

Benefits of a Waste Water Treatment Plant to Steelhead Habitat?

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Although waste water treatment plants (WWTPs) are often considered a primary point source for pollution degrading fish habitat, the city of Troy's WWTP located in the West Fork Little Bear (WFLB) Creek drainage of the Potlatch River basin appears to be a net benefit to steelhead habitat despite discharging excessive nutrient loads. Fish surveys conducted by the Idaho Fish and Game over the past 5 years have shown that the WFLB creek supports the highest concentration of juvenile steelhead in the entire Potlatch basin. Water samples taken downstream of Troy's WWTP indicate that during late summer months excessive nutrient loads lead to downstream reductions in dissolved oxygen levels below the Idaho state standard of 6 mg/l. In order to abide by the Clean Water Act the city of Troy will be required to either upgrade the plant or consider land application. In this project we used detailed water quality monitoring to understand current conditions and used a detailed physically-based water quality model (Qual2Kw) to examine the impacts of three potential management solutions. The monitoring data indicate that the dissolved oxygen levels improve within 1.5 km of the effluent point and that this water maintains good steelhead habitat for another 4 km downstream during a period of time when most streams in the Potlatch basin dry up. Chlorophyll and macro-invertebrate samples suggest that the nutrient loads from the treatment loads maintain productive habitat. Of the three management options land application would be the cheapest solution for the City of Troy however it would result in a net loss of ~5 km of steelhead habitat. This study provides an interesting example where management solutions driven by water quality standards need to be reevaluated so they avoid causing degradation of the ecosystem and where creative solutions are needed for ecosystem improvement.