

United States Environmental Protection Agency. *Restoring the Willamette River: Costs and Impacts of Water Quality Control*. Athens Georgia: 1976. (Reviewed by Aimee Furber)

The report addresses the “economic and energetic costs of constructing, operating, and maintaining the facilities which have significantly contributed to the improvement of water quality in the Willamette River and its tributaries over the last half century (prior to 1976)” (iii).

In order to maintain the water quality of the Willamette at-source waste water treatment must be required to keep the overall load of pollutants down and flow augmentation must provide enough volume to allow waste dilution and maintain stream temperatures and dissolved oxygen concentrations. More population or industrial growth requires greater efforts at wastewater treatment. The report suggests that the industries that have pre-treatment facilities be required to treat the waste water more rigorously. Low flow augmentation by the federal reservoir system is also important in maintaining water quality.

Pumping and post chlorination of municipal waste water requires large amounts of energy. Pumping requires about 25 percent of the energy needed to collect and treat the flows and some cities use more energy pumping flows than treating them. The post chlorination process is costly because of the expense to produce the chlorine. The report notes that significant energy has to be expended to maintain good water quality in the Willamette and questions whether some of this energy can be conserved.

The report also details seven methods taken after the 1930's decision to clean up the river. These are:

1. Primary wastewater treatment for mainstem municipalities
2. Sulfite waste liquor control by pulp and paper mills on the Willamette
3. Selective secondary treatment and accelerated progress in primary treatment
4. Secondary treatment for all lower-Willamette municipalities

(Methods 5-7 taken after the 1964 assessment)

1. General secondary treatment and year-round primary treatment at pulp mills
2. Secondary treatment established as minimum level
3. Specific waste discharge permits

The report gives details and history on each of these points.

Critique

The report was prepared by the Environmental Protection Agency, a credible source for pollution and energy studies. The EPA would be concerned with pollution on the river and also with conservation of energy.

The report is useful because it gives the history of pollution cleanup efforts on the Willamette. However, along with these efforts are concerns about sufficient funds and energy to support them. The report addressed this as well and suggested that the more expensive procedures be examined to see if they could be made more cost effective. This seems like a balanced way to look at this issue. The report shows what methods were being used prior to and during the 70's as well as some of the issues surrounding pollution clean up.

It is clear that more efforts needed to be taken, as seen in the 1978 waste study. However, the report speculates that “although not pristine, the Willamette River has been restored to a cleanliness unknown since the last century—probably close to that encountered by the early white settlers” (5). This demonstrates the contrast between the Willamette during the first half of the twentieth century and the latter.

I think that this report and then 1978 study complement each other nicely. Together they show what efforts had been made and what efforts need to be made.

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