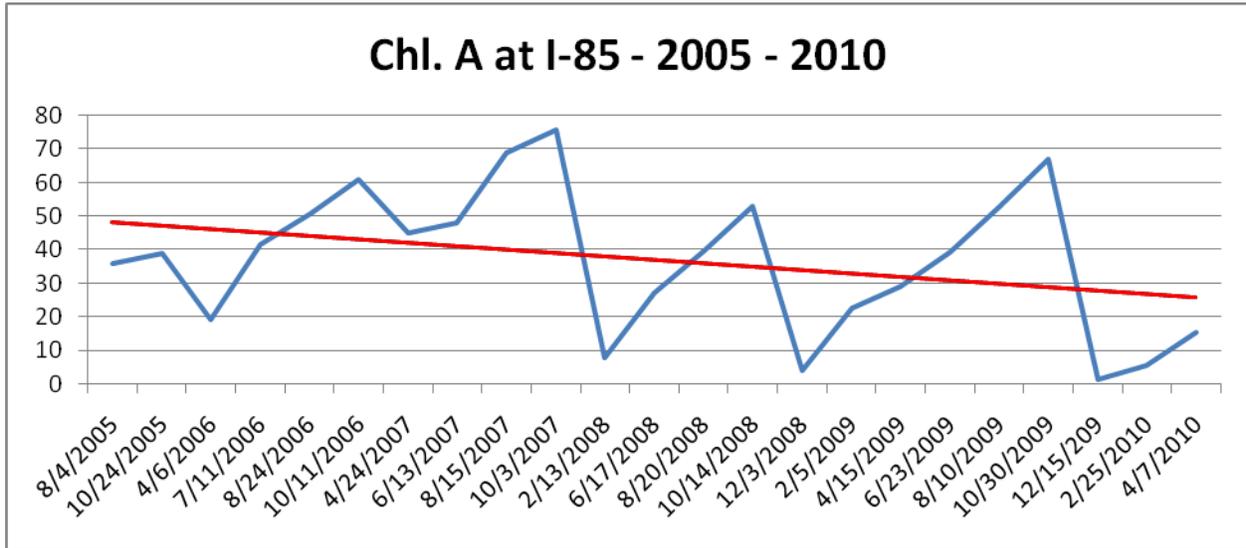
% of Data Exceeding Chlorophyll-a Standard of 40 ug/L
Based on 2005-2007 Monitoring Data



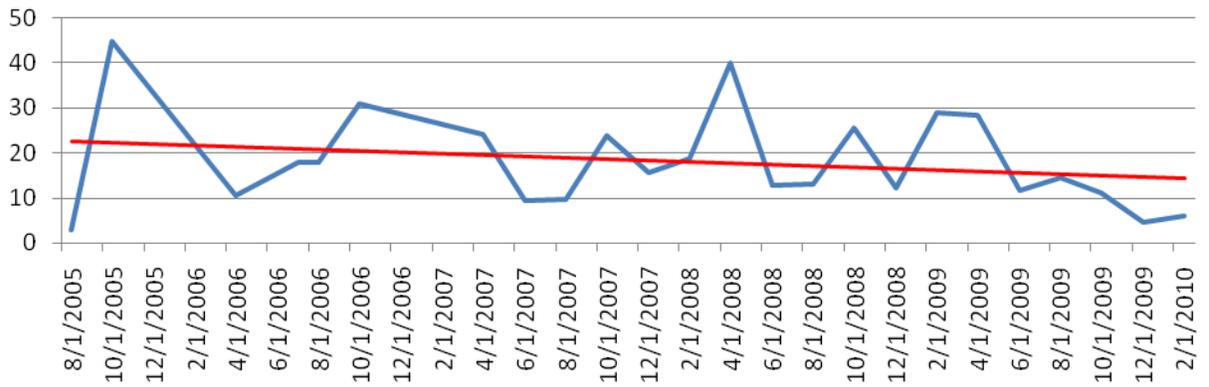
APPENDIX B

Falls Lake Chl. A Summary 2005 – Spring 2010

(all unadjusted USGS data from <http://waterdata.usgs.gov/nwis>)



Chl. A at NC 98 - 2005-2010



Chl. A at Falls Dam - 2005 - 2010

