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Arthur Leal

Joy N. Rumble

Alexa J. Lamm

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## **Keywords**

Water, quality, quantity, agenda-setting, public opinion

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# Setting the Agenda: Exploring Florida Residents' Perceptions of Water Quality and Quantity Issues

Arthur Leal, Joy N. Rumble, and Alexa J. Lamm

## Abstract

*Water quantity and quality are among the top issues currently facing Florida. To understand residents' perceptions of these issues as well as understand how agenda-setting may be used to influence residents' behaviors and opinions surrounding water issues, this study explored Florida residents' opinions of water. Agenda-setting served as the conceptual framework to aid in understanding where water quality and quantity emerge on the public's agenda. Responses were obtained from 469 Florida residents via an online survey. The results showed respondents believed water quality had not changed, with the exception of the quality of bays, which they believed was getting worse. Water quality was found to be an issue of high importance among respondents, especially in regard to the quality of drinking water. Respondents believed water quantity was highly important; however, more importance was associated with water quality issues. The results of this study identified the current disconnect that exists among residents concerning water issues. This study also established the salience of water issues on the public's agenda and how Florida residents could be better informed. A statewide communication campaign focused on both water quality and quantity issues was recommended to decrease the disconnect that currently exists between residents' perceptions and the reality of water issues. This campaign should utilize the technology-based outlets to stay informed with the public's agenda to personalize communication efforts. These efforts would increase the public's interest concerning water issues by reducing redundant information and diluting important issues.*

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## Introduction

Water is essential for human life; each human being requires 1.5 liters of water daily to survive (Spellman, 1998). Water has become increasingly limited during the last 100 years and low water levels now threaten the American lifestyle (Araya & Kabakian, 2004; DeLorme, Hagen, & Stout, 2003; Spellman, 1998). Water supply has depleted in the United States since the 1900s with a four-fold increase in water usage but with no increase in rain and snow amounts (Spellman, 1998). In addition to decreased water supplies, agrochemical and urban runoff has threatened water quality and groundwater recharge in the southeastern (i.e., Florida, Georgia, and Alabama) United States (Workman, Bannister, & Nair, 2003). Several studies have shown fertilizer, crops, and runoff have decreased water quality in Florida since the mid-1950s (Finkl & Charlier, 2003; Weber & Perry, 2006). The convenience of water contributes to the public's disconnect with water shortages, and as-

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insurance of safe and palatable water (Stanford, 1996). Convenience and comfort are two factors that determine the public's engagement with conservation behaviors (Kollmuss & Agyeman, 2002). Not only has the short walk to the faucet contributed to the public's disconnect with water issues, but so has the convenience of paying bills. Whether it is automatic "bill-pay" or water costs included in a renter's monthly payment, residents have had limited exposure to costs associated with the amount of water they use (Stanford, 1996).

Rapid population growth has contributed largely to a decrease in existing water sources. Florida experienced a 64% population growth from 1980 to 2000, straining water resources (DeLorme et al., 2003). Water conservation involvement from the public has played a key role in the success and sustainability of water management programs, emphasizing the critical role the public plays in sustaining water resources (DeLorme et al., 2003). Water conservation efforts require individuals to give something up, rather than enjoy something, making water conservation campaigns challenging (Stanford, 1996; Syme, Nancarrow, & Seligman, 2000). While droughts often promote increased water conservation awareness, responses to a crisis are often temporary and short lived (Syme et al., 2000). Perceived as a public resource, some homeowners are willing to contribute to water conservation efforts; however, residents still lack consistent water conservation behaviors and fail to see their individual connection to the problem (DeLorme et al., 2003; Stanford, 1996).

Florida residents experienced extreme drought conditions in 2011 and most of 2012 (Pittman, 2012; Yeager, 2012). While Florida received mild relief with mid-summer rain, the drought's effects lingered until drought conditions resurfaced again in 2013 (Florida Weekly, 2013; Goldenberg, 2013; Marslender, 2013; Spear, 2013). Residents often become aware of water shortages as a response to shocking headlines: "Hefty Price Hikes for Fresh Food Amid Drought, Disease," "Proposed County Law Would Restrict Lawn Watering," and "A Fight Over Water, and to Save a Way of Life" (Alvarez, 2013; Curry, 2009; Stone, 2014). Individuals are not as likely to support environmental efforts unless the circumstances are under a negative context, carrying more weight than positive circumstances (Johnson & Scicchitano, 2000; Slovic, 1993). Therefore, the public is not as likely to support stricter environmental standards unless they view the situation as a problem (Johnson & Scicchitano, 2000).

Residents are increasingly interested in personal and environmental connections with water quality, but traditional methods (i.e., town meetings) of communicating about water issues have not reached large audiences (Stanford, 1996). However, ensuring some personal relevance with issues has the ability to encourage behavioral changes (Abbot, Policastro, Bruhn, Schaffner, & Byrd-Bredbenner, 2012; Petty, Barden, & Wheeler, 2009). Seymour and Bauske (2009) used workshops to inform university managers concerning water conservation. Participants in that study found workshops not only informative, but they reported a better understanding of how to address water conservation efforts. Additionally, areas like Denver, Colorado, have increased public awareness of water issues and water conservation efforts via the media (Stanford, 1996). While residents hold limited trust in popular media, the media still has the ability to raise a level of awareness of water issues (Merkel, Bicking, & Sekhar, 2012).

Like many states around the country, Florida has experienced many water quality and quantity hardships. Water quality of both fresh and salt water is a major concern for residents. Newspapers covered Florida's worst outbreak of red tide in 2012 and 2013, which stretched nearly 100 miles around the southwest coast of Florida. As a result, many Florida residents experienced substantial aquatic animal loss, which included the termination of more than 450 manatees within a three-month period (Flemming, 2013; Orlando Sentinel, 2012; Spinner, 2012). Florida drought conditions have increased awareness of the existing water quantity crisis (DeLorme et al., 2003; Stanford, 2006).

The public is more likely to consider water quantity an issue in drier areas of the United States or regions that have experienced frequent droughts (Borisova et al., 2013; Mahler, Simmons, Sorensen, & Miner, 2004). As Florida residents' travel around their communities, low-level lakes and ponds are reminders of water shortages (DeLorme et al. 2003). DeLorme et al. (2003) found central Florida residents have started to become conscious of their water usage and are implementing conservation strategies: water-efficient appliances, monitoring usage, and sprinkler timers. This level of awareness has not only included the amount and quality of outdoor water available to residents, but also it has extended to the quality of water being used in homes.

Many residents are skeptical and fear potential contaminants in drinking water. In a study conducted by Mahler et al. (2004) in the Pacific Northwest, 99% of the respondents considered clean drinking water the most important water priority. With not only their personal health in mind, parents want to ensure their families are safe from radiation, bacteria, parasites, and other harmful contaminants (Araya & Kabakian, 2004; Hu, Morton, & Mahler, 2011; Merkel et al., 2012). Unfortunately, Mahler, Simmons, and Sorensen (2005) found many residents do not have adequate knowledge to evaluate potential water pollutants. Instead, residents use color, taste, and odor as key indicators of poor water quality (Doria, 2010). DeLorme et al. (2003) found residents' connection with water quality stems "more from firsthand sensory information than from mass media or interpersonal interaction" (p. 30).

A non-mutual sense of urgency exists between water providers and residents. More often than not, residents have complained about the aesthetic qualities of their tap water, and water providers have dismissed those concerns with the notion they are unimportant (Saylor et al. 2011; Stanford, 1996). With their concerns being ignored, residents believe their tap water is not safe for consumption and have resorted to alternative sources of water: bottled water, water purification systems, Brita® filters, and machine distiller and purifiers (DeLorme et al., 2003; Hu et al., 2011). An organization that frequently addresses issues like water found "73% of the people in the United States believe government investment in safe, public water is either extremely or very important" (Corporate Accountability International, 2012, p. 3). Improvements to assure the availability of safe public water can be undermined when residents purchase alternative sources of water (i.e., filters, bottled water, etc.) instead of using public tap water (Hu et al., 2011).

As water quality and quantity issues continue to be a problem, communicating with residents is vital. While some Florida residents participate in various conservation practices, many forgo conservation efforts because they lack the knowledge to address these issues (DeLorme et al., 2003). It is often unclear water conservation efforts include recreational and household activities. Efforts must go beyond conservation awareness and reinforce Florida homeowners' contribution to the water conservation problem (DeLorme et al., 2003). Lambright, Chjangnon, and Harvey (1996) found environmentally conscious cities become more active with increased involvement and importance placed on environmental issues from environmental groups, influential proponents, and governmental agendas. A balance between opinions and knowledge serves as a credible tool in communicating important messages that require residents to change behaviors (Lambright et al., 1996).

This study sought to better understand Florida residents' perceptions of water quality and quantity issues to identify the public agenda on water issues. Effective communication and education efforts can address concerns and misconceptions through identification of public perception of water quality and quantity issues.



## Conceptual Framework

Agenda-setting served as the conceptual framework for this study. Nearly 45 years old, agenda-setting has been used in multiple disciplines and countries, enabling more than 300 studies to identify its effects and help ground this framework (Stone, Singletary, & Richmond, 1999). Agenda-setting has been studied for many years to capture how media create the basis for everyday public discussion, allowing media the opportunity to create and even swing public opinion (Baldwin, Perry, & Moffitt, 2004). By reporting what issues are seen as important and focusing attention on certain issues, media are able to limit the extent of what the public thinks about (McCombs & Shaw, 1972). A three-part process, agenda-setting stems from the media agenda, which influences the public agenda and that ultimately affects the policy agenda (Littlejohn & Foss, 2011). Several current opinions and concerns regarding national issues exist among the public, referred to as the public's agenda, and have been shown to closely mirror the media's agenda (Stone et al., 1999). While media and public agendas commonly overlap, their interdependence has also been emphasized, suggesting a causal relationship between the two (Stone et al., 1999). McCombs and Shaw (1972) found the media agenda appeared to precede the public agenda, which would suggest the media agenda might set the public agenda (Stone et al., 1999). This relationship has been debated among social scientists for many years in an effort to understand the complexities between the two agendas (Uscinski, 2009).

While the public agenda and media agenda are not expected to always mirror one another (Stone et al., 1999), research has shown the influence the public agenda might have on the media agenda (Littlejohn & Foss, 2011). Much of what the media reports on is determined by its newsworthiness, and some important issues may be ignored on that basis. Moreover, public demand has been shown to control newsworthiness. The public has a role in shaping the salience of certain issues — environmental issues included — ultimately influencing the media's agenda (Uscinski, 2009). The public's power to influence the salience of issues has also been balanced by technology. Technology has aided the public in creating additional outlets for setting the news agenda and providing greater freedom to the public in determining what is important. The media agenda has a habit of ambiguously reporting on recurring issues, diluting its affect on the public and limiting its ability to keep the conversation going (Protest, 1987). Traditional media outlets (i.e., newspapers, television, etc.) have the ability to start the conversation, but public-controlled outlets (i.e., blogs, forums, etc.) have the ability to help the conversation last (Meraz, 2009). Scheufele (2000) referred to agenda-setting as an “inherently casual theory” (p. 304), and no matter which agenda is dependent upon the other, positive correlations between the public and media agenda have been observed.

Shiffman (2007) explained many factors contribute to an issue making it on the policy agenda. Whether or not the issue is highlighted and receives visibility (i.e., crises, conferences, and discoveries), affects its ability to be placed on the policy agenda and acted upon. The public's activity level with environmental issues, including water quality and quantity issues, varies around the United States. Larger cities tend to be more environmentally conscious, which can increase the number of environmental groups lobbying for water issues to be placed on the public's agenda (Lambright et al., 1996). DeLorme et al. (2003) found central Florida residents believed the water crisis was a serious, complex problem that should be a part of the political, economic, and social agendas. Only at the point of crises, when a situation is visible or apparent, does the public become concerned, triggering the need for agenda-setting, though at a high cost (Graffy, 2006; Syme et al., 2000). When the governmental agenda and public agenda's reflect concern for the environment, communities are more likely to become environmentally active (Lambright et al., 2006). Agenda-setting served to guide this study to better understand the salience of water quality and quantity issues on the public's agenda.

## Purpose

This study sought to explore Florida residents' perceptions of water issues, seeking to gain a better understanding of the public's agenda on water issues. Researchers assessed the level of importance Florida residents place on water quality and quantity. This study was guided by the following research objectives:

1. Describe the opinions Florida residents have about changes in water quality.
2. Describe the level of importance Florida residents associate with water quality issues.
3. Describe level of importance Florida residents associate with water quantity issues.

## Methods

Florida residents, 18 and older, were the population of interest for this study. Respondents were limited to Florida residents because water was a high priority issue facing Florida at the time of the study. To fulfill the research objectives, an online survey was used to collect data.

The survey instrument used in this study was adapted from the 2012 RBC Canadian Water Attitudes Study (Patterson, 2012). The data used in this survey was part of a larger study; however, only two sections of the instrument were used to address the objectives for this study: importance of water quality and quantity as well as the opinions of the change in water quality. Four individuals with expertise in water quality and quantity, public opinion research, and survey design served on the panel of experts, ensuring content and face validity of the survey instrument (Ary, Jacobs, & Sorensen, 2010).

Respondents were asked to indicate their opinions concerning several water-related sources on a four-item Likert-type scale and indicate whether the water quality of the sources presented were 1 = *Better*, 2 = *No Change*, 3 = *Worse*, and 4 = *Unsure*. This was used to measure respondents' opinions of the change in water quality. A seven-item Likert-type scale was used to measure the importance of water quality. The same scale was used to measure seven items addressing water quantity. Both of these scales ranged from 1 = *Extremely Important*, 2 = *Highly Important*, 3 = *Fairly Important*, 4 = *Slightly Important*, and 5 = *Not at all Important*.

A total of 516 representative Florida residents were sent the survey link. Of those 516, 469 responded. Thus, a 90.9% response rate was achieved. The 2010 U.S. Census data for Florida were used to weight the demographic characteristics of the respondents to be reflective of the Florida population (Baker et al., 2013). Data for each research objective were analyzed using SPSS<sup>®</sup> 21.0. Descriptive analyses were used to calculate respondents' opinions of the change in water quality and to evaluate respondents' level of importance placed on various water quality and quantity items.

A public opinion research company recruited respondents through non-probability opt-in procedures. Non-probability samples are a common sampling method for public opinion research as they allow for population estimates (Baker et al., 2013). Non-probability samples are known to have limitations associated with selection, exclusion, and non-participation biases (Baker et al., 2013). To overcome these potential limitations, post-stratification weighting methods were used (Kalton & Flores-Cervantes, 2003). The demographics weighted in this study included gender, race, ethnicity, age, and community size using the rural urban continuum coding system (United States Department of Agriculture Economic Research Service, 2013).

After demographic weighting was completed, a descriptive analysis of the demographic data was completed (see Table 1). The respondents included 240 (51.1%) females and 229 (48.9%) males. There were primarily Caucasian/White (Non-Hispanic; 77.1%,  $n = 362$ ) respondents. Hispanics represented 22.5% ( $n = 106$ ) of the respondents, while African Americans included 17% ( $n = 80$ ) of

the respondents. Just more than half of the respondents were between the ages of 20 and 59 (52.7%,  $n = 247$ ) and 93.6% ( $n = 450$ ) resided in metropolitan counties.

Table 1  
*Weighted Demographics of Respondents*

Characteristic	<i>n</i>	%
Gender		
Female	240	51.1
Male	229	48.9
Race		
African American	17	17.0
Asian	14	3.0
Caucasian/White (Non-Hispanic)	362	77.1
Native American	1	0.2
Hispanic Ethnicity	106	22.5
Age		
18 - 29	66	14.1
30-39	57	12.2
40-49	67	14.2
50-59	63	13.5
60-69	52	11.1
70-79	35	7.4
80 and older	23	4.9
Rural-Urban Continuum Code Classification		
1 million or more metropolitan area	296	63.1
250,000 to 1 million metropolitan area	121	25.7
Few than 250,000 metropolitan area	23	4.8
20,000 or more, non-metro area	16	3.5
2,500 to 19,999 non-metro area	12	2.6
<2,500 completely rural non-metro area	1	0.3
Political Affiliation		
Republican	113	24.3
Democrat	188	40.7
Independent	142	30.6
Other	20	4.3

## Results

### **Describe the Opinion Florida Residents Have About Changes in Water Quality**

Respondents were asked whether or not they believed the quality of various water sources was getting better, worse, had no change, or if they were unsure (see Table 2). Overall, respondents believed the water quality had not changed in almost all of the water sources examined. The only exception was that 34.4% ( $n = 162$ ) of the respondents believed the water quality of bays was getting *worse*, making worse the highest selection for this water source.



Table 2  
*Respondents' perceptions of water quality*

	Better		No Change		Worse		Unsure	
	n	%	n	%	n	%	n	%
Springs	84	17.9	200	42.7	88	18.9	96	20.6
Estuaries	50	10.8	175	37.4	117	25.0	125	26.7
Groundwater	62	13.1	175	37.2	136	29.1	96	20.4
Lakes	56	11.9	172	36.6	154	32.8	82	17.5
Rivers	71	15.1	166	35.5	149	31.7	81	17.2
Oceans	69	14.6	164	35.0	159	33.9	77	16.5
Bays	63	13.4	153	32.6	162	34.4	90	19.2

**Describe the Level of Importance Florida Residents Associate with Water Quality Issues**

Respondents were asked to rate the level of importance they associated with the quality of seven water sources (see Table 3). Overall, respondents believed the water quality in all water sources was either *highly* or *extremely important*. Drinking ( $n = 385$ , 82%) water quality was afforded the highest level of importance, with 65.7% ( $n = 308$ ) of respondents deeming the quality of ground water as the second highest important water source. Beaches ( $n = 307$ , 65.4%) were also rated as *highly important* among respondents. Additionally, respondents believed the water quality for shell fishing ( $n = 273$ , 58.2%) was the least important of all water sources assessed.

Table 3  
*Level of importance associated with water quality*

	Extremely Important		Highly Important		Fairly Important		Slightly Important		Not at all Important	
	n	%	n	%	n	%	n	%	n	%
	Drinking	385	82.0	51	11.0	19	3.9	6	1.2	1
Groundwater	308	65.7	105	22.4	37	7.8	5	1.1	7	1.4
Beaches	307	65.4	118	25.1	28	6.0	9	1.8	4	0.8
Lakes	300	64.0	117	24.9	41	8.8	4	0.9	1	0.2
Oceans	287	61.2	132	28.1	36	7.7	6	1.4	2	0.4
Estuaries	284	60.7	133	28.4	35	7.5	8	1.6	2	0.5
Shell fishing	273	58.2	122	26.0	46	9.8	14	3.1	4	0.9

**Describe the Level of Importance Florida Residents Associate with Water Quantity Issues**

Respondents were asked to indicate the level of importance they associated with the amount of water available for different activities (see Table 4). Overall, respondents believed water quantity in all water sources was either *highly* or *extremely important*. Respondents believed the amount of water afforded for agriculture ( $n = 300$ , 63.9%) and recreation ( $n = 293$ , 62.5%) were the most important of the activities assessed. Respondents placed the lowest level of importance with water needed for aquifers, springs, and rivers ( $n = 165$ , 35.3%) as well as landscapes ( $n = 172$ , 36.6%).

Table 4

*Level of importance associated with water quantity*

	Extremely Important		Highly Important		Fairly Important		Slightly Important		Not at all Important	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Agriculture	300	63.9	116	24.7	36	7.6	7	1.5	2	0.5
Recreation	293	62.5	111	23.6	38	8.2	13	2.8	5	1.1
Golf Courses	269	57.4	128	27.4	50	10.8	11	2.4	3	0.7
Commerce	233	47.5	155	33.0	64	13.7	15	3.2	6	1.3
Cities	186	39.6	113	24.2	78	16.6	31	6.6	11	2.4
Landscapes	172	36.6	113	24.1	110	23.5	49	10.5	20	4.2
Aquifers, Springs and Rivers	165	35.3	149	31.8	100	21.3	33	7.1	10	2.2

### Discussion

This study sought to assess Florida residents' awareness of water quality and quantity issues. The first research objective assessed whether or not Florida residents observed changes in water quality. Respondents appeared to observe little *change* overall of the seven water sources assessed. However, 34.4% ( $n = 162$ ) of respondents believed the water quality of bays was becoming the worst, making *worse* the highest selection for this water source. While no direct connection can be made, the media's agenda reflected strong concern for the impact of red tide on the southwest coast line of Florida, as there was severe aquamarine life loss (Flemming, 2013; Orlando Sentinel, 2012; Spinner, 2012). These events occurred during data collection for this study, which may have had an affect on the public's agenda at the time. Additionally, DeLorme et al. (2003) found similar results with residents sharing a concern of decreased outdoor water quality. Red tide has been a constant battle for the state of Florida, and several studies referenced cases of its impact from 1995 to 2005 (Goodnough, 2005; Morgan & Larkin, 2006). DeLorme et al. (2003) and this study appear to have experienced similar events with red tide while each study was conducted, and Florida residents in both studies shared relatively similar views of outdoor water quality. This appears to show some type of pattern with both the media's and public's agenda reflecting concern for Florida water.

There appears to be a slight disconnect with Florida residents' perception in the quality change of their drinking water. Respondents indicated there was *no change* in the quality of groundwater, which is a major source of drinking water. However, several studies have shown the Florida water quality has decreased due to fertilizers, crops, and runoff (Finkl & Charlier, 2003; Weber & Perry, 2006). Florida residents in DeLorme et al.'s (2003) study were generally dissatisfied with their household water quality. Several factors might contribute to respondents' perceptions of the change in water quality; community size can be a contributing factor to residents' perceptions of drinking water (Hu et al., 2011). Water quality may also vary around the state of Florida as residents use alternative methods of substituting poor water quality (i.e., water bottles, filter systems, purifiers, etc.; DeLorme et al., 2003; Hu et al., 2011). Mahler et al. (2005) suggested residents do not have an adequate

amount of knowledge to evaluate their water quality effectively. As a result, the public might not be aware of the current water quality issues, potentially contributing to a disconnect between their perception and reality as well as a general lack of awareness on behalf of the public. This finding suggests the salience of water quality issues is not appropriately represented on the public's agenda, and its importance will not be reflected until the public is better informed.

This study also examined the level of importance Florida residents associated with the water quality of several water sources. The findings supported the notion that respondents assigned high levels of importance to drinking water quality. Mahler et al. (2004) found similar results with respondents affording the highest priority to drinking water quality. DeLorme et al. (2003) also found that central Florida residents were conscious of drinking water quality, which indicated residents are aware of drinking water safety (Hu et al., 2011). Merkel et al.'s (2012) study also found that water quality safety (i.e. water free from parasites, radiation, and illness causing contaminants) was a primary concern. While respondents assigned the highest level of importance to drinking water in this study, groundwater (the primary source of drinking water) was afforded the fourth highest level of importance. This finding indicates that participants possess some confusion regarding the source of their drinking water. As weather patterns change and surface water is depleted, there will be an increased dependency on groundwater. Unfortunately, groundwater supply is also becoming depleted, which will require new behavioral changes (Spellman, 1996).

Respondents also assigned the second highest level of importance to the water quality of beaches, while oceans were designated with the fifth highest level of importance. Serving as another interesting finding, beaches and oceans embody the same water source. One explanation might be the accessibility of beaches and the ocean. The public commonly visits beaches for various reasons, as they are normally accessible to everyone. For several individuals, beaches are a car ride or short walk away from their homes. However, traveling out to the ocean requires additional transportation (i.e., boats, etc.) and those are not necessarily accessible to everyone. While no definite conclusion can be made from the inconsistent importance placed on like water sources, these findings display some level of disconnect in knowledge or awareness.

The last research question focused on participants' perceived importance associated with the quantity of several water activities. Overall, respondents assigned a high level of importance in allocating water for all water sources. Participants indicated the highest level of importance with water needed for agriculture and recreation. Mahler et al. (2004) reported similar results with 84% of respondents indicating the amount of water for agriculture as a high priority. Agriculture and forestry serve as a major contributor to the Florida economy, second only to tourism (Workman et al., 2003). Similarly, Mahler et al. (2004) found a connection with cultural and economic importance afforded to particular water issues. While no direct correlation can be made from the data in this study, there does appear to be some connection between allocation of water and state economy.

Consistent with DeLorme et al. (2003), respondents in this study indicated a high level of importance associated with the amount of water available for recreation. While respondents in this study attributed a high level of importance to the amount of water in cities, with consideration for the decrease in the current water supply (Spellman, 1998), city water quantity might have been expected to rate higher among respondents. The level of importance for recreational water uses appeared to compete with water sources that are required for human survival. Serving as a central hub in supplying water to large populations, the level of importance for the amount of water in cities rated fifth among the sources assessed. Additionally, Florida was surrounded by extreme drought conditions during the time of this survey. Several newspaper articles indicated the drought was get-

ting worse and utility companies were uniting to attempt to prevent water supplies from dissipating (Florida Weekly, 2013; Goldenberg, 2013; Marslender, 2013; Pittman, 2012; Spear, 2013; Yeager, 2012). While the media's agenda appeared to reflect concern, the public's agenda appeared to focus elsewhere. It seems water for recreation might overshadow or compete with the need for water in areas of higher population in this study. The convenience and availability of drinking water might explain the decreased importance of quantity respondents afforded to heavier populated areas in this study (i.e., cities) (DeLorme, et al., 2003; Stanford, 1996). Droughts and the current water crisis have only restricted outdoor water usage. Residents have not experienced indoor water restrictions, which might explain the lower importance associated with the amount of water needed for cities.

## Recommendations

### Practice

While respondents in this study displayed inconsistent perceptions of like water sources (i.e., beaches and oceans, and drinking and groundwater), and reflected different opinions examined in previous research (DeLorme et al., 2003), a series of awareness campaigns addressing water sources may be beneficial. In a time when environmental issues and concerns are being publicly addressed (i.e., recycling, energy efficiency, etc.), a campaign should use the current environmental efforts being pursued and address water issues. In particular, based on the results of this study, a statewide communication campaign could increase awareness of water issues in general, but also it could hone in on particular areas where public knowledge is lacking and reduce the disconnect that currently exists. Research has shown the public's ability to influence the media's agenda (Uscinski, 2009). The public uses many technology-based outlets to indicate what is important to them (Meraz, 2009), and this is a way for communication campaigns to stay informed and personalize efforts to the public. Personal relevance has a stronger chance in influencing the public's agenda. At the time of this study, media appeared to be reporting on the impacts of red tide and droughts, but respondents only showed awareness of the issues that existed with water for recreation, and less concern for the amount of water for drinking. Communication campaigns should focus their efforts to address the quality of drinking water, as this study found the majority of respondents felt there was no change in the groundwater quality. Conversely, several studies have shown the public to exhibit concerns regarding the quality of water around the United States for various reasons (DeLorme et al., 2003; Hu et al., 2011; Saylor et al., 2011; Stanford, 1996), and other studies have shown the water quality in Florida to be decreasing (Finkl & Charlier, 2003; Weber & Perry, 2006). A campaign should also determine methods of increasing general knowledge of water sources, as respondents displayed some confusion about where water comes from and failed to make a connection between like water sources. With interest from residents to learn more about water issues, information could be provided to Florida residents to help them better understand their role in preserving water.

By using research results to target specific areas that have been identified as areas of disconnect, unnecessary efforts would be limited and redundant information could be reduced. This could increase public interest by preventing the dilution of important issues (Protess, 1987). Campaigns would also serve as a proactive approach to water issues and increase the impact of those efforts, which was established Syme et al. (2000). Agenda-setting served as the guiding conceptual framework in this study. Studies have shown once issues like water are placed on the agenda (i.e., media agenda) and awareness of issues increases, the more likely individuals are to take action and reflect similar views on the issue (Lambright et al., 2006; Mazarr, 2007; Shiffman, 2007). A more active role from governmental and influential proponents driving the media agenda and public agenda have the



ability to increase local and national awareness, further emphasizing the need for communicators to deliver this information to policy makers.

The findings in this study illustrate the need for increased consideration for the public's agenda by the Florida governmental agenda concerning water issues. Communication channels need to be opened between policy makers and communicators conducting research regarding consumer perceptions of water issues. The communication channels would allow constituents' views to be known and provide policy makers guidance in creating and revising current policies that address pressing state problems. How experts go about addressing these priorities will determine how issues are publicly "introduced, understood, and acted upon within the public agenda" (Graffy, 2006, p. 466), providing the opportunity to address misconceptions and further understanding of current water issues. These efforts would also allow governmental officials to better understand water issues that may exist in different areas of Florida, allowing the governmental agenda to address concerns that are more reflective of Florida residents as a whole, versus residents from selected areas.

The results from this study show a high level of importance for water quality, but display a lack of concern regarding the amount of water (quantity) available on the public's agenda, which is known to affect legislation, demonstrating the need for policy makers to focus the political agenda around the availability of water (Stone et al., 1990). With minimal regulations in the amount of water residents can use, aside from drought conditions when little water is available, such an effort might meet some resistance or skepticism. However, the consequences of not proactively addressing these issues has the potential to be much more severe in the event water use is limited due to a nationwide depletion. Until the public agenda and political agenda reflect this concern, water quantity and quality issues will not be seen as reality, and little will be done to address this issue; this also draws attention for more research to be conducted on water quantity issues (Lambright et al., 2006).

### **Future Research**

A limited number of studies exist addressing water quantity issues in social sciences. The majority of the current research focuses on water quality issues with limited information concerning water quantity and consumer knowledge and perception of water quantity issues. However, it appears there are major water quantity issues that exist around the state of Florida, which have the potential to severely impact residents. In an effort to increase awareness and knowledge of water quantity issues, the research agenda must reflect a more balanced analysis on this topic. This will accurately serve communicators and policy makers when making important decisions.

While this study was limited to the state of Florida, future studies could assess perceptions of water quality and quantity on a national level. Several studies around the nation have reported a decrease in the quality of drinking water (Hu et al., 2011; Merkel et al., 2012), and the media appears to be addressing water quality issues around the United States as well. Future studies could also evaluate state comparisons, not only noting differences among different states but also different regions in the United States (i.e., rural versus urban, population, etc.). Research also could benefit from assessing the salience of water issues on the media's agenda, which would also provide a better understanding of the results in this study. As water quality and quantity issues become a growing issue, increased involvement and awareness will have to be implemented on many levels.



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### About the Authors

Arthur Leal is a second year doctoral student at the University of Florida in the Department of Agricultural Education and Communication with a concentration in agricultural communication. Arthur serves as a graduate student in the Center for Public Issues Education in Agriculture and Natural Resources (PIE Center) where his research interests focus on public perception of various agricultural issues.

Joy Rumble is an Assistant Professor of Agricultural Communication within the Department of Agricultural Education and Communication. Joy focuses her efforts in the Center for Public Issues Education in Agriculture and Natural Resources (PIE Center) where she conducts research and outreach initiatives around effective communication in agriculture. Her research concentrates on consumer perceptions of agriculture and has included studies examining perceptions of local food, livestock legislation, and transparent communication in the livestock industry.

Alexa Lamm is an assistant professor in the Department of Agricultural Education and Communication and the Associate Director of the UF/IFAS Center for Public Issues Education in Agriculture and Natural Resources. Alexa specializes in conducting research on agricultural and natural resource public policy implementation and the use of evaluation methodology as it applies to programmatic and organizational change theory.