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Oklahoma WATER ISSUES

Background: A farmer installs drip irrigation
Foreground: Variable pivot irrigation maps

PHOTO: FRED FISCHER
DIGITAL MAPS: LOREN SEAMAN

Update on Lake Texoma

North Texas Municipal Water District has not taken water from Lake Texoma since 2009, but by the end of the month they will resume operation of the district's pump station. The water will arrive at a water treatment plant in Wylie, and from there it will reach about 1.6 million people in the suburbs of Dallas.

Invasive zebra mussels forced the district to stop reservoir withdrawal under the federal Lacey Act, but congress has since passed an exemption. North Texas has also spent $300-million on a pipeline designed to filter the zebra mussels.

As of May 10th, the pool elevation at Lake Texoma was 608.68 feet. Near real-time data and information on Denison Dam at Lake Texoma can be accessed at http://www.swt-wc.usace.army.mil/DENI.lakepage.html.

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The New World of Irrigation

BY LOREN SEAMAN

It is not true that more water means more yield, and it never has been true. If it ever was true, it was only because we were so inefficient and didn't know any better! Time and again, we have proved a little less water provides the same or higher yields.

Many people are affected by irrigated agriculture across the world; good farmers, crop consultants, equipment dealers, suppliers, the transportation industry, grain handlers, marketers, processors, manufacturers, feed mills and of course the end users- feedlots and private consumers.

We all are involved and must regard water conservation of paramount importance.

A lot of advances have been made since the early 1960s, when we started to replace the furrow or flood irrigation approaches of yesteryear. Now, more than four decades later we have also learned the value of drip tape irrigation. Every day we are realizing more and more, the value of the water supply to agriculture, especially since drought conditions are upon us again. Water simply cannot be wasted. It is uneconomical to waste water for everyone, from the farmer on down.

Some of the most important advances, have been made by the enterprising businesses that we have throughout agriculture, including educators and researchers, product development teams and, retailers offering products. All have an interest in water conservation and have done a lot of effective work.

Sprinkler pivots were developed to even out the water application through the fields. The old practice

Turn to **IRRIGATION**, page 4

Reflections The Final Blow to Canton Lake?

BY JEFF CONVERSE,
CANTON LAKE ASSOCIATION

Sixteen months have passed since the gates closed on the 3rd release of water in a 3 year period from Canton Lake down the North Canadian River to Oklahoma City (OKC).

This release occurred despite stern objection by those who have economic and recreational interests in the lake and surrounding community, including the Canton Lake Association. This release also occurred in late January 2013 just before the most likely time that springtime rains could have potentially filled Lakes Hefner and Overholser naturally.

This potential became reality in late May when record rainfall fell in the OKC metro area. The resulting flood waters were not captured by OKC water supply reservoirs because they were already full of Canton Lake water. As a matter of fact, twice as much water bypassed OKC during the floods as was released by Canton Lake.

Given the fact that Lake Hefner is rapidly approaching the level where the last release occurred and more water is needed, it is important to look back at the damage that has occurred.

The extreme drought in western Oklahoma remains and is forecasted to persist or intensify this summer. Lake elevation is over 12.5 feet below normal level, up less than 3 feet from the immediate post-release level. Only 30% of the water remains.

As of this writing, OKC has not enacted any meaningful water restrictions and overall water use is steady to increasing with summertime lawn watering and evaporation on the near horizon. Canton Lake has not been directly affected by the drought but rather indirectly by the drought's effects on OKC.

"In the coming months, Canton Lake could face a grim scenario..."

It is a fact that OKC has taken more water than is missing from the lake. The lake would be at full pool without OKC withdrawals.

One could argue that OKC's never-ending obsession for economic growth and resistance to meaningful water use restrictions has as much to do with its water woes as does the drought. The future does indeed look bleak for Canton Lake.

In coming months, Canton Lake could face a grim scenario of a final blow being dealt by OKC. If rainfall does not occur quickly and abundantly in central Oklahoma, OKC will be back for more water.

This time, the quantity at stake is not some of the water but ALL of the water. Discussion will likely take place for the first time in the history of Corps of Engineers (nationwide) about utilization of inactive pool water (that which is not contracted to OKC but the bottom portion reserved for sediment deposition).

Ultimately, the decision to completely drain the lake will be made by the Corps of Engineers. Who will ultimately win this battle? Will the Corps take the side of OKC, which refuses to enact conservation measures and continues to waste copious amounts of Canton Lake water while outgrowing its water resources and not developing other supplemental water sources (i.e. groundwater)?

Or will it be Canton Lake and the conservation-minded citizens of rural Oklahoma who have an appreciation of the environmental, economic, aesthetic and recreational value of the resource.

First, pray for widespread rainfall then pray that Canton Lake wins the battle and avoids the final blow.

Tales of delusions

BY BO COX

"I'm not mentally ill!" he'll scream across the common area of the mental hospital where I work. It's a daily occurrence, followed by a demand to be released. For a moment, if this is the first time you've heard this, you might think he's onto something. After all, could a person who's not mentally ill advocate for themselves so effectively?

You can see it in his eyes. He's convinced he's not mentally ill. His assuredness is evident and your intuition picks up on that and, suddenly, you're wondering if you should help. Maybe talking to the doctors on his behalf would help? Should you write a letter?

It is human nature, when in the absence of evidence to the contrary and, even sometimes in the face of such evidence, to believe someone who obviously believes what they're telling you.

Minutes later, if you hang around, he'll tell you how the Chinese have kidnapped his family and that he's heard bomb threats in the air vents. Just yesterday, Vladimir Putin was after him. Now, if you still believe he's not mentally ill…

I am reminded of this man's situation when I hear Oklahomans (and others) say there is nothing harmful about selling Oklahoma water or that there's no such thing as downstream dependency. These folks have convinced themselves, for whatever reason(s), and they believe what they say. If you're not armed with the facts you may find yourself believing them.

There's another person at the mental hospital who wants anything anyone else has. If someone sets their book down they'll find her clutching it, swearing that it is hers. It's not just objects left lying about either. She'll go into others' rooms and, suddenly, she's wearing someone else's clothing. She'll scream, "It's mine! It's mine!" when confronted with reality.

Every time I see her grab for something that someone else has I am reminded of the myriad of folks who seem to think the water in Southeastern Oklahoma is theirs for the taking and don't see anything wrong with grabbing what they need or want.

No matter how influential you are, if you've been a poor steward of natural resources in your region and have become trapped in an unsustainable situation where you've depleted all your resources and now want and need more, it is delusional when you produce a plan to siphon water from another region with claims of responsibility and sustainability.

Suddenly, you've become a manifestation of both illustrations from the mental hospital; you want what others have and you believe if you repeat something enough—no matter what it is— it will be true.

There is another parallel that I can't help but see. Oftentimes, amidst many other factors, people with severe mental disorders tend to be extremely self-centered, self-focused. All of the dialogue from a gentleman who believes he is not mentally ill is about him and in his reality he is the center of the universe. The girl who takes things from others can't see past what she wants and, therefore, is incapable of seeing how her insatiable desire for others' possessions might actually affect someone else.

Mental health is a serious and real part of being human. Treatment and recovery is possible and that's one of the reasons I and many, many others work in the field. I believe that people can recover from seemingly hopeless states of minds.

Water is a serious and real part of life. I am sure the good folks of the ORWP are much like people in the mental health field. They simply want to help others see clearly. They are Oklahomans for Responsible (not profitable/marketable/wasteful) Water Policy.

BO COX is a an author and writer in Norman, OK. His highly acclaimed works include God is not in the Thesaurus (1999) and I Will, with God's Help: A collection of meditations (2013). You can find his books at amazon.com and episcopalbookstore.com.

Enid seeks to use Kaw Lake as primary source of water

Enid, OK, which is increasingly gaining a reputation for responsible water management, has taken the first steps to using Kaw Lake as the city's primary source of water, rather than expanding water well fields or building a new lake.

City Engineer Chris Gdanski plans to meet with the Oklahoma Water Resource Board and the U.S. Army Corp of Engineers prior to filing an application later this year to use and store water at the lake. His staff had previously considered, but rejected expanding the water well field or building a new lake, but they concluded it was not a "sustainable option."

Instead, building a pipeline and requisite pumping stations is the preferred course and would likely take five years in order to move 15 million to 18 million gallons per day to meet the city's future needs.

Gdanski did not set a price tag for the project but did say the city would explore sharing the costs with the city of Stillwater which also draws water from Kaw Lake.

Ward 6 Commission David Vanhooser has said he wants to keep a significant percentage of Enid's water source in the well field.

"Right now we're in the middle of one of the worst droughts we've seen in decades and we still have water resources."

BRENT KISLING
Executive Director
Enid Regional Development Alliance

Meanwhile, the Enid Regional Development Alliance has said a Northwest Water Action Team has been assembled to take all the water studies performed in the area and the team will create a plan to make sure there is a long-term water supply for growth in northwest Oklahoma.

Brent Kisling, executive director of the alliance, said northwest Oklahoma is not out of water, as some believe.

"Part of this is changing the conversation about water in our area, but also to find long term solutions," he said. "Right now we're in the middle of one of the worst droughts we've seen in decades and we still have water resources. But the time to plan for the future is not when you turn on the water faucet and nothing comes out. The time to plan is when you still have resources and you just learn how to maintain those."

Kisling added the project will cost $150,000 and the Alva City Council has already committed $10,000. Budget requests of $50,000 each have been made to the city of Enid and the state of Oklahoma with the remaining $50,000 to be requested from other communities and organizations in northwest Oklahoma.

He added that it will be important to hear from everyone, no matter the size of the community and whether water use is consumptive or non-consumptive.

Oklahoma urged to seek money from U.S. Watershed Rehabilitation Fund

Jim Grego, chairman of the Oklahoma Conservation Commission, has called on the state to seek at least its share of $250 million in federal assistance for watershed rehabilitation, noting that much of the state's watershed infrastructure is deteriorating and near the end of its usefulness.

Grego, who also is secretary of the Latimer County Conservation District and vice president of the Latimer County Farm Bureau, in a letter to the Tulsa World, said there are about 1,600 structures that collect excessive rainfall and distribute it downstream when needed. But most of those structures were built in the 1950s and 1960s and they need to be repaired or replaced because they fill with dirt and debris and their mechanical gates and overflow systems deteriorate.

State legislators need to come up with matching funds to seek the federal monies that are set aside in the recently passed farm bill. He also urged the Oklahoma Farm Bureau, Oklahoma Conservation Commission and the U.S. Department of Natural Resources to support the maximum amount possible for the state.

STATUS OF THE ARBUCKLE-SIMPSON MAXIMUM ANNUAL YIELD APPEAL

BY AMY FORD

On October 23, 2013, the Oklahoma Water Resources Board (OWRB) approved the Final Determination of Maximum Annual Yield for the Arbuckle-Simpson Groundwater Basin. The decision marked the culmination of over a decade of work by local citizens to ensure a sustainable yield from the aquifer. Immediately afterwards, certain corporate special interest groups, including the Oklahoma Farm Bureau Legal Foundation, Oklahoma Independent Petroleum Association, Oklahoma Cattlemen's Association, and Oklahoma Aggregates Association (Petitioners), appealed the OWRB's final decision to the district court of Oklahoma County. Recently, Petitioners filed a Motion for Discovery and Hearing on Procedural Irregularities and for Scheduling Conference. A hearing on Petitioners' Motion is scheduled for June 6, 2014.

The Oklahoma Water Survey has launched a water data web portal and watershed dashboard.

Water Data Web Portal

These must-see tools are available to the public for free at **http://data.oklahomawatersurvey.org/portal/**

Oklahoma WATER ISSUES

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Russell B.B. Doughty · *Editor*

IRRIGATION

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Subsurface drip irrigation line conserves water otherwise lost in open-ditch irrigation canals.

Photo: Fred Fischer

of furrow irrigating by running water down a slight slope was very inefficient. The upper end of the field was soaked 6 feet deep and the lower end of the field just didn't soak much at all. It took a lot of extra labor to even out the water applications, and still up to 50% of the water was wasted by runoff.

Pivots are essentially mainline pipe that is supported up in the air on wheels. It rotates around a center point. They became "center pivots." The first ones had nozzles on top that were spaced approximately 30 feet apart and a water pressure of 65-70 psi was required to effectively distribute the water.

The pivot companies have progressively improved their systems (from 70% efficiency to now 90%) due to:

• Better nozzling, pressure regulation, uniformity of pivot application has increased.

• Lowering of operating pressures, energy costs of pumping have come down

• Better structures and mobility, there are fewer pivots getting stuck, wasting water.

• Better control panels, downtime is a lot less, so not pumping water at a standstill

• Use of drip tapes at or below ground level reduces evaporation even further.

Computers, satellites, and phones now can bring data together easily. Defined, knowledgeable management (instead of just letting water flow) can save three inches of water per acre per season.

An inch of water on 1 acre equals 27,225 gallons. So three inches per acre equals 81,675 gallons per acre. If the field is 122 acres, then the gallons saved is 81,675 x 122 equals 9,964,350 gallons saved per field. Sounds like a lot of water doesn't it?

Due to new technology, farmers and crop consultants can better determine scheduling by:

• Using moisture sensing probes, they can check moisture readings every 30 minutes

• Using websites, the farmer can check on pivot operation

• Using a phone, and a website, the farmer can change pivot speeds

Due to new Variable Rate Irrigation (VRI) computer programs, correlating soil type to water holding capacity, we can save additional 2 inches per acre of water, use less nitrogen and still increase crop yields. The farmer can vary the amount of water applied to differing areas within the field by crop, soil type, slope and time of season.

Agriculture research has expanded further into irrigation. This research also has brought us genetically-selected and produced, drought traits in crops. I can remember back when sugar beets were grown in southwest Kansas and Eastern Colorado. The common thinking of the day was that you had to pump 36 inches of water per season to grow a good crop. Research in the 1970s finally showed that good sugar beets could be grown with a management program that allowed 22 inches of water per season.

It is the same with other crops. As seed companies have become better at identifying strains that increase yield, and are more efficient in their water utilization, we are growing 30-40% more grain on the same water. It is not true that more water automatically means more yield, and it never has been true. If it ever was true, it was only because we were so inefficient and didn't know any better! Time and again, we have proved a little less water provides the same or higher yields.

Costs for these investments in efficiency are best figured on a five-year basis or "return on investment." The farmer has always had to figure repair, depreciation and maintenance costs for his irrigation pivot and it is the same for the investment in technology.

The tech fees of Water Probes, electromagnetic mapping and VRI tend to run a five-year average annual costs of around $15-20 per acre. These tech efficiency costs have shown to be covered easily by reduced pumping expense and higher yields. And if we can slow the decline on groundwater, it means reduced pumping costs far into the future. We expect use of these technologies to increase greatly over the next three years.

I have watched the advances in irrigation now for 37 years in the Great Plains area of Nebraska, Kansas, Oklahoma and Texas. I applaud all the efforts farmers are making now in water conservation. With fresh regard for new ideas, we can go even further.

*Mr. Seaman, founder of Seaman Crop Consulting, has been an agriculture consultant for 37 years and is based in Hugoton, Kansas. He can be reached at www.seamancrop.*com

A screenshot of near real-time variable-rate irrigation (VRI) yield data on an iPad from the cab of a combine. The VRI system prevents the application of water on unproductive soils, such as the large spot in the photo above.

Photo: Fred Fischer

Wake up call

BY JIM COX

Today's society has lost its way, tending to take so much for granted; e.g., the relationship between water and life. If the faucet fails to produce water, if the well runs dry, if the crop fails, if the stream stops flowing, if the trees die, if…? Only when faced with these realities do people begin to realize that we've put our future generations at risk.

Can this world support life without water? Is water the same as oil? Is the supply of water endless? Does water belong on the commodities market? Where are the answers to these questions, and what is the significance of water as it relates to life? The solutions lie inside the world's fresh, young minds unspoiled by the apathetic, uninformed attitudes which promote society's mindset of profit over long-term watershed health. It's not too late if we look in the right places -- in the "minds of babes."

WaterEd – an evolving, water education program borne of ORWP's passion for education, developed and delivered by ORWP's Coordinator, Russell Doughty, has the potential to save us from ourselves by influencing social values to embrace water's finiteness, its role in our society, and how we can reduce our impact on water's fragile cycle. Nothing is more important to our future than our children and our water.

Donation/Volunteer Form for WaterEd

NAME: _____
First Last

ADDRESS: _____
Street or PO Box

_____
City ST ZIP

Phone Number: _____

Email Address: _____

☐ Volunteer as an educator ☐ Volunteer my services

☐ Donate materials ☐ Monetary Donation

RETURN TO: WATERED
PO BOX 1061
ANTLERS, OK 74523

ORWP kicks off WaterEd-ucation for youth

After Oklahoma's triumph in the US Supreme Court decision regarding Tarrant Regional Water District, Oklahomans for Responsible Water Policy (ORWP) had an opportunity to reflect upon the past and envision the future. Members of the Board discussed new ways of advocating their long-standing principals of science, education, and outreach as investments in our future generations. Subsequently, the Board unanimously voted to make water-related youth education and outreach a priority by founding WaterEd.

Using science, technology, engineering and math (STEM), WaterEd seeks to educate youth of all ages about the water cycle's role in life, the function of watersheds and its ecosystems, and water conservation. The program kicked off last month with classroom visits to schools in Pushmataha, Latimer, Le Flore, Atoka, and Coal counties. Currently, the WaterEd program has developed lessons for grades 3 thru 6.

Lessons are localized to each school being visited by using local maps and referring to local water bodies. The interactive lessons allow students to solve freshwater math problems, build water-use vocabulary lists, and discuss the water cycle using teamwork in groups. For taking home, students are given a very cool diagram of the water cycle produced by the US Geological Survey and a topographic map of their home watershed. These maps demonstrate that all water flows to the same point in a watershed, and they allow students to identify with local water and land features, such as lakes, streams, mountains, roads, and their school.

"Using science, technology, engineering and math (STEM), WaterEd seeks to educate youth of all ages..."

RUSSELL DOUGHTY
Coordinator

As a finale, students participate in building a watershed diorama. After all the pieces are in place, students sprinkle colored sugar in various areas on the model, which represents toxic sludge, pesticides, fertilizers, and manure. Next, students spray the model down with squirt bottles filled with water to simulate precipitation.

The diorama is realistic in that all the water drains into the same spot, a lake. As the students spray the model, runoff begins to flow and the 'harmful' pollutants mix and accumulate. Several small holes throughout the watershed allow 'polluted' water to flow under the model, simulating groundwater.

WaterEd is looking for partners, volunteers, educators, and donors to expand our program this summer and next year. Please contact Coordinator Russell Doughty at 580-982-5426 or russ@orwp.org.

WaterEd is a 501c(3) outreach program utilizing Oklahoma Academic Standards and existing educational materials available from the USGS, ProjectWet, ProjectWILD, Oklahoma Water Survey, and other scientific sources. To learn more, visit http://www.h2oed.org.

On the Net

Looking to stay in touch with Oklahoma's water news?

New Website

www.orwp.net
www.orwp.org

ORWP has a newly designed website at the same 'ol address. On our front page, you will find a live news feed on all of Oklahoma's latest water news. The news feed is also published in RSS for those of you who subscribe to news feeds.

Facebook & Twitter

http://www.facebook.com/ORWPNOW
http://twitter.com/ORWP_NOW

The latest news and information is also shared on ORWP's facebook and twitter accounts. @ORWP_NOW has just joined twitter, so be sure to look us up

Oklahoma Blue Thumb

www.ok.gov/conservation/Agency_Divisions/Water_Quality_Division/WQ_Blue_Thumb/index.html

An often overlooked part of conserving our water resources is simply keeping our water healthy. Clean, healthy lakes, rivers and streams are waters available not only for domestic and commercial use, but also crucial to Oklahoma's $7.1 billion recreation and tourism industry. Oklahoma Blue Thumb is a water pollution and water quality education program that operates under the Oklahoma Conservation Commission Water Quality Division.

Students, Girl and Boy Scout troops, families and individual citizens are Oklahoma Blue Thumb volunteers who monitor 100 streams across Oklahoma, screen groundwater and educate the public about pollution prevention.

Senator Ellis - 'Fight is not over'

It has been an honor and a privilege to serve the people of southeast Oklahoma in the Oklahoma House and Senate for the past twelve years. During those twelve years, hundreds of issues have been considered, but none is greater than water. Water is the life blood of our society.

With water, Oklahomans have enjoyed success in the legislature and the courts. That success began at the grassroots level with none greater than Oklahomans for Responsible Water Policy. ORWP members made a difference but the fight is not over.

The demand for water will become greater in the future. ORWP has a great mission. Young people are encouraged to become involved. Living the American Dream requires water.

Thanks to Oklahomans For Responsible Water Policy; you made my job more enjoyable.

-Senator Jerry Ellis

OFB water policy finds no support

Reactions to Oklahoma Farm Bureau's (OFB) water policy seem to be anything but supportive. Comments by John Collison in a letter to the editor titled *Save our Water* and an April 4th 'legislative update' by Mr. Collison on the OFB website are cause for the backlash.

Mr. Collison not only outlines support for the sale of Oklahoma water to Texas, but seemingly attacks Oklahomans for holding on to a 'right to waste' water, "This absolute obsession to waste or hold onto some theory that you own the water and therefore, it is your right to waste it is inexcusable."

Fellow farmers, ranchers, and OFB members were quick to voice their concern. Dick Scaulf of Ada cancelled his membership after almost 40 years, stating that OFB left him feeling "betrayed" because the OFB "...has become more interested in the politics inside the Capitol than what's best for its members."

David Pierce of Tishomingo once fought alongside OFB to protect his cattle ranch, but now wonders, "Why are the Oklahoma City Farm Bureau office and its leadership suing my neighbors and me?". He also sees OFB as doing "...what is in the best interest of a select few."

Rancher Jim Robinson of Boswell is quick to point out Oklahoma's responsibilities under the Red River Compact, and that scientific, environmental and economic studies must be conducted and vetted prior to forming a water management plan. Mr. Robinson explains, "Farmers are the key to our future; they are conservationists, not exploiters."

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CONTACT US

Spokesperson
Charlette Hearne
President
charlette@orwp.org
580-579-7477

Rebecca Arnold
Vice President
texaschoctaw.rsa@gmail.com
580-927-6088

Russell Doughty
Coordinator
russ@orwp.org
580-982-5426

Meet the Coordinator

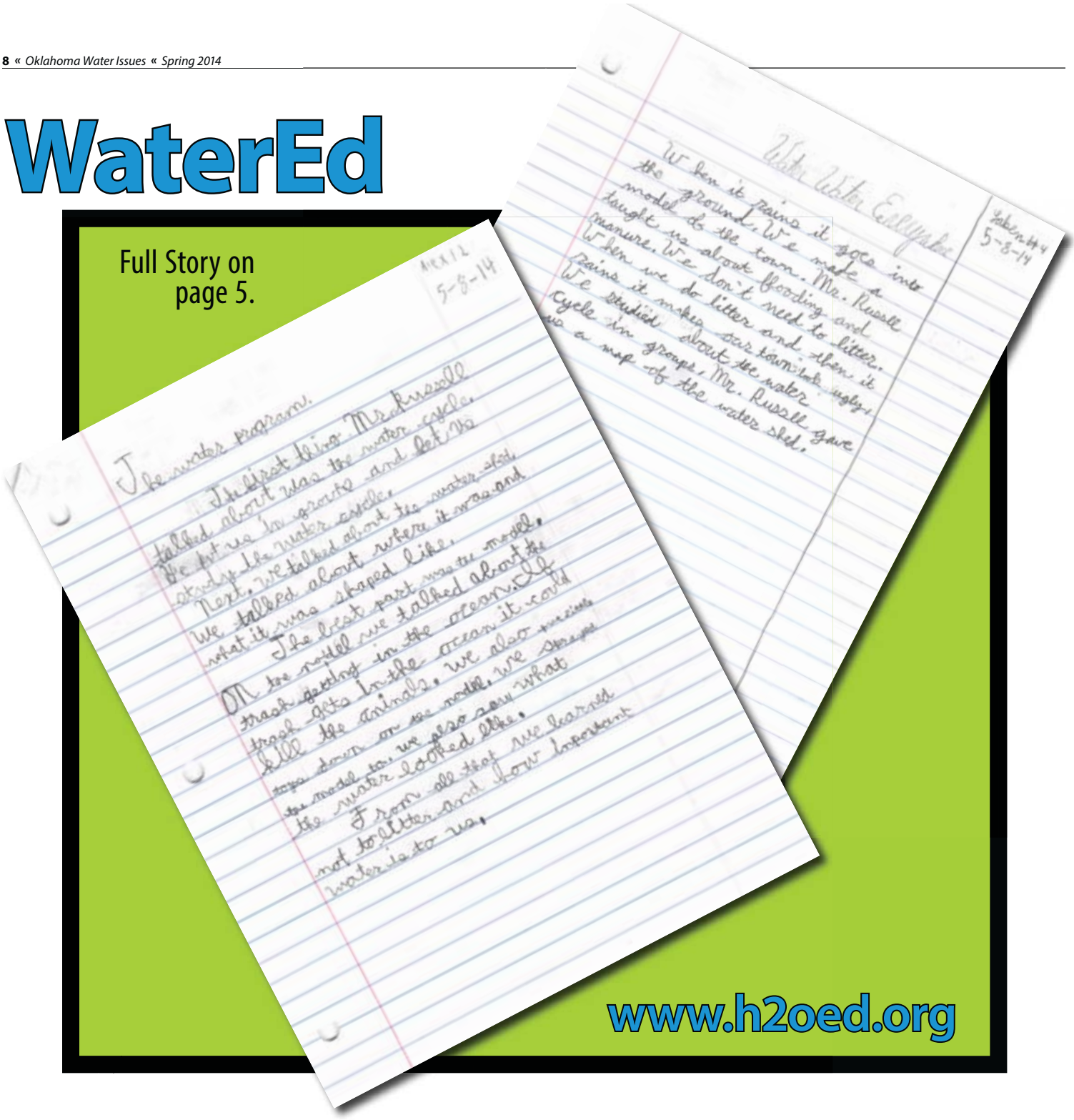
Russell Doughty, a 2001 graduate of Talihina High School, has joined Oklahomans for Responsible Water Policy's (ORWP) team. He is a 4th generation forester and landowner from Talihina with a passion for stewardship of earth's natural resources, outreach, and education.

Mr. Doughty obtained his Bachelor of Arts in Economics from Grinnell College and his Graduate Certificate in Sustainable Natural Resources from Oregon State University. Ranked at the top of his class, he is working on his master's thesis for Oregon State's Department of Forest Ecosystems and Society.

Mr. Doughty's extensive experience with youth education, non-profit organizations, and outdoor leadership have equipped him with the tools necessary to help carry forth ORWP's mission. He has worked for the US Forest Service and the National Park Service as a supervisor and educator, and is an AmeriCorps alumnus. Mr. Doughty also possesses extensive experience with software, hardware, and computer programming languages.

His research focuses on the interconnectivity of the nitrogen, carbon, and water cycles of Eastern Oklahoma's forested landscape. Emphasis is placed on sustainable natural resource management in the face of a changing climate.

WaterEd



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