Investigating the influence of geographical barriers on public awareness about water issues

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Study focus: Phoenix-area water information providers

Are there systemic differences in the distribution of water information?

<table>
<thead>
<tr>
<th>Type of water information organizations</th>
<th>Total identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water provider</td>
<td>14</td>
</tr>
<tr>
<td>Education/Research Group</td>
<td>13</td>
</tr>
<tr>
<td>Government agency (not including water utility)</td>
<td>7</td>
</tr>
<tr>
<td>Multi-organization Coalition</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Range of Informational Programs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>School Programs</td>
<td>Newspaper</td>
</tr>
<tr>
<td>Teacher Training</td>
<td>Radio</td>
</tr>
<tr>
<td>Demonstrations and Exhibits</td>
<td>Television</td>
</tr>
<tr>
<td>Landscaping Courses</td>
<td>Direct Mail</td>
</tr>
<tr>
<td>Neighborhood Canvassing</td>
<td>Rebates</td>
</tr>
<tr>
<td>Booths at Community Events</td>
<td>Information Kiosks</td>
</tr>
</tbody>
</table>

Classifying water information availability

Living with high water information availability enhances perception that water issues are confusing and improves awareness

Geographically Weighted Regression

Because of the spatial contingency of the data, we used a logistic geographically weighted regression model to assess the significance of three demographic variables in explaining access to information: Percent renters, percent Latino, and percent school-aged children. We predicted, based on opinions shared in interviews with water information providers, that there would be a negative relationship between water information availability and percent renters and percent Latino. While we predicted a positive relationship between percent of the population ages 5-18 and water information. This is due to the high degree of material relating to outdoor water conservation designed to appeal to homeowners, a general recognition that materials translated into Spanish may not be culturally relevant, and a large reliance on reaching the adult public indirectly through outreach to schools.

Public Survey

We began by selecting two neighborhoods, whose demographic profiles indicate a high propensity for participation in a multi-modal public survey. The survey assesses a broad spectrum of knowledge related to water issues. Preliminary results are shown below.

Conclusions and future research

Our results indicate that spatial barriers to information exists, but that it does not systematically disenfranchise the groups water educators perceive to have an information deficit. The observed difference in information awareness suggests that the spatial arrangement of information disenfranchises one set of residents while the mechanisms employed to motivate learning may disenfranchise a second set of residents. This would lead to lower public awareness about water issues than would otherwise be expected given the quantity of water information provided to the public. Additional survey data will provide more insight into these relationships.

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Systematic difference in the geographic distribution of water information exist, but vary geographically

Logistic geographically weighted regression comparing low water information availability (0) to high water information availability (1) n=840

Bandwidth=216.705

Local AIC corrected 795.634

% Latinos is positively related to information in the west and negatively in the east

% school-aged children is often negatively related to information in the southeast

Living with high water information availability:

High WL n=49
Low % Latino
Low % Renter
High % children 5-18

mean 3.30

High WL n=131
Low % Latino
Low % Renter
High % children 5-18

mean 3.37

Local water issues are confusing

In the past 30 days, I have noticed information about ...

(mode response)

Water Supply
Drinking Water Quality
River and wetland restoration
Floods
Drought
Household Water Conservation
Local effects of climate change
Local water policies

No
Yes
No
No
No
Yes
Yes
Yes
No
No

Living with high water information availability:

Enhances perception that water issues are confusing and improves awareness

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