SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

ASSESSMENT/PLANNING PROJECT FINAL REPORT

Jordan River Watershed Council Capacity Building

By

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Sponsored by Salt Lake County Flood Control and Engineering

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Grant # 0704WQ
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Salt Lake County Contract #PV07179C

EXECUTIVE SUMMARY

PROJECT TITLE: EVALUATING REMEDIATION ALTERNATIVES FOR MINE DRAINAGE, LITTLE COTTONWOOD CREEK, UTAH

PROJECT START DATE 01/01/2008 PROJECT COMPLETION DATE 12/31/2011

FUNDING: TOTAL BUDGET $58,917

TOTAL EPA GRANT $35,350

TOTAL EXPENDITURES OF EPA FUNDS $35,350

TOTAL SECTION 319 MATCH ACCRUED $84,542.59

BUDGET REVISIONS None

TOTAL EXPENDITURES $119,892.59

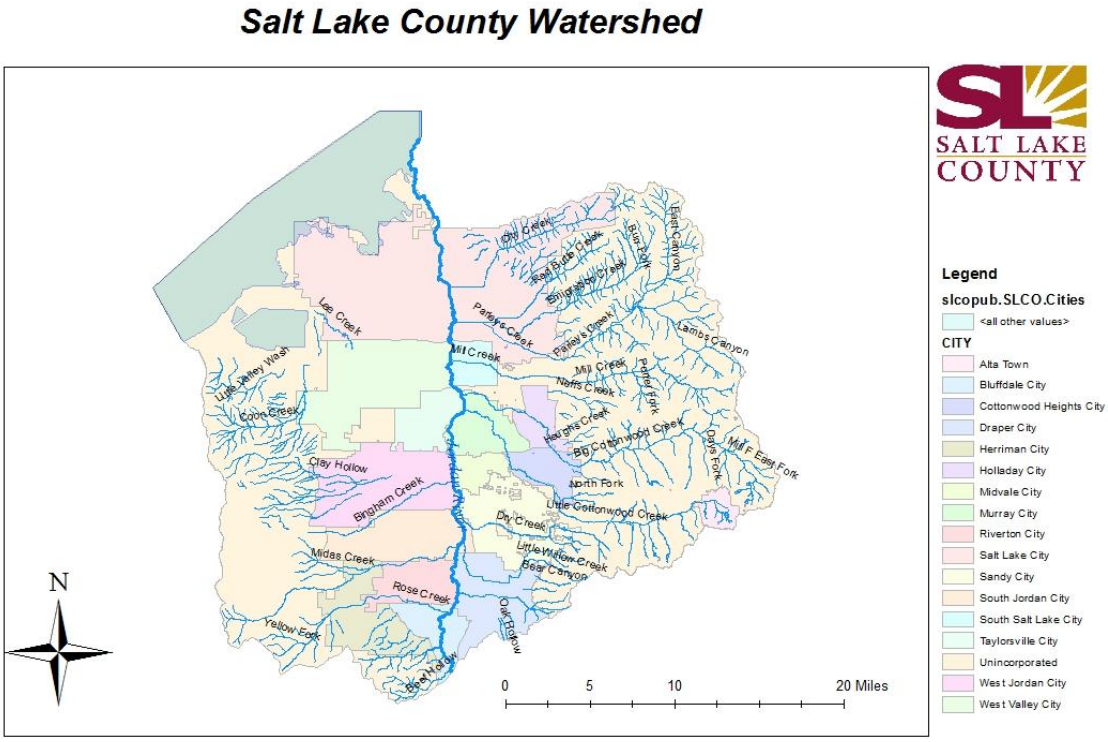
SUMMARY ACCOMPLISHMENTS:

Salt Lake County and the Jordan River Watershed Council (JRWC) accomplishments for this grant between 2008 through 2010 entails: eight (8) Jordan River Watershed Council (JRWC) Meetings; three (3) Salt Lake Countywide Watershed Symposiums, which also serve as a Jordan River Watershed Council Meeting; six (6) *Watershed Watch* Informational Newsletters; 26 Informational Tabling Events; maintained and updated the Salt Lake County Watershed Planning & Restoration Program/JRWC website and JRWC listserv; and two (2) Watershed Awareness Assessment Surveys (2007, 2010). In addition Salt Lake County published the 2009 Salt Lake Countywide Water Quality Stewardship Plan (WaQSP). As part of the WaQSP development and outreach, Salt Lake County presented information on the Jordan River Watershed and the WaQSP to 37 Community Council Meetings and 14 municipalities as well as two (2) public workshops.

1.0 INTRODUCTION

The Jordan River Watershed Council (JRWC) was initially created in 1978 as a result of the Area-Wide Water Quality Management Plan and has been actively involved in planning restoration projects along the Jordan River, addressing human health considerations, and facilitating communication between stakeholders since that time. However, the lack of pressing watershed concerns and waning interest from stakeholders resulted in reduced activities of the Council. Since then there were several issues of pressing concern that served to catalyze the re-vitalization of the Watershed Council. These issues included: listing of both the Jordan River and Emigration Creek on the State's 303(d) list of impaired water bodies, the subsequent requirement of Total Maximum Daily Load (TMDL) studies for both the Jordan and Emigration Creek, an amendment to the Area-Wide Water Quality Management Plan, and the development of a Water Quality Stewardship Plan (WaQSP), which updated the 1978 Area-Wide Water Quality Management Plan. As a result of the need for stakeholder involvement in these issues, the Jordan River Watershed Council was revitalized in June of 2005 with the assistance of 319 funds distributed through the Utah Watershed Coordinators Council.

Over 898,387 people (40% of Utah's population) live in the Jordan River Watershed (US Census website). In this confined watershed, population is continuing to rise with densities increasing from 900 people per square mile in 1990 to 1,218 people per square mile in 2000 (SLCO, 2005). Notably, the population density of valley bottoms is much higher—2,000 people per square mile. Projected population for the year 2020 is 1.3 million, or an average of 1,614 people/square mile. The Jordan River Watershed (Map 1) is not only the population center for the State, but is also an economic center for the Intermountain West. As with many western states, Salt Lake County has been undergoing an economic shift away from agriculture to manufacturing and retail sales. With increasing development/land conversions, substantial stream alteration/channelization, and sections of the Jordan River, Emigration Creek and Parleys Creek on the State's 303(d) list, the Jordan River Watershed is a complex area in great need of stakeholder involvement that will result in innovative solutions to watershed concerns.



Map 1: Jordan River Watershed

The issues in this watershed range from abandoned mine concerns in the Wasatch Canyons to stormwater shock loads and land development in the urban areas. With nearly 900,000 people who live, work, and play in this county, it is a challenging and essential task to facilitate communication and restoration efforts between various constituents.

The Jordan River is a 4th order stream originating from Utah Lake, a shallow playa formed during the early Cenozoic era from seismic downward block faulting. The River supports 2B, 3A, 3B, 3C, and 4 beneficial uses and is currently impaired for Dissolved Oxygen (DO) and Total Dissolved Solids (TDS) levels in the lower reaches (Table 1). As a result, a TMDL study is underway. Although the TMDL is targeting DO and TDS in the lower reaches of the Jordan, the successful remediation of these concerns requires that numerous parameters (e.g. *E. Coli*, Phosphorus, bank stability, vegetation cover, and in-stream flow) be addressed. Therefore, the JRWC will be used to facilitate participation of a wide variety of stakeholders in the TMDL development.

2.0 PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

The overarching goal of this project is to promote and facilitate stakeholder involvement in watershed concerns of the Jordan River Watershed. This goal will be accomplished through: 1) facilitating stakeholder involvement and participation in watershed concerns

through the functioning of the Jordan River Watershed Council, 2) establishing, organizing, and distributing a bi-annual newsletter to further understanding of watershed functioning and concerns by the general public, and 3) assessing I & E efforts associated with the Water Quality Stewardship Plan (WaQSP) development.

The second objective of this project is to work with regional educational and outreach experts to establish a bi-annual newsletter for the Jordan River Watershed. This newsletter will be distributed at public libraries, schools, and retail stores that service user groups. The Salt Lake County courier system will be used to distribute the newsletters to county libraries free of charge; however, distribution to retail outlets, city libraries and schools would require a small amount of staff time.

The third objective of this project is to develop an assessment tool that will be used to evaluate levels of awareness concerning watershed function and issues within Salt Lake County. In conjunction with the development of the Salt Lake County Watershed; Water Quality Stewardship Plan (WaQSP), this assessment tool will be used repeatedly to monitor the effectiveness of Information and Education (I & E) programs in the County.

Objective 1: Continue facilitation of the Jordan River Watershed Council.
Task 1: Continue to organize, plan and facilitate quarterly meetings for the core group of the Jordan River Watershed Council (JRWC).

Task 2: Continue to attend quarterly meetings and present updates to public and special interest groups that are part of the JRWC and have standing committees.

Task 3: Continue to provide administrative support for the Jordan River Natural Areas Forum (JRNAF).

Task 4: Continue to work with the Salt Lake County Information Services (IS) Department to create, monitor, and update the JRWC website.

Task 5: Continue to disseminate information regarding restoration projects, grant opportunities, public meetings, educational opportunities, and additional activities that may affect either surface or groundwater systems in the Jordan River to members of the Council as well as interested citizens.

Task 6: Continue to monitor content sent via the JRWC list serve.

Task 7: Continue to coordinate tabling events and provide informational documents to be distributed.

Product: Facilitation of the Jordan River Watershed Council.

Objective 2: Develop and distribute a bi-annual newsletter.
Task 8: Work with regional education experts to determine elements/sections to be included in the newsletter.

Task 9: Contract with graphic design firm/individual to develop a logo and newsletter format.

Task 10: On a bi-annual basis, solicit articles from Watershed Council members for inclusion in the newsletter.

Task 11: Publish and distribute newsletter on a bi-annual basis.

Product: Bi-annual newsletter.

Objective 3: Develop and use Watershed Awareness Assessment Tool.
Task 12: Create, test, and verify an assessment tool that will be used to evaluate levels of awareness concerning watershed function and issues within Salt Lake County.

Task 13: Administer watershed awareness assessment tool prior to newsletter development.

Task 14: Administer watershed awareness assessment tool at end of six (6) newsletter distributions.

Product: Watershed Awareness Assessment Tool.

2.1 PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES

Task	Accomplishment
1. Organize, plan, and facilitate quarterly meetings	Quarterly
2. Present updates to established groups.	Quarterly
3. Administrative support for JRNAF.	Ongoing
4. Create, monitor, and update JRWC website.	Ongoing
5. Disseminate information via electronic means.	Ongoing
6. Monitor JRWC listserv	Ongoing
7. Coordinate tabling events and create informational brochures for distribution.	Average 9 Events per year
8. Determine newsletter elements	2007
9. Develop JRWC logo	2007
10. Solicit news articles	Bi-annually
11. Publish and distribute newsletter	Bi-annually
12. Create assessment tool	2007
13. Pre-assessment	2007
14. Post-assessment	2010

2.2 EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN

This project supports two (2) essential tasks found in the Utah Nonpoint Source Management Plan.

Task 2: *Work with local basin/watershed committee's stakeholder to target BMPs through preparation of water quality management TMDL plans in watersheds now impaired as identified on 303(d) list and selected for improvement in the next five years.*

Task 15: *A public involvement process will be carried out with the development of all watershed/TMDL plans. The process includes initial scoping issues and problem identification, data/results review, prioritization, source identification, goals development, allocation of responsibility, review of draft and adoption of a final plan.*

This project supports the State NPS Management Plan by: 1) facilitating stakeholder involvement and participation in watershed concerns through the functioning of the Jordan River Watershed Council, 2) establishing, organizing, and distributing a bi-annual newsletter to further understanding of watershed functioning and concerns by the general public, 3) ongoing dissemination of information with the JRWC listserv and website, 4) ongoing tabling and educational events, and 5) assessing I & E efforts associated with the Water Quality Stewardship Plan (WaQSP) development via watershed awareness survey.

2.3 SUPPLEMENTAL INFORMATION

The summary of findings for the 2010 Watershed Awareness Survey is included on Appendix A. The full report can be found on the Salt Lake County Watershed Planning & Restoration Website at www.watershed.slco.org. An example of the Watershed Watch informational newsletter is attached in Appendix B. This is a biannual (Spring and Fall) newsletter, which is distributed to approximately 200 locations throughout the Jordan River Watershed, the JRWC listserv, Watershed Planning & Restoration Program webpage and the new Facebook page.

Figure 1: Water Quality Fair May 2010

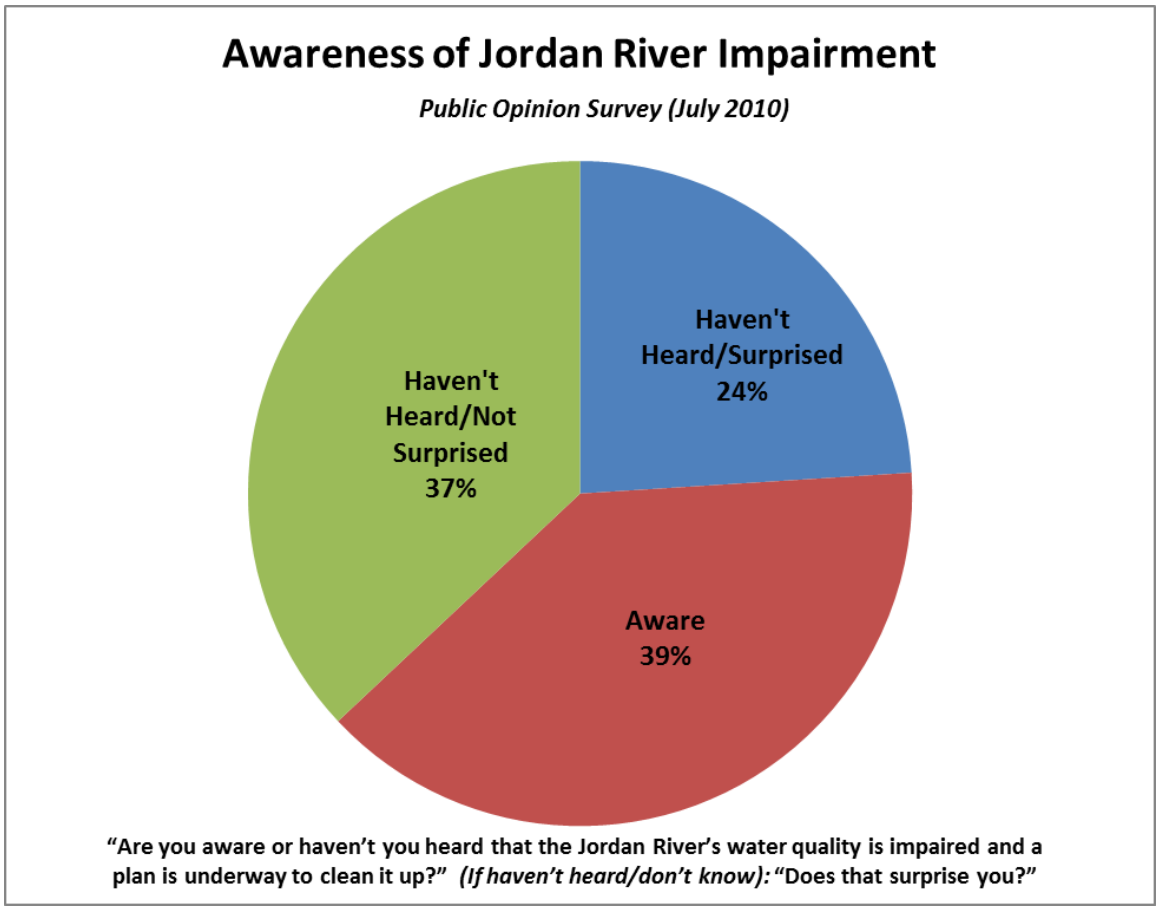
Figure 2: 2012 Salt Lake Countywide Watershed Symposium

3.0 LONG TERM RESULTS IN TERM OF BEHAVIOR MODIFICATION/MONITORING RESULTS

According to the Survey performed in 2010, the research shows a public that is heavily engaged with the outdoors, and places a high priority on clean water. In a variety of ways in the survey they indicate support for more action by the County to promote watershed health. These are our high-level findings:

- Most County residents see outdoor recreation and leisure as an essential element of their quality of life. Many are getting out into the County's wild areas and urban parks on a frequent basis.
- Residents are not confident about their knowledge of watershed issues, and in fact they demonstrate some lack of specific knowledge. As the most striking example of this, only 13% believe they live in a watershed. The survey reminds us that outreach to residents must be conducted in a non-technical way, appealing instead to the basic priorities and values of residents.
- On balance, the County is environmentally-minded. Care for the environment is a strong personal priority for one-third of County residents, twice as many as say it is a low priority for them. A majority of residents place themselves in the middle of the environmental spectrum.
- In particular, water quality is far and away what residents most value in their watersheds – exceeding the value residents place on wildlife habitat, recreation, scenery, and economic concerns combined.
- Similarly, residents' top three watershed-related concerns among a list of eight we tested are an adequate supply of good drinking water, litter in streams, and industrial water pollution. Wildlife habitat is next, followed by recreational and open space concerns.
- A large majority believe that a healthy economy depends on good water quality, suggesting that most County residents do not see a tradeoff between jobs and the environment, at least as far as clean water is concerned. A similar majority of two-thirds do not believe that water quality standards should be lowered to promote economic development.
- But the economy is a reality, and a near-majority of residents indicate that cost must be taken into account when addressing water quality concerns.
- By almost two-to-one, residents do not believe their own recreational activities are affecting the County's watersheds. This is particularly true of both the strongest environmentalists, and those most antagonistic to environmental concerns. People in the middle are most prone to admit their own impact.
- Most residents believe the County "probably is doing enough to protect our watershed," a number that has risen significantly since 2007. But a solid one-third of residents want the County to take more action.
- In terms of land use, there is strong citizen support for fostering more wildlife habitat, river corridors in their natural condition, and open space and wetlands in the County. A near majority would like more outdoor recreational opportunities, as well, a number that has risen by double digits since 2007.

- There is solid awareness of water quality concerns in the Jordan River, but only about half of those who are aware of that know that the river is "impaired and a plan is underway to clean it up."
- Large majorities support each of four public policy proposals that would require landowners to maintain and plant new buffer vegetation, set aside natural open space, and make capital improvements to manage runoff. The fact that the public is ready to support these mandatory measures indicates an underlying public will to deal with watershed protection.
- There is strong public support for more funding to deal with watershed protection, as well, with nearly three-quarters saying they would support more funding if the amount was reasonable and County leaders said it was needed. Bonding appears to be the specific funding mechanism that garners the broadest support.
- This survey provides guidance about the subgroups within the overall population that are most receptive to messages and engagement around these issues. Our report identifies the pockets of opportunity for watershed-related messages, as well as the specific media that will deliver those messages most effectively.



Many questions on this survey were carried forward from a similar survey commissioned by Salt Lake County in 2007. Where questions on the two surveys are directly comparable, those results are tracked from the prior survey and highlighted in the tables or narrative (Appendix A).

As a general observation, nearly all the questions that can be tracked from the prior survey have shown a decline from 2007. Our analysis notes this movement in the numbers but does not dwell on it. We have chosen instead to focus our analysis on what we see as the bigger picture of understanding public attitudes today and their implications for public policymaking and outreach.

Several factors could help explain this overall movement in the survey numbers:

- Perhaps most importantly, the current difficult state of the economy has impacted attitudes on many public issues, including some of those measured on this survey. As the economy improves, we will expect to see the public express more urgency about non-economic priorities again.
- Comparing two survey samples always carries with it some risks and limitations. For example, the 2007 survey sample somewhat over-represented County residents with higher levels of education, which is a demographic group nationally that is known to exhibit greater concern for environmental issues, including water quality. There may be other differences between the two samples that we cannot know. The 2010 sample was carefully balanced to come as close as possible to Census Bureau estimates for Salt Lake County so that it can be viewed on its own with the greatest possible confidence.

Generally-speaking, it is unusual for there to be such a global shift in attitudes as have appeared on a wide range of issues between these two surveys. That lends credence to the idea that externalities such as the two just discussed have contributed to the change. Given these and possibly other factors, we will anchor our analysis in a discussion of current attitudes and their context, and focus less on trends from 2007 so as not to lose the big picture.

4.0 PUBLIC INVOLVEMENT AND COORDINATION

Salt Lake County and the Jordan River Watershed Council (JRWC) accomplishments for this grant between 2008 through 2010 entails:

- 8 Jordan River Watershed Council (JRWC) Meetings
- 3 Salt Lake Countywide Watershed Symposiums, which also serve as a Jordan River Watershed Council Meeting
- 6 *Watershed Watch* Informational Newsletters
- 26 Informational Tabling Events
- Maintained and updated the Salt Lake County Watershed Planning & Restoration Program/JRWC website and JRWC listserv
- 2 Watershed Awareness Assessment Surveys (2007, 2010)

In addition to Salt Lake County published the 2009 Salt Lake Countywide Water Quality Stewardship Plan (WaQSP). As part of the WaQSP development and outreach, Salt Lake County presented information on the Jordan River Watershed and the WaQSP to:

- 37 Community Councils
- 14 municipalities
- 2 public workshops

4.1 State Agencies

Cooperating agencies include the Utah Division of Water Quality (DWQ) who participated in writing articles of the Watershed Watch Newsletter as well as distribution, Jordan River Watershed Council Meetings, Salt Lake Countywide Watershed Symposiums, as well as other educational and outreach events. The Utah Department of Environmental Quality (DEQ) participated in a special Midvale School 4th Grade Educational event. The Utah Department of Natural Resources (DNR) participated in distribution of the Watershed Watch Newsletter, JRWC meetings and the Salt Lake Countywide Watershed Symposium.

4.2 Federal Agencies

The Environmental Protection Agency participated in a special Midvale School 4th Grade Educational event and the Salt Lake Countywide Watershed Symposium.

4.3 Local Governments, Industry, Environmental, and Other Groups, Public at Large

Municipal governments in Salt Lake County as well as local Nonprofit Organizations participated in writing articles and distribution of the Watershed Watch Newsletter, Jordan River Watershed Council Meetings, Salt Lake Countywide Watershed Symposiums, as well as other educational and outreach events.

4.4 Other Sources of Funds

Salt Lake County Watershed Planning and Restoration Program supplied additional funding for the project beyond the original scope of the project.

5.0 ASPECT OF THE PROJECT THAT DID NOT WORK WELL

Although we feel this project has been a great success there, are a few areas we would like to change in hopes of improving the success.

- Tabling and outreach events-Seemed like in the scheme of things did not reach a large and/or broad audience. May try to do a large educational day at the Jordan River and bring in the news crews to advertise the event and therefore educate the viewers on watershed issues. Although this will take significant planning, it will most likely have a better and broader impact.
- There was a lack of attendance at the JRWC meetings. Due to this, we went to all the Community Council meetings to advertise the JRWC, educate the public on

the WaQSP and the Jordan River Watershed. Furthermore, it was decided to have the bigger Salt Lake Countywide Watershed Symposium to bring people together. This has and continues to be a very successful event.

6.0 FUTURE ACTIVITY RECOMMENDATIONS

Due to the success of the capacity building efforts, it is decided to continue the educational and outreach efforts as well as expand on the tabling event ideas. These include:

- Watershed Watch Informational Newsletter
- Salt Lake Countywide Watershed Symposium
- Jordan River Watershed Council Meetings
- Salt Lake County Watershed Planning & Restoration Website
- Salt Lake County Watershed Planning & Restoration/JRWC listserv
- Salt Lake County Watershed Planning & Restoration Website
- Salt Lake County Watershed Planning & Restoration Facebook Page

6.1 Information and Education Outputs

Outputs available from this project include:

- Watershed Watch Newsletters available at http://www.watershed.slco.org/html/watershed_watch.html
- Salt Lake Countywide Watershed Symposium Presentations available at http://www.watershed.slco.org/symposium/index.html
- Educational and outreach pamphlets
- Educational and outreach informational display

Appendix A

2010 Watershed Awareness Survey

Background

Salt Lake County commissioned this public opinion survey of the County's residents to explore attitudes and practices related to watersheds, land use, water quality, public policy, outdoor recreation, and information gathering. The main objective was to determine the effectiveness of public involvement, education, and outreach efforts by the Watershed Planning and Restoration Program, and to provide information to make those efforts more effective.

How This Research Was Conducted

OpinionWorks interviewed a total of 400 randomly-selected adult residents of Salt Lake County by telephone July 8–17, 2010. A sample of this size produces a margin of sampling error of no more than ± 4.9% at a 95% confidence level; in other words, the true results would fall within that range 95% of the time if every adult resident of the County had been interviewed.

The calls were completed from our partner's Salt Lake County-based phone center between the hours of 5:00 and 9:00 p.m. weeknights, 10:00 a.m. and 6:00 p.m. Saturday, and 1:00 and 9:00 p.m. Sunday, Mountain Time. Sampling quotas were set by region of the County based on zip code, and the final survey results were weighted to reflect the adult population of the County according to the latest estimates available from the United States Census Bureau.

Steve Raabe was the project manager of this effort for OpinionWorks and has authored this analysis. The County's team was led by Marian Hubbard and Lynn Berni of the Salt Lake County Watershed Planning & Restoration Program. The survey questionnaire and complete results are found in this report, along with a PowerPoint summary of the findings presented to the Watershed Symposium in August 2010. Our findings follow.

Overview of Findings

This research shows a public that is heavily engaged with the outdoors, and places a high priority on clean water. In a variety of ways in the survey they indicate support for more action by the County to promote watershed health. These are our high-level findings:

- Most County residents see outdoor recreation and leisure as an essential element of their quality of life. Many are getting out into the County's wild areas and urban parks on a frequent basis.
- Residents are not confident about their knowledge of watershed issues, and in fact they demonstrate some lack of specific knowledge. As the most striking example of this, only 13% believe they live in a watershed. The survey reminds us that outreach to residents must be conducted in a non-technical way, appealing instead to the basic priorities and values of residents.
- On balance, the County is environmentally-minded. Care for the environment is a strong personal priority for one-third of County residents, twice as many as say it is a low priority for them. A majority of residents place themselves in the middle of the environmental spectrum.
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- But the economy is a reality, and a near-majority of residents indicate that cost must be taken into account when addressing water quality concerns.
- By almost two-to-one, residents do not believe their own recreational activities are affecting the County's watersheds. This is particularly true of both the strongest environmentalists, and those most antagonistic to environmental concerns. People in the middle are most prone to admit their own impact.
- Most residents believe the County "probably is doing enough to protect our watershed," a number that has risen significantly since 2007. But a solid one-third of residents want the County to take more action.
- In terms of land use, there is strong citizen support for fostering more wildlife habitat, river corridors in their natural condition, and open space and wetlands in the County. A near-majority would like more outdoor recreational opportunities, as well, a number that has risen by double digits since 2007.
- There is solid awareness of water quality concerns in the Jordan River, but only about half of those who are aware of that know that the river is "impaired and a plan is underway to clean it up."
- Large majorities support each of four public policy proposals that would require landowners to maintain and plant new buffer vegetation, set aside natural open space, and make capital improvements to manage runoff. The fact that the public is ready to support these mandatory measures indicates an underlying public will to deal with watershed protection.
- There is strong public support for more funding to deal with watershed protection, as well, with nearly three-quarters saying their would support more funding if the amount was reasonable and County leaders said it was needed. Bonding appears to be the specific funding mechanism that garners the broadest support.
- This survey provides guidance about the subgroups within the overall population that are most receptive to messages and engagement around these issues. Our report identifies the pockets of opportunity for watershed-related messages, as well as the specific media that will deliver those messages most effectively.

Our detailed report follows.

Tracking Changes in Attitudes from 2007

Many questions on this survey were carried forward from a similar survey commissioned by Salt Lake County in 2007. Where questions on the two surveys are directly comparable, those results are tracked from the prior survey and highlighted in our tables or narrative.

As a general observation, nearly all the questions that can be tracked from the prior survey have shown a decline from 2007. Our analysis notes this movement in the numbers but does not dwell on it. We have chosen instead to focus our analysis on what we see as the bigger picture of understanding public attitudes today and their implications for public policymaking and outreach.

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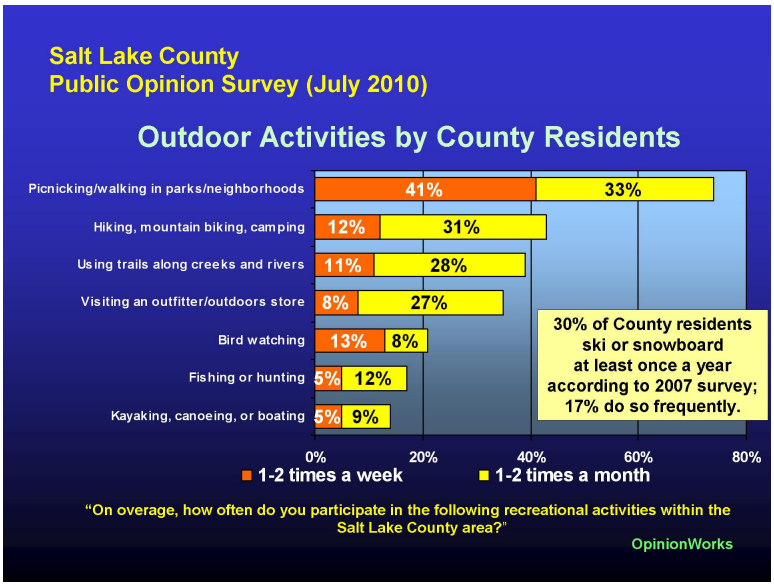
Recreation

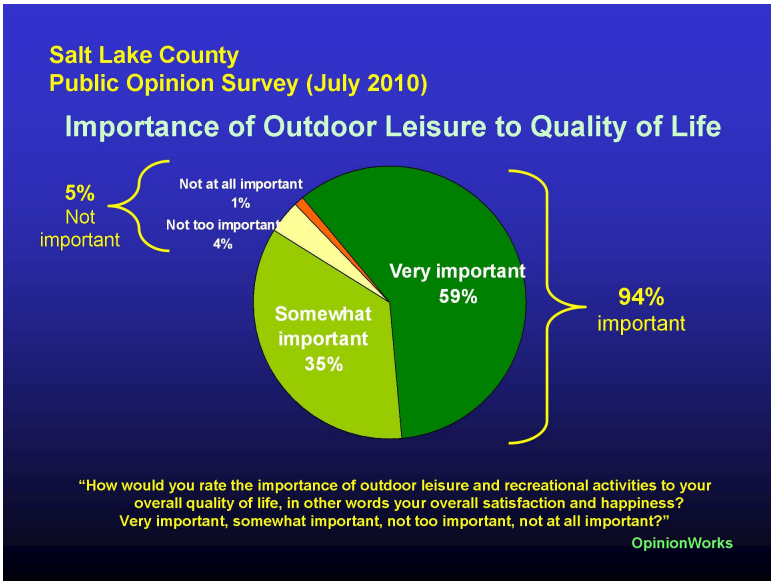
To understand County residents' connection to the outdoors, we explored their outdoor recreational pursuits. We found that Salt Lake County residents engage in a wide variety of outdoor activities. These are summarized in the slide below, which identifies the percentages of residents who engage in each activity on at least a weekly (in orange) or monthly (in yellow) basis.



- Picnicking or walking in parks or neighborhoods is the most common outdoor activity for County residents, with three-quarters taking part at least monthly.
- About four in ten enjoy the canyons and other wild areas of the County through hiking, mountain biking, or camping. A similar number use trails along the County's creeks and rivers on at least a monthly basis.

- About one-third of the public visits an outfitter or an outdoor store monthly, with 8% saying they do so on a *weekly* basis.
- Bird watchers, which this report identifies as a special group more attuned to water quality issues than any other outdoor recreational audience, account for about one in five County residents. The intensity of the activity is indicated by the high proportion of bird watchers who do so weekly – which makes it unique among the activities we measured. Frequent bird watchers are three times as likely to be women as men, skew older, and tend to be moderately-educated and middle income.
- About one adult in six in the County is a monthly hunter or fisherman.
- Lagging behind is boating, including kayaking and canoeing, which captures only 14% of the County's population.

Salt Lake County residents consider outdoor recreation to be central to their "overall quality of life, in other words your overall satisfaction and happiness." Six in ten (59%) said outdoor activity is "very important" in that regard, and 35% said "somewhat important," for a total of 94% of County residents who consider it an important component of quality of life.



Compared to 2007, the overall importance of outdoor recreation is unchanged, though the intensity of importance may have decreased slightly.

Change in Importance of Outdoor Recreation

	2007	2010	Change
Very important	64%	59%	- 5%
Somewhat important	30%	35%	+ 5%
Not too important	4%	4%	*%
Not at all important	1%	1%	*%
(Do not read): No Opinion	1%	*%	*%

"How would you rate the importance of outdoor leisure and recreational activities to your overall quality of life, in other words your overall satisfaction and happiness?" (Read scale.)

Water Knowledge and Priorities

Familiarity with Water Quality Concerns

The public does not have great confidence in its knowledge of water quality concerns. While nearly two-thirds of the County's residents (63%) consider themselves at least somewhat familiar with water quality concerns in local streams and rivers, only a fraction of residents consider themselves "very familiar" with those concerns.

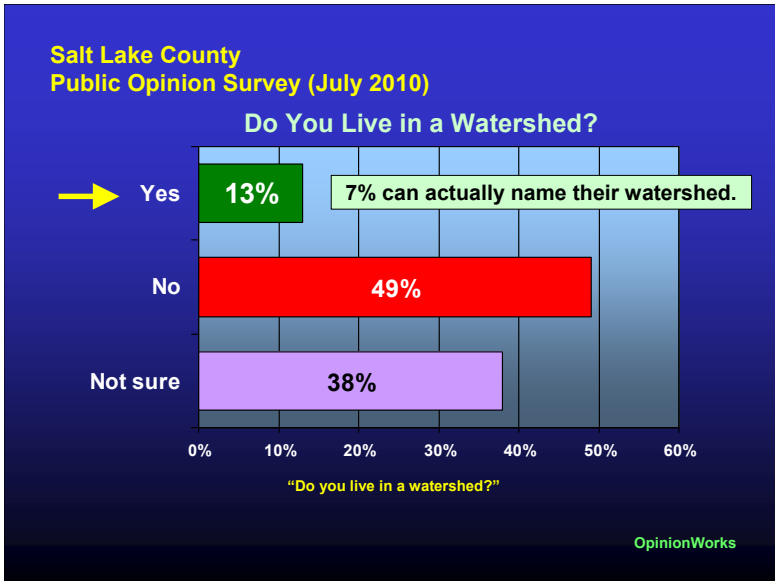
Familiarity with Water Quality Concerns
A Self-Assessment

	2007	2010	Change
Very familiar	11%	12%	+1%
Somewhat familiar	57%	51%	- 6%
Familiar (Total)	***68%***	***63%***	***- 5%***
Not at all familiar	31%	31%	*%
Don't know	1%	6%	+5%

"Are you *(read categories)* with water quality concerns in our streams and rivers in Salt Lake County?"

Citizens, Not Scientists

This lack of confidence in their own knowledge may be borne out by the fact that only 13% of County residents believe they live in a watershed, and only about half of those – amounting to 7% overall – can volunteer the name of a watershed in which they live. This is a striking finding, and a reminder that "watershed," and likely other physical concepts related to water runoff, do not resonate with the public. It is important to connect with them on a less technical, more fundamental level.



In our focus group work elsewhere across the country, we know that many people in the general public associate the term "watershed" with a physical structure located on or near the water. We would anticipate similar misconceptions of the term may be held by residents of Salt Lake County.

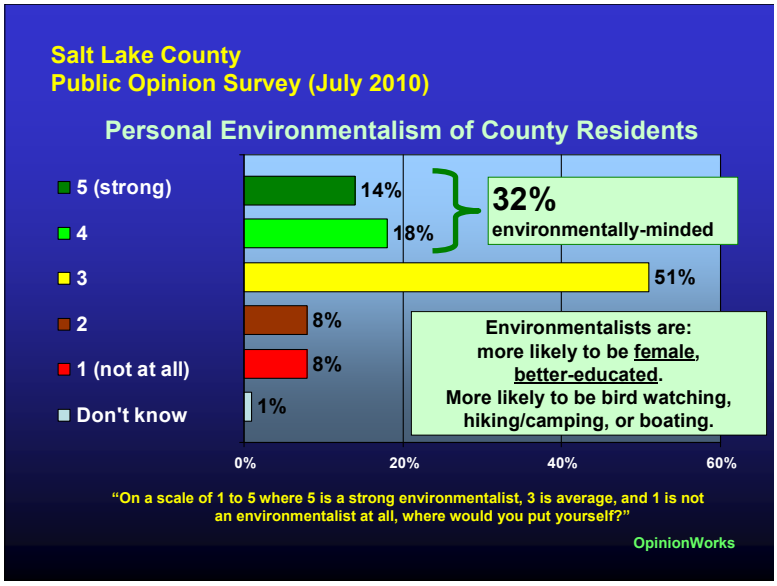
When asked, the 7% of County residents who name a watershed distribute themselves this way:

Jordan/West Jordan/South Jordan	22%
Cottonwood/Little Cottonwood	19%
Wasatch	14%
Mill Creek	11%
Bell's	8%
City Creek	6%
Parley's	6%
Other	14%

(Among those who believe they live in a watershed): "Which one?"

The Environment as a Priority

But environmental protection is a personal priority for many residents. On balance, the County's residents have a positive environmental sensitivity. On a 1 to 5 scale where "5" means "strong environmentalist," more than four out of five residents (83%) rated themselves 3 or higher. One-third (32%) gave themselves a strong rating of 4 or 5.



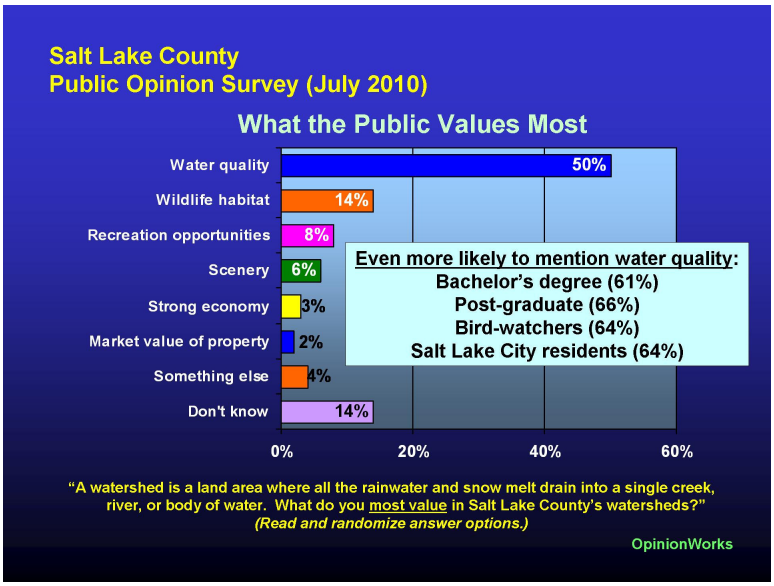
As a measure of what subgroups might be more receptive to environmental messaging:

- Environmentalism is stronger among women (3.37) than among men (3.05).
- Residents with at least a Bachelor's degree (3.34) are somewhat more prone to think of themselves as environmentalists compared to those with less than a college degree (3.16).
- Environmentalism is stronger among residents of Salt Lake City (3.42) than among residents of neighboring areas of the Valley (3.09) or foothills communities including Sandy and Draper (3.22).
- Looking at respondents' recreational habitats, environmentalism is much higher among those who boat (3.60); bird watch (3.56); or hike, bike, or camp (3.55) on at least a monthly basis.

What the Public Values

Residents value water quality above all else in the County's watersheds. When read a list that included water quality along with wildlife habitat, recreation opportunities, scenery, strong economy, market value of property, "or something else," 50% of residents said they value water quality most of all. Next on the list was wildlife habitat, which was well back at 14%, with the others in single digits.

Water quality is more widely valued by better-educated residents, bird watchers, and residents of Salt Lake City, as reflected in the slide below.



There is very little change in these numbers from the 2007 survey:

Change in What Residents Value

	2007	2010	Change
Water quality	51%	50%	- 1%
Wildlife habitat	13%	14%	+1%
Recreation opportunities	10%	8%	- 2%
Scenery	8%	6%	- 2%
Strong economy	2%	3%	+1%
Market value of property	4%	2%	- 2%
Something else	9%	4%	- 5%
Don't know	3%	14%	+ 11%

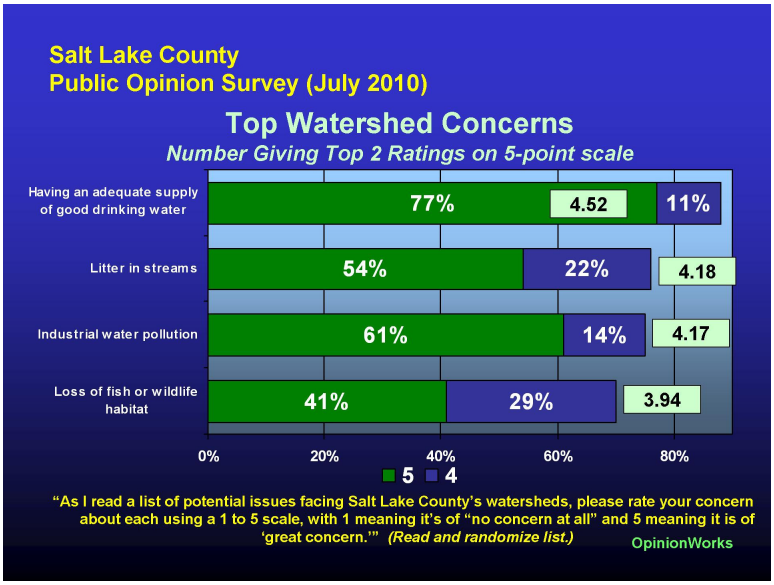
"A watershed is a land area where all the rainwater and snow melt drain into a single creek, river, or body of water. What do you most value in Salt Lake County's watersheds?"

Watershed Concerns

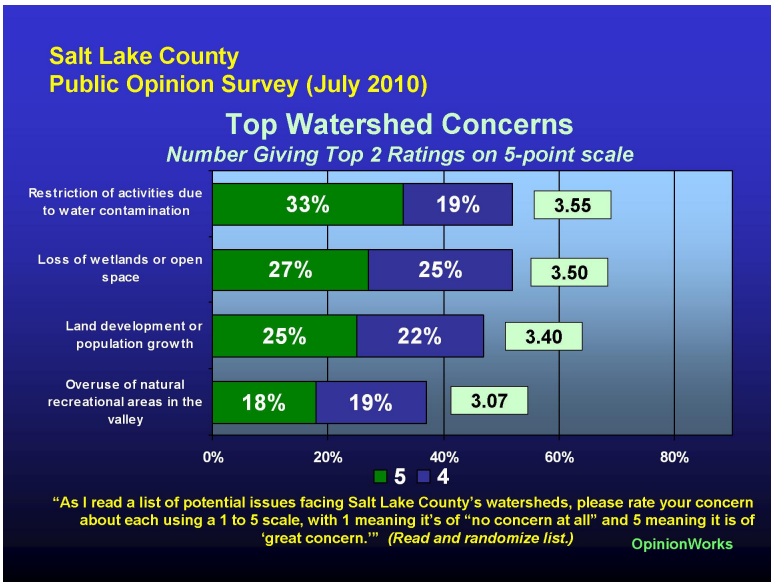
Testing public concern for "potential issues facing Salt Lake County's watersheds," water quality again rises to the top of the list. By far the leading concern of residents is "having an adequate supply of good drinking water," which three-quarters (77%) of residents gave the highest

possible rating on the scale – a "5," which means "of great concern." Across all respondents, the average rating for drinking water was 4.52 on that five-point scale.

"Litter in streams" (4.18) and "industrial water pollution" (4.17) are next, with over half of residents giving these two concerns the top rating of "5." "Loss of fish or wildlife habitat" (3.94) lags somewhat behind, but must be classified as a strong concern with 70% rating it "4" or "5.".



Recreational and open space or urban sprawl concerns are in a lower tier, as reflected in the slide below.



A key element of making future outreach more effective is understanding who is already tuned in and expressing greater concern about watershed protection. Those subgroups within the County will be more attuned to watershed protection messaging, and more easily engaged in the work of educating others and taking positive stewardship actions themselves. Across this list of eight issues there is remarkable consistency on who is more concerned:

- On every question, women are more concerned than men by a margin ranging from one-quarter to about two-thirds of a point.
- Long-time County residents – whether the dividing line is 20 or 40 years – are markedly more concerned than newer residents across this range of issues.
- People who frequently pick up pamphlets or newsletters have elevated concerns above others, particularly in the areas of drinking water, habitat, loss of open space, and overuse of natural recreational areas.
- Though not pulled out in this table, bird watchers are a unique recreational group that have more concern about many of these issues than do others.

Targeting Messages to Those with the Greatest Concern

	Gender		Length of County Residency			Read Pam-phlets
	Women	Men	41+ Years	20-40 Years	<20 Years	
Having an adequate supply of good drinking water	**4.78**	4.26	**4.63**	4.55	4.35	**4.91**
Litter in streams	**4.35**	4.00	**4.46**	4.18	3.87	**4.18**
Industrial water pollution	**4.46**	3.88	**4.38**	4.17	3.93	**4.56**
Loss of fish or wildlife habitat	**4.25**	3.63	**4.03**	**4.01**	3.69	**4.35**
Restriction of activities due to water contamination	**3.67**	3.43	**3.70**	3.59	3.42	**3.69**
Loss of wetlands or open space	**3.71**	3.29	**3.61**	**3.68**	3.25	**4.10**
Land development or population growth	**3.60**	3.21	**3.74**	3.34	3.07	**3.53**
Overuse of natural recreational areas in the valley	**3.18**	2.96	**3.33**	2.92	3.09	**3.63**

Though all these concerns measured lower in 2010 than in 2007, there is a difference in the *amount* of change. Habitat, drinking water, litter, and open space decreased the least – in the range of one-quarter point. The others decreased approximately four-tenths of a point or more, with the greatest change measured in overuse of natural recreation areas in the Valley.

Comparing Change in Watershed Concerns

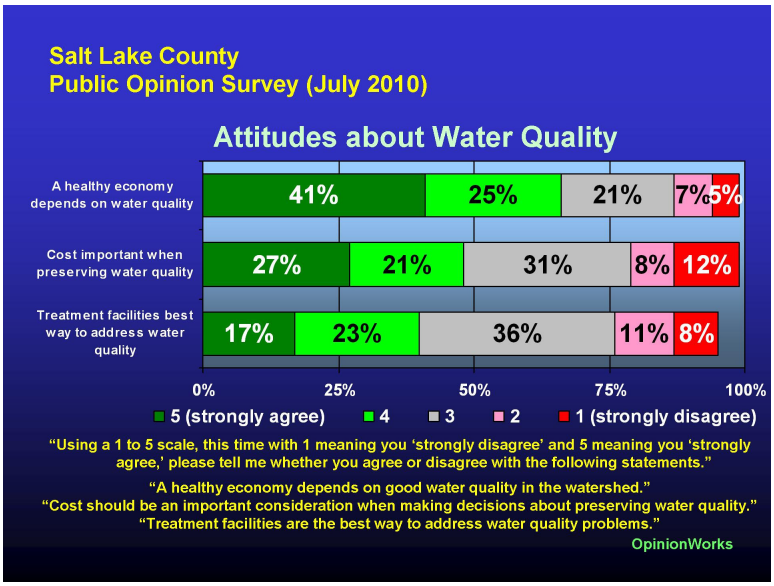
	2007 Mean	2010 Mean	Change
Loss of fish or wildlife habitat	4.14	3.94	- .20
Having an adequate supply of good drinking water	4.78	4.52	- .26
Litter in streams	4.45	4.18	- .27
Loss of wetlands or open space	3.77	3.50	- .27
Restriction of activities due to water contamination	3.94	3.55	- .39
Land development or population growth	3.84	3.40	- .44
Industrial water pollution	4.61	4.17	- .44
Overuse of natural recreational areas in the valley	3.72	3.07	- .65

"As I read a list of potential issues facing Salt Lake County's watersheds, please rate your concern about each using a 1 to 5 scale, with 1 meaning it's of 'no concern at all' and 5 meaning it is of 'great concern.'"

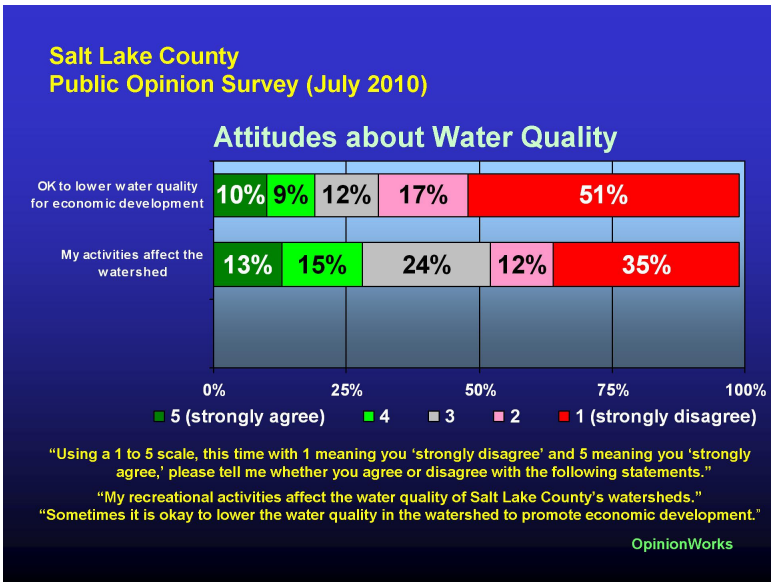
Attitudes about Water Quality

We tested residents' underlying attitudes about water quality through the classic five-point scale, ranging from strongly agree to strongly disagree. Those results are summarized below.

- Two-thirds of residents (66%) agree that "a healthy economy depends on good water quality in the watershed." Forty-one percent (41%) *strongly* agree. Only 12% disagree. At least as far as water quality is concerned, the old tradeoff of jobs vs. the environment does not resonate with Salt Lake County residents.



- Nearly half (48%) believe that "cost should be an important consideration when making decisions about water quality," while 20% do not believe it should be a consideration. On this question, there is a strong correlation with age, with residents increasingly believing that cost should be taken into consideration as they age.
- Forty percent (40%) think that "treatment facilities are the best way to address water quality concerns," while 18% disagree. Disagreement is higher among more environmentally-minded residents and among younger residents.
- Despite the struggling economy, 68% disagree with the idea "sometimes it is okay to lower the water quality in the watershed to promote economic development," which is summarized in the slide on the following page. A clear majority (51%) strongly disagree with this idea. Only 19% agree. This idea tracks strongly with education, with more educated residents much more likely to disagree.
- As is often the case, people are not inclined to see their own activities as having a negative impact on water quality. In this case, nearly twice as many disagree (47%) as agree (28%) with the idea "my recreational activities affect the water quality of Salt Lake County's watersheds." Here, an unusual phenomenon exists, with people in the middle of the environmental spectrum thinking they have the greatest impact on water quality, while a majority of both the most-committed and the weakest environmentalists *strongly* disagree that they are having an impact. The same phenomenon exists with education, with the most and least educated feeling they have little impact, while those in the middle are more likely to admit an impact.



Compared to 2007, the two economic concepts on the list have changed the most, with more residents today saying cost and economic considerations should be taken into account. Compared to some indicators on the survey, the other three concepts have moved relatively little.

Comparing Change in Water Quality Attitudes

	2007 Mean	2010 Mean	Change
OK to lower water quality to promote economic development	1.67	2.10	+ .43
Cost should be important consideration in water quality	3.02	3.43	+ .41
Healthy economy depends on good water quality	4.07	3.91	- .16
Treatment facilities best way to address water problems	3.42	3.32	- .10
My activities affect the quality of the watersheds	2.64	2.57	- .07

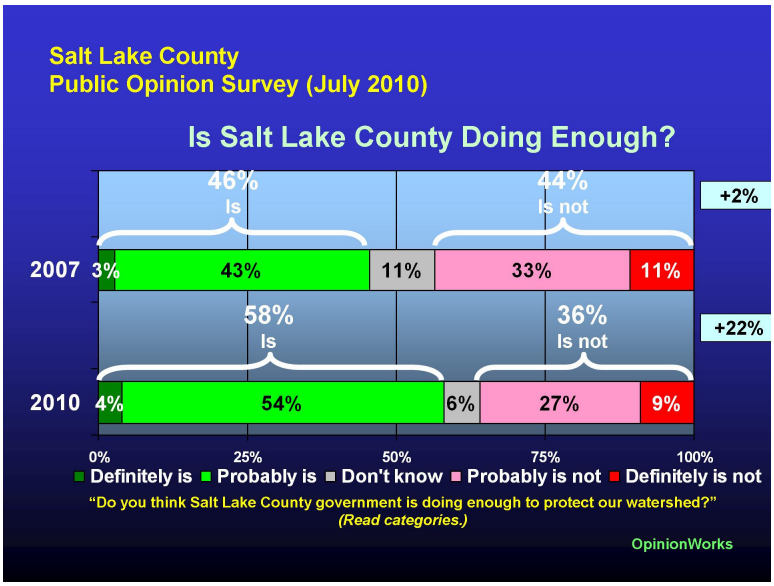
"Using a 1 to 5 scale, this time with 1 meaning you 'strongly disagree' and 5 meaning you 'strongly agree,' please tell me whether you agree or disagree with the following statements."

The County's Commitment

By a 22-point margin, residents believe the Salt Lake County government "is doing enough to protect our watershed."

- Four percent (4%) said the County "definitely is" doing enough today, and 54% said it "probably is" doing enough, for a total of 58% who feel positively about the County's efforts.
- Meanwhile, 9% said the County "definitely is not" and 27% said it "probably is not" doing enough.
- Whichever side of the question a person is on, it is noteworthy that most place themselves in the "probably" as opposed to the "definitely" category.

Overall, these numbers represent a significant shift from 2007, when the number who thought the County was doing enough was only two points greater than those who thought it was not doing enough.



There are significant differences in how this question is viewed based on demographics, as summarized in the following table.

- There is an enormous 45-point gender gap on this question, with women much more inclined to want more action from the County.
- Though not as big, there is also a significant gap in attitudes between residents under and over the age of 50, with older residents much more satisfied with the County's efforts.
- The more educated a person is, the more likely to feel the County is doing enough to protect local watersheds.

Is the County Doing Enough?

	Gender		Age		Education		
	Women	Men	< 50	50 +	HS or Less	College	Grad Work
Is	46%	69%	54%	67%	47%	62%	77%
Is not	46%	24%	41%	25%	48%	30%	19%
Net	*%	+45%	+13%	+42%	-1%	+32%	+58%

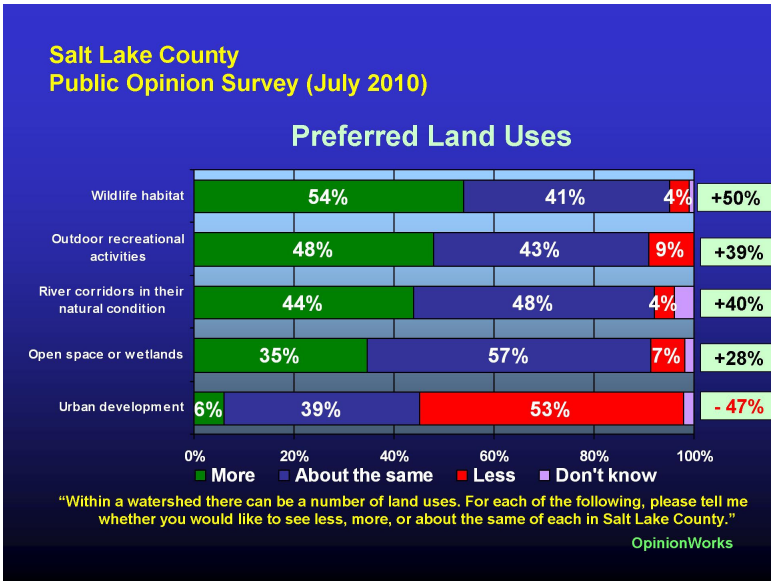
"Do you think Salt Lake County government is doing enough to protect our watershed?"
(Read categories.)

Land-Use Priorities

In terms of land use preferences, large numbers would like to see more wildlife habitat, outdoor recreational activities, river corridors in their natural condition, and open space or wetlands. Meanwhile, a majority of Salt Lake County residents would like to see *less* urban development.

- Fifty-four percent (54%) would like to see more wildlife habitat in the County, while 41% are satisfied with the amount of habitat and only 4% would like to see less.
- Near-majorities would like to see more outdoor recreational activities (48%) and river corridors in their natural condition (44%), while single digits in both cases would like less of those. Larger numbers of renters and younger and less-educated residents in particular want access to more outdoor recreational activities.

- On balance there is support for more open space or wetlands (35% more vs. 7%) less, though the numbers are not as strong as for the other land use priorities.
- There appears to be significant anti-growth sentiment in the County, with 53% wanting less urban development and only 6% wanting more.



Comparing residents' land use preferences in 2007 and 2010, demand for outdoor recreational activities has moved significantly against the overall trend. In 2010, the number who want more outdoor recreational opportunities is 13 points higher than it was three years ago. The desire for wildlife habitat has marginally increased, as well (3 point higher). Meanwhile, the other three preferences have declined by eight to eleven points.

Comparing Change in Land Use Preferences

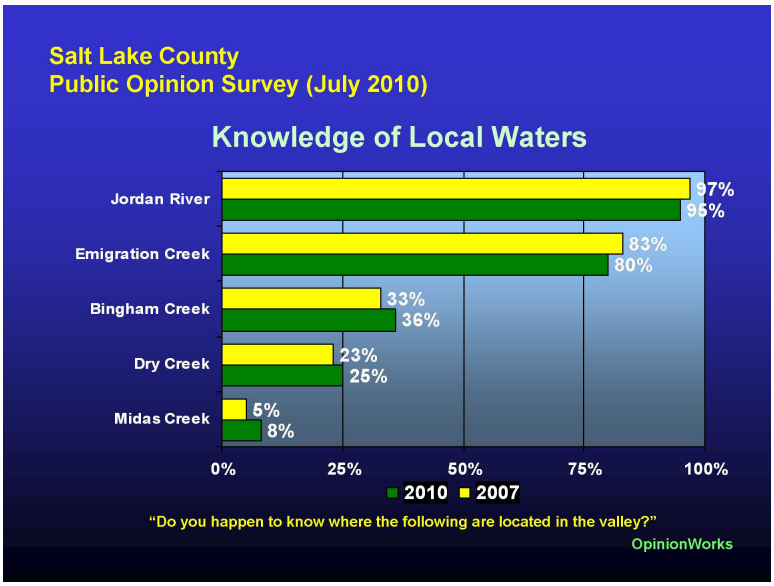
	2007 "More"	2010 "More"	Change
Outdoor recreational activities	35%	48%	+13%
Wildlife habitat	51%	54%	+3%
Open space or wetlands	43%	35%	- 8%
River corridors in their natural condition	52%	44%	- 8%
Urban development ("Less")	64%	53%	- 11%

"Within a watershed there can be a number of land uses. For each of the following, please tell me whether you would like to see less, more, or about the same of each in Salt Lake County."

Creeks and Rivers

Awareness of local creeks is highly stratified and has changed little since 2007.

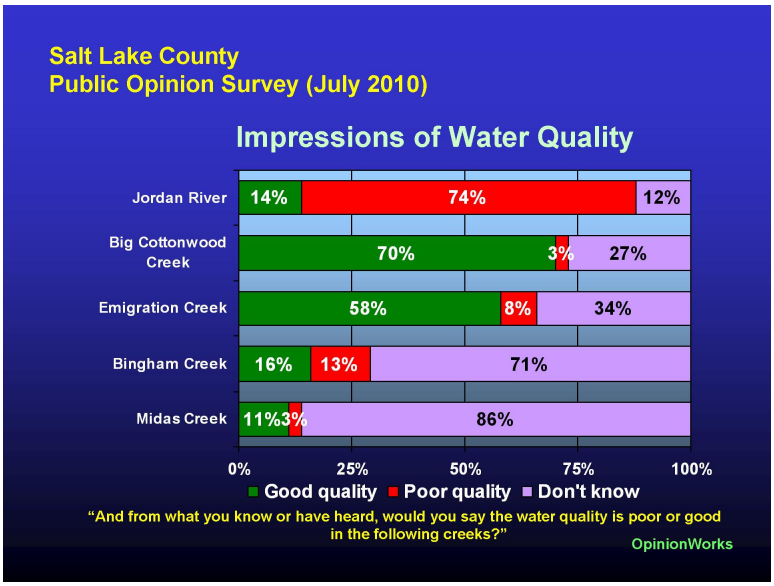
- Nearly all residents (95%) know the location of the Jordan River.
- Emigration Creek is also well-known at 80%, an insignificant three points lower than its recognition level in 2007.
- Three lesser-known creeks, Bingham Creek (36%), Dry Creek (26%), and Midas Creek (8%), have all ticked upward by two to three points – also an insignificant change.



Residents are highly aware of water quality concerns in the Jordan River, with 74% saying the water quality is poor. Fourteen percent (14%) said the water quality in the Jordan River is good, and 12% said they did not know enough to comment.

Awareness of water quality in the other creeks varies greatly and is generally positive, except in the case of Bingham Creek:

- Big Cottonwood Creek is thought to have very good water quality, with 70% saying good and 3% saying poor.
- Emigration Creek is thought to have good water quality by a margin of 58% to 8%.
- The impression of Bingham Creek, though less-known, is nearly evenly divided at 16% good quality to 13% poor quality.
- Midas Creek is the least known of those we tested and earned a nearly four-to-one positive rating (11% to 3%) from those who know it.



For all five waterways we tested, impressions of water quality have changed very little since 2007, as summarized in the following table.

Change in Impression of Poor Quality

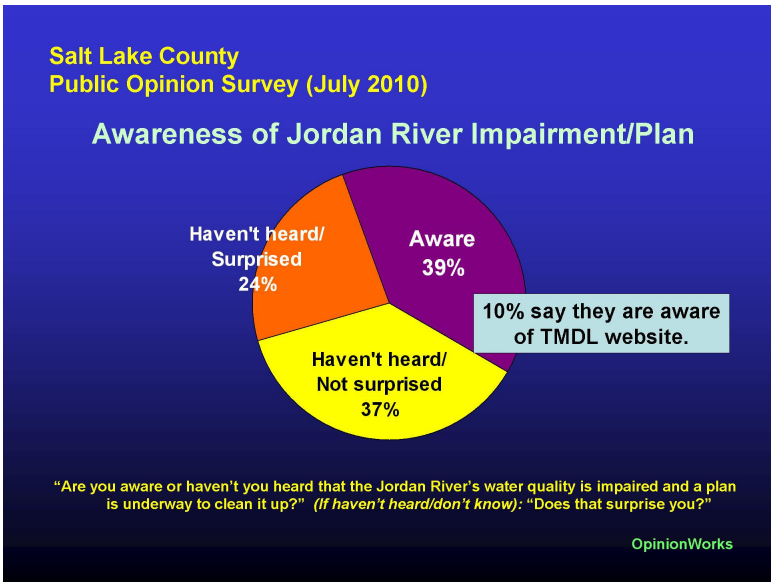
	2007 "Poor"	2010 "Poor"	Change
Jordan River	76%	74%	- 2%
Big Cottonwood Creek	5%	3%	- 2%
Emigration Creek	7%	8%	+ 1%
Bingham Creek	16%	13%	- 3%
Midas Creek	5%	3%	- 2%

"And from what you know or have heard, would you say the water quality is poor or good in the following creeks?"

About four in ten (39%) said they were aware that the Jordan River's water quality is "impaired and a plan is underway to clean it up." Another 37% said they were not aware of that but are not surprised. Taken together, those numbers total 76%, or nearly the same number that assessed the river's water quality as "poor."

Those who are surprised to hear about the impairment and cleanup plan are much more likely to be younger and less educated.

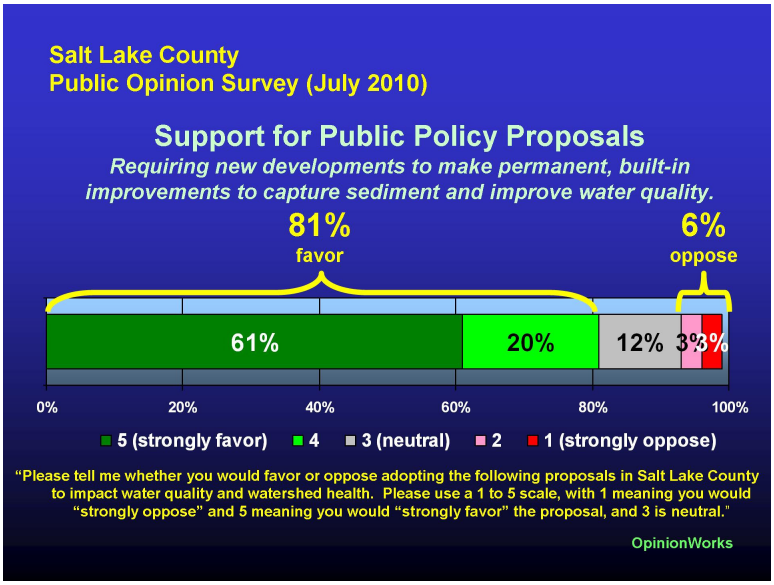
Overall, 10% of residents said they were aware that there is "an official website to give the public information about the Jordan River cleanup."



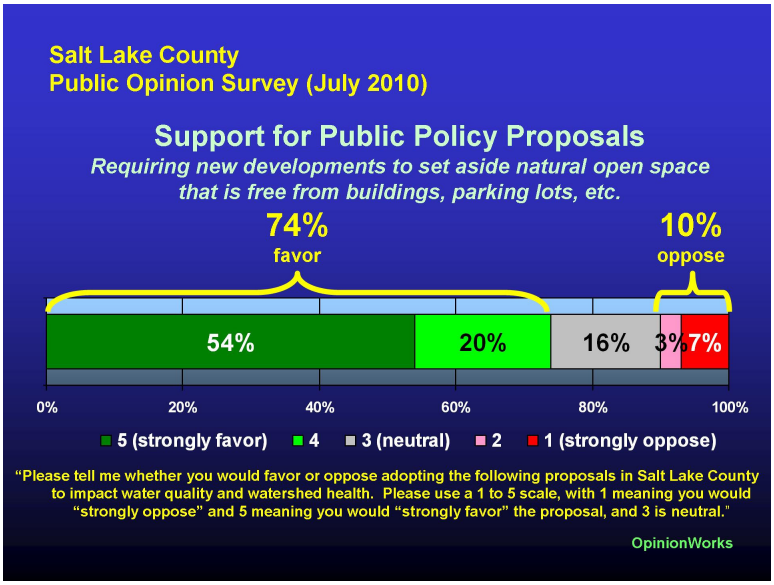
Public Policy

We tested support for four specific public policy ideas that could impact water quality. These proposals all represent new mandatory, not voluntary, measures to help reduce and better manage runoff. As mandatory measures, their support signals a public will to tackle the challenge of watershed health through strong measures. These proposals would require capital improvements, set-aside of open space, and buffer plantings or maintenance to help reduce runoff. Each one is summarized in turn in the following slides.

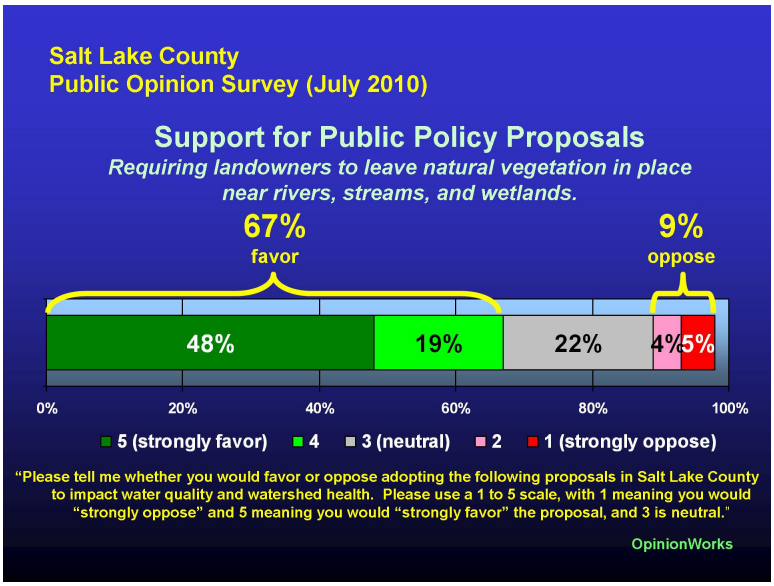
An overwhelming 81% would support "requiring new developments to make permanent, built-in improvements to capture sediment and improve water quality." Only 6% would oppose this proposal.



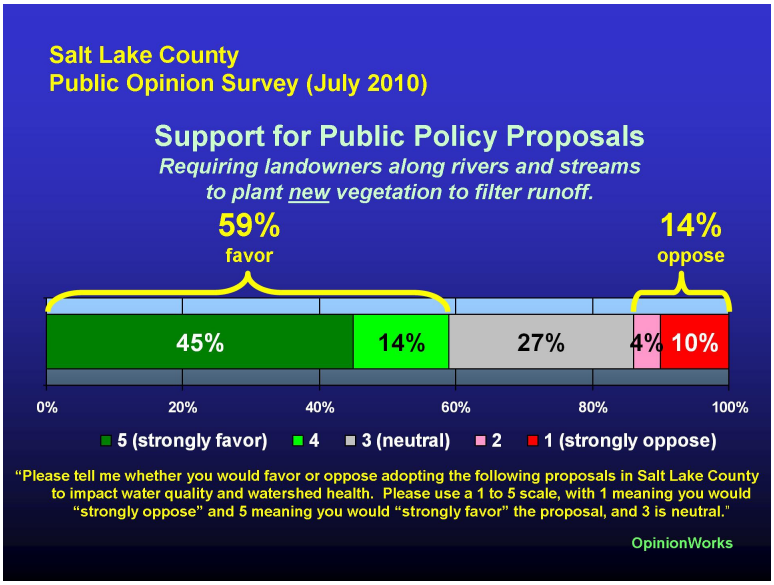
Three-quarters of residents (74%) support "Requiring new developments to set aside natural open space that is free from buildings, parking lots, etc."



Two-thirds of residents support the concept of maintaining streamside and wetland planting, "Requiring landowners to leave natural vegetation in place near rivers, streams, and wetlands."

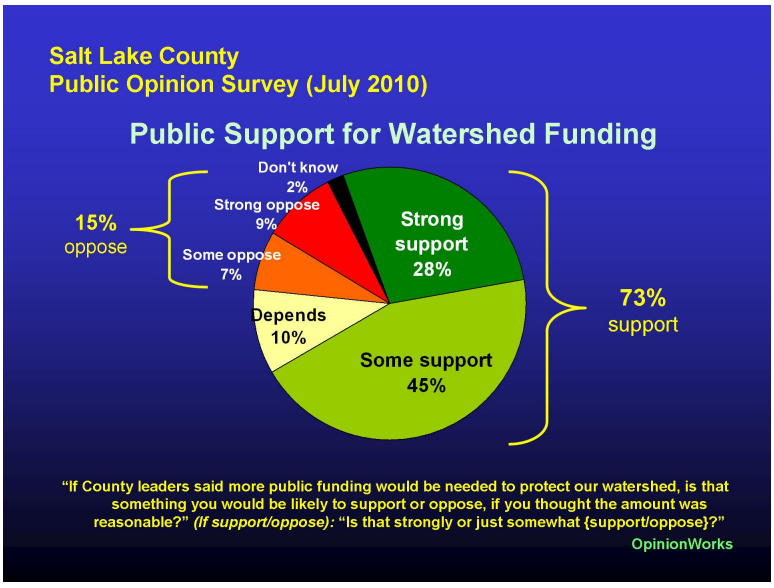


A solid majority of nearly six in ten (59%) support the more intrusive measure of "Requiring landowners along rivers and streams to plant *new* vegetation to filter runoff."



Funding

Three-quarters of Salt Lake County residents (73%) support more public funding for watershed protection, compared to only 15% who oppose that. Their support is conditioned on the idea that "the amount was reasonable," and that "County leaders said more public funding would be needed to protect our watershed." Slightly more than one-quarter of the public (28%) described their support for more funding as "strong."

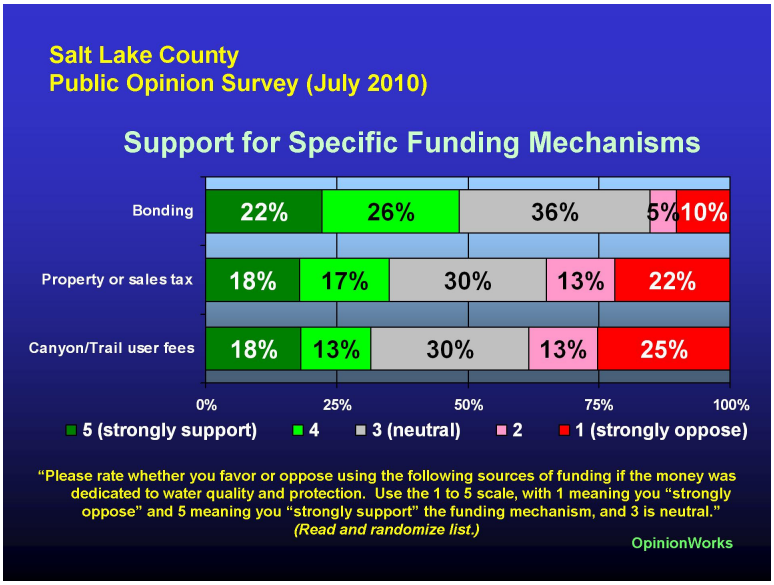


Specific Funding Mechanisms

Testing specific funding mechanisms, the Salt Lake County public is most prone to support "bonding for a set amount of money to support watershed protection."

- Support for bonding is approximately three-to-one, with 48% supporting it and 15% opposing it. The balance (36%) said they are "neutral."
- "A small property or sales tax increase for watershed protection" splits the public, with 35% in support, and 35% opposed, and the balance saying they are neutral.
- "Fees for using any of the canyons and trails in the County" received the least support of the three we tested, with 31% in support and 38% opposed.
- Support for a sales or property tax increase or a user fee for the County's canyons and trails both track closely with one's own sense of environmentalism. But the bonding proposal tends to cut across those philosophical fault lines in the community and achieve more broad-based support.

None of these measures surpasses 40% in opposition. Taken together with the prior result that shows 73% support watershed protection funding in principle, the challenge becomes finding the *specific* funding mechanism that will achieve public support.



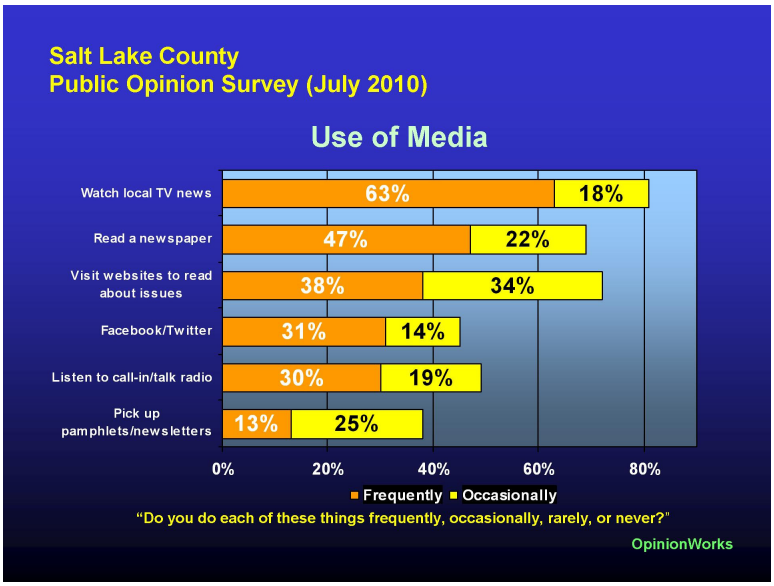
Information Gathering

As a clue to implementing the County's outreach on watershed issues, we asked people how frequently they use various local media. Of particular interest, of course, are the emerging use of online and social media, and the penetration of the more traditional newspapers and broadcast media. Also of great interest is the penetration and influence of printed pamphlets that County agencies have typically produced and distributed.

- Local television news remains the leading source of information in the County. Nearly two-thirds of residents said they watch local news "frequently," and another 18% "occasionally." Frequent television news views skew slightly female and older, with a heavy penetration

among the senior population. They tend to be slightly less sensitive to environmental concerns as a group than is the general population of the County.

- Frequent newspaper readers are a smaller group, accounting for 47% of the population, with another 22% reading newspapers occasionally. Like local TV news viewers, newspaper readers skew older, but they are much more educated on average.
- Those who use websites "to read about issues you care about" are numerous, amounting to three-quarters of the public, and 38% frequently. These consumers skew high on the educational and income scales, and are more heavily-focused in the 35-64 age bracket.
- Meanwhile, users of Facebook and Twitter now amount to almost half of the County's population. They are a much younger audience, moderately educated and of middle income. These media are an effective way to reach the newer residents of the County, where they penetrate much more deeply. People who are actively engaged in fishing or hunting, boating, or using trails are all more than half again as likely as others to be frequent users of Facebook and Twitter.
- Call-in and talk radio, which reaches about one-third of the County on a frequent basis, appears to be the best way to reach people who are environmental antagonists. This is a better-educated audience with a concentration of listeners in the 35-49 age group.
- Pamphlets and newsletters left at libraries and other public places reach women almost three times as frequently as men. They are more likely to fall in the 35-49 age group and have moderate income. This is an effective way to reach renters. Of all the media we tested, this method zeroes in on people with the highest environmental sensitivity.



Appendix B

Watershed Watch Newsletter Example

the Watershed Watch

Newsletter of the Jordan River Watershed Council Fall 2011, Volume 9

Mission: The Jordan River Watershed Council is dedicated to the ecological and economic sustainability of the Salt Lake Countywide Watershed through the promotion of stakeholder involvement.

In This Issue

New & Noteworthy

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Questions? Comments?

Contact us at (801) 468-2711
www.watershed.slco.org

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Watershed Planning & Restoration Program
2001 S. State St., N3100
Salt Lake City, UT 84190

Beautify, Protect, Conserve...Oh My!

Using Bioretention Gardens to Minimize Stormwater Impacts

by Watershed Planning & Restoration Program Staff

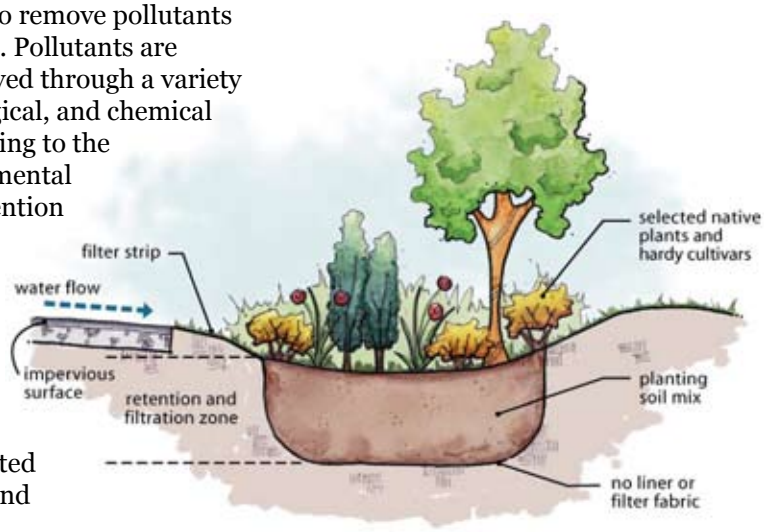
Low Impact Development (LID) is an ecological approach to stormwater management that keeps—and treats—stormwater onsite by preserving and creating natural landscape features that mimic pre-development hydrology. Typically, these are small, cost effective landscape features used on sites with 5 acres or less of drainage area. Almost all aspects of the urban environment have the potential to function as components of a Low Impact Development: roofs (by including green roofs), parking lots and sidewalks (by installing porous pavements), medians and streetscapes (by incorporating bioretention areas).

Bioretention areas are essentially soil and plant-based filtration devices. Also called infiltration gardens, these landscape areas are designed to collect stormwater runoff (rain, snowmelt, etc.) and filter it back into soils and groundwater onsite (rather than letting it go down the stormdrain). Bioretention areas can also be designed to remove pollutants from runoff water. Pollutants are treated and removed through a variety of physical, biological, and chemical processes. According to the EPA, the environmental benefits of bioretention include reduced flooding, improved water quality, natural habitat, reduced urban heat effect, improved air quality, mitigated global warming, and increased groundwater recharge. There are some constraints with bioretention areas that should be taken into consideration. Bioretention can be used in many different climates; however, in arid and semi-arid regions like Utah, limited water supply must be taken into consideration. Perhaps the most important consideration is plant selection. In Utah, plants that can sustain long periods of drought in the summer as well as cold winters and snowfall must be chosen. Some examples of plants recommended for use in Salt Lake City include Mountain

continued on page 2

Photo: Curtis Hinman

Bioretention gardens are designed to collect, use and treat stormwater in urban and residential settings.



Graphic: ABHL Engineering

BIORETENTION
continued from cover

mahogany (*Cercocarpus ledifolius*), Silver or White sagebrush (*Artemisia cana*), Saltbrush (*Atriplex gardeneri*), Idaho fescue (*Festuca idahoensis*), Baltic rush (*Juncus balticus*), Greenmolly (*Kochia americana*), Saltgrass (*Distichlis stricta*), Fireweed (*Epilobium angustifolium*) California poppy (*Eschscholzia californica*), and tulips (*Tulipia sp.*) (Houdeshel, C.D. and Pomeroy C.A., "Plant Selection for bioretention in the Arid West" ASCE, 2010). Another obstacle to success of bioretention areas can be maintenance. The vegetation has to remain in good condition in order for bioretention to function properly, which includes making sure the vegetation is given ample time to become established, typically a two-year period.

Local Applications

An infiltration garden has been installed on the University of Utah Campus at the southeast corner of the Civil and Material Engineering building as part of the Sustainable Campus Initiative Fund. Completed in 2010, the goal of this research project is to monitor hydrology over a period of one year to determine how well the bioretention is functioning, with the hopes that more cells can be installed around campus and the state of Utah. Bioretention gardens could facilitate the University's goal of becoming water-neutral by managing stormwater as a resource to sustain landscaping *and* reduce harmful stormwater runoff.

Many homeowners have opted to utilize bioretention in the form of rain gardens on their property to help manage stormwater onsite. Shallow depressions where water naturally collects are ideal locations. This is an effective, inexpensive, and beautiful way to improve water quality while enhancing natural habitat for beneficial insects and wildlife. Check out these websites for more information on using bioretention at your home:

- Rain garden "how-to" manual *www.dnr.state.wi.us/org/water/wm/dsfm/shore/documents/rgmanual.pdf*
- Design guide for homeowners *www.nemo.uconn.edu/publications/rain_garden_broch.pdf*
- Construction costs for rain gardens *www.werf.org/bmpcost* □

What looks like a typical commercial landscape is actually a bioretention garden that collects and uses stormwater runoff at the University of Utah's Civil & Material Engineering building. Soil moisture meters (right) are used to monitor effectiveness, with the goal of installing bioretention gardens campus-wide.

What's up with the Jordan River? Utah Division of Water Quality Update

by Hilary Arens, Division of Water Quality

The Division of Water Quality has been busy making progress on a number of Total Maximum Daily Load (TMDL) water quality studies this summer. The *Upper Emigration Creek TMDL for E. coli* (a bacteria found in the intestines of animals) has gone through a stakeholder and public review process and will be submitted to EPA this fall. Lower Emigration Creek, below Rotary Park, will be a focus for the next stage of this TMDL.

The *Jordan River TMDL for Dissolved Oxygen (DO)* has gone through numerous drafts by our Technical Advisory Committee and stakeholders. A water quality model has been calibrated and validated that identifies organic matter (OM) as the pollutant with highest influence on DO in the Jordan River. As OM (grass clippings, leaves, etc.) decays it uses up oxygen in the water. Reduced DO has serious impacts on fish and other aquatic organisms that need oxygen to survive. The model indicates that a 38% reduction in OM is needed to achieve the water quality standard for DO. Future studies will be conducted to determine OM origins and pathways, so implementation efforts can target the best actions to improve water quality in the lower Jordan River. The 60-day public review process for the *Jordan River TMDL for DO* will occur this fall, and the Division of Water Quality encourages everyone in the watershed to review and comment. The report is available online at *www.waterquality.utah.gov/TMDL/JORDAN/index.htm*.

If you have any questions please contact Hilary Arens at the Division of Water Quality, hilaryarens@utah.gov or (801) 536-4332. □

Parley's Creek Restoration Project

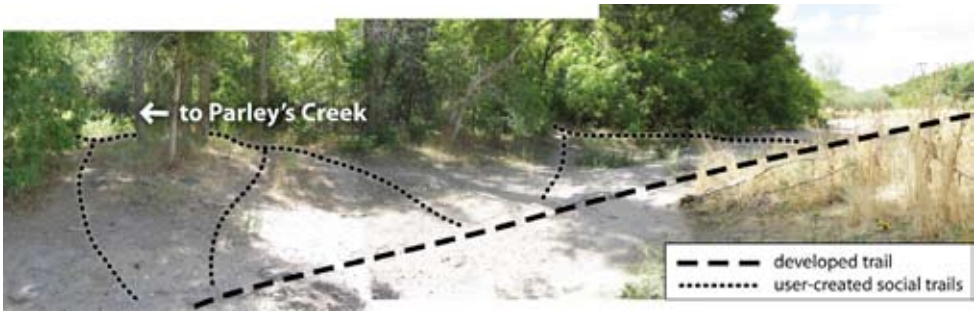
Improving Water Quality, Habitat, and Aesthetics in Parley's Historic Nature Park

by Merritt Frey, River Network

There has been a lot of controversy about practically everything related to Parley's Historic Nature Park. But there is one thing everyone seems to agree on: the importance of protecting and restoring Parley's Creek.

Parley's Creek begins on the steep slopes of the Wasatch Mountains. Just as it crosses from the mountains to the valley, it enters Parley's Historic Nature Park—one of the largest open spaces remaining in the Salt Lake valley. This park is home to the stretch of Parley's Creek most easily accessed by local residents. And while the popularity of the area has had an impact on creek habitat, it remains "one of the most intact ecosystems and one of the most natural contiguous riparian corridors in city boundaries." (Salt Lake City, Parley's Historic Nature Park, Comprehensive Use Plan. Draft 8/30/09). In fact, the creek supports the Bonneville Cutthroat Trout, a native trout species thought to be extinct as recently as the 1970s. Yet the park stretch of creek is suffering from both heavy park use and upstream activities. The creek is identified by the state as impaired, and problems include erosion, invasive species, alteration activities in the stream itself, trash and construction debris, and other issues. Most dramatically, fish kills from illegal dumping and spills have harmed the native fish and caused public concern.

Starting this fall, a creek restoration project will take place along the park stretch of Parley's Creek. This project represents a partnership between Salt Lake City, Salt Lake County, and River Network, and will incorporate input and hands-on work from many others. Improvements will focus on directing user traffic away from sensitive riparian areas, removing invasive species and planting native riparian plants, stream bank stabilization and reinforcing the remaining creek access points. The restoration project will use the new park management plan as its starting point, but the project is not about on-leash or off-leash issues. Rather, it is about how to best manage the sensitive areas along the river to improve water quality, wildlife and fish habitat, and aesthetics given the incredible popularity of the park. The restoration plan will be designed to work within whatever parameters the political and social discussions with stakeholders, elected officials and others have decided about the park's future.



The stretch of Parley's Creek running through Parley's Historic Nature Park is well loved and well used, but this has come at a price. Heavy use has trampled riparian (streamside) vegetation, leaving many areas completely bare. This leads to erosion and water quality problems, as well as loss of riparian habitat for animals.

The restoration project will also be featured as a national "Learning Lab" project through River Network. This "Lab" will highlight challenges and rewards as the Salt Lake valley community works together in an area filled with controversy, but also filled with opportunities for creative solutions. To learn more visit: *www.rivernetwork.org/blog/habitat/learning-labs/parleys* □

the real scoop on dog poop...

No one likes seeing or smelling dog poop, but did you know that unscooped poop presents serious issues for water quality and human health? Here are some facts:

what's the problem?

- Dog waste can transmit bacteria and viruses to humans and other animals, including tapeworm, roundworm, *E. Coli*, giardia, salmonella, and more.
- 4 out of 10 U.S. households have at least one dog, and 4 out of 10 of those dog owners don't pick up after their dogs. Gross.
- Unscooped poop in yards, fields, and sidewalks gets into our lakes, streams and rivers, even into groundwater. Swimming anyone?
- Nutrients in dog waste cause excess algae in lakes and streams. This limits light available to aquatic plants. And, as algae decays it uses up oxygen needed by fish.
- Dog waste should NEVER be used as fertilizer.

what you can do!

- Stoop and scoop that poop.
- Always bring baggies when you walk your dog (plus extras to share).
- Seal the bag and toss it in the trash.

Highlights from 5th Annual Watershed Symposium!

by Watershed Planning & Restoration Program Staff

This year marked the 5th Annual Salt Lake Countywide Watershed Symposium, quite a milestone for the Salt Lake County Watershed Planning and Restoration Program. For five years now Watershed Planning has provided a forum where professionals and citizens could engage in water-related discussions and experience the Jordan River and other restoration sites firsthand on field trips.

This year the Symposium featured 16 presentations, one workshop, four field trips and one thought-provoking panel discussion which focused on planning and water resource issues along the Wasatch Front. The Keynote Speech was delivered by Laura Hanson, Executive Director of the Jordan River Commission. It was extraordinary to see that in one year since the signing of the Jordan River Commission (which took place at the 2010 Symposium) this organization has already reached across jurisdictional boundaries for the betterment of the Jordan River.

The Watershed Symposium would not be possible without the support of Utah Division of Water Quality, Salt Lake County, and most importantly all of our attendees, field trip leaders, and presenters. Thank you everyone! □