

# RSB JC UPDATE

Spring 2003

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A PUBLICATION OF THE ROZA-SUNNYSIDE BOARD OF JOINT CONTROL  
P.O. Box 810 ♦ Sunnyside, WA 98944

## Water Quality Report: Progress Made During 2002 Season

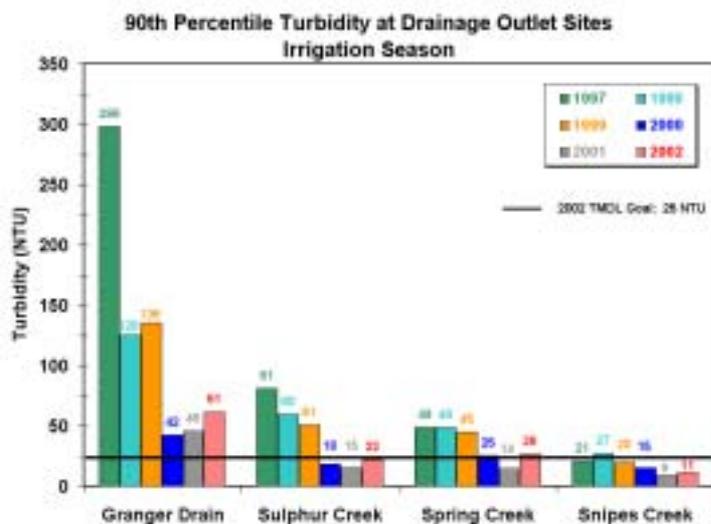


Chart 1: Turbidity at Drainage Outlets

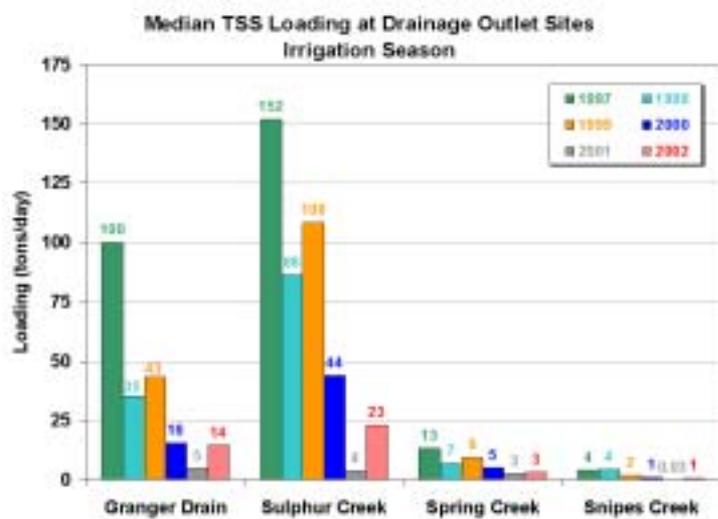


Chart 2: Median TSS Loading at Drainage Outlets

The year 2002 was a compliance year for the lower Yakima River basin, based upon the Washington State Department of Ecology's Total Maximum Daily Load (TMDL) for suspended solids. The TMDL process is used to help the lower Yakima River and its tributaries meet water quality standards. The loads are estimates of the amount of pollutants that the river can "safely" absorb without threatening the beneficial uses of the river. Results for the season are reported both as 'turbidity' and 'total suspended solids (TSS) loading'. For compliance with the TMDL, all major sites where irrigation waters drain back into the lower Yakima River must meet a turbidity goal of not more than 25 nephelometric turbidity units (NTU). Turbidity is a measurement of water clarity which directly relates to the amount of suspended solids in water. The TSS loading is the actual measured concentration of suspended solids multiplied by the discharge of the drain, reported in tons/day.

Turbidity was measured at the four drainage outlets to the lower Yakima River, biweekly during the irrigation season, and monthly during the non-irrigation season. For compliance purposes, the overall NTU for each drainage outlet is reported as "90<sup>th</sup> percentile" (90% of the individual

measurements lie below that value, and only 10% above). As illustrated by Chart 1, this goal was met at Sulphur Creek and Snipes Creek sites. Spring Creek was only 1 NTU over the goal of 25 NTU, and Granger Drain measured 61 NTU.

TSS loading is also calculated at the four major drainage outlet sites. As shown in Chart 2, the average calculated loading on the Snipes Creek outlet was 1 ton/day, and on the Spring Creek outlet was 3 tons/day. At the Sulphur Creek drainage outlet, loading was 23 tons/day, and at Granger Drain, loading was 14 tons/day. Due to the large water volume at Sulphur Creek it has the highest TSS loading.

In addition to meeting a TSS TMDL, the Granger Drain is also the only RSBOJC

drain that has a fecal coliform bacteria TMDL goal set by the State of Washington Department of Ecology due to high levels of fecal coliform. The Granger Drain watershed is comprised of approximately 48 square miles. The mainstem Granger

Water Quality *continued on page 2*

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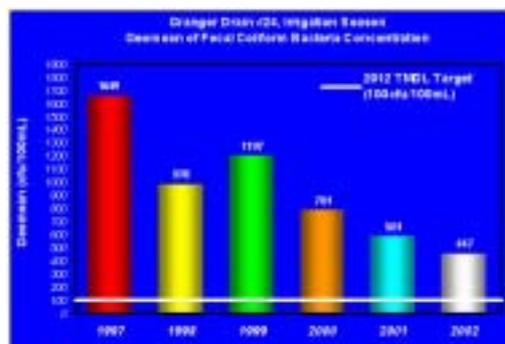


Chart 3: Geomean of Fecal Coliform Bacteria Concentration at Granger Drain

# Sunnyside and Roza Water Ordering Instructions

Sunnyside Valley Irrigation District and Roza Irrigation District would like to remind all waterusers that ordering water is just a telephone call away. This system is available through an automated voice response, with the use of a touch-tone telephone, which incorporates water ordering, account information, and emergency reporting. This watering ordering system does not apply to those waterusers located inside the city limits of Prosser, Grandview, Zillah and Granger.

Your telephone number will reference all water orders. An extensive effort has been made to obtain the correct telephone numbers; however, if you think we have an incorrect number or your wish to use an alternative number, just call us and we will make the change.

Water orders for the next delivery day must be placed by 11:30 p.m. on the preceding day. The automated voice response will process the orders and transfer them to the outlying shops early each weekday morning.

The automated voice response will supply a list of options throughout the

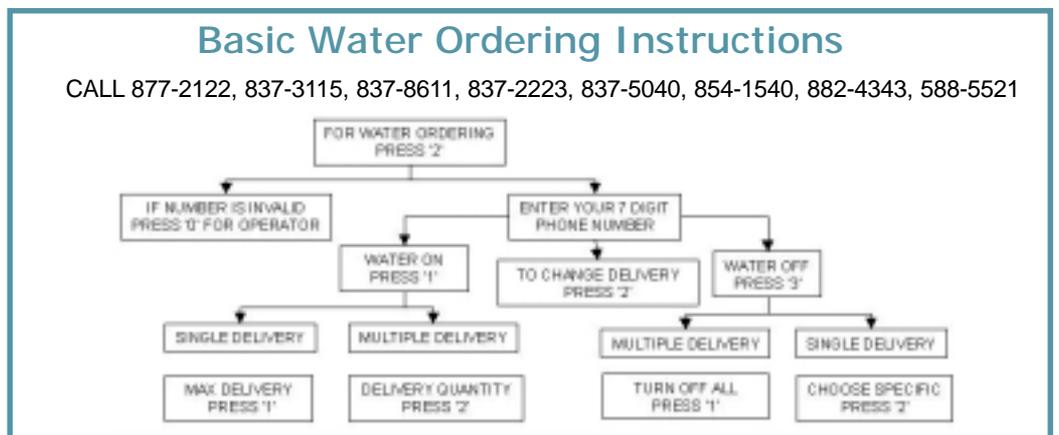
telephone call. Please follow the prompts by entering your choice. When you are at a menu and you know the number of your selection, you may press it at any time. You do not need to wait until all selections have been given.

Please refer to the following list of numbers for one within your calling area: 877-2122, 837-3115, 837-8611, 837-2223, 837-5040, 854-1540, 882-4343, 588-5521.

If you have any difficulties or questions when ordering, please call the SVID office at 837-6980 or the Roza office at 837-5141 during business hours.

## Water ordering for users within Prosser, Grandview, Zillah and Granger:

If you live within the city limits of the following cities: Prosser, Grandview, Zillah and Granger, you must contact your local irrigation provider. Prosser 786-7300; Grandview 882-9211; Zillah 829-5151; Granger 854-2299. These providers should contact the district numbers to order water on. The deadline for city water orders is prior to 4:00 p.m. the day prior to expected delivery date.



## On-Farm Loan Funding Increased

RSBOJC encourages all qualified landowners to take advantage of the On-Farm Loan program. The maximum amount of funding per acre for Sunnyside Valley Irrigation District (SVID) landowners has increased from \$800.00 to \$1,200.00 per acre. Currently approximately \$3 million dollars is still available in the program for Sunnyside Valley Irrigation District (SVID) landowners.



The objective of the program is to assist farmers in upgrading their irrigation application type to achieve better utilization of their water. The On-Farm Loan program assists farmers to transition from rill irrigation to a more effective application practice such as drip irrigation, micro spray, solid set, wheel line, and center pivot.

The basic structure for the On-Farm Loan Program includes the low interest rate of 1% with a four-year repayment cycle. The yearly payments are included in the waterusers annual irrigation assessments.

For more information, please contact, Theresa Johnson, Sunnyside Valley Irrigation District (SVID) at (509) 837-6980, or Mark Barnett, Roza Irrigation District (RID) Engineer at (509) 837-5141.

## RSBOJC Water Quality Program

Landowners are being asked to continue their partnership with the Roza-Sunnyside Board of Joint Control (RSBOJC). The goal is to have each landowner minimize return flows and clean up the irrigation water leaving the farm. With cooperation from landowners, RSBOJC Water Quality Policy will enable us to meet DOE requirements. The key is to be proactive.

Throughout the upcoming irrigation season, RSBOJC water quality specialists and personnel will collect NTU readings (a measure of clarity). Each time the RSBOJC collects a water quality sample, the landowner will receive notice of the results. The target for 2003 is 400 NTU. If the sum of three or fewer samples is higher than 400 NTU, immediate corrective action must be taken.

If a landowner violates the current water quality target, they will be required to complete and submit both a Short-term and a Long-term Water Quality Plan. If your supply is reduced as a result of a violation, you must meet 200 NTU before your supply is fully restored. If the Short-term Plan is not submitted, approved, and implemented, the RSBOJC will reduce water delivery services for that irrigation season.

Water will not be turned on the following irrigation season until the individual grower submits the Long-term Plan.

## Water Quality *Continued from page 1*

Drain receives water from a vast network of both surface and subsurface drainage.

Fecal coliform bacteria are a prime indicator of fecal contamination in water. These bacteria are measured as the number of colony-forming units (cfu) per 100 milliliters (mL) of water. The TMDL goal for 2012, reported in geomean, is 100 cfu/100mL. Chart 3 shows that fecal coliform concentrations were measured at 1649 cfu/100mL in 1997, but has improved to 447 cfu/100 mL by 2002.

The Roza-Sunnyside Board of Joint Control (RSBOJC) began monitoring throughout the Granger Drain watershed in 1997. The RSBOJC will continue its role of monitoring of the Granger Drain for fecal coliform on a year-round basis. The Department of Ecology will evaluate the data on a two-year review cycle as well as work with landowners to implement plans to reduce potential fecal coliform bacteria contamination.

The 2002 irrigation season showed continued improvement, which was mainly due to the continued efforts of landowners within the Roza-Sunnyside Board of Joint Control area.

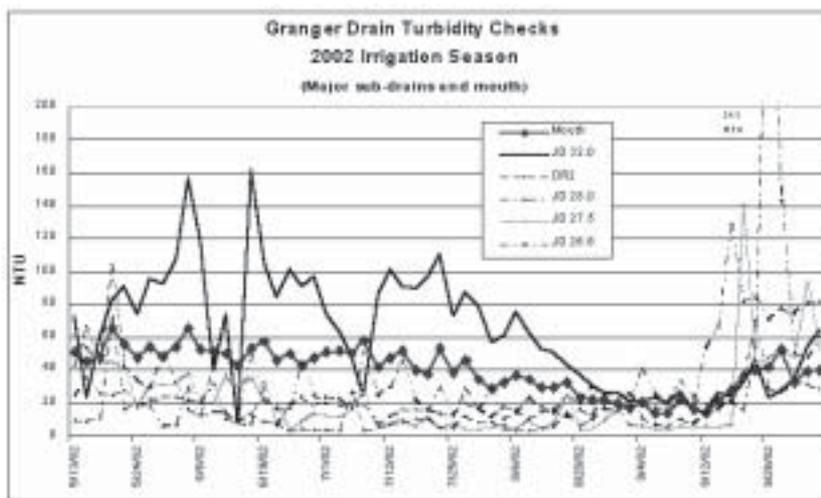


Water samples depicting 25 NTU TMDL goal

## Granger Drain: How Important Can a Few Acres Be?

By Marie Zuroske,  
South Yakima Conservation District

During last year's irrigation season, the South Yakima Conservation District (SYCD) checked the turbidity at the mouth of Granger Drain and its major sub-drains three days each week. Each morning the turbidity results were faxed to Sunnyside Valley Irrigation District (SVID), allowing the ditch rider supervisors to prioritize their return flow sample collection efforts. Despite the intensive sampling effort and increased SVID follow-up, the mouth of Granger Drain did not meet the Total Maximum Daily Load (TMDL) 90<sup>th</sup> percentile goal for 2002 of 25 NTU. Granger Drain was the only monitored drain that did not meet the 2002 goal.



What happened? As shown in the chart, for most of the summer JD 32.0 (thick solid line) was the only drain consistently more turbid than the mouth (thick line with diamonds). In other words, all the other drains were diluting the turbidity from JD 32.0 but the dilution was not enough for the mouth to meet 25 NTU. The other drains (dashed lines) became consistently highly turbid only at the end of the irrigation season when drain cleaning began.



The above picture identifies the turbid plume of return flow entering the drain from DR 2.

JD 32.0 drains a large portion – 4,829 acres — of the watershed so it is expected to have a major influence on the mouth of Granger Drain. However, a closer look at JD 32.0 found something unexpected.

The largest part of the watershed, sampled at North Outlook Road was fairly consistently less turbid than the mouth. The source of the high turbidity at the mouth of JD 32.0 was instead a very small secondary drain that was frequently turbid, often over 100 NTU. This secondary drain only drains about 600 acres. When water delivery was reduced for a 37-acre parcel in this small area in mid-August due to repeated run-off problems, JD 32.0 cleared up. The mouth of Granger Drain finally reached less than 25 NTU and stayed less than 25 NTU until drain cleaning began.

Conclusion? The reduced water delivery and concurrent improvement in Granger Drain could have been coincidental. Other unidentified changes may have been occurring at the same time. Yet the data certainly suggests that consistently using (or not using) best management practices to reduce on-farm run-off does make a difference – even if only a few acres are involved. This summer SYCD and SVID will conduct the same intensive effort. Hopefully, what we learned from last year will improve the outcome of this year's efforts.

## Fencing Drains

By Marie Zuroske, South Yakima Conservation District



The practice of allowing livestock to drink from irrigation return drains is a concern both for the health of the animals and water quality issues. Frank

Hendrix, WSU Livestock Extension Agent, explains: "Cattle have been shown to gain significantly better with clean water than any dirty water. Also, livestock species rely on smell and taste. Sheep and cattle hate drinking contaminated water, which also decreases the efficiency of the animals. Water can be a source of disease passage and nitrate toxicity and contamination. Basically, if you wouldn't drink the water it is counterproductive to force animals to do it."

Additionally, the Department of Ecology is concerned that allowing livestock in the drains stirs up sediment (often containing bacteria and sometimes DDT), destabilizes banks, and is a direct source of fecal coliform. Fecal coliform concentrations are especially concerning in Granger Drain. Despite past tremendous improvements in the water quality of Granger Drain, it continues to exceed state water quality standards for fecal coliforms.

The most straightforward solution to animal health and regulatory concerns is to fence the drain off so livestock cannot reach the water. Cost-share from South Yakima Conservation District is currently available for landowners within the Granger Drain watershed interested in fencing their drains. The fence must be installed to meet Natural Resources Conservation Service specifications. Contact Marie Zuroske with SYCD at 837-7911 for more information about the cost-share guidelines. Additionally, Sunnyside Valley Irrigation District may provide the labor to install the fence. Contact Lori Brady with SVID at 837-6980 for more information about labor for installation.

## Black Rock Reservoir Funding Approved



Artist rendering of Black Rock Dam

The Black Rock Reservoir project took a step closer to becoming a reality when the U.S. Congress approved

legislation to appropriate \$1 million for a feasibility study of the proposed Black Rock Reservoir. Another \$4 million is being sought from the state Legislature.

The proposed new reservoir would be located 40 miles east of Yakima near the intersection of State Route 24 and Highway 241.

Black Rock is projected to store 1.7 million acre-feet of water and would more than double existing storage in the Yakima River Basin. This project would also be the first major storage facility brought on line in the basin since Lake Cle Elum in 1933.

The additional water storage would be beneficial for waterusers in years of below normal snowpack such as the one predicted for the 2003 irrigation season. The Bureau of Reclamation released the total water supply report (TWSA) on March 6 that indicates rationing of between 53% to 99% of entitlement is likely for proratable (junior) waterusers for the 2003 irrigation season. Rationing is not currently in effect and will be implemented only after the available flows from snowpack can no longer fully meet demands.

# Wetlands TMDL Pilot Project Marks Another Year of Growth

May, 2003 marks the third year of growth for the RSBOJC Wetland Project, located at the corner of Snyder and Beam Roads, Sunnyside, WA (Figure 1). The wetland experiment, designed to explore the potential of a wetland as a water quality treatment option, was made possible through a \$250,000 grant from the WA State Legislature in 2000.

Wetlands provide a cost-effective, low maintenance and environmentally beneficial method for improving water quality. They act as a filter, removing sediment, excess nutrients, and pollutants from the water. In addition, wetlands provide vital wildlife habitat.



Figure 2. Mature wetland vegetation attracts a variety of birds.

Birdwatchers, take note: the RSBOJC wetland has become a ripe habitat for many bird species, including American avocets, black-necked stilts, killdeer, yellow-headed blackbird and various duck species. The ability of a wetland to mitigate water pollution depends upon several factors, including types of plants, soils, hydrologic factors, water chemistry, size of wetland and

water detention time. The RSBOJC wetland utilizes over 15 acres to filter .8 cfs of water. It takes 7-10 days of water detention in order to filter that volume of water.

Since our last progress report (The Waterfront, Winter 2001, Volume 7, Number 2), the amount of vegetative and biological material has increased substantially (Figure 2). This has resulted in greater surface area available for filtering water. Analysis of 2002 data, although limited (and biased towards end-of-irrigation-season data) due to technical difficulties, reveals a notable, overall positive change in water quality when tracked

from untreated water at the inflow (Drain 2, also called Site #2) to treated water at the outflows (effluent from north cell is termed WL1E; effluent from south cell is termed WL1F). Of particular concern

are the effects of the wetland on nutrients (e.g. nitrite + nitrate), on indicators of water health (e.g. dissolved oxygen

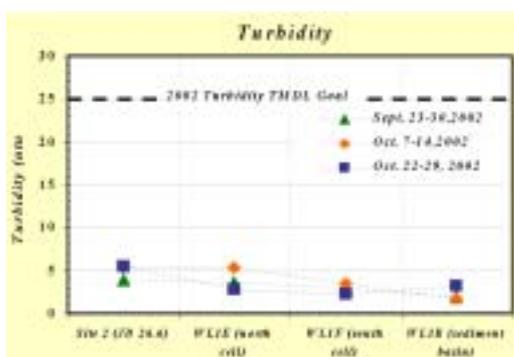
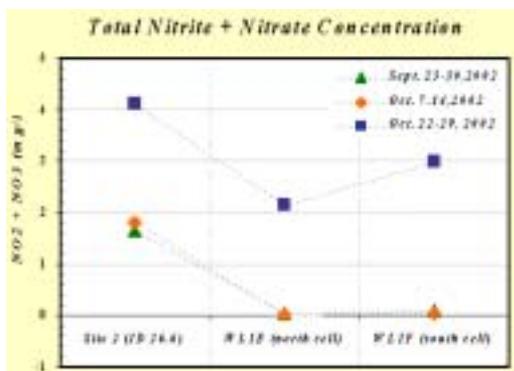


Figure 3. Effects of wetland on water quality. Top Graph: The excess nutrient  $NO_{2+3}$  decreases as a result of detention; Middle Graph: dissolved oxygen (DO) content, an important indicator of water health, decreases as a result of wetland detention; Bottom Graph: Water in RSBOJC drains must meet state TMDL requirements. Turbidity values decrease slightly.

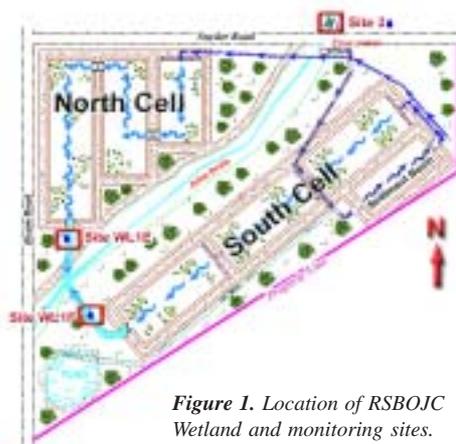


Figure 1. Location of RSBOJC Wetland and monitoring sites.

content), and on the total maximum daily load (TMDL) compliance goals set by the Dept. of Ecology (e.g. turbidity). The graphs illustrate the effect of the wetland's north & south cells on water quality. Successful excess nutrient uptake is illustrated in Figure 3, top graph. The middle graph shows that the amount of dissolved

oxygen decreased from inflow to outflow, particularly as a result of detention in the north cell. Reasons for this difference may be attributed to the flow of water in the north cell vs. the south cell. As seen in Figure 1, water is diverted through the north cell indirectly. The bottom graph illustrates how the wetland can contribute to meeting state TMDL goals. Although turbidity is already in compliance in this particular drain prior to entering the wetland, further clarity of water is achieved through detention in the wetland. Although these results are positive, they are considered preliminary because of the lack of observations. A full season of water monitoring data is required to accurately assess the relative success



Figure 4. Wetland vegetation damage by beaver lodge building activity.

of the RSBOJC project.

As the RSBOJC wetland continues to mature, we expect that it will become more effective, using greater quantities of nutrients and other chemicals, thereby further cleaning the water. Future plans to increase the efficiency and operation of the wetland project include improving equipment that brings water into the system, more aggressive weed control, hydro-seeding of wetland north and south cell banks to prevent erosion, and pest control. Pests, primarily muskrats and a beaver have become an important maintenance issue during this past non-irrigation season. By creating dens, muskrats are collapsing the carefully constructed banks of the wetland cells, and a lone beaver has been destroying the cultivated wetland fauna to construct a lodge (Figure 4). Ordinarily, one would view these animals as a natural part of the wetland ecosystem. Unfortunately, the man-made RSBOJC wetland is too small to support such residents, and still function as a viable wetland.

For more information on wetlands, please log onto: <http://www.epa.gov/owow/wetlands/>

The Roza-Sunnyside Board of Joint Control (RSBOJC) publishes the **RSBOJC UPDATE** biannually for landowners. All articles, letters and other items submitted to RSBOJC for use in its landowner newsletter become the property of RSBOJC which is authorized to use any item submitted, without payment or compensation to the person submitting the item, in any newsletter or other publication of RSBOJC. RSBOJC reserves the right to edit all items submitted. Doug Simpson, Chairman; Mike Miller, Vice-Chairman; Robert Golob, Ric Valicoff, Larry Haak, Dave Michels, David Minick, John Newhouse, Cus Arteaga, Douglas Vining, Dave Olsen, Jim Willard, Directors. Officers: Ron Van Gundy, Secretary; Patricia Bailey, Treasurer. Address comments to: Melodie Smith, Editor, P.O. Box 239, Sunnyside, WA 98944.