

## Antidegradation Analysis Report – Cherokee Trout Farm

### Executive Summary

As required by Administrative Regulation Title 15, Subchapter B, Section 6.2.5, the Tribal DANR conducted an antidegradation analysis related to an expansion of Cherokee Trout Farm (NPDES#NC0054992). The first step in the analysis was to determine if the expansion would use additional assimilative capacity for any of the chemical parameters of concern being discharged. It was determined that all chemical parameters would not use additional assimilative capacity and the analysis was concluded at this point. An additional analysis was done regarding the additional flow the hatchery is proposing to use for operations. It was determined that this was using assimilative capacity and an additional analysis was performed to determine if a) the increased withdrawal was in the Tribe's interests and b) if there were any alternatives to the proposed increased withdrawal. The increase was found to be in the Tribe's interest and no alternatives were found. Antidegradation has been satisfied and the expansion is acceptable.

### Chemical Parameter Analysis

Significant chemical parameters ie., ammonia nitrogen, total phosphorus, and total nitrogen, were examined using a simple mass balance approach to determine if any additional assimilative capacity was being used by the proposed expansion. The analysis determine that no additional assimilative capacity was being used for the following parameters: turbidity, TN, TP, TAN and DO. Consistent with regulation 6.2.5.2, the antidegradation analysis for these parameters was concluded at this point.

### Flow Analysis

The expansion proposes an additional withdrawal of 1.5 MGD from Raven Fork. The Tribe has determined that this will degrade the flow regime within Raven Fork and that an additional analysis must be done to determine if a) the increased withdrawal was in the Tribe's interests and b) if there were any alternatives to the proposed increased withdrawal.

### Tribal Interest Test

Cherokee Trout Farm provides a socio-economic benefit to the tribe. Fish raised are sold commercially. The Tribe has in the past purchased fish from the hatchery to use for stocking Reservation Waters, to supplement stocking activities of the Tribal Trout Hatchery. Expansion of the farm is in the interest of the Tribe for these reasons.

### Alternatives Analysis

The Tribe examined possible alternatives to the expanded flow withdrawal with respect to flow in Raven Fork. The only identified alternative was to use groundwater as the source of the expansion. Groundwater tends to contain minerals that are not conducive to trout rearing. Removal of these minerals would entail additional treatment technology and costs. While these costs have not been explicitly calculated, the Tribe anticipates that such costs would be prohibitive.

### Conclusion

Cherokee Trout Farm has met all antidegradation conditions for the proposed expansion of the facility. The Tribal Environmental Office recommends the permit contain a provision for annual instream biomonitoring to assure that flow is not being altered in a way that affects aquatic life in Raven Fork between the intake and the discharge.