

Waterloo Creek Watershed Project



ALLAMAKEE SOIL AND WATER CONSERVATION DISTRICT

Waterloo Creek Watershed Project

11/1/2010

Project completion comes near



The Allamakee SWCD would like to thank all landowners and residents in the Waterloo Creek Watershed for their commitment and time spent answering questions during recent assessments in the watershed. Work continues on the project this fall and will culminate in December when a final watershed plan will be completed. In recent months valuable project programs have been taking place. Fish sampling along Waterloo Creek downstream of Dorchester

has produced excellent data. With funding provided by the Iowa DNR, members of the Iowa DNR fisheries department conducted multiple fish samplings this summer to gauge the health of the brown trout population in the creek. Early results point toward an actively growing population of brown trout with strong evidence of positive natural reproduction. Fish sampling data will be used in conjunction with macro invertebrate sampling data compiled by Luther College. On-going invertebrate sampling done by Luther college at select locations in the watershed will be a helpful barometer of stream ecosystem health. The closing months of the project will be an in-depth analysis

of assessment data. The information collected throughout the project will be the basis for forming solutions to the impairments currently compromising Waterloo Creek and its tributaries. Objectives will be stated in the watershed plan, in order to provide a guide for future conservation practices in the watershed. Watershed assessments completed in the project will narrow down specific areas in which conservation and flood control practices will provide the greatest impact on the quality of Waterloo Creek. The analysis will also offer a guide for landowners on specific opportunities and possible cost share programs becoming available in the watershed.

- WATERLOO CREEK WATERSHED ASSESSMENTS ARE BEING WRAPPED UP
- NOV. MEETING IS SET TO SHARE INFORMATION AND INFORM THE PUBLIC OF PROGRESS MADE
- ON SITE VISITS CONTINUE IN THE WATERSHED TO DETERMINE PRIORITY AREAS FOR REHABILITATION

November Watershed Meeting

The Bee/Duck Creek Watershed Project Committee and Waterloo Creek Advisory Committee will be hosting a joint meeting on Nov. 17th in Spring Grove, MN. In the meeting updates will be given on the Waterloo Creek Watershed Project and Bee / Duck creek project work be-

ing done in Minnesota. Bee and Duck creek are the two main streams in Houston County, MN that form the headwaters of the Waterloo Creek Watershed. The Bee/Duck Creek Committee has worked diligently with NRCS engineers to identify 37 potential sites for rehabilitation,

specifically potential detention structure sites that would greatly aid in flood control. Other topics will be addressed in the meeting specifically the impacts that stream bank stabilization, soil erosion / sediment delivery reduction efforts, and grade stabilization efforts.

Allamakee SWCD



The below list are conservation practices that can be implemented into most agricultural settings with limited startup and maintenance

- **INTEGRATED PEST MANAGEMENT SYSTEMS**
- **PLANTING PERENNIAL VEGETATIVE STRIPS**
- **REGULAR MAINTENANCE AND PASTURE RESTORATION**

THE HIGHEST EVER RECORDED BROWN TROUT POPULATION WAS SAMPLED IN WATERLOO CREEK DOWNSTREAM FROM DORCHESTER



Duck creek flows south as it makes its way into Waterloo Creek. This stretch of stream was restored by Dr. Mike Osterholm.

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Riparian Development in the Waterloo Creek Watershed

The riparian ecosystem is the natural vegetation that grows adjacent to flowing water. Trees and shrubs in this area function as filters that trap sediment and absorb nutrients carried by

Water draining over the land (runoff). In addition, riparian vegetation provides shade, maintaining water temperatures at levels necessary for certain species of plants and animals. Riparian ecosystems also function as critical habitat for wildlife, a travel path for migratory birds, slow

down over land flow, and provide stream bank stability. For all these reasons a healthy riparian ecosystem can greatly benefit the streams of the Waterloo Creek Watershed. Increasing the quantity and quality of riparian buffers around the streams will give the Waterloo Creek Watershed; economic, social, water quality, and biological benefits. Waterloo Creek is like many other water bodies in the state that have seen significant landscape modifications in order to create productive

crop land. A system being analyzed in the Waterloo Creek Watershed Plan is a multi-species riparian buffer system. In this model sections of the streams in the watershed will undergo stream bank restoration with native vegetation, fast growing trees will then be planted next to the bank followed by slow growing trees, shrubs, and then finally native prairie grasses / forbs. These plantings will all create a buffer between land uses and the adjacent stream.

Watershed Partners

The Allamakee SWCD would like to recognize some of the many organizations, landowners, groups, and agencies that contributed toward the Watershed Project. The Iowa Dept. of Agriculture and Land Stewardship contributed funding for staff salary and a stakeholder survey. Technical and advisory assistance was provided to the project coordinator by IDALS. The Iowa and Minnesota DNR provided funding for moni-

toring equipment and technical assistance. The Iowa DNR fisheries bureau with the help of Fisheries biologist Bill Kalishek conducted fish sampling at Waterloo Creek. Other organizations providing cash match or in-kind funding were; University of Iowa Hygienic Laboratory, RC&D of Northeast Iowa, USDA-NRCS, Allamakee SWCD, and the Decorah Chapter of Trout's Unlimited. Funding for water sampling and technical knowledge was

provided by Dr. Mike Osterholm. A real life model for restoration effort success can be seen on Osterholm's Prairie Song Farm located northwest of Dorchester. The Allamakee SWCD would also like to thank landowners and residents for their participation in the survey and livestock assessment. The input heard from producers was very valuable. The Bee and Duck Creek Watershed Committee was instrumental in aiding in the development of a watershed plan.

Maintaining Stream bank Stability

Key elements to maintaining a stable and healthy watershed involve restoring and maintaining stream bank stability. A main focus point of the Waterloo Creek Watershed Project was to evaluate impacts of stream bank stabilization projects along selected lengths of the watershed's streams. While stream

bank erosion is a natural process, in the watershed we have accelerated the erosion rate by changing the stream system. Altering the natural system can result in erosion rates hundreds of times greater than those seen in naturally stable streams. Stream bank erosion increases the sediment that a

stream must carry, results in the loss of agriculturally productive ground and causes a decline in the quality of habitat on the land and in the stream. The watershed plan for Waterloo Creek will address priority spots along stream length that could benefit greatly from stream bank stabilization incentives.

Waterloo Creek Watershed Project

Water Quality Sampling

Water is of vital importance to all inhabitants of earth. The responsibility is on all people to aid in persevering water quality both surface and groundwater. The Waterloo Creek watershed is blessed with pristine cold-water streams maintained by groundwater discharges. Maintaining the integrity of the streams in the Waterloo Creek Watershed is chief among its goals. Waterloo Creek is listed the impaired

waters in Iowa list. This designation is for bacteria as it affects primary contact recreation, which is the stream classification for Waterloo Creek. Water quality sampling is a main function and task undertaken in the project. The water monitoring in the watershed involves four testing sets; E.coli, turbidity, chloride, and stream flow. All four are valued for different criteria, but all quantify each other to show relationships

within the stream. All values are important to show how interactions and conditions affect the water quality in the watershed streams. Since April of 2010 water sampling has been conducted by the Allamakee SWCD at 8 selected points. The locations are along Bee, Duck, and Waterloo Creek. Valuable data has been collected since the spring and will be through the late fall. All water sampling data will be available in Waterloo Creek Watershed Plan, which will be released in December.



The above image is water samples collected earlier this year from Waterloo and Bee Creek. The samples are tested for E.coli. Evidence of suspended sediments is evident in some of the samples

Post Project Agenda and WIRB

As the months wind down on the Watershed project, the next phase will begin. Even though the watershed assessment will be coming to a close in December, all available resources will be put into finishing the watershed plan and starting to apply for grant funding. The source of application for grant funding will be (WIRB) otherwise known as; The Watershed Improvement Review Board.

This review board is composed of representatives of agricultural, environmental, commodity, and water related groups; also included on the board are a member of the Iowa DNR, IDALS, two Iowa State Representatives, and two Iowa State Senators. The board will award. Since the Waterloo Creek Watershed was administered by the Allamakee SWCD, they will be eligible to possibly be

awarded grant funding by WIRB. The maximum amount that could be awarded from WIRB is limited to 10% of the annual appropriation to the fund from the legislature. Some examples of activities that could be funded by a WIRB grant are riparian restorations, stream bank stabilization and clean-up projects, sediment basins, grade stabilizations, terraces, and animal waste management systems.

“7867 acres are currently forested in the Waterloo Creek watershed. Historical data suggests the watershed has lost 66% of its historical forest cover”

Monitoring water temperatures

Throughout the watershed project, thermograph temperature monitors have been recording water temperatures in select locations in the watershed streams. Groundwater discharges help maintain the cool water temperatures in the summer months. Healthy cold water streams such as Waterloo, Bee, and Duck creek are able to sup-

port cold water fish (such as the populated brown trout). The trout population usually require temperatures below 21 degrees Celsius. Recording the fluctuations in the water temperatures will help quantify the peak stress times in the summer months the streams undergo and some factors that might play into the rise in stream tempera-

tures. Reducing sediment loads going into the stream is one vital way to help maintain adequate temperatures in the streams. Heavy sedimentation can change the clarity of the water, allowing more absorption of solar radiation, which raises the mean temperature of the water.



The light gray colored gravel on the above stream bed is a trout “redd” which serves as a spawning bed for trout. Maintaining optimum stream temperatures is key to allowing Waterloo Creeks Brown trout population reproduce naturally.



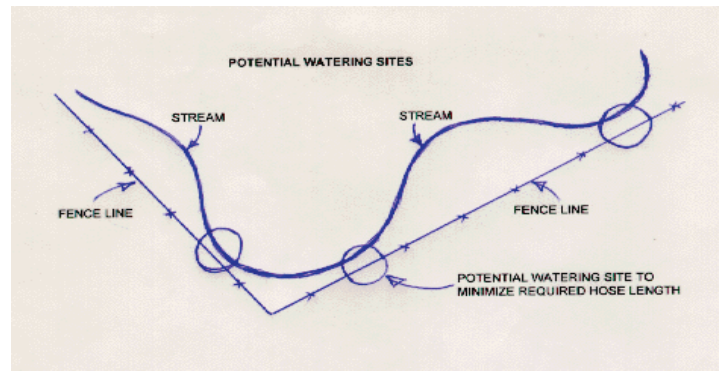
Striving to improve water quality and reduce negative environmental impact

ALLAMAKEE SOIL AND WATER CONSERVATION DISTRICT

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The Allamakee Soil and Water Conservation District mission is to provide leadership and direction, in conservation, development, and productive use of the county's soil, water, and related resources. The District currently administers two successful watershed programs; Ludlow Creek and Indian Springs. Work that has been and currently is being done in the Ludlow Creek and Indian Springs Watershed's has helped improve conservation measures for landowners, while aiding the

allamakeeswcd.org



Implementing low cost conservation practices for agricultural operations



The above image is animal operated water pump. Typical pumps can be mounted on fence line structures.

Balancing the needs to protect and conserve natural resources while keeping agricultural operations economically viable can be a formidable task. While some practices may not be realistic for a number a different reasons. Many low cost and low input activities can help aid in conservation of soil and water quality. Fencing off streams from livestock not only reduces sedimentation and bacterial counts in the water, but improves overall herd health. Wet, muddy conditions increase the risk of mastitis, foot problems and other illnesses in livestock. Fencing streams off from animals will

typically split a pasture in two. Once fencing is put up, additional paddocks can be created in the pasture to help gain better pasture efficiency. One of the main obstacles encountered by livestock producers who fence animals out of the stream is the ability to provide water. One method to provide water to livestock on pasture is to install animal operated pasture pumps. Systems in use today have a cost of about \$10 / cow calf pair and is good for about 30 to 40 cow calf pairs on pasture. Longer term investments into watering facilities on pasture land could include the instal-

lation of shallow buried pipelines. They are very flexible systems, and water lines can be located at a preferred location. For a shallow (approx. one foot deep) burial of the pipeline, some producers have utilized a ripper type of plow mounted on a three point hitch of a tractor. Pasture grazing operations in other parts of the Mid-west have installed these buried pipelines at 1 inch in diameter for about 50 cents per foot. Fence line structures could include a variety of options. One popular format is to utilize high tensile electrified wire fencing.