

**PROGRESS ENERGY
YADKIN-PEE DEE RIVER PROJECT
TERRESTRIAL RESOURCES WORKING GROUP
ISSUES EVALUATION TEMPLATE
January 2004**

Issue No. 3: Water Quality Impacts to RTE Species

1. Description of Issue

There may be potential Project-related operational impacts to terrestrial plant and wildlife RTE species due to water quality degradation.

2. Project Effects

Dissolved oxygen (DO) concentrations in the tailwater reach below the Tillery Hydroelectric Plant have been previously documented to be occasionally below the North Carolina water quality standard of five mg/L. These DO sags occur during the summer months (June through September) when reservoir stratification occurs and hypolimnetic anoxia conditions occur. The North Carolina Division of Water Quality (NCDWQ) has listed Lake Tillery Dam to Turkey Top Creek (15.3 river miles) as impaired due to low DO concentrations in the summer months. This river reach has been identified by the State of North Carolina's 303(d) listing for impaired water bodies.

Water quality downstream of Lake Tillery is influenced locally by power plant operations with tributary inputs (e.g., Rocky River) playing a more significant role in influencing water quality with increasing distance downstream of the power plant. Other water quality effects, such as sedimentation, nutrient enrichment, and certain metals, are not the result of Project operations. Rather, these effects result from either point or non-point discharge sources located within the watershed. Reservoir stratification during the summer months results in anoxic hypolimnetic conditions, which may result in chemical reduction and increased concentrations of certain constituents.

Dissolved oxygen (DO) concentrations in the tailwater area below the Blewett Plant have, on occasion, been documented as being below the North Carolina water quality standard of five mg/L. These DO sags may be the result of stratification and hypolimnetic anoxia conditions in the reservoir. The North Carolina Division of Water Quality (NCDWQ) has listed the river reach from Blewett Falls Dam to Hitchcock Creek (6.3 river miles) as impaired due to low DO concentrations in the summer months. This river reach has been identified by the State of North Carolina's 303(d) listing for impaired water bodies¹.

Water quality below the Blewett Falls Lake may be influenced locally by powerhouse flows with tributary inputs and NPDES-permitted discharges playing a more significant role in influencing water quality with increasing distance downstream of the Project, particularly in South Carolina. Other water quality effects, such as sedimentation, nutrient enrichment, and the occurrence of certain metals, are not the result of Project operations. Rather, these effects result from either point or non-point discharge sources located within the watershed. However, reservoir

stratification during the summer months may result in anoxic hypolimnetic conditions, which, in turn, may result in chemical reduction and increased concentrations of certain constituents.

Due to the terrestrial nature of non-aquatic RTE species, temporary, localized water quality degradation influenced by power plant operations should not significantly affect terrestrial RTE species. There is no evidence of any such Project effects on terrestrial RTE species.

3. Applicable Existing Information

No specific information was identified regarding water quality-related impacts on terrestrial RTE species. However, provided below are general sources of information regarding the water quality associated with the project and information regarding project-related RTE species.

- Initial Consultation Document (Progress Energy 2003), Section 4.3, Water Quality--this section of the ICD presents water quality documentation on historical water quality studies at the project, sources of water quality impairments, water quality surveys performed by Progress Energy, etc.
- ICD (Progress Energy 2003), Section 4.6, Wildlife Resources, Rare, Threatened, and Endangered Species--this section provides information on RTE wildlife species found or documented to be located within/directly adjacent to the project boundary.
- Botanical and Terrestrial Wildlife Resources Study for Blewett Hydroelectric Plant (EA Engineering, Science, and Technology 2000), Section 2.5, Rare, Threatened, and Endangered Plant Species, and Section 3.4, Rare, Threatened, and Endangered Animal Species--these sections provide information on RTE botanical and animal species, respectively. Each of these sections provides information pertaining to listed (i.e., state/federal) plant and animal species found in the project area, or that were identified during surveys.
- An Assessment of the Bald Eagle Breeding Population along Lake Tillery and Blewett Falls Lake in North Carolina: 2002 Breeding Season (Watts and Bradshaw 2000)--this report provides information regarding an assessment of breeding bald eagles within the project area. No information regarding project related water quality impacts associated with bald eagles was documented within this report.
- Survey of Wading Bird Use and Great Blue Heron Nesting Activity in the Tailwater Area of the Tillery Hydroelectric Plant (CP&L 2002)--this report provides information regarding wading bird use at the tailwaters of the Tillery Hydroelectric Plant. In addition, information pertaining to bald eagle use of this area is presented.
- Montgomery County Natural Heritage Inventory (Bates 2001)--this document describes the county's natural areas, rare plant and animal species, and natural communities.
- Richmond County Natural Heritage Inventory (Sorrie 2001)--this document describes the county's natural areas, rare plant and animal species, and natural communities.
- North Carolina Water Quality Assessment and Impaired Waters List (NCDWQ 2003).

4. Study Needs

Progress Energy is not proposing to perform any studies related to this issue at this time.

Resource Working Group Overlap (check if applicable)

Water Resources Issue # 7, 8

Land Use and Recreation Issue # ____

Terrestrial Resources Issue # ____

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