

What is Tailwater?

Is All Tailwater Bad?

Tailwater is a valuable resource – tailwater is often warmer than ground water, benefiting soils and crop growth and can be a valuable source of crop nutrients. Tailwater is often used to water livestock during irrigation season.

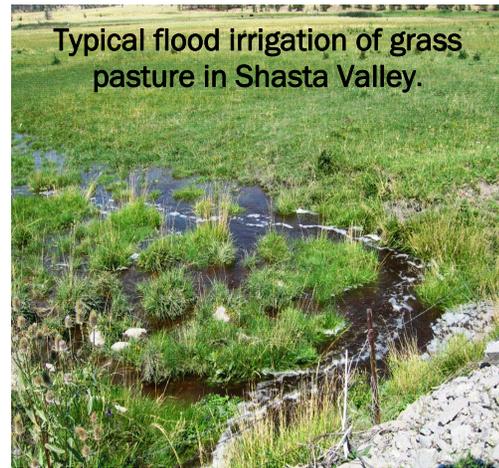
Managing tailwater is labor intensive. This is one reason ranchers and farmers have often been unable to completely control or reuse this valuable resource.

Tailwater can be a contributing factor to soil saturation, uneven poor pasture growth and limited livestock access during wet periods.

It can be a problem when it returns to the river/creek warmer than the river temperature in your stream. It can be a cooling agent if managed to help keep the river/creek or lake at temperatures that fish can thrive in.

According to the UC Farm Advisors Publication 8226, "Water running off the lower end of a field as part of normal irrigation practices is referred to as tailwater. Tailwater is most often associated with surface irrigation (furrow and border-strip irrigation)... Tailwater is necessary, especially in furrow irrigation, to adequately irrigate the lower end of a field since a sufficient infiltration time is required to allow the desired amount of water to infiltrate the soils."

(UCCE Pub 8225)



Typical flood irrigation of grass pasture in Shasta Valley.

Farm and ranch water quality management is a priority for state and federal agencies in that support California agriculture.

Contact the SVRCD, Farm Advisor, NRCS or your irrigation district for information and assistance. One of the best websites is the one at the UC Davis Cooperative Extension. <http://www.fwqp.ucanr.org/>



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Irrigation Tailwater Management

In the Shasta Valley

*Stewardship through
Collaboration*



Shasta Valley Tailwater Reduction Plan

The Tailwater Reduction Project includes the development of a watershed approach to guide efforts to reduce irrigation tailwater's negative impacts on water quality. As part of this effort, a detailed topographic aerial survey was conducted in 2008, which was used to identify all the "Tailwater Neighborhoods" in the Shasta Valley.

A tailwater neighborhood is defined as a geographic area or mini-basin; where several fields contribute to a single tailwater return stream.

These tailwater neighborhoods have been listed based on where they are in relation to key salmon rearing habitat and the potential of each run-off stream to impact water quality. The Tailwater Reduction Plan will inform the SVRCD, NRCS, and landowners about tailwater reduction projects that will be the best for water quality. The final report is due out in Spring 2011. It will be posted on the SVRCD's website, with an interactive map. This will help landowners to find types of tailwater reduction projects that are a good fit for their specific river section or neighborhood.

The Shasta Valley Resource Conservation District (SVRCD) was awarded a grant from the State Water Resources Control Board to implement the Tailwater Reduction Project.

Irrigation Management to Minimize Tailwater

- Reduce tailwater production/creation
- Improve irrigation delivery (efficiency)
- Improve irrigation application (distribution uniformity)
- Match irrigation to crop water needs by the use scheduling tools.
- Schedule irrigation before turning livestock into a field. Grazing right before irrigating can sometimes wash wet manure off the field. If you do graze before irrigation give the field a week before introducing water to allow patties to dry. This also reduces nutrient loss from the field.
- Recycle tailwater on your property to save money. It is often cheaper to pump water from a tailwater collection pond than from a well or the river.
- Work with your neighbors or irrigation district to make the best use of all tailwater without damaging crop production or relationships. Some tailwater can only be addressed by you and your neighbors working cooperatively.

Tailwater Facts:

Tailwater amount (rate and volume) is directly related to the method of irrigation, the soils and the labor available to manage it.

Flood irrigation is always going to produce some end water, or run off, often called tailwater.

Some furrow irrigation methods can reduce tailwater to perhaps 5%. Most flood irrigation methods in western Siskiyou County are often not that efficient. Wild flood irrigation is estimated to be about 50% by the Natural Resources Conservation Service (NRCS).

Contour or border flood irrigation can be 60 to 70% efficient as measured in the field by NRCS engineers.

Sprinkler irrigation usually does not produce run-off except under unusual conditions such as uneven topography or poorly matched sprinklers.

A good rule of thumb for tailwater recapture is 20% of the flood irrigation amount applied to a field. For example if a ditch delivers 1 cubic foot per second (CFS) to a field for 1 day for a total of 2 Acre Feet, the expected tailwater will be 20% of that 2 AF or 90 gallons per minute.

Managing tailwater can often include management of sediment, nutrients, and pesticides sources as well as irrigation and livestock.