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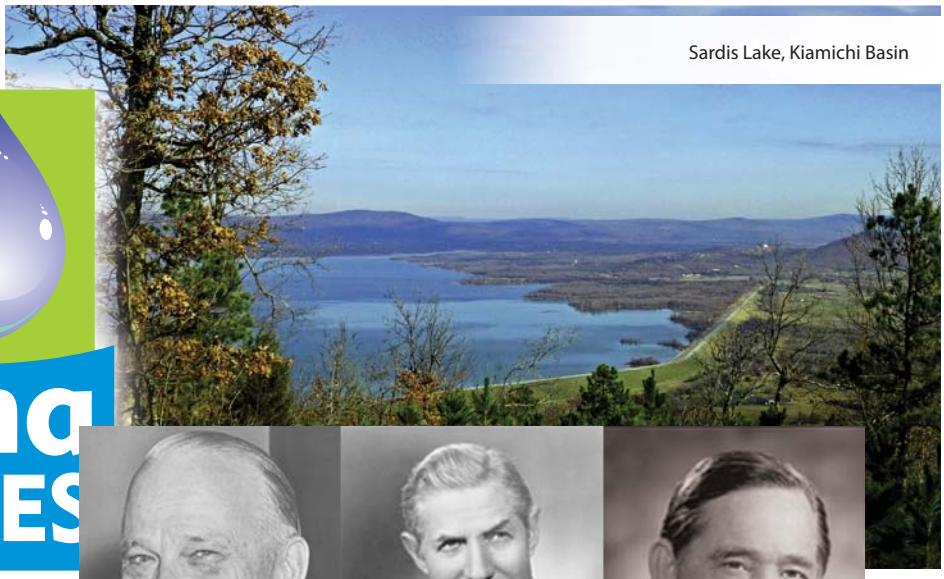
Oklahoma WATER ISSUES



Sardis Lake, Kiamichi Basin

PHOTOS: US SENATE HISTORICAL OFFICE AND COLLECTION OF THE US HOUSE OF REPRESENTATIVES. SARDIS LAKE BY GRANGER MEADOR.

Southwest OK Water Plan paints bright picture

Last May, the Southwest Oklahoma Water Supply Action Plan was finalized and presented to regional stakeholders at an Altus City Council meeting. The goal of the Action Plan is "…to bring the communities in the region together to work collectively toward securing the future of the region for decades to come."

Water management has proved especially difficult in the Southwest, where several years of regional drought has taken the largest toll. However, Duane Smith, one of the plan's authors, paints the Southwest as ripe with opportunity, "Southwest Oklahoma, you have at your fingertips a reliable supply of water for the future."

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Kerr, Monroney, and Albert share water vision

"…to transform southeastern Oklahoma into a veritable gardenspot for vacationists, into an industrial location that would be second to none, and into an agricultural paradise…"

- Senator Mike Monroney, 1956

It has been asserted for the last several years that the stored water in Southeastern Oklahoma was intended for use outside that area. For instance, some have suggested that the lakes of Southeast Oklahoma were 'always meant' for North Texas, Oklahoma City, and/or Western Oklahoma. More recently, this version of history has been attributed to former Senator and Governor Robert S. Kerr. Could it be true that Senator Kerr and his colleagues pushed for dam construction on this premise?

Contrary to rumor, historical transcripts of speeches given by Senator Kerr, Representative Carl Albert of McAlester, and Senator Mike Monroney of Oklahoma City illustrate a collective voice in prioritizing the needs of local citizens over outside interests. Furthermore, they petitioned that lakes be of use beyond flood control so as to benefit rural economies, ways of life, and future generations. Speaking of the Kiamichi Basin in Hugo in 1956, Senator Kerr emphasized the supremacy of meeting the water needs of local people.

"My position is that the waters should be impounded on the basis that meets the wishes of the people of the area. That is Number 1. Number 2,

Turn to **KERR**, page 7

Reflections Water Precious in Kathmandu

BY ARATI SINGH

I was born and brought up in Nepal. In my first twenty-five years of life spent in Nepal, I never found my mother sleeping beyond 3 a.m. in the morning. The reason for early waking up was water scarcity in the capital city Kathmandu. Government rations water there.

The neighborhood where I live receives water from 3 a.m. to 5 a.m. It was during these two hours my mother had to collect as much water as she could in an underground tank and some buckets so that we could take shower and use it in other household chores. The tradition still continues.

My mother has not slept beyond 3 a.m. as long as she remembers. Still we consider ourselves lucky as some of the households in my neighborhood received water only once in a week. The women from these households come to the "lucky" houses like mine early in the morning asking for water.

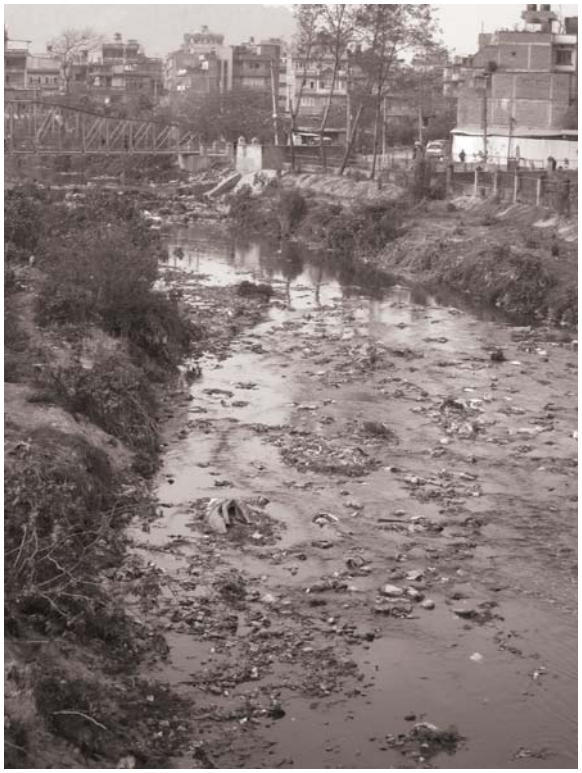
The situation in the hilly and mountainous parts of Nepal is worse than in the capital city. People have to travel miles to fetch a bucket full of water. People in these parts look un-showered and un-bathed. They are dirty, but they do not have choice.

"...some of the households in my neighborhood received water only once in a week."

On the contrary, in the plains of Nepal every year, the rivers pose threats of flood during the monsoon season. Last year we lost over 250 lives and many more are still missing. Government says the death toll might reach more than 500. The aftermath of the flood will be more devastating due to the outbreak probability of diarrhea and other water borne diseases. According to UNICEF in 2010, every year Nepal loses 40,000 children to water borne diseases and 60% of the population faces acute water-related sanitation problems.

I care about amyotrophic lateral sclerosis (ALS). Awareness on any disease, irrespective of its intensity, should be welcomed. But I am not comfortable seeing people pouring buckets of water after water in the name of spreading awareness. When I see especially Nepali doing this, all I can think about is my resilient mom, those hilly kids walking miles to the stream to get some water, and those drowned faces in the plains, who have no idea that in some part of the world people are pouring water on themselves in the name of spreading awareness.

Out of respect towards my mom, my people, who face acute water scarcity, and those who are now washed away by the water, I will not take the challenge of wasting a bucket full of water to spread awareness on certain disease.



Pollution and trash in the Bagmati River of Kathmandu, Nepal.

Photo: Nick and Claudia

SOUTHWEST WATER TASK FORCE IN ACTION

The Chamber and City of Altus are leading an effort to secure high-quality, reliable sources of water within the region. Together with other regional stakeholders, they have formed the Water Task Force Working Group, which is currently implementing actions proposed in the Southwest Water Supply Action Plan.

As reported in an online article by the Altus Times, updated February 26th, members of this group include the Altus Chamber of Commerce, Altus City Council, representatives from Altus Air Force Base, and other individuals representing the agricultural and industrial sectors of the local economy. The Water Task Force is also working with the Mountain Park Master Conservancy District, which is overseeing Tom Steed Reservoir and the production of additional groundwater supplies.

"We are within reach of solutions..."

GREG BUCKLEY
Acting City Manager

Other water sources and water quality are top priority for the Water Task Force. For instance, the group is addressing water quality issues caused by Trihalomethanes (TTHMs), the rehabilitation of the Holloway well, additional local groundwater wells, enhanced water infrastructure, improved water treatment with Reverse Osmosis (RO), and further studies to identify water sources within the region.

Acting City Manager Greg Buckley, a member of the Water Task Force, was quoted by the Altus Times, "We are within reach of solutions because of the incredible efforts of our city staff and the leadership of our city council. I am proud of the work that has already been done, and I can assure you we will work very hard to complete each of the projects ahead of schedule if possible."

WATER PLAN

continued from page 1

The report contains an overview of existing water supplies in the region coupled with future demands for water. Counties included in the Action Plan are Jackson, Tillman, Harmon and Greer. Near-term, mid-term, and long-term strategies in the plan aim to enhance the reliability of water resources.

Near-term strategies are those that are feasible within two years of the implementation of the Action Plan. These strategies strive to increase efficiency of local supplies and include 1) additional water conservation, 2) a drought response plan, 3) additional groundwater supplies, and 4) forming an Action Plan Advisory Committee.

Smith emphasizes the value of water conservation, "People get the impression that conservation is bad for economic development. I think that we have to cross a bridge here and say, 'Conservation is good for economic development.' It makes sure we have a long term reliable water supply…"

Additional groundwater supplies are other near-term options that can provide a balanced or diversified 'portfolio' of water resources. The Action Plan identifies new groundwater opportunities at the Mountain Park Master Conservancy District (MPMCD) and over the region's many minor aquifers. The Holloway well in Texas, and the Round Timber well in Altus, are two existing wells identified as having potential for reinstatement.

Will Archer, manager of the MPMCD, described the potential groundwater options to regional stakeholders, "The wells that we are working over there [in MPMCD], some of those are producing over 850 gallons per minute. To give you a ballpark of how much water that equals, it equals about 1/5 of the water we deliver to the city of Altus each day. That is about 20% on each well."

"Conservation is good for economic development..."

DUANE SMITH
Duane Smith and Associates

Other near-term options identified by the Action Plan include lining the earthen canals of the Lugert-Altus Irrigation District, crop irrigation research, increased metering, tiered conservation-based water pricing, and drought response planning.

Mid-term strategies are those actions that can be implemented within the two- to five-year window, and are designed to supplement or enhance existing supplies in the region. These strategies involve 1) non-potable reuse of treated effluent, 2) the rehabilitation of City of Altus Reservoir, 3) diversion of additional flows into Tom Steed Reservoir and other opportunities, and 4) interconnection of distribution systems.

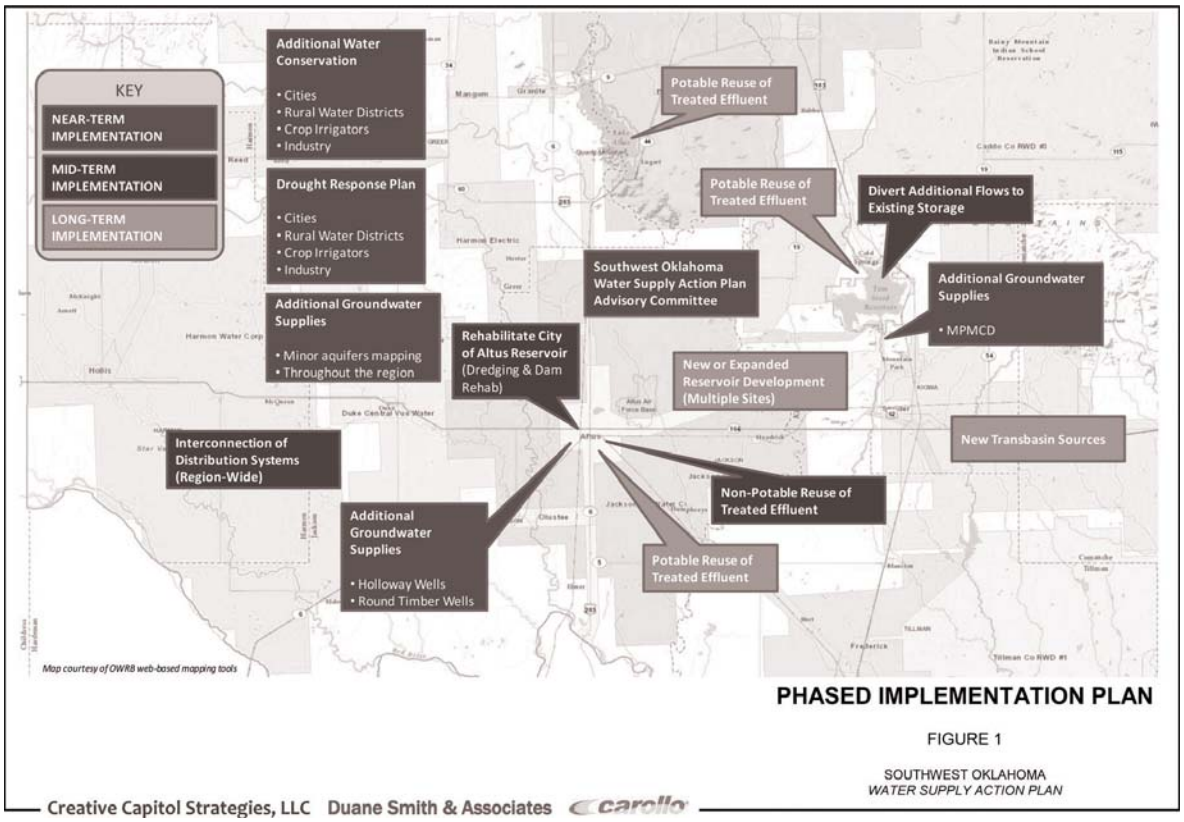
The Action Plan addresses three long-term strategies, which focus on the implementation of new sources of water supplies. These projects occur on a five-plus year time horizon and include new and expanded reservoir development, potable reuse of treated effluent, and new transbasin sources. Long-term strategies are more difficult to implement because they are more technically complex, costly, and can contain regulatory hurdles.

The timeline of the Action Plan is constructed such that it gets the 'ball rolling' on long-term projects early in the Action Plan. These sequential steps are meant to help the Southwest region supply water when it is needed in the future.

Speaking specifically to interbasin transfers within or into Oklahoma, Smith presented the scenario as he saw it,

"In my experience at the Oklahoma Water Resources Board, movement of water around was the most controversial thing ever. And it wasn't movement 100 miles, a lot of times it was moving it across a section, or across the road… And when you look at taking water from Hugo and going a couple of hundred miles uphill in a 120-inch pipeline… while it might be technically feasible, I believe that it's very improbable that could happen."

The 'take home point', Smith said, is that a combination of Tom Steed Reservoir and groundwater supplies are necessary to provide a reliable water supply to Southwest Oklahoma into the future, "As we look at these alternative supplies, it really is a conjunctive use management plan of groundwater and surface water usage."



WaterEd helps quench thirst for knowledge

The water education program started in early 2014, WaterEd, is seeing growth as it enters its second year. The program is a free service of Oklahomans for Responsible Water Policy (ORWP). WaterEd has 9 participating schools and has reached over 680 kids in the classroom. Approximately 1,000 more students have participated in the program at fairs and festivals.

The WaterEd curriculum is currently offered for grades 3 thru 6. Lessons are tailored to each grade level and materials are specific to the watershed in which the school resides. WaterEd lessons allow students to learn about their watershed and how water conservation benefits their community. Each student receives for take-home a full-color poster of the water cycle and a full-color map of their watershed.

To learn more about WaterEd or to schedule a visit contact the program coordinator, Russell Doughty, at 918-699-9215 or russ@orwp.org. Please visit us on the web at www.h2oed.org. WaterEd is always looking for new partnerships and outreach opportunities, so please contact us with ideas or suggestions.

Studies: Mussels key to water quality, food web, life

Recent research by the University of Oklahoma has further highlighted the importance of mussel species to Oklahoma's stream systems. Boaters and fishing enthusiasts might be familiar with the pesky, non-native zebra mussel. However, Oklahoma's streams are host to native mussels that are vital to water quality and the food web.

Mussels, often regarded as keystone species, are 'filter feeders' that are able to process large volumes of water. They filter suspended particles and recycle nutrients, which are essential functions of a healthy stream system that otherwise would not occur. In fact, mussels have been shown to reduce the cost of water treatment due to their ability to 'clean' the water by cycling nitrogen and storing phosphorus.

A scientific study published last year by Carla Atkinson, Jeffrey Kelly, and Caryn Vaughn shows that nitrogen supplied by mussels can be an important nutrient subsidy that provides food web support. Their research results suggest that with natural mussel aggregation up to 74 percent of nitrogen in the food web may be mussel-derived.

The Oklahoma Biological Survey characterizes the Ouachita Uplands as "one of the last strongholds of freshwater biodiversity in North America, and may represent one of the last strongholds of freshwater mussel biodiversity in the world." North America was once considered to have the highest diversity of freshwater in the world, but more than 70 percent of the continent's 302 mussel species are extinct or imperiled.

Are there threats to mussel species and habitat in Oklahoma? Yes. Mussel-species richness and abundance in the Kiamichi Basin is being impacted by how water is managed during a drought, according to a published scientific study by Daniel Allen, Heather Galbraith, Caryn Vaughn, and Daniel Spooner in 2013. Droughts complicate water management, because human demand for water is highest when water availability is lowest.

The 2013 study by Allen et al. compared 13 years of reservoir releases in the Kiamichi Basin to reservoir releases on the Little River during the same time period. Water releases into the Kiamichi were halted during periods of drought, whereas releases were made on the Little River.

The team conducted several mussel surveys in both rivers over this period of time to track changes in mussel species diversity and abundance. Results suggest that reduced releases during droughts likely led to mussel declines in the Kiamichi River, while maintaining reservoir releases may have sustained mussel populations in the Little River."

It is especially important that the waters of Eastern Oklahoma remain pure to sustain that region's economy and culture, which are directly driven by recreation, tourism, and wildlife. Furthermore, the health of Oklahoma's watersheds are also important to our downstream neighbors in Texas, Arkansas and Louisiana. Historically, water quality issues have plagued both the Arkansas River and Red River, but mussels help alleviate water quality issues in these large rivers by filtering the water in their tributaries.

Scaleshale (Leptodea leptodon), one of several imperiled aquatic species of the Kiamichi River basin.

Photo: Oklahoma Department of Wildlife Conservation

Trout in Tulsa Area Classrooms

BY SCOTT HOOD
TROUT IN THE CLASSROOM COORDINATOR

In 2008, while I was waiting for a classroom to hold a Tulsa Fly Fishers and Oklahoma Trout Unlimited monthly meeting, I noticed a sign in the hall. Tulsa Public Schools biology and science teachers were holding a meeting near us. I just happened to have a couple of Trout Unlimited brochures with me and somehow trapped several teachers as they exited from the room. "Would any of you be interested in hosting a Trout in the Classroom program in your classes next year?" I shouted as they scurried off in every direction after their meeting adjourned. As luck would have it, I handed out two brochures with a brief explanation of the program and how to get back in touch with me.

"...over 1,500 students across these six Tulsa area schools have participated in this conservation minded program."

SCOTT HOOD
TIC Coordinator

Nearly three years went by and my phone rang. "I'm interested in learning more about this Trout in the Classroom program you offer," said Diana Nunes, biology teacher at East Central High School. I asked her, "How did you hear about the program?" Yes, I had handed her one of those brochures and today we have great history still going forward.

In the fall of 2012, Ms. Nunes hosted the first ever Oklahoma Trout in the Classroom program at East Central High School and this year, 2015, she will be hosting her third of four trout tanks in her classes at Union High School in Tulsa. To date, the program has grown to five high schools and a middle school in the Tulsa area. Now held at Union High School (3 years), Catoosa High School (2 years), Broken Arrow High School (3 years), Jenks High School (1 year), Beggs Middle School (1 year) and still at East Central High School (4 years).

Trout in the Classroom is a conservation-oriented environmental education program for elementary, middle, and high school students. Through the school year, students raise the trout from eggs to fry fingerling and then release them into approved cold water streams and lakes. This act of raising, monitoring, and caring for young trout fosters a conservation ethic within participating students and promotes an understanding of their shared water resources.

During the year each teacher tailors the program to fit his or her curricular needs. Therefore, each program is unique. TIC has interdisciplinary applications in science, technology, recreation, engineering, arts and mathematics and is now known by the acronym STREAM. While the immediate goal of Trout in the Classroom is to increase student knowledge of water quality and coldwater conservation, its long-term goal is to reconnect an increasingly urbanized population of youth to the system of streams, rivers, and watersheds that sustain them.

Students bend to the waters edge to release fingerling trout into the lower Illinois River.

Photo: Scott Hood

Most programs, of which there are nearly 4,500 across America now, end the year by releasing their trout fingerlings in a state-approved stream near the school or within a nearby watershed. In Oklahoma, our program has permission from the Oklahoma Department of Wildlife Management to release the trout from all these programs in the lower Illinois River below Tenkiller Dam. These school-year ending field trips to the river are much anticipated by the students and from day one are each encouraged to maintain a good grade average in all classes in order to be able to go on the release day field trip.

As of the printing of this article, over 1,500 students across these six Tulsa area schools have participated in this conservation minded program.

For more information on Trout in the Classroom, or if you would care to donate to help continue and grow this program, contact Scott Hood at 918-636-6179. Details of the national Trout in the Classroom program can be found at www.troutintheclassroom.org.

Oklahoma WATER ISSUES

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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.

KERR continued from page 7

that reservoirs be designed consistent with that principle, so as, to completely conserve the waters that fall on this great watershed. Number 3, that they be used first to meet the needs of the people in the area where the waters fall and where they are impounded."

Representative Carl Albert's words harmonize with those of Senator Kerr, stressing that dam projects must not only be acceptable to the local people, but that development must be beneficial to them.

"It is my judgment that a county or an area which gives up the land to be flooded not once every ten years, not once every five years, not once every 30 years, but for all time to come should get some of the benefit out of the project which takes their land off the tax rolls... and one thing we want to be sure of is that if that dam is built and the dams that are built are not only acceptable but beneficial to the people that live in this area."

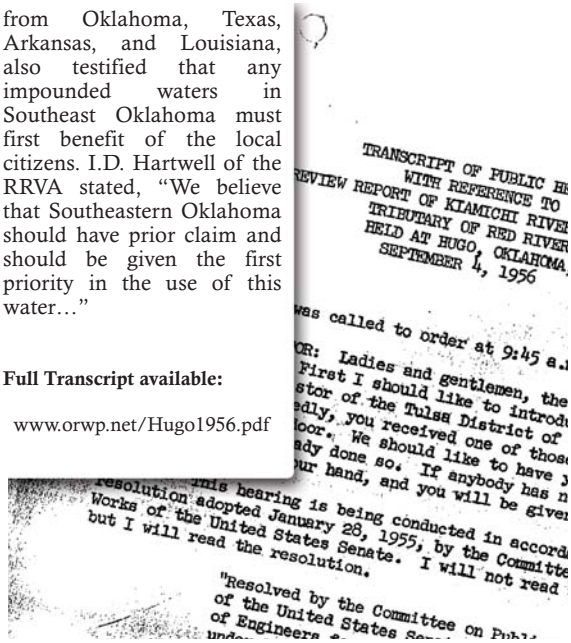
In fact, Senator Monroney eloquently elaborated on a point made by both Senator Kerr and Representative Albert. Southeastern Oklahoma has always been envisioned as world-class spot for recreation, tourism, and agriculture – all of which depend on sustainable supplies of surface waters. Senator Monroney, from Oklahoma City, asked that the interests of Southeastern Oklahomans be protected:

"I feel we can approve, as a result of this hearing and as a result of the appropriations which Carl Albert and Senator Kerr secured for a restudy of a resolution to bring the maximum benefits to the people of southeastern Oklahoma in impoundment or in an ultimate water supply from a vast and tremendous supply of water that will not only serve the beneficial purposes of the original authorization [of flood control] to protect those people downstream on the main stem of the Red River, but to transform southeastern Oklahoma into a veritable garden spot for vacationists, into an industrial location that would be second to none, and into an agricultural paradise that could well develop with development of the transference of this dam."

The Red River Valley Association (RRVA), comprised of stakeholders from Oklahoma, Texas, Arkansas, and Louisiana, also testified that any impounded waters in Southeast Oklahoma must first benefit of the local citizens. I.D. Hartwell of the RRVA stated, "We believe that Southeastern Oklahoma should have prior claim and should be given the first priority in the use of this water…"

Full Transcript available:

www.orwp.net/Hugo1956.pdf


TRANSCRIPT OF PUBLIC HE
WITH REFERENCE TO
REVIEW REPORT OF KIAMICHI RIVER
TRIBUTARY OF RED RIVER
HELD AT HUGO, OKLAHOMA
SEPTEMBER 4, 1956

was called to order at 9:45 a.
OR: Ladies and gentlemen, the
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resolution adopted January 28, 1955, by the Committe
Works of the United States Senate. I will not read
but I will read the resolution.

"Resolved by the Committee on Publ
of the United States
of Engineers

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

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

OK Water Data Web Portal

DROUGHT 2011-2012

1


2


3


4

5


6


7

1 Blue River
2 Kiamichi River
3 The Washita River
4 Lake Eufaula
5 Chickasaw Recreation Area, Sulphur
6 Canadian River
7 Little Niagra, Sulphur