

State evaluating advanced technologies to further clean up wastewater discharges across the state

Secondary sewage treatment, when first implemented decades ago, was a great step forward to improve water quality and protect human health. Federal and state laws require secondary sewage treatment at all municipal wastewater (sewage) treatment plants. Secondary treatment removes organic material and solids; however, it is not specifically designed to remove nutrients.

Nutrients from secondary wastewater treatment discharges, and from other sources such as runoff and rivers, contribute to low levels of dissolved oxygen, daily swings in pH (a measure of acidity or alkalinity of water), and algae blooms. These unhealthy water conditions can adversely affect fish and wildlife, aesthetics, recreation and navigation, and in extreme cases can pose risks to human and animal health due to toxic algae. Freshwater receiving waters are most sensitive to a type of nutrient called phosphorus, while marine waters are most sensitive to a counterpart, nitrogen.

Given the state's current and predicted population growth, wastewater flows and their accompanying supply of nutrients are on the rise and the trend is predicted to continue.

Since the state Department of Ecology (Ecology) and the federal Environmental Protection Agency (EPA) established secondary treatment requirements, society has made advances in treatment technology to achieve much greater removal of nutrients and, perhaps, at an economical cost.

Municipalities across the state are struggling to evaluate and make decisions about the types of treatment available. They are interested in the reliability and performance of different treatment options, capital and operating costs, and other factors related to removing nutrients to meet water quality standards.

MORE INFORMATION

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In October 2008, Ecology received EPA funding to conduct an evaluation of nutrient removal technologies at municipal wastewater treatment facilities across the state. As part of that funding, Ecology hired a consulting company to conduct an evaluation to identify the technical and economic issues related to the removal of nitrogen and phosphorus at municipal facilities.

The information generated by this evaluation will show what we can do about this problem and roughly what it will cost. **This evaluation is not an AKART (all known, available and reasonable technology) study.**

There are more than 300 wastewater treatment facilities in Washington State.

Ecology recognizes that issues related to upgrading treatment plants for nutrient removal are site and facility specific. Given the funding limitation and the timelines associated with this project, it was not possible for Ecology to make facility-specific evaluations for all of the wastewater treatment facilities in the state. Instead, Ecology is conducting this evaluation at approximately 30 sample facilities. Ecology requested existing facility information from these facilities and received generous voluntary assistance from these facility operators and managers.

As progress is made in this evaluation study, Ecology will share the results with the municipalities involved. Through feedback and assistance from municipalities, Ecology hopes to improve on the study methodology and assumptions. Ecology expects to have a final report in January 2010.