Water Quality Perception in the U.S.:
Similarities and Differences Across States

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What is the impact of environmental attitudes on perceptions of water quality?

Table 1. Environmental attitudes[1]

State	Mean
Overall	5.44
Hawaii	6.18
California	5.99
Colorado	5.97
Rhode Island	5.80
Vermont	5.75
Montana	5.75
Delaware	5.59
Arizona	5.54
New Hampshire	5.52
New York	5.51
New Jersey	5.51
Washington	5.50
Maryland	5.48
Oregon	5.46
Nevada	5.35
Missouri	5.26
Massachusetts	5.26
Virginia	5.26
Alaska	5.25
Idaho	5.25
West Virginia	5.23
Utah	5.22
Connecticut	5.14
South Dakota	5.12
Pennsylvania	5.11
Wyoming	5.11
Nebraska	5.09
Maine	5.04
Iowa	4.94
Kansas	4.90
North Dakota	4.79

[1]Indicate how you see yourself on environmental issues. Range 0-10. 0 = for total natural resource use; 5.5 = equal balance between use and protection; 10 = for total environmental protection

Past studies have identified environmental attitudes and demographic characteristics as key social factors influencing perceptions about water quality. How do variations in environmental attitudes across states affect variations in perceptions of water quality?

Methodology

Data on perceptions of water quality were collected from
- residents of thirty-one states
- in seven of the ten EPA regions
- using a state stratified random sample mail survey
- from 2002 to 2007

Prediction Models

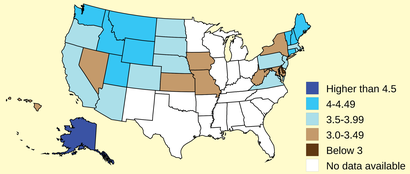
Surface water quality model
Surface water quality perception = -.112 (Environmental Attitudes) + .095 Age + .062 Gender + .042 Education - .108 (Community Size)

Ground water quality model
Ground water quality perception = -.089 (Environmental Attitudes) + .117 Age + .062 Gender + .058 Education - .100 (Community Size)

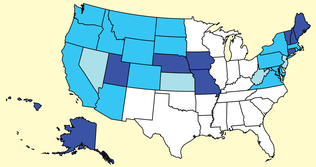
Model Description

- Surface and ground water quality perception: range 1-6 (See maps 1 and 2 below).
- Environmental attitudes: Range 0-10. 0 = for total natural resource use; 5.5 = equal balance between use and protection; 10 = for total environmental protection
- Age: continuous variable.
- Gender: 0=female; 1=male.
- Education: level of education completed by respondent. 1 = less than high school; 5 = advance college degree.
- Community size: population of the community where respondents live. 1 = less than 3,500 people; 2 = 3,500-6,999; 3 = 7,000-24,999; 4 = 25,000-100,000; 5 = more than 100,000 people.

Map 1. Surface Water Quality Perceptions[2]



Map 2. Ground Water Quality Perceptions[2]



[2]Original survey question:
In your opinion, what is the quality of surface/ground water in your area?
1 = Poor; 2 = Poor, but improving; 3 = Fair; 4 = Good, but deteriorating; 5 = Good and improving; 6 = Good or excellent

Findings

Variation in surface and ground water quality explained by the two models varies by state. In some states, the two models explain only 1-2% of the variation, while in others they explain as much as 15-20% of the variability in water quality perceptions.

Table 2. Surface water quality model
Overall R-square 0.042

State	R-square	Model Sig
West Virginia	0.155	0.002
Massachusetts	0.131	0.000
California	0.131	0.000
Connecticut	0.127	0.001
Nebraska	0.112	0.002
New Hampshire	0.110	0.042
North Dakota	0.105	0.019
Delaware	0.105	0.181
New York	0.102	0.000
South Dakota	0.098	0.089
Alaska	0.092	0.073
New Jersey	0.087	0.004
Wyoming	0.085	0.096
Hawaii	0.083	0.057
Iowa	0.079	0.005
Arizona	0.077	0.001
Missouri	0.071	0.002
Nevada	0.057	0.060
Utah	0.055	0.134
Montana	0.053	0.317
Oregon	0.052	0.028
Idaho	0.050	0.119
Rhode Island	0.047	0.574
Virginia	0.041	0.128
Washington	0.041	0.012
Maryland	0.036	0.292
Kansas	0.035	0.477
Pennsylvania	0.033	0.080
Maine	0.027	0.706
Colorado	0.027	0.260
Vermont	0.017	0.920

Table 3. Ground water quality model
Overall R-square 0.039

State	R-square	Model Sig
Delaware	0.229	0.008
Massachusetts	0.217	0.000
South Dakota	0.209	0.004
Missouri	0.120	0.000
Iowa	0.103	0.002
Colorado	0.101	0.001
West Virginia	0.099	0.112
California	0.097	0.000
Rhode Island	0.096	0.257
Maine	0.086	0.125
New York	0.083	0.002
New Hampshire	0.080	0.222
Arizona	0.076	0.001
Maryland	0.076	0.076
Connecticut	0.072	0.104
Utah	0.069	0.086
Idaho	0.069	0.048
Kansas	0.067	0.140
Nebraska	0.062	0.094
Hawaii	0.059	0.220
Pennsylvania	0.055	0.018
Nevada	0.055	0.168
Vermont	0.052	0.504
Wyoming	0.048	0.473
Virginia	0.046	0.183
North Dakota	0.042	0.458
Montana	0.040	0.521
New Jersey	0.035	0.327
Washington	0.033	0.085
Oregon	0.027	0.415
Alaska	0.020	0.875

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