

Antidegradation Analysis Report – Tribal Hatchery

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 the Tribe's trout hatchery (NPDES#NC0052451). 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. In the initial antidegradation analysis, it was determined that all chemical parameters would not use additional assimilative capacity and the analysis was concluded at this point. However, based on public comment, the Tribal DANR re-examined this analysis and has determined that some chemical parameters will be increased based on a proposed increased feed rate. With this new information, an additional analysis was done regarding the nutrient parameters the hatchery is proposing to increase with this action. It was determined that this was using assimilative capacity and an additional analysis was performed to determine if a) the increased nutrient concentration and loading was in the Tribe's interests and b) if there were any alternatives to the proposed increased nutrients. 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. This supplements the previous antidegradation analysis conducted on the proposed increase flow for this discharge.

Chemical Parameter Analysis

Significant chemical parameters i.e., 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 determined that additional assimilative capacity was being used for these parameters as demonstrated by the following table:

Existing Estimated Downstream Quality at Critical Conditions

TSS	TN	TP	TAN
mg/L	mg/L	ug/L	mg/L
0.1249	0.0322	4.9	1.84

Estimated Downstream Quality at Proposed Expansion Conditions

TSS	TN	TP	TAN
0.1628	0.0391	5.9	2.23

The Tribe has determined that this will increase nutrient concentrations within Straight Fork and that an additional analysis must be done to determine if a) the increased nutrients are in the Tribe's interests and b) if there were any alternatives to the proposed increased pollutant concentrations.

Tribal Interest Test

The EBCI Hatchery provides a substantial economic benefit to the Tribe due to the stocking of Reservation Waters and subsequent tourist income from fisher people. Additionally, fish reared in the Hatchery provide a food source for Tribal members. Expansion of the Hatchery is in the interest of the Tribe to continue these two important aspects.

Alternatives Analysis

The Tribe examined possible alternatives to the increased nutrients in Straight Fork and the following were considered:

No Action Alternative

This alternative would involve not increasing feed rates beyond the previous permit application and, thereby, not increasing nutrient concentrations in the discharge. This alternative would prevent the increase in fish produced by the facility and would directly impact the interests to the Tribe as outlined above. This alternative is not acceptable based on the impacts to the Tribe.

Alternative Feed

All trout feeds have similar makeups to sustain and grow trout. Changing feed sources would not decrease the nutrients expected by this expansion.

Additional Treatment

Adding additional treatment for nutrient would involve significant capital costs to construct, operate, and optimize such a system. Additional considerations involving physical space and topography at the site also make such treatment unlikely to be viable. Compared to the small amount of degradation expected to occur with this expansion, the Tribe believes that the anticipated costs of such an upgrade would not be in the Tribal interests.

The Tribal DANR is currently considering construction of a semi-closed loop system for this hatchery. If funded, the operation of this type of system might lower overall loading to Straight Fork. As such, the Tribal DANR commits to reassessing the discharge and its impacts if this system is built.

Conclusion

The EBCI Hatchery has met all antidegradation conditions for the proposed expansion of the facility. The Tribal Environmental Office does not recommend an additional conditions related to nutrients above what is already in the draft permit.

As recommended in the previous antidegradation analysis for flow, 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 Straight Fork between the intake and the discharge.