

Public Opinion about Actions to Protect Water Resources¹

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Introduction

This publication summarizes results of a public survey about actions to protect water resources in Florida. The survey solicited respondents' opinions about 13 practices to protect Florida water resources that can be aggregated into five categories: (1) urban practices, (2) practices for agricultural lands and open spaces, (3) preserving and protecting buffer zones and wetlands, (4) better management of shoreline access and recreational activities, and (5) improvements in education, monitoring of water quality, and data access. All practices were ranked as *important* / *very important* by the overwhelming majority of respondents with few exceptions. However, survey results depended on respondents' residence and socio-demographic characteristics. Specifically, more part-time Florida residents ranked some of the practices as *not important* / *somewhat important*, compared to year-around residents. Furthermore, more male respondents ranked the practices as *not important* / *somewhat important*.

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These differences in attitudes should be accounted for in the design of education / outreach programs.

2008–2009 Survey of Public in Florida

The purpose of the public survey titled *Water Issues in Florida* was to examine Florida residents' awareness and attitudes about water quality and quantity issues, as well as the strategies to protect state water resources.

The survey was mailed to 1,154 randomly selected Florida households in the fall of 2008 and spring of 2009; 523 households completed and returned the survey (45.5% response rate). The majority of survey respondents had at least a high school diploma (97%), were male (68%), and were at least sixty years old (60%). Most survey respondents resided in cities with populations of at least 25,000 residents (76%), had resided in Florida for at least five years (90%), and resided in Florida year-round (89%). In comparison with total Florida population, the survey respondents were comprised of a larger proportion of male, older, and more educated (Table 1). Such differences between the total Florida population and the sample of the survey respondents indicate that survey results may be affected by a non-response bias, i.e. that people who responded to the survey may be different from those who did not. As a result, survey results may not accurately reflect opinion of the state population as a whole (more information about the non-response bias can be found in EDIS publication [PD008](#) by Glenn Israel [1992]). Unfortunately, non-response bias is typical for mail surveys (see, for example, Scott and Overton [1977]). To address the non-response bias, it was explored if responses to specific survey questions depended (in statistically significant way) on demographic characteristics of the respondents.

Actions to Protect Water Resources

Urban Practices

Survey respondents were asked to rank the importance of five practices that are usually implemented in urban areas: treating stormwater runoff, improving wastewater treatment, residential water conservation, improving home and garden

practices, and building new water-storage structures (dams, reservoirs, etc.). All five practices were ranked as *important / very important* by the absolute majority of respondents (Table 2). However, among these five practices, residential water conservation and improving wastewater treatment were ranked as *important / very important* by the largest number of respondents (90% and 89%, respectively).

Surprisingly, 15 percent of respondents felt that improving home and garden practices is *not important / somewhat important*. Although this is a relatively small percent of respondents, this result still implies that even though almost all survey respondents perceive the importance of clean rivers, streams, marine waters, and groundwater (see EDIS document [FE841](#), *Public Attitudes about Water Issues in Florida*), some respondents do not realize the effect of home and garden practices on these water resources.

The ranking of one of these urban practices—treating stormwater runoff—depended on respondents' age and residence characteristics. Specifically, the percentage of respondents who believed that this practice is *important / very important* was lower among respondents who reside in Florida part-time (58%), compared to year-round residents (81%, Figure 1) (chi-square test, 99 percent confidence level). In terms of age, fewer residents over 60 thought that this practice is *important / very important* (72%, compared to 87% of respondents between ages 50 and 60, Figure 2) (chi-square test, 99% confidence level). Such differences in survey responses led to two conclusions. First, special educational programs should be developed to educate part-time Florida residents about the importance of treating (and reducing) stormwater runoff, which can carry pollutants (such as nitrogen and phosphorus) into surface water or groundwater. Reducing and treating stormwater runoff can protect and improve the quality of Florida's water resources. Second, because respondents of the survey are older (in comparison with the total Florida population), the percentage of people who think that treating stormwater runoff is *important* may be higher than is implied by the survey results. No other statistically significant differences in responses among

respondents of different age, sex, and residence characteristics were found.

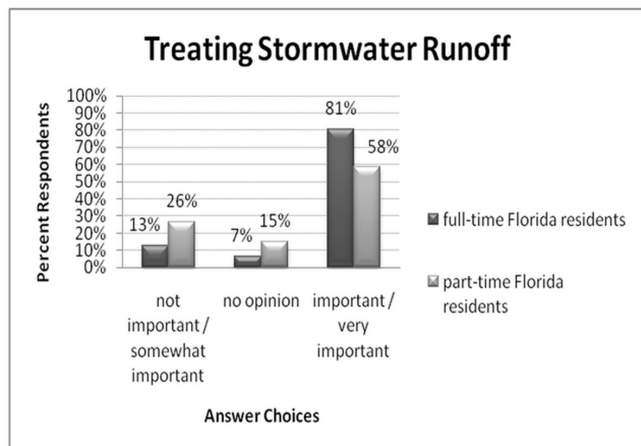


Figure 1. Treating stormwater runoff, ranking by full-time and part-time residents (% respondents)

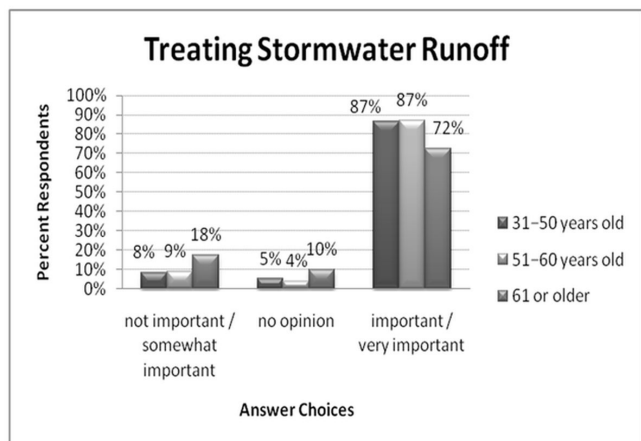


Figure 2. Treating stormwater runoff, ranking by respondents from different age groups (% respondents)

Agricultural Lands and Open Spaces

When asked about improving agricultural practices and about preserving agricultural lands and open spaces, the absolute majority of survey respondents indicated that these practices are *important / very important* (Table 3).

Responses about both practices depended on sex of the respondents. Specifically, a larger proportion of female respondents ranked both practices as *important / very important*, while a larger proportion of male respondents ranked these practices as *not important / somewhat important* (Figures 3 and 4). The differences in responses about these two practices among sex groups were statistically

significant at the 99 percent and 95 percent confidence levels. It is concluded that the percentage of people who think that both these practices are *important / very important* may be higher than is implied by these survey results because the survey respondents are more likely to be male (in comparison with the total Florida population). No other statistically significant differences in responses among respondents of different age, sex, and residence characteristics were found.



Figure 3. Improving agricultural practices, ranking by respondents of different sexes (% respondents)

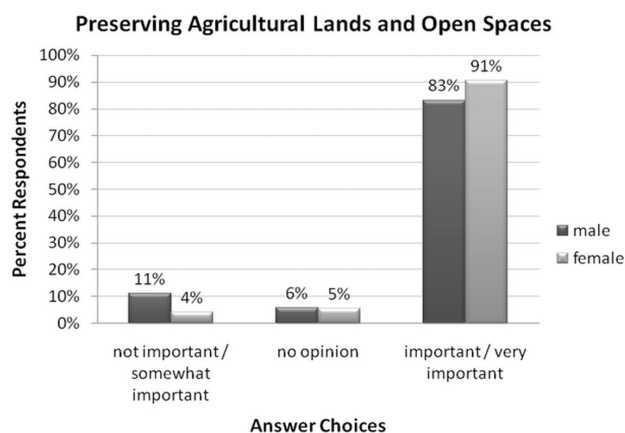


Figure 4. Preserving agricultural lands and open spaces, ranking by respondents of different sexes (% respondents)

Buffer Zones and Wetlands

Preserving and restoring buffer zones and wetlands was *important / very important* to 83 percent of respondents (Table 4).

Interestingly, more respondents residing outside city limits assigned the *not important / somewhat important* ranking to this issue (14%), compared to respondents residing inside city limits (7%, Figure 5) (chi-square test, 95% confidence level). This result is alarming since respondents residing outside city limits may have greater abilities to contribute to preserving and restoring buffer zones and wetlands. However, overall, the majority of respondents living inside or outside city limits believe that this practice is *important / very important*.

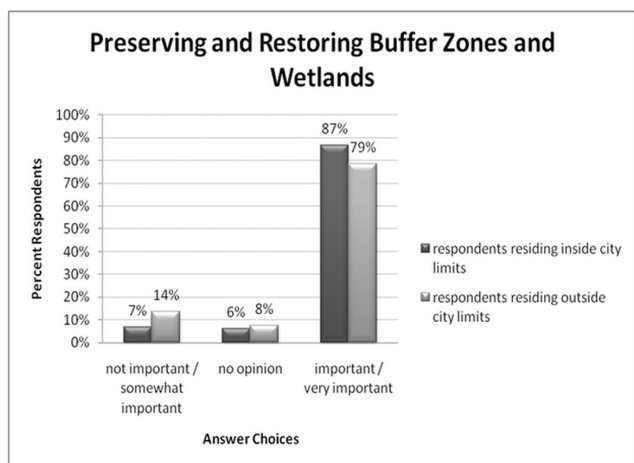


Figure 5. Preserving and restoring buffer zones and wetlands, ranking by respondents residing inside versus outside city limits (% respondents)

Furthermore, relatively many part-time Florida residents felt that preserving and restoring buffer zone and wetlands is *not important / somewhat important* (19%), compared to year-round residents (9%, Figure 6) (chi-square test, 95% confidence level). These results indicate that part-time Florida residents need more information about the importance of wetlands and buffer zones for protecting and improving surface water and groundwater quality, flood control, groundwater recharge, and wildlife habitat.

Finally, more male respondents ranked preserving and restoring buffer zones and wetlands as *not important / somewhat important* (12%), compared to female respondents (5%, Figure 7) (chi-square test, 95% confidence level). Since, on average, respondents of the survey were more likely to be male (in comparison with the total Florida population), the percentage of people who think that this issue is *important / very important* may be higher than is implied by the survey results.

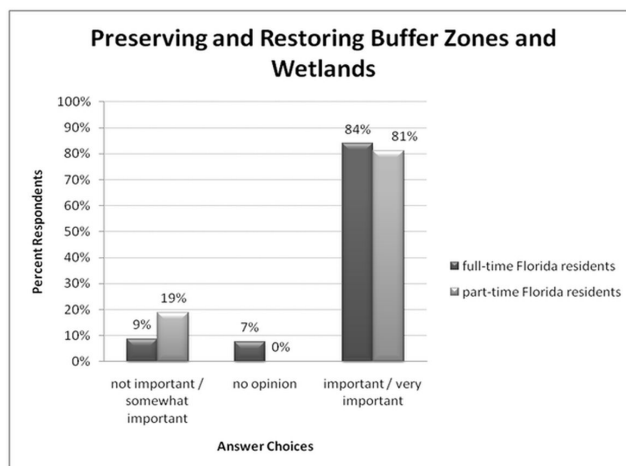


Figure 6. Preserving and restoring buffer zones and wetlands, ranking by full-time versus part-time Florida residents (% respondents)

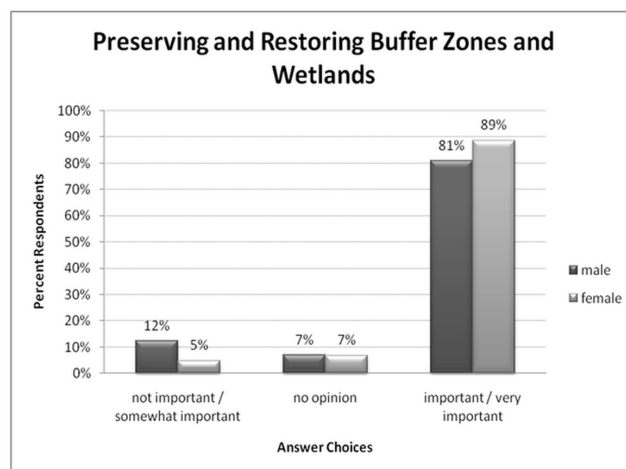


Figure 7. Preserving and restoring buffer zones and wetlands, ranking by sex (% respondents)

No other statistically significant differences in responses among respondents of different age, sex, and residence characteristics were found.

Shoreline Access and Recreational Activities

Better management of shoreline access to prevent erosion was perceived as important by 81 percent of the respondents (Table 5). Similarly to the results reported above, female respondents ranked better management of shoreline access as *important / very important* more frequently than male respondents (89% females versus 78% males; Figure 8) (chi-square test; 95% confidence level). A relatively large percent of respondents without high school diplomas had *no opinion* about the issue (12%; Figure 9) (chi-square test; 95% confidence level). Further

research is needed to explain such difference in responses. No other statistically significant differences in responses among respondents of different age, sex, and residence characteristics were found.

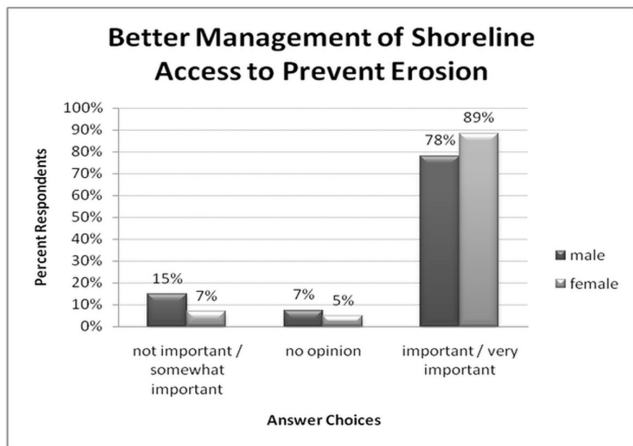


Figure 8. Better management of shoreline access, ranking by sex (% respondents)

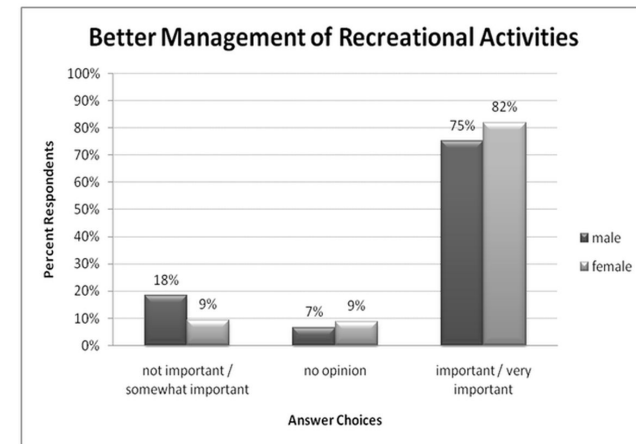


Figure 10. Better management of recreational activities, ranking by male and female (% respondents)

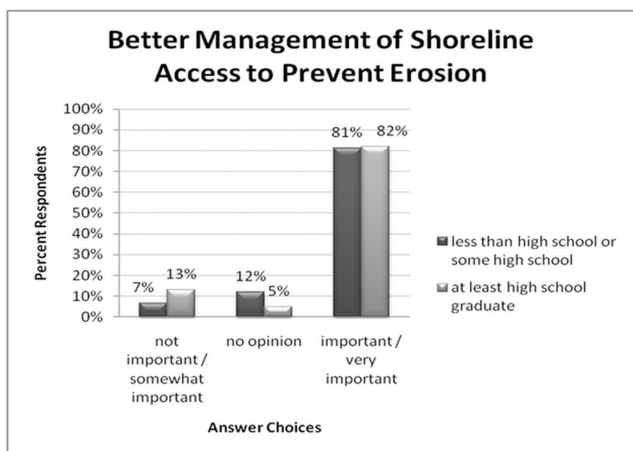


Figure 9. Better management of shoreline access, ranking by education level (% respondents)

The differences in responses among people of different educational levels and sexes imply that the survey results may understate the percent of people in Florida who support better management of shoreline access (since on average, respondents of the survey are more likely to be male and more educated, in comparison with the total Florida population).

In turn, better management of recreational activities was perceived as *important / very important* by 78 percent of the respondents (Table 5). Similar to the results for other survey questions, female respondents ranked this issue as *important / very*

important more frequently than male respondents (Figure 10) (chi-square test, 95% confidence level). No other statistically significant differences in responses among respondents of different age, sex, and residence characteristics were found.

Along with improving home and garden practices, this action was ranked as *not important / somewhat important* by a relatively large number of respondents (a little more than 15%). This result may indicate that while respondents feel that protection of water resources is important, they do not understand the effects of their individual actions on these resources.

Educating Municipal Officials, Water Quality Monitoring, and Data Access

Ninety-two percent of surveyed respondents felt it was *important / very important* to improve water quality monitoring to detect pollution (Table 6). Furthermore, 88 percent of those surveyed thought it was *important / very important* to educate municipal officials. Surprisingly, 10 percent of respondents felt that it was *not important / somewhat important* to make water quality and quantity data public information despite public participation in policy decisions being emphasized and encouraged by state and federal agencies (Green 2003).

Respondents' residence and sex correlated with the answers they selected for this group of issues. Specifically, respondents residing outside city limits ranked the issue of improving water quality

monitoring as *not important / somewhat important* relatively frequently (8% compared to 2% of respondents residing inside city limits, Figure 11) (chi-square test, 95% confidence level). However, overall, the overwhelming majority of respondents from both residence groups felt the issue is *important / very important*.

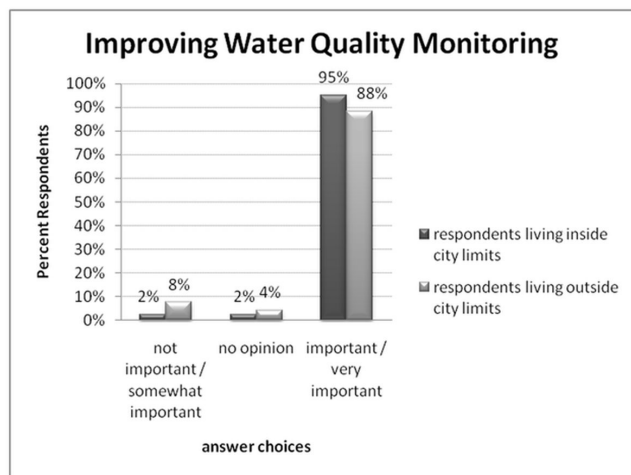


Figure 11. Improving water quality monitoring, ranking respondents residing inside versus outside city limits (% respondents)

Furthermore, part-time Florida residents (19%) perceived the issue of making water quality and quantity data public information as *not important / somewhat important* more frequently than full-time residents (8%) (chi square test, 95 % confidence level (Figure 12). This result indicates that part-time Florida residents may be relatively less interested in the state of Florida's water resources. It can be a significant challenge for extension professionals to reach such audiences.

No other statistically significant differences in responses among respondents of different age, sex, and residence characteristics were found.

Conclusions

This publication summarizes results of a public survey about actions to protect Florida water resources. Respondents were asked about the importance of 13 categories of practices commonly used to maintain and improve water quality and availability. All these categories were ranked as *important / very important* by overwhelming majority of respondents. Respondents were especially

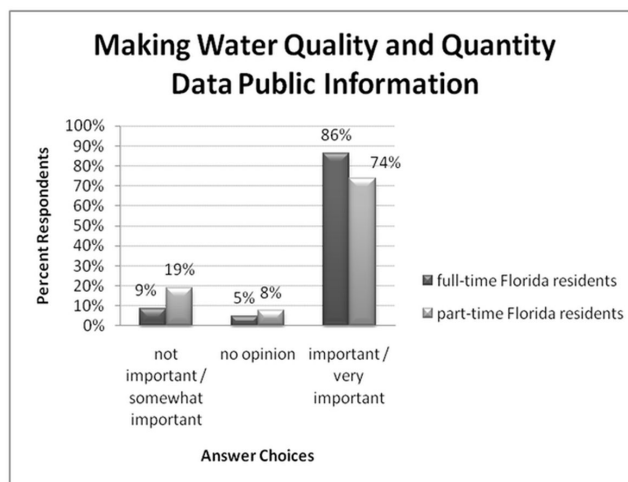


Figure 12. Making water quality and quantity data public information, ranking by full-time versus part-time residents (% respondents)

supportive of the practices to improve water quality monitoring and to encourage residential water conservation. More than 90 percent of respondents believed these practices to be *important / very important*. The greatest number of respondents (about 15%) selected *not important / somewhat important* answer choices for the practices related to improving recreational activities and improving home and garden practices, and selected *no opinion* for building water storage structures.

Survey responses depended on residence and socio-demographic characteristics of citizens, such as length of residency in Florida, sex, age, and others. Because perceptions and attitudes are shown to vary across these characteristics, it is important to consider these variations when designing education and outreach programs to effectively reach across diverse demographic groups.

Specifically, more full-time Florida residents perceived that treating stormwater runoff, preserving and restoring buffer zones and wetlands, and making water quality and quantity data public information are *important / very important* issues, compared to part-time residents (who more frequently thought that these issues are *not important / somewhat important*). Because many part-time Florida residents spend several months every year in Florida, their actions and behaviors can significantly impact Florida water resources. Hence, special efforts should be made to reach this audience with Extension and other outreach programs.

Slightly more respondents living outside city limits ranked the issues of preserving and restoring buffer zones and wetlands, and improving water quality monitoring as *not important / somewhat important*, compared to respondents residing inside city limits. Further research is needed to explain this difference.

Finally, the survey results may slightly understate the ranking of importance for the practices. Specifically, survey respondents are more likely to be male, older, and higher educated than the average Florida resident. The survey results may be slightly biased since more male respondents than female respondents ranked the practices as *not important / somewhat important*. Similarly, for some practices, older and/or more educated respondents selected *not important / somewhat important* rankings more frequently than did younger and/or less educated respondents. The effects of demographic and residence characteristics on respondents' perceptions of various actions to protect water resource should also be accounted for in the design of education/outreach programs.

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Table 1. Comparison of the survey respondents and Florida's total population

Criteria	Survey Respondents	Total Florida Population
Sex		
Male	68%	49%*
Female	32%	51%*
Age		
60 years old and over	60%	22%*
Median age (years)	64	39*
Education		
High school or higher	97%	85%**
* Based on Census 2000 (U.S. Census Bureau 2000) ** Population 25 years old and over; based on 2006–2008 American Community Survey Three-year estimates (U.S. Census Bureau 2008)		

Table 2. Practices to protect water resources (% of respondents)

Question	Not Important or Somewhat Important	No Opinion	Important or Very Important
Residential water conservation	8%	2%	90%
Improve wastewater treatment	8%	3%	89%
Improve home and garden practices	15%	6%	79%
Treating stormwater runoff	14%	8%	78%
Build water storage structures (dams, reservoirs, etc.)	14%	15%	71%

Table 3. Practices on agricultural lands and preserving open spaces (% of respondents)

Question	Not Important or Somewhat Important	No Opinion	Important or Very Important
Improve agricultural practices	9%	5%	86%
Preserving agricultural land and open spaces	9%	5%	86%

Table 4. Buffer zones and wetlands (% of respondents)

Question	Not Important or Somewhat Important	No Opinion	Important or Very Important
Preserving and restoring buffer zones and wetlands	10%	7%	83%

Table 5. Preserving and restoring buffer zones and wetlands (% of respondents)

Question	Not Important or Somewhat Important	No Opinion	Important or Very Important
Better management of shoreline access to prevent erosion	12%	7%	81%
Better management of recreational activities	16%	7%	78%

Table 6. Information and education (% of respondents)

Question	Not Important or Somewhat Important	No Opinion	Important or Very Important
Improve water quality monitoring to detect pollution	5%	3%	92%
Educate municipal officials	7%	5%	88%
Make water quality and quantity data public information	10%	5%	85%