US Army Corps of Engineers®

The Nature Conservancy

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Sustainable Rivers Program

Kansas Alliance for Wetlands & Streams

KAWS

Friends of the Kaw

KU Kansas Biological Survey

The University of Kansas

USGS

science for a changing world

Kansas

Water Office

Sustainable Rivers: Quick Refresh

The Sustainable Rivers Program (SRP), is a collaborative effort between the Corps and The Nature Conservancy (TNC).

Mission: Identify opportunities to adjust dam operations to improve the heath and life of rivers, while improving or not adversely affecting project purposes and human benefits of reservoirs and the river.

Project Goals are accomplished through a cooperative, collaborative process, culminating in the e-flow workshop.

Sustainable Rivers Program

Basic Process*	Example Tasks
1. Initiate	• Engage Stakeholders • Orientation Meeting
2. Define e-flows	• Literature search • Synthesize available river specific and regional information
3. Implement e-flows	• Modeling • Stakeholder engagement via workshop • Testing • Monitoring
4. Incorporate e-flows	• Adopting operational changes • Policy update with periodic review • Monitoring

*cooperative/collaborative process that leverages stakeholder capabilities

Year 2 Objectives

- Task 1: USACE analyzed flow data and evaluated the RPT tool
- Task 2: Established a contract with KBS for ecological literature review and synthesis
- Task 3: TNC led communications and stakeholder outreach, including identification of operational constraints

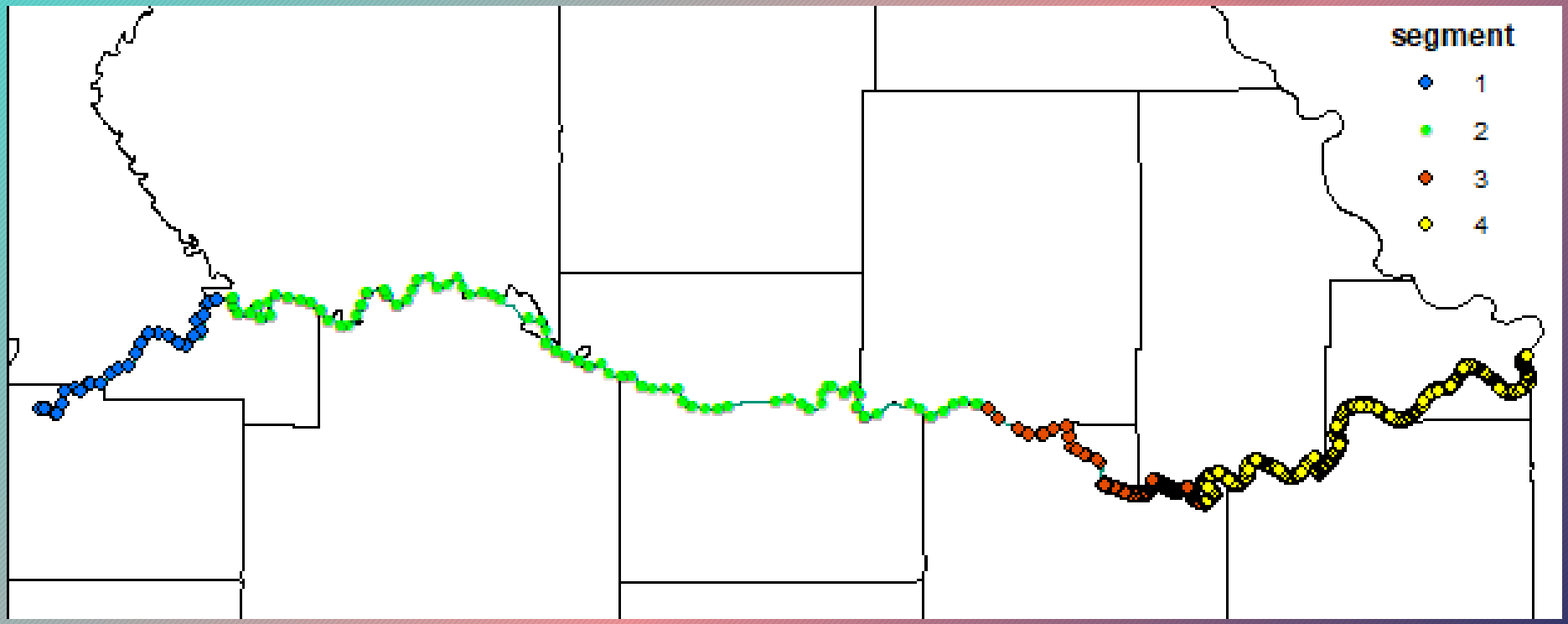
KBS Ecological Literature review

- Goals:
- 1. To examine changes in species abundance before and after reservoir construction
- 2. To summarize flow requirements of native species
- 3. To identify gaps in the available data

KBS Ecological Literature review

- Formed a Technical Team to provide critical input
- Species included:
  - Fish
  - Mussels
  - Sandbar-nesting birds and other river-associated bird species (ie. Bald Eagles)
    - Riparian vegetation (cottonwoods)
    - Insects
    - Reptiles & Amphibians
- 2018 work focused on fish
- 2019 work will be finalized on remaining species

By segment



Some trends

- From summaries for previous data meetings, using a blend of Gido et al. 2010 & Liechti IBI, we see changes in the Kansas River Basin between 1947-1964 and 1991 – 2003 for:
- Decreases in
  - # Round Bodied Catostomid Sp. (e.g. suckers)
  - % simple lithophils (fish preferring gravel size substrates)
  - sensitive species (species noted to be sensitive to environmental change and pollution)
- Increases in % Omnivores

In addition to habitat needs of native fish, changes in stocked or introduced fish are highlighted in excel file

Have stocking info 1970s to present for 9 reservoirs:

- **Cedar Bluff**
- **Glen Elder**
- **Kanopolis**
- **Kirwin**
- **Wilson**
- **Milford**
- **Tuttle**
- **Perry**
- **Clinton**

<u>Decreased pre-1964 to post-2003</u>

- **White crappie**
- **Largemouth bass**

<u>No noted change</u>

- **Gizzard shad, Redear sunfish**
- **Goldfish, Walleye, small m bass**
- **Striped bass, Wiper, paddlefish**
- **Emerald Shiner**

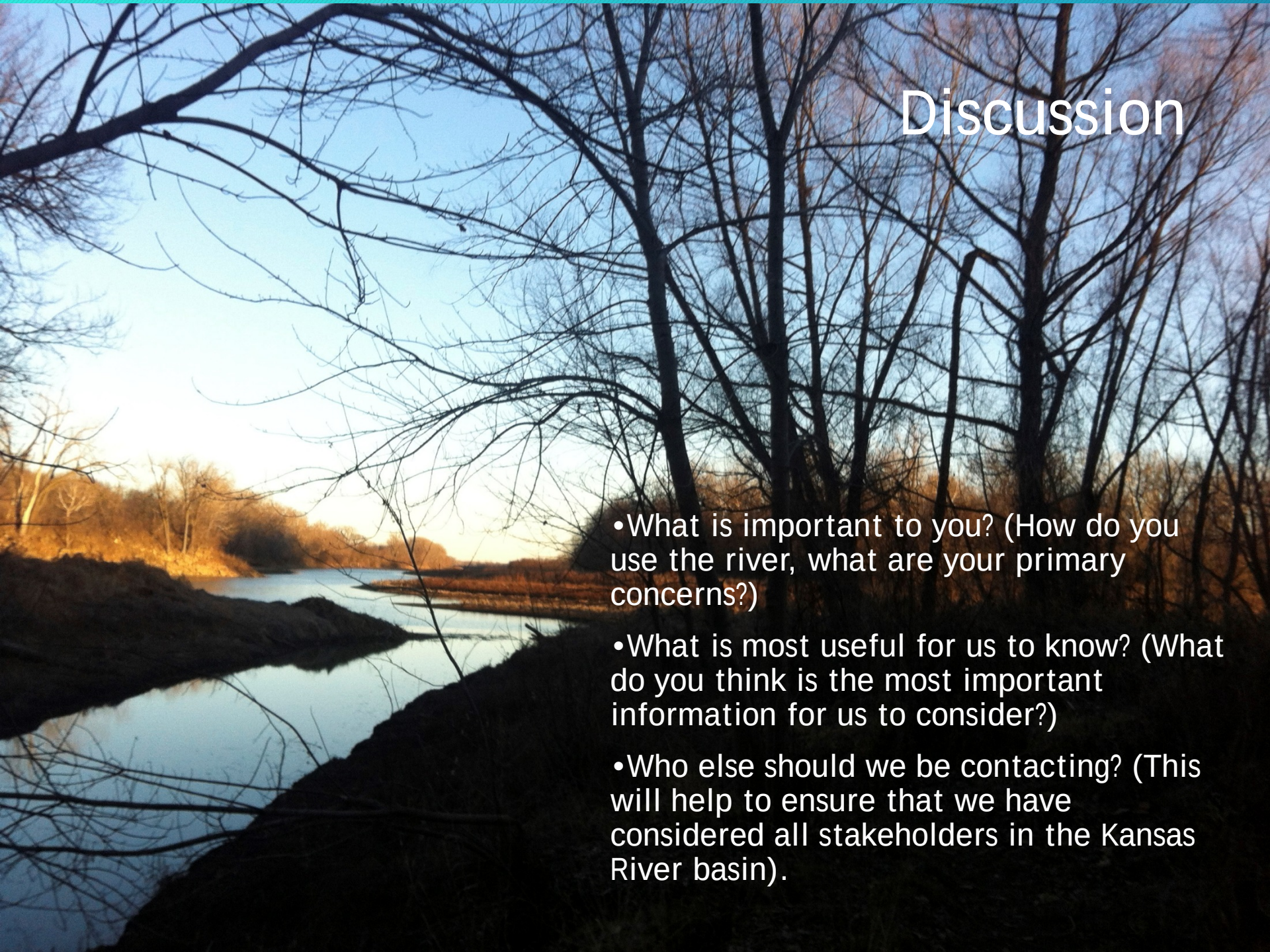
<u>Increased</u>

- **Blue catfish**
- **Channel catfish**

Stakeholder Workshops

- Developed Communication Plan
- Broke stakeholder list into five broad groups

Date	Interest group
Tuesday, August 21st	Environmental interests
Thursday, September 6th	Recreational interests
Wednesday, September 26th	Municipal and business interests
Tuesday, October 2nd	Operational interests
Thursday, November 1st	Agricultural interests



Discussion

- What is important to you? (How do you use the river, what are your primary concerns?)
- What is most useful for us to know? (What do you think is the most important information for us to consider?)
- Who else should we be contacting? (This will help to ensure that we have considered all stakeholders in the Kansas River basin).

Outcomes

- Stakeholders would like to see:
  - Better balancing of reservoirs/sport fisheries with water for river users
  - Protection of native species (fish, mussels, sandbar nesting birds)
  - Could the flow plan disadvantage invasive species?
  - Slower drawdowns (heard from environmental, recreational, and business interests)
  - Reconnection of side channels and tributaries
  - More flexibility in water management AND better coordination between all the players to take advantage of certain situations

Outcomes

- Stakeholders would like to see (cont.):
  - Different plans for wet/dry years
  - More wildlife data/monitoring
  - An analysis/consideration of impact to upstream lands/wildlife & waterfowl management/public lands
  - Evaluation of impacts of flow plan to sandbar habitat (maybe sandbar inundation modeling)
  - KFS would like to monitor Cottonwood forest trends

Outcomes

- Stakeholders expressed:
  - Concerns about how much of our management hinges on management in the Missouri (Waverly)
  - Water quality concerns from municipalities
  - Private interests want to be part of the process
  - Currently no perceived impacts to ag
  - Any SRP recommendations would need to be evaluated to confirm there is no impact and coordinated with KWO and DWR.
  - Could KDHE provide more outreach for to notify recreational users of sewage spills and HABS?

2019 Proposal and Work Plan

- Ecological literature review and synthesis will continue (KBS and technical team). Final report prepared in advance of e-flow workshop
- USGS technical support on water quality and flow data
- The Corps of Engineers will be updating the 2009 Geomorphological Assessment Report for the Kansas River
- *Sandbar habitat modeling/inundation modeling?*
- *Monitoring & evaluation needs?*

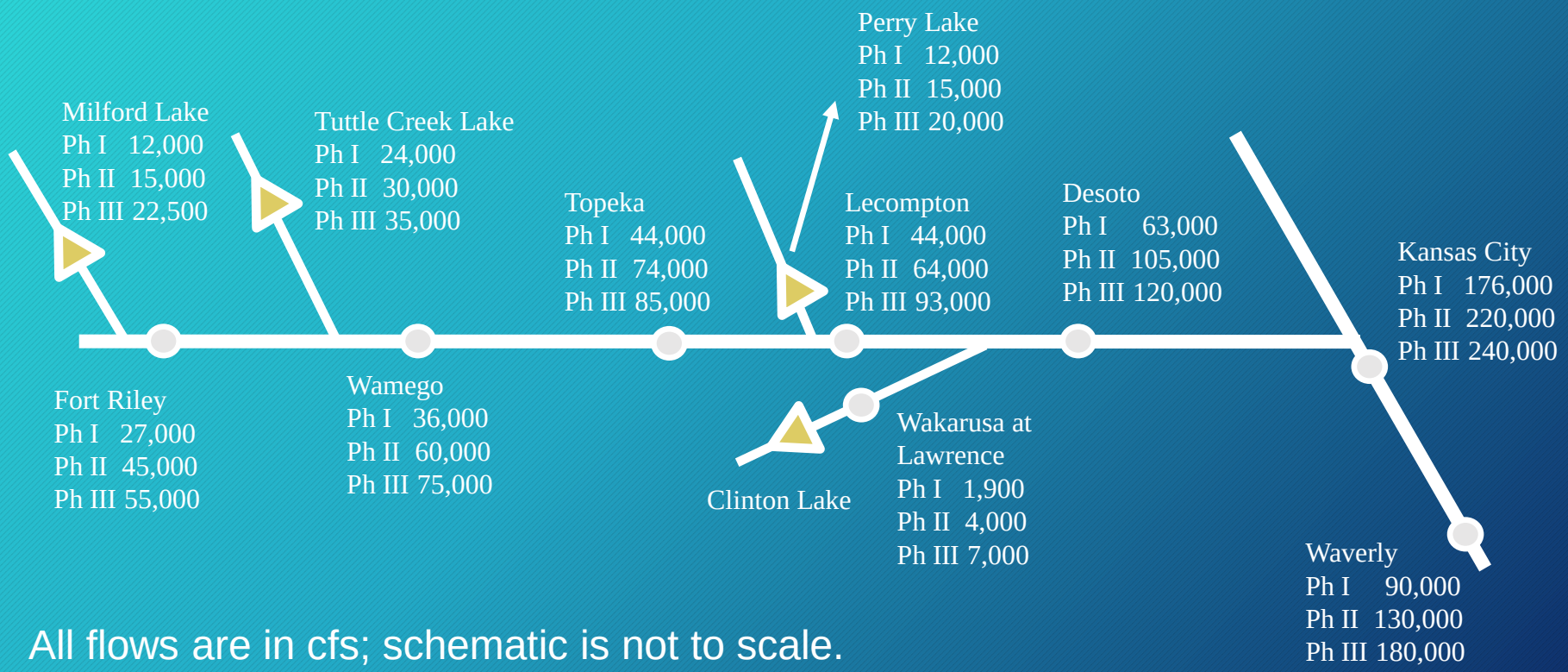
E-flow workshop in 2019

- Field trip for steering committee, technical team members to the Des Moines SRP project *(tentatively July 23-25)*
- E-flow Workshop preparation
  - Final report reviewed by Steering Committee
  - RPT facilitator training
  - Invitations sent to all stakeholders listed on the Team Charter

	2019									
	January	February	March	April	May	June	July	August	Septemb	October
Task 1 – Ecological data synthesis	Data analysis and report completion					Report review				
Task 2 – Communication and outreach							Kansas team visits Des Moines SRP	Summary report completed		
Task 3 – USGS water quality data	Report compilation and review									
Task 4 – Workshop preparation					RPT training	Workshop facilitator prep				
Task 5 – E-flow workshop								E-flow workshop held		


Questions?

Kansas River
Control Point Gages



All flows are in cfs; schematic is not to scale.

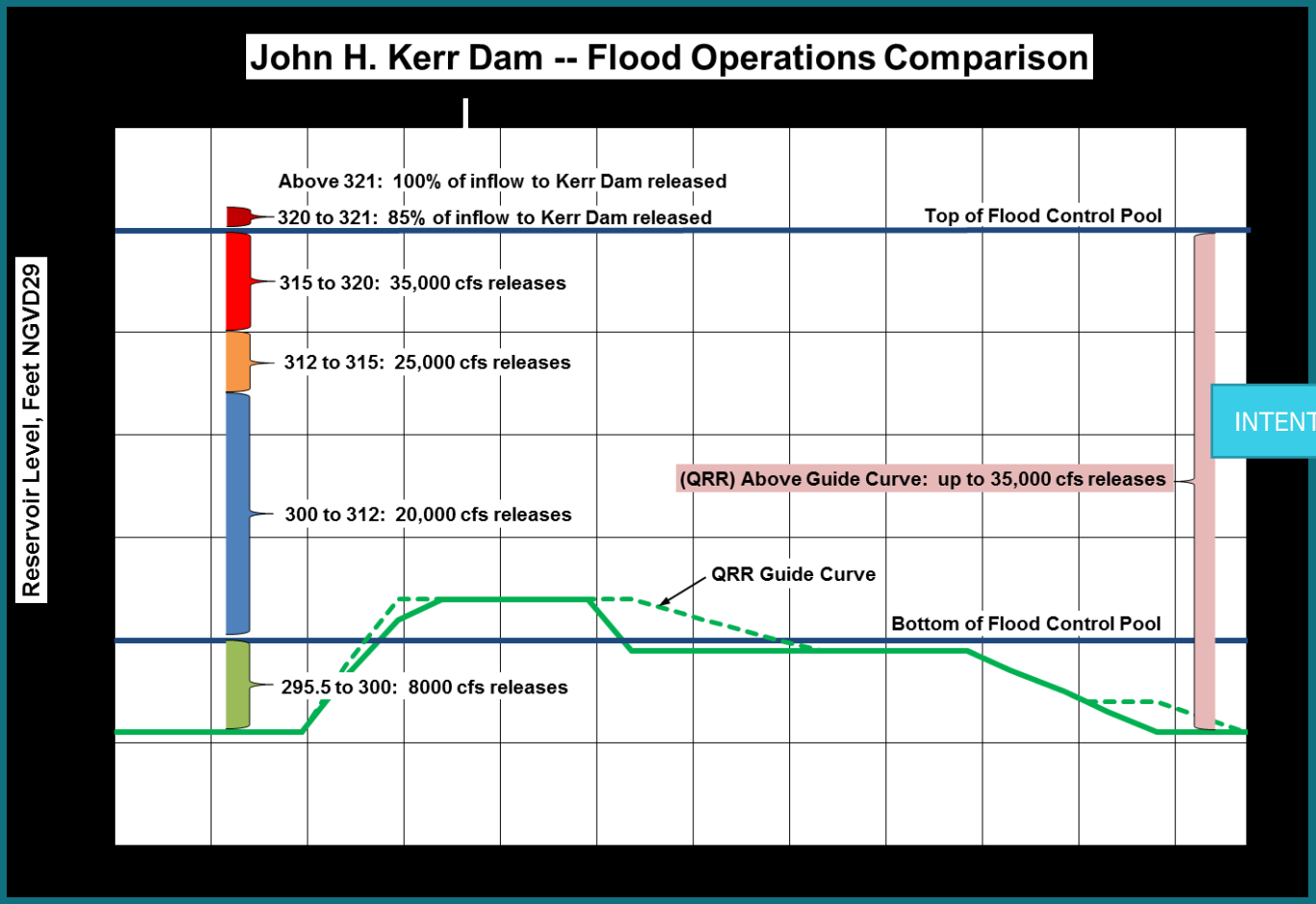
Kansas River
Low Flow Releases

Tuttle Creek Elevation	Flow Objectives in c.f.s. Topeka	DeSoto
1075-1070	750	1,000
1070-1065	750 (summer)	1,000 (summer)
-	600 (winter)	800 (winter)
1065-1048	600	750 (summer)
		700 (winter)

Summer = 1 May to 31 October
Winter = 1 November to 30 April

All flows are in cfs; schematic is not to scale. Dissolved oxygen and dissolved solids can also impact releases.

Roanoke River SRP – Revised Flood Operations "Quasi-Run-of-River"



INTENT/BENEFITS

Releases more closely mimic natural inflows on a weekly basis up to 35K releases

Weekly Outflow ≈ Weekly Average Inflow into Kerr whenever above guide curve (up to 35K)

Still maintain consideration of special operations

Flow releases are within the constraints of the operation of the dam – the timing of release was changed with the project.


NEBRASKAland Magazine / NGPC


Wayne Hathaway