Addendum to the White Oak River TMDL for Impaired Segments in the White Oak River Watershed, North Carolina

August, 2012

[Waterbody IDs: 20-21,20-22, 20-23, 20-23-1, 20-23-2, 20-23-3, 20-24, 20-26, 20-26-1, 20-27, 20-28, 20-29, 20-29-1, 20-29-1-1, 20-29-2, 20-29-2-1]

White Oak River Basin

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Introduction

The North Carolina Division of Water Quality (DWQ) developed a Total Daily Maximum Load (TMDL) for the White Oak River in 2010 to address fecal coliform impairments. The TMDL was approved by EPA Region 4 on September 8, 2010.

This addendum to the White Oak River TMDL is to address additional assessment units on the 303(d) list for fecal coliform impairments within shellfish growing areas in the White Oak River watershed. These assessment units are primarily tidal creeks that drain to the White Oak River and were first included on the 303(d) list in 2002. The impaired waters and associated assessment units (AUs) are shown below:

Waterbody Name [Assessment Unit]	Description	Water Quality Classification	Acres
Pitts Creek (Hargetts Creek): [20-21]	From Source to White Oak River	SA; HQW	1.8
Cales Creek: [20-22]	From source to White Oak River	SA; HQW	7.2
Hadnot Creek: [20-23]	From source to White Oak River	SA; HQW	43.4
Schoolhouse Branch: [20-23-1]	From source to Hadnot Creek	SA; HQW	4.2
Steep Hill Branch: [20-23-2]	From source to Hadnot Creek	SA; HQW	4.8
Caleb Branch (City Weeks Branch): [20-23-3]	From source to Hadnot Creek	SA; HQW	7.1
Godfry Branch: [20-24]	From source to White Oak River	SA; HQW	3.4
Holland Mill Creek: [20-26]	From source to White Oak River	SA; HQW	29.1
Cartwheel Branch: [20-26-1]	From source to Holland Mill Creek	SA; HQW	4.3
Hampton Bay: [20-27]	Entire Bay	SA; HQW	82.1
Stevens Creek: [20-28]	From source to White Oak River	SA; HQW	6.9
Pettiford Creek Bay: [20-29]	Entire Bay	SA; HQW	239.3
Pettiford Creek: [20-29-1]	From source to Pettiford Creek Bay	SA; HQW	41.6
Mill Creek (Pettiford Creek) [20-29-1-1]	From source to Pettiford Creek	SA; HQW	4.8
Starkey Creek: [20-29-2]	From source to Pettiford Creek Bay	SA; HQW	31.4
Mullet Gut: [20-29-2-1]	From source to Starkey Creek	SA; HQW	1.6

Area Description

The White Oak River is a 42-mile long blackwater river located along the central North Carolina coast. The watershed encompasses portions of Jones, Carteret, Craven, and Onslow counties and covers 273 square miles. The river begins to widen approximately nine miles before flowing into Bouge Sound; here the river classification changes from class C,HQW to class SA,HQW. This point marks the northern boundary of the Division of Marine Fisheries Shellfish Sanitation and Recreational Water Quality Shellfish Growing Area D-3 which extends south to Bogue Sound. The addendum waters are shown in

green in the southern portion of the watershed on Figure 1. This area has seen continued residential development in recent years. Oyster and clam production are good throughout the area, however all of the shellfish beds in the White Oak River Watershed areas are prohibited, or conditionally closed or open, due to high fecal coliform levels (NC DMF, 2010). The dominant tide in this region is the lunar semi-diurnal (M_2) tide with a mean tidal range of 3.11 ft based on the NOAA station at Beaufort, NC.

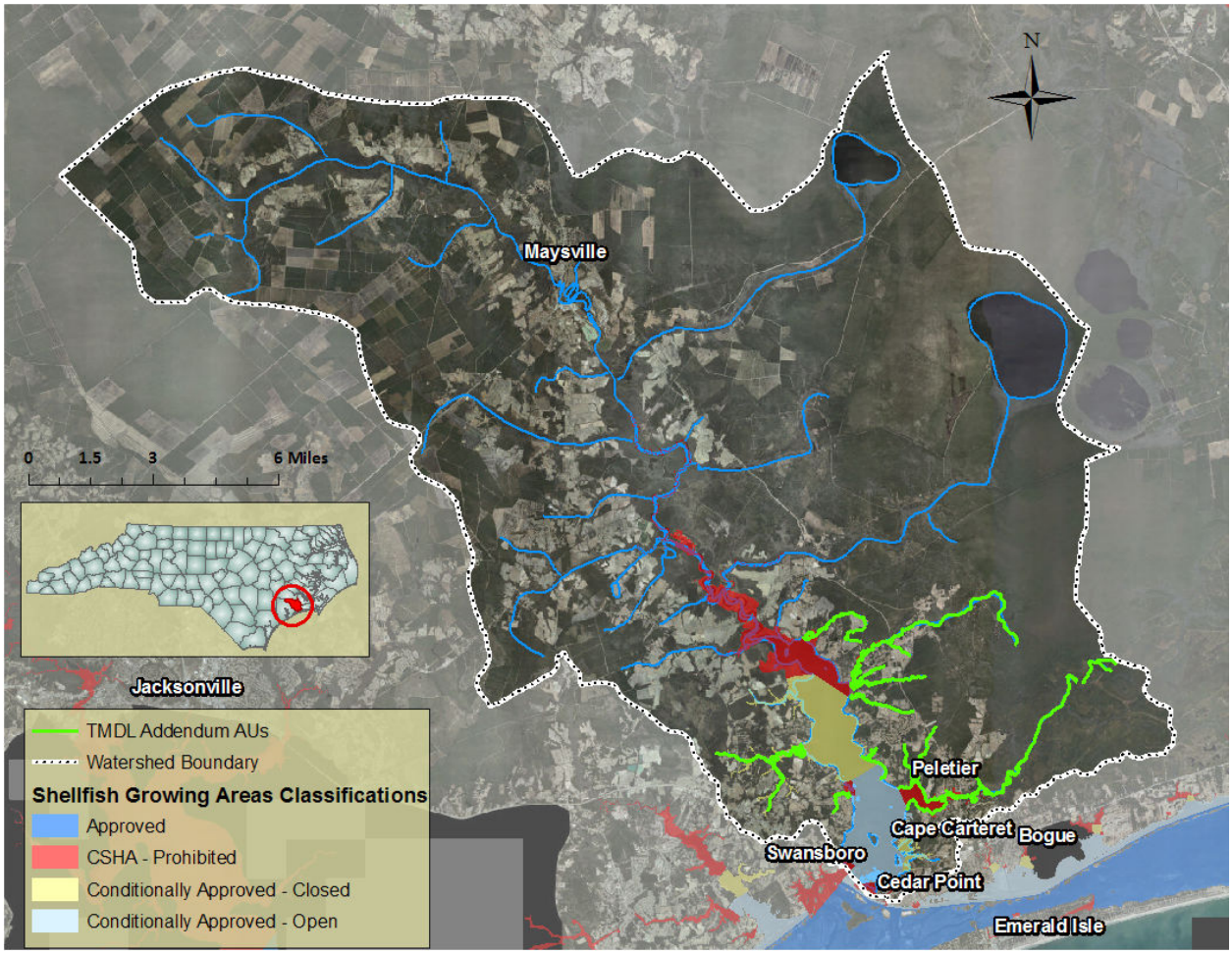

Figure 1 - White Oak River Watershed

Documentation of Impairment

The sixteen addendum assessment units in the White Oak River Watershed are listed in Category 5 of the North Carolina Integrated Report. These restricted shellfish harvesting areas are identified as areas in this basin that do not meet their designated uses. Waters within this classification, according to 15A NCAC 02B.0221 (Tidal Salt Water Quality Standards for Class SA Waters), must meet the following water quality standard in order to meet their designated use: "Organisms of coliform group: fecal coliform group not to exceed a median MF of 14/100 ml and not more than 10 percent of the samples shall exceed an MF count of 43/100 ml in those areas most probably exposed to fecal contamination during the most unfavorable hydrographic and pollution conditions." In addition, for the approval of shellfish growing areas "the median fecal coliform Most Probable Number (MPN) or the geometric

mean MPN of water shall not exceed 14 per 100 milliliters, and not more than 10 percent of the samples shall exceed a fecal coliform MPN of 43 per 100 milliliters (per five tube decimal dilution) in those portions of areas most probably exposed to fecal contamination during most unfavorable hydrographic conditions"(15A NCAC 18A .0431 Standards for an Approved Shellfish Growing Area). In addition "a minimum of the 30 most recent randomly collected samples from each sample station shall be used to calculate the median or geometric mean and 90th percentile to determine compliance with this standard" (NSSP, 2009).

TMDL Reductions

The 2010 White Oak River TMDL (http://tinyurl.com/8qcc83c) requires a 75.2% reduction from nonpoint sources and from the North Carolina Department of Transportation. These reductions apply to the entire White Oak River Watershed, including the addendum assessment units, with the exception of the watersheds addressed separately in the 2009 Southeast White Oak River Embayments TMDL (NC DWQ, 2009).

Figure 2 shows assessment units covered in the 2009 Southeast White Oak River Embayments TMDL (Pink), assessment units from the 2010 White Oak River TMDL (Orange), and the addendum assessment units to the White Oak River TMDL are shown in Green.

Full implementation of the 2010 White Oak River TMDL and achievement of the fecal coliform loading reduction target of 75.2% is expected to achieve water quality standards in the addendum waters. DWQ may reevaluate the need for individual TMDLs for the addendum waters if the required reductions are determined to be insufficient.

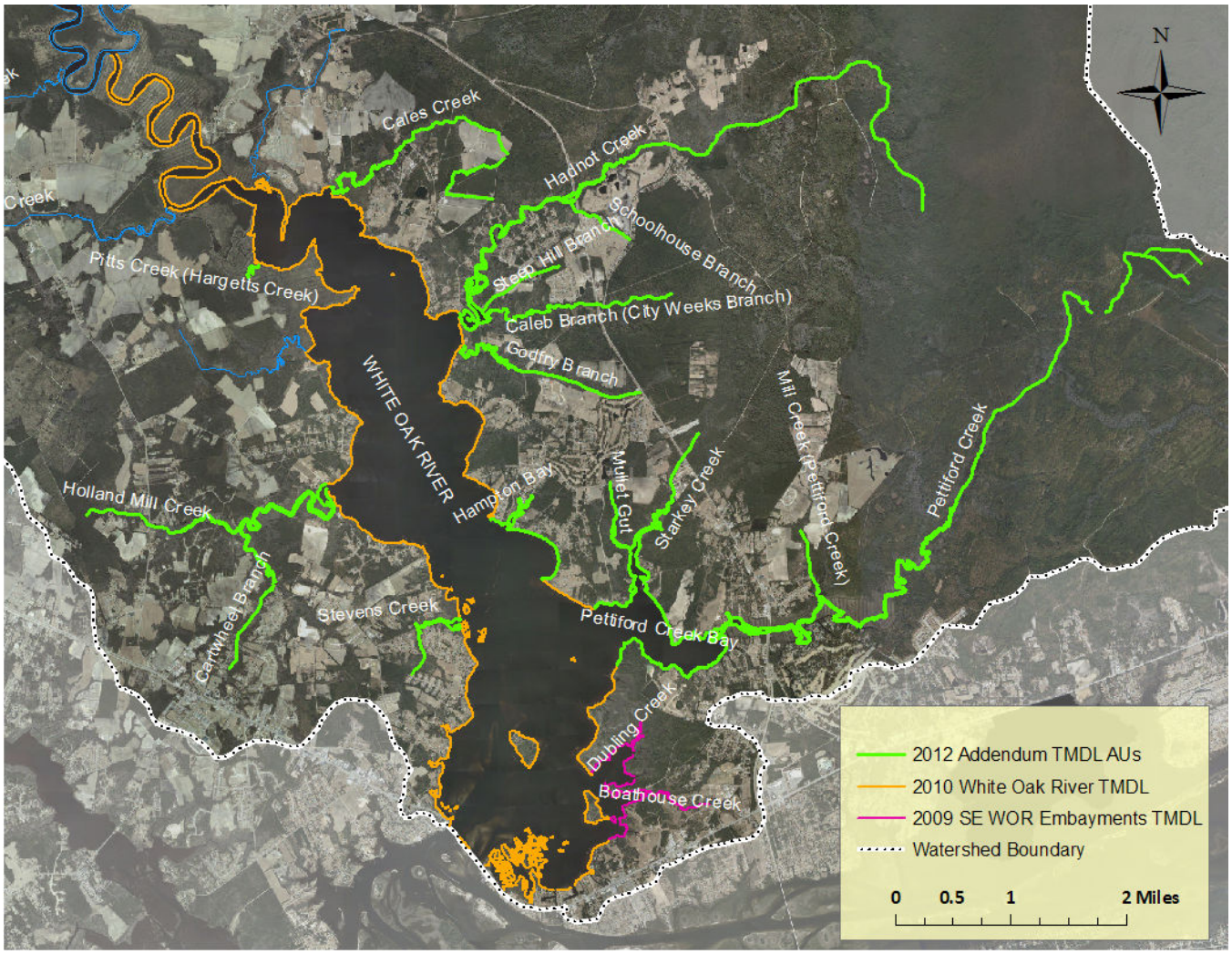

Figure 2 - Assessment Units

Public Participation

The 2010 White Oak River TMDL was public noticed on the North Carolina Modeling and TMDL website on July 12, 2010. The TMDL was also public noticed on July 14, 2010 through the North Carolina Water Resources Research Institute email list-serve. In Addition, the TMDL was public noticed in the relevant counties through a local newspaper (Carteret County News-Times) on July 16, 2010.

A draft of this addendum to the White Oak River TMDL was publicly noticed through various means, including electronic notification of the draft addendum to the DWQ Modeling and TMDL Unit's listserv. The addendum to the White Oak River TMDL was also noticed on the DWQ Modeling and TMDL Unit website and on the DWQ event calendar during the comment period. The public comment period lasted from June, 25 through July 26, 2012. A copy of the public notice is included in Appendix A.

DWQ received five public comments from the NCDOT on the addendum to the White Oak River TMDL. The comments and DWQ responses are included in Appendix B.

References

NC DMF, 2010. Report of Sanitary Survey, Growing Area D-3, White Oak River Area. NC Division of Marine Fisheries Shellfish Sanitation and Recreational Water Quality. June, 2010.

NC DWQ, 2009. Total Maximum Daily Loads for Fecal Coliform for Embayments in Southeast White Oak River, North Carolina. April, 2009. http://portal.ncdenr.org/c/document_library/get_file?uuid=e134c8a7-1b6a-446b-b7eb-713788f14ab6&groupId=38364

NSSP, 2009. National Shellfish Sanitation Program Guide for the control of Molluscan Shellfish 2009, Section II, Chapter IV.02 (Bacteriological Standards). US Food and Drug Administration, 2007. Website: http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FederalStatePrograms/NationalShellfishSanitationProgram/ucm046988.htm

Appendix A – Public Notification of Addendum to the White Oak River TMDL

North Carolina Department of Environment and Natural Resources
Division of Water Quality

June 25, 2012

Draft Addendum to the White Oak River TMDL for Impaired Segments in the White Oak River Watershed

Now Available for Public Comment

This Draft Addendum TMDL report was prepared as a requirement of the Federal Water Pollution Control Act, Section 303(d). Interested parties are invited to comment on the Draft Addendum TMDL report by July 26, 2012. Comments concerning the report should be directed to Andy Painter at andy.painter@ncdenr.gov or write to:

Andy Painter
NC Division of Water Quality
Planning Section
1617 Mail Service Center
Raleigh, NC 27699

The draft TMDL can be downloaded from the following website:
http://portal.ncdenr.org/c/document_library/get_file?uuid=110a036c-8d41-4f05-bd01-b9b5e5ea2527&groupId=38364

Appendix B – Public Comments Response Summary

Addendum to the White Oak River TMDL
Public Comment Responsiveness Summary

July, 2012

The public comment period extended from June 25, 2012 through July 26, 2012. Comments were received from the North Carolina Department of Transportation. These comments with the NC Division of Water Quality responses are provided in the Responsiveness Summary presented below.

1. It is not clear from the Addendum Report what specific additions and/or changes, if any, are being proposed to the White Oak River TMDL approved by EPA in September 2010. Please identify which tables, figures, and text within the 2010 White Oak River TMDL report are proposed to be revised and provide the substitute table, figure, or text in the Addendum Report. For example, if the TMDL Allocation Summary table on p. 6 of the 2010 White Oak River TMDL report is to be amended to also include the 16 additional assessment units (AUs) listed on p. 3 of the Addendum Report, please provide the newly revised table in the Addendum Report with a notation that it shall replace the table on p. 6 of the 2010 White Oak River TMDL report.

Response: This document is an addendum to the 2010 White Oak River TMDL Report and is not intended to be a revision of the report. This addendum will accompany the 2010 White Oak River TMDL report in the future.

2. The Addendum Report does not present any water quality data for the 16 AUs proposed to be added to the 2010 White Oak River TMDL report. Please include a table which summarizes the median, geometric mean, and 90th percentile fecal coliform concentrations for each of the 16 impaired AUs listed in the Addendum

Response: The NC Division of Marine Fisheries (DMF) Shellfish Sanitation Program uses monitoring data primarily from sampling locations in the White Oak River, along with shoreline surveys, to determine the condition of shellfish growing areas. The DMF data is summarized in Appendix A of the 2010 White Oak River TMDL report.

3. The Addendum Report does not establish a fecal coliform loading capacity for each of the 16 AUs. The last sentence on p. 6 states: "*DWQ may reevaluate the need for individual TMDLs for the addendum waters if the required reductions are determined to be insufficient.*" thereby suggesting that the Addendum Report is not intended to establish TMDLs for the 16 AUs listed. If the Addendum Report is intended to calculate 16 TMDLs, one for each of the 16 AUs, please identify the wasteload allocation, load allocation, and margin of safety for each of the impaired waterbodies.

Response: The sentence in the Addendum Report prior to sentence mentioned in this comment states, "Full implementation of the 2010 White Oak River TMDL and achievement of the fecal coliform loading reduction target of 75.2% is expected to achieve water quality standards in the addendum waters."

The ambient monitoring station P6400000 compliance point and subsequent assessment units in the 2010 White Oak River TMDL report received a TMDL of 1.34E+11 cfu/day. When the TMDL is fully implemented and the TMDL is achieved, fecal coliform bacteria levels in all assessment units in the watershed should be in compliance with water quality standards. If the TMDL is met and some assessment units are still impaired then those assessment units will receive a new TMDL.

4. The TMDL allocation summary table on p. 6 of the 2010 White Oak River TMDL report lists twelve AUs and a TMDL loading capacity of 1.34E+11 cfu/day. NCDOT assumes that the TMDL loading capacity for <u>each</u> AU is 1.34E+11 cfu/day. If this assumption is incorrect please clarify what the loading capacity is for each AU covered under the 2010 White Oak River TMDL report.

Response: Your assumption is correct.

5. Please amend Figure 2 to identify the locations and watershed boundaries for each of the 16 AUs listed on p. 3 of the Addendum Report. Also, please amend Appendix A to include a land cover description and drainage area size (square miles) for each of the 16 AUs. For example, AU 20-21 Pitts Creek (Hargetts Creek) is listed on p. 3 of the Addendum Report but is not labeled in Figure 2 nor represented in Appendix A.

Response: Figure 2 and Appendix A have been removed from the document. Land cover and source assessment information for the White Oak River watershed is documented in the 2010 White Oak River TMDL document. Figure 3 (now Figure 2) has been updated to label each of the 16 assessment units.