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December 18, 2007

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RE: Summary of N.C. Division of Water Quality's research related to 1) relatively permanent flow, and 2) significant nexus to traditionally navigable water (TNW)

As you know for the past several years, Division of Water Quality (DWQ) staff have collected and analyzed a wide variety of data on small streams and wetlands that may provide valuable information for your staff as they work to implement the recent Rapanos guidance in North Carolina. The following summary and attached reports on this research are intended to provide this assistance to the Corps Field Office staff.

I. Streams

The Rapanos guidance (US Army Corps of Engineers, 2007) states that stream flow should be relatively permanent (i.e., flow occurs for at least three months out of the year) in order to exert 404 jurisdiction. If the flow is not relatively permanent, then a significant nexus to navigable water must be shown to affect the physical, chemical or biological integrity of downstream waters in order to assert 404 jurisdiction.

As outlined in the attached reports, DWQ and N.C. State University researchers have collected hydrological and biological data on several intermittent and small perennial streams in the mountains and piedmont of N.C. with similar work underway in the coastal plain. These data show that intermittent and small perennial streams in the piedmont of NC (as defined by DWQ's Stream Identification Method) have continuous flow for at least three months in a normal year (Appendix A) and should be considered as "relatively permanent" in accordance with the example of one way to define this term as provided in the Rapanos guidance. In addition, our data has shown that the biota of these small streams across the state always has at least one taxon in common with the downstream traditionally navigable water (Appendix B). Also, since intermittent and perennial streams have a direct hydrologic connection to downstream TNW and thereby likely have a direct chemical connection, they are likely to provide a significant nexus to downstream waters. Therefore, we believe that most intermittent and small perennial streams in NC can be classified as "Relatively Permanent Water" and are thus always jurisdictional for the Clean Water Act.

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In order to provide generic guidance to staff about stream origins, DWQ staff have summarized field data on the size of watersheds at which intermittent or perennial streams have their origins. Appendix C and D provide information on the average (or median) size watershed for intermittent or perennial origin varies with ecoregion (Triassic basin versus slate belt, for instance) and with physiographic region (mountains, piedmont, or coastal plain). These data may prove useful to Corps of Engineers or Environmental Protection Agency staff when completing or reviewing written Rapanos guidance forms.

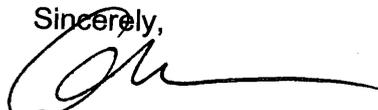
II. Wetlands

Other than wetlands that are adjacent to TNWs (including intermittent streams for the reasons described above), or wetlands abutting RPWs, many wetlands will be subject to the significant nexus test in order to assert 404 jurisdiction. DWQ staff have conducted extensive research for several years on headwater wetlands (as defined by the North Carolina Wetland Assessment Method [NC WAM]). In addition, DWQ staff have begun research on riverine swamp forests, bottomland hardwood forests and small basin wetlands (mafic depressions and cypress lime sink ponds) in the piedmont and coastal plain. The data from headwater wetlands is discussed below since it is fairly complete. Data from the other wetland types is too incomplete at this time to draw any definitive conclusions. Once DWQ staff gather data on other wetland types in NC, we will supplement these conclusions for the other wetland types in the state.

Analysis of water chemistry data from a multi-year analysis of 23 headwater wetlands (Appendix E) shows that these wetlands have a significant, positive effect on downstream water quality. This conclusion is logical given the landscape position of these wetlands at the top of intermittent/perennial streams. We believe that the crucial uptake and transformation of biologically active compounds that occur in headwater wetlands provides sufficient evidence that headwater wetlands do have a significant nexus to downstream receiving waters and affect the physical, chemical, and biological integrity of such waters. In addition, the biota of these wetlands is also found downstream in the Traditionally Navigable Waters that also provides evidence that these headwater wetlands have a significant nexus to downstream Traditionally Navigable Waters.

I hope this information will prove useful to your administration of the 404 Permitting Program. Please be aware that since much of this work is ongoing, this report may be supplemented in the future as more data become available. If you or your staff have any questions about this information, please contact Mr. John Dorney at 919-733-9646 or Mr. Larry Eaton at 919-715-3471.

Sincerely,



Coleen H. Sullins

Reference: US Army Corps of Engineers. 2007. Jurisdictional Determination Form – Instructional Guidebook. Prepared jointly with US Environmental Protection Agency. Washington, DC.

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