

**Title:** Science, Development & Public Opinion: The Adjudication of Groundwater Policy for the Arbuckle-Simpson Aquifer

**Start Date:** 03/01/05

**End Date:** 2/28/06

**Principal Investigators:**

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**Problem and Research Objectives:**

Purpose

- To collect benchmark public opinion data from relevant representatives of citizen groups, public agencies and legislators toward: development trajectories of the Arbuckle-Simpson aquifer, the present moratorium on permits for extra-county use of Arbuckle-Simpson groundwater resources (Senate Bill 288); and the Arbuckle-Simpson Aquifer Hydrogeology Study being conducted by the Oklahoma Water Resources Board
- To systematically assess over time the impact of the Arbuckle-Simpson Aquifer Hydrogeology Study on public opinion in the above mentioned areas
- To assess the ultimate impact of the Arbuckle-Simpson Aquifer Hydrogeology Study on groundwater law in the State of Oklahoma

Project Description

In May 2004, the Oklahoma State Legislature passed Senate Bill 288, which places a moratorium on the issuance of temporary permits that would result in the usage of water from a “sensitive sole source” aquifer outside of its home county, until a scientific study is conducted by the Oklahoma Water Resources Board (OWRB). The purpose of the OWRB study is to approve “a maximum annual yield that will ensure that any permit for the removal of water from a sensitive sole source groundwater basin or subbasin will not reduce the natural flow of water from springs or streams emanating from said basin or subbasin” (ENR. S. B. NO. 288). Senate Bill 288 may add a new provision to Oklahoma’s water law, and that possibility has motivated unprecedented activist engagement targeted at OWRB. Literally thousands of public comment letters have poured into OWRB offices. One lawsuit, which was filed just hours after passage of the Bill, resulted in a ruling that the Bill is constitutional, and the appeal filed with the Oklahoma Supreme Court reiterated the original ruling. Therefore, the adjudication of cross-county water transfer permits hinges upon science.

Following the impact of this hydrological study is of intellectual import. Environmental policy is frequently based upon natural science. While natural science is often billed as the central determinant in environmental policy decision-making, sociologists argue that the impact of policy science studies varies based on several factors including: the extent to which findings and predictions are certain, the extent to which the scientific processes and findings are clearly communicated to various publics, and the extent to which relevant authorities possess political capacity and will to enact the recommendations of scientists. To date, we have been unable to find extant systematic studies within the sociology of science, technology and environment that empirically measure the impact of policy science from its inception to its policy conclusions. The current study is designed to fill this gap. By systematically examining the impact of information related to the OWRB study on public opinion and legislative decisions, our research will provide an empirically informed model of the role of science in the formation of environmental policy in the Arbuckle-Simpson case.

### **Methodology:**

This longitudinal study will follow the impact of a scientific study being conducted by the Oklahoma Water Resources Board until its completion. Phase I of the project, which was funded by this grant, assembled baseline public opinion data from newspaper articles, public comment letters and in-depth semi-structured interviews. A database of national, regional and local newspaper articles was assembled using a variety of search mechanisms, including google news and lexis-nexus. The time period of the search spanned from May 2001 – July 2005, and the resulting database includes full-text versions of all discovered articles. The articles were uploaded into a qualitative analysis software package, and specific text string searches were performed to facilitate correlation of stakeholder group identities and the corresponding frames used to express concerns and preferences toward the development and distribution of Arbuckle-Simpson Aquifer resources. Because this project focused on the viewpoints of stakeholders prior to the passage of Senate Bill 288, we restricted our analyses to approximately 100 articles which were published during the 12 months preceding the bills passage.

Public comment letters were photocopied by staff at the Oklahoma Water Resources Board. These letters formed the basis for the creation of an SPSS database that includes such information as the county of residence of letter authors, “yes/no” dummy variables indicating whether particular subjects of relevance were mentioned, indicators for whether the letter was hand written, typed or a form letter, and indicators of stakeholder group affiliations.

Finally, a total of twenty-five (25) in-depth interviews were conducted with members of most target publics (or stakeholder groups) indicated in the OWRB public participation plan (see attached questionnaire). The interviews followed a semi-structured format, allowing easy comparison of answers across respondents. While two interviews were conducted face-to-face, the rest were telephone interviews that ranged between fifteen minutes and one hour. We were unable to interview members of the Indian tribes from the region, but every other stakeholder group was included. The interviews were transcribed by the social science research bureau at Oklahoma State University, and the transcripts were uploaded into a qualitative software package for systematic analysis.

These baseline data allow triangulation of public opinion toward the Arbuckle-Simpson aquifer prior to the release of significant scientific findings from the Oklahoma Water Resources Board. These baseline data will be used to compare with subsequent data collected to analyze public opinion change over time. The resulting data will provide important insights into the role of science in the adjudication of groundwater policy in the Arbuckle-Simpson case. In the final analyses, we hope to discern the ultimate impact of science on Oklahoma groundwater law.

### **Principal Findings and Significance:**

The principal findings from this phase of the research are two-fold. First, the analyses of newspaper articles, newsletters and websites indicate that stakeholders frame the debate of the Arbuckle-Simpson aquifer from four primary perspectives: water security, sustainable development, wildlife conservation, and property rights. Wildlife conservation is primarily expressed by state and national agency personnel, while the property rights perspective is predominate among property owners in the Arbuckle region and those who wish to purchase Arbuckle-Simpson water. Water security and sustainable development concerns were expressed by members of all sides of the debate, and these perspectives represent the majority of those cited or expressed in the documents. It is noteworthy that science is not a central theme in the documents.

Several findings emanate from the interview data. First, OWRB target publics are generally supportive of the Arbuckle-Simpson Hydrology Study (76% of respondents). A minority (12%) is either opposed to the study or skeptical regarding the technical skills of OWRB researchers, with the remaining respondents undecided. All respondents who oppose the study expressed desires to buy, sell or broker Arbuckle-Simpson water, while those who expressed support had more diverse stakeholder affiliations (i.e. state agency personnel, regional environmental groups, industry groups, municipalities, etc.). Comments related to expected outcomes of the Arbuckle-Simpson Hydrology Study suggest potential for future conflict, since people express divergent expected outcomes. These two quotes are illustrative:

- “Well, I believe that if the scientific study is done correctly that it will come forward saying that it is permissible for all cities to transfer this water.”
- “I expect the study is going to show that there’s not adequate recharge for the aquifer to allow it to export very much water.”

Another interesting finding from the interviews suggests that those actively following the Arbuckle-Simpson Hydrology Study are primarily residents of the counties overlying the aquifer (corroborated by public comment letter data), those who wish to buy the water, or employees of state agencies. Several potential respondents refused to be interviewed because they did not feel the Arbuckle-Simpson issue was relevant to them and/or their organization. With few exceptions, every respondent viewed the decision over allocation of Arbuckle-Simpson water as a fight that will last until the final decision is made. While many are optimistic that they will be satisfied with the outcome, others doubt that wholly beneficial results will occur.

These findings suggest that the final decision regarding the cross-county transfer of Arbuckle-Simpson Aquifer water will be contentious. It is likely that political and economic interests will compete heavily with the scientific findings. The best opportunity for consensus building seems to lie with shared concerns over water security, while the most important potential barrier to consensus stems from divergent views regarding private property rights.

# **The Making of a Moratorium: Science, Development & Public Opinion**

## **Phase I Interview Questions**

Introduction:

Read Consent form:

Consent to tape record:

### **General Background**

1. Can you share with us your [organization/agency/tribe's] view of the role of science in the creation of environmental policy?
2. To your knowledge, what is your [organization/agency/tribe's] position toward the future development of the Arbuckle-Simpson aquifer groundwater resources?
3. What factors led your [organization/agency/tribe] to develop this position?
4. To your knowledge, what is your [organization/agency/tribe's] position toward Senate Bill 288, which places a moratorium on the issuance of temporary permits for the transfer of Arbuckle-Simpson aquifer groundwater resources outside the counties of origin?
5. What factors led your [organization/agency/tribe] to develop this position?
6. To your knowledge, what is your [organization/agency/tribe's] position toward the Arbuckle-Simpson Hydrology Study, which is being conducted by the Oklahoma Water Resources Board?
7. What factors led your [organization/agency/tribe] to develop this position?

### **Sources of Information**

8. What are the primary sources consulted by you and other members of your [organization/agency/tribe] to acquire information pertaining to the Arbuckle-Simpson aquifer?
9. Are you satisfied that these sources provide you with the quality and quantity of information you need?
10. Are there other types or sources of information that you would like to have available?

## **Is this a fight?**

11. Some of the individuals we have spoken to during the course of this research project have referred to their involvement in the future of the Arbuckle-Simpson aquifer as a fight – whether a legal fight, a political fight, an ethical or moral fight, an environmental fight. Do you think your [organization/agency/tribe] considers itself part of a fight? If so, can you flesh that out for us?
12. [If yes to #11] Are there other organizations, agencies, tribes or individuals that you feel are on your side in this fight?
  - a. If so, can you name them and explain why you place them on your side?
  - b. Also, are there certain organizations, agencies, tribes or individuals that you feel are on the other side of the fight?
  - c. If so, can you name them and explain why you place them on the other side?
  - d. Are there certain organizations, agencies, tribes or individuals that you consider important players in this fight who are unaligned or who you are unsure where you would place them, in terms of sides?
  - e. If so, can you name them and explain why you might consider them unaligned or are unclear where to place them?
13. [If yes to #11] What kinds of strategies does your [organization/agency/tribe] use to influence the outcome of this fight?
14. Some of the individuals we have spoken to during the course of this research project have said that the Arbuckle-Simpson issue was a fight earlier – whether a legal fight, a political fight, an ethical or moral fight, an environmental fight, but it doesn't appear to be a fight anymore. Do you think your [organization/agency/tribe] would agree that the fight itself seems to have passed? If so, can you flesh that out for us?

## **Expectations for the future**

The following questions refer to your expectations regarding the processes and outcomes that may occur.

15. Can you share with us the various steps you think should be taken as we move toward a more permanent policy decision on cross-county transfer of these water resources?
16. Can you share with us the various steps you expect will be taken?
17. Do you anticipate that your [organization/agency/tribe] will be wholly satisfied with this process? Please explain.
18. Can you share with us the particular outcomes you expect from the scientific study being conducted by the Oklahoma Water Resources Board?

19. Do you anticipate that your [organization/agency/tribe] will be wholly satisfied with the study outcomes? Please explain.
20. Can you share with us the particular outcomes you expect in terms of final policy decisions?
21. Do you anticipate that your [organization/agency/tribe] will be wholly satisfied with the policy outcomes? Please explain.

**Final Comments**

22. Are there other concerns, preferences, viewpoints or pieces of information you would like to share with us regarding the future of the Arbuckle-Simpson aquifer?
23. Are there other concerns, preferences, viewpoints or pieces of information you would like to share with us regarding Senate Bill 288 or the current moratorium?
24. Are there other concerns, preferences, viewpoints or pieces of information you would like to share with us regarding the Arbuckle-Simpson Hydrology Study being conducted by the Oklahoma Water Resources Board?
25. Would you be willing to speak with us again in the future?

***Thank you for taking time to participate in this study!!!***