

# SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 919-967-1450

601 WEST ROSEMARY STREET, SUITE 220  
CHAPEL HILL, NC 27516-2356

Facsimile 919-929-9421

February 12, 2016

***VIA ELECTRONIC MAIL***

Elizabeth Kountis  
DENR-DWR Planning Section  
1611 Mail Service Center  
Raleigh, NC 27699-1611  
[elizabeth.kountis@ncdenr.gov](mailto:elizabeth.kountis@ncdenr.gov)

**Re: Cape Fear River Estuary Water Quality Management Plan**

Dear Ms. Kountis:

The Southern Environmental Law Center appreciates the opportunity to comment on the proposed water quality management plan<sup>1</sup> for the Lower Cape Fear River (“LCFR”)<sup>2</sup> on behalf of Cape Fear River Watch, Waterkeeper Alliance, and the North Carolina Conservation Network. Together, these organizations represent thousands of North Carolinians who drink, fish, swim, and paddle the state’s rivers, including the Cape Fear; who place a high value on the quality of North Carolina’s water resources; and who will be adversely affected by the degradation of water quality in the Cape Fear River. As such, these comments are intended to express concern regarding the agency’s proposed management strategy for the LCFR.

As described in Section I, the strategy represents an abrupt and questionable departure from years of collaborative efforts to ensure that use of the river by aquatic life would be supported. In Section II, we document the myriad ways in which the water quality management plan under consideration appears intentionally designed to have minimal impact and therefore

---

<sup>1</sup> Although the agency specifically solicited comments regarding the proposed changes to the water quality management plan for the Lockwoods Folly River Area, those changes are not the only amendments to 15A N.C. Admin. Code 02B .0227 contemplated in the proposed rule published in the North Carolina Register on December 15, 2015. We therefore appreciate your consideration of our comments and their inclusion in the rulemaking record. See N.C. Gen. Stat. § 150B-21.2(f) (“An agency must accept comments on the text of a proposed rule that is published in the North Carolina Register and . . . consider fully any written and oral comments received”); *id.* § 150B-21.2(i) (“An agency must keep a record of a rule-making proceeding. The record must include all written comments received . . .”).

<sup>2</sup> As used herein, “LCFR” refers to the portion of the Cape Fear River from upstream of Toomers Creek to a line across the river between Lilliput Creek and Snows Cut.

afford minimal protection to aquatic life. And, in Section III we emphasize the importance of preserving the designated use of the LCFR for aquatic life, which we believe should include efforts to protect endangered species that rely on the river.

I. Retreat Rather than Recovery: TMDL Avoidance in the LCFR

Every two years, the State must assess whether the designated uses<sup>3</sup> of a water body are supported by existing water quality.<sup>4</sup> Where existing pollution control requirements are insufficiently stringent to implement any water quality standard applicable to a water body, the State must take responsive action.<sup>5</sup> First, the water body must be included on the 303(d) list of impaired waters. Then, in order of established priority, the State must establish a total maximum daily load (TMDL) of the pollutant(s) impairing the designated use of listed waters; the TMDL should be calculated to limit pollutant loading to the degree necessary to attain applicable water quality standards.<sup>6</sup> Put more simply, after documenting unacceptable water quality, the State must take action to improve water quality to the degree necessary to support the water body's designated uses.

In Class SC waters like the LCFR, the normal dissolved oxygen standard is 5.0 mg/L.<sup>7</sup> In 1998, the State first observed that the designated uses of the Cape Fear estuary were impaired by low dissolved oxygen (DO) concentrations.<sup>8</sup> At the time, responsive measures were already

---

<sup>3</sup> The classification of a water body dictates the applicable water quality standards necessary to protect the "best usage" of the waters with that classification. *See* N.C. Gen. Stat. 143-214.1(a)(1) (directing the EMC to develop "a series of classifications and the standards applicable to each such classification"); 15A N.C. Admin. Code 02B .0201 ("Existing uses . . . and the water quality to protect such uses shall be protected by properly classifying surface waters and having standards sufficient to protect these uses."); *see also* 40 C.F.R. § 131.11(a)(1) ("States must adopt those water quality criteria that protect the designated use. . . . For waters with multiple use designations, the criteria shall support the most sensitive use.").

<sup>4</sup> *See* 33 U.S.C. § 1315(b).

<sup>5</sup> 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b). Conversely, where existing control strategies for point and nonpoint source pollution will achieve water quality standards, the law does not mandate such action.

<sup>6</sup> 33 U.S.C. § 1313(d)(1)(C); *see also* 40 C.F.R. § 130.7(c)(1) ("TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical [water quality standard] with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.").

<sup>7</sup> 15A N.C. Admin. Code 02B .0220(5).

<sup>8</sup> N.C. Dep't of Env't and Natural Res. (NC DENR), *North Carolina's 1998 303(d) List T-6* (May 15, 1998) (noting that of the 7,500 acres providing only "partial support" of designated uses, 5,000 were impaired by DO and listing wastewater treatment plants as a source of the impairment.),

under consideration; the State opined that “[p]roper technical conditions exist to develop a TMDL for this water body/pollutant” and that TMDL development was the “[u]sual approach” for responding to DO impairment.<sup>9</sup> A TMDL for Biological Oxygen Demand (BOD) had already been drafted in 1996 that “proposed using a phased approach to reducing BOD loading to the lower Cape Fear and highlighted several options that primarily reduce point source discharges to the river.”<sup>10</sup> However, that TMDL was never approved or implemented.

By 2000, the DO impairment had been elevated to a high priority for the agency, which, by then, was meeting with the “regulated community . . . on a regular basis to discuss the modeling approach and investigate funding sources for the TMDL addressing low dissolved oxygen.”<sup>11</sup> In 2002, the agency again listed the Cape Fear estuary as a high-priority water body for which a TMDL was required due to low dissolved oxygen.<sup>12</sup> When no TMDL was developed, the water body was again included on the list of impaired waters in 2004.<sup>13</sup>

In 2006, the LCFR was again listed as impaired due to low DO.<sup>14</sup> The State indicated that it expected to submit a TMDL to address this impairment “by the beginning of calendar year 2008.”<sup>15</sup> Notably, by this time, the use of the LCFR had also become impaired by low pH.<sup>16</sup> However, the State remained focused on addressing what was nearly a decade-old DO impairment.

---

[http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=2284d944-2134-4c57-a2d9-499c58076d4a&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=2284d944-2134-4c57-a2d9-499c58076d4a&groupId=38364).

<sup>9</sup> *Id.*

<sup>10</sup> *Id.* at 13 (noting the drafting of a BOD TMDL of 80,000 lbs/day BOD<sub>u</sub> for the lower Cape Fear River below Lock and Dam #1).

<sup>11</sup> NC DENR, *North Carolina’s 2000 303(d) List 6* (Oct. 2, 2000), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=20e877f9-81c3-4536-9622-e605646fcde4&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=20e877f9-81c3-4536-9622-e605646fcde4&groupId=38364).

<sup>12</sup> NC DENR, *North Carolina 2002 Impaired Waters List 4* (Feb. 13, 2003), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=7cfe0f8a-bde3-4523-9e3e-cdc44e323123&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=7cfe0f8a-bde3-4523-9e3e-cdc44e323123&groupId=38364).

<sup>13</sup> NC DENR, *North Carolina 2002 303(d) Impaired Waters List-2004 2* (Apr. 26, 2004), available at [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=1504027b-a8d8-4c2d-83d5-0b1ac5cec792&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=1504027b-a8d8-4c2d-83d5-0b1ac5cec792&groupId=38364).

<sup>14</sup> For the 2006 listing, the State first assigned the “assessment units” currently used to define the LCFRE as the portion of the river from upstream of Toomers Creek to a line across the river between Lilliput Creek and Snows Cut.

<sup>15</sup> NC DENR, *North Carolina Water Quality Assessment and Impaired Waters List (2006 Integrated 305(b) and 303(d) Report) 54* (May 17, 2007).

<sup>16</sup> NC DENR, *North Carolina 303(d) List- 2006 19* (June 19, 2007), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=2648fa39-0975-4b27-8181-b0927ec2a43d&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=2648fa39-0975-4b27-8181-b0927ec2a43d&groupId=38364).

In October 2008, DENR staff considered five “Options for Addressing Dissolved Oxygen in the Lower Cape Fear River.”<sup>17</sup> One of the options considered was “reclassification” but agency staff observed “[r]eclassifying the water does not appear to be an option at this time because no current NC classification ‘fits’ better than the water’s existing SC designation. For example, Swamp waters have low velocities. The Cape Fear estuary is tidal and well mixed, not low-velocity.”<sup>18</sup> Staff noted that “[a] TMDL with a target of 5.0 mg DO/l is doable, but most likely could not be successfully implemented.” Ultimately, staff concluded that “[a] site-specific standard might be appropriate in this case” and noted “[i]f the dischargers in the watershed request a site-specific standard, DWR would support and oversee their development of the scientific rationale to derive it.”<sup>19</sup> At that point, rather than seek to *attain* existing water quality standards, the agency and regulated community began considering strategies to *change* the water quality standards.

The DO impairment persisted and water quality in the LCFR worsened while the agency continued to study the problem.<sup>20</sup> Although claiming that TMDL development was a high priority in 2008,<sup>21</sup> 2010,<sup>22</sup> and 2012,<sup>23</sup> the agency continued to evaluate how to avoid implementing a TMDL. In November 2012, DWQ met with stakeholders to consider a technical assessment of natural and anthropogenic sources of dissolved oxygen deficit in the Lower Cape Fear Estuary.<sup>24</sup> It was suggested that Kathy Stecker, a DENR staff member, lead the combined effort. Ms. Stecker indicated that “determining a rationale for site specific criteria was likely the

---

<sup>17</sup> E-mail from Kathy Stecker, NC DENR, to Elizabeth Kountis, NC DENR (May 16, 2014) (noting the options were prepared for a discussion with Coleen Sullins, then-Director of the Division of Water Quality).

<sup>18</sup> *Id.* Other rejected options included conducting a use attainability analysis or authorizing a temporary variance from water quality standards. *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> By 2008, the LCFR was impaired by violations of standards for DO, pH, nickel, copper, and turbidity. NC DENR, *2008 North Carolina Integrated Report Categories 4 and 5 (Impaired Waters List)* 14 (March 10, 2010), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=9f453bf9-2053-4329-b943-6614bd4e709a&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=9f453bf9-2053-4329-b943-6614bd4e709a&groupId=38364).

<sup>21</sup> *Id.*

<sup>22</sup> NC DENR, *NC 2010 Integrated Report Categories 4 and 5 Impaired Waters* 16 (Aug. 31, 2010), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=8ff0bb29-62c2-4b33-810c-2eee5afa75e9&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=8ff0bb29-62c2-4b33-810c-2eee5afa75e9&groupId=38364). By 2010, the use of the LCFR was no longer impaired by violations of the water quality standard for nickel.

<sup>23</sup> NC DENR, *2012 North Carolina 303(d) Lists- Category 5* 20 (Aug. 10, 2012), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=9d45b3b4-d066-4619-82e6-ea8ea0e01930&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=9d45b3b4-d066-4619-82e6-ea8ea0e01930&groupId=38364).

<sup>24</sup> CH2M Hill, Meeting Summary, Technical Assessment of Natural and Anthropogenic Sources of Dissolved Oxygen Deficit in the Lower Cape Fear Estuary (Nov. 7, 2012).

most feasible approach” and would be beneficial because it would “support aquatic life, allow for effective permitting, and provide acceptable limits for dischargers.”<sup>25</sup> The agency and regulated community continued to evaluate this approach until early 2014.

In January 2014, the Chairman of the Water Quality Committee of the North Carolina Environmental Management Commission reviewed the list of impaired waters in North Carolina and opined to DWR staff that it “may be worth taking a look” at “streams that are not classified as Swamp Waters but probably should be.”<sup>26</sup> He expressed concern that “if you do not have the classification correct then you could call a stream impaired when it is really not and could require much more [wastewater] treatment for a discharger than may be necessary.”<sup>27</sup> In response, Ms. Stecker noted that reclassification was not necessary to account for naturally low DO and pH.<sup>28</sup> According to Ms. Stecker, the agency accounted for naturally low DO or pH in other ways when preparing the 303(d) list; she observed:

Our solution doesn't involve rulemaking. The standards include an “out” for natural conditions, and we have developed a protocol that EPA concurs with. . . . We have successfully de-listed waters with naturally low DO and/or pH, and we've found others that really are impaired and developed TMDLs for those. . . . [I]f we suspect naturally low DO or pH, we don't put it on the list, but in Category 3. Those that we're working on in Category 5 have been there for a long time.<sup>29</sup>

Surmising that the WQC Chairman was primarily concerned with protecting dischargers, another DWQ staff member responded,

The natural waters determination doesn't always get the dischargers off the hook. For instance, in the lower Cape Fear it gets tricky because modeling shows that

---

<sup>25</sup> *Id.*

<sup>26</sup> E-mail from Steve Tedder, NC EMC, to Dianne Reid, NC DENR (Jan. 28, 2014).

<sup>27</sup> *Id.*; 15A N.C. Admin. Code 02B .0220(5), (12) (permitting lower pH and DO standards for Class SC waters with the supplemental “swamp waters” classification).

<sup>28</sup> E-mail from Kathy Stecker, NC DENR, to Dianne Reid, NC DENR (Jan. 28, 2014) (responding to Tedder's suggestion); *see also* 15A N.C. Admin. Code 02B .0205 (stating that “natural waters may on occasion, or temporarily, have characteristics outside of the normal range established by the standards” and “water quality standards will not be considered violated when values outside the normal range are caused by natural conditions).

<sup>29</sup> *Id.*

even if we treat it like swamp water, the combined discharges still lower the DO too much and need to be further reduced.<sup>30</sup>

It is unclear whether the WQC Chairman nonetheless suggested the reclassification approach to the members of the Lower Cape Fear River Program (i.e., the members of the regulated community with which the agency had been working for years to address the DO impairment in the LCFR). However, before the next meeting of the WQC, that group submitted a request for reclassification of the LCFR as “swamp waters.”<sup>31</sup>

In response, the agency ultimately proposed reclassification of the LCFR as “swamp waters.” In tandem with this reclassification, the agency proposed the water quality management plan under consideration. In the following sections, we address concerns regarding this management plan.

## II. Intentional Ineffectiveness: Crafting a Plan to Minimize Required Action

Perhaps the most obvious problem with the proposed management plan is its intentionally limited effect. Ordinarily, water quality management plans are adopted “to attain, maintain or enhance water quality” and should include “specific actions deemed necessary . . . to protect the water quality or the existing uses.”<sup>32</sup> Yet the agency concedes that the management plan for the LCFR is *not intended to improve water quality*.<sup>33</sup> Nor is it truly intended to *maintain* water quality: it starts from the premise, derived from the reclassification, that it is acceptable for standards for pH and DO in the river to be lowered. Instead, the plan was crafted to have the minimum impact on the regulated community, and hence the least benefit to water quality. So successful was the agency in this regard that it concedes the management plan will have no effect whatsoever on the status quo.<sup>34</sup>

---

<sup>30</sup> E-mail from Dianne Reid, NC DENR, to Steve Tedder, NC EMC (Jan. 28, 2014).

<sup>31</sup> Chris May, Request for Reclassification of a Portion of the Lower Cape Fear River with the Supplemental Swamp Classification (Mar. 5, 2014).

<sup>32</sup> 15A N.C. Admin. Code 02B .0227(a).

<sup>33</sup> “The proposal does not include language about correcting or reducing pollution as it is not designed to be a water quality restoration plan.” NC DENR, *Report of Proceedings on the Proposed Reclassification of a Cape Fear River Segment, in Brunswick and New Hanover Counties (Broad River Basin) From SC to SC Sw with a Water Quality Management Plan* 10 (Feb. 5, 2015), [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=866ee647-ef8a-4912-8d36-06f26e6b1356&groupId=61581](http://portal.ncdenr.org/c/document_library/get_file?uuid=866ee647-ef8a-4912-8d36-06f26e6b1356&groupId=61581).

<sup>34</sup> *Id.* at 11 (“No changes to the current monitoring strategy as well as the current permitting and compliance strategies for the subject waters will occur due to this proposal.”).

First, the plan makes no attempt to regulate nonpoint source pollution. Most notably, the plan does not address the contribution of pollutants from the Concentrated Animal Feeding Operations (CAFOs) in the Cape Fear River basin, which produce 50 percent of North Carolina's swine and large numbers of poultry.<sup>35</sup> The State should not disregard scientific analysis showing that, when waste management practices at CAFOs are poorly regulated, "large amounts of nitrogen and phosphorus enter the environment through runoff, percolation into groundwater, and volatilization of ammonia,"<sup>36</sup> and can exacerbate low DO (and pH) levels. Indeed, according to the EPA, hypoxia (i.e., low DO) "is regulated primarily by controlling nutrients (largely nitrogen) and other oxygen-demanding wastes."<sup>37</sup> North Carolina implicitly agreed with this observation by proposing a management plan focused exclusively on controlling BOD, DO, and ammonia from point sources. Yet, the proposed management plan imposes no limit on nonpoint source loading of nutrients or oxygen-demanding waste in the LCFR; nor does it address nutrient loading in upstream tributaries.

It is particularly ironic that the plan addresses only to point sources, and disregards nonpoint sources, since the supposed justification for reclassification of the river was that *point sources were not the cause* of observed violations of water quality standards.<sup>38</sup> Moreover, the agency intentionally excluded some point sources from the requirements proposed under the plan. Most obviously, the plan does not require any pollution reduction from existing facilities.<sup>39</sup> Initially, agency staff opined that "whatever goes into place for DO and pH may likely affect all discharges, whether new, expanding, renewals, etc."<sup>40</sup> However, the plan was revised to exclude existing facilities when research revealed the inability of existing facilities to comply with the

---

<sup>35</sup> Michael A. Mallin & Lawrence B. Cahoon, Industrialized Animal Production—A Major Source of Nutrient and Microbial Pollution to Aquatic Ecosystems, 24 *Population and Environment* 369, 369 (2003).

<sup>36</sup> *Id.* at 379.

<sup>37</sup> U.S. EPA, *Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras*, at v (Nov. 2000), [http://water.epa.gov/scitech/swguidance/standards/upload/2007\\_03\\_01\\_criteria\\_dissolved\\_docrriteria.pdf](http://water.epa.gov/scitech/swguidance/standards/upload/2007_03_01_criteria_dissolved_docrriteria.pdf).

<sup>38</sup> Chris May, Request for Reclassification of a Portion of the Lower Cape Fear River with the Supplemental Swamp Classification (Mar. 5, 2014).

<sup>39</sup> E-mail from Tom Belnick NC DENR, to Elizabeth Kountis, NC DENR (April 16, 2014) ("I don't anticipate any changes to current NPDES permit limits."); e-mail from Ken Pickle, NC DENR, to Elizabeth Kountis, NC DENR (Apr. 17, 2014) ("I don't think any of our permittees (stormwater permittees, or wastewater dischargers under a permit administered by the Stormwater Permitting Program of DEMLR) would be impacted by the re-classification.").

<sup>40</sup> E-mail from Elizabeth Kountis, NC DENR, to Jim Gregson, NC DENR (May 19, 2014).

first draft of the plan.<sup>41</sup> Also, before proposing a plan applicable to only new or expanding facilities, the agency confirmed that there were no pending applications for new or expanded facilities<sup>42</sup> and that the existing facilities anticipating expansion already had permission to expand.<sup>43</sup>

The scope of the management plan was further curtailed when concern was expressed that the plan might apply to facilities authorized to discharge under general permits. Although early drafts proposed to manage *all* new or existing NPDES discharges, the plan was modified to reference only “individual” permits. Yet, even after drastically limiting its applicability, the agency was not finished reducing the plan’s impact of the plan on the status quo.

The agency concedes that, because the LCFR is designated as a Primary Nursery Area, it is entitled to additional protection due to its important role in supporting aquatic life.<sup>44</sup> However, although the agency claims the management plan sets limits “similar to the limits for High Quality Waters,”<sup>45</sup> in truth the plan affords less protection.

Ordinarily, new or expanded wastewater discharges into high-quality waters must comply with the following limitations designed to control the discharge of oxygen-consuming waste:

---

<sup>41</sup> See e-mail from Jim Gregson, NC DENR, to Elizabeth Kountis, NC DENR (May 21, 2014) (“Of the eight existing facilities, the three domestic plants currently have BOD or CBOD limits of 30 and 25, respectively. . . . None of the three Domestic plants would likely be able to meet a BOD limit of 5 mg/L without significant upgrades including filters. Two of the three domestic plants currently do not have Ammonia limits. The one that does (NC0065480) has a monthly ave. limit of 20 mg/l and a daily max. of 35. . . . I don’t think any of the three domestic plants could currently meet an Ammonia limit of 1 mg/l.”); see also e-mail from Bill Kreutzberger, CH2M, to Jeff Manning, NC DENR (June 5, 2014) (“The problem with the statement is that the current cumulative permitted discharge[s] cause a decline of 0.2 to 0.3 mg/L below natural conditions. So the reference needs to be that the increase in loading from *new or expanding dischargers* can cause no more than a 0.1 mg/L decline in DO.” (emphasis added)).

<sup>42</sup> “I understand that there are no proposed discharge permits for new facilities or expansion of existing facilities that your office is currently working on for this segment.” E-mail from Elizabeth Kountis, NC DENR, to Jim Gregson, NC DENR (May 19, 2014); see also e-mail from Elizabeth Kountis, NC DENR, to Tom Belnick, NC DENR (July 10, 2014).

<sup>43</sup> “Currently there are 4 NPDES-permitted dischargers that discharge oxygen-consuming waste to the proposed SW reclass segment. Of these facilities, 3 have already received phased permit limits for future expansions.” E-mail from Tom Belnick, NC DENR, to Jeff Manning, NC DENR (June 16, 2014).

<sup>44</sup> NC DENR, Report of Proceedings on the Proposed Reclassification of a Cape Fear River Segment, in Brunswick and New Hanover Counties (Broad River Basin) From SC to SC Sw with a Water Quality Management Plan a 3; see also 15A N.C. Admin. Code 02B .0101(e)(5).

<sup>45</sup> NC DENR, Report of Proceedings on the Proposed Reclassification of a Cape Fear River Segment, in Brunswick and New Hanover Counties (Broad River Basin) From SC to SC Sw with a Water Quality Management Plan a 3.

Effluent limitations shall be as follows: BOD<sub>5</sub> = 5 mg/l, NH<sub>3</sub>-N = 2 mg/l and DO = 6 mg/l. More stringent limitations shall be set, if necessary, to ensure that the cumulative pollutant discharge of oxygen-consuming wastes shall not cause the DO of the receiving water to drop more than 0.5 mg/l below background levels, and in no case below the standard.<sup>46</sup>

However, the management plan for the LCFR was designed to impose less stringent limits on oxygen-consuming waste. First, because industrial dischargers may not be able to meet the normal BOD and NH<sub>3</sub>-N limits for HQW waters, an additional provision was added to exempt them from such limits.<sup>47</sup> Even more concerning is the plan's failure to consider background levels and/or the actual water quality standards applicable to the river.

Here, the evolution of the relevant language bears emphasis. As initially drafted, the water quality management plan for the LCFR was designed to prevent a drop in DO "below the standard." Then the language was amended to prohibit a drop below the "natural conditions." A subsequent draft prohibited a drop below the "modeled natural conditions." And, finally, the proposed language eschews any reference to the standards or natural conditions and instead uses "modeled in-stream dissolved oxygen at total permitted capacity for all discharges" as the baseline against which to measure the effect of a proposed permit.<sup>48</sup>

In other words, instead of considering actual standards and real data, the agency proposes to evaluate the impact of permitted activity based solely on modeling; this approach will have concerning effects on both permitting decisions and future assessments of use impairments. This novel approach appears to be a result of the agency's continued inability (despite a decade of trying) to determine the natural background levels of DO in the segment.<sup>49</sup> Indeed, e-mails

---

<sup>46</sup> 15A N.C. Admin. Code 02B .0224(b)(i).

<sup>47</sup> E-mail from Tom Belnick, NC DENR, to Elizabeth Kountis, NC DENR (Aug. 3, 2015) ("The site-specific BAT language for industrials goes back to at least the 2000 Cape Fear River Basin Plan, where it was recognized that industries might not be able to achieve BOD = 5 mg/l and NH<sub>3</sub>-N = 2 mg/l.").

<sup>48</sup> Notably, the plan does not require consideration of the lower pH that could result from these discharges.

<sup>49</sup> The reluctance to rely on data to identify a change in DO of 0.1 mg/L might also result from the margin of error currently allowed for reporting DO results in laboratory tests. DO results must be reported to the nearest 0.1 mg/L with an accuracy of +/- 0.5 mg/L. North Carolina Wastewater/Groundwater Laboratory Certification Approved Procedure for the Analysis of Dissolved Oxygen (DO) (Apr. 2013).

exchanged within the agency noted the agency's inability to identify background conditions<sup>50</sup> and stated "using the model would be a totally different thing."<sup>51</sup>

Even worse, the agency fails to clarify in the management plan any quality assurance requirements for the modeling in question. Language was specifically omitted from early drafts that would have required modeling results to be "demonstrated," that would have required a person to "obtain Division of Water Resources review and approval of any monitoring study plan and description of the modeling framework to be used prior to commencement of such a study," and that would have required the study plan and modeling framework to "meet any Division requirements for data quality and model support or design in place at that time."

Understandably, the EPA expressed reservations about the approach contemplated in the proposed water quality plan. One federal regulator noted:

When other states have adopted a 0.1 mg/L type provision, it has been a provision that applies to all implementing programs and has been provided as an amount of change from background condition. And even then the background condition has to be specifically defined before the provision can be used to deviate from the natural condition.<sup>52</sup>

Still, for all the aforementioned problems with the contents of the plan, perhaps the most destructive is the failure to include specific protections for the use of the river by aquatic life. Again, early drafts considered such provisions, and the agency apparently considered establishing a threshold for DO below which the river would not be allowed to fall. Indeed, some drafts even included different DO thresholds designed to protect specific species, including striped bass and endangered sturgeon. Ultimately, however, none of these laudable attempts to protect the designated uses of the river was included in the final management plan.

In other words, after years of observing that low DO impaired the use of the LCFR by aquatic life, the agency now proposes to reclassify the river as swamp waters, removing any floor for DO, and refrain from establishing a new minimum DO standard through the associated

---

<sup>50</sup> E-mail from Cam McNutt, NC DENR, to Jeff Manning, NC DENR (June 4, 2014) ("We do not know what natural conditions DO level is so no assessment decision is made.").

<sup>51</sup> E-mail from Cam McNutt, NC DENR, to Jeff Manning, NC DENR (June 5, 2014) ("In the past we have not assess[ed] DO in Sw waters. Using the model would be a totally different thing.").

<sup>52</sup> E-mail from Lauren Petter, US EPA, to Elizabeth Kountis, NC DENR (Aug. 7, 2015).

management plan.<sup>53</sup> In the following section, we address the impropriety of ignoring protection of aquatic life in the LCFR.

### III. Prioritizing Refuse over Use: Sacrificing Aquatic Life Protection to Satisfy Dischargers

The water quality standards associated with the “swamp waters” classification are designed to protect the use of waters for the propagation and survival of aquatic species that naturally occur in swamp waters.<sup>54</sup> Specifically, the EMC allows certain swamp waters to have higher acidity (i.e., low pH) and lower dissolved oxygen (DO) concentrations.<sup>55</sup> Class SC waters with the supplemental “swamp waters” classification “may have a pH as low as 4.3 if it is the result of natural conditions.”<sup>56</sup> Though the agency has publicly disavowed plans to lower DO or pH standards, internal communications reveal that this is the anticipated effect,<sup>57</sup> or even primary motivation,<sup>58</sup> of the proposed action. A water quality management plan presupposing

---

<sup>53</sup> This issue was a particular concern of the US Fish and Wildlife Service. See letter from Tom Augspurger, USFWS, to Elizabeth Kountis, NC DENR (March 3, 2015) (expressing “concern that a Sw classification, allowing lower DO if caused by natural conditions, might make it more difficult to determine use support related to DO in the future without some mechanism to define a new lower bound on DO indicative of background conditions”).

<sup>54</sup> In contrast, other supplemental classifications result in application of more stringent water quality standards. See, e.g., 15A N.C. Admin. Code 02B .0211(4) (more stringent freshwater chlorophyll-a standards for nutrient-sensitive waters and trout waters); *id.* 02B.011(6) (more stringent DO standards for trout waters); *id.* 02B .0211(19) (toluene standard applicable only to trout waters); *id.* 02B .0211(21) (more stringent turbidity standard for trout waters); *id.* 02B .0220(3) (more stringent saltwater chlorophyll-a standards for nutrient sensitive waters and trout waters); *id.* 02B .0223 (requiring development of nutrient control strategies in nutrient sensitive waters); *id.* 02B .0224 (stating standards applicable to high-quality waters); *id.* 02B .0225 (stating standards for outstanding resource waters). The State’s anti-degradation policy is also stricter for waters classified as high-quality waters or outstanding resource waters. *Id.* 02B .0201.

<sup>55</sup> 15A N.C. Admin. Code 02B .0211(6), (14) (permitting lower pH and DO standards for Class C waters with the supplemental “swamp waters” classification); 15A N.C. Admin. Code 02B .0220(5), (12) (permitting lower pH and DO standards for Class SC waters with the supplemental “swamp waters” classification).

<sup>56</sup> *Id.*

<sup>57</sup> See e.g., e-mail from Elizabeth Kountis, NC DENR, to Jim Gregson, NC DENR (May 19, 2014) (“Please note that this reclassification will most likely result in something less strict than what is currently required for DO and pH, so those facilities having a difficult time reaching 5 mg/l and the acceptable pH levels now may get some relief.”); e-mail from Elizabeth Kountis, NC DENR, to Tom Belnick, NC DENR (Apr. 17, 2014) (“My understanding is that a Sw reclass . . . would remove the DO and pH impairments for 18-(71)a.”).

<sup>58</sup> E-mail from Elizabeth Kountis, NC DENR, to Jeff Manning, NC DENR (May 9, 2014) (“Kathy mentioned that an impairment couldn’t be lifted via use of .0227 only, that there would need to be

reclassification of the LCFR as swamp waters should include measures to ensure that the permissive lowering of DO and pH standards will not impair use of the water for aquatic life propagation and survival.

Mindful of the potential for lowering DO limits, a number of scientists expressed concern about the effects that the agency's proposed reclassification and associated water quality management plan for the LCFR would have on aquatic life. DEQ's own Division of Marine Fisheries objected to the proposed action because of anticipated impacts on fish species.<sup>59</sup> A rather blunt assessment was offered by the National Oceanic and Atmospheric Association (NOAA): "Reclassifying the lower Cape Fear is a bad idea."<sup>60</sup>

For the most part, the concern centered around effects that the proposal would have on anadromous species. In late winter, species including striped bass, Atlantic sturgeon, and American shad migrate from the ocean and lower Cape Fear estuary to spawn upstream in the main stem of the Cape Fear River.<sup>61</sup> Although adult fish return to the ocean or lower estuary after spawning, juveniles remain in nursery habitats through the summer before migrating seaward in late fall.<sup>62</sup> As previously noted, the LCFR includes habitat designated as primary nursery areas by the Division of Marine Fisheries (DMF).<sup>63</sup> Primary nursery areas (PNAs) are those "in the estuarine system where initial post-larval development takes place" and "populations are uniformly early juveniles."<sup>64</sup> The affected segment is also designated as an anadromous fish spawning area (AFSA) by DMF and the Wildlife Resources Commission.<sup>65</sup> This means "evidence of spawning anadromous fish has been documented in [DMF] sampling

---

something tagged onto a water's current classification and/or a change in the classification [sic] in order to have it delisted (that tag could reference .0227 perhaps).")

<sup>59</sup> E-mail from Anne Deaton, NC DENR, to Elizabeth Kountis, NC DENR (July 8, 2014) ("DMF does not support the reclassification due to the concentration of not only sturgeon in the river, but use by a diversity of other anadromous and estuarine fish species.").

<sup>60</sup> E-mail from Fritz Rohde, NOAA, to Stephania Bolden, NOAA (May 20, 2014) (asking recipient for "reports that document impacts of low DO and low pH on sturgeon").

<sup>61</sup> Cape Fear River Partnership, Cape Fear River Basin Action Plan for Migratory Fish 18 (April 2013), available at <http://www.habitat.noaa.gov/protection/capefear/pdf/CapeFearActionPlan.pdf>.

<sup>62</sup> Id.

<sup>63</sup> 15A N.C. Admin. Code 03R .0103.

<sup>64</sup> 15A N.C. Admin. Code 03I .0101; see also 15A N.C. Admin. Code 02B .0202 ("Primary Nursery Areas (PNAs) are tidal saltwaters which provide essential habitat for the early development of commercially important fish and shellfish and are so designated by the Marine Fisheries Commission.").

<sup>65</sup> 15A N.C. Admin. Code 03R .0115(25); see also Division of Marine Fisheries, Anadromous Fish Spawning Areas (AFSA): Cape Fear River Area, Map 7, [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=f810ae29-ea4d-4801-a04f-850ff2bc4467&groupId=38337](http://portal.ncdenr.org/c/document_library/get_file?uuid=f810ae29-ea4d-4801-a04f-850ff2bc4467&groupId=38337).

records through direct observation of spawning, capture of running ripe females, or capture of eggs or early larvae.”<sup>66</sup>

Low dissolved oxygen levels can be particularly harmful in spawning and nursery areas because hypoxia “causes substantial mortality of developing embryos.”<sup>67</sup> For this reason, EPA recommends more stringent dissolved oxygen criteria for the early life stages of both coldwater and warmwater fish.<sup>68</sup> Multiple scientists commenting on the proposed management strategy for the LCFR expressed concern about its impact on fish in early life stages.<sup>69</sup>

In addition to playing a role in the life cycles of multiple fish species, the lower Cape Fear River is home to two endangered species of sturgeon, suggesting a need for more stringent environmental protection.<sup>70</sup> “Maintenance and recovery of the water quality conditions required to sustain and recover federally-listed threatened and endangered aquatic animal species

---

<sup>66</sup> Anadromous fish spawning areas are those “where evidence of spawning anadromous fish has been documented in Division sampling records through direct observation of spawning, capture of running ripe females, or capture of eggs or early larvae.” 15A N.C. Admin. Code 03I .0101(4)(b).

<sup>67</sup> Denise L. Brietburg et al, Hypoxia, Nitrogen, and Fisheries: Integrating Effects Across Local and Global Landscapes, 1 Annual Review of Marine Science 333 (2009) (“Developing embryos are particularly sensitive because they lack the ability to behaviorally respond to low oxygen and because oxygen must diffuse across the chorion that encases the embryo.”), <http://moritz.botany.ut.ee/~olli/eutrsem/Breitburg09.pdf>.

<sup>68</sup> US EPA, *Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras*, app. I (Nov. 2000), [http://water.epa.gov/scitech/swguidance/standards/upload/2007\\_03\\_01\\_criteria\\_dissolved\\_docrriteria.pdf](http://water.epa.gov/scitech/swguidance/standards/upload/2007_03_01_criteria_dissolved_docrriteria.pdf).

<sup>69</sup> E-mail from Tom Augspurger, US FWS, to Elizabeth Kountis, NC DENR (April 23, 2014) (“[P]ublished information on desirable levels of dissolved oxygen for good striped bass production indicate survival of striped bass eggs and larvae are reduced at dissolved oxygen levels from 4 to 5 mg/L (Bain and Bain 1982) and that optimal ranges for larvae and juveniles are >6 to 12 mg/L (Hill et al. 1989; Nicholson et al. 1990).”); *id.* (“DO concentrations higher than the standard of 5 mg/L are desirable for spawning areas. The national dissolved oxygen criteria for sensitive life-stages in non-salmonid waters is a daily minimum of 5 mg/L and a weekly average of 6 mg/L. . . . At concentrations below these, larval mortality, altered growth, and behavioral changes have been reported in both field and lab studies.”); e-mail from Brian Kreiser, Univ. of Southern Miss., to Gary Kreiser, NC DENR (May 22, 2014) (“I don’t know where potential spawning grounds might be relative to the area they want to classify as a swamp, but that would be an important consideration. The early life stages are probably not going to be as hypoxia tolerant as adults or won’t be able to behaviorally avoid those areas.”).

<sup>70</sup> See Mary L. Moser & Steve W. Ross, Habitat Use and Movements of Shortnose and Atlantic Sturgeon in the Lower Cape Fear River, North Carolina, 124 Transactions of the American Fisheries Society 225 (1995).

contributes to the support and maintenance of a balanced and indigenous community of aquatic organisms and thereby protects the biological integrity of the waters.”<sup>71</sup>

First, the lower Cape Fear is home to the Atlantic sturgeon, a species that NOAA’s National Marine Fisheries Service first listed as endangered in 2012. Although the harvest of Atlantic sturgeon has been banned since 1991, the Atlantic States Marine Fisheries Commission (ASMFC) has stated that fishery management measures alone will not sustain stocks of Atlantic sturgeon without sufficient quality and quantity of habitat. As such, it bears emphasis that the estuarine waters of the lower Cape Fear river are precisely the type where juvenile Atlantic sturgeon “for months to years before emigrating to open ocean.”<sup>72</sup> Moreover, ASMFC studies demonstrate that DO concentration is a “key habitat parameter[] for the structuring of juvenile Atlantic sturgeon habitat.”<sup>73</sup>

The Lower Cape Fear also hosts a population of shortnose sturgeon, a species recognized by the federal government as endangered in 1967 and subject to a fishing moratorium since 1991. Juvenile shortnose sturgeon tend to locate in estuarine waters such as those in the LCFR. Consequently, “protection of essential habitats, especially nursery/summer habitats, from human caused dissolved-oxygen reductions and other impacts is critical.”<sup>74</sup>

A number of scientists urged the agency not to subject endangered sturgeon species to additional environmental stress by allowing lower dissolved oxygen in the LCFR. One sturgeon specialist noted, “given their benthic nature, DO requirements, and tendency for the Cape Fear to have lower DO events I would imagine they are already often experiencing DO close (or low enough) to killing them.”<sup>75</sup> A NOAA scientist observed that, “In habitats with DO less than 4.7 mg/L, young of year Atlantic sturgeon experience a loss in growth.”<sup>76</sup> Another noted that “DO

---

<sup>71</sup> 15A N.C. Admin. Code 02B .0110.

<sup>72</sup> Atlantic Marine Fisheries Commission, *Habitat Addendum IV to Amendment I to the Fishery Management Plan for Atlantic Sturgeon 2* (Sept. 2012), [http://www.asmfc.org/uploads/file/sturgeonHabitatAddendumIV\\_Sept2012.pdf](http://www.asmfc.org/uploads/file/sturgeonHabitatAddendumIV_Sept2012.pdf).

<sup>73</sup> *Id.* at 3.

<sup>74</sup> Mark R. Collins et al, Primary Factors Affecting Sturgeon Populations in the Southeastern United States: Fishing Mortality and Degradation of Essential Habitats, 66 *Bulletin of Marine Science* 917, 917 (2000), available at

<sup>75</sup> E-mail from Joseph Facendola, NC DMF, to Bennett Wynne, NC WRC (June 2, 2014) (e-mail forwarded by Chip Collier, NC DMF to Adriene Weaver, NC DENR on June 4, 2014); *see also id.* (opining that “reduced WQ standards in the lower cape fear will have negative impacts on the sizes of sturgeon that we have movement data for, and I suspect that it could have a greater impact on YOY that we have no data for (and are far less mobile).”).

<sup>76</sup> E-mail from Fritz Rohde, NOAA, to Elizabeth Kountis, NC DENR (May 13, 2014) (citing Secor and Niklitschek 2001).”

levels below 5.0 mg/L and ph of 4.3 would be problematic for sturgeons of either species” in the river because “[f]undamentally, sturgeons are adapted for life in big, well-flowing rivers with good oxygenation 6-9 mg/L and ph with[in] 0.5 units of neutral.”<sup>77</sup>

To protect aquatic life, the agency should fight against degrading water quality in the LCFR instead of capitulating at the behest of the regulated community. While polluters want the State to quit trying to protect the LCFR for use by aquatic life that requires “normal” pH levels above 6.8 and/or DO levels of above 5.0 mg/L, the agency should strive to manage the LCFR so as to provide for the best usage of the water body.

#### IV. Conclusion

For more than 30 years, the State has determined that the best usage of the lower Cape Fear by aquatic life is protected by the water quality standards for pH and DO associated with Class SC waters. For more than 15 years, the State has recognized that usage of the lower Cape Fear River by aquatic life is impaired by low DO concentrations. The State should not abandon efforts to return these waters to the conditions that support their best usage. Rather than adopt a water quality management plan that is designed to avoid necessary efforts to improve water quality, the State should continue to strive to “maintain, protect, and enhance water quality within North Carolina.”<sup>78</sup> Accordingly, we urge the agency to reject the proposed management plan.

Thank you for the opportunity to comment on this important matter.

Sincerely,



Will Hendrick  
Associate Attorney  
Southern Environmental Law Center

cc (by e-mail):

---

<sup>77</sup> E-mail from Kenneth Sulak, USGS, to Fritz Rohde, NOAA (May 20, 2014). This e-mail was forwarded to NC DENR on May 20, 2014. See e-mail from Fritz Rohde, NOAA, to Elizabeth Kountis, NC DENR (May 20, 2014).

<sup>78</sup> N.C. Gen. Stat. § 143-215.2(b).

Elizabeth Kountis, DENR-DWR Planning Section  
February 12, 2016  
Page 16

Frank Yelverton, Cape Fear River Watch  
Grady McCallie, North Carolina Conservation Network  
Gray Jernigan, Waterkeeper Alliance  
Kemp Burdette, Cape Fear River Watch  
Lauren Petter, USEPA- Region 4