

National agricultural watershed study:

Improving water quality along the Salmon River

Bill Bykerk is willing to provide all the comforts of home for his cattle – food, warmth, shelter – just about everything, that is, except for running stream water.

In fact, keeping his cattle out of British Columbia's Salmon River is a priority for Bykerk, who now plans to move his herd's entire wintering area to an upland site farther away from the stream.

Bykerk is one of three farmers participating in a watershed study led by Agriculture and Agri-Food Canada (AAFC) that is examining ways to improve water quality along the Salmon River by using science-based farming methods called beneficial management practices (BMPs). This undertaking is part of a four-year national project dubbed WEBs – the Watershed Evaluation of BMPs.

The Salmon River WEBs project is located about 12 kilometres south of Salmon Arm in B.C.'s Okanagan/Shuswap region, and is one of seven similar small watershed studies underway across Canada. WEBs will focus on the effectiveness of BMPs in reducing the impacts of agricultural activities on water quality. Funding for the WEBs project is provided largely through AAFC's Greencover Canada Program, with Ducks Unlimited Canada a key funding partner. A number of other government and non-government organizations are also contributing to the project.

“There are significant issues along the Salmon River in terms of nutrient and pathogen loading, and sedimentation from shoreline erosion,” explains Klaas Broersma, AAFC's WEBs project lead in the area. “This has created water quality problems, a poorly functioning riparian area, and is also compromising the local salmon fishery.”

Bykerk pastures his 500 cows on Crown rangeland in the high country during the summer. During the winter, his cattle used to take shelter, have their calves, and feed on a portion of the flood plain along the Salmon River where they had direct access to the river water. As a result, there is a very high concentration of manure along the stream each spring. That is why he wants to move the cattle away from the river.

“Getting the cattle away from the river will reduce the impact they have on water quality, by improving the riparian area and the salmon habitat,” he says.

WEBs will test the effectiveness of two BMPs on Bykerk's farm, as well as on two other farms along the river. On each farm, portions of the stream have been fenced off to

exclude cattle and the impact of this BMP on water quality will be compared to an unfenced area. Secondly, off-stream watering systems relocated away from unfenced sections of the river have been installed at the winter feeding areas. This BMP will examine the willingness of the cattle to avoid the river and, at the same time, monitor effects on water quality and the riparian area.

An important player in the project is the Salmon River Watershed Roundtable (SRWR) which has been actively conducting research and implementing restoration projects in the area. The SRWR's role in the Salmon River WEBs project is primarily landowner liaison, community outreach, and assisting in establishing the project. The University of Victoria is also contributing to the project, providing water sample analysis and computer modelling support.

"We like the idea of local content and local participation," says Mike Wallis, project coordinator for the SRWR. "The project is contributing significantly to what we as the SRWR have been promoting and doing for 10 years."

"Removing livestock from the river bank and rehabilitating the vegetation will reduce the sediment load, resulting in a deeper, narrower channel and a cleaner, more productive river for all, including the salmon," he says.

"We believe that beneficial management practices can reduce agricultural contributions to sediment and nutrient loading in streams," says AAFC's Broersma. "But the environmental and economic performance of these practices needs to be better studied and evaluated. Results might have a huge impact on where our efforts are focused in the future."

Although various BMPs have been evaluated in the past on small test plots and individual fields, the WEBs project marks new territory for assessing BMP effectiveness in a small watershed setting. Results of this research will be applied to larger watersheds using computer models.

For more information on the Salmon River WEBs project, please contact:

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For more information on the Greencover Canada Program, visit the web site at:

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