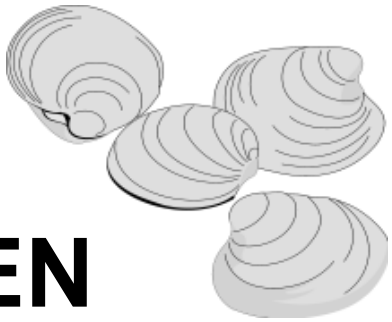
IOWATER
Volunteer Water Quality Monitoring

THE
IOWA
CITIZEN
MONITOR



VOLUME 4:1 Winter 2003

IOWATER Data and the Meaning of Life

Brian Soenen and Mary Skopec, Iowa DNR

Many of us have taken time out of our hectic schedules to routinely monitor our IOWATER sites. When asked the question, "Why do we monitor?" we all have our own reasons. Some of us monitor to satisfy our curiosity, others want to find out what's in the water that our children play in, and others want to help the state of Iowa better understand our water resources. There are absolutely no wrong answers to this important question, and for all reasons we'd like to say a heartfelt, "Thank you!" and "Keep up the good work!" IOWATER is a program for all of us and we are encouraged to shape the program to suit our needs – whatever those needs may be.

For volunteers who want the State to use their data, there has been some confusion about how the state may or may not use volunteer data. This confusion has led some people to make the incorrect assumption that the State does not use or value this data. Let's "clear the water," then, and discuss how the State of Iowa uses information collected by volunteers.

Uses of water-quality data are best understood if we break them down into regulatory and non-regulatory uses. Data collected for regulatory purposes are used to support legal action and have a much higher "burden of proof." In the state of Iowa, regulatory data may be collected to determine if someone is exceeding their waste-water discharge permit, dumping chemicals illegally, or violating other water-related laws. By comparison, non-regulatory data may be collected for research purposes or to understand and track the status and trends of Iowa's water quality. Because these purposes do not have legal ramifications, the requirements of the data may be much less stringent.

What does all of this have to do with volunteers? The primary way that volunteer data could be used for regulatory purposes within DNR is through the development of the 305b Report and the 303d List. Section 305b of

(Continued on page 4)

What's Inside ...

IOWATER *Action!*

Monitors in the Water

Here are some examples of IOWATER in the news, events, and/or news releases involving IOWATER monitors. Thanks for all of your efforts!

- **Black Hawk County –** Sherman Lundy hosted an Earth Science Week open house at Raymond Quarry which included an IOWATER booth.
- **Cass County –** Sonya Mikkelsen and Naturalist Andria Cossolotto included IOWATER in Atlantic High School's geology class.
- **Dickinson County –** The Dickinson County Water Quality Commission provided $9,000 to the Dickinson County Conservation Board and Friends of Lakeside Lab to hire an intern to promote water quality and IOWATER.
- **Hamilton County –** Leah Maass was named an Iowa Master Farm Homemaker by Wallace's Farmer Magazine. She also helped with the Southfork and Briggs Woods watershed projects.
- **Iowa County –** Naturalist Maria Koschmeder conducted a program highlighting IOWATER at Lake Iowa Park in August.
- **Kossuth County –** Prestage- Stoecker Farms donated $500 to Algona High School for the purchase of waders, which students use while testing the Des Moines River.
- **Kossuth County –** Stephanie Weisenbach of Clean Water Action organized a rally that coincided with National Monitoring Day. Speakers were Scott Moeller (county naturalist), John Bilsten (Algona Municipal Utilities GM), Paul and Phyllis Willis (pork producers), Chris Peterson (Iowa Farmers Union VP) and Laura Kerlen (assistant county naturalist).
- **Kossuth County –** Bill Funnemark and his Corwith-Wesley-LuVerne biology students, Robert Bunn and his Woden-Crystal Lake biology students, Steve Young and his Algona biology students, Tom Froehlich and his Garrigan biology students and the naturalists of Kossuth County for were involved in National Monitoring Day activities.
- **Linn County –** Volunteers at Cedar Rapids Prairie High School and the Linn Soil and Water Conservation District continued their efforts with the Hoosier Creek Watershed Project.

IOWATER
Volunteer Water Quality Monitoring

Iowa Dept. of Natural Resources
Wallace State Office Building
502 E. 9th Street
Des Moines, IA 50319

Jacklyn Gautsch
Interim IOWATER Coordinator
jacklyn.gautsch@dnr.state.ia.us
(515) 281-4476

Brian Soenen
IOWATER Natural Resources Interpreter
brian.soenen@dnr.state.ia.us
(515) 281-6640

Lynette Seigley
Research Geologist
lseigley@igsb.uiowa.edu
(319) 335-1598

Stefanie Forret
Information Specialist
stefanie.forret@dnr.state.ia.us
(515) 281-3150

- **Mitchell County –** Dale Adams, Rick Jacobsen and Travis Kuntz continued their work on Turtle Creek and involved the St. Ansgar FFA in water monitoring.
- **Mitchell, Floyd & Butler Counties –** Dale Adams continued his involvement with the Tri-County Rural Water Project and motivated schools in Mitchell and Floyd Counties.
- **Muscatine County –** Dave Bakke and Leslie Eichelberger motivated residents to take an active role in preserving clean water and included young children in their monitoring.
- **Muscatine & Louisa Counties –** Matt McAndrew hosted a data presentation from a snapshot sampling in Muscatine and Louisa counties.
- **Sac County –** The Sac County Farm Bureau Public Relations and Education Committee sponsored IOWATER events in the summer of 2002.
- **Scott and Muscatine Counties –** Elizabeth Horton-Plasket of the Iowa Environmental Council and Jennifer Anderson of Nahant Marsh participated in a National Monitoring Day event with students from Truman Elementary School.
- **Statewide –** The RABGRAI team spread the word about IOWATER.
- **Story County –** Jim Colbert and the Skunk River Navy organized a river clean-up of the Skunk River and increased the awareness in local college students.
- **Story County –** Steve Lekwa and the Squaw Creek Watershed Council spread the word about National Monitoring Day.
- **Wright County –** Clarion-Goldfield Middle School, Steve Haberman, and Bruce Voigts used IOWATER in the classroom, and Denny Murphy secured a grant from Monsanto.

Compiled by Jacklyn Gautsch.

Did I Miss It?

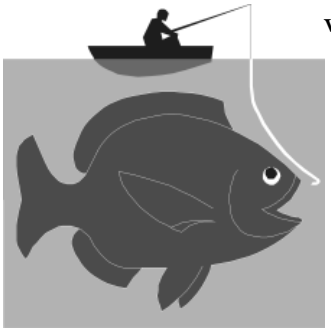
(No, You Didn't!)

If you think it's been awhile since you've seen an IOWATER Citizen Monitor, you're right. We didn't send you a Fall issue in 2002. However, the Winter 2003 issue is jam-packed with some very important stuff. Be sure to check out this issue's feature article, "IOWATER Data and the Meaning of Life," which sheds some light on the many ways the state uses volunteer data. Also, don't miss reading about the results from Iowa's first ever statewide snapshot sampling - and how you can be a part of the next one.

Happy Reading!

(Continued from page 1)

the Federal Clean Water Act (CWA) requires that states assess their waters every two years and to report the status of their waters in a report commonly referred to as the "305b Report." Waters that do not meet their "beneficial uses" are then listed according the requirements of the Clean Water Act Section 303d. Beneficial uses are made up of "general uses" and "designated uses" and refer to the intent of the Clean Water Act to maintain the integrity of our nation's waters. The different categories of designated uses are Class A (Primary Contact or Swimmable), Class B (Aquatic Life or Fishable), and Class C (Drinkable). Waters that have designated uses are protected to a higher degree than general use waters, which are prohibited from excessive pollution or gross negligence. The table at the end of this article shows the water quality standards for various designated uses. (For additional information on the 303d List or the 305b Report, refer back to the article beginning on page four of the spring newsletter entitled ***Water Quality in Iowa: The Section 305(b) Report.***)



Because data used to assemble the 303d list has regulatory implications (including more stringent wastewater permits, changes in farming practices, and potential lawsuits), the DNR has developed guidelines or recommended methods of monitoring. These guidelines state that **a minimum of monthly sampling** (except when the water is frozen) is necessary to accurately assess whether or not a water body is impaired. The data used to make the assessment **should also be collected over a designated two-year period. For the most recent assessment, this two year period runs from Oct 1, 1999 through September 30, 2001.**

In order make sure that data collected by volunteers were strong enough for the DNR's *regulatory* functions, the Iowa Legislature passed the Credible Data Law in 2000. This law sets the standard for volunteer data to be used in DNR's regulatory programs and basically **requires Quality Assurance Project Plans in order for data to be considered credible**. Quality Assurance Project Plans (QAPPs) document the methods used to collect samples, the personnel who collected the sample and their level of training, and the methods used to analyze the samples. The standard applied to the volunteer data is the same standard that professional data is held to for use in regulatory programs.

While the Section 305b Report is mandated by the Clean Water Act, in many ways its function is non-regulatory. Its purpose is to describe the status of the State's water quality and the extent to which state waters meet the goals of the CWA. Iowa's credible data law does not require that volunteer data be covered by a QAPP in order to be included in the 305b Report (although it is certainly desirable). As with the 303d List, it is suggested that volunteer data be collected on a monthly basis during the two-year reporting period so as to provide an accurate assessment.

Was volunteer data used in the current 305b Report and 303d List? The short answer is yes and no. Most IOWATER volunteers did not become trained until well into the current reporting cycle and we did not provide guidelines to you on the desired monitoring frequency. Therefore, it was difficult to do a full assessment on volunteer data. Additionally, the rule requiring a QAPP for 303d listing was only just finalized in August of 2002. However, the State has been looking at the volunteer data. Where the data was incomplete or inconclusive in order to make an accurate assessment, the site has been placed on a list for further investigation. As with any new program, we have learned valuable lessons in how to fit within an existing framework and will be better able to contribute to the next reporting cycle.

Is there life beyond 305b and 303d? Not surprisingly, the regulatory world has many hoops

and hurdles. If you are feeling discouraged, read on! In many ways, the non-regulatory uses of water quality data are just as important and pertinent to improving our water quality. Much of the data collected by scientists never sees a courtroom or a regulator's desk, but is used to guide and shape our understanding of water quality in such a way to make positive changes. For example, much of the water quality data collected historically has been on larger rivers and streams. The information you collect on small streams helps to fill a large gap in our understanding of the role of headwater streams on the ecology, nutrient cycling, and overall health of our aquatic environments, even if it never sees the pages of a 303d list. Volunteer data is being used to identify areas in need of more in-depth professional monitoring, direct land-use activities, and to determine where effective implementation of best management practices could improve water quality.

So how is volunteer data being used in non-regulatory ways? Several examples are provided here to help you understand how the state uses the data today and what future uses may arise.

One of the key questions about our streams today is related to the condition of stream banks and the amount of riparian vegetation in the stream corridors. Efforts to stabilize stream banks and plant buffer strips to filter nutrients will only have limited success if the small, headwater streams do not have adequate riparian corridors. By looking at the percentage of IOWATER sites with riparian corridors less than 25 meters, we can see that there is still an enormous potential for continued erosion of stream banks and movement of nutrients into the stream **(Figure 1)**. This potential may vastly overwhelm the efforts we have made on larger streams. Furthermore, much of the ecological "energy" is produced in the small headwater tributaries. Leaf litter, macroinvertebrates, and rooted vegetation are the base of the complex food web that supports the larger streams. Your observations on

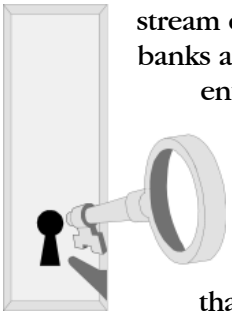
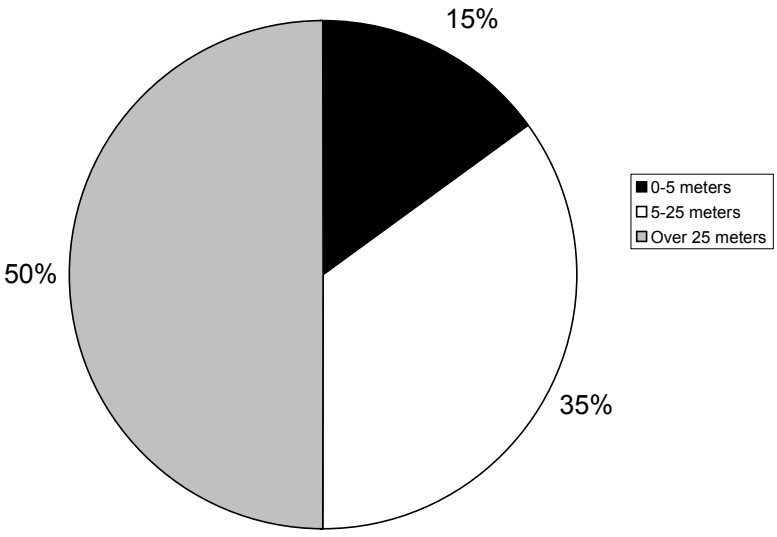


Figure 1. Riparian Zone Width 5/2000 - 10/2002



the presence of these energy sources or lack thereof, help scientists understand the downstream condition of Iowa's larger streams. Similarly, the graph showing the percentage of canopy cover during the summer months and average dissolved oxygen, temperature, and transparency suggest potential impacts of decreased canopy cover.

Volunteer data has also been used to document instances of excessive pollution in general use streams. These volunteers have worked with local, county, and state officials to identify the sources of pollution and to begin the process of addressing these sources through a variety of state and federal programs. Because this type of gross pollution is more likely to be found in small streams where volunteers focus their monitoring (larger streams are more able to dilute and process the pollution), the role of volunteers in identifying this type of pollution and informing state officials is very important.

One of the most expensive and difficult parts of assessing a watershed is the labor involved with collecting data at many different sites. In some cases, it is necessary to collect lots of data during a very short time period in order to see the variation in chemical or physical tests throughout the watershed. This is where monitoring partnerships between volunteers and state and

(Continued on page 6)

(Continued from page 5)
local officials have been extremely helpful. So far, "snapshot" sampling events around the state have helped to isolate "hot spots" or areas where more focused monitoring is needed. For example, IOWATER-trained volunteers participated in a snapshot sampling of the Cedar River during the summer of 2000 and again in the spring of 2001. More than 60 sites covering the area from the headwaters in Minnesota to the mouth at Conesville, Iowa were sampled within a four-hour period. This sampling event highlighted areas of higher than average bacteria counts within the urban area of Cedar Rapids and resulted in the Linn County Health Department developing a focused project to examine the causes and possible solutions to the bacteria levels.

A snapshot sampling in Scott County looked at the differences in water quality between the rural and urban areas and shows the impact of land-use changes along the urban fringe. A professional/volunteer partnership sampling on Whitebreast Creek in southern Iowa is being used to identify areas where best management practices could be implemented to improve the overall water quality. Without the participation of volunteers, snapshot sampling can become prohibitively expensive and therefore would limit our ability to collect this type of data. Because *trained* volunteers are participating in these efforts, the credibility and quality of the data collected is enhanced, while ensuring a quantity of data that assists the State in protecting our water resources.

How can we continue to expand the usefulness of volunteer data? The IOWATER team is working to develop tools to better interpret the data in the future. One of the challenges for data collected by both professionals and volunteers is determining how habitat and biological data reflect water quality. In some cases the answer is obvious (when all you find are bloodworms). But when the impacts are more subtle, it takes more sophisticated tools to understand the changing water quality. In particular, the IOWATER staff will be working with volunteer coordinators in other states to explore ways of summarizing the benthic data to provide more information than just presence/absence.

We are also looking at new test methods to better match the data needed by the staff writing the 305b Report and 303d List. We have been field testing a new ammonia test for the past several months and hope to be able to provide volunteers with this new test in the coming months. Keep in mind that the IOWATER program was just beginning to get its feet wet during the current 305b reporting period. As volunteers continue to collect data in the future, the data will more completely cover the reporting period and will become increasingly valuable to the State as longevity is the single most powerful element to a dataset. Lastly, the IOWATER staff are working on an annual report showing the status of our State's waters based on the volunteer data. Look for this report by early next year to see what we have learned.

Beneficial Uses of Iowa's Waters

· Beneficial Uses can be found in Chapter 61 of Iowa's Water Quality Standards www.epa.gov/ost/standards/wqslibrary/ia.ia.html

· Beneficial Uses are also available on the IOWATER interactive map at www.iowater.net

305b Report Guidelines

· Monthly sampling frequency is suggested for chemical tests (when open water is present, do not walk on thin ice or sample when water is too high to be safe).

303d List Guidelines

· State approved Quality Assurance Project Plan is required (see IOWATER staff for help writing QAPP and receiving approval).

· Monthly sampling frequency is suggested for chemical tests (when open water is present, do not walk on thin ice or sample when water is too high to be safe).

Special thanks to John Olson with the DNR for helping us put this article together!

IOWATER 2003 Level I Workshop Schedule

Date/Time	Location	Contact & Address	Phone/E-mail
April 4, 5 – 9 p.m April 5, 8 a.m. – 2 p.m.	Cedar Rapids *Prairie High School Room C224*	Jennifer Koopmann, Linn SWCD 3025 7th Ave Marion, IA 52302	(319) 377-5960 jennifer.koopmann@ia.usda.gov
April 11, 5 – 9 p.m. April 12, 9 a.m. – 3 p.m.	Harlan *Nishna Bend Recreation Area*	Christina Groen 516 Maple Rd Harlan, IA 51537	(712) 744-3403 cgroen@fmctc.com
April 25, 5 – 9 p.m. April 26, 8 a.m. – 2 p.m.	Muscatine *Muscatine Community College*	Dave Bakke, Muscatine CCB 2007 Saulsbury Rd Muscatine, IA 52761	(563) 264-5922 dbakke@co.muscatine.ia.us
May 9, 5 – 9 p.m. May 10, 9 a.m. – 3 p.m.	Warren County *Annett Nature Center*	Angela Biggs 909 E 2nd Ave Ste B Indianola, IA 50125	(515) 961-5264 Angela.Biggs@ia.usda.gov
May 16, 6 – 9 p.m. May 17, 9 a.m. – 4 p.m.	Milford *Horseshoe Bend*	Barbara Tagami , Dickinson CCB PO Box 97 Terril, IA 51364	(712) 853-6491 bartag@hotmail.com
June 25, 8 a.m. – 5 p.m. (Teachers ONLY)	Cedar Falls *Univ. of Northern Iowa*	Sherman Lundy PO Box 2277 Waterloo, IA 50707	(319) 235-6583
June 27, 5 – 9 p.m. June 28, 9 a.m. – 3 p.m.	Ionia *Twin Ponds Nature Center*	Dana Dettmer, Chickasaw CCB 1811 240th Street Ionia, IA 50645	(641) 394-4714 danadettmer@hotmail.com
Aug 1, 5 – 9 p.m. Aug 2, 9 a.m. – 3 p.m.	Bettendorf *Surrey Heights Fire Station*	Jeff West 18124 242nd Ave. Bettendorf, IA 52722	(563) 332-3113 JKWEST3@aol.com
Aug 11, 5 – 10 p.m. Aug 12, 5 – 10 p.m.	Fort Dodge *Bob Heun Shelter at John F. Kennedy Park*	Karen Hansen Nelson Ave Fort Dodge, IA 50501	(515) 576-4258 khansen@webstercountyia.org
Aug 15, 5 – 9 p.m. Aug 16, 9 a.m. – 3 p.m.	Williamsburg *Kirkwood College Center*	Maria Koschmeder, Iowa CCB 2550 G. Ave Ladora, IA 52251	(319) 655-8466 iccbee@netins.net

Congratulations 2002 IOWATER Award Winners!

THE 2ND ANNUAL VOLUNTEERS IN NATURAL RESOURCES CONFERENCE was held Nov. 22-23, 2003, at the Airport Holiday Inn in Des Moines. More than 200 volunteers and natural resources professionals enjoyed two fun-filled days of workshops, food, and networking. IOWATER also bestowed top honors on some very active monitors. Congratulations to those very deserving individuals, and keep up the great work! *(Pictured with the award winners is Iowa DNR Director Jeff Vonk.)*

IOWATER Volunteer of the Year – Dale Adams

Professionally, Dale has been involved in water-quality issues since 1989 and recognizes the importance of monitoring. He is currently an environmental specialist with the Iowa Department of Agriculture. Dale's passion for water quality doesn't end when he leaves the office, however – he monitors several streams in Mitchell County, and actively recruits others to "get wet" through monitoring. Dale hopes to someday pass on his sites to other individuals or organizations that he recruits. He credits Don Lund, another IOWATER monitor, with getting him started on monitoring in Mitchell County, as Dale took over several sites that Don previously monitored. Dale saw it as an opportunity to put into practice what he learned in IOWATER. To date, he has successfully involved students and teachers from the St. Ansgar FFA and biology class, Osage High School, Riceville schools, and Marble Rock schools, as well as the Mitchell County Conservation Board.

IOWATER Professional of the Year - Ellen Hartz

Ellen is a science teacher with ECHO Alternative High School in Tiffin. She began water-quality monitoring and education efforts on her own for ECHO students in 1998, then connected these to IOWATER when the program began in 2000. Ellen teaches a 32-week course that meets four hours weekly and is devoted to water quality. She leads her students in monitoring sites in Iowa County. Ellen's students are literally "in the water" two to three hours each week. The students also learn how to be stewards of their environment and are involved with other natural resource activities such as attending Groundwater Association meetings, visiting the U.S. Geological Survey, independent studies, and presenting at the Ankeny Children's Water Festival.

IOWATER Educator of the Year - Ron Wilmot

Ron has involved his students with water monitoring since 2000, when they sampled the Big Sioux River. He has also taken his class to Iowa Lakeside Lab for a field and research project, consisting of three days in the fall and three days in the spring, using high-tech equipment to conduct water monitoring. Under his direction, Ron's students have performed a water runoff study of the LeMars NRCS office property, which covers 38 square miles. Some other natural resource activities the students are involved with include a feasibility study for a wind turbine, a cricket frog study in Union County, South Dakota, a small mammal survey of Mt. Talbot in Stone State Park, elevation markers for Milford Site, and NatureMapping. Through Ron's leadership, his students have also prepared presentations for city councils, service groups, the local school board, state school board conventions, state and national teacher workshops and conferences, and four presentations at the school per year.

IOWATER Watershed Group/ Organization of the Year – Squaw Creek Watershed Council

The Squaw Creek Watershed Council came into being in March 2001. Its mission is "to provide leadership in protecting and improving the environmental health of Squaw Creek Watershed by facilitating cooperative involvement of urban and rural residents in raising public awareness and promoting educational programs and targeted actions." The council has accomplished this through their monitoring of Squaw Creek and its tributaries, and they have increased public awareness of watershed issues through town meetings and watershed boundary signs. In addition, the council has sponsored local presentations on the CREP Program, septic systems, and flood plain management and coordinated field trips to a remnant marsh in the watershed and the Bear Creek riparian buffer project. The group has actively promoted IOWATER monitoring by its members and throughout the watershed. More than 170 sets of IOWATER volunteer data from 49 sites in the watershed have been recorded. The council has also participated in work days at a prairie restoration site along Squaw Creek and in removing trash from Squaw Creek and its tributaries.

Congratulations!

IOWATER Monitors Participate in National Monitoring Day

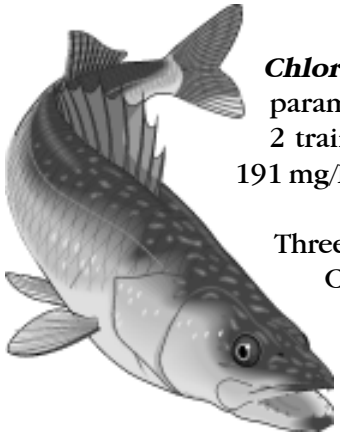
Lynette Seigley, Research Geologist

October 18, 2002, marked the 30th anniversary of the passage of the Clean Water Act. To celebrate the event, volunteer monitors from across the U.S. were encouraged to test their waters as part of National Water Monitoring Day. The monitoring event was to provide a snapshot in time of water resources in the U.S. The event, the first of what is intended to be an annual event, was coordinated by America's Clean Water Foundation. Nationally, monitors were encouraged to measure water temperature, pH, dissolved oxygen, and water clarity/turbidity.

In Iowa, IOWATER monitors were encouraged to participate in National Water Monitoring Day by monitoring their regular sites between 10 a.m. and 2 p.m. on October 18 and to complete any or all of the IOWATER field assessments. Data collected were then submitted to the IOWATER database. Results from the sampling were intended to provide a picture in time of water quality in Iowa. (Note: The results below include only data submitted to the IOWATER database and none of the data submitted to the National Water Monitoring Day Web site. Since not all IOWATER monitors were able to sample on Friday October 18, this summary includes data submitted to the IOWATER database for sites monitored from October 16 through October 20.)

A total of 68 sites were monitored in 24 Iowa counties; three of the 68 stream sites monitored were dry. Two of the dry sites were in Lucas County in southern Iowa and have been dry since July 31, 2002; the other dry site was in Black Hawk County. Table 1 summarizes the results from the sampling. All samples were collected using standard IOWATER methods. For 10 sites, the October 18 sampling represented the first time these stream sites were sampled. All other sites have been monitored before, and some have been monitored 25 times or more.

pH. The pH levels from IOWATER sites varied from 7 to 9, with an average of 8. Of the 64 streams sampled as part of the snapshot sampling, 78% had a pH of 8 or 9. (A pH of 7 is neutral; pH values greater than 7 are alkaline or "basic," while a pH less than 7 is acidic.)



Chloride. Only 30 IOWATER sites were sampled for chloride. (As chloride is a Level 2 parameter, only half of those who participated in the snapshot have completed Level 2 training.) Chloride concentrations ranged from below detection (<25 mg/L) to 191 mg/L. The average chloride concentration was 30 mg/L.

Three sites that were sampled – a site in Black Hawk County, another in Dubuque County, and a third site in Johnson County – reported elevated chloride concentrations of 92, 150 and 191 mg/L, respectively. The Black Hawk County site has been sampled monthly for the past year, and the 92 mg/L is the highest chloride level reported for this site to date. The Dubuque County site has reported chloride concentrations above 100 mg/L for the past year. The monitor for this site has noted livestock adjacent to this stream site. The Johnson County site is downstream of a municipal wastewater facility. This is the first time this site has been sampled, although it has been used for Level 2 workshops, and elevated chloride has been noted during those workshops.

Orthophosphorus. Orthophosphorus concentrations ranged from 0 to 5.0 mg/L. The average concentration was 0.2 mg/L. Six sites reported orthophosphorus concentrations of 1.0 mg/L or higher. These sites were located in Black Hawk, Johnson, Linn, Polk and Sioux counties. The site in Black Hawk County had an orthophosphorus value of 1.0 mg/L, a concentration that has been recorded at this site previously. The orthophosphorus level in the Johnson County stream was 3.0 mg/L. This was the first time this site has been monitored. The site is located downstream of a municipal wastewater outfall, and also reported elevated chloride levels (191 mg/L). The Linn County site had a value of 5.0 mg/L, a level that has also been measured at this site before. Two sites in Polk County had an orthophosphorus concentration of 1.0 mg/L. Both sites also had a nitrate-N value of 5 mg/L. The site in Sioux County has been monitored seven times since August 2000. Each time the site was sampled, orthophosphorus values have been greater than 1 mg/L. Nitrate-N concentrations tend to be elevated at this site also, ranging from 2-10 mg/L. This site receives runoff or discharge from a golf course, a municipal wastewater facility, and a meat packing plant facility. All of these facilities are located in the watershed above the site, and all are within four miles of the monitoring site.

Dissolved Oxygen. The average dissolved oxygen for the sites sampled was 8 mg/L; the lowest dissolved oxygen value was 4 mg/L, recorded at a site in Mitchell County – the first time dissolved oxygen had been measured at this site. Another site in Johnson County had a reading of 5 mg/L. The Johnson County site has been monitored for dissolved oxygen on 14 different occasions, and low dissolved oxygen concentrations have been recorded previously at this site. Eight sites reported a dissolved oxygen concentration of 6 mg/L. These sites were scattered throughout the northeast quarter of Iowa and included one site in Polk County. For most of these sites, previous monitoring has reported similarly low dissolved oxygen levels.

Water Temperature. Water temperatures from the snapshot ranged from 29 to 59 degrees Fahrenheit and the average was 48. Most of the sites that had lower water temperatures were located in the Squaw Creek Watershed near Ames in Story County.

Nitrite-N and Nitrate-N. For the snapshot sampling, nitrite-N concentrations ranged from 0 to 1 mg/L. The majority of sites had 0 mg/L or a very low concentration. More than 65% of the sites had 0 mg/L; only 5% of the sites had nitrite-N greater than 0.15 mg/L. Of the sites with elevated nitrite-N concentrations, the site in Johnson County usually has low (0.15 to 0.30 mg/L), but detectable levels of nitrite-N. A site in Sac County had a nitrite-N concentration of 1 mg/L; very few samples have been collected at this site, and the 1 mg/L is the highest concentration to date.

Nitrate-N concentrations ranged from 0 to 20 mg/L, with an average of 2 mg/L. The highest reported nitrate-N concentration was 20 mg/L at a site in Cerro Gordo County near Mason City. This concentration was the highest nitrate-N value ever measured for this site. Three sites had nitrate-N concentrations of 10 mg/L: one in Sioux County in northwest Iowa; a site in Story County in central Iowa; and a site in Fayette County in northeast Iowa. Elevated nitrate-N has been reported previously for the site in Sioux County, whereas the nitrate-N result from the Fayette County site was the highest recorded to date for that site. The site in Story County has had elevated nitrate most of this year, with a high of 20 mg/L recorded in July 2002.

(Continued on page 12)

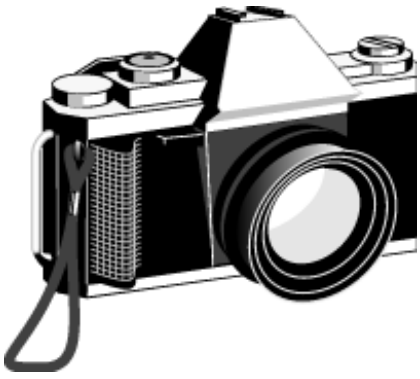
(National Monitoring Day ... continued from page 11)

Transparency. A cluster of sites monitored in the Squaw Creek Watershed near Ames in Story County and another group of sites in and around the Shell Rock River area of Butler and Floyd counties all reported transparency values greater than 40 centimeters. Water transparency was high for the majority of streams sampled, as 75% of the sites had a transparency of 50 centimeters or greater (Table 1). This was not unusual given the time of year and lack of rainfall prior to sampling. For one site in Butler County, the transparency reading of 51 centimeters was the highest reported for this site to date. The lowest transparency values were 17 and 19 centimeters for sites in Buchanan and Johnson counties, respectively. For the site in Butler County, 17 centimeters was one of the lower values reported for this site. For the site in Johnson County, past monitoring has reported similar low transparency measurements.

Table 1. IOWATER Statewide Snapshot Sampling Results for October 18, 2002.

Parameter	Unit	# of samples	Min Value	Percentiles			Max Value
				25th	50th	75th	
Water Temperature	degrees F	63	29	45	48	51	59
pH	pH units	64	7	8	8	9	9
Dissolved Oxygen	mg/L	65	4	8	8	10	12
Nitrite-N	mg/L	64	0	0	0	0.15	1
Nitrate-N	mg/L	65	0	1	2	5	20
Chloride	mg/L	30	<25	<25	30	36	191
Transparency	centimeters	59	17	51	60	60	60*
Orthophosphorus	mg/L	63	0	0.1	0.2	0.3	5.0

Note: Three sites that were monitored were dry: two in Lucas County and one in Black Hawk County.
**** The maximum transparency reading that can be recorded using the transparency tube is 60 centimeters.***

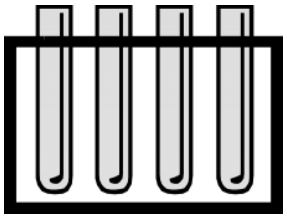


Future Statewide Snapshots. The IOWATER program gratefully acknowledges everyone who took their time to monitor sites as part of the first statewide snapshot sampling. We plan to build upon this first event by coordinating a statewide snapshot sampling in the spring and fall of every year. The spring 2003 snapshot is scheduled for Saturday, May 24, 2003, and the fall snapshot will be conducted again in October, in conjunction with National Water Monitoring Day.

For a more detailed summary of the first statewide snapshot, including a comparison of data to streams sampled statewide during October as part of Iowa's long-term stream network and maps showing results from the snapshot, visit the IOWATER Web site at **www.iowater.net**.

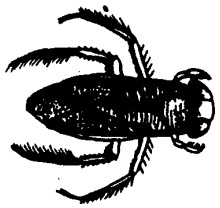
Get Involved in Upcoming Snapshot Events

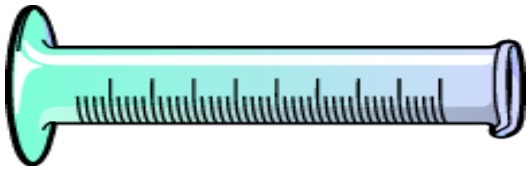
Saturday April 12
Whitebreast Creek Watershed
(Marion, Lucas, Clarke & Warren Counties)
Contact: Angela Biggs
(515) 961-5264
Angela.Biggs@ia.usda.gov



Saturday May 10
Middle Wapsipinicon River Watershed
(Tripoli to Independence)
Contact: Vicki Wilson
(319) 827-1690

Tuesday May 13
Muscatine County
Contact: Matt McAndrew
(563) 263-4601
Matt.Mcandrew@ia.usda.gov

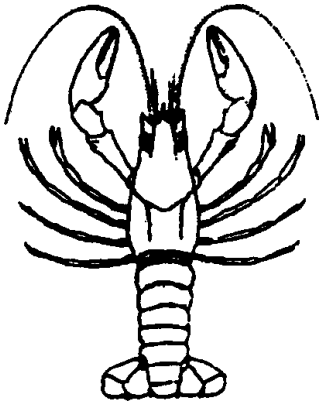




Tuesday May 20
Scott County
Contact: Heidi Carr
(563) 391-1403 (ext. 3)
Heidi.Carr@ia.usda.gov

Saturday May 24
IOWATER Statewide Snapshot
Contact: Lynette Seigley
(319) 335-1598
lseigley@igsb.uiowa.edu

Sample your regular monitoring site between 10 a.m. and 2 p.m. Then before May 31, submit your data to the IOWATER web site. A summary of the data will be sent to those who submit data, and the report will also be posted on the web site. If you're interested but unable to sample on May 24, you can sample on Friday, May 23 or Sunday, May 25.



River of Words:
Share Your Creativity!

Brian Soenen, IOWATER Natural Resources Interpreter

Nothing stimulates the mind and inspires the soul more than the artwork or poetry of our children. Perhaps it's their innocence, or possibly even their ignorance, which brings fresh outlooks, new perspectives and truth to their work. For whatever reason, the imagination of a child is something to be treasured, nurtured and encouraged. In the words of Albert Einstein, "Imagination is more important than knowledge." The artwork and poetry created from a child's imagination provides us with their perception of reality, which may ultimately lead to the truth.

"Every child is an artist. The problem is how to remain an artist once he [she] grows up."
– Pablo Picasso

IOWATER is pleased offer the children in your lives the opportunity to express themselves through art and poetry via the *River of Words* (ROW) program, an international poetry and art program designed to nurture respect and understanding of the natural world. If you know a child aged five to 19 years (no college students – elementary and high school students only) who may be interested and willing to share their talents, we want their artwork and poetry! Entries for River of Words may be as simple or as complex as you chose. Perhaps the children undergo an intense watershed investigation – everything from a watershed driving tour to benthic macroinvertebrate studies – which, upon completion, they choose to write a poem or draw a picture illustrating their watershed experience. Or, perhaps, a short trip to a nearby water body may be all it takes to get the creative juices flowing. The beauty of art and poetry is that knowledge of science is not a prerequisite to participate. The thoughts and feelings we get when we simply observe and participate in the natural world around us will suffice.

Participation in ROW is free – except postage. All entries must be postmarked by February 15 to be entered in the 2003 competition, however, entries are accepted year round (entries postmarked after February 15, 2003, will be entered in the 2004 competition). For specific information (artwork and poetry requirements, due dates, contact information, etc.) please visit the ROW Web site at www.riverofwords.org, or contact me (Brian Soenen). Essentially, ROW entries are sent to ROW headquarters in Berkeley, CA, where they are entered into the international competition. Grand-prize winners receive a free trip to Washington D.C., where they are honored for their talents. After the international competition is held, remaining entries for the state of Iowa will be sent back to IOWATER so that we may hold a statewide ROW contest of our own. Good luck and happy ROWing!

ENTRIES MUST BE POSTMARKED BY FEBRUARY 14!

Trained in 2000? NOW HEAR THIS

It is time to check over your IOWATER supplies to make sure they are in tip-top shape, especially the reference color ampoule plate in the CHEMets Dissolved Oxygen kit. This plate DOES have an expiration date. Carefully pull the plate out of the black case and check the back. If the ampoule reference plate is expired, you need a replacement for accurate readings. To receive a replacement or any resupply materials please contact Jackie. Be sure to brush up on the IOWATER Resupply Policy below.

IOWATER Resupply Policy 

Because of the need for future materials for your monitoring, and the need of the IOWATER program to justify the expense of continuing to supplying these materials, we have created an **"IOWATER Program Criteria for Receiving Additional Monitoring Equipment and Supplies."** These criteria are as follows:

To receive additional consumable IOWATER monitoring supplies (CHEMets® Dissolved Oxygen replacement supplies, CHEMets® Phosphate replacement supplies, Hach® Nitrite-N/ Nitrate-N test strips, Hach® pH test strips, Hach Chloride titrators, or Micrology Laboratories, LLC. Coliscan Easygel® bacteria monitoring supplies), you must **at a minimum** submit to the IOWATER database:

- One IOWATER Level 1 Stream Habitat Assessment
- One Biological Assessment, and
- Three Chemical/Physical Assessments

These will be calculated on the basis of one "monitoring season" of January 1 to December 31 of a given calendar year, and will be supplied upon request for reasons of supplies becoming expired, or supplies depleted because of monitoring activities.

To receive additional non-consumable supplies, due to breakage, loss, or expanding of a monitoring program, the above criteria must be met in addition to a written request sent to the IOWATER program. Items may include transparency tubes, fiberglass tape measures, aquatic thermometers, benthic nets and other items.

All supply requests will be handled under the sole discretion of IOWATER staff and may be contingent upon availability of requested materials. The IOWATER program may discontinue this policy at any point in time, especially due to financial constraints.

IOWATER
Iowa Dept. of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319-0034
www.iowater.net

IOWA'S WATER
Ambient Monitoring Program

3rd Annual Water Monitoring Conference

Sponsored by Iowa's Ambient Water Monitoring Program

February 19-20, 2003
Scheman Building - Iowa State Center
Ames, Iowa

Register Online at www.igsb.uiowa.edu/water! - Deadline is Feb. 14.

- *Changes in beach monitoring*
- *Pesticides in Iowa lakes*
- *Factors that affect our groundwater resources*
- *Discussion of 2002 Impaired Waters(303d) List*
- *How volunteer data is making a difference*
- *And much more!*

Poster Displays Welcome!

Sponsored by the Iowa Department of Natural Resources - Iowa Geological Survey. To register for the conference, visit www.igsb.uiowa.edu/water and look for the link on the front page. For additional information or to reserve your poster display space, contact Stefanie Forret.