

Illinois River Instream Flow Pilot Study Public/Stakeholder Meeting

January 22, 2015

Municipal Armory

Tahlequah, Oklahoma



US Army Corps
of Engineers.



Agenda for Tonight's Discussion

Welcome and Introductions

J.D. Strong, Executive Director, OWRB

Instream flows and the OK Comprehensive Water Plan

John Rehring, Carollo Engineers

History and background of Instream Flows in Oklahoma

Derek Smithee, Water Quality Programs Division Chief, OWRB

Review of the Illinois River Instream flow pilot study

Forrest Olson, CH2M Hill

Public comment

Next steps

Housekeeping items



Keeping in Touch

www.owrb.ok.gov/ISF



Provide E-mail address on Sign-in Sheet

Derek.Smithee@owrb.ok.gov

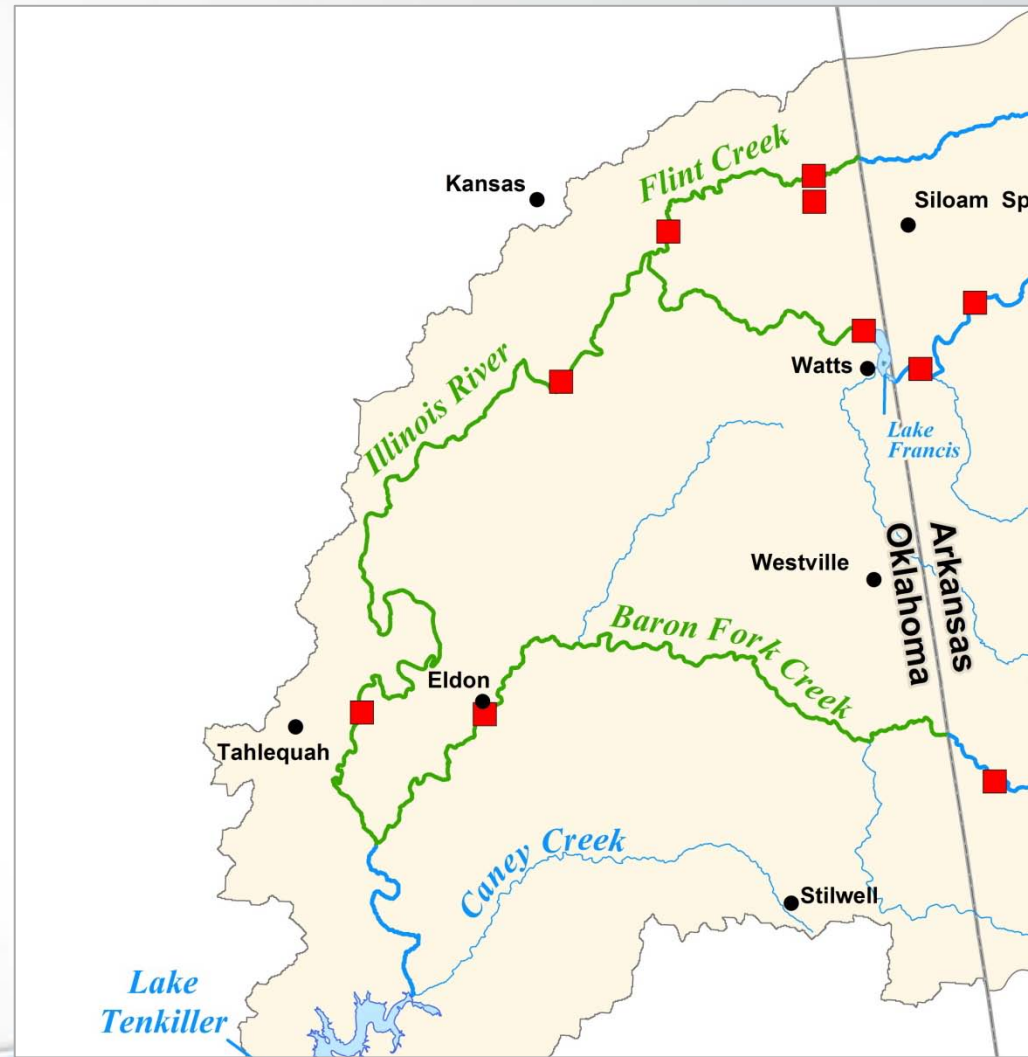
**WRITTEN
FEEDBACK**



Derek Smithee
(405) 530-8800

Focus of Tonight's Discussion

- **Instream (or environmental) flows** are those necessary to provide for a **healthy ecosystem** and support **water-related recreation** (such as fishing, hunting, swimming, and boating) as well as **tourism**.



Illinois River Instream Flow Pilot Study Public/Stakeholder Meeting

1

Instream Flows and the
Oklahoma Comprehensive
Water Plan

2

History and Background of
Instream Flows in
Oklahoma

Review of the Illinois River
Instream Flow Pilot Study

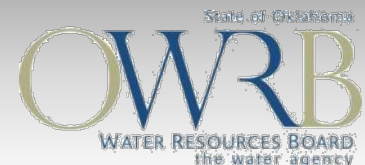
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Public Comment

4

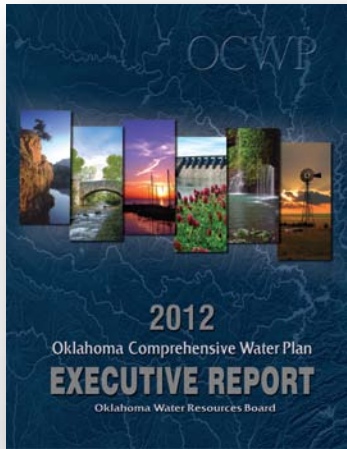


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Instream Flows and the Oklahoma Comprehensive Water Plan

2012 Oklahoma Comprehensive Water Plan

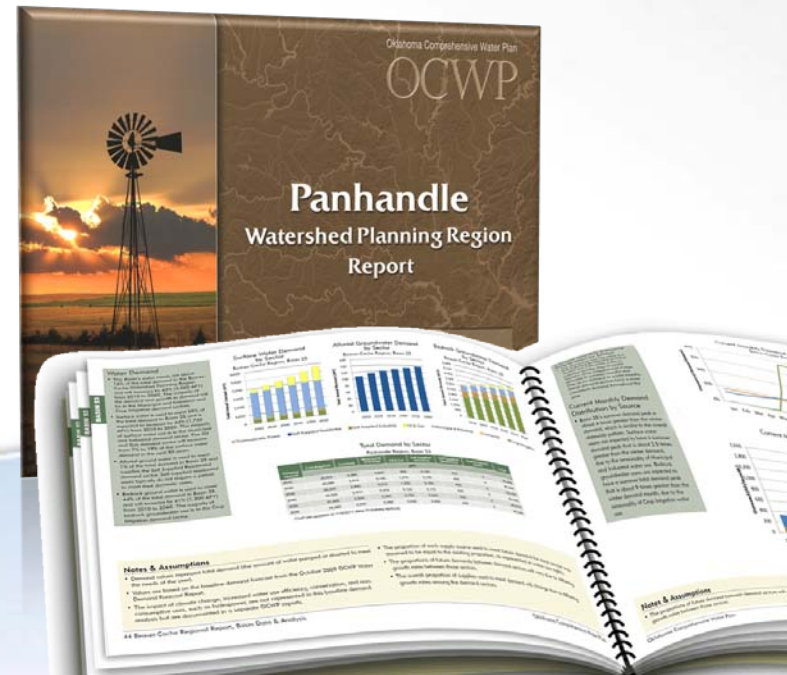


Executive Report:

- Synthesis of technical studies and results
- Water policy recommendations

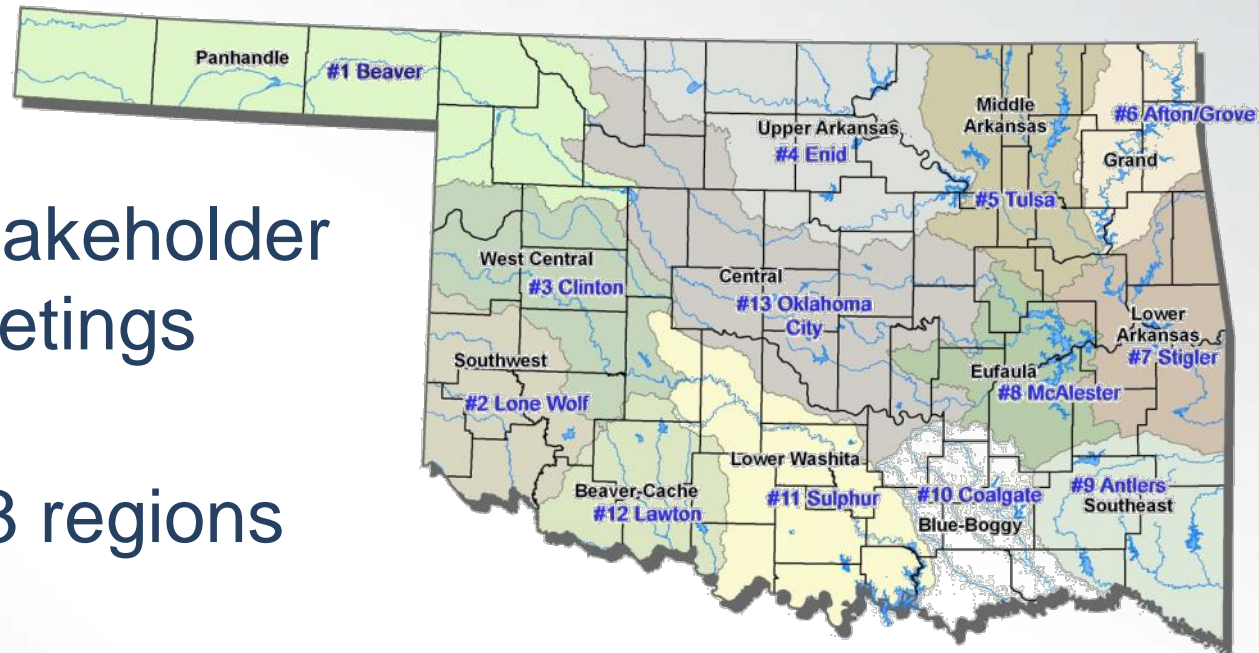
13 Watershed Planning Region Reports:

- Results of OCWP technical analyses
- Options to address local water shortages



OCWP Public/Stakeholder Participation

- Hundreds of stakeholder and citizen meetings
- 82 basins in 13 regions
- Public input and priorities shaped the OCWP priority recommendations



OCWP “Big 8” Priority Recommendations



Infrastructure Financing



Conservation, Reuse, Recycling



Monitoring



Supply Reliability



Instream Flows



Excess/Surplus



State/Tribal Resolution

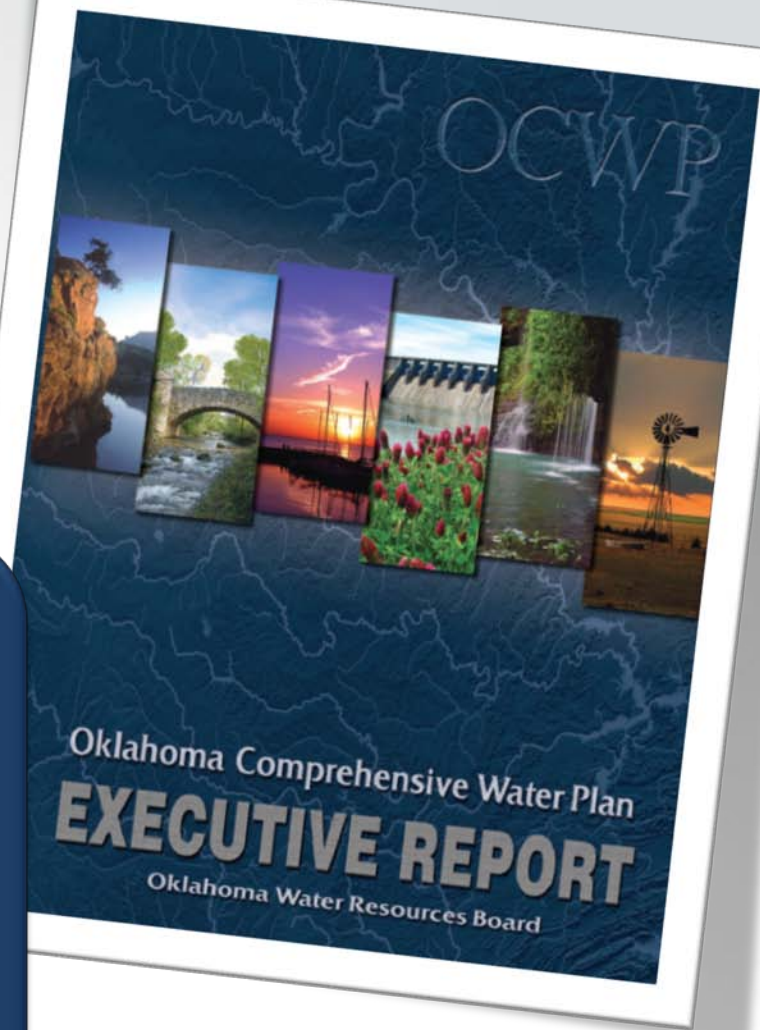


Regional Planning



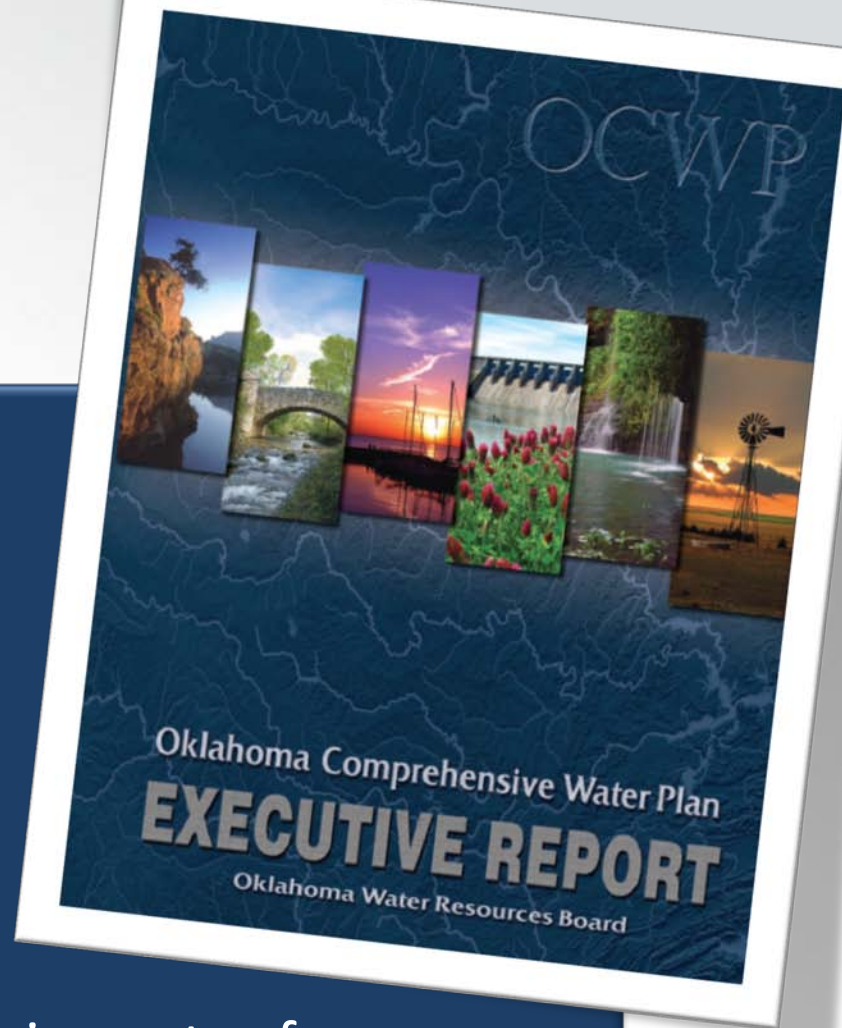


“The process developed by the OCWP Instream Flow Workgroup should be implemented and followed to ascertain the suitability and structure of an instream flow program for Oklahoma...”



ISF Advisory Group: Process for Assessing Instream Flow

1. Address the legal and policy questions.
2. Study other mechanisms for protecting instream flows.
3. Develop a draft methodology for instream flow studies in Oklahoma.
4. Conduct a study on the economic impacts of instream flows in Oklahoma.
5. Perform an instream flow pilot study in a scenic river.
6. Preserve the Instream Flow Workgroup.



J.D. Strong (Chair)

- OWRB

Tom Creider

- Oklahoma State Parks

Mark Derichsweiler

- ODEQ

Tom Elkins

- Cherokee Nation

Mike Fuhr

- The Nature Conservancy

James Gammill

- Oklahoma Rural Water Association

Bud Ground

- Public Service Company of Oklahoma

Charlette Hearne

- ORWP

Arnella Karges

- State Chamber of Oklahoma

Michael Kelsey

- Okla. Cattlemen's Association

Mike Mathis

- Continental Resources

Diane Pedicord

- Okla. Municipal League

Marla Peek

- Oklahoma Farm Bureau

Tyler Powell

- Office of the Sec. of Energy & Environment

Marsha Slaughter

- OKC Water Utilities Trust

Kevin Stubbs

- US Fish & Wildlife Service

Jeff Tompkins

- Bureau of Reclamation

Brooks Tramell

- Okla. Conservation Comm.

Brian Woodard

- OK Independent Petroleum Assoc.

Support

- OWRB Staff
- CH2M Hill
- Carollo Engineers

ISF Advisory Group: Process for Assessing Instream Flow

J.D. Strong (Chair) • OWRB	Tom Creider • Oklahoma State Parks	Mark Derichsweiler • ODEQ	Tom Elkins • Cherokee Nation
Mike Fuhr • The Nature Conservancy	James Gammill • Oklahoma Rural Water Association	Bud Ground • Public Service Company of Oklahoma	Charlette Hearne • ORWP
Arnella Karges • State Chamber of Oklahoma	Michael Kelsey • Okla. Cattlemen's Association	Mike Mathis • Continental Resources	Diane Pedicord • Okla. Municipal League
Maria Peek • Oklahoma Farm Bureau	Tyler Powell • Office of the Sec. of Energy & Environment	Marsha Slaughter • OKC Water Utilities Trust	Kevin Stubbs • US Fish & Wildlife Service
Jeff Tompkins • Bureau of Reclamation	Brooks Trammell • Okla. Conservation Comm.	Brian Woodard • OK Independent Petroleum Assoc.	Support • OWRB Staff • CH2M Hill • Carollo Engineers



Address the legal and policy questions.



Study other mechanisms for protecting instream flows.



Develop a draft methodology for instream flow studies in Oklahoma.



Conduct a study on the economic impacts of instream flows in Oklahoma.

5. Perform an instream flow pilot study in a scenic river.



Preserve the Instream Flow Workgroup.

Illinois River
Instream Flow
Pilot Study



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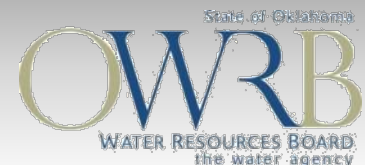
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Public Comment

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History and Background of Instream Flows in Oklahoma

Illinois River Instream Pilot Study
Stakeholder Meeting

State of Oklahoma

OWRB

WATER RESOURCES BOARD
the water agency

Derek Smithee

Chief, Water Quality Programs Division

January 22nd, 2015

Instream/Environmental Flows

Instream (or environmental) flows are those necessary to provide for a healthy ecosystem and support water-related recreation (such as fishing, hunting, swimming, and boating) as well as tourism.

(Oklahoma Comprehensive Water Plan)

Instream/Environmental Flows

- Instream flow uses are considered generally nonconsumptive in nature and may conflict with consumptive water needs (e.g. public water supply, irrigation, etc.).
- The state's current appropriation system does not contemplate the issuance of water rights for instream/environmental flows, nor does it specifically consider ecological and/or recreational needs when determining water available for appropriation.

Current OWRB Policy

- OWRB policy has been to set aside six acre-feet of water per year per 160 acres of land to protect domestic uses
 - This assumes one household in each quarter section
 - To make sure that domestic uses are protected, the OWRB staff subtracts six acre-feet of water per 160 acres from the average annual runoff within a watershed above a proposed diversion point

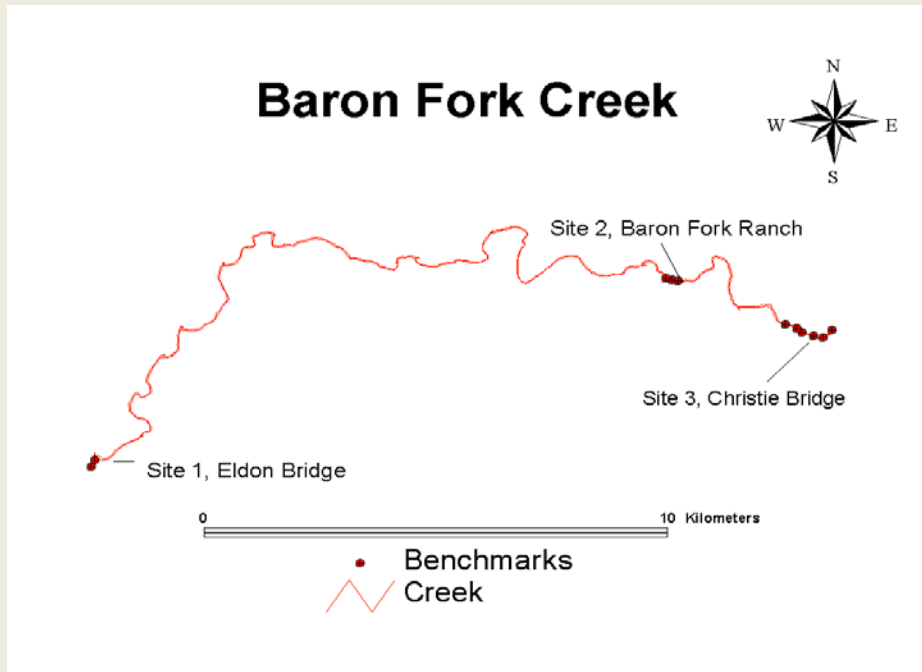
(See OWRB Rule 785:20-5-5(a)(2))

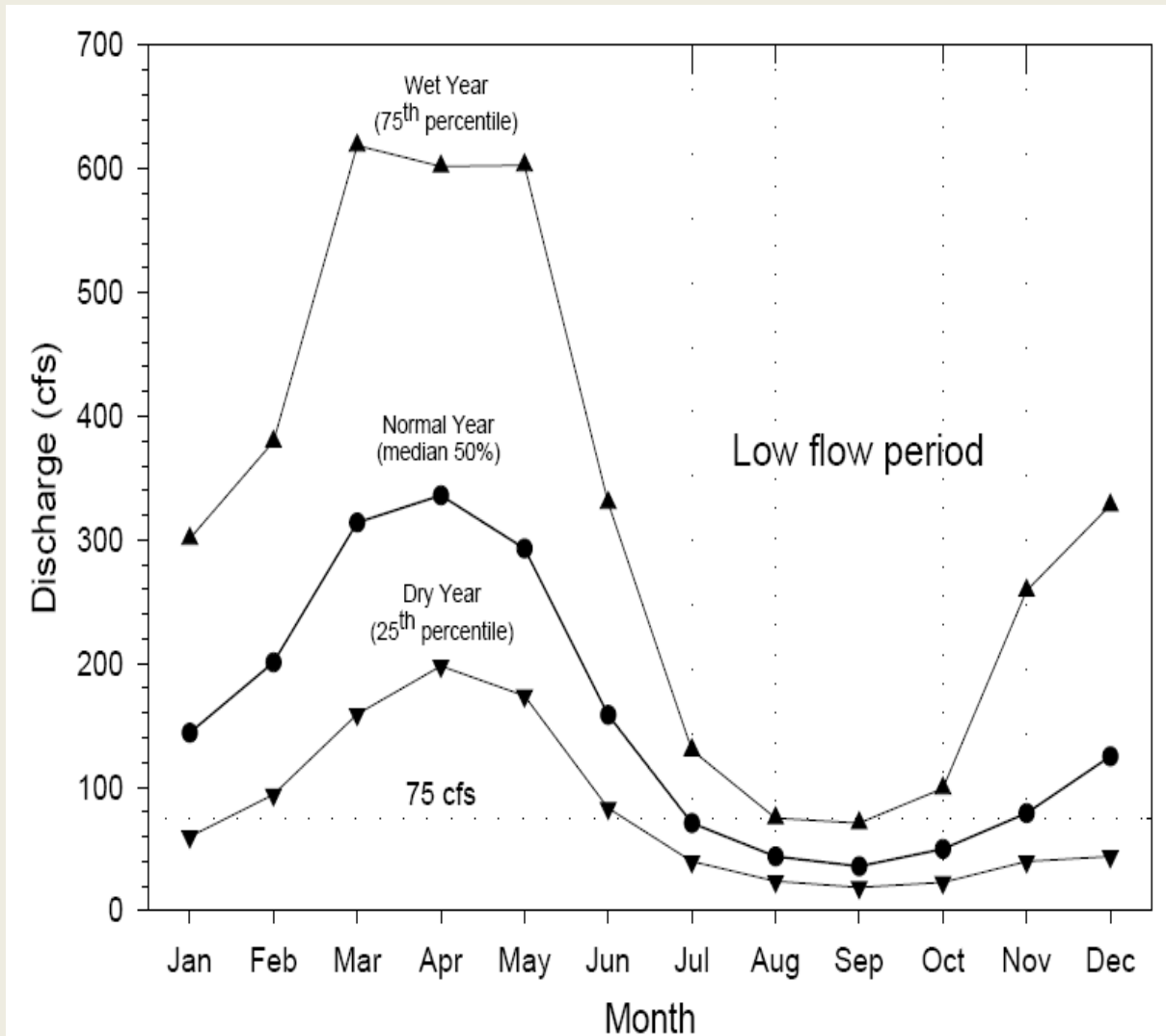
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- Oklahoma has completed two instream flow studies in the past:
 - Barren Fork River
 - Arbuckle-Simpson

Barren Fork Instream Flow Fisher Study (2000)

“Instream Flow Assessment of Baron Fork Creek, Oklahoma,”
Dr. William L. Fisher and W. Jason Remshardt, OSU, in August of 2000

Instream flow incremental methodology (IFIM) to evaluate the impacts of reductions in streamflow on the smallmouth bass population





Monthly median, 25th percentile and 75th percentile discharge in Baron Fork (Fisher Study)

The Fisher Study results that could support a minimum instream flow of between 30 and 75 cfs, depending on how the results are interpreted (technical) and the level of protection appropriate to the stream (policy).

Statistic (condition)	Discharge (cfs)				
	July	August	September	October	November
25 th percentile (dry)	40	24	19	23	40
Median (normal)	71	44	36	50	79
75 th percentile (wet)	130	75	71	99	259

Discharge for the summer and autumn low flow months in Baron Fork (1948-1999) (Fisher Study)

Barren Fork Instream Flow

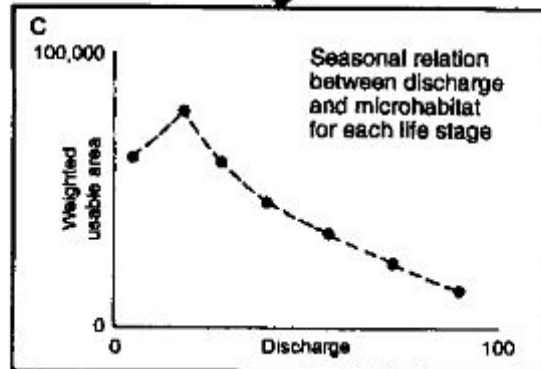
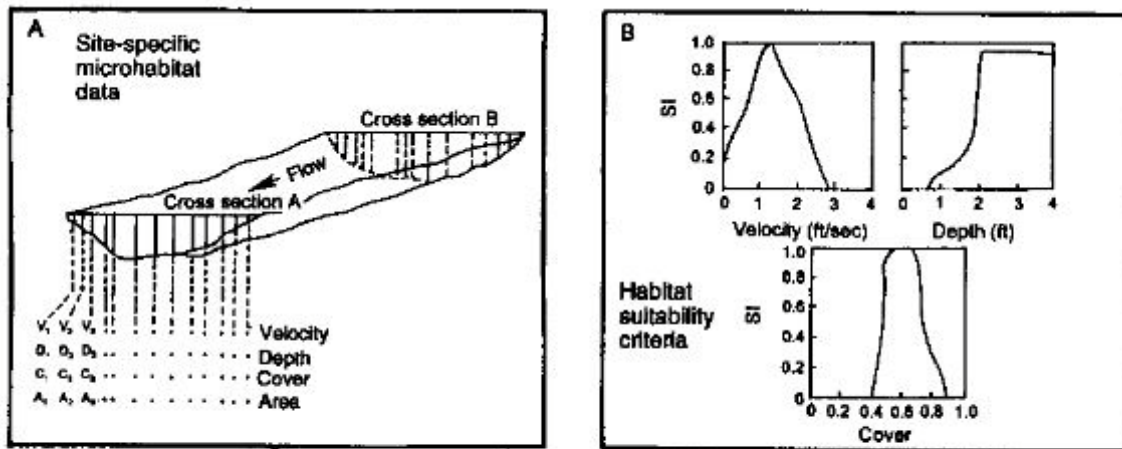
- In 2003 rulemaking, OAC 785:20-7-3.1 was modified to require suspension of all future permitted withdrawals from Barren Fork Creek when the flow is <50 cfs at the Eldon gaging station.

Arbuckle-Simpson ISF study

- Determine what is:
 - Not likely to degrade or interfere with springs and streams.
 - Will not reduce the natural flow of water from springs or streams emanating from said basin or subbasin.

Arbuckle-Simpson ISF study

How will groundwater withdrawal affect spring-dependent fish species?



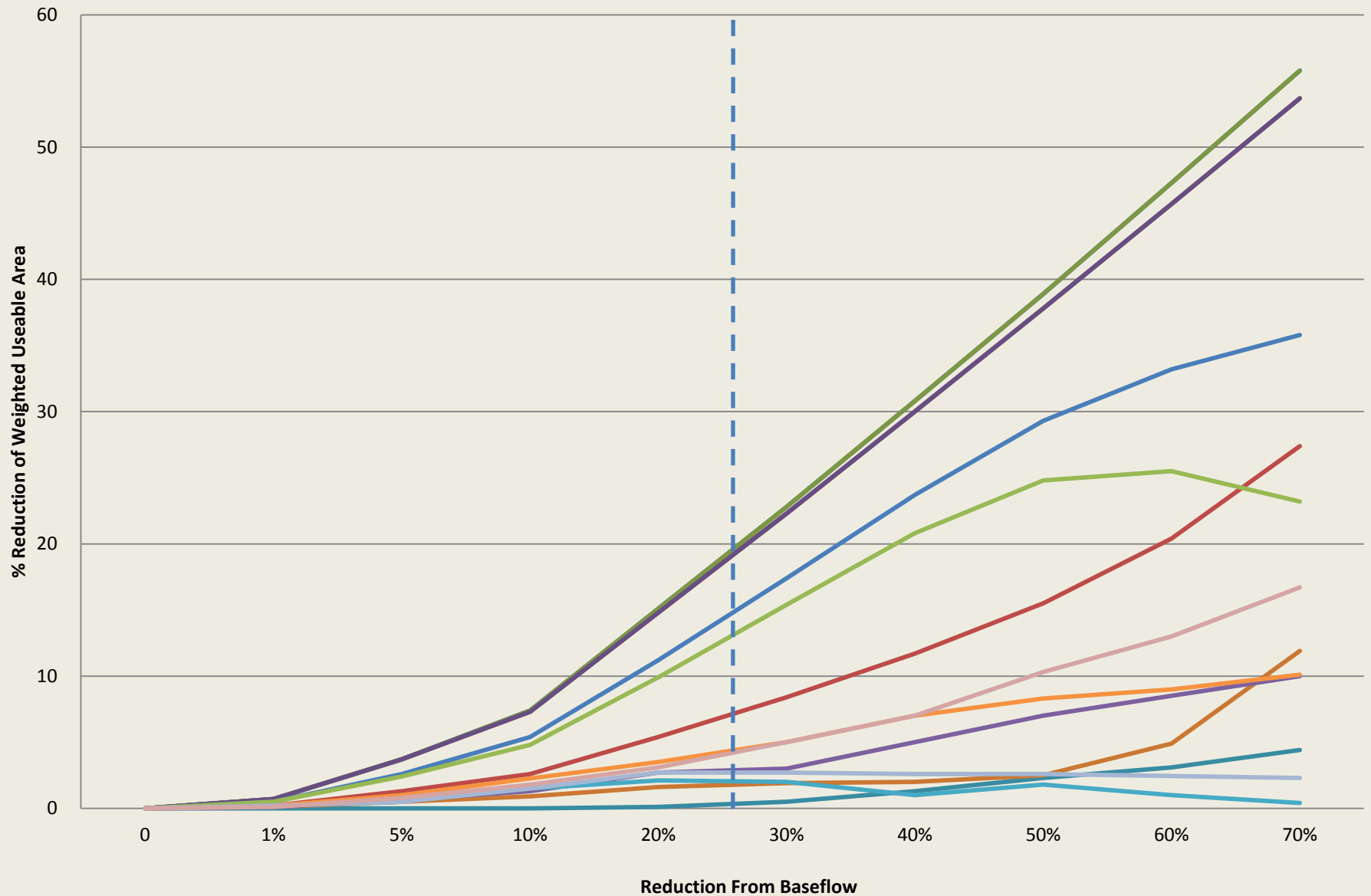
PHABSIM



Konrad Schmidt

Least darter (*Etheostoma microperca*)

Site and Species WUA Impacts at 25% Flow



Arbuckle-Simpson ISF study

- A maximum of 25% reduction in baseflow should result in limited impact to spring and stream habitat
- Incorporating into the Maximum Annual Yield determination for the Arbuckle-Simpson Aquifer

Questions?

State of Oklahoma

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Instream Flow Assessment of the Scenic Illinois River A Pilot Study

Presented to
Public Stakeholder Meeting in Tahlequah, OK

Presented by
Forrest Olson, CH2M HILL

January 22, 2015



US Army Corps
of Engineers



CH2MHILL®

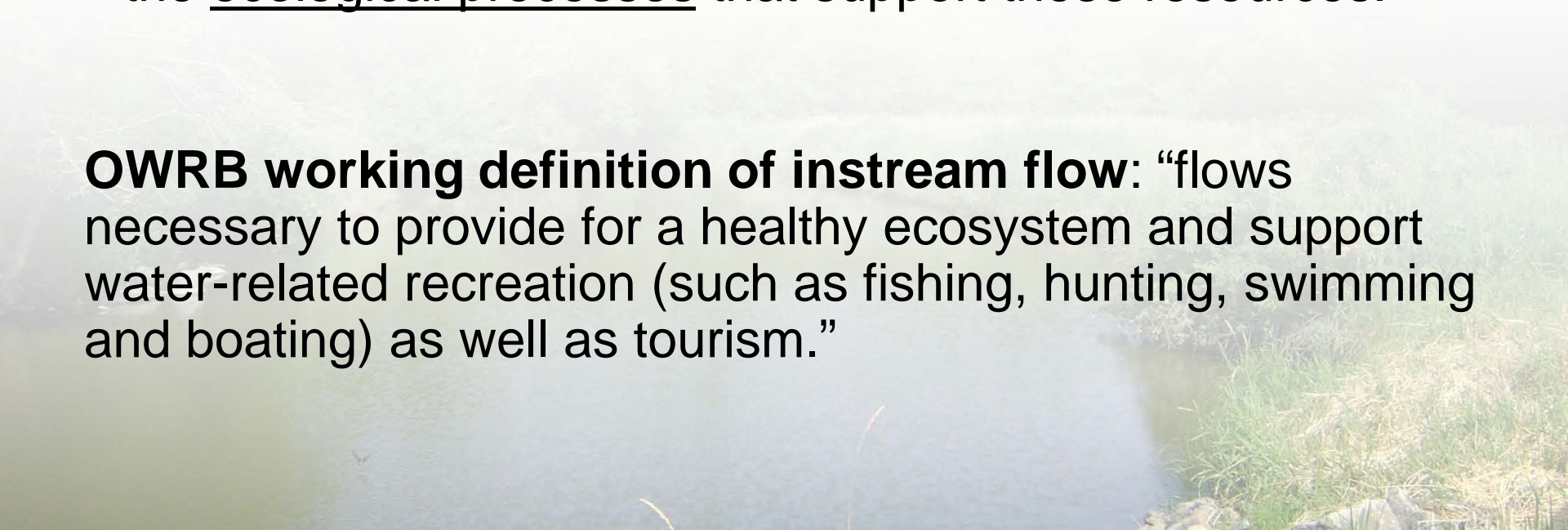
What is an instream flow?

- The amount of water flowing in a stream at all times necessary to sustain instream resource values at an acceptable level.

What are instream resources?

- Fisheries, wildlife, water quality, recreation, aesthetics, and the ecological processes that support these resources.

OWRB working definition of instream flow: “flows necessary to provide for a healthy ecosystem and support water-related recreation (such as fishing, hunting, swimming and boating) as well as tourism.”



What is an instream flow method(ology)?

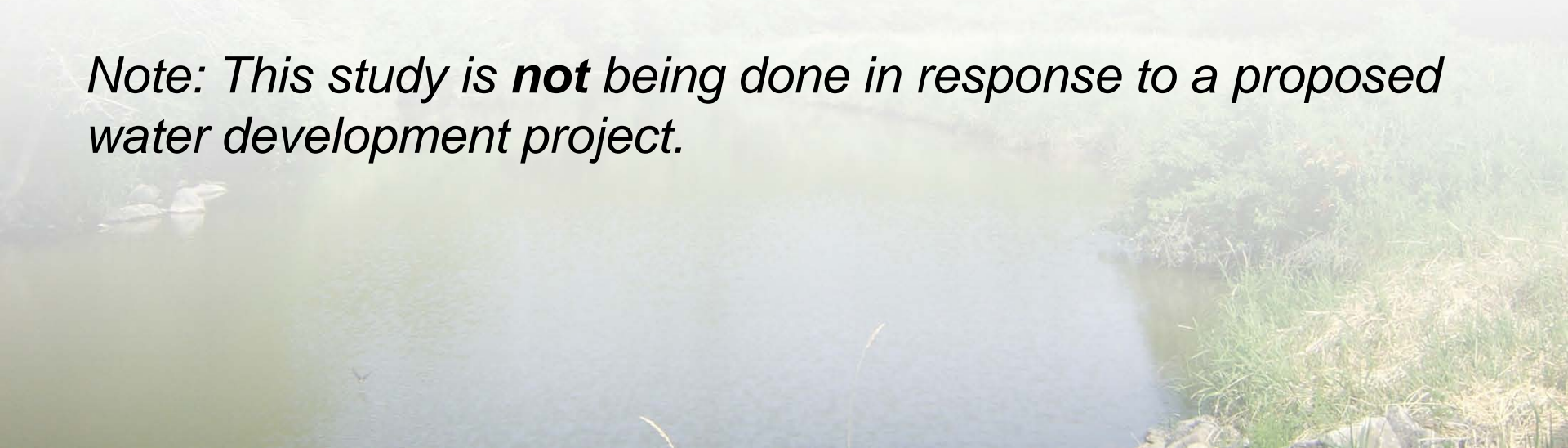
- A means of determining (quantifying) sufficient (adequate, acceptable, desired, suitable, preferred, minimal, optimal) instream flows.
 - **Method** infers a technique or simple formula.
 - **Methodology** infers a process or decision-support system.



Primary Study Goals:

- Develop seasonal instream flow recommendations for the Illinois River including Barren Fork and Flint creeks.
- Gain a better understanding of the implications of a process to deal with instream flow issues consistent with the overall goal of managing water resources in Oklahoma for multiple uses. The study would help define a conceptual framework and study process that could be used statewide.

*Note: This study is **not** being done in response to a proposed water development project.*



The pilot study would focus on policy and technical questions on a single stream/watershed so as to:

1. Better understand implications of a possible statewide instream flow program
2. Identify additional questions and concerns
3. Identify specific technical components and metrics that can be applied to instream flow assessments in other watersheds
4. Help determine costs associated with various ISF study components



Why Study a Scenic River?

1. Stream flows are less altered
2. Unique state law emphasizing protection of flows
3. Already have a precedent for regulation of flows
4. Significant flow-based recreation and ecological value
5. Extensive data and modeling already exist
6. Recommended by the Instream Flow Advisory Group

Study Area



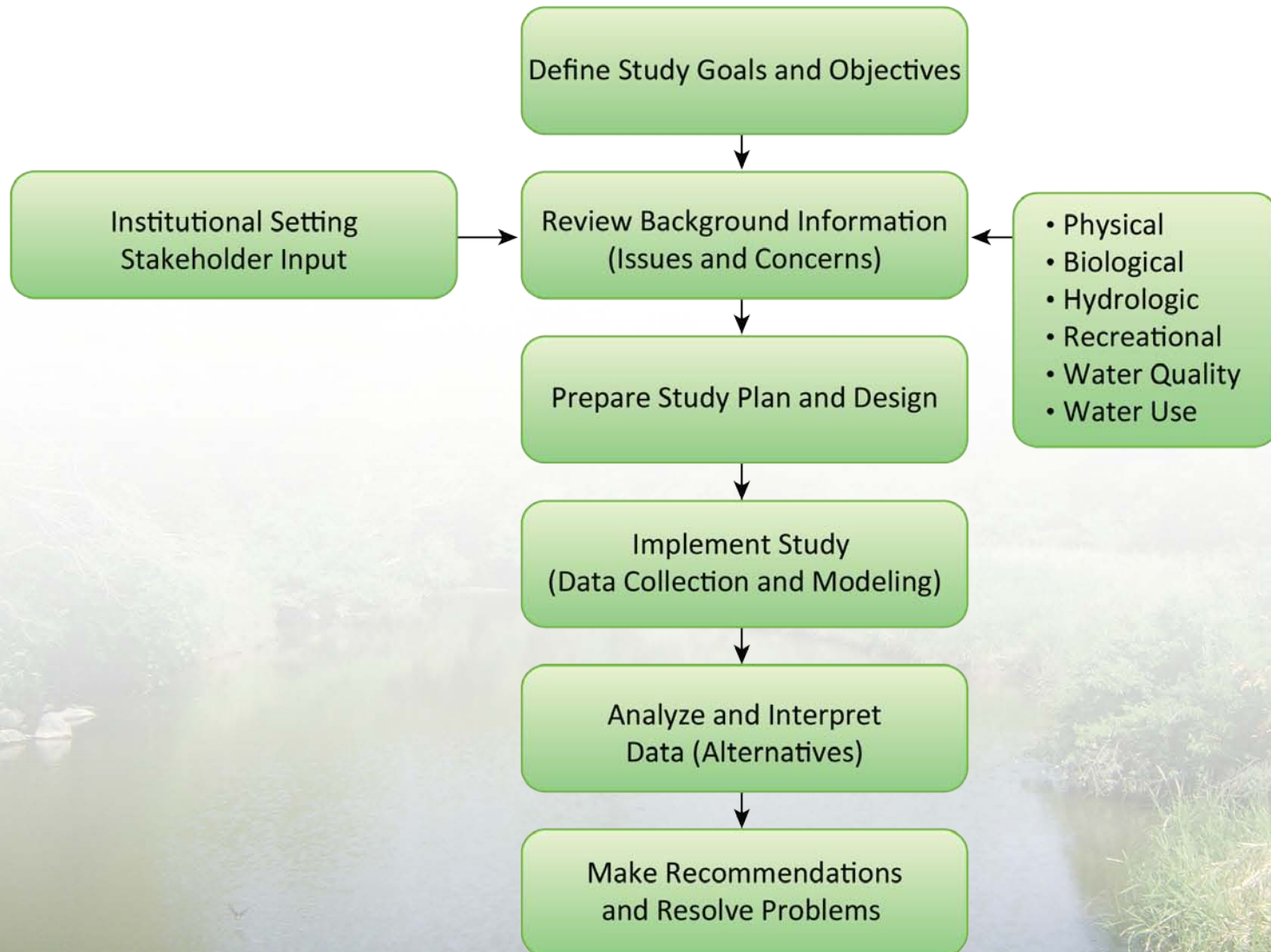
Study Approach:

The study approach is modeled after the Instream Flow Incremental Methodology (IFIM)

Five sequential phases:

1. Problem Identification/ Information evaluation
2. Study planning
3. Study Implementation
4. Alternatives analysis/ Data interpretation and integration
5. Problem resolution/ Flow recommendations

Steps in Illinois River Instream Flow Assessment



Technical Study Work Group

- OK Water Resource Board
- US Corps of Engineers
- CH2M HILL
- OK Department of Wildlife Conservation
- OK Conservation Commission
- OK Scenic Rivers Commission
- US Geological Survey / OSU
- US Fish and Wildlife Service
- The Nature Conservancy

Institutional and Stakeholder Input

- Identify stakeholders and interested parties
- Conduct outreach to interested parties (stakeholder meetings)
- Identify and document concerns and issues of affected parties



Previously Identified Institutional Issues

- Legal considerations
- Potential effects on current and future water right holders
- Process for implementing flow recommendations
- Need for statutory changes
- Need for a formal instream flow program



Existing Information Review

- Identify any aquatic resource and river management goals
- Describe landscape features and land use activities that affect hydrology, water quality, and sediment dynamics
- Summarize information on fish and other aquatic resources of concern
- Summarize and characterize hydrologic data including flow magnitude, timing, duration, frequency, and variability.
- Summarize water quality information for study streams
- Characterize recreational use of the river (primarily fishing and boating)
- Summarize existing water rights and use

Study Planning

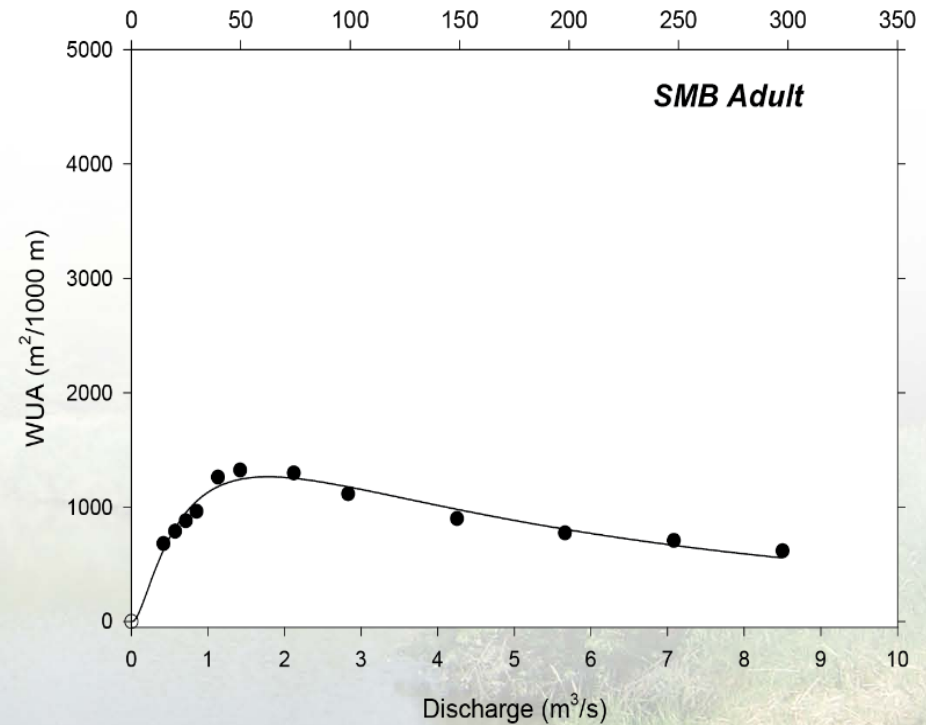
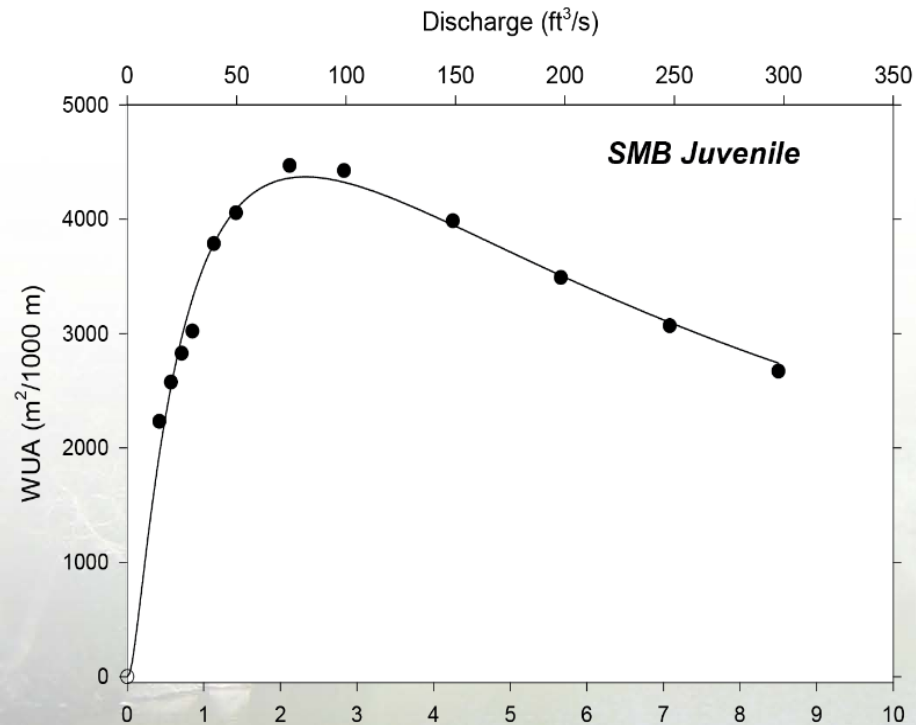
- The temporal and spatial scale of the evaluations
- Important variables for which information is needed
- How information will be obtained if it is not available
- A schedule of when data must be collected in the field
- Coordination of data collection needed for model input, calibration, and testing
- Estimates of labor, equipment, travel, and other costs required to complete the studies by the agreed study deadline

Study Implementation

- Data Collection
- Model calibration
- Predictive simulation
- Synthesis and integration of results



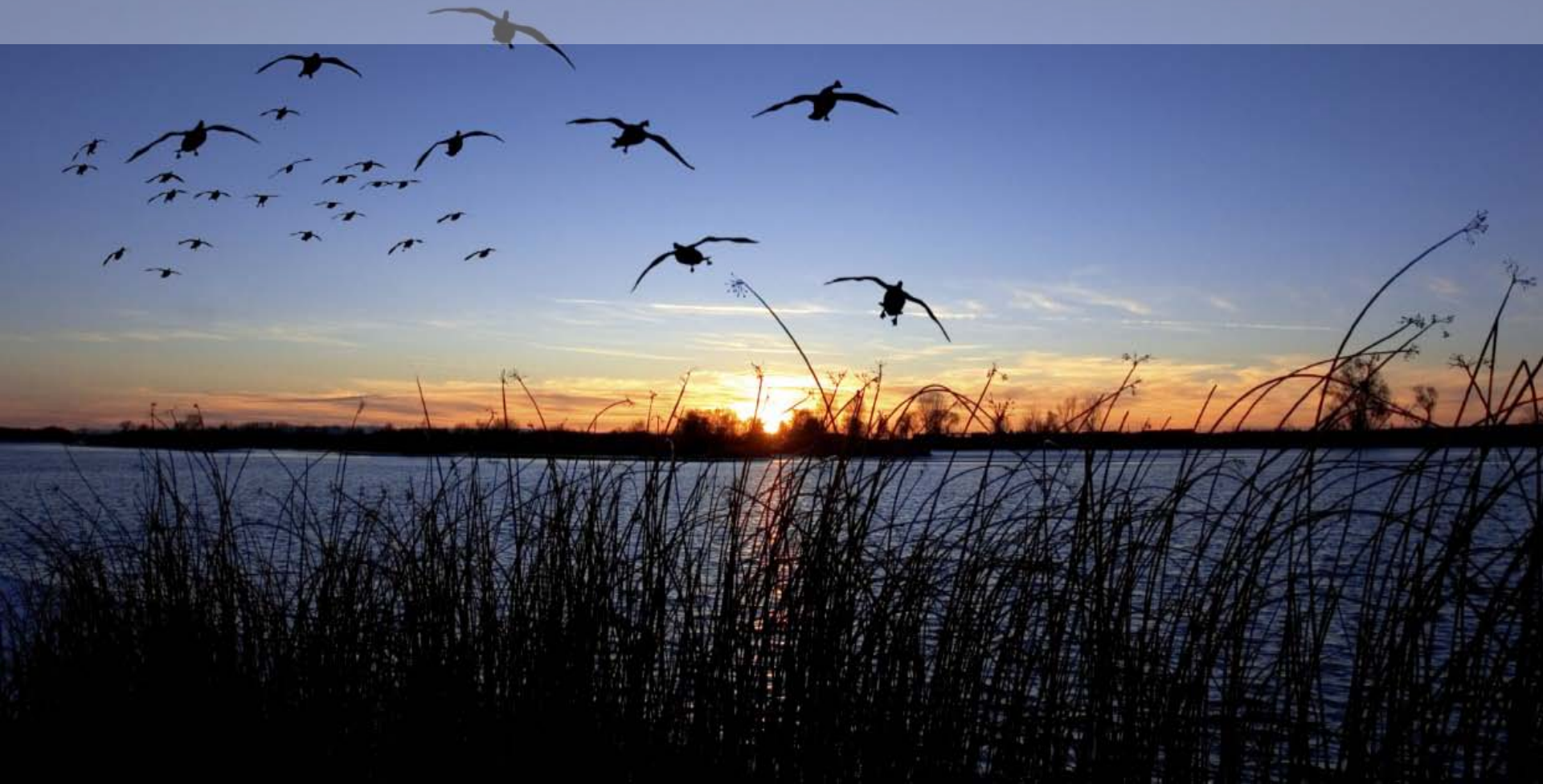
Physical Habitat Simulation Model (PHABSIM) is the primary technical tool of IFIM



Next Steps.

- Summarize Stakeholder Comments (January-February)
- Refine Goals and Objectives (January-February)
- Develop Detailed Study Plan (February-March)
- Complete Background Information Review (April +)
- Begin Data Collection (May-June)
- Estimated Study Completion - December 31, 2015

Questions



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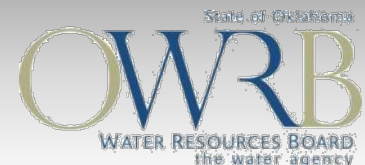
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- How do we use and enjoy the Upper Illinois River?
- Will that change over time? How and why?
- What should the instream flow pilot study evaluate?
- Who else should be involved?

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Provide E-mail address on Sign-in Sheet

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