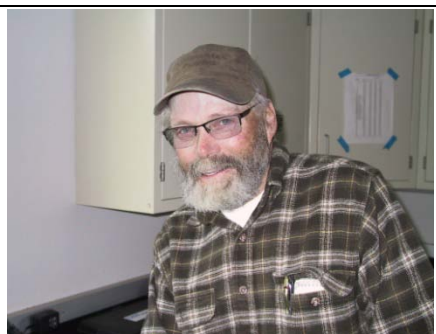


Pomeroy Wastewater Treatment Plant: Effluent Dissolved Oxygen Solution



*Pomeroy Treatment plant
Operator -Glenn Davis*

Introduction

Maybe it was listening to Don Ho that inspired Darrel Fleischman, the Department of Ecology's technical assistance specialist, and Glenn Davis, Pomeroy's wastewater treatment plant operator, to solve Pomeroy's dissolved oxygen problem. On the other hand, maybe it was just their wealth of experience; whichever it was, their "tiny bubbles" solution worked.

Pomeroy, a small town in Garfield County, Washington State, is required by its National Pollutant Discharge Elimination System (NPDES) permit to maintain a minimum level of dissolved oxygen in

its wastewater discharge. Pomeroy's treatment plant discharges wastewater effluent to Pataha Creek. Unfortunately, the effluent's dissolved oxygen concentration was consistently lower than the permit limit. After reviewing the situation, Darrel and Glenn came up with a cheap and reliable fix to the problem.

Problem

Pomeroy's NPDES Permit requires the treatment plant effluent to contain a minimum concentration of 6 milligrams of dissolved oxygen per liter of water (mg/L). Since the treatment plant was upgraded in 2002, the effluent dissolved oxygen concentration had been averaging from 4 to 5.8 mg/L, meaning they were at times out of compliance with their dissolved oxygen permit limit.

Project highlights

In January 2010, Darrel Fleischman met with the Pomeroy treatment plant operator, Glenn Davis, to discuss the options to solve the problem. Darrel and Glenn examined the plant's operation, evaluated the solutions, and decided that a blower, which would introduce tiny bubbles of oxygen into the effluent, was the best and most affordable option.

In March, Glenn purchased and installed a 1.25 horsepower blower along with some tubular fine bubble diffusers. Glenn shopped carefully and found a three-phase blower, which will save energy (and money) for the town compared to a single-phase unit.



1.25 Hp Blower

The blower was small and fit neatly in available space in a corner next to the effluent sampler. The bubble diffuser tubes were set into the wastewater channel just downstream of the UV disinfection unit. The purchase cost the town of Pomeroy only about \$1200.

Following installation and setup, the dissolved oxygen concentration in the effluent is staying above 6 mg/L, usually ranging from 6.1 to 7.1 mg/L.



The ability to keep the dissolved oxygen level well above the permit limit is a great benefit for the fish and other aquatic animals inhabiting Pataha Creek. During low flow and higher temperature months, the creatures in the creek have a difficult time surviving due to low oxygen levels, so this effort will be a positive step in creating a healthier habitat in Pataha Creek.

Partners

Darrel Fleischman and Glenn Davis, along with the support of the town council, teamed up to solve this problem.

For more information

For more information, please contact:

- Darrel Fleischman, Ecology Technical Assistance Specialist, 509-850-6463
- Glenn Davis, Pomeroy wastewater treatment plant operator, 509-843-3939



Bubbler at work in the effluent