JULY 2022 | Rathbun Regional Water Association

QUENCH

news by the glassful

AQUIFERS OF IOWA

Part 2; Other Types of Aquifers

CONTENT

QUENCH
news by the glassful

on the cover

Enjoy Iowa's Lakes and Streams responsibly by cleaning, draining and drying off your boat, fishing gear and bait buckets.

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QUENCH Magazine is published 2 times per year by the Iowa Rural Water Association (IRWA). The magazine is distributed by mail to IRWA members' consumers.

The IRWA Mission: To provide the highest leadership in the support of Iowa's water and wastewater industries through the provision of technical assistance, training and education, legislative, regulatory and public affairs, and financing activities.

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2021 Financial Summary for RRWA

The number of water meters that RRWA members had in service increased by 335 throughout the year and totaled 21,140 by the end of 2021. Water usage during the year from these meters increased by 110 million gallons or roughly 4% from 2020 numbers and totaled over 3 billion gallons in 2021. This increase in water usage was primarily the result of the additional connection and bulk water sales to Wapello Rural Water Association. RRWA's treatment plants at Rathbun Lake purified around 7.5 million gallons per day for the majority of its service territory with another 2 million gallons per day purchased for Des Moines, Henry and Lee Counties.

The 3 billion gallons in water sales generated revenues of almost $17.25 million for the Association and when combined with $250,000 collected from 750 Waste Water customers, accounted for over 85% of the total cash received during 2021. Another $715,000 in excise tax associated with water sales was collected for the State. Construction income and hookup fees charged for new additions to the distribution system brought in over $1.1 million while additional construction services and material sales provided to members, customers and other entities added $431,500. Income from RRWA's cash investments generated just over $220,000 in interest income throughout the year and all other cash received from miscellaneous sources during 2021 totaled $529,000.

Daily operating expenses of the company during 2021 required $6.7 million in cash and included in this segment was everything from the chemicals and electricity used to purify and pump the water to the fuel and repair costs associated with RRWA's trucks and construction equipment, or the office supplies and postage expenditures incurred throughout the year. Operating expenses in this segment increased 2% or $125,000 from the prior year. Another $5.4 million was spent on salaries, fringe benefits and payroll taxes for the company's 65 full-time employees. The next segment of cash expenditures was loan payments which required $3.7 million of cash. Interest payments totaled $1.4 million on an average loan balance of roughly $38 million throughout the year with principal payments making up the remaining $2.3 million.

Construction projects and improvements required almost $5.2 million throughout the year for the funding of costs associated with new individual customer hookups and the infrastructure needed for the connection to serve the City of Unionville and Putnam County in Missouri. New capital purchases required another $277,750; payments made to the State for excise tax totaled $741,750; and all other uses of cash totaled $131,750.

Total cash expenditures for the year added up to $22,248,750, which when compared with total cash receipts of $20,479,250, resulted in a negative cash flow during the year of $1,769,500. This cash shortfall had been anticipated for the year and was largely due to unusual construction activity and capital infrastructure improvements. Even with this negative cash flow, adequate cash reserves were in place and the company's balance sheet and financial ratios continued to remain strong in 2021 with the company's net worth or members equity increasing by over $1.8 million when compared to numbers reported the previous year while long term debt and liabilities decreased by $2.3 million.

The 45th Annual Membership meeting

was held at the RRWA Treatment Plant, 16166 Hwy J29, Centerville, IA on February 24, 2022 at 7:00 p.m.

Two directors were re-elected to serve a three-year term on the RRWA Board:

District 1
Randy Eddy – 23246 500th Street – Centerville, IA 52544

District 4
Kenneth Wuthrich – 21177 Mallard Avenue – Bloomfield, IA 52537

RRWA would like to thank members of the nominating committee for their willingness to serve. Members of the nominating committee were: Dan Furlin, Jr-Numa, Gary Dustin-Albia, Richard Breckenridge-Keosauqua, Leroy Perkins-Corydon, Darrell Krehbiel-Donnellson, Susan Knapp-Bloomfield, and Bill Hillyard-Burlington.

Other items discussed at the meeting were:

- The 2021 Financial Report of RRWA
- Tours of the RRWA Treatment Plants

RRWA BOARD OF DIRECTORS

Randy Eddy, *Chairperson*
Denny Amoss, *Vice Chairperson*
Doug Goben, *Secretary & Treas.*
Curt Frank
Garry Schiller
Charla Warner
Kenneth Wuthrich

RRWA PRODUCES *Award-Winning Drinking Water*

BEST TASTING WATER ACCOLADES

One of the most popular events at the Iowa Rural Water Association's (IRWA) annual conference is the organization's Best Tasting Water Contest. IRWA member rural water systems and community water systems across Iowa participate in the contest each year. Remarkably, drinking water produced by Rathbun Regional Water Association (RRWA) was selected by the panel of contest judges as among the state's best tasting in four of the last five years. The judges evaluate drinking water samples submitted by systems participating in the contest based on the combined criteria of clarity, bouquet, and taste. RRWA's water was selected by contest judges as Iowa's best tasting in 2018 and 2019. RRWA's drinking water was selected as the second best tasting in 2021 and as the third best tasting in 2022. In addition, RRWA's drinking water was voted the fourth best tasting water in the United States from among 42 other state entries submitted by systems at the National Rural Water Association's Great American Water Taste Test in 2019.

RRWA recognized as producing one of the best tasting drinking waters in Iowa.

MAKING QUALITY DRINKING WATER

RRWA takes enormous pride in being recognized as producing one of the best tasting drinking waters in Iowa and the nation. According to RRWA's water treatment plant superintendent, Jeremy Buckingham, "The RRWA board of directors and employees are all committed to doing everything possible to serve the highest quality drinking water to our customers." RRWA's dedicated and expert team of treatment operators is at the center of making the highest quality drinking water. Measures implemented to optimize treatment processes produce drinking water that far exceeds the quality and safety standards required by state and federal regulatory agencies. Importantly, RRWA's skilled distribution staff play a critical role in ensuring the same high quality drinking water that leaves the Association's treatment plants is delivered to customers' taps. In addition, RRWA's work with partners and landowners in the Rathbun Lake watershed helps supply raw water that makes it possible to produce drinking water of the highest quality. Ultimately, RRWA's success in producing one of the best tasting drinking waters in the state and country has been achieved due to the unwavering direction and commitment of resources provided by the Association's board of directors.

RRWA staff monitors the chlorine level in your drinking water to ensure its safety.

RRWA Water Treatment Q&A

Why does my water sometimes have a strong chlorine taste and smell?

Rathbun Regional Water Association (RRWA) changes from chloramines to free chlorine as our disinfectant once every three years, or as needed to ensure water quality. This periodic change to free chlorine helps maintain the sanitary condition of our water distribution system by preventing nitrification and controlling microbiological growth. RRWA usually makes this change to free chlorine in the spring of the year and it lasts for approximately two weeks. Your water may have a stronger chlorine taste and smell during this time, but it is safe to drink. RRWA notifies our customers about this change so that those who may be affected by free chlorine in their drinking water can take any necessary steps. Drinking water that RRWA purchases and delivers to customers from the Cities of Burlington and Keokuk may also occasionally have a strong chlorine taste and smell for the same reasons described above. Always contact Jeremy Buckingham, RRWA's water treatment plant superintendent, with any questions and for information about the quality of your drinking water by calling 1-800-233-8849.

Protecting Rathbun Lake

Understanding the Challenges of Lake Water Quality

IMPORTANT SOURCE OF DRINKING WATER

Rathbun Lake is the only source of raw water for Rathbun Regional Water Association's (RRWA) two water treatment plants. The Association's intake in Rathbun Lake has the capacity to supply more than 17 million gallons per day (MGD) to the plants. RRWA's treatment plants can produce in excess of 14 MGD of drinking water. On average, RRWA's plants supply more than 7 MGD of drinking water required for residential, farm, and business use by customers across the Association's extensive service territory. Nearly 70,000 people served by RRWA rely on Rathbun Lake for their drinking water.

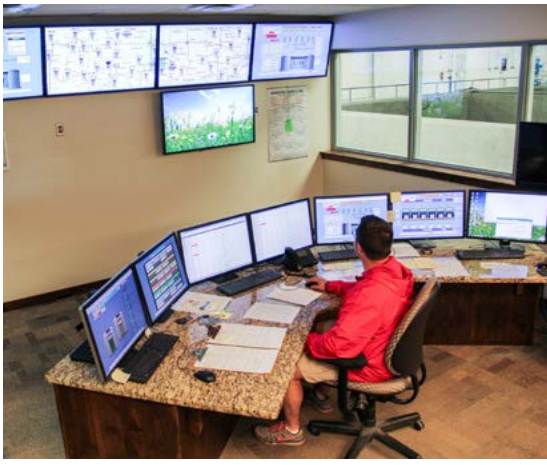
WATER QUALITY CONCERNS

RRWA and partners including the Rathbun Land and Water Alliance, US Army Corps of Engineers, Iowa Department of Natural Resources, and State Hygienic Lab monitor water quality in Rathbun Lake and the lake's tributaries. Monitoring results have identified turbidity from suspended sediment and algae as the primary water quality concerns in Rathbun Lake. These partners have determined that sediment and phosphorus carried in runoff from land in the lake's watershed are the principal causes of this turbidity. Soil erosion on land used for row crop production in the watershed is the main source of the sediment and phosphorus that impairs water quality in Rathbun Lake.

IMPACTS ON WATER TREATMENT

RRWA must address a number of treatment challenges presented by water quality concerns in Rathbun Lake. High levels of turbidity from suspended sediment and algae increase treatment costs and can interfere with the effective disinfection of drinking water. Excessive algae growth in Rathbun Lake can be the source of taste and odor causing compounds that affect the aesthetic quality of drinking water. In addition, algae blooms can release toxins which may pose a health threat if not removed by treatment. RRWA's success in overcoming these challenges requires knowledgeable and dedicated professional staff as well as constant investment in optimizing water treatment processes.

Sediment carried in runoff from cropland in the Rathbun Lake watershed impacts lake water quality.



Optimizing drinking water treatment requires constant vigilance by expert RRWA staff.

ATTENTION LANDOWNERS
IN THE Rathbun Lake Watershed

Your Help is Needed to Protect Rathbun Lake

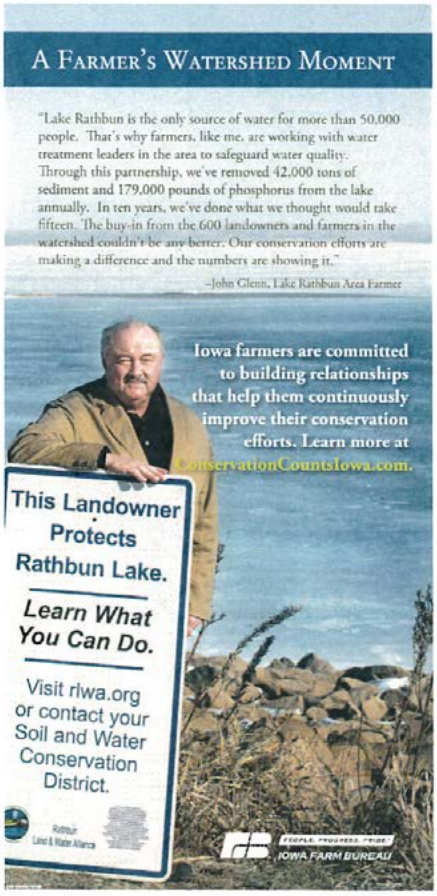
Landowners in the Rathbun Lake watershed are the key to protecting water quality in Rathbun Lake. Hundreds of landowners have already installed conservation practices on their land in the watershed. These practices reduce the amounts of sediment and phosphorus carried in runoff to the lake. The most commonly installed practices are terraces, ponds, and seeding cropland to hay and pasture. Assistance to install these practices is available to landowners in the Rathbun Lake watershed whose land is a main source of the sediment and phosphorus that impacts water quality in the lake. To find out if your land is eligible for this assistance, please contact the Soil and Water Conservation District offices in Wayne County (641-872-1350) or Lucas County (641-774-2512).

Ponds can be an effective conservation practice to protect water quality in Rathbun Lake.

JOHN GLENN
ANNOUNCES RETIREMENT
AFTER 47 YEARS

John Glenn has been with Rathbun Regional Water Association (RRWA) since 1974, one year before the first piece of pipeline was ever laid, acquiring right-of-way easements and then being in charge of RRWA's contract inspectors as they began to lay water lines throughout Southeast Iowa. John held many positions at RRWA and eventually advanced to the CEO position in 1997 and continued to lead the company in unprecedented success. RRWA grew under John's leadership from an original 4 county system with a few hundred customers in the very beginning to one of the largest rural water systems in the country. Today, RRWA serves all or parts of 18 counties in Iowa as well as 4 counties in Northern Missouri with 22,000 active meters, 22 franchised communities and 40 bulk connections with other cities and rural water districts.

Since John's appointment as RRWA's CEO in 1997, he has overseen growth in its customer base of more than 10,000 additional meters-in-service; annual water usage increasing from 1½ billion gallons a year to over 3 billion last year; production capacity increasing from only a 4 million gallon per day treatment plant to two treatment plants with 14 million gallons per day capacity; and total assets of the company growing from $70 million in depreciated assets to almost $150 million today with over $100 million in equity for its membership. In addition to the Association's impressive growth under John's leadership, Randy Eddy, RRWA Board Chair, points out that "One of John's greatest contributions to RRWA has always been his ability to assemble and guide a team of talented, dedicated, and hard-working professionals who care deeply about producing and delivering the highest quality drinking water to our customers."



John's leadership has put RRWA at the forefront of water utilities in Iowa. He has also significantly contributed to such important areas as source water protection and rural economic development. John is a current or former member of the board of directors and committees of the Iowa Rural Water Association, Iowa Association of Water Agencies, Rathbun Land and Water Alliance, Appanoose County Economic Development Corporation, Mercy Medical Center of Centerville, and a founding member of Appanoose County Cattlemen's Association. John has also served as a governor-appointed member of Iowa's Environmental Protection Commission. In addition, John Glenn is widely recognized for his efforts as a farmer and conservation leader in protecting Iowa's soil and water resources.

John was recently inducted into the Iowa Rural Water Hall of Fame. John was presented this honor during the IRWA's Annual Conference held at the Veteran's Memorial Community Choice Credit Union Convention Center February 21-23 in Des Moines, Iowa. For Iowa Rural Water Association, John served on the IRWA Board of Directors between 1996 and 2010, serving many of those years as Vice President of the Board. In addition to serving on the board, he spent many years as the Chair of the IRWA Bylaws Committee as well as the Chair of IRWA's Legislative Committee, where he still serves in that capacity. He has been a true advocate for rural water regulatory and legislative issues, making numerous visits to the Capital and attending countless meetings with elected representatives and DNR and EPA leaders. He was also selected by his peers as Rural Water System Manager of the Year in 1999 as well as promoter of the year in 2010. John was always counted on to support IRWA and its mission.

John Glenn addresses guests during the dedication of RRWA's second water treatment plant in 2013.

Hall of Fame Award Presentation Rod Glosser, IRWA Board President - John Glenn - Scott Shover, IRWA Chief Executive Officer

John made his announcement to the RRWA board in early 2021 to retire as CEO at December 31st, 2021 and agreed to remain in an advisor capacity as needed throughout the 2022 year. Since his decision to retire, RRWA has promoted the company's CFO, Rod Glosser, to the CEO position effective January 1st of 2022. Rod has been with RRWA for over 25 years. He obtained a Bachelor of Arts degree from Central College in Pella, Iowa majoring in both Accounting and Business Management and successfully passed the Iowa Certified Public Accountant exams. Prior to his employment with RRWA, he served in a similar position as CFO for a rural hospital in Iowa.

RRWA would like to thank John for his dedication and leadership in the water industry and his lifelong service to RRWA and the people and communities of Southeast Iowa and Northern Missouri.

Explore Career Opportunities at RRWA

Rathbun Regional Water Association (RRWA) is one of the premier rural water systems in Iowa and the United States. RRWA's team of employees is dedicated to serving high quality, reliable, and affordable drinking water to our customers in southern Iowa and northern Missouri. RRWA is always interested in receiving applications for employment from individuals who are responsible, hard-working, willing to learn, and team-oriented. Career opportunities at RRWA can include water treatment plant operators, water distribution system operators, construction crew members, customer service representatives, and other specialist positions. RRWA invests in our employees through competitive pay, exceptional benefits, an outstanding work environment, and opportunities for professional growth and development. RRWA is an equal opportunity employer. Interested in learning more about RRWA or completing an employment application? Visit RRWA's website at www.rrwa.net and download an application available under the Forms & Reports section. **Please call 1-800-233-8849 or email rrwainc@rrwa.net with any questions or for additional information.**

Call RRWA Today for Your Smart Meter!

RRWA customers tell us they love their smart meters. Here's what they say...

"A smart meter made my busy life easier with auto-pay and leak protection"

"Auto-pay with a smart meter is so convenient, no more mailing my payment"

"A leak notice sent by my smart meter saved me a ton of money"

"I no longer worry about water leaks with my smart meter"

"I am so excited that my smart meter is installed"

"I can't believe a new smart meter is free"

Join the thousands of RRWA customers who enjoy the benefits of having a smart meter.

Call Now for Your Free Smart Meter!

1-800-233-8849

2021 CONSUMER CONFIDENCE REPORTS

The Rathbun Regional Water Association, Inc. (RRWA) 2021 Water Quality Reports (CCR) are coming soon: Starting July 01, 2022, you will be able to view your RRWA System 2021 Annual Water Quality Report (also known as a Consumer Confidence Report, CCR) online.

If your account number begins with 01 - 30 log on to:
https://www.rrwa.net/CMDocs/RRWA/WaterQuality/2021-Water-Quality-Report-Rathbun.pdf

If your account number begins with 33 - 34, 42, 70 - 72 log on to:
https://www.rrwa.net/CMDocs/RRWA/WaterQuality/0400901_2021_CCR_1_Final-Ft-Madison.pdf

If your account number begins with 35 - 38, 40 - 41, 74 log on to:
https://www.rrwa.net/CMDocs/RRWA/WaterQuality/0400902_2021_CCR_1_Final-Burlington.pdf

If your account number begins with 39 log on to:
https://www.rrwa.net/CMDocs/RRWA/WaterQuality/4453901_2021_CCR_1_Final-Mt-Pleasant.pdf

Your 2021 Consumer Confidence Report contains important information about the source and quality of your drinking water. If you would like a paper copy of the CCR mailed to your home or sent as an attachment to an email, please call 641.647.2416 or email jbuckingham@rrwa.net.

AQUIFERS OF IOWA

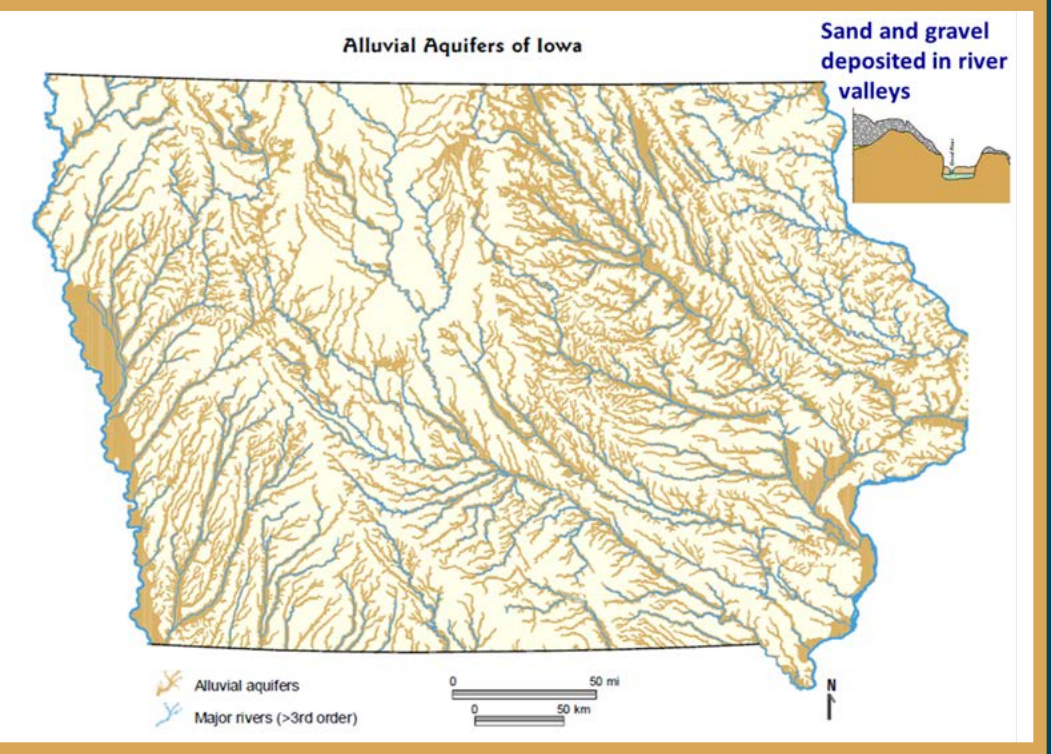
PART 2 | Other Types of Aquifers

Aaron Schroeder – *Source Water Protection Specialist – Iowa Rural Water Association*

As discussed in Part 1 of this article from the January 2022 issue of QUENCH Magazine, quality and availability of water can vary greatly across Iowa. In some areas, bedrock aquifers provide an adequate amount of good quality water. In many areas, other aquifers/water sources must be considered. Much of the material in this article is sourced from a publication called "Iowa's Groundwater Basics" as well as a presentation by Iowa Department of Natural Resources Geologist Chad Fields at the Iowa Rural Water Association's 2019 Annual Conference. A digital version of Iowa's Groundwater Basics is available online and is a great resource for anyone interested in learning even more about groundwater and aquifers.

BACKGROUND

Over time, precipitation and runoff permeates the ground beneath the earth's surface. Water slowly fills up pore spaces in sediment, sand, gravel, and bedrock. The resulting saturated material beneath the earth's surface is known as an aquifer. In Iowa, water from aquifers has many purposes including irrigation, industrial use, and most importantly—drinking water. Properties including the type of rock or material that makes up the aquifer, age of the water, and aquifer depth can have an influence on the characteristics and accessibility of water in an aquifer. In Iowa, aquifers take many forms including porous and permeable bedrock, saturated material adjacent to rivers and streams, and buried sand and gravel deposited by ancient river channels. There are benefits and drawbacks associated with each type of aquifer. Part 1 of this article from the January 2022 issue of QUENCH Magazine focused on bedrock aquifers in Iowa. This article will focus on other types of aquifers and water sources in Iowa.



ALLUVIAL AQUIFERS

Water-bearing sand and gravel deposits along river valleys are known as alluvial aquifers. In Iowa, the sediment that makes up alluvial aquifers can vary from fine sand along rivers deposited during recent flooding events to large sediment left behind by glacial meltwater thousands of years ago. Wells in these alluvial aquifers are often less than 100 feet in depth, in contrast to bedrock wells can be over 2000 feet deep in parts of Iowa. Alluvial aquifers often

serve as water sources for some of the larger public water supplies in Iowa. When stream flow is normal, water in alluvial aquifers is plentiful and easily accessible. Alluvial aquifers are the thickest and most productive along the Mississippi and Missouri rivers, where they can reach up to 150 feet in thickness and yields can be as high as 2000 gallons per minute. In locations such as central and western Iowa, where accessing bedrock aquifers can be a bit more difficult, alluvial aquifers are particularly common as a drinking water source.

Alluvial aquifers have their set challenges as well. Being relatively shallow, alluvial aquifers don't have overlying impermeable rock or sediment to protect the aquifer from contamination at the earth's surface. Water quality in alluvial aquifers often closely reflects the water quality of the associated river or stream which in Iowa is often influenced by nonpoint source pollutants such as agricultural runoff. To protect water quality in alluvial aquifers, proper watershed management practices are particularly important. Being so closely tied to surface water, the productivity of wells in alluvial aquifers can be affected by seasonal weather patterns and drought.

Buried Valley Aquifers

Buried valley aquifers are aquifers carved from ancient river valleys that are now filled with water-bearing sand and gravel. In most cases, buried valley aquifers are overlain by more recent glacial material, confining them from the surface. Being confined from the surface has some interesting effects on the characteristics of water in these aquifers. The confining material can cause "artesian pressures", meaning the water in a tapped well will rise above the level it was first encountered. Additionally, the confining material above buried valley aquifers means they often don't recharge as quickly as shallower alluvial aquifers—but the confining material helps prevent infiltration of contaminants from the surface. Productivity of wells in buried valley aquifers can be highly variable, but rates around 100 gallons per minute are common. As with productivity, water quality in these aquifers is quite variable as well. Compared to alluvial aquifers, water in buried valley aquifers has often been in the ground longer and has come into contact with bedrock aquifers. Consequently, elevated dissolved solids concentrations and ammonia levels can be common.

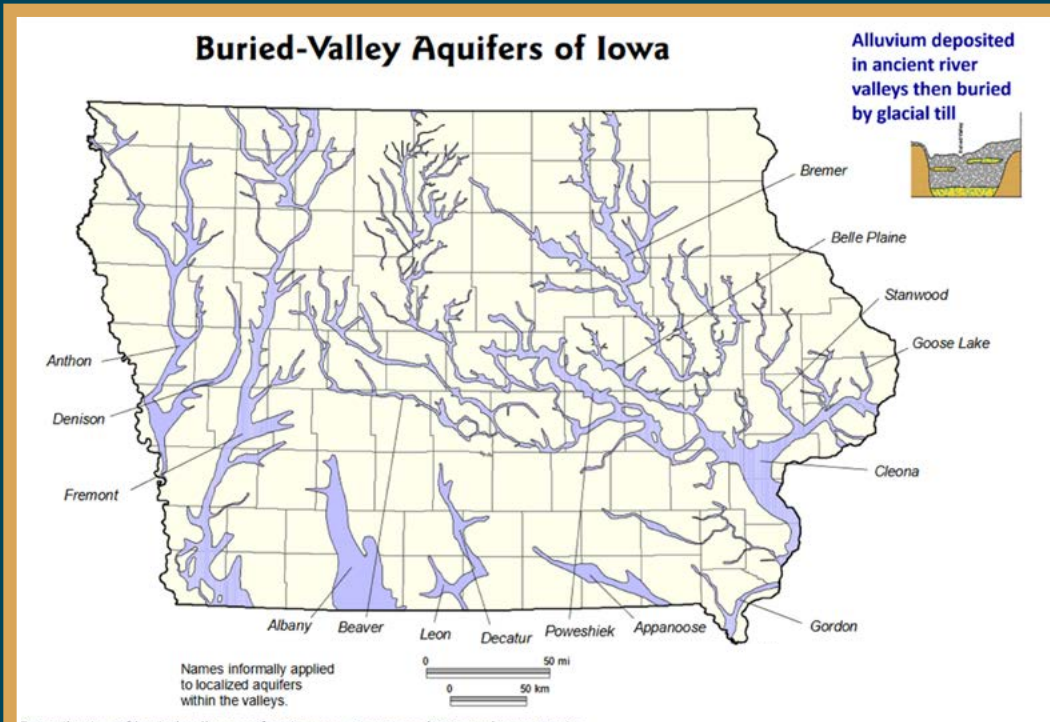
GLACIAL DRIFT AQUIFERS

In some parts of Iowa, buried glacial drift (rock material transported and deposited by glacial ice) serves as an aquifer. The availability and productivity of these "glacial drift" aquifers varies statewide. Relatively productive glacial drift aquifers can be found in north-central Iowa, where yields can reach up to 90 gallons per minute, whereas in northeast Iowa, glacial drift isn't present. Glacial drift aquifers are important water sources in parts of rural southern and western Iowa where alluvial or buried valley aquifers aren't accessible, and the increased depth and poor water quality of bedrock aquifers in the area makes them less desirable. Yields from glacial drift aquifers in southern and western Iowa is often less than 20 gallons per minute.

WHAT DOES ALL THIS MEAN?

The aquifers discussed in this article as well as those from the previous issue of QUENCH Magazine each present benefits and challenges for delivering quality drinking water to consumers. For most public water supplies, location and amount of water needed for their customers ultimately determine what source their water comes from. Regardless of what water source your water is being delivered from, know that there is a whole list of considerations that went into bringing that water to your tap.

Sources: https://s-iihr34.iihr.uiowa.edu/publications/uploads/2014-08-24_08-08-21_es-06.pdf



Distribution of buried valley aquifers in Iowa. From Iowa's Groundwater Basics

Cover Crop in Rathbun Lake Watershed

Nutrient Reduction Efforts in Iowa

Cathy Law; *Iowa Rural Water Association* | **Hunter Slifka;** *NRCS-CD, Cresco, Iowa*

Iowa's Nutrient Reduction Strategy was implemented in 2013. Since that time farmers, private businesses, municipalities and homeowners are demonstrating and implementing more conservation practices than ever before. Iowa has projects located throughout the state to implement and demonstrate water quality practices. This includes targeted watershed projects and projects focused on expanding the use and innovative delivery of water quality practices. Farmers have signed up to use a water quality-focused practice through the Water Quality Initiative. These farmers have invested millions to try cover crops, no-till, strip-till or a nitrification inhibitor on their land. Iowa farmers are responding to the call to action.

Rathbun Regional Water Association (RRWA) is a founding member of the Rathbun Land and Water Alliance. For the past 25 years, RRWA and other Alliance members and partners have worked with hundreds of landowners to install conservation practices on thousands of acres of land in the Rathbun Lake watershed. Rathbun Lake is the only source of water for RRWA's two water treatment plants. To date, these practices have reduced the annual delivery of sediment and phosphorus to Rathbun Lake by an estimated 70,000 tons and 290,000 pounds respectively. RRWA with other Alliance members and partners including landowners in the watershed have invested and committed more than $36 million for Rathbun Lake protection activities.

Lyon & Sioux Rural Water System (LSRWS), with the help of the Iowa Rural Water Association (IRWA), developed a Source Water Protection Plan in 2012 to protect their system's water drinking supply. The overall program involves identifying potential sources of contamination, delineation of the source water capture zones, establishing a contingency plan and promoting education and awareness.

Lyon and Sioux Rural Water Association owns a total of 470 acres for protection of their water supply:

- 244 acres at Doon

-168 acres at George

- 38 acres at Otter Creek

-20 acres near Beloit

Back in 2003, LSRWS entered into an agreement with the Lyon County Conservation Board to manage the Doon property, which is 244 acres. They have planted native grasses throughout and use this property as a wildlife management area. The Conservation Board has planted 2,000 trees in this area. This has been a very beneficial partnership – to both parties involved. In 2011, they began working with Lyon & Sioux at their George property, of 168 acres.

In addition, Lyon & Sioux worked with the Lyon County Zoning Board to adopt an ordinance restricting the land use within 4,000 feet of a public water supply, thereby eliminating potential sources of contamination.

Ryan Steffen water sampling in the Turkey River Headwaters

The Turkey River Headwaters & Chihak Creek Water Quality Project has documented and performed water sampling protocols since 2011. Overtime, there has been positive improvements, steady holdings, and some negative trends. Many of the parameters they test for are highly affected by rain events, air temperature or farming techniques adjacent to the streams. The two biggest improvements over time, especially in the last year, have been the flood reduction, turbidity levels and nitrate reductions within the watershed area. Every location they water sampled at this year had a lower nitrate level than the average levels that they have compiled since 2015. All locations had a nitrate reading of 8.6 mg/L or less, some as low as 4.4 mg/L. These levels all correspond and are below drinking water standards! Many of their sampling days landed right after a rain event or even during a rain event, which shows that Iowa streams are well protected and are keeping the sediment up on the landscape. Last September, the Turkey River & Chihak Creek area received a significant amount of rain. In years past this type of rain event would raise the streams to flood levels and sustain that for multiple days following. This particular event rose the streams above bankful and then subsided within 24 hours with minimal damage. After talking with fellow organizations downstream they incurred roughly $3.2 million worth of damage, which kept them just short of receiving FEMA disaster funds. However, after talking further it was quite a blessing there was only this amount of damage. Years prior it would have been estimated to incur $5 million or more worth of damage. The severity of this event was reduced due to the implementation of cover crops, wetlands, bioreactors & native seedings. The wetlands installed in the Turkey River Watershed can reduce peak discharge greatly while also providing huge nutrient reductions. Just in the Turkey River Headwaters they have installed 5 wetlands in the last year. Native seedings is also a very important statute to reduce flooding and keep the clean water clean. Just short of 6,000 acres of native seedings are established in the Turkey River Headwaters with a large majority of them along the stream corridor. The largest piece to the flooding puzzle is the increased amount of cover crops. In 2019, only about 1,200 acres of cover crops were seeded, this grew to 6,000 in 2020, then 12,000 in 2021 and they have already obligated 15,000 for this coming fall. This number of acres exponentially can increase infiltration rates and water holding capacity in crop fields while also providing nutrient holding benefits rather than letting them wash down the stream.

Lyon and Sioux Wetlands

Not one practice will solve all Iowa's water quality problems, but collectively we can achieve the nutrient reduction strategy. Recent reports indicate that Iowa's efforts are beginning to show real results downstream. The National Oceanic and Atmospheric Administration (NOAA) recently reported that the Gulf of Mexico "Dead Zone" is smaller than originally forecasted and has in fact stopped growing. The Dead Zone is approximately 5,400 square miles of ocean in the Mississippi River watershed of the coast of Louisiana with low to no oxygen which in turn kills fish and other marine life. While this is great news, there is still much work to be done. There are many groups in Iowa continuing with plans and efforts to maintain "Quality on Tap" in your area.

Sediment Basin in Rathbun Lake Watershed

RRWA

Rathbun Regional Water Association, Inc.

16166 Hwy J29
Centerville, IA 52544

1-800-233-8849 • WWW.RRWA.NET

WATER MATTERS:

AQUATIC INVASIVE SPECIES: *ZEBRA MUSSELS*

Over the last few years there have been several confirmed cases of an aquatic invasive species known as Zebra Mussels in many Iowa lakes. Zebra Mussels look like small, D-shaped clams that have alternating light and dark bands. Most are less than one inch long with sharp shells that can cut you if you walk on them. Aquatic Invasive Species (AIS) are organisms that invade ecosystems outside of their natural or historic ranges. They are also known as exotic, non-native, or non- indigenous. They have spread outside of their ranges due to intentional or unintentional introductions. Ways they are spread include emptying aquariums into lakes or streams, by way of watercraft and sea planes, or by recreational activities like fishing, diving, and hunting. Zebra mussels smother native mollusks as well as wreak havoc on irrigation intakes and boat motors. Cities that pull water from the lakes can also pull zebra mussels which then clog up pipes and cost money to control.

According to the Iowa Department of Natural Resources, Zebra Mussels are an invasive species that can take over a lake in only a few years. There is currently no treatment available to kill them that wouldn't kill other invertebrates in the system. For now the most important thing is to stop the spread to other lakes. As we approach summer and the boating season it's important to recognize your role in keeping our lakes healthy for all aquatic life.

3 WAYS TO PREVENT THE SPREAD OF ZEBRA MUSSELS:

1. Do not release your aquarium pets into the wild.
2. Do not move water, animals, or plants from one water body to another.
3. Clean, Drain and Dry off your boat. Power wash your boat and drain the water from bilge wells, your ballast, etc. to prevent the transfer of AIS. Dry the boat off from top to bottom. It's also important to clean off fishing gear and bait buckets.