

# Thinking Like a Watershed

## Black Earth Creek Watershed Association

Occasional Newsletter - Spring 2010



“For the wise management of the land and water resources in the Black Earth Creek Watershed”

### BECWA'S Goals

- To protect, conserve, support and advocate for the wise, long-term management of the physical, biological, environmental, cultural and historical resources that constitute the heritage and future of the Black Earth Creek Watershed.
- To foster and encourage citizen and locally-based stewardship among the many members of the watershed community.
- To provide a forum for civil and informed discussion of issues and problems in the Watershed.

### Board of Directors

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Barbara Borns  
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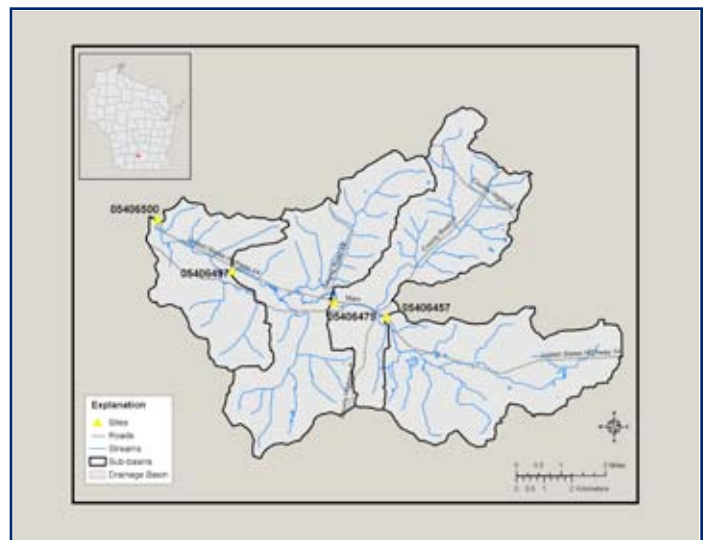
[www.becwa.org](http://www.becwa.org)

## New Water Quality Monitoring Stations

*In the past year, four new monitoring stations have been installed on the Black Earth Creek to provide a broader snapshot of water quality in the watershed. Dane County, Wisconsin DNR, BECWA, the Village of Cross Plains, BECCO, Southern Wisconsin Trout Unlimited and Dennis Franke provided funding to accomplish these installations. BECWA worked with Dane County Executive Kathleen Falk and County Supervisors to ensure county funding for the project.*

### Monitoring Real-Time Water Quality Trends and Developing Water Quality Analysis in the Black Earth Creek Watershed, Wisconsin *U.S. Geological Survey*

The Black Earth Creek (BEC) watershed is approximately 103 square miles and is located in northwestern Dane County, Wisconsin. The majority of the watershed lies in the driftless area with the headwaters and some tributaries extending into the glaciated parts of the region. The majority of the watershed is in a rural setting, dominated by agricultural practices; however the eastern edge of the watershed has increasing residential and commercial development.



### Objective

The main objective of the study is to monitor the water-quality parameters of water temperature, specific conductance, pH, dissolved oxygen, and turbidity along BEC and use the data to identify the parameters of concern. A second objective is to collect water-quality samples of suspended sediment, ammonia, and chloride to develop relationships between the real-time water-quality parameters and the water-quality samples results. The third objective would be

*Continued on Page 3*

## President's Letter

Dear BECWA Members,

It's been awhile since our last newsletter. I appreciate the consistent support you've given us. Your Board of Directors has been quietly working on many fronts to both educate and advocate on behalf of the watershed over the last year. Here's just some of our activities:



- Secured County funding for more monitoring stations along Black Earth Creek and provided funds to the Village of Cross Plains to support an additional monitoring station.
- Supported County Extension efforts to train "citizen stream monitors".
- Raised issues about the Village of Cross Plains efforts to develop the Schoepp property along Garfoot Creek and Mazomanie's efforts to develop a large area east of their Village.

- Monitored Wisconsin Department of Transportation's Study of Highway 14 improvement plans from Mazomanie to Middleton and the Village of Cross Plains efforts to create a Highway 14 Bypass through Town of Cross Plains farmland and improve Lagoon Street on the banks of Black Earth Creek.
- Coordinated and supported state and county agencies, UW faculty and students and Mazomanie residents on a study and plan for Lake Marion and the Lower Black Earth Creek corridor.

There is so much more to do. I appreciate your continued support. We can't advocate and educate on behalf of this nationally known watershed without you. Please encourage others to join and if you can, please offer to help. We are seeking additional board members and people to help with our activities.

Please feel free to contact me. I'd like to hear from you.  
grhyer@tds.net




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## Public Watershed Meeting

Sponsored by BECWA  
Wisconsin Heights High School  
April 29th at 7:00pm

The meeting will feature two topics of great interest to watershed citizens and conservationists. First, Dr. Ken Potter, Professor of Civil and Environmental Engineering and Chair of the graduate Water Resources Management Program at UW-Madison will present a progress report on this year's workshop. The workshop includes: gathering and synthesizing data pertaining to preserving and improving the quality and recreational opportunities at Marion Lake; restoring the stream channel and habitat in lower Black Earth Creek in the vicinity of Marion Lake; examining possibilities for wetland and floodplain restoration; and considering trail and recreational opportunities that might arise from this integrated project. Second, DNR Fisheries biologists Kurt Welke and Scott Stewart will provide an overview of the condition of the fishery in Black Earth Creek as the 2010 angling season begins. They will also discuss some of the habitat restoration and conservancy projects that have been undertaken on Black Earth Creek and tributaries in the past few years. These presentations will provide useful up-to-date information to local citizens and landowners, conservationists, and anglers. There will be opportunities to get your questions answered and to discuss issues of interest with a number of specialists who will be present.

### Time to Renew

### Announcing a New Lifetime Membership Opportunity!

Membership in BECWA runs from January to December. Thanks to all who have already sent in their membership dues for 2010. At a recent meeting, the BECWA Board of Directors voted to establish a Lifetime Membership Level of \$100 to eliminate the need for yearly renewal. A \$50 level was created for Business Friends of Black Earth Creek. Other levels of support include: \$15 Basic, \$25 Household, and \$35 Watershed Patron. Your continued membership support will allow us to keep area residents informed of issues that are important to the watershed by holding educational forums and via our newsletter, *Thinking like a Watershed*.

See the back page of this newsletter for a membership form and instructions for mailing.

**Thank you!**

## **Monitoring Stations** *continued from front page*

a determination as to feasibility of establishing an alert system that would use real-time water chemistry parameters to indicate when stream condition may potentially induce a fish kill.

### **Approach**

Monitoring of the BEC watershed will be focused on the basin area upstream of the current USGS gaging station (station number 05406460, February 1954 to present) near Black Earth, WI. This portion of the watershed has been an area of concern due to fish kills and reduced fish numbers in recent years. Automated samplers and real-time continuous water-quality monitors will be installed at strategic locations along BEC. The automated samplers will collect individual samples over the course of runoff events and the runoff water will be analyzed for suspended sediment, chloride, and ammonia. The continuous water quality monitor will monitor the water temperature, specific conductance, pH, dissolved oxygen, and turbidity.

The water quality parameters chosen are some of the basic indicators of stream health. The parameters of water temperature, pH, and dissolved oxygen are important when evaluating cold water streams, as many cold water species (like trout) have difficulties when those parameters rapidly change. Specific conductance and turbidity are parameters that can be used as surrogates to indicate when changes occur in the stream due to outside influences. Specific conductance, for example, can be used to indicate when snowmelt from salted roads is added to the stream, as the specific conductance will rise if salt is present. Turbidity is an indicator of the clarity of the water and as water becomes cloudy, from runoff events and storms, the turbidity values will rise.

The sampled parameters of suspended sediment, ammonia, and chloride are going to be used to develop relationships/correlations to those water quality parameters evaluated by real-time continuous monitors.

Suspended sediment is an indication of the amount of sediment moving within the water column. When these values are high, this can indicate sediment is moving through the stream and potentially burying habitat when it falls out of suspension. Sediment is also a concern as many nutrients, pesticides, and herbicides have a strong affinity to sediment and have potential to be present with the sediment.

Ammonia is a parameter of concern when fish kills occur. Chloride is also a concern to fish species and food sources when concentrations become high. Both ammonia and chloride are typically present when manure enters the stream.



*USGS gaging station showing automated water-quality sampler and monitoring equipment.*

USGS station numbers and name, water-quality monitoring equipment present:

05406500 Black Earth Creek @ Black Earth, automated sampler and water-quality monitor

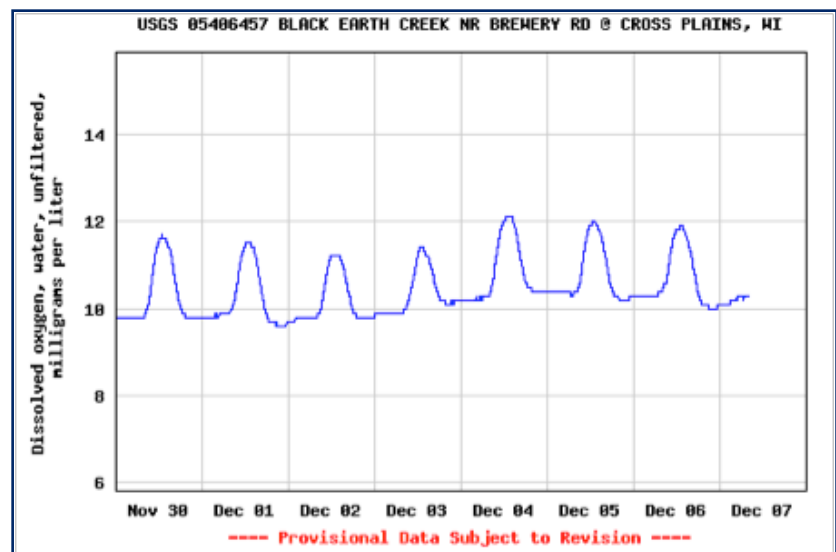
05406497 Black Earth Creek @ South Valley Rd, water-quality monitor

05406479 Black Earth Ck Nr Treatment Plnt @ Cross Plain, water-quality monitor

05406457 Black Earth Creek NR Brewery Rd @ Cross Plains, automated sampler and water-quality monitor

### **Data Collection**

Water quantity and quality data will be archived by the USGS, with the water-quantity data entered into the USGS National Water Information System. Real-time data collected by the water-quality monitors is publicly viewable at <http://waterdata.usgs.gov/wi/nwis/current/?type=quality> and will be automatically updated as data is collected and data corrections are applied.



Screen image of dissolved oxygen data is displayed on USGS web site for Black Earth Creek Water-quality study.

## Remembering Carl “Pat” Jones

*Dan Jones, a BECWA supporter, wrote this story with help from his brothers. It reflects our feelings about Carl's contribution to BECWA and our watershed community.*

Early this fall, our community lost one of its most beloved members. Pat's passing caught us all by surprise. One of the most common things people said is that they just couldn't believe it. At least one person said they had trouble thinking of a Carl Jones that could have died, because it certainly couldn't have been Pat. He was a fixture in our lives as permanent, solid, and nurturing as the land here, where he grew up.

He spent many hours fishing, hunting and just being on the land. He would watch the geese fly south, look for tracks in the snow, wait for the swallows to return and count fawns as he was cutting hay. He learned that, for all our efforts to remove ourselves from it, we are still a part of nature, still dependent on other species for our food and shelter. He realized that this applies to our relationships with other people as well; we all depend on each other. We have responsibilities to these communities we are a part of.

The man I knew took these responsibilities very seriously. As a building inspector, people depended on him to make sure their homes were built right. As a farmer, people depended on him for milk and meat that were produced right. In both of these positions, he knew that the non-human members of our

communities were counting on him to do the right things for their sake- from making sure proper erosion controls were in place on construction sites to writing a conservation plan for the family farm.

He took these responsibilities even further when he joined the Cross Plains Fire Board to help the fire department protect the homes he'd inspected. He also joined the Good Neighbor Committee to make sure the interests of our communities were brought to the table in discussions about the future of highway 14. He was a member of the local historical society, safeguarding our cultural heritage. He was also looking out for our future, with his involvement in the 4-H and FFA Alumni.

When he joined BECWA, he wanted to give back to the land that had given him so many memories growing up. More importantly, he wanted to make sure that the generations that followed him would have this place to make their own memories.

Now he has gone to where there is a rabbit in every brush pile, a trout in every pool and cut hay never gets rained on; so we must

pick up these responsibilities. Luckily, Pat has gone before us and his example has taught me what can't be learned in any classroom: while we have a great responsibility to the communities we are a part of, we can also depend on them. We have this land and we have each other and that is all we really need.



*Photo of Pat Jones (left) with his cousin, Terry Reindl and their day's catch from Black Earth Creek; August, 1961*



# Vermont Creek Restoration

**Pete Jopke**

*Dane County Land & Water Resources Department*

A portion of Vermont Creek, a 7-mile long coldwater stream underwent a major “facelift” in 2009. The Dane County Land Conservation Department was able to secure funding and worked with the Department of Natural Resources (DNR) and U.S. Fish and Wildlife Service (USFWS). Practices installed included shaping and seeding of banks, habitat structures and rock weirs, removal of woody vegetation, and replacing culverts at two key locations which previously limited fish from moving up or down the creek.

The culvert replacement and half of the 10,000 feet of restoration occurred on the Steve and Barb Parrell Family farm. The Parrell Farm is uniquely situated in the Town of Black Earth having the Village border them to the south, east and north. The Parrells are the third generation to farm this area and milk 80 head and crop 450 acres. Their son Scott is also involved in the operation and will, “hopefully” take the reigns in the future according to Steve.

Steve who was born and raised in the Town of Black Earth and Barbara who has been the Town of Black Earth Clerk for 27 years have seen many changes in the watershed. The loss of farms, residential development, and Vermont Creek itself.

Steve noted that the frequency of flooding has increased and the stream corridor had become overgrown with many obstructions. Overgrowth resulted in shading of the banks making them susceptible to erosion while slowing the flow. Two stream crossings with associated culverts had seen better days and were restrictive at times and in need of replacement. Through efforts of the Trout Unlimited Driftless Area Restoration Effort (TUDARE) and the USFWS, four culverts were installed and now provide for uninhibited movement of fish and improved water flow.

The key to any successful restoration project is having landowners who value conservation and are willing to implement practices on their land. Stream restoration projects are significant components to the overall health of a watershed as these initiatives significantly improve the downstream water resources as well. Summing up the project can best be stated in a conservation award the Parrells recently received from Southern Wisconsin Chapter of Trout Unlimited, “For supporting and improving the cold water resource of Vermont Creek for future generations.”



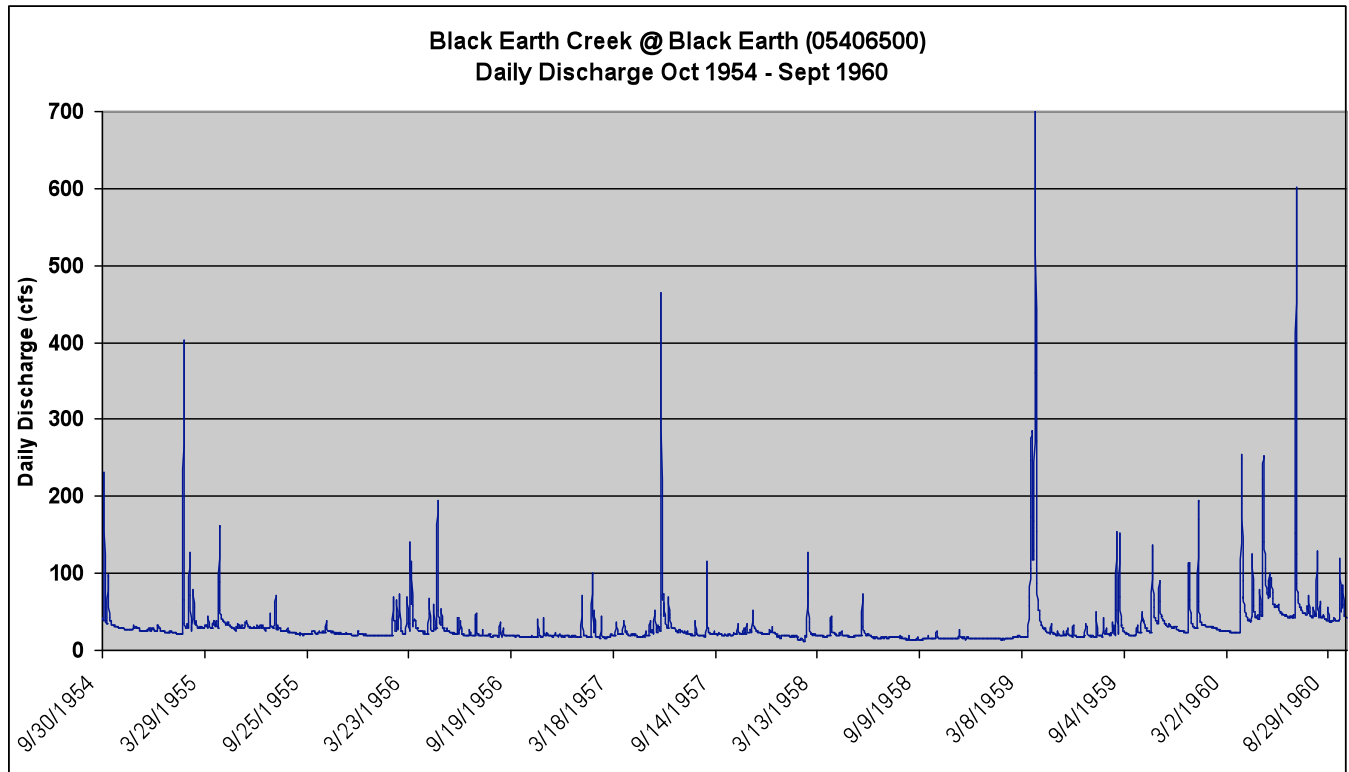
Perched culverts before installation of replacement culverts.



Note the change in water height within the culverts which allows for fish migration.

## Important BEC Historic Sampled Events

October 1954 - September 1960

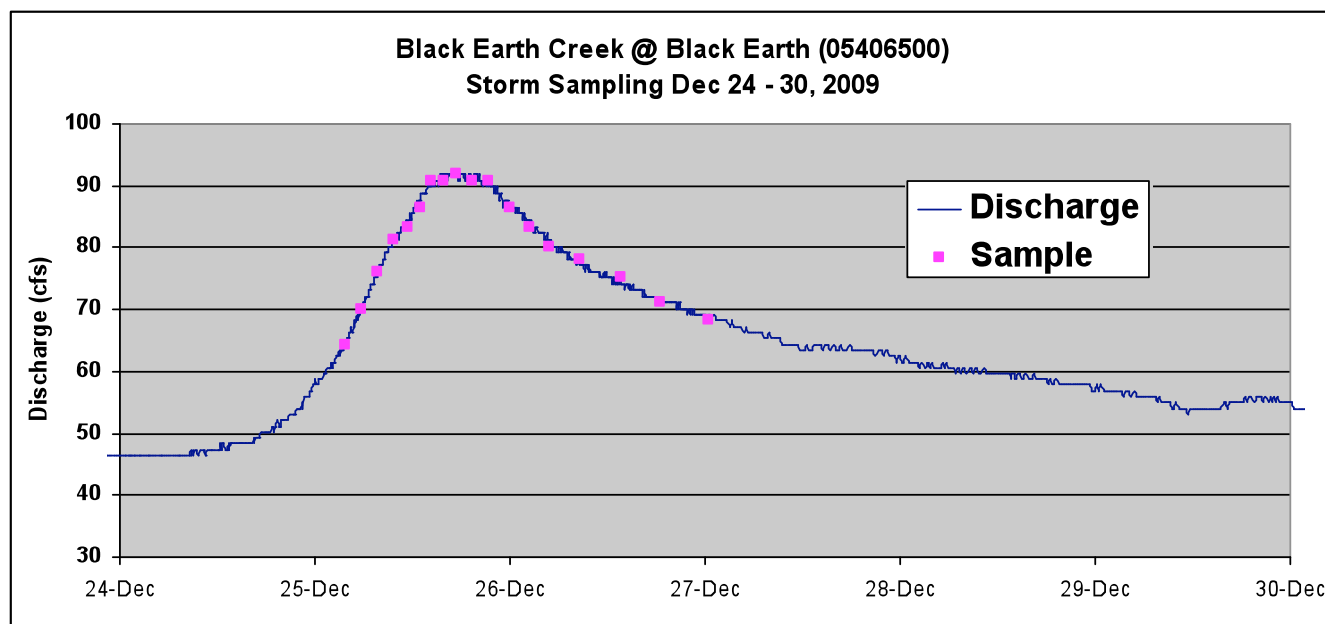


Long term discharge/flow records can be critical to assessing stream quality. When monitoring for short periods (1 year or less), the seasonal variations can impact the study results. The Black Earth Creek @ Black Earth gaging station has been monitoring flow since 1954. The example above shows the daily flow from 1954 to 1960 and demonstrates that some years produce more flow than others. This of course depends on seasonal precipitation patterns. Depending on when a potential study was done, the yearly variation in precipitation and runoff may impact the interpreted results. Long term records improve study designs and results by indicating if the study took place during “normal” periods of flow as well as help evaluate long term trends in water quantity and quality. *(continued on next page)*

### Calendar of Events

- April 24th** Annual Creek Clean Up - Meet at Salmo Pond (west of Cross Plains, across from Festge Park on Hwy 14) at 8:30am
- April 29th** BECWA Spring Meeting - Wisconsin Heights High School (east of Mazomanie on Hwy 14) at 7pm
- May 1st** Trout Days -- Cross Plains
- May 8th** Family Fishing Day -- Lake Marion (near KP and 14 intersection east of Mazomanie) from 9am to 2pm

## December 24 - 30, 2009



When evaluating water quality from most streams, the need to capture samples over the course of runoff events is critical to define potential water-quality changes that can occur. In the current study on Black Earth Creek, auto-samplers are used to take discrete samples depending on sampling thresholds that are set for the project. These thresholds are typically based on flow and water level, but can be modified to be based on changes in the real-time water-quality parameters that are also being measured at the sampling locations (pH, conductivity, DO, turbidity, and temperature). The above example demonstrates sampling based on water level and time to capture the runoff event that occurred Dec 24 – 30, 2009. The discrete samples were collected during the rising and falling limb of the hydrograph. Samples are then sent in for analysis of chloride, ammonia, and suspended sediment which then help researchers determine the amount of each constituent that was delivered to the stream at the location.





**Black Earth Creek  
Watershed Association**

**c/o Greg Hyer  
4296 County P  
Cross Plains, WI 53528**

## **I Want to Help Protect Black Earth Creek Watershed!**

- Sign me up as a new member:
- Please renew my membership.

**Membership Levels:**

- Lifetime membership - \$100       Business Friend - \$50
- Watershed Patron - \$35       Household - \$25
- Basic - \$15       I would like to volunteer!

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Email \_\_\_\_\_ Phone \_\_\_\_\_

Fill out this form and mail it with your check made out to BECWA:

**BECWA Treasurer David Lucey  
7952 County Hwy K  
Cross Plains, WI 53528**

**Questions? Contact Watershed Coordinator Briana Burms**

**Phone: 608,767.1475 or email [brianaburns@yahoo.com](mailto:brianaburns@yahoo.com)**

**All donations are tax deductible.**