



☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

MEMORANDUM

TO: John Huisman, Environmental Senior Specialist
Division of Water Quality

FROM: Shari L. Bryant, Piedmont Region Coordinator *Shari L. Bryant*
Habitat Conservation Program

DATE: 13 August 2010

SUBJECT: Falls Water Supply Nutrient Strategy, Durham, Granville, Orange, Person, and Wake Counties, North Carolina.

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the subject document and we are familiar with the habitat values of the area. Our comments are provided in accordance with provisions of the Clean Water Act of 1977 (as amended), Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d), and North Carolina General Statutes (G.S. 113-131 et seq.).

Falls of the Neuse (Falls) Reservoir is a 12,500 acre impoundment of the Neuse River. The reservoir is managed by the U.S. Army Corps of Engineers and is used for flood control, municipal water supply, and recreational activities such as fishing, hunting, and boating. The reservoir supports a diverse fishery including shad (*Dorosoma* spp.), sunfish (*Lepomis* spp.), catfish (*Ictalurus* spp.), crappie (*Pomoxis* spp.), and largemouth bass (*Micropterus salmoides*) with crappie and largemouth bass being the primary species sought after by anglers. The headwater tributaries – Eno River, Little River, and Flat River – support diverse aquatic populations of fish and freshwater mussels including several state listed species.

Falls Reservoir is on the State's 303(d) list of impaired waters. The reservoir is listed as impaired for chlorophyll *a*, and the portion of the reservoir above I-85 is listed as impaired for turbidity. The proposed Falls Water Supply Nutrient Strategy is a staged implementation plan to achieve nutrient reductions and meet water quality standards in Falls Reservoir. The objective of Stage I is to maintain nutrient related water quality standards in the Lower Falls Reservoir (i.e., below N.C. 50) and to improve water quality in the Upper Falls Reservoir (i.e., above N.C. 50) by 2021. The objective of Stage II is to achieve and maintain nutrient related water quality standards throughout the reservoir by 2041 by reducing nitrogen and phosphorus inputs by 40% and 77% in the Upper Falls Watershed.

We support the Falls Water Supply Nutrient Strategy as a means to meet water quality standards and sustain classified uses in Falls Reservoir. We offer the following comments and/or recommendations regarding the proposed nutrient strategy.

15A NCAC 02B .0275 Falls Water Supply Nutrient Strategy: Purpose and Scope:

- The Commission seeks public comment on an alternative timeframe for Stage I of 7 years with full implementation occurring no later than 2018.

It appears in Phase I the minimum objective is to reduce nitrogen and phosphorus loading to attain nutrient-related water quality standards in the Lower Falls Reservoir, and to improve water quality in the Upper Falls Reservoir by 2021. If the rules become effective January 15, 2011, it is unclear the reason(s) that full implementation of the rules could not occur by 2018; however, if “full implementation” also includes meeting the minimum objective stated for Phase I then perhaps 2021 is a more reasonable timeframe.

- The Commission seeks public comment on the following option: that prior to setting Stage II limits that the results of Stage I be reviewed and an opportunity for establishing Stage II results or numbers be considered at the end of Stage I.

Nutrients, particularly nitrogen and phosphorus, are important in developing and maintaining quality reservoir fisheries. Maceina and Bayne (2001) found that significant reductions in nutrients in a reservoir resulted in lower recruitment, slower growth, and lower condition of largemouth bass. They concluded that reductions in chlorophyll *a* to less than 10 to 15 µg/l can compromise black bass (e.g., largemouth bass) fisheries in southern reservoirs. Since Falls Reservoir supports quality fisheries for both largemouth bass and crappie, we recommend a mean summer chlorophyll *a* lower limit of no less than 15 µg/l for the middle section of the reservoir (i.e., N.C. 50).

In the *Falls Lake Nutrient Response Model Provisional Draft Report*, Figure III-12 (p. 43) shows the yearly average chlorophyll *a* for 2005 and 2006 to be approximately 30 µg/l for the monitoring station nearest N.C. 50 (i.e., NEU018E). Figure VI-1 (p. 102) shows the chlorophyll *a* exceedance rates (i.e., >40 µg/l) for the middle section of the reservoir to be 10 to 20 percent from 2005-2007. Because there is a level of uncertainty associated with model-based nutrient load reduction targets, and we are concerned about excessive nutrient reductions and its impact on the reservoir fishery, we support an evaluation of Stage I results prior to setting Stage II limits.

15A NCAC 02B.0277 Falls Reservoir Water Supply Nutrient Strategy: Stormwater Management for New Development

- The rules propose two options for a land disturbance threshold. Option A requires an approved stormwater management plan for all proposed new development disturbing one acre or more for single family and duplex residential property and recreational facilities, and one-half acre or more for commercial, industrial, institutional, multifamily residential, or local government property. Option B requires an approved stormwater management plan for all proposed new development disturbing 5,000 square feet or more.

We would support Option A if an approved stormwater plan was required for all new development that disturbed one-half acre or more.

- The Commission seeks public comment on the question of which rule the redevelopment requirements should be defined. The New Development Rule (.0277) or Existing Development Rule (.0278).

We suggest defining the redevelopment requirements in the Existing Development Rule (.0278).

15A NCAC 02B .0280 Falls Water Supply Nutrient Strategy: Agriculture

- This rule states under Applicability “This Rule shall apply to all persons engaging in agricultural operations in the Falls watershed, including those related to crops, horticulture, livestock and poultry.”

We question whether aquaculture should be included under this rule since nutrients (e.g., fertilizers or fish food) often are used to increase production and growth of cultured aquatic species.

- The Commission seeks public comment on appropriate ways to capture nutrient loads from “hobby farms” which are small farms not involved in commercial production.

If the Commission determines a means to capture nutrient loads from “hobby farms”, we suggest that farm ponds are considered for inclusion in the list. Farm pond management often includes a fertilization program to increase fish production and growth.

15A NCAC 02B .0282 Falls Water Supply Nutrient Strategy: Options for Offsetting Nutrient Loads

- The Commission seeks public comment on the option to include land acquisition and conservation as an option for achieving nutrient reduction credit.

There are potential benefits to allowing land acquisition and conservation as an option for achieving nutrient reduction credit. However, there should be specific criteria regarding lands that are used for these purposes. There should be some evidence that conserving the land would meet the goal of achieving nutrient reductions within the watershed (e.g., agricultural lands that are replanted with trees, or allowed to naturally re-vegetate). Also, these lands should be protected in perpetuity either through a conservation easement or some other restrictive mechanism.

- The Commission seeks public comment regarding geographic restrictions to nutrient trading. One provision would allow local governments located in counties that span both upper and lower watershed to use nutrient credits generated anywhere in the county in which the local government is located. The other provision would allow point sources whose service areas are in both the upper and lower watershed to use nutrient credits anywhere in their service areas.

We have no objections to allowing local governments or point sources subject to the rules to use nutrient credits anywhere within their respective county or service area. However, the buying and selling of nutrient credits should be monitored closely to prevent credits from being sold in one watershed and bought in another where water quality or aquatic habitat degradation may result in the stream where credits are bought.

Although we support the proposed Falls Water Supply Nutrient Strategy, significant growth and development continues to occur particularly in the Upper Falls Watershed where several streams support rare and sensitive species. Secondary and cumulative impacts resulting from future growth can result in stream bank instability; changes in stream morphology and substrate characteristics; increased sediment, nutrient, and toxicant loading; reduced complexity of benthic habitats, modified aquatic food resources and changes in fish and freshwater mussel communities. Therefore, to protect water quality and aquatic habitat in developing landscapes, we will continue to encourage local governments to implement the measures described in NCWRC’s *Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality* (August 2002).

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Falls-of-the-Neuse Reservoir

Thank you for the opportunity to comment on the Falls Water Supply Nutrient Strategy. If we can be of further assistance, please contact our office at (336) 449-7625.

Literature cited

Maceina, M.J. and D.R. Bayne. 2001. Changes in the black bass community and fishery with oligotrophication in West Point Reservoir, Georgia. *North American Journal of Fisheries Management* 21:745-755.

ec: Brian McRae, WRC
Kirk Rundle, WRC