

**Oregon Department of Agriculture, Soil and Water Division. *Willamette River Erosion Analysis Project* . Salem: Oregon Dept. of Agriculture, 1989. (Reviewed by Kyle Walker)**

The Oregon Department of Agriculture produced this document in order to report the effects of erosion and other factors that influence the Willamette River. The report gives a brief history of the Willamette and work performed on it before addressing erosion. According to the Department of Agriculture, riverbank erosion is occurring in three major ways: bank scour, bank failure resulting from surface or near surface soil conditions, and bank failure resulting from change in bank support.

Bank scour is caused by the loss of protective cover on the river's banks and increases in hydraulic power. Construction, livestock grazing, urban development, and agricultural development among other factors contribute to loss of protective cover, and hydraulic forces can increase due to channel configuration changes, increases in water depths, and extended times of high channel flows. In either case, friction resistance by the banks is decreased, which allows the channel to scour its banks. Bank failure resulting from surface or near surface soil conditions occurs when soils that readily accept water become oversaturated. Bank failure resulting from change in bank support commonly occurs when the riverbanks are 25 to 100 feet high. This happens when the banks experience undercutting by the channel to the point where the bank can no longer support itself. One failure, the authors report, can commonly cause 500 to 1000 tons of soil loss.

In order to combat these problems, the Department of Agriculture proposes multiple methods. These methods include the installation of revetments, which are facings of material designed to stabilize banks, jetties to deflect the flow of water away from the endangered bank, gravel management, and protection of riparian vegetation. A combination of all these factors could help prevent bank erosion on the Willamette.

## **Critique**

The Department of Agriculture provides a clear and very informative report on erosion problems in the Willamette and possible ways to remediate those problems. In fact, the report is quite detailed and provides sections about recreation, flooding, and water quality; for the purposes of this report, however, I chose to just focus on its section that explains erosion specifically. Anyone wishing to learn about erosion in the Willamette would enjoy this report, as the authors use clear language and express information in an organized manner. However, someone reading this report who knows nothing about erosion processes might be confused by some of the vocabulary, because the report does not define some of the terms associated with erosion and prevention (such as revetments). Even though this report is fifteen years old, it is still very relevant today. The information expressed in the report does not necessarily apply to a certain case; instead, it relates to general problems that the Willamette will undoubtedly continue to face. Though a more recent report might be more relevant because it could put these issues into a more contemporary context, the report's age does not diminish its importance or render it any less informative.

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