

CULTURAL MODELS OF WATER ISSUES ON THE GEORGIA COAST

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Abstract. The reports issued by the Georgia Environmental Protection Division (EPD) in 1996-1997 about salt water intrusion into the Upper Floridan Aquifer and about requirements for water management plans led to a series of numerous research and planning activities. Among those was research carried out in 1997-1998 in Glynn and McIntosh counties on public perception and knowledge about current water issues. The research consisted of intensive interviews with selected individuals and a mail questionnaire to randomly selected coastal residents. The results of the research, originally reported solely in terms of raw scores and percentages, are re-presented here as information to construct cultural models, which allow for differentiation of survey results in relation to socioeconomic categories. Communities that are the least developed economically are more concerned about development than water conservation. The reverse is also the case.

INTRODUCTION

On the bases of the EPD actions in 1996 and 1997, assumptions of coastal residents about fresh water availability had to be radically altered within a comparatively short-term time period. Whereas coastal residents had assumed that the water supply was limitless, there now was the specter of a shortage, potentially inhibiting the recent rapid development for tourism and suburban growth. Yet the extent to which the general public was even aware of the new water issues was unknown, much less what their opinions and preferences might be in regard to water management issues. In order to pursue those questions, the two authors carried out research to ascertain public knowledge in two counties heavily affected by the developments, Glynn County and neighboring McIntosh County. The project, funded by the Coastal Resources Division of

the Department of Natural Resources, was carried out in 1997 and 1998 (Blount and Gezon, 1999).

METHODS

The research proceeded in two steps. Approximately 60 semi-structured interviews were held with individuals in the two counties. The participants were selected on the basis of purposive sampling, i.e., they were "targeted" as individuals who would be likely to have a special interest in water issues. That included primarily public officials, developers, and environmentalists. The interviews were analyzed in order to document commonalities and patterns of perceptions, knowledge. In addition, the interview results were used to construct a questionnaire that was mailed to residents on the two counties. Two types of samples were selected: (1) a targeted sample, consisting of individuals who would likely have a vested interest in water issues, and (2) a random selection of residents of the two counties.

The interview results showed that virtually all of the individuals were aware of the salt water intrusion and that a cap had been placed on the amount of water to be pumped from the Floridan Aquifer. They were also aware of the proposal by a private company to extract water from the Altamaha River and to sell it to any interested buyers. There were sharp differences of opinion among the interviewees as to the advisability of water withdrawal from the Altamaha River, with a clear division between individuals promoting economic growth and development and those who were concerned about privatization of public water supplies and environmental consequences of water withdrawal. There was widespread agreement, however, that there needed to be more scientific research on issues surrounding fresh water availability and that efforts should be made to insure that the results of research

be made available to the general public. There was also considerable support for the conservation of water resources and of the use of recycled water for commercial and industrial purposes.

The questionnaire was mailed to 300 individuals in the targeted sample and 1,050 to other residents of the two counties. A total of 328 questionnaires were returned, 86 from the targeted population and 242 from the general public. The response rates were, respectively, 29 percent and 23 percent. The questionnaires had 27 questions, divided across three sections: (1) demographic and socioeconomic information, (2) knowledge about water issues, and (3) opinions and preferences about alternatives concerning use and conservation. The survey results could be differentiated according to county and targeted versus non-targeted (general public) samples within them. Also, the results can be differentiated according to socioeconomic factors including age, gender, education level, and occupation/employment.

RESULTS: CULTURAL MODELS

Individuals who share common experiences tend to communicate among themselves about the knowledge derived from those experiences. Members of households, social networks, and occupational or residential communities accrue common knowledge, and they develop frameworks of meaning and significance in relation to their sharing and commonality. Socioeconomic factors can configure social units within larger demographic categories. In each case, knowledge specific to social aggregates can be identified and described. Models of shared knowledge, i.e., cultural models, can be constructed relative to the information that members of the units provide, across any social institutional scale (Holland and Quinn, 1987; D'Andrade, 1995; Paolisso and Maloney 1999). Although cultural models are typically constructed from interview data (Blount, 2002), they can be derived from perceptions and knowledge elicited in any systematic way. The data of the water survey on the Georgia coast is a case in point.

Answers to some of the questions show substantial agreement across all categories, including the two counties, the urban and non-urban sub-populations within them, and the targeted and public sub-samples within them. Those results indicate that there is a

Table 1. Individuals Who See River Pollution as a Water Issue

Glynn	No.	%	McIntosh	No.	%
Public	118	62	Public	33	65
Targeted	51	70	Targeted	9	75
TOTAL	169	64	TOTAL	42	65

commonality of knowledge such that the results can be considered to be the framework, at least, of culture shared across that scale. For example, one question was "Which of the following do you think is an issue about water in your city/county," and six options were given. One of the options was "river pollution". The number of individuals who checked that option is shown in Table 1 above. Across both counties and both types of respondents, approximately two of three individuals identified river pollution as an issue, indicating a fairly high degree of sharing, i.e., of a cultural model that included that concept or idea as a knowledge node. A number of rivers flow through each of the counties, and river pollution is a real and present concern across both counties.

Another example shows that (1) residents of the two counties had different cultural knowledge but that (2) the targeted and public samples within each county did not differ. That pattern is seen in the answer to the question "A private company should be allowed to sell water wholesale to industries and cities/counties". The numbers in Table 2 indicate the individuals who disagreed with the statement. Significance was tested using chi square.

In this case, some sharing occurred across each county but the differences between the counties was significant, indicating that each county was a cultural unit but that the two types of individuals in the two samples were not separate units. The fact that the two counties have different models points to the need for research into the different experiential and

Table 2. Individuals who Disagree that Private Companies Should Sell Water

Glynn	No.	%	McIntosh	No.	%
Public	78	41	Public	34	67
Targeted	35	48	Targeted	8	67
TOTAL	113	43*	TOTAL	42	67*

* $\chi^2 = 6.47$, $df = 1$, $p < .025$

knowledge foundations. The water infrastructure for residential supply differs considerably in the two counties. Most of the residents of Glynn County rely on municipal service, whereas in McIntosh County, a larger proportion of the residents rely on individual wells. In addition, many of those individual wells are maintained by private companies, i.e., water sold by private companies is common in McIntosh County.

Another example shows that there are significant differences across the two counties and across each type of sample, targeted versus public, within the counties. The question was “Enough information is available about water issues in your city or county”. The numbers in Table 3 represent the individuals who disagreed with the statement.

In this case, the sharing of information was along cultural lines dividing the two counties and of the types of individuals within them. Interestingly, the targeted individuals disagreed with the statement less than did the general public. Perhaps the general public simply believed that they were likely to be uninformed. It may also have been the case that the targeted individuals felt that they had some information but could always use more of it. Also, water use in Glynn County is much more diverse than is the case in McIntosh County, with far greater commercial and industrial use. Perhaps there is simply less to know in McIntosh County, which is predominantly rural.

As a final example, the two counties differ, showing different cultural models, and in Glynn County but not in McIntosh County, the targeted sample differed from the public sample. The question was “Which of the following currently uses the largest amount of water daily?” Among the options was the “pulp timber industry”. Table 4 represents the individuals who checked that topic.

Table 3. Individuals who Disagree that there is Sufficient Information about Water

Glynn	No.	%	McIntosh	No.	%
Public	121*	63	Public	38**	75
Targeted	35*	47	Targeted	6**	50
TOTAL	156***	59	TOTAL	44***	70

* $X^2 = 4.39$, $df = 1$, $p < .05$

** $X^2 = 5.54$, $df = 1$, $p < .025$

*** $X^2 = 8.86$, $df = 1$, $p < .005$

Table 4. Individuals Who Agree on Largest Water Users

Glynn	No.	%	McIntosh	No.	%
Public	119*	62	Public	40	78
Targeted	68*	92	Targeted	10	83
TOTAL	187**	71	TOTAL	50**	79

* $X^2 = 31.48$, $df = 1$, $p < .005$

** $X^2 = 27.49$, $df = 1$, $p < .001$

The fact that the two counties have different models reflects the cultural reality that the pulp timber industry has two major processing plants in Glynn County whereas there are none in McIntosh County. Moreover, the two plants use much more water on a daily basis than the entire residential population, by a factor of at least ten. Residents of Glynn County are thus more likely to have cause to know that the pulp timber industry uses more water than any other type of consumer, and the targeted sample would have even more cause to know that fact, given the economic importance of the pulp timber industry to the area.

CONCLUSION

Questionnaire surveys of public perception and knowledge enable researchers to elicit responses from large numbers of individuals with relatively marginal labor input. Quantitative analyses can readily identify differences within socioeconomic categories. Surveys, however, are likely to have greater internal validity when they are constructed on the basis of extensive interviews. Qualitative interview data help to construct questions that are culturally relevant, but they also enable researchers to interpret survey results by referring them back to the socioeconomic factors that tend to structure communities. Differences can be seen as reflections of residential and social institutional groups, deriving from socioeconomic considerations. Those, in turn serve as indicators for models of knowledge differences. Results of social surveys cast in terms of cultural models reveal actual public views on water issues and are thus important for water planning and management. In the present study, the level of socioeconomic development of communities reflects attitudes about the need for and desirability of conservation of water. Differences in knowledge and attitudes about water reflect differences not just across individuals but across cultural groups.

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