IOWATER
Iowa Dept. of Natural Resources
109 Trowbridge Hall
Iowa City, IA 52242-1319

UPDATE:

Iowa Flood Data –
assessing water-quality impacts

Flooding during the summer of 2008 caused widespread and massive destruction in Iowa. Water quality monitoring during the flood indicated that enormous volumes of water transported large quantities of nutrients, sediment, and bacteria. However, the concentrations of these pollutants were relatively low due to dilution by flood waters. Low levels of chemicals that are rarely detected in Iowa's waters (such as gasoline by-products) were also found. Data on the flood impacts to biological communities were collected as well.

Iowa flood data will be critical to understanding the long-term effects of Iowa's largest natural disaster. In the coming months, look for flood monitoring results on our website at wqm.igsb.uiowa.edu.

Photo right: *Aerial view of the flooded Iowa River in the University Power Plant/Burlington Street Bridge area of the University of Iowa campus on June 16, 2008. Photo by Tom Jorgensen/University of Iowa.*

Fall 2008 Newsletter 2008-3

IOWATER

Volunteer Water Quality Monitoring

Outstanding Iowa Waters

by Adam Schnieders

All of the Iowa Great Lakes in Dickinson County are being considered for the OIW classification. West Okoboji Lake is shown above, with Arnold's Park in the background.

Federal regulations require the Iowa Department of Natural Resources (DNR) to ensure that Iowa's waters are protected from activities having the potential to worsen water quality. States and Tribes must establish a three-tiered antidegradation policy and implementation procedure. The DNR is proposing a four-tiered approach and guidance document establishing procedures for implementing the antidegradation policy.

Tier 1. Existing surface water uses and the level of water quality necessary to protect the existing uses will be maintained and protected.

Tier 2. Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless a review of reasonable alternatives and social and economic considerations justifies the degradation. Such a review will need to be demonstrated in an alternatives analysis, which is an evaluation that must explore non-degrading and less-degrading pollution control measures.

Tier 2½ - Outstanding Iowa Water (OIW). Where high quality waters constitute an outstanding state resource, such as waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Tier 3 - Outstanding National Resource Waters. Where high quality waters constitute an outstanding national resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Tier 2½, the OIW category, represents a new, much higher level of protection than has ever been provided by Iowa's water quality standards. Previously, the department utilized two high quality water designations – Class HQ High Quality Waters and Class HQR High Quality Resource Waters. The current proposal for this updated antidegradation policy will apply the protection that was originally only afforded to Class HQ and Class HQR waters to ALL designated waters of the state (this represents an additional 22,000 miles of Iowa's streams - essentially any stream that has perennial flow).

(continued on page 7)

Staff Comments...

***Happy Birthday* IOWATER!** Ten years ago, who could have imagined that the dream of actively engaging Iowa's citizens in monitoring and protecting our state's water quality would become a reality? This coming year marks a very special anniversary for IOWATER – ten years ago a group of diverse individuals and organizations created a statewide water quality monitoring program. By putting aside preconceived notions of what citizen scientists could or should accomplish, this group laid the foundation for a program that took citizens off the sidelines and put them in the game.

Today, interest in Iowa's water quality is surging and the demand for clean, healthy water has never been greater. In IOWATER alone, 3,000 citizens have been trained in the basics of water testing and more than 23,000 stream assessments have been submitted for 5,000 sites. Incredible numbers in their own right, but even more impressive has been the increase in Iowans actively engaged in improving and protecting our state's waters. Legislation requiring watershed assessments for all major basins in Iowa and funding for a state water plan are evidence of this phenomenon.

However, as the floods of 2008 demonstrated, big challenges lay ahead and solutions may not be easy. If past performance during the last ten years is an indicator of future returns, we're hopeful that Iowans will continue to rise to the challenge.

In the meantime, IOWATER will celebrate its 10th Anniversary. *Stay tuned for details…*

Mary Skopec
IOWATER Program

2008 IOWATER Awards –

NOMINATE

your projects, groups, peers, & yourselves.

This is your opportunity to recognize those working to improve Iowa's water quality.

Award Categories:

- **Volunteer of the Year**
- **Professional of the Year**
- **Classroom of the Year**
- **Watershed Group of the Year**
- **Event of the Year**

Deadline: January 30, 2009.
Visit www.iowater.net for a nomination form.

IOWATER DATABASE UP & RUNNING...
The database had been inaccessible since the end of July. Additional security measures have now been added and it is up & running.

Please submit your data!

IOWATER
Volunteer Water Quality Monitoring

Iowa Department of Natural Resources
109 Trowbridge Hall
Iowa City, IA 52242-1319

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Scenes from the Opening Reception of the

2008 River of Words®

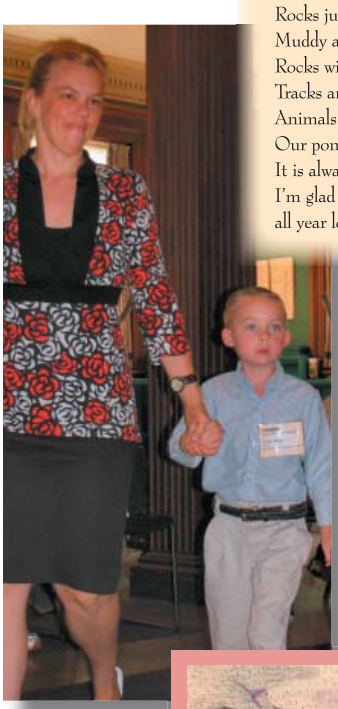
IOWA Environmental Poetry & Art Exhibit

works created by K-12 students in Iowa

September 7, 2008
Cedar Rapids Museum of Art

Iowa Pond

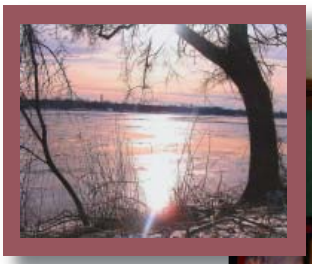
I look at nature.
Watch birds fly and frogs splash.
Days and nights, dawns and dusks.
It is always changing.
White and hard in winter.
Rocks just click and skid on ice.
Muddy and dark in summer.
Rocks will splash and ka-thump!
Tracks and sounds all winter.
Animals and insects all summer.
Our pond is nature.
It is always changing a little.
I'm glad we have it near us
all year long.



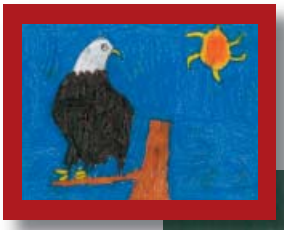
Grades K-3 IOWA WINNER *in Poetry, Tristan Paton (shown with his mother in photo to the left), was the youngest exhibitor in this year's show. He wrote his award-winning poem,* Iowa Pond, *at age* 5½.

Andrea Jilovec (above), Education Coordinator for the Cedar Rapids Museum of Art, welcomed the 2008 River of Words IOWA Environmental Poetry & Art Exhibit. *Liz Christiansen (far left), Deputy Director of the Iowa Dept. of Natural Resources, spoke to the audience about the importance of engaging Iowans in exploring our natural environment.*

The Calm through the Storm *(left) by Hannah Harms (photo below, left).*



Pat Lohmann (above, right), Iowa River of Words Coordinator, presented certificates to all exhibitors and prizes to the award winners. Kayla Leming (above, left) exhibited two photgraphs in the show, Mississippi Magic (top) and Mississippi Mallards (bottom).

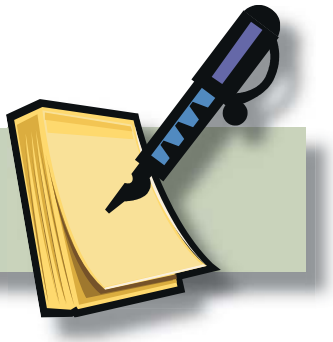


Home of the Brave *(above) by Reis Green (photo, right).*

An IOWATER *display with a Bug Quiz (photo below, right) and Water Game was set up for the kids to enjoy.*

For more information *about* River of Words® *or to enter the* 2009 competition, *visit* **www.iowater.net** *and click on the* River of Words® logo.

Volunteer viewpoints
. . . in their own words.



Student Research at Burlington Community High School

by Tami L. Plein

Kirstin (left) places the composite sampler hose in the creek while Whitney (right) sets up the temperature probes for the creek and sample jar water.

Water quality parameters are influenced by many environmental factors. The interaction of these factors must be considered when trying to analyze the data collected. The objective of our students' research project was to investigate two different water collection methods and to further investigate the effect of temperature on fecal coliform reproduction in creek water. This study is especially important for smaller rivers and creeks whose shallow depth make them more susceptible to temperature fluctuations.

Burlington High School researchers Kirstin Kramer and Whitney Plein had performed a previous experiment that suggested that fecal coliform bacteria in creek water may be reproducing, thus skewing the reported amount of fecal coliform in water samples, making it difficult to determine the actual trend in fecal coliform levels in Flint Creek. Flint Creek, located in southeast Iowa, drains over two-thirds of Des Moines County. It runs through a county park that is used for educational and recreational purposes.

The student researchers did not have the appropriate equipment to test water temperatures in the 13-20°C ranges. An IOWATER grant provided funding for an Incufridge, allowing them to run controlled tests on water in this range.

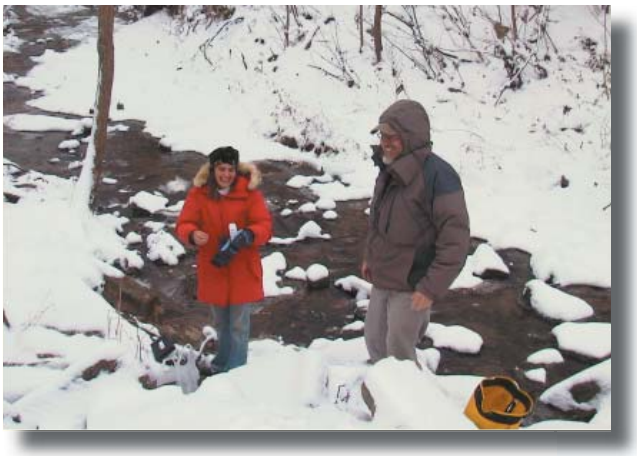
The data collected supported the hypothesis that under ideal conditions, fecal coliform bacteria are capable of exponentially reproducing in the creek at temperatures between 13-25°C. A mathematical model was generated from the data that can be used to determine the maximum amount of fecal coliform reproduction that could be occurring in the creek. This model was developed to help adjust for varying water temperatures in the creek thus allowing comparison of samples taken when the temperatures are not the same between testing dates.

The second part of their research was to determine if grab and composite sampling techniques were comparable methods for collecting water samples used for fecal coliform testing. Based on the data collected, grab and composite samples may not provide a similar count of fecal coliform levels in a warm water creek during the fall season. Overall, the grabs and/or composites were similar to each other in 19 of 32 comparisons. The grabs were only similar 50% of the time. The average of the grabs was only similar to the composites 50% of the time. More testing and analysis of the data needs to be completed before any conclusions can be made.

This research will hopefully help in determining whether or not fecal coliform levels are changing significantly in Flint Creek as a result of various riparian efforts in the watershed over the last 15 years.

A Rock in the Stream

by Jack Eastman



Diana Krystofiak and Jack Eastman monitoring Indian Creek in December 2007, the day that we first recorded a particularly high chloride concentration.

Water either flows around obstructions, or it wears them down – however long it takes. Water takes the path of least resistance. Not a bad strategy. Five months into our weekly IOWATER mini-grant monitoring, with winter blowing in strong, I also contemplate some least resistance in the form of a one-month monitoring sabbatical.

We chose December 8 for our final 2007 Indian Creek monitoring. It had snowed that week, and who would have guessed the surprise we were in for that crystal white, wintry Saturday, bundled in coats, shivering through the routine – a chloride reading over six times higher (643 mgL) than what we had ever recorded for Indian Creek! We stared at the tall white triangular peak on the Quantab strip.

Just as we were heading for vacation, a signal – that white peak – drew us back. We had to investigate. Who could resist? To make a long story short, after plan changes, stepping up test locations and frequencies, we isolated three sources of road salt runoff contamination of Indian Creek: 1. runoff from city streets and state highway; 2. runoff from D.O.T. salt storage facility; and 3. runoff from the city's inadequately stored road salt. The highest concentrations were coming from the city's salt pile.

Here was an obstruction to a healthy stream, with only one way around – through the city. We notified the Fairfield mayor, who was genuinely concerned, and select city council members. The salt pile had to be covered. It required a new building. Budgetary issues come into play. Competing concerns vie for limited resources. We watch. Winter moves to spring, spring to summer.

Our highest chloride reading came from a monitoring site we chose for its proximity to the city's salt pile; an alarming 5,326 mg/L. One study claims "an estimated 10% of aquatic species will exceed their critical tolerance values for chloride with prolonged exposure to concentrations above 220 mg/l, many of the macroinvertebrates upon which the more tolerant species feed might exhibit lower tolerances." Stream studies in northern New York revealed that, "benthic diversity decreases as salinity (an associated road salt influence) increases." Iowa, at the time of this writing, had no standards for chloride concentrations. The EPA guidance for a chronic standard is 230 mg/L. The EPA guidance for an acute standard is 860 mg/L.

Winter will soon be approaching. Road salt supplies will be ordered. Will the piles be covered? Will the health of a stream be restored, the obstruction removed? It may take a few more phone calls, more letters, more city council meetings. Whatever it takes...

We'd like to hear from you, so **send us a note...** about your IOWATER activities, thoughts, and ideas **...in your own words.**

QUIZ: WATER QUALITY AT HOME

Clear water = Clean water → True or False

1. Which of the following can contribute to water pollution?
a. Pet waste
b. Washing your car in the driveway
c. Changing your oil and dumping it on the ground
d. All of the above

2. Where does the water that runs down your street and into the storm drain by your home end up?
a. It goes to the wastewater treatment plant to be cleaned.
b. It drains down holes and goes deep underground.
c. It drains to the nearest body of water.
d. None of the above

3. Which of the following is safe to pour into a storm drain?
a. Motor oil
b. Latex paint
c. Grass clippings and leaves
d. None of the above

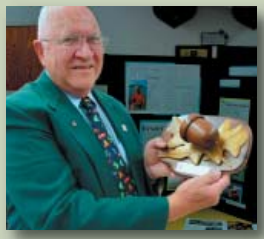
4. Running a faucet for two minutes uses how much water?
a. 30 gallons **b.** 5 gallons
c. 75 gallons **d.** 1 gallon

5. What can you do to help improve water quality where you live?
a. Monitor the water quality in your watershed. **b.** Volunteer for a river cleanup event in your community.
c. Reduce your use of water at home. **d.** All of the above

Answers at the bottom of page 7.

IOWATER *action!*

Press releases, events, & news articles involving* IOWATER *monitors – Many thanks to all of you for your continued efforts.



Story County – "Conservation Champion"
Erwin Klass of Ames has been recognized by the Iowa Natural Heritage Foundation (INHF) as the winner of the 2008 Lawrence and Eula Hagie Heritage Award. The INHF annually presents the award to someone who provides extraordinary service to Iowa's environment. Erwin is involved with numerous environmental causes and projects including IOWATER. *Congratulations Erv!*

Photo by Stacie Bendixen/INHF.

If we missed your happenings, please call or email Jackie Gautsch with an update.

For waters designated as OIW, degradation is prohibited except from short-term effects, as defined in the proposed procedures. This prohibition applies to Clean Water Act regulated activities for new sources and expansion of existing sources (for example, wastewater treatment plants).

No new discharges resulting in degradation would be allowed to an OIW categorized waterbody, unless the discharge from the permanent new or expanded sources serve to maintain or enhance the value, quality, or use of the OIW. New industries, on-site systems, and quarries and existing permitted dischargers will not be allowed to add any additional pollution to the stream. This means municipal wastewater treatment plants that discharge to OIWs will have limited options when expanding their wastewater treatment plants. The additional pollutant loading that may result will need to be land applied, piped to a different watershed, or treated to a higher extent so that no additional pollution is added to the stream.

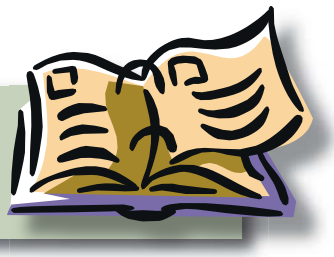
An OIW degradation prohibition may have a significant impact and may shape the way an area develops over time. Since this protection can significantly affect multiple interests, it requires thoughtful consideration, review, and public participation to determine if the OIW level of protection is appropriate. The proposed nomination procedures to add a waterbody to the OIW category can be found in the proposed Antidegradation Implementation document at www.iowadnr.com/water/standards/antidegradation.html. Individuals are invited to present oral or written comments at a series of public hearings listed below. Written suggestions or comments on the proposed amendments will be accepted through January 29, 2009.

DNR seeks public comment on Antidegradation Policy and Implementation Rule at the following public meetings:

- **Dec. 12** (1:00 pm) in the fifth floor conference rooms of the Wallace State Office Bldg, 502 East Ninth St., Des Moines, IA
- **Dec. 15** (10:00 am) in the Washington Public Library at 120 E. Main Street, Washington, IA
- **Dec. 17** (10:00 am) in the Storm Lake Public Library at 609 Cayuga Street, Storm Lake, IA
- **Dec. 17** (6:00 pm) in the Atlantic Municipal Utilities Conference Room at 15 W. Third Street, Atlantic, IA
- **Dec. 18** (1:00 pm) in the Clear Lake Community Meeting Room at 15 N. Sixth Street, Clear Lake, IA
- **Jan. 8** (7:00 pm) in the Waitt Bldg (Iowa Lakeside Lab) at 1838 Hwy 86, Milford, IA
- **Jan. 14** (10:00 am) in the Manchester Public Library at 304 Franklin Street, Manchester, IA,
- **Jan. 14** (6:00 pm) in the Northeast Iowa Community College - Waukon, Room 115 at 1220 3rd Ave., Suite 102, Waukon, IA
- **Jan. 15** (1:00 pm) in the Davenport Public Library, Film Room at 321 Main Street, Davenport, IA

For more information, view the complete rule proposal at www.iowadnr.com/water/standards/antidegradation.html or, contact Adam Schnieders at (515) 281-7409 or adam.schnieders@dnr.iowa.gov.

Upcoming events
. . . cleanups, snapshots, & more.



Jan 30, 2009 (Fri); Deadline for IOWATER Volunteer Nominations. Contact: Lynette Seigley at (319)335-1598 or Lynette.Seigley@dnr.iowa.gov. See www.iowater.net, click on Volunteer Recognition.

Jun 20-27 (Sat-Sat); Project AWARE – Cedar River Contact: Brian Soenen at (515)205-8587 or Brian.Soenen@dnr.iowa.gov.
See www.iowaprojectaware.com

Answers to WATER QUALITY QUIZ on page 6.
1. d; 2. c; 3. d; 4. b; 5. d