

Engaging High Water Users in Water Conservation

#1: High Water Users' Experiences and Perceptions of Water¹

Pei-wen Huang and Alexa J. Lamm²

Introduction

Florida has an abundance of water, but still faces an increased pressure on water resources because of a growing population, prosperous tourism, and an active agricultural industry (Barnett, 2007; Marella, 2013). The uniqueness of Florida's geographical location and water resource availability has influenced water consumption habits among its residents (Haley, Dukes, & Miller, 2007; Marella, 2013). UF/IFAS Extension has committed to encouraging public engagement in water conservation statewide (UF/IFAS Extension, 2016). One of the strategies being used is the segregation of audiences into groups characterized by specific demographics and behaviors in order to enhance communication effectiveness and increase the audience's adoption of new practices (Monaghan, Ott, Wilber, Gouldthorpe, & Racevskis, 2013). In Florida, a specific group of people has been identified as high water users based on their high water consumption in landscape irrigation and residence areas in urban regions (Monaghan et al., 2013). However, Israel and Knox (2013) indicated there are difficulties in engaging high water users in learning and practicing water conservation strategies. This EDIS document is the first in a series discussing how Extension can improve high water users' engagement in water conservation by focusing on high water users' characteristics,

experiences with water issues, and perceptions of water. The entire series includes the following EDIS documents:

1. High Water Users' Experiences and Perceptions of Water (<http://edis.ifas.ufl.edu/wc255>)
2. High Water Users' Water-Related Behaviors and Willingness to Act (<http://edis.ifas.ufl.edu/wc256>)
3. High Water Users' Opportunities to Learn about Water Conservation (<http://edis.ifas.ufl.edu/wc257>)

Definition of High Water Users

Various studies have focused on Florida homeowners who are active landscape irrigators. To define high water users, Davis and Dukes' (2014) overirrigator criteria were used: being a single-family residential account holder, living in a given utility company service area, and showing a monthly ratio of estimated irrigation volume to gross irrigation requirement at "greater than 1.5 at least [three months per year] for three consecutive years" (p. 2). High water users are typically residents of a neighborhood with a homeowners association (HOA), older in age, and have a higher income and education level than the general public (Huang, Lamm, & Dukes, 2016; Monaghan et al., 2013). Davis and Dukes (2014) and Huang et al. (2016) found that high water

1. This document is AEC593, one of a series of the Department of Agricultural Education and Communication, UF/IFAS Extension. Original publication date July 2016. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. Pei-wen Huang, postdoctoral associate, UF/IFAS Center for Public Issues and Education; Alexa J. Lamm, assistant professor, Department of Agricultural Education and Communication, and associate director, Center for Public Issues and Education; UF/IFAS Extension, Gainesville, FL 32611.

users prefer to hire a contractor to manage their landscape instead of managing their own.

Identifying High Water Users

An online survey was developed to examine high water users' opinions about water. This survey was distributed to high water users who met Davis and Dukes' (2014) overirrigator criteria living in the Orlando area ($N = 512$), Tampa/Sarasota area ($N = 219$), and Miami/Fort Lauderdale area ($N = 201$). Screening questions were developed based on Davis and Dukes' (2014) overirrigator criteria and were asked at the beginning of the survey to sort out individuals who did not meet the criteria. A total of 3,494 individuals were invited to complete the survey from the general population, with 932 identified as high water users based on these qualifiers: the individual had an income greater than \$50,000 per year, had a landscape irrigation system they could control, and hired a landscape company to manage and care for their landscape.

Characteristics of High Water Users

The demographic characteristics of high water users are displayed in Table 1. More than 90% of high water users were non-Hispanic, Caucasian/White, and tended to be older than the general Florida population. As expected, they were highly educated and had a higher level of income than the general Florida resident. The majority of high water users reported their political affiliation as moderate or conservative, and 70% were members of an HOA.

High Water Users' Experiences with Water Issues

High water users were asked about their experiences with water issues (Figure 1). The majority of the high water users had not experienced any of the listed water issues. However, 13% of them indicated that they have experienced closed beaches due to red tide/poor water quality and poor quality of drinking water at home. Less than 10% of them showed experiences with closed springs, rivers, or lakes due to algae blooms or low water levels and prohibitions on eating fish they have caught.

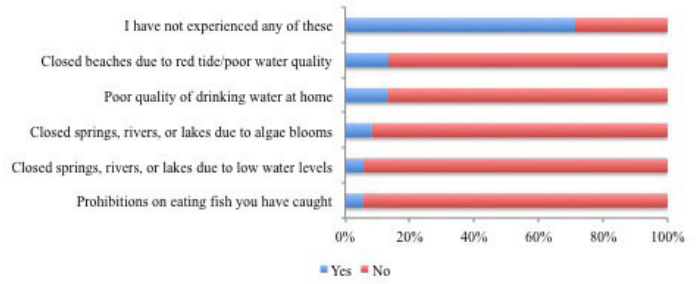


Figure 1. High water users' experiences with water issues.

High Water Users' Perception of Water

High water users were asked about perceived water quality changes in different water bodies present in Florida (Figure 2). Approximately 10% perceived water quality as getting better in all of the listed bodies of water. Almost half of the high water users perceived water quality as getting worse.

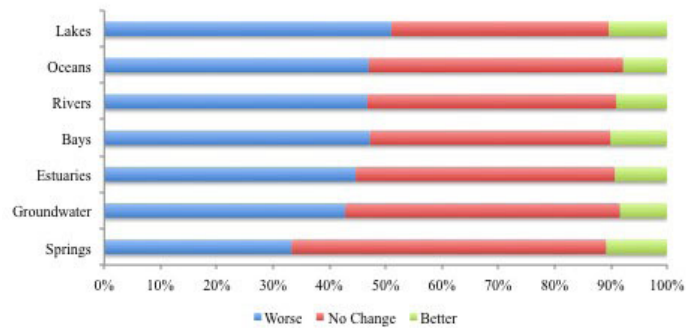


Figure 2. High water users' perception of water quality change.

High water users' perceptions of the importance of clean water can be seen in Figure 3. In general, high water users assigned a high level of importance to having clean water in all of the listed water sources. Almost 99% of them perceived clean drinking water as highly or extremely important. As for clean groundwater, lakes, spring, rivers, beaches, bays and estuaries, and oceans, about 85–90% of high water users perceived it as highly or extremely important.

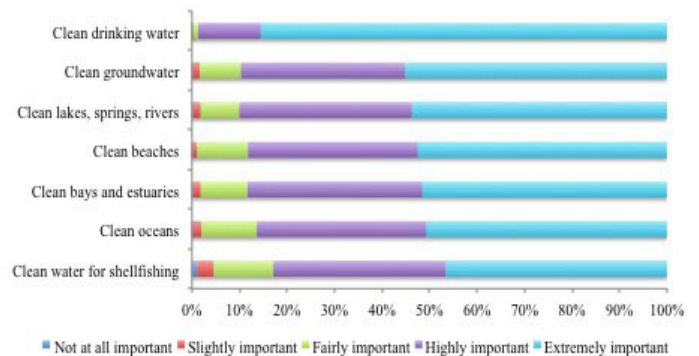


Figure 3. High water users' perceptions of the importance of clean water.

The results of high water users' perceived importance of plentiful water can be seen in Figure 4. Almost 90% of the high water users perceived plentiful water for aquifers, springs, rivers, lakes, and cities as highly or extremely important. In addition, 86% of the high water users perceived plentiful water for agriculture as highly or extremely important. However, only 35–40% perceived plentiful water for household landscapes and recreation as highly or extremely important. Only 13% of high water users perceived it to be highly or extremely important to have plentiful water for golf courses.

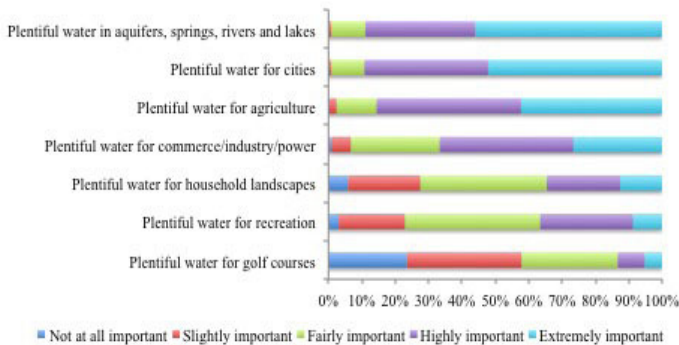


Figure 4. High water users' perception of the importance of plentiful water.

Discussion

High water users in this study exhibited specific demographic characteristics that aligned with previous studies (Huang et al., 2016; Monaghan et al., 2013). Extension professionals should take such demographic characteristics into consideration when developing water conservation programs targeting high water users. Segregating audiences with similar characteristics into groups for communication can lead to increased persuasiveness and effectiveness (Andreasen, 2006; Kotler & Roberto, 1989). Therefore, Extension professionals should communicate with high water users as a specific group of clientele instead of treating them the same as the general public regarding water conservation topics or programs.

A large amount of high water users indicated that they have not experienced any water issues and perceived no change in water quality. This may imply that high water users rarely pay attention to their use of water resources and do not participate in activities related to water, such as visiting beaches, springs, rivers, or lakes. Although targeting an audience's experience with negative water issues may be an effective approach to reach audiences regarding water conservation education (Huang & Lamm, 2015), in this study, not too many high water users had experienced negative water issues. Such a finding indicates that targeting a user's previous experience with negative water issues may

not be an effective approach to reach high water users, and Extension professionals should focus on enhancing high water users' environmental awareness of water. Given that most high water users perceived clean water for drinking as highly or extremely important, Extension professionals should use drinking water quality as the starting point for conversations about water conservation. Similarly, high water users perceived the importance of plentiful water for aquifers, springs, rivers, lakes, and for cities as highly or extremely important, which can also be used by Extension professionals as conversation starters for high water user water conservation programs.

Extension professionals should not only make the water conservation educational information and materials relevant to high water users' needs based on their perceptions of water, they should also expand education programs by collaborating with HOA management groups, landscape contractors, and nursery and landscape industries (Huang et al., 2016). High water users' unawareness of water issues may also be related to their reliance on landscape contractors (Monaghan et al., 2013). Enhanced communication and education with the nursery and landscape industries may create new information channels, circumventing the high water users in order to communicate directly with their contractors about water conservation within high water use communities (Israel & Knox, 2010).

References

- Andreasen, A. R. (Ed.). (2006). *Social marketing in the 21st century*. Thousand Oaks, CA: Sage Publications.
- Barnett, C. (2007). *Mirage: Florida and the vanishing water of the Eastern U.S.* Ann Arbor, Michigan: The University of Michigan Press.
- Davis, S. L., & Dukes, M. D. (2014). Methodologies for successful implementation of smart irrigation controllers. *Journal of Irrigation and Drainage Engineering*. Retrieved from <http://ascelibrary.org/doi/pdf/10.1061/%28ASCE%29IR.1943-4774.0000804>
- Haley, M., Dukes, M., & Miller, G. (2007). Residential irrigation water use in Central Florida. *Journal of Irrigation and Drainage Engineering*, 133, 427–434.
- Huang, P., & Lamm, A. J. (2015). Impact of experience and participation in Extension programming on perceptions of water quality issues. *Journal of International Agricultural and Extension Education*, 22(3). doi:10.5191/jiaee.2015.22303

Huang, P., Lamm, A. J., & Dukes, M. (2016). Informing extension program development through audience segmentation: Targeting high water users. *Journal of Agricultural Education*, 57(2), 60–74. doi: 10.5032/jae.2016.02060

Israel, G. D., & Knox, G. W. (2010). *Reaching diverse homeowner audiences with environmental landscape programs: Comparing lawn service users and nonusers* (AEC363). Gainesville: University of Florida Institute of Food and Agricultural Sciences. Retrieved September 4, 2014, from <http://edis.ifas.ufl.edu/WC04400>

Kotler, P., & Roberto, E. L. (1989). *Social marketing. Strategies for changing public behavior*. New York, NY: The Free Press.

Marella, R. (2013). *Water use in Florida, 2005 and trends 1950–2005*. U.S. Geological Survey. Retrieved from <http://pubs.usgs.gov/fs/2008/3080/>

Monaghan, P., Ott, E., Wilber, W., Gouldthorpe, J., & Racevskis, L. (2013). Defining audience segments for extension programming using reported water conservation practices. 51(6). Retrieved from <http://www.joe.org/joe/2013december/a8.php>

University of Florida IFAS Extension. (2016). *Water*. Retrieved from http://solutionsforyourlife.ufl.edu/environment/water_resources.html

Table 1. Demographics of high water users (N= 932)

Characteristics	%
<i>Sex</i>	
Female	51.9
Male	48.1
<i>Race</i>	
African American	4.4
Asian	1.5
Caucasian/White (Non-Hispanic)	93.5
Native American	0.5
Other	1.4
Hispanic Ethnicity	6.8
<i>Age</i>	
20–29	2.3
30–39	9.9
40–49	11.6
50–59	20.2
60–69	33.5
70–79	20.2
80+	2.4
<i>Rural-Urban Continuum</i>	
Metro areas of 1 million population or more	85.3
Metro areas of 250,000 to 1 million population	11.1
Metro areas of fewer than 250,000 population	0.8
Urban population of 20,000 or more, adjacent to a metro area	1.2
Urban population of 20,000 or more, not adjacent to a metro area	0.1
<i>Income</i>	
Less than \$49,999	0.0
\$50,000 to \$74,999	26.2
\$75,000 to \$149,999	49.5
\$150,000 to \$249,999	17.9
\$250,000 or more	6.4
<i>Education</i>	
Less than 12 th grade	0.1
High school graduate	5.9
Some college, no degree	16.4
2-year college degree	10.1
4-year college degree	38.1
Graduate or Professional degree	29.4
<i>Political Beliefs</i>	
Very Liberal	5.0
Liberal	19.4
Moderate	38.2
Conservative	29.8
Very Conservative	7.5
<i>HOA Member</i>	
Yes	70.4
No	29.6