<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Item</th>
<th>Presenter</th>
<th>KWA Advice</th>
<th>KWA Decision</th>
<th>Page No.</th>
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<tbody>
<tr>
<td>10:00 am</td>
<td>Call to Order/Roll Call</td>
<td>Connie Owen</td>
<td>--</td>
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<tr>
<td>10:05 am</td>
<td>Approval of Meeting Minutes</td>
<td>Connie Owen</td>
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<tr>
<td></td>
<td>August 24, 2020 Meeting (Conference Call/GoToMeeting)</td>
<td></td>
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<tr>
<td>10:15 am</td>
<td>KWA PWS Committee Update</td>
<td>John Bailey</td>
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<tr>
<td>10:25 am</td>
<td>Legislative &amp; Budget Update</td>
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<td></td>
<td>KWA Presentation - Oct. 6th Legislative Budget Committee</td>
<td>Mike Armstrong</td>
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<td>10:40 am</td>
<td>KWA RAC Operations Committee</td>
<td>Jeremiah Hobbs</td>
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<td>RAC Membership</td>
<td>Jeremiah Hobbs</td>
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<td></td>
<td>Missouri RAC Message</td>
<td>Jeremiah Hobbs</td>
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<td>X</td>
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<td>10:55 am</td>
<td>Vision/Kansas Water Plan Update Status</td>
<td>Cara Hendricks</td>
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<td>Upper Arkansas RAC Goals/Action Plan revisions DRAFT</td>
<td>Armando Zarco, Brant Peterson</td>
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<td>Cimarron RAC Goals/Action Plan revisions DRAFT</td>
<td>Armando Zarco, Calvin Burke</td>
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<td>Red Hills RAC Goals/Action Plan revisions DRAFT</td>
<td>Gary Koons, Mark Watts</td>
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<td>Improving our State’s Water Quality DRAFT</td>
<td>Kirk Tjelmeland, Angela Anderson, Tom Stiles</td>
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<td>Public Input/Comments on Draft KWP</td>
<td>Matt Unruh</td>
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<td>11:35 am</td>
<td>Annual Report Update</td>
<td>Matt Unruh</td>
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<td>11:45 am</td>
<td>Director’s Report</td>
<td>Earl Lewis</td>
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<td>11:55 am</td>
<td>New Business</td>
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<tr>
<td>12:00 pm</td>
<td>Adjourn</td>
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Upcoming Kansas Water Authority Meetings: TBD

Please join my meeting from your computer, tablet or smartphone.
https://global.gotomeeting.com/join/237962989

You can also dial in using your phone.
United States: +1 (408) 650-3123
Access Code: 237-962-989
CALL TO ORDER: Chair Connie Owen called the August 24, 2020, Kansas Water Authority conference call to order at 10:02 a.m.

MEMBERS PRESENT: Connie Owen - Chair; Mike Armstrong, John Bailey, Lynn Goossen, Randy Hayzlett, Jeremiah Hobbs, Alan King, Chris Ladwig, Carolyn McGinn, Allen Roth, Allan Soetaert, Jean Steiner, David Stroberg

MEMBERS ABSENT: ALL PRESENT

EX-OFFICIO MEMBERS PRESENT: Dan Devlin, Sara Baer, Leo Henning, Mike Beam, Scott Carlson, Lane Letourneau, Rolfe Mandel, Brad Loveless, Earl Lewis, Susan Duffy

EX-OFFICIO MEMBERS ABSENT: Kayla Savage

APPROVAL OF MINUTES:
Motion No. 08-20-01 It was moved by Randy Hayzlett and seconded by Allen Roth to approve the July 30, 2020 Minutes for the Regular Meeting of the Kansas Water Authority as presented. Motion carried with no dissenting votes. Information found in meeting materials.

KWA RAC Operations Committee:
New RAC Membership

Motion No. 08-20-02 It was moved by Allan Soetaert and seconded by Jean Steiner to approve the applications for membership and the membership category change on the Upper Smoky Hill RAC and the Neosho RAC as suggested. Motion carried with no dissenting votes. Information found in meeting materials.

KWA Budget Committee:
SWPF FY 2022 Budget Recommendations

Motion No. 08-20-03 It was moved by John Bailey and seconded by Lynn Goossen that the KWA consider and accept the final FY2022 SWPF budget recommendations made by the KWA Budget Committee for submittal as part of the administration budget process in September 2020. Motion carried on an 12-1 vote. Information found in meeting materials.

KWA Budget Committee:
SWPF FY 2022 Budget Recommendations with enhancements

Motion No. 08-20-04 It was moved by Mike Armstrong and seconded by Jean Steiner that the KWA consider and accept the enhancements to the FY2022 SWPF budget recommendations made by the KWA Budget Committee for submittal as part of the administration budget process in September 2020. Motion carried on an 11-2 vote. Information found in meeting materials.
Research Coordination Workgroup:

**Katie Goff** gave an update

Arbuckle Group Study Update:

**Earl Lewis** gave an update

Vision/Kansas Water Plan Update:

*Schedule for KWP Update & Outline of Sections*

**Cara Hendricks** presented.

Vision/Kansas Water Plan Update:

*Kansas RAC Action Plan and Revisions:

**Dawn Buehler** presented.

Vision/Kansas Water Plan Update:

*Equus-Walnut RAC Goals/Action Plans*

**Gary Koons** presented.

Vision/Kansas Water Plan Update:

*Smoky Hill-Saline RAC Goals/Action Plans*

**Tim Driggs** presented.

Vision/Kansas Water Plan Update:

*Upper Smoky RAC Goals/Action Plans*

**Brad Shogren** presented.

Vision/Kansas Water Plan Update:

*Verdigris RAC Goals/Action Plans*

**John Ditmore** presented.

Federal Updates:

*Lower Missouri River Flood Risk & Resiliency Feasibility Study*

**Motion No. 08-20-05**

It was moved by **Mike Armstrong** and seconded by **Jean Steiner** to approve entering into a Feasibility Cost Sharing Agreement with the U.S. Army Corp of Engineers for the Lower Missouri River Basin Flood Risk and Resiliency Feasibility (GI) Study. **Motion carried with no dissenting votes.** Information found in meeting materials.

Federal Updates:

*NRCS Source Water Protection*

**Matt Unruh** presented
Wichita County/GMD #1 LEMA Update:

Lane Letourneau gave an update.

Motion No. 08-20-06  It was moved by Lynn Goossen and seconded by Mike Armstrong to submit on or before August 28, 2020 an official comment from the KWA to the record of the Wichita County/GMD#1 LEMA initial public hearing conducted by the Division of Water Resources, Kansas Department of Agriculture. Motion carried with no dissenting votes.

Director’s Report:

Earl Lewis gave an update.

ADJOURNMENT  The KWA adjourned at 1:25 pm
MEMO

DATE: October 21, 2020
TO: Kansas Water Authority
FROM: Cara Hendricks
RE: Legislative & Budget Update

Legislative Budget Committee Presentation
On Oct. 6, 2020, Connie Owen and Mike Armstrong, on behalf of the Kansas Water Authority (KWA), presented to the Legislative Budget Committee on the KWA’s primary role and responsibilities in the state water planning process.

The information provided/presented to the Committee is attached.

This is for informational purposes only. No Kansas Water Authority action is necessary at this time.
Chairwoman McGinn and members of the Committee, I am Connie Owen, Chair of the Kansas Water Authority. It is my pleasure to be here today on behalf of the Kansas Water Authority to present on the Kansas Water Authority’s (KWA) primary role and responsibilities in the state water planning process. Mike Armstrong, Chair of the Budget Committee of the Kansas Water Authority, also joins me today to present on the State Water Plan Fund budget process and the KWA’s FY2022 budget recommendations.

We would like to start out by thanking you for the work you have done over the last three legislative sessions to restore a portion of the State General Fund and Economic Development Initiatives Fund demand transfers to the State Water Plan Fund. As always, the demands for funds across government exceed the available resources. Your commitment to provide additional funding shows you understand the importance of water in Kansas.

Kansas Water Authority Establishment

The Kansas Water Authority (KWA) was established in 1981 within and as part of the Kansas Water Office. The KWA provides the leadership to ensure that water policies and programs address the needs of all Kansans. The KWA is responsible for advising the Governor, Legislature and Director of the Kansas Water Office (KWO) on water policy issues and for approving the Kansas Water Plan, federal contracts, administration regulations and legislation proposed by the KWO.

Kansas Water Authority Membership

The KWA consists of 13 voting members who are appointed by the Governor or Legislative leadership. The remaining serve as ex-officio members. Attached is a map indicating current KWA membership.

K.S.A. 74-2622 24 Members:

13 voting members:
Chair appointed by Governor; subject to Senate confirmation,
10 members appointed by Governor for 4-year term,
1 member appointed by the President of the Senate for 4-year term, and
1 member appointed by the Speaker of the House of Representatives for 2-year term.

11 Ex Officio members:
Secretary, KS Dept. of Agriculture
Chief Engineer, Div. of Water Res./KDA
Secretary, KS Dept. Wildlife, Parks & Tourism
Chair, KS Corp. Commission
State Geologist (KS Geol. Survey)
Experiment Station, KSU
Director, Div. of Environment/KDHE
Secretary of Commerce
Director, KS Water Office
Admin. Officer, Division of Conservation (KDA)
State Biologist (KS Biol. Survey) Director, Agric.
Kansas Water Authority Duties. K.S.A. 74-2622 - Eleven comprehensive mandates, including the following:

- Consult with and advise the Governor, the Legislature and the Director of the KWO.
- Recommend legislation to Governor and Legislature
- Review development, management and use of the water resources by any state or local agency and recommend coordination among them.
- **Review and evaluate other state agency budget estimates regarding water, and make recommendations about them to the Governor and the Legislature.**
- Provide an Annual Report of studies, findings and recommendations to standing House and Senate Committees. (K.S.A. 74-2623)

State Water Plan
The Kansas Water Plan is one of the primary tools used by the State of Kansas to address current water resources issues and to plan for future needs. Statutory authority and basic guidance for formulating the Kansas Water Plan is contained in the State Water Resources Planning Act.

In accordance with K.S.A. 82a-903, “The Kansas Water Office shall formulate a comprehensive state water plan for the management, conservation and development of the water resources of the state.” Broad discretion is given for recommending how to meet these goals.

Conserving and extending the usable life of the High Plains-Ogallala Aquifer, securing and protecting the state’s reservoirs, and reducing pollution of Kansas waters continue to be priorities for the water resources of the state.

State Water Plan Fund. K.S.A. 82a-951
In 1989, an important step in current water planning was taken with the creation of the State Water Plan Fund (SWPF) (K.S.A. 82a-951). The Fund is used for establishing and implementing water related programs or projects identified in the Kansas Water Plan. Revenue for the SWPF is received from fees assessed to municipal, industrial and agricultural water-related users and includes a demand transfer from the State General Fund and Economic Development Initiatives Fund.

The chart on the following page indicates the State Water Plan Fund total revenue from fiscal years 1991 through 2020.
The fee structure that supports the State Water Plan Fund has remained virtually unchanged since the fund has been in place. Sand Royalty Receipts were added to the funding stream in FY1996 and the Clean Drinking Water Fee began in FY2008. Fee revenue provides approximately $12 million annually to the fund.

**Statutory Annual Demand Transfers to State Water Plan Fund**

As a portion of the deal struck in 1989 to achieve passage of the SWPF, demand transfer from the SGF and EDIF were incorporated into the SWPF to show the statewide nature of our water resources, and the commitment of the state to addressing issues. The demand transfers as shown in statute are:

- $6,000,000 from State General Fund. K.S.A. 82a-953a.
- $2,000,000 from Economic Development Initiatives Fund. K.S.A. 79-4804.

During difficult economic times, the demand transfers have been a target for reduction to balance the overall SGF deficits. The SWPF has not received the full $8 million demand transfer since FY 2008. Over the history of the SWPF the cumulative deficit of the reduced transfer is approximately $81 million. This is equivalent to four full years of the total SWPF.

**Kansas Water Authority Budget Guidelines**

The Kansas Water Authority has struggled to balance the competing needs and requests for the SWPF and identify which programs and practices will provide the biggest return on investment. Recognizing the purpose of the SWPF is to implement the Kansas Water Plan, and the adoption of performance based budgeting by the state in recent years, the Kansas Water Authority adopted a set of budget guidelines in January 2020. The guidelines consist of eight guiding principles, as contained on the following page.
Kansas Water Plan Budget Guidelines

Water Plan Funds should be allocated to maximize accomplishing the goals and objectives established by the Kansas Statutes, the Kansas Water Authority and the Regional Advisory Committees. Fundamental to the budget process shall be a prioritization of expenditures that are required to do legally, necessary to implement the Vision/State Water Plan, and discretionary expenditures that can be justified based upon defined benefits.

In particular, budgeted funds should be allocated with the following principles:

- Statutory Obligations shall be met first.
  - For instance, K.S.A. 82a-2101 requires that proceeds from the Clean Drinking Water Fee be allocated by providing not less than 15% to provide on-site technical assistance for public water supply systems, with the remainder being used to renovate and protect lakes which are used directly as a source of water for such public water supply systems
- All budgeted funds should be tied to one of the projects and initiatives established by the 50- year Water Vision/State Water Plan. Allocation of funds should be supported by appropriate metrics and benchmarks, which clearly demonstrate the past (where applicable), current and future benefit of such expenditures.
- Per K.S.A. 82a-951, State Water Plan funding “shall not be used for . . . replacing full-time equivalent positions of any state agency.” Positions have been added for programs to implement the Kansas Water Plan. The Kansas Water Authority should encourage funding for staff positions supporting State Water Plan programs and projects to be from the State General Fund removing any confusion and allowing additional funds to be used for implementation activities.
- Funds raised through fees on specific users, such as K.S.A. 82a-954, K.S.A. 2-1205 and K.S.A. 2-2204 should be used to fund projects or initiatives that benefit the users paying those fees, or mitigate environmental impacts caused by said users, including:
  - Agricultural users
  - Public water supply systems
  - Industrial users
  - Stock watering
- Allocation of funds should be reasonably related to:
  - The source of the funds,
  - Geographical balance (i.e. NE, NW, SE & SW), including consideration for RAC Regional balance
  - Hydrological (ground water vs. surface water) resource balance
  - An equitable mix of rural vs. urban interests.
  Exceptions will be considered for high-priority or time-sensitive cases requiring significant funding for the implementation of an individual priority project.
- Priority must be given to long term contractual, or multi-year obligations such as:
  - Contracts with the Corps of Engineers for O&M costs of federal reservoirs
  - Bonded indebtedness for projects such as the 15-year bond issue for the 2018 dredging of John Redmond Reservoir
  - Contracts with the USGS for stream gauges
- Consideration may be given to projects or initiatives that involve cost shares from other sources, such as Federal, state, local and private funding.
- Consideration may be given to expenditures that can be justified based upon emerging threats to water resources, including appropriate research initiatives.

FY2022 Kansas Water Authority SWPF Budget Recommendations

The annual development of the Kansas Water Authority SWPF budget recommendations includes a review of agency recommendations, as well as input and feedback received from the fourteen (14) regional advisory committees (RACs). The RAC feedback is focused on programs and projects aimed at addressing regional water issues identified in their formalized goals and action plans.

The following table shows the Kansas Water Authority SWPF FY2022 budget recommendations for two budget scenarios: base funding (level from FY2020), and a request for enhancements that would require the full SGF/EDIF restoration for FY2022.
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*FY2021 appropriations indicated above do not reflect the July 2020 Governor's allotments in the amount of $1,247,699 for the Kansas Department of Agriculture and $1,160,000 for the Kansas Water Office.
## Kansas Water Authority SWPF Budget Recommendations by Category

<table>
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<tr>
<th>Category</th>
<th>Program Name</th>
<th>Agency</th>
<th>FY 2021 Appropriation*</th>
<th>FY 2022 KWA Base Recs</th>
<th>FY 2022 KWA Enhanc. Recs</th>
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</table>
Attachment

Kansas Water Authority Members

Kansas Water Authority Ex Officio Members

Chris Beightel  
Division of Water Resources  
KS Dept. of Agriculture

Ernie Minton  
Ag Experiment Station  
KS State University

Scott Carlson  
Division of Conservation  
KS Dept. of Agriculture

Leo Henning  
KS Dept. of Health & Environment  
Rolfe Mandel  
KS Geological Survey

Brad Loveless  
KS Dept. Wildlife, Parks & Tourism

David Toland  
KS Dept. of Commerce

Sara Baer  
KS Biological Survey

Mike Beam  
KS Dept. of Agriculture

Earl Lewis  
KS Water Office

Susan Duffy  
KS Corporation Commission
The KWA RAC Operations Committee met on October 20, 2020 via conference call. Discussion from the meeting included a request for a category change from a member of the Smoky Hill-Saline RAC, as well as a message to the KWA from the Missouri RAC from their most recent meeting. The information regarding the category change is included below. Also included in this memo is the Missouri RAC message to the KWA, along with pertinent background information, KWO staff input, and the proposed resolution as discussed by the Committee.

Smoky Hill-Saline RAC Membership
A request has been received to change categories from the At Large Public (cc) category position to the Conservation/Environment (cc) category position on Smoky Hill-Saline RAC:

- The RAC member requesting this change is Dan Baffa. Dan wishes to change categories as he feels his experience and background qualifies him to fill the Conservation/Environment category, filling the 2nd of 2 Conservation/Environment positions on the RAC. Dan has served as a member of a Watershed Restoration and Protection Strategy (WRAPS) group, Upper Ark Advisory Group, and as the previous Director of the Garden City Zoo.
- This change would fill the one current vacant position on the RAC, leaving the 2nd At Large Public (cc) position open for filling.

Recommendation: The RAC member Dan Baffa is qualified to fill the Conservation/Environment category. It is recommended that Dan Baffa fill the category of Conservation/Environment (expiring 2021).

Missouri RAC Message
The Missouri Regional Advisory Committee established a Missouri River subcommittee that supplies pertinent River information to the remainder of the RAC at nearly every meeting. This message was formulated following a presentation at the September 10th RAC meeting. This message to the Kansas Water Authority from the Missouri RAC concerns the inter-basin transfer of water from the Missouri River and includes pertinent background information and staff input.

Message: The Missouri RAC has serious concerns with the inter-basin transfer of water from the Missouri River to non-adjacent River basins. Inter-basin transfers set a dangerous precedent and could ultimately cause arbitration based on science, engineering and/or statute, inter-state conflict with federal involvement in water supply allocation, be detrimental to downstream users and provide vectors for the movement of Aquatic Nuisance Species.

Background: The Missouri River is the largest river that flows through or is adjacent to the State of Kansas. It is also the longest river in North America and its basin covers one-sixth of the lower 48 states. The mainstem reservoir system includes six large dams that have the capacity to store over 74 million-acre feet (MAF), not counting exclusive flood control storage, about three times the river’s average annual runoff above Sioux City, Iowa, located just downstream of the last reservoir on the mainstem reservoir system.
While issues related to the use of water from the river are complex, it potentially provides a very large water supply for use in Kansas. The history and the hydrological record indicate that the flows of the Missouri River are highly variable experiencing large floods and major droughts in the basin.

Under the Corps 1982 Study, quantification of water availability was simplified through assumptions. The 2015 update also used this simplified assumption. Availability is assumed when Missouri River flows exceeded the navigation and water supply intake structure targets; 41,000 cfs during navigation support season and 15,000 cfs outside of the navigation support season.

The Kansas Aqueduct system was evaluated for water transfer delivery systems of 2,000, 6,000 and 10,000 cfs. It is assumed that construction would occur over a 20-year period. The updated total construction costs for the system found to be the most cost efficient (6,000 cfs transfer capacity) is $12,231,000,000. The interest during a 20-year construction period is estimated to be $5,788,000,000 bringing the total investment cost to $18,019,000,000. Interest during the 20-year construction period was 7.375% in the 1982 study but only 3.5% for the 2015 update.

Assuming the 6,000 cfs diversion rate, the annual costs including operation and maintenance, interest and amortization and energy costs were determined to be $1,084,161,000. The annual energy costs were estimated to be $395,000,000, which assumes a total of 8.78 million megawatt hours needed to operate the system annually. The very preliminary estimate of the 2014 delivered water costs is approximately $450 per acre foot. These costs did not include costs associated with mitigation, legal challenges, or costs to get the water from the terminal reservoir to the field. Rough estimates are that these additions could double the overall cost.

A proof of concept (POC) of took place in September 2020 with nearly 6,000 gallons of water being pulled from the Missouri River and delivered to the dry Arkansas River bed. According to the POC, data analysis and a final report from the inter-basin transfer were supposed to be completed. Neither of these items have been submitted to date.

Staff Input: The Kansas Water Office, along with the Corps of Engineers, led the 2015 review of the potential project to transfer water from the Missouri River to western Kansas. The Long Term Vision for the Future of Water Supply in Kansas included a section to “allow for the transfer of water supplies between basins where feasible and cost effective.” As can be seen from the background information, the project outlined in the 1982 Corps of Engineers study, and updated in 2015, was determined to not be viable or cost effective. We recognize that there are interests that continue to evaluate alternatives to the system as envisioned. The Kansas Water Office does not plan to evaluate or pursue any other alternatives unless directed to by the Kansas Water Authority or the Kansas Legislature.

Recommendation: The Kansas Water Office shall request information from KDHE, KDA-DWR and GMD #3 regarding the recent Proof of Concept (POC) project and share the findings of the project activities with the MO RAC and the Upper Ark RAC.

The KWA RAC Operations Committee recommends KWA approval of the membership category changes for the Smoky Hill-Saline RAC as follows:

Dan Baffa – changing categories from At Large Public (cc) to Conservation/Environment (cc)
(expiration date – 2021)

The KWA RAC Operations Committee recommends KWA approval of the recommended response to the Missouri RAC message.
MEMO

DATE: October 21, 2020
TO: Kansas Water Authority
FROM: Cara Hendricks
RE: Kansas Water Plan Update

900 SW Jackson Suite 404
Topeka, KS 66612
Phone: (785) 296-3185
Fax: (785) 296-0878
www.kwo.org

At the August 24th Kansas Water Authority (KWA) meeting, the KWA was provided an update concerning the Kansas Water Plan (KWP). This update included an approximate schedule, along with a review of the updated goals and action plans for four of the 14 Regional Advisory Committees (RACs).

Work has continued with the remaining RACs to complete the update for their goals and action plans. Three of the RACs, the Upper Arkansas, Cimarron, and Red Hills, are presenting their updated goals and action plans at the October 26, 2020 KWA meeting.

A draft of the “Improving our State’s Water Quality” section will also be presented.

Additional information on this process will continue to be shared with the full KWA at future meetings.

This is for informational purposes only.
No Kansas Water Authority action is necessary at this time.
Updated Regional Advisory Committee (RAC) Goals and Action Plans:

Upper Arkansas RAC- Draft Revised Action Plan:

Goal #1: Establish a diversified, usable water supply by 2030, to motivate a vibrant growing economy with conservation-minded stewardship focused on increasing the life of the aquifer, reestablishing streamflow, and accelerating recharge; benefiting: economic prosperity, wildlife, habitat, recreation, and all water users while protecting property rights and providing safe drinking water.

Action Steps:

1) Develop alternative sources of supply by 2030
   a) Collaborate and coordinate with local shareholders, stakeholders, policymakers, organizations, agencies, (i.e. GMD3, KWO, KDA, KDHE, Kansas Dept. of Commerce, and other State agencies) surrounding States, and federal agencies and authorities.
   b) Research, study, and initiate any changes necessary to current or new statutes, to develop and perfect new or existing water rights to serve as alternative sources of supply.
   c) Initiate and lead a search for multi-state support for an interstate water transfer system.
   d) Evaluate potential intrastate water transfers
   e) Initiate and participate in research to determine the value an alternative source of supply would generate directly and indirectly for local, regional, state, & federal areas and agencies.
   f) Develop a fact-based education initiative to inform Kansans and our neighbors how we can plan and prepare for tomorrow’s challenges related to the shortages or excess of water for everyone.
   g) Support alternative sources of supply.
   h) These may include greater streamflow of interstate rivers, an aqueduct from the Missouri River, and or pipelines from northern states.

2) Educate all water users on the importance of water saving, increased water use efficiencies, and the supporting data (SWLs, SWL change rates, conservation targets, etc.).
   a) Support the educational efforts through the Kansas Runs on Water Campaign.
   b) Support educational activities through the Conservation Districts such as (The Ark Water River Festival, Earth Day at The Zoo, Safety Days, Poster contests at the schools, The Bottom Line Conference, and other informational meetings or conferences) put on by the Conservation Districts.
   c) The Water Authority supports these activities by funding the budget line item, Aid to Conservation Districts, to the full amount mandated by the Kansas State Legislature.
   d) Support educational meetings hosted by the K-State Extension, the GMD3, and other agencies or organizations.
   e) The Water Authorities continued support and funding for the irrigation technology farms.
   f) Formalize a list to add to a calendar on the Water Authority, Kansas Association of Conservation Districts, GMD3, and K-State Extension web sites to help inform landowners, producers, and the general public of events throughout the year.

3) Promote irrigation conservation
   a) Support voluntary decreased water consumption in the Upper Arkansas RAC geographic area per the Kansas Geological Survey (KGS) recommendations.
   b) Encourage adoption of water conservation programs such as LEMA’s and WCA’s.
   c) Support producer incentives through the KDA-DOC, KDHE, KDA-DWR, and other state agencies to reduce usage through proven technologies and best management practices.
      i) These may include programs such as CREP, Playa Lake restoration, cost-share on reduced irrigation systems, cost-share on soil moisture probes, and other technologies that reduce water usage.

4) Promote conservation of municipal and industrial water use through incentives and education.

5) Recognizing distinct differences between domestic, irrigation, stockwater, municipal, industrial, and other types of beneficial use.
Cimarron Regional Goals and Action Plans:

Priority Goal #1: Reduce the rate of decline of the Ogallala Aquifer in the region through voluntary, incentive-based conservation as assessed every five years.

Priority Goal #2: Extend the usable lifetime of the Ogallala Aquifer in the region through technology adoption (irrigation, industrial, municipal, etc.), new crop varieties and conservation for all uses and for many generations.

Goals 1 and 2 seek to reduce water use in the region therefore the following actions apply to both Goals. Goals 3 and 4 are strategies to address Goals 1 and 2.

Action Steps:

• Define and quantify the regional aquifer decline, establishing a baseline for comparison
• Promote steps/programs to ensure water quality. (Mention this mainly for the Chloride area in the east part of region and also from past concerns of injection wells leaks and oil/gas drilling in the west)
• Monitor/promote/protect water coming into or protect water leaving the area (kind of goes in with the talks in past of meeting with water users from neighboring states and also the RACs past support for the monitoring well in Morton county that was denied)
• Work with partners, including KDA and NRCS, to develop baseline of water saving technologies in use and voluntary incentive based conservation occurring and a method to track participation. Consider using the annual water reporting system, producer surveys and other means to identify water saving efforts if needed.
• Secure funding, including statutory SGF transfer to SWPF, to support water conservation programs and evaluation of technologies, crop varieties and water management to save water.
• Provide water users with information on available tools and programs, including but not limited to; LEMAS, WCAs, Multi-Year Flex Accounts, Water Banks, Irrigation Scheduling, RCPP-Soil Probe program through GMDs, K-State Extension tools, K-State Research/farms and additional tools and programs as made available.
• Change producer perception from a “use it or lose it” mentality.
• Use demonstration projects to educate producers to economically reduce water used. (Water technology farms, LEMAS, WCAs, K-State Research and Extension farm projects and other water management and water efficiency projects can provide valuable examples and information to producers to encourage their participation in water saving efforts.)
• GMD3 and DWR work with producers to establish LEMAs and WCAs.
• Build a network of agencies, organizations, researchers, industry and producers to disseminate credible, accurate information on water use, conservation and technology, programs and tools to reduce water use.
  o Utilize K-State and others to develop technologies and crop varieties to enhance water savings methodologies and deliver information.
  o Work with producer and farm groups to reach other producers.
  o Include municipal and industrial users in outreach.
• Evaluate the effectiveness of technologies and crop varieties to develop voluntary incentives and tools to economically reduce water usage.
  o Support water technology farms (WTF) in the region for evaluation of technologies and management methods to reduce the current level of water use with a goal of at least one WTF in a water stressed area and one in a non-stressed area.
  o Develop mobile drip irrigation (MDI) statistics so funds could become available for technology upgrades through state and federal programs.
  o Work with federal partners to make additional water saving technologies eligible for federal programs.
  o Disseminate scientific and economic information on technology efficiencies and crop varieties as well as other relevant information from pilot studies, research and water technology farms.
• Use positive press releases to spread the word as WCAs are developed.
• Public water suppliers and industrial users should consider alternative uses of non-potable water and existing water supplies before developing any new water supplies.
• Public water suppliers should consider water rate structures to promote water conservation.
Cimarron Regional Goals and Action Plans (continued):

Priority Goal #3: Encourage all water users to conserve and make the best beneficial use of water

Action Steps:
- Increase adoption of water conservation through education by those who are currently using the technology and adoption of a Master Water Manager program.
- Identify existing conservation success stories and share with area producers, industry or municipalities as applicable.
- Initiate demonstration projects with willing producers in the region (technologies, crop varieties and management techniques) to reduce water use.
- Develop format/program to allow water users to document current water savings, if not in an approved program.
- Work with municipalities to educate customers on beneficial water use.

Priority Goal #4: As measured through increase in adoption by 50% as assessed each five years, promote the adoption of irrigation efficient technology and invest in university research to evaluate the effectiveness of such technology and crop varieties to develop voluntary incentives and tools to economically reduce water usage. Recommended strategy to achieve Goal - Increase adoption through education by those who are currently using the technology.

Action Steps:
- Educate water users on new technologies through local papers, extension, meetings of producer groups, irrigation organizations, conservation districts, GMD3 and other means.
- Develop and disseminate results from the use of water saving tools by those who have adopted technology and management tools to economically reduce water usage.
- Use local demonstrations of technology/demo farms in region to share techniques.
- Provide Water Conservation Area (WCA) information, including dissemination with water use reports.
- Develop widespread awareness of EQIP, CRP, RCPP, CIG and other program availability and increase participation.
- Encourage improvement of municipal conservation plans, municipal rate structures and other means to encourage water use reductions.
Red Hills Regional Goals and Action Plans:

Goal #1: Reduce water usage throughout the region. Conservation should be voluntary and encouraged to use incentive-based policies and programs.

Action Steps:
- Identify data needed to determine if and where water (streamflow or groundwater levels) downtrends are occurring for focusing water conservation efforts.
- Identify reuse potential in the region.
- Identify barriers to reuse, such as limiting factors and water quality parameters.
- Develop appropriate policy, programs, data or education to address barriers to reuse.
- Add streamflow measurements to access changes in streamflow and baseflow contributions on Elm Creek and other priority locations, preferably continuous monitoring gages.
- Identify and promote state program to address Red Cedar invasion.
- Utilize education/information dissemination as developed for the Vision and region. Should include information on water resources, stresses, conservation tools and water use.
- Identify barriers to conservation in this region.
- Work with local, state and federal programs to offer water conservation programs, including cost-share opportunities.
- Address water conservation by water use category.

Goal #2: Increase sources of supply through the use of a multipurpose small lake to meet increased demand in specific growth or need areas by 2035.

Action Steps:
- Determine level of support for a reservoir providing future water supply, flood control, and recreation.
- Gather public input on possible reservoir for recreation and future water supply.
- Define project and scope of work for detailed economic impact study to move ahead, if local support is sufficient.
- Initiate Economic Impact Study.
- Review Economic Impact Study and formulate future steps.

Goal #3: Work with oil and gas industry to have 10,000 barrels of fresh water per day recycled from oil production for regional use in the Red Hills.

Action Steps:
- Develop background/baseline data on the quantity of produced water, water usage and reuse in the region for use in education and development of appropriate actions.
- Work with industry to recycle/reuse flow back and production waters.
- Promote the produced water treatment project and other treatment technologies.
- Share results of Kansas pilot treatment project and other treatment projects.
- Identify sites for treated (freshwater) water storage for oil and gas industry access for fracking.
- Work with industry to use the lowest quality waters possible.
- Work with industry to reduce produced water underground injection quantities.
Improving the State’s Water Quality

Background & Issue

Kansas has developed a robust monitoring and assessment program to track trends and conditions in surface waters to achieve the objectives of the Kansas Water Plan (KWP) and to maintain state primacy for administration of federal water quality programs. The Kansas Department of Health and Environment (KDHE) has primary responsibility for surface water chemical and biological monitoring and assessment. In addition to KDHE statewide monitoring and assessment programs, many other entities including federal, state and local agencies and consultants have conducted focused assessments and reports on specific geographic areas or water quality concerns. Information provided in this section is mostly limited to state agency programs.

Water quality monitoring and assessment operations in Kansas are administered primarily by KDHE and are used to determine impaired water status. KDHE maintains several ongoing programs that collectively fulfill the environmental surveillance and reporting requirements of the Clean Water Act (CWA) and provide the technical data needed to identify and respond to existing and emerging water pollution problems. The 2018 Integrated Water Quality Assessment can be found here. The KDHE Monitoring and Analysis Unit monitors water quality conditions in streams and publicly owned lakes and wetlands throughout Kansas. The 2018 KDHE list of impaired waters identified:

- 84% of state’s assessed stream miles are impaired for one of these uses - aquatic Life, contact recreation or food procurement
- 96% of the state’s assessed lakes are impaired for one of these uses - aquatic life, contact recreation or food procurement
- 1% of the state’s assessed wetlands supported aquatic life and recreational uses

Programs administered by the Unit are designed to meet the environmental surveillance and reporting requirements of the Clean Water Act and other applicable federal and state laws. Information obtained through these efforts is applied in the development of the state’s biennial water quality assessment and list of water quality-limited surface waters. Water quality data also are applied in the formulation of total maximum daily loads (TMDLs) for 303(d)-listed water bodies. The Monitoring and Analysis Unit works with other KDHE programs to identify potential risks to natural resources resulting from the unauthorized release of pollutants to the waters of the state. For more information, see the KDHE Bureau of Environmental Remediation website. The 2019-2028 Kansas Water Quality Monitoring and Assessment Strategy is a good tool to use when reviewing regulatory expectation, budgetary realities and technological and methodological advances in environmental surveillance.

The Kansas Department of Wildlife, Parks and Tourism (KDWPT) manages a Stream Survey and Monitoring Program with multiple crews collecting valuable data, information can be found here. Although this program has no regulatory or enforcement authority, the goal of the program is to assess
biological communities present within Kansas streams. Sampling generally occurs from late spring to summer, and each year focuses on a river basin of interest. KDHE refers to these data when analyzing biologic communities for 303(d)/TMDL development for biology impairments.

**Fish Contaminant and Fish Consumption Advisory Programs**

Working with other state and federal agencies, KDHE also collects and analyzes fish tissue samples from streams and lakes throughout Kansas. Targeted fish tissue monitoring efforts are usually obtained from 30-50 waterbodies across the state, including heavily fished reservoirs and certain streams with known water quality problems and existing fish consumption advisories. Based on these data, KDHE in partnership with KDWPT issues fish tissue consumption advisories which identify fish or other aquatic life that should be eaten in limited quantities or avoided altogether. Advisories are formulated using United States Environmental Protection Agency (EPA) risk assessment methods which account for contaminant level and length of exposure, current limits can be found [here](#).

**Watershed Restoration and Protection Strategies**

Interested stakeholders form local leadership teams assess watersheds and develop Watershed Restoration and Protection Strategy (WRAPS) plans to restore and protect them. WRAPS groups draw upon available water quality information and may supplement existing data with targeted assessments to guide planning and implementation activities. Many have had Soil and Water Assessment Tool (SWAT) modeling applied to their watersheds. More information can be found about the WRAPS program [here](#).

Currently there are 36 KS WRAPS watershed plans that include costs associated with BMP implementation, technical assistance, additional project coordination and education. If plan expenses are totaled for all WRAPS Projects and extended through the length (years) of each watershed plan, the total amount needed to address the water quality impairments identified in WRAPS plans is approximately $624,844,203.00.

**Water Quality Based Effluent Limitations**

Prior to the issuance of any permit that authorizes a facility to discharge effluent to the waters of the state, KDHE must certify, in writing, that the planned release of effluent will not result in violations of KSWQS, other applicable state laws, or any federally promulgated water quality standards found [here](#). A review of the discharge’s potential impact on the quality of the receiving surface water is conducted by KDHE. Currently, about 1,501 municipal, industrial, commercial, and federal facilities in Kansas are authorized by KDHE to release treated effluent to the waters of the state.

**Nonpoint Source Pollution Management Report**

KDHE prepares a report each year describing the state’s Nonpoint Source Pollution (NPS) management objectives, projects implemented during the previous year in support of these objectives, and documented improvements in water quality attributable to NPS pollution control efforts. The most current report can be found [here](#).

**General Water Quality**


**Surface Water**

The Kansas 2020 303(d) list identifies 486 station/pollutant combinations of water quality impairment on lakes, wetlands, and stream systems (watersheds), encompassing 2,278 stream segment/pollutant combinations, and needing the development of Total Maximum Daily Load plans (TMDLs) to address the offending pollutants. The 2020 list also identifies 514 station/pollutant combinations of waters that were previously cited as impaired in prior lists but now meet water quality standards, with 44 of these being new in 2020. Waters listed on the 303(d) list are individually targeted for TMDL development according to a priority ranking established by KDHE and approved by EPA.

**Groundwater**

Kansas no longer maintains a statewide groundwater quality monitoring program, and funding for the renewal of such an effort appears unlikely in the near future. However, an earlier monitoring program (suspended in 2002 due to budgetary constraints) evaluated groundwater quality at more than 200 sites in Kansas. Individual wells in the monitoring network were sampled on a two-year rotational basis, with approximately half these wells being sampled in any given year. The program’s surviving electronic database contains roughly 150,000 records spanning 120 different physical, chemical, and radiological parameters and 327 groundwater quality monitoring locations. The Kansas Water Office is currently funding a study in the Missouri Region Planning area to evaluate groundwater quality with the Kansas Geological Survey (KGS) conducting the work. More information about the on-going study can be found here. Nitrate is the most common inorganic contaminant in Kansas ground water. Previous studies have found that about 30% of domestic wells in Kansas have nitrate levels greater than the Maximum Contaminant Level (MCL) for public drinking water. (KGS study)

Figure 1. Source KGS – Nitrate in groundwater
Water Reuse

There are reuse projects taking place statewide, some with large amounts of water being reused. For example, the Spirit Corporation in Wichita is treating 2-3 million gallons of water/day for reuse. Most of the reuse water across the state is applied to ball fields, golf courses or agriculture fields. The technology is there to treat water from toilet to tap however there is still a big “yuck” factor and the cost. Here is a presentation from the 2017 Governor’s Water Conference outlining of issues with water reuse. Water reuse is noted in the Vision under the lower quality water section.

Additional Reports

A variety of additional reports, special publications, and peer-reviewed journal articles are generated by KDHE to disseminate water quality information to the broader scientific community, elected officials, regulated entities, and the general public. These can be found by searching here.

<table>
<thead>
<tr>
<th>Recommended Actions and Strategies – Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy or Program Recommendations</strong></td>
</tr>
<tr>
<td>• RAC Goals addressing water quality/reuse (EW, NEO, MO, RH, GBP, CIM)</td>
</tr>
<tr>
<td>• Continue to support KDHE in Water Quality management</td>
</tr>
<tr>
<td>• KWF Policy Comment recommendation – Public comment received</td>
</tr>
<tr>
<td>• KDHE nutrient reduction work group</td>
</tr>
<tr>
<td>• Current Research Appropriations (Bathymetric Surveys, Kansas River Alluvium, Streambank Stabilization and Real-Time Flood Mapping)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Implementation Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Follow RAC Action Items (list out or provide lint to Regional WP sections)</td>
</tr>
<tr>
<td>• Continue to work closely with USGS, KGS, and KDHE on appropriate actions</td>
</tr>
<tr>
<td>• Encourage more adoption of soil health implementation</td>
</tr>
<tr>
<td>• Encourage and promote municipalities &amp; PWS water reuse efforts</td>
</tr>
<tr>
<td>• Promote more water quality off-site mitigation and carbon sequestration partnerships</td>
</tr>
<tr>
<td>• Encourage Communities to play a bigger role water quality initiative with support from local Conservation Districts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data, Research, and Studies</th>
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<tbody>
<tr>
<td>• Facilitate/support data collection of groundwater and surface water quality</td>
</tr>
<tr>
<td>• GMD 5 study with Kansas State University (KSU) concerning nitrate levels in private wells with assistance from DOC-CD and KDHE</td>
</tr>
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<tr>
<th>Funding and Resource Needs</th>
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<tbody>
<tr>
<td>• Partnerships with private companies or other entities to aid in BMP implementation</td>
</tr>
<tr>
<td>• Use of State Water Plan funds to secure data/information</td>
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</tbody>
</table>

Section 1. Aquatic Nuisance Species (ANS)

Aquatic Nuisance Species are a source of significant ecological and socio-economic problems throughout North America. Kansas’s aquatic ecosystems have already been invaded by ANS such as zebra mussels, Asian carp, and Eurasian watermilfoil. There is little doubt that these and other ANS pose a serious, and growing, threat to Kansas water resources. The federal definition of ANS is a nonindigenous species that
threaten the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural or recreational activities dependent on such waters. Plainly stated, ANS are non-native species that threaten the water resources of Kansas. Zebra mussels are considered a priority ANS in Kansas; they were first detected in North America in 1988 and have subsequently spread to, and negatively impacted, waterbodies across much of the Eastern and Midwestern portions of the country. They were first found in Kansas in 2003 at El Dorado Reservoir and now infest more than 30 Kansas waters. Another priority species, Asian carp, first appeared in Kansas in 1987 and now constitute the majority of the fish community in the Missouri River and its tributaries, including the Kansas River up to the Bowersock Dam, and also occupy the Neosho River.

Currently there are more than 30 water bodies in Kansas and their exiting streams that are infested with zebra mussels, see Figure 1. Miles of rivers, including the Missour, Kansas, Wakarusa, Neosho and related tributaries, are infested by Asian Carp, see Figure 2. Multiple impoundments are also infested with invasive plants such as Eurasian watermilfoil, curly-leaf pondweed, and phragmites. These species are known to reduce or clog water intakes, reduce property values, cause declines in native species, decrease spawning habitat, and reduce useable recreational areas on lakes.

Moving water, mud, animals, or vegetation between waterbodies risks spreading ANS. Examples of this include interbasin water transfers, boats/trailers, bait buckets, fires suppression equipment, construction equipment, irrigation systems, pet releases, and raw water line repair. Other ANS of concern include: Quagga Mussel, a close relative of the zebra mussel, but which is more problematic since it does not require hard substrates to grow on; Snakehead, an apex predator fish, which is currently spreading from Arkansas throughout the Mississippi River basin and likely to be found in Kansas in the future; Black Carp, whose diet consists largely of mussels (many of which are already imperiled species), which are currently known to occur in the Missouri River in the state of Missouri and have no barrier preventing their spread into Kansas; and multiple species of crayfish that are likely to negatively impact native crayfish populations: Red Swamp Crayfish which have recently become established in Kansas and Rusty Crayfish, which while not yet known to occur in Kansas, have been detected in all of our neighboring states. Invasive species are not stopped by state boundaries so there are multiple states working in collaboration to address these species, more information is located here.
Management Approach

The Kansas Department of Wildlife, Parks and Tourism (KDWPT) developed the Kansas ANS Management Plan which was adopted on April 25, 2005. The goals of the plan were simple:

- Prevent new introductions of ANS into Kansas
- Prevent dispersal of established populations of ANS into uninfested waters of Kansas
- Eradicate or control to minimize the adverse ecological, economic, social and public health effects of ANS in an environmentally sound manner
- Educate all aquatic users of ANS risks and how to reduce the harmful impacts
- Support research on ANS in Kansas, and develop systems to disseminate information

However, since 2005 there have been numerous water bodies that have been adversely affected by a particular invasive species. Current KDWPT staff serving as the State of Kansas’ representative on an array of ANS organizations that coordinate regional and national efforts to manage invasive species; conducting research projects pertinent to KS ANS priorities; permitting and inspecting 200+ bait shops statewide; sampling 110 lakes across the state to detect new populations of zebra or quagga mussels; working with other KDWPT fisheries staff to conduct fish health testing at state and private fish hatcheries, broodfish lakes, and in response to fish kills; creating and providing education and outreach materials including a webpage, signage at waterbodies, radio ads, press releases, Facebook ads, brochures, direct mailings, event displays, presentations, and trainings; and implementing a watercraft inspection and decontamination program.
Reservoir Operations

The Lake Level Management Plans (LLMP) that have been established at multiple federal reservoirs are a tool that can be used to eliminate zebra mussels that remain exposed to the elements as the water above Conservation Pool is released. However, the LLMPs are subject to weather conditions and will not eliminate those below the water or ice line.

Planning

KDWPT will continue to work with other states on improving detection techniques, limiting spread of invasive species, some of which will be accomplished with State Water Plan Funds.

Damage assessment and recovery

KDWPT has estimated that ANS causes an estimated $$$ annually to the Kansas economy. To better refine this value, they have launched a study to survey surface water right holders across the state about estimated annual ANS treatment costs. The study is anticipated to take up to a year to complete with results in late 2021.
Measuring Success

Limit the spread of ANS species; increased implementation and usage of watercraft inspection and decontamination stations as documented by KDWPT.

<table>
<thead>
<tr>
<th>Recommended Actions and Strategies - ANS</th>
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</thead>
<tbody>
<tr>
<td><strong>Policy or Program Recommendations</strong></td>
</tr>
<tr>
<td>• RAC Goals addressing ANS problems (VER, MDC &amp; NEO)</td>
</tr>
<tr>
<td>• Continue to support KDWPT in their management of the ANS Plan</td>
</tr>
<tr>
<td><strong>Implementation Actions</strong></td>
</tr>
<tr>
<td>• Follow RAC Action Items (list out)</td>
</tr>
<tr>
<td>• Provide funding dollars through the State Water Plan to aid in prevention of spread</td>
</tr>
<tr>
<td>• Provide a platform for ANS presentations (Webinars, Governor’s Conference)</td>
</tr>
<tr>
<td>• Promote continuation of KDWPT’s Clean, Drain, Dry initiative</td>
</tr>
<tr>
<td>• Install Watercraft Inspection and Decontamination stations near federal reservoirs</td>
</tr>
<tr>
<td><strong>Data, Research, and Studies</strong></td>
</tr>
<tr>
<td>• Annual lake/stream monitoring for ANS</td>
</tr>
<tr>
<td>• KDWPT Collaboration with other States</td>
</tr>
<tr>
<td><strong>Funding and Resource Needs</strong></td>
</tr>
<tr>
<td>• Additional state match dollars to capture federal dollars to implement Action Plans</td>
</tr>
</tbody>
</table>

Section 2. Harmful Algal Bloom (HAB)

There are many different photosynthetic aquatic organisms that have historically been called “algae.” Though there are some functional similarities among the different forms of “algae,” these organisms have a wide range of physical attributes and origins. “Blue-green algae” are actually bacteria and are thus even more distinct from other types of algae. Blue-green algae are simple aquatic organisms that exist naturally in marine and freshwater waters, rivers, lakes, wetlands, and ponds. When they are present in low numbers, they are a normal part of a healthy ecosystem. Blue-green algae are also known as cyanobacteria. These bacteria are a world-wide problem and the Environmental Protection Agency (EPA) has a great deal of information/research available [here](https://www.epa.gov/cyano/what-are-harmful-algal-blooms).

At times, blue-green algae can reproduce very rapidly, creating a dense growth known as a bloom. A “harmful algal bloom,” or HAB, refers to a dense growth of algae that has the potential for creating toxins or other nuisance compounds. Some species and strains of blue-green algae produce a variety of toxins, which in some cases are released from healthy cells, but in other cases are released only when they become stressed and/or die. It is still not fully understood why these compounds are produced – whether they are adaptations that benefit the organism, or whether they are merely by-products of some other important process. Cyanotoxins can have acute and chronic effects on liver, kidney, lungs, and nervous system, and there are no known antidotes. The cyanotoxin most commonly found in
Kansas lakes is a family of compounds called microcystins, which primarily affects the liver. Not all strains of a given species produce toxins, but a majority of the potentially harmful blue-green algae that have been seen in Kansas belong to one of three genus groups: *Microcystis*, *Aphanizomenon*, and *Dolichospermum* (formerly called *Anabaena*). These species become a problem when nutrients (phosphorus and nitrogen) are present in concentrations above what would occur naturally. Under these conditions, algae can “bloom,” or grow very quickly to extreme numbers. Summer heat and calm, clear water can increase the likelihood of a bloom occurring, because blue-green algae are especially adapted to take advantage of such conditions. The water could be colored pea-green, blue, or blue-green, and a cyanobacterial bloom can look like a vivid paint spill or floating grass clippings.

Public Lakes Confirmed with Harmful Blue-Green Algal Blooms (HAB) in 2019

Confirmed 2019 HAB locations

Data Source: KDHE Bureau of Water, & Bureau of Environmental Field Services

Data current as of December 31, 2019
Management Approach

The Kansas Department of Health and Environment (KDHE) HAB Response Program was established in 2010 with over 100 water bodies affected by HABs in the past 10 years. More information about the program which is complaint-based and only addresses blooms on public waters is available [here](#). Managers of private waters are encouraged to perform a jar test and use private labs if they believe they are experiencing a bloom, more information is available [here](#). Under the KDHE program, there are three levels of Advisories. A **Watch** is triggered by microcystin concentrations over 4ug/l or cyanobacterial density over 80,000 cells/ml, a **Warning** for microcystin over 8 ug/l or cyanobacterial density over 250,000 cells/ml, and a **Hazard** for microcystins over 2,000 ug/l or cyanobacterial density over 10,000,000 cells/ml.

Reservoir Operations

The LLMP at Milford Reservoir was reconfigured in 2018 to mimic conditions that limited the HABs in the reservoir in 2017. During this year it appeared that certain water levels and timing releases resulted in no HABs on the reservoir. Information on the Milford LLMP can be found [here](#).

Planning

KDHE will continue to work with other agencies to address this worldwide problem and seek a solution partially funded with State Water Plan Funds.

Damage assessment and recovery

KDHE holds weekly calls throughout the HAB season to provide lake managers with current conditions. However, revenue lost due to HAB lake closures or individuals not visiting a particular lake has not been clearly enumerated. There is a considerable amount of research that is taking place within the state and worldwide to solve this issue.

Measuring Success

Reduced number and duration of HAB occurrences.

### Recommended Actions and Strategies - HAB

<table>
<thead>
<tr>
<th>Policy or Program Recommendations</th>
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</thead>
<tbody>
<tr>
<td>• RAC Goals addressing HABs (KS, NEO)</td>
</tr>
<tr>
<td>• Kansas Wildlife Federation suggestions</td>
</tr>
<tr>
<td>• Continued funding of programs such as Kansas Reservoir Protection Initiative (KRPI) or Milford RCPP limiting nutrients into the water bodies</td>
</tr>
<tr>
<td>• Current Research Appropriations (Reservoir Water Quality – HABs)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Implementation Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Follow Action Plans</td>
</tr>
<tr>
<td>• Legislative action to implement KWF suggestions</td>
</tr>
<tr>
<td>• State Water Plan dollars directed annually towards like projects</td>
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<table>
<thead>
<tr>
<th>Data, Research, and Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• KDHE, KBS, EPA, etc. HAB related information/research</td>
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</table>
Section 3. Recreation

Recreational opportunities (e.g., boating, fishing, hunting, camping, and kayaking) improve the quality of life for the citizens of Kansas and contribute to the state’s economy. The availability of recreational destinations and activities provides Kansas the opportunity to prosper economically and increases the value of natural resources in the state.

Public lands that provide recreation opportunities are relatively rare in Kansas, with privately-owned lands accounting for 98.4 percent of the land in Kansas. State and federal lands account for approximately 1.4 percent of total lands in the state, and only a portion of these state and federal lands are associated with recreational parks and areas (Headwaters Economic, 2020). State-owned and controlled lands for recreation account for only 0.7 percent of lands in the state. Because of the scarcity of federal and state public lands for recreation in Kansas, it is imperative that these lands are protected and managed to promote sufficient recreational opportunities to meet the needs of local residents and visitors to the state. The year 2020 provided additional demands for outdoor recreational opportunities associated with the COVID guidelines and requirements.

Supply of Water for Recreation

Most federal reservoirs are surrounded by public parks that offer a variety of water-based recreation activities including boating, fishing, waterfowl hunting and wildlife observation. Park lands are managed by the Kansas Department of Wildlife, Parks and Tourism (KDWPT) or U.S. Army Corps of Engineers (Corps). In some cases, both KDWPT and the Corps operate separate parks at the same reservoir, differing in the type of facilities offered. KDWPT also operates state parks around reservoirs owned by the Bureau of Reclamation (Bureau) and smaller lakes owned by the KDWPT.

River Based Recreation

Only three rivers in Kansas are legally navigable and open to public recreation: the Arkansas, Kansas and Missouri rivers. Despite restricted access due to the state’s water laws, canoeing and other float type activities have become popular in Kansas, with reported participation increasing by 80% in the last decade. Public access is generally provided on navigable rivers and the upper reaches of public reservoirs. In general, the Stream Access Program of KDWPT is used to provide a systematic approach to implementing general access to navigable Kansas streams. Interest in river recreation is expected to increase more on the Kansas River due to the recent designation as a National Water Trail. This designation will bring federal funds to the state to develop additional facilities along the river.

Access to these rivers is only allowed where a public access point exists and this is the major limitation to river recreation. If no public access exists, boaters have to receive permission to access the river through private property. The number of public access points on the three navigable rivers has increased in recent years through initiatives by KDWPT, local governments, and interest groups. More
information on these rivers and access availability can be found at the KDWPT website and the Friends of the Kaw website. Efforts are also underway to provide additional access along the Arkansas River, especially in the reach between Hutchinson and south of Wichita. Local communities recognize the health, social and economic value of providing river access in their communities and are willing to provide local funding and in-kind services to assist with access development.

No visitation numbers are regularly compiled for river float trips as most are organized by either private individuals or non-profit organizations and no permit is required.

Management Approach

The US Army Corps of Engineers (USACE), KDWPT and numbers NGO’s provide the gateway to water-based recreation in Kansas with USACE and KDWPT regulating those activities. Water-based recreation demand is addressed by the use of federal, state and local reservoirs, rivers and wetlands. However, in many areas of the state the availability of surface water for recreation is limited and the public must travel long distances for water-based recreation opportunities. Kansas lacks natural lakes and contains only three legally navigable rivers. Consequently, water-related outdoor recreation in the state occurs mainly on and around the 24 federal reservoirs, 48 state fishing lakes, 198 city and county lakes and hundreds of smaller private impoundments, wetlands, and stream reaches. The USACE website is located here which provides individuals about ammonites and additional information on the federal reservoirs. The KDWPT website located here provides additional information for areas that are managed including State Parks, State Fishing Lakes and river access points.

Reservoir Operations

Recreational use is not only for human needs, but also for the protection of fish and wildlife. Water based recreation is affected by drought. Water quality and quantity in streams are compromised during low flow conditions. Federal reservoirs are used to make quality releases to ensure that water is available for aquatic communities downstream. Sedimentation of reservoirs reduces the storage available to maintain these base flows and becomes more of a threat as lake levels drop due to drought conditions. The Kansas Water Office maintains a Reservoir page with pertinent information located here.

Planning

USACE, KDWPT and NGO’s will continue to provide for the expanding need for outdoor opportunities in our current environment. The Kansas River Reservoir Flood and Sediment Study (KRRFSS) has drawn multiple groups together to address water issues in the northern half of Kansas with expected outcomes by 2023.

Damage assessment and recovery

USACE and KDWPT along with other recreational entities have to deal with drought and flooding issues that impact facilities and revenue. These are documented in annual reports produced by USACE and KDWPT.
**Measuring Success**

Increased recreational opportunities/usage as monitored by participating entities as documented in annual reports.

<table>
<thead>
<tr>
<th>Recommended Actions and Strategies - Recreation</th>
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<tbody>
<tr>
<td><strong>Policy or Program Recommendations</strong></td>
</tr>
<tr>
<td>• RAC Goals addressing recreation needs?</td>
</tr>
<tr>
<td>• Provide USACE and KDWPT opportunities to promote recreation as a mental health booster</td>
</tr>
<tr>
<td><strong>Implementation Actions</strong></td>
</tr>
<tr>
<td>• Follow RAC Action Plans or else!</td>
</tr>
<tr>
<td>• Support KDWPT pursuit of Land and Water Conservation funding</td>
</tr>
<tr>
<td>• Use KRRFSS results to assist with recognition and implementation of possible actions</td>
</tr>
<tr>
<td><strong>Data, Research, and Studies</strong></td>
</tr>
<tr>
<td>• Use KRRFSS recreation section as the newest nearly complete data set for Kansas Recreation in the northern part of the state</td>
</tr>
<tr>
<td><strong>Funding and Resource Needs</strong></td>
</tr>
<tr>
<td>• Use of Land and Water Conservation funds</td>
</tr>
<tr>
<td>• Increased license sales</td>
</tr>
</tbody>
</table>
MEMO

DATE: October 19, 2020
TO: Kansas Water Authority
FROM: Matt Unruh
RE: Kansas Water Plan Update: Public Comments

Stakeholder input is a key component of the water planning process in Kansas and the current Kansas Water Plan update provides another opportunity for interested individuals, groups, and organizations to vocalize their respective water resource priorities for consideration within the Kansas Water Plan.

Recently, the Kansas Water Office developed a 2020 Kansas Water Plan Public Comments section on the Kansas Water Plan webpage to allow interested individuals to view public comments received by the Kansas Water Office (KWO) during the Kansas Water Plan update process. To date, KWO has received one set of formal comments from the Kansas Wildlife Federation on October 13, 2020. As additional comments are received by the Kansas Water Office they will be posted in the previously noted section at https://kwo.ks.gov/water-vision-water-plan/water-plan, pending agreement by the submitter to have those comments posted for public viewing.

Individuals or organizations interested in providing comments for consideration on the Kansas Water Plan update can submit feedback to the Kansas Water Office by email at kwo-info@kwo.ks.gov.

For informational purposes only. No KWA action necessary at this time.
MEMO

DATE: October 21, 2020
TO: Kansas Water Authority
FROM: Matt Unruh
RE: Annual Report Update

Efforts have been initiated by Kansas Water Office staff on development of the 2021 Kansas Water Authority (KWA) Annual Report to the Governor and Legislature. This report serves as an important communications tool for members of the KWA, Regional Advisory Committees (RAC), the Kansas Water Office, agency partners, as well as other stakeholder groups to share progress and planning information on State Water Plan Fund (SWPF) projects/initiatives with audiences such as the Governor’s Office, members of the Legislature, and other interested parties. KWA SWPF budget recommendations for the upcoming fiscal year are also included within the report, making it a frequently used document during the legislative budget process.

The bulleted list below highlights milestones of note in the Annual Report development process:

- Share Annual Report outline at October KWA meeting
  - KWA provides input/advice on desired content of report
- Present draft Annual Report to KWA at December meeting
- Make necessary edits & finalize report following presentation of full report to KWA
- Send electronic copy of Annual Report to Governor and Legislature
- Deliver printed copies of Annual Report upon Legislature’s return to Topeka

On the following page a draft outline is included to provide members of the KWA an opportunity to preview content anticipated for inclusion within the 2021 Kansas Water Authority Annual Report to the Governor and Legislature. The Kansas Water Office welcomes and appreciates any feedback the KWA might have at this time to help guide the report development process.

For informational purposes only. No KWA action necessary at this time.
Letter From Kansas Water Authority Chair Connie Owen
State Water Plan Fund Expenditure Recommendations
Summary of Request for SGF/EDIF Transfer Restoration
Vision for the Future of Water Supply in Kansas/Kansas Water Plan Update
Ogallala Aquifer Initiatives
  o WCA/LEMA Update
  o WTAP/CREP Update
  o Irrigation Technology
  o Water Technology Farms
  o Real-Time Water Management (Telemetry)
  o Index Well Network & Modeling
Reservoir Water Supply & Sediment Management
  o Streambank Stabilization
  o Watershed Conservation Practice Implementation
  o Unfunded Liability & Capital Development Plan Update
  o KWO Bathymetric Survey Program
  o Water Injection Dredging
  o Watershed Dam Construction
Research Initiatives
  o Reservoir & Water Quality Research
  o Crop & Livestock Research
Technical Assistance to Water Users
Vision Education Strategy – Kansas Runs on Water
2020 COVID Impacts
Water Quality Initiatives
  o Milford Lake Watershed RCPP
  o WRAPS
  o HAB Pilot Project
  o Contamination Remediation
  o Drinking Water Protection Program
  o Produced Water Pilot Project
  o Equus Beds Chloride Plume Project
  o Water Resources Cost-Share
  o Non-Point Source Pollution Assistance
  o State Aid to Conservation Districts
  o Arbuckle Study
  o Upper Arkansas Mineralization Study
  o Aquatic Nuisance Species
Statewide Water Issues
  o Quivira/Rattlesnake Creek
  o Hays/Russell – R9 Ranch Water Transfer
  o Wichita ASR
  o Republican River Update
  o Kansas-Colorado Arkansas River Compact Update
  o Missouri River Coordination
  o General Mills/KDHE/Cheney Lake Watershed Initiative
Kansas Water Authority Membership Map