



5th Annual Salt Lake Countywide

Watershed Symposium

August 10-12, 2011

Utah Cultural Celebration Center
West Valley City, Utah



Watershed Planning & Restoration Program
Salt Lake County Government Center
2001 South State Street, Suite N3100, Salt Lake City UT 84190
(801) 468-2711 | www.watershed.slco.org

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Welcome!

As the host of the 5th Annual Salt Lake Countywide Watershed Symposium, Salt Lake County welcomes its community of water stewards and environmental advocates. This free 3-day event is made possible through collaboration with numerous individuals and agencies. In particular, we would like to thank the presenters and field trip leaders for their willingness to share their experience and expertise with us—this event would not be possible without them. Additionally, we would like to thank Salt Lake County Mayor Peter Corroon and the Utah Division of Water Quality for their support in helping to make the Symposium a reality.

The goal of the Watershed Symposium is to encourage a comprehensive review of the current state of our watershed, and facilitate discussions between environmental advocates, policy makers, teachers, students, water quality experts, the general public, and those working in related professions. Feature presentations, field trips and workshops—from general interest to technical—explore a broad scope of watershed issues.

In order to assist in future efforts, please take a moment to fill out the Comment Card included in the packet. Your feedback and suggestions are greatly appreciated.

Thank you and enjoy!

Salt Lake County Watershed Planning & Restoration Program

Marian Hubbard, Watershed Planner/Scientist

Bob Thompson, Watershed Planner/Scientist

Lynn Berni, Watershed Planner/Scientist

Megan Walsh, Watershed Planner/Scientist



Schedule

WEDNESDAY August 10, 2011			
Time	Activities		
8:30 - 9:30	Check-in/Registration		
9:30 - 10:00	<p>Opening Comments, Mayor Peter Corroon, <i>Salt Lake County</i></p> <p>Keynote: A Future of Collaboration for the Jordan River Laura Hanson, <i>Jordan River Commission (Great Hall)</i></p>		
Room	Great Hall	Room 101/102	Room 104/105
10:10 - 11:00	<p>Red Butte Canyon Oil Spills</p> <p>Rolf Larsen <i>Salt Lake Valley Health Department</i></p>	<p>Establishing Water Quality Monitoring Programs to Demonstrate Effectiveness of BMPs</p> <p>Nancy Mesner <i>Utah State University</i></p>	<p>Wetland Delineation and Today's Regulations</p> <p>Tim Witman <i>U.S. Army Corps of Engineers</i></p>
11:10 - 12:00	<p>Swim at Your Own Risk: E. Coli Impaired Recreational Waters in Salt Lake County</p> <p>Leah Ann Lamb <i>Utah Div. of Water Quality</i></p> <p>Teresa Gray <i>Salt Lake Valley Health Dept.</i></p> <p>Bob Thompson <i>Salt Lake County Watershed Planning</i></p> <p>Florence Reynolds <i>Salt Lake City Public Utilities</i></p>	<p>Great Salt Lake Comprehensive Management Plan</p> <p>Laura Burch Vernon <i>SWCA Environmental Consultants</i></p> <p>Laura Ault <i>Utah Div. of Forestry, Fire & State Lands</i></p>	<p>Protecting the Salt Lake Valley Drinking Water Supply</p> <p>Patrick Nelson <i>Salt Lake City Public Utilities</i></p>
12:00 - 1:10	LUNCH—provided for registered participants		
1:10 - 2:00	<p>Panel Discussion: Planning from Lake to Lake Along the Wasatch Front</p> <p>Val John Halford, <i>Wasatch Front Regional Council</i> Laura Hanson, <i>Jordan River Commission</i> Alan Matheson, <i>Envision Utah</i> Leland Myers, <i>Great Salt Lake Advisory Council</i> Reed S. Price, <i>Utah Lake Commission</i></p> <p>Moderator: Patrick Shea, <i>Patrick Shea, P.C.</i></p>		
2:10 - 3:00			

THURSDAY August 11, 2011			
Time	Activities		
8:30 - 9:30			
9:30 - 10:00	Check-in/Registration		
Room	Great Hall	Room 101/102	Room 104/105
10:10 - 11:00	Workshop Restoration Protocols and Methodologies for Habitat Assessment Jim Catlin <i>Wild Utah Project</i> Ben Holcomb <i>Utah Div. of Water Quality</i>	In-stream Flows, Riparian Areas, and Fish Habitat Arthur Morris <i>Utah Open Lands Conservation Association</i>	2010 Flooding and Restoration on Little Cottonwood Creek Kade Moncur <i>Salt Lake County Flood Control</i>
11:10 - 12:00		(Re)Connect: The Wasatch Front Green Infrastructure Plan Sarah Nelson <i>Center for Green Infrastructure Design</i> LaNiece Davenport <i>Wasatch Front</i>	Jordan River TMDL Update—Part 2 Carl Adams <i>Utah Div. of Water Quality</i>
12:00 - 1:10	LUNCH— <i>provided for registered participants</i>		
1:10 - 2:00	Utah State Water Plan—Jordan River Basin Todd Stonely <i>Utah Div. of Water Resources</i>	Mercury in Utah: Should You Be Concerned? Jodi Gardberg <i>Utah Div. of Water Quality</i>	Using <i>EDDMaps</i> to Track Noxious and Invasive Weeds in Salt Lake County Phil McCraley <i>Salt Lake County Weed Program</i>
2:10 - 3:00	Recreational Trails and the Jordan River Lynn Larsen <i>Salt Lake County Parks & Recreation</i>	Development and Implementation of Numeric Nitrogen and Phosphorous Criteria for Utah's Waters Jeff Ostermiller <i>Utah Div. of Water Quality</i>	Utah NPS Stormwater Management Plan Christine Pomeroy <i>University of Utah</i> Carl Adams <i>Utah Div. of Water Quality</i>

FRIDAY August 12, 2011	
Time	Field Trips
	Field Trip Info: Must be registered to attend Bring your own food and drink Note meeting times & locations Driving directions and trip details at www.watershed.slco.org
9:00-10:30	Tour of Jordan Valley Water Conservancy District's Southwest Groundwater Treatment Plant David McLean, <i>JVWCD</i> Meet at JVWCD Headquarters 8215 South 1300 West, West Jordan
9:00-12:00	Walking Tour of Midvale Slag Superfund Remediation Site Erna Waterman, <i>EPA</i> Tony Howes, <i>Utah Div. Environmental Response & Remediation</i> Ray Limb, <i>Midvale City</i> Marian Hubbard, <i>Salt Lake County</i> Meet at 7200 South parking lot for Jordan River Parkway Trail
9:00-12:00	Kayak Tour of Jordan River Restoration Sites—12300 South to 10000 South Bob Thompson, <i>Salt Lake County</i> Meet at 12300 South & Jordan River
1:00-4:00	Kayak Tour of Jordan River Restoration Sites—Winchester (6400 South) to 4800 South Bob Thompson, <i>Salt Lake County</i> Meet at Winchester Street (6400 S) & Jordan River

Key

- Non-technical
- Technical

Opening Comments

Mayor Peter Corroon

Salt Lake County

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Keynote

A Future Collaboration for the Jordan River

Laura Hanson, Executive Director Multi Agency State Office

Jordan River Commission

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The Jordan River has the potential to become a figurative and literal centerpiece for the region. The corridor offers many opportunities for education through signage, interpretive exhibits, nature centers, wildlife viewing areas, and as a setting for field trips. It provides critical habitat for dozens of species of native plants and animals, and a green respite for urban dwellers. The river serves as an amenity for potential employers, a destination for tourists, and a focal point for redevelopment and urban revitalization projects. And finally, the Jordan River Trail provides a regional, non-motorized transportation route that contributes to improving the air quality of our region. In August 2010, the first cities and counties signed an Interlocal Cooperation Agreement that formed the Jordan River Commission. Since then membership in the Jordan River Commission has grown to include three counties, eight cities, and the Jordan Valley Water Conservancy District, and membership on the Commission's Governing Board now includes four non-governmental community members. This spring, the Commission hired an Executive Director and has begun to organize a Technical Advisory Committee. While the first year of the Commission's existence has been focused on setting the policies and procedures in place to begin undertaking implementation projects, the Jordan River Commission is now rounding a corner and is ready to start implementing the projects identified in the Blueprint Jordan River. Join us to learn about how the purpose and role of the Jordan River Commission is being refined, what the Technical Advisory Committee will be doing, how the Commission can support your project efforts, and about how you can participate!

Session Abstracts (listed alphabetically by title)

2010 Flooding and Restoration on Little Cottonwood Creek

Kade Moncur, Project Manager

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Temperatures remained cool during the early to mid-spring of 2010, which delayed snow melt runoff from Little Cottonwood Canyon until the first part of June when temperatures turned warm. Several days of rapid snow melt resulted in peak flows of 913 cubic feet per second (cfs) on Little Cottonwood Creek at Crestwood Park (above Wheeler Farm debris basin) and 800 cfs near the confluence with Jordan River (below Wheeler Farm debris basin). These high flows transported large amounts of debris and sediments

from Little Cottonwood Canyon and the upper areas of the Salt Lake Valley. Much of the debris and sediments transported from the canyon and from the upper Salt Lake Valley areas were removed by Salt Lake County at the debris basins. However, the high velocities associated with the runoff event caused significant damage to areas of the stream beds and stream banks, including damage to public and private structures along the streams. The high flows also resulted in sandbagging efforts at several locations along the streams to minimize or prevent flood damage. This presentation discusses the damage sustained during the 2010 event and the restoration efforts to repair those damages.

A Proposal for the Development and Implementation of Numeric Nitrogen and Phosphorous Criteria for Utah's Waters

Jeff Ostermiller, Water Quality Management Section Manager
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Numerous studies have shown that excessive nitrogen (N) and phosphorous (P) are among the largest threats to aquatic life and recreational uses of lakes and streams. The U.S. Environmental Protection Agency (EPA) is aggressively pressuring states to develop pollution control programs—including numeric criteria—to reduce N and P inputs to aquatic ecosystems. Yet virtually all efforts to develop nutrient reduction programs remain controversial, resulting in more than half of the current legal challenges related to the Clean Water Act nationwide. Utah's Division of Water Quality has developed an approach for developing numeric nutrient criteria that addresses many of the concerns that have been raised nationally by stakeholders. Our approach involves the development of chemical, functional (process) and biological indicators that together will help identify waters adversely affected by cultural eutrophication. Once degraded waters are identified they will be targeted for the development of site-specific numeric criteria using several new monitoring and analytical methods that we have been evaluating over the past two years. This plan also calls for specific antidegradation provisions to ensure protection of high quality waters. We will discuss Utah's proposed approach for the development of N and P criteria and associated implementation procedures. In the context of program implementation, we will also present preliminary results of several potential N and P water quality indicators, such as: N vs. P limits to primary production, stream-scale metabolism, and nutrient-specific biological responses.

Establishing Water Quality Monitoring Programs to Demonstrate Effectiveness of Best Management Practices

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This talk will discuss a guide that helps practitioners and planners establish monitoring programs that will demonstrate the effectiveness of best management practices implemented to improve water quality. Increasingly (and appropriately), water quality and land managers are asked to demonstrate that practices designed to benefit water quality have, in fact, reduced pollutants and resulted in cleaner waters. This has often proven to be a difficult task because of poorly designed monitoring programs. The most common mistakes in developing a monitoring program are failure to carefully consider the project objectives, failure to understand the dynamics and transport processes of the pollutant of concern in a particular watershed, and failure to consider alternate methods for demonstrating impact. The guide and associated web site was created to assist watershed managers in developing and implementing an appropriate and effective monitoring strategy that will meet specific project objectives.

Great Salt Lake Comprehensive Management Plan Revision

Laura Burch Vernon, Senior Planner
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The Utah Department of Natural Resources Division of Forestry, Fire, and State Lands (FFSL) has initiated a revision of the Great Salt Lake Comprehensive Management Plan (CMP) to provide management direction to FFSL and other Department of Natural Resources and Department of Environmental Quality agencies for protection and use of Great Salt Lake resources below the meander line. The management plan has incorporated the wealth of new scientific data that has been developed since the current plan was adopted in 2000. The analysis of new data during the planning process will also influence revisions to FFSL's Mineral Leasing Plan (MLP). The CMP is intended to provide a comprehensive management approach to the sovereign lands and resources under the jurisdiction of FFSL. With specific regard to the Great Salt Lake, the lands under FFSL jurisdiction fall below the surveyed meander line. The elevation of the meander line was mapped between 1855 and 1966 and ranges from approximately 4202 to 4212 feet. The revised CMP will be comprehensive in its approach to manage the interconnected resources of the Great Salt Lake, but will be unable to consider management actions occurring above the meander line within the Greater Great Salt Lake ecosystem. Together with SWCA Environmental Consultants, FFSL is in the process of engaging federal, state, and local government agencies, stakeholders, and the general public in a two-year planning process. Undoubtedly, the public's primary concern identified during the initial public involvement stage is low lake levels. The current CMP, adopted in 2000, highlights the concerns brought about by high lake levels. Today, FFSL is interested in developing a plan that addresses management issues at a range of lake levels, not just a "one-lake-level-fits-all" management approach. The GSL-complex ecosystem functions differently at different lake levels, and it needs a management plan that can adapt to the changing levels. FFSL and SWCA are currently in the process of incorporating substantive public comment received during the review of the Draft Current Conditions of the CMP, developing lake-level management strategies, and revising the Mineral Leasing Plan. The complete Draft CMP, including current conditions and lake-level strategies, and MLP will be available for public comment in the fall of 2011. The Final CMP and Decision Document will be completed by February 2012. For project updates, please visit us online at www.gslplanning.utah.gov. For further questions and comment submissions contact Laura Vernon or Laura Ault.

In-Stream Flows, Riparian Areas, and Fish Habitat

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In-stream flow provides water for fish but also influences non-aquatic components of fish habitat. Stream flow and stream channel characteristics are among the defining aspects of fish habitat. Riparian areas also directly influence streams, and therefore also function as fish habitat. Connections among stream flow, stream channels, and riparian areas help to control their ecological structure and function. For example, stream flows influence the availability of water for riparian plants, the lateral shape of stream channels, and the suitability of stream banks for plants and animals. Riparian areas in turn serve to shape stream channel morphology and influence in-stream flows. Therefore, conservation of several species of sensitive fish in Utah, as well as sensitive mollusk species and other non-aquatic, riparian plant and wildlife species, depends on considering in-stream flows as well as reciprocal connections between stream flows and riparian areas. The sensitive fish of concern include bluehead sucker (*Catostomus discobolus*); four subspecies of cutthroat trout (Bonneville: *Oncorhynchus clarki utah*, Colorado River: *O. clarki pleuriticus*, Lahontan: *O. clarki henshawi*, and Yellowstone: *O. clarki bouvieri*); and at least 9 other species.

Jordan River TMDL Update—Part 2

Carl Adams, Watershed Protection Section Manager
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The Jordan River Total Maximum Daily Load (TMDL) water quality study is nearing completion after many years of intense study, analysis, collaboration and negotiation. This presentation will provide the latest information including significant findings, ongoing water quality improvement efforts, and future steps in the TMDL process.

Mercury in Utah: Should You Be Concerned?

Jodi Gardberg, Environmental Scientist
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Methyl mercury is a neurotoxin that bioaccumulates in the aquatic food chain. Humans are primarily exposed to methylmercury when we eat fish or wildlife. While fish consumption is the main source of exposure to methylmercury, the benefits and risks of eating fish should be balanced, since fish are an excellent source of high-quality protein and omega-3 fatty acids, and are low in saturated fat. In order to protect our citizens from unknowingly eating contaminated fish, the Utah Division of Water Quality, the Utah Department of Health, and the Utah Division of Wildlife Resources are actively sampling fish from Utah's waterways to measure the mercury concentrations and issue consumption advisories, if warranted. This presentation will provide more detail on how mercury circulates in the environment and the benefits of eating fish versus the risks and will discuss Utah's mercury fish advisories program and mercury concentrations in the Great Salt Lake.

Planning from Lake to Lake Along the Wasatch Front—Panel Discussion

The high growth rate projected for the Wasatch Front over the next few decades presents a problem for planners, scientists, engineers, environmentalists, and politicians. This Panel will discuss future development and water resources to determine what is currently being done, and what needs to be done, to ensure quality of life, economic growth, and protection of our natural resources. Moderated by former BLM Director Pat Shea, the Panel is comprised of a handful of skilled professionals who deal with many of these issues on a regular basis.

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Protecting the Salt Lake Valley Drinking Water Supply

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For the last 100 years, The Salt Lake City Department of Public Utilities has actively worked to protect the headwaters of the Salt Lake Valley drinking water supply. The majority of this supply comes from City Creek, Parleys, Big and Little Cottonwood Canyons. This presentation will detail Salt Lake City's work through a combination of land acquisitions, protective ordinances, recreation management, education programs and working with an extensive network of agency and business partners.

(Re) Connect: The Wasatch Front Green Infrastructure Plan

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Green infrastructure is an interconnected network of landscape systems that provides a diverse range of environmental, social, recreational, psychological, public health, and economic benefits. (Re)Connect: The Wasatch Front Green Infrastructure Plan identifies the region's highest quality green infrastructure features. It is the product of a collaborative effort between the Center for Green Infrastructure Design (CGID), the Wasatch Front Regional Council (WFRC), the U.S. Forest Service (FS), Utah Forestry, Fire and State Lands (FFSL) and the Governor's Office of Planning and Budget (GOPB). These agencies and organizations have come together in support of this project because they see a need within the Wasatch Front to identify the region's most valued, functional landscapes before they disappear due to development pressures and irreparable alterations to landscape systems. Taking a green infrastructure approach in the Wasatch Front requires identifying and understanding natural systems and protecting those systems first, as well as seeking to restore connections and valued lands in already developed landscapes. It is important to understand that green infrastructure planning is not against development. Rather, it seeks to identify the most appropriate places for development while also considering vital tree-covered areas, farmlands, wildlife habitats, water resources, and open lands. It seeks to integrate natural resource conservation while considering the needs related to increasing human populations. (Re) Connect is a comprehensive project which examines multiple regional asset networks. The Hydrological Asset Network Map, in particular, can help prioritize management actions and restoration projects related to water quality and quantity in the Wasatch Front. This map will be presented and discussed in the broader context of the region's complex green infrastructure systems.

Recreational Trails & the Jordan River

Lynn Larsen, Senior Landscape Architect
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Getting people out and recreating on the river, in the parks, and on the trails is a great way to foster appreciation and love of a place, as well as encouraging stewardship and protection of our natural resources. Development of the Jordan River Parkway Trail has gone a long way toward accomplishing this goal by providing easy access to the river corridor. This presentation will provide an overview of the Jordan River corridor and its importance in the valley's parks, open space and regional trail system, focusing on the Jordan River trail as a non-motorized/pedestrian connection to work, school, parks, open space,

and economic development, as well as the work completed to date on the trail system. The dream of the Jordan River Trail running from Utah County to Davis County is still unrealized and future planning to complete the trail will be covered and challenges being faced to fill these important gaps will be visited. Lessons have been learned over the years such as the complexity and time-consuming nature of trail planning, design, and construction; the impact of a constantly changing river channel; the challenge of land acquisition for trail alignment; and on-going maintenance and safety of the trail system. Recreational trails play an important role in Salt Lake County's overall parks and recreation system. In addition to land-based trails, Salt Lake County is looking to the Jordan River itself with a Water Trail Master Plan that highlights opportunities for canoeing, kayaking, fishing and rowing, etc. This presentation will also provide an overview of the master plan and an opportunity for audience discussion regarding recreational trails.

Red Butte Canyon Oil Spills

Rolf Larsen

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This presentation will focus on the impact of the Red Butte Canyon oil spills on the river and community, the multi-agency response, lessons learned, where we (and the river) are now and looking ahead to the future. May or may not touch on pipeline safety in general (living with pipelines in your community).

Restoration Protocols and Methodologies for Riparian Habitat Restoration—Workshop

Jim Catlin, Executive Director

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Ben Holcomb, Biological Assessment Program Coord.

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This workshop will review two different protocols and methodologies used in the assessment and restoration of stream-riparian habitat, and then head out into the field for a hands-on demonstration. The Wild Utah Project developed the Rapid Stream-Riparian Assessment (RSRA) protocol, which is particularly appropriate for small to medium-sized streams and rivers in the American Southwest, but with slight modification it also should be applicable to reaches in other temperate regions and geomorphic settings. Utah's Division of Water Quality uses the Environmental Monitoring and Assessment Program for Surface Waters (EMAP), developed by the U.S. Environmental Protection Agency.

Rapid Stream-Riparian Assessment

Stream-riparian ecosystems are among the most productive, biologically diverse and threatened habitats in arid regions. Standardized assessment protocols are needed in order to effectively measure the current health and functional condition of these ecosystems, as well as to serve as a guide for future restoration and monitoring programs. However, most existing survey methods either focus on only a limited subset of the different components of the ecosystem, base their evaluations upon some hypothesized future state rather than upon the current conditions of the reach, and/or rely heavily upon subjective judgments of ecosystem health. We describe an integrated, multi-dimensional method for rapid assessment of the functional condition of riparian and associated aquatic habitats called Rapid Stream-Riparian Assessment (RSRA). This method evaluates the extent to which natural processes predominate in the stream-riparian ecosystem and whether there is sufficient terrestrial and aquatic habitat complexity to allow for the development of diverse native plant and animal communities. The Rapid Stream-Riparian Assessment involves a quantitative evaluation of between two to seven indicator variables in five different ecological categories: water quality, fluvial geomorphology, aquatic and fish habitat, vegetation composition and structure, and terrestrial wildlife habitat. Each variable is rated on a scale that ranges from "1", representing

highly impacted and non-functional conditions, to “5”, representing a healthy and completely functional system. Whenever possible, scores are scaled against what would be observed in control or reference sites that have similar ecological and geophysical characteristics, but which have not been heavily impacted by human activities. The protocol was designed to be used both by specialists and by non-specialists after suitable training.

EMAP

The physical habitat of lotic systems consists of the bed, banks, and surrounding riparian area. In some cases, the physical habitat has been affected to the point of impacting the beneficial uses of the water resource (e.g. aquatic life). Utah Division of Water Quality (DWQ) has adopted techniques that measure specific habitat components in a quantifiable, repeatable manner. Primarily adopted through national aquatic assessment programs (i.e., U.S. Environmental Protection Agency’s EMAP), DWQ’s approach has been consistent throughout the past decade. Habitat measures consist of assessing a stream segment at 40 times the average wetted width. Techniques include: thalweg profile measurements, substrate size and channel dimensions, large woody debris tally, riparian vegetation type and structure assessment, canopy density, bank characteristics, instream fish cover assessment, human disturbance assessment, legacy tree and invasive plants inventory, and channel constraint assessment. From these measurements a variety of metrics can then be calculated to compare against similar, but least impacted, sites. Additionally, these metrics can serve as a baseline to monitor restoration effectiveness through time. This workshop will be an introduction to collecting these data.

Resources:

Environmental Monitoring and Assessment Program (EMAP)—Surface Waters:
Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams
www.epa.gov/emap/html/pubs/docs/groupdocs/surfwatr/field/ws_abs.html

User’s Guide for the Rapid Assessment of the Functional Condition of Stream-Riparian Ecosystems in the American Southwest
wildutahproject.org/files/images/rsra-ug2010v2_wcover.pdf

Swim At Your Own Risk: *E.coli* Impaired Recreational Waters in Salt Lake County

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The use of *E. coli* as an indicator organism for fecal contamination is well established. Sources of this contamination can be raw sewage, grazing pastures, confined feedlots, wildlife, failing septic tanks, or dog parks. The bacteria may be washed into the surface waters during a rain event or snowmelt. When these waters are used as source waters for drinking and not treated properly or used for primary contact recreation, they can pose a threat to human health. Bacteriologic contamination of swimming pools is common knowledge, as immortalized in the famous “Baby Ruth candy bar scene” from Caddyshack, and is strictly regulated by local health departments. But risks associated with fecal contamination of popular natural swimming beaches/holes, whether rivers or lakes, is not as well known by the public. While growing through interagency and volunteer efforts, regular testing of natural recreational waters

throughout the state is limited. So what's a swimmer to do? Come to this presentation to learn more, including:

- *E.coli* in recreational waters 101: what is the standard, how are waters assessed, which waters in Salt Lake County are impaired, and how can you protect yourself if you recreate in impaired waters?
- What are the proactive drinking water source protection efforts implemented by Salt Lake City?
- What's happening at Parley's Historic Nature Park and Emigration?
- Under what conditions are swimming advisories issued by local health departments?

Using EDDMapS (Early Detection & Distribution Mapping Systems) to Track Noxious and Invasive Weeds in Salt Lake County

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The goal of the Salt Lake County Weed Control Program is to assist property owners in identification, prevention and suppression of noxious weeds. Under the direction of the Salt Lake County Noxious Weed Board, the program works to achieve this goal through the management, eradication and containment of listed noxious weeds on private and public lands using Integrated Weed Management; enforcement of the Utah State Noxious Weed Law and Salt Lake County's weed ordinances; on-site technical assistance to landowners on noxious and invasive weed identification and control; education and outreach activities promoting noxious weed prevention, detection, and management; surveying, mapping, and monitoring of noxious and invasive weed populations throughout Salt Lake County; and cooperation with other local agencies on weed management issues. To assist with the task of surveying, mapping and monitoring, the Weed Program is using a new tool called EDDMapS: Early Detection & Distribution Mapping Systems. Launched in 2005, EDDMapS is a web-based mapping system for documenting invasive species distribution. It is fast, easy to use and doesn't require Geographic Information Systems experience. The goal of this mapping system is to maximize the effectiveness and accessibility of the immense numbers of invasive species observations recorded each year. As of July 2011, over 1.4 million records have been logged. EDDMapS combines data from databases, organizations, and volunteer observations, to create a national network of invasive species distribution data that is shared with educators, land managers, conservation biologists, and beyond. This data will become the foundation for a better understanding of invasive species distribution around the world. Salt Lake County's Weed Control Program is asking for help in mapping the noxious and invasive weed species found in the county—using this new tool will make the process easier and more efficient. Come to this presentation to learn more about EDDMapS and Salt Lake County's weed control efforts. More info at www.eddmaps.org.

Utah Stormwater Nonpoint Source Management Plan

Carl Adams, Watershed Protection Section Manager
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Dr. Christine Pomeroy
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The Utah Division of Water Quality (DWQ) is developing a stormwater management plan and appendix of urban stormwater best management practices for the Utah Nonpoint Source (NPS) Management Program in cooperation with the University of Utah's Department of Civil and Environmental Engineering. This plan will enable DWQ to utilize federal 319 cost share funds to promote implementation of stormwater best management practices and low impact development principles in cooperation with partnering sponsors such as municipalities, academia and industry. This presentation will review the plan goals, technical details of stormwater best management practices, and low impact development principles.

Utah State Water Plan—Jordan River Basin

Todd E. Stonely, Chief, River Basin Planning
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In June 2010, the Utah Division of Water Resources published Jordan River Basin—Planning for the Future, the latest Utah State Water Plan document. This plan emphasizes the importance of careful planning and wise management in order to meet future water needs. It estimates the Jordan River basin's available water supply, makes projections of water need, explores how those needs will most likely be met, and discusses the importance of water quality and environmental values. The plan is a useful guide and reference to local water planners and managers as they strive to meet water challenges and is also a valuable resource for those in the general public who are interested in making greater contributions to water-related decisions. This presentation about the plan will discuss the Division's state water planning process and summarizes key findings from the plan, including: highlights from the basin's water development history; current and future projections of population; water supply and water use; the importance of water conservation and progress toward meeting conservation goals; environmental impacts, economics and project funding; and the most likely strategies to be employed to meet future water needs.

Wetland Delineation and Today's Regulations

Tim Witman, Project Manager Nevada-Utah Regulatory Unit
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The Army Corps of Engineers is tasked with issuing permits under Section 404 and Section 10 of the Clean Water Act by the Environmental Protection Agency. In order for the Corps to determine the extent of their jurisdiction, a delineation of wetlands and waters of the United States must be prepared and submitted to the Corps for verification. Technical manuals and guidance documents describe in detail the delineation procedures. The wetland delineation process includes a three-parameter approach: vegetation, soils and hydrology. These three wetland characteristics have certain indicators which are defined in the Corps' 1987 Wetland Delineation Manual and the more recent regional supplements. The indicators are used to help establish the wetland/upland boundary. At times wetlands can be difficult to identify as they may dry out for a portion of the year. In addition, other human or natural disturbances can mask wetland indicators making it difficult to pinpoint the wetland/upland boundary. Corps manuals provide guidance on how to proceed when presented with these difficult wetland situations. Once a delineation report is complete—and accurately describes all aquatic features on a site to include the linear feet and Ordinary High Water Mark of open waters such as streams or lakes—the report is submitted for verification. A permit must then be obtained from the Corps prior to the start of any work that would impact a jurisdictional water.

Field Trips

Kayak Tours of Jordan River Restoration

Bob Thompson, Watershed Planner/Scientist
Salt Lake County Watershed Planning & Restoration Program
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Two kayak trips this year will observe past, present, and potential restoration efforts on the Jordan River, in particular stretches of the River that have been restored to more natural conditions and how the River has benefitted from restoration projects. Participants will also spot various wildlife and plant habitats. The morning trip will float 12300 to 10000 South; the afternoon trip will cover Winchester Street (6400 South) to 4800 South.

Walking Tour of Midvale Slag Superfund Remediation Site

Erna Waterman, Project Manager
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Marian Hubbard, Watershed Scientist/Planner
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Since 2008, Salt Lake County Watershed Planning & Restoration Program has been working collaboratively with the U.S. Environmental Protection Agency (EPA), the Utah Division of Environmental Quality (DEQ) and Midvale City to stabilize the Jordan River Banks along the Superfund Site. The 446-acre Midvale Slag Superfund Site is located 12 miles south of Salt Lake City in the city of Midvale, with a small portion extending into the adjacent city of Murray. The final phase of cleanup is scheduled to be completed in July 2011 and will include bank stabilization, removal of invasive plants, and revegetation with native grasses, wildflowers, shrubs and trees. The restoration work will help protect water quality while providing valuable habitat for fish, birds and other animals. For more info visit www.epa.gov/region8/superfund/ut/midvale.

Tour of Jordan Valley Water Conservancy District's Southwest Groundwater Treatment Plant

David McLean, Senior Engineer
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Water for the Southwest Groundwater project will be treated by reverse osmosis. Jordan Valley Water has performed extensive reverse osmosis testing with its pilot water treatment plants. Two reverse osmoses treatment plants will treat groundwater. The reverse osmoses process treats water by pumping the feed water to 170 psi of pressure. At this pressure water will flow through a semi-permeable membrane. Salts, such as sodium chloride, calcium carbonate, and sulfate, remain behind and become the byproduct. For more info visit www.jvwcd.org/swjvqp/Default.aspx.

Bios

Carl Adams has worked for the State of Utah's Division of Water Quality for the last 11 years. Carl currently manages the Watershed Protection Section which is responsible for developing plans to improve the water quality of our streams and lakes and implementing those plans in cooperation with local sponsors.

Laura Ault is the Forest Legacy Coordinator and Planner for the Utah Division of Forestry, Fire and State Lands. She works with private forest landowners to obtain conservation easements through the U.S. Forest Service Forest Legacy Program. As a Planner for the Division, Laura is the project lead for the Great Salt Lake Comprehensive Management Plan. Prior to joining the Division of Forestry, Fire and State Lands she worked as a Project Manager for the State and Local Planning Section of the Utah Governor's Office of Planning and Budget. Laura worked closely with the Utah Quality Growth Commission and the LeRay McAllister Critical Land Conservation Fund on issues related to land use planning. She graduated from Utah State University with a Bachelor of Landscape Architecture degree and a Master of Science degree in Bioregional Planning.

Jim Catlin is the Executive Director of the Wild Utah Project. Founded in 1996, Wild Utah provides scientific analysis on wildland habitation (including GIS analysis) for the conservation community. Wild Utah also helps its conservation partners promote the principles of conservation biology, as well as helping them interpret ever more cryptic agency scientific and spatial data. About 10 years ago, Wild Utah assisted in assembling a team of scientists to understand the best way to assess the health of streams from the perspective of wildlife needs. The published results are a rapid stream and riparian assessment method that has been widely tested in the South West. Jim's education includes a PhD in Wildland Science from the University of California Berkeley; a Master of Science in Civil Engineering and Geography, from the University of Utah; and a Bachelor of Science in Electrical Engineering from Oregon State University.

Peter Corroon was elected Salt Lake County Mayor in 2004 and since then he has worked to foster open, honest and ethical government. At a time when Salt Lake County is seeing rapid growth, he emphasizes "planning, not politics" to manage this growth. His fiscally conservative policies will make County government both more efficient and more environmentally sound. Mayor Corroon believes that government should be accessible to all citizens. He regularly holds open-door meetings for the public and has made promoting diversity a priority. A champion of small business, his Up Grade initiative and economic development efforts are improving lives throughout the county. In addition to being mayor of Salt Lake County, he also serves as a board member for the National Association of Counties, The United Way, Envision Utah, Utah Technology Council, Economic Development Corporation of Utah, and Salt Lake Area Chamber of Commerce, which recently awarded him "Public Official of the Year." He holds a B.S. in Civil Engineering from Carnegie Mellon University, Pittsburgh; M.S. in Real Estate Finance and Investment, New York University; and a J. D. from Golden Gate University. Mayor Corroon and his wife, Amy, have three children. His twin brother Christopher also lives in Salt Lake.

LaNiece Dustman Davenport began working with the Wasatch Front Regional Council in January of 2003. Her current work at a Regional Planner includes managing the Small Cities Community Development Block Grant (CDBG) Program for the Wasatch Front Region and managing a regional green infrastructure planning initiative, (Re)Connect: Green Infrastructure in the Wasatch Front. Her other work includes coordinating project lists for the Community Impact Board and working to initiate an Economic Development District and Comprehensive Economic Development Strategy Plan for the Wasatch Front Region. Other planning projects that LaNiece has managed include creating a regional Natural Hazards Pre-Disaster Mitigation Plan in 2003, its update in 2008, and regional Consolidated Plans. LaNiece holds a Bachelor's in Geography from the University of Utah and is working towards a Master of Public Administration degree also from the University of Utah.

Jodi Gardberg is the Great Salt Lake Watershed Coordinator for the Utah Department of Environmental Quality, Division of Water Quality (DWQ). In this capacity, she coordinates DWQ activities pertaining to the lake including staff support for the Great Salt Lake Advisory Council, water quality assessments of the open water and wetlands and 401 certification planning. In addition, she is one of the statewide mercury coordinators and assists with the Statewide Mercury Workgroup, research, fish sampling and advisories.

Teresa Gray is the Bureau Manager Water Quality and Hazardous Waste for the Salt Lake Valley Health Department. She has been a Licensed Environmental Health Scientist for over 16 years. Her focus is on Emergency Response to environmental issues. She has extensive knowledge in environmental regulations and public health issues including: water quality, hazardous waste, housing, meth labs, food safety, infectious waste, air quality, biological threats, terrorist threats, chemical spills, epidemiology, evidence gathering, and permitted facilities. Prior to government service she was the Quality Control Microbiologist for Coca Cola Bottling and Quality Assurance Bio-Lab for two Pharmaceutical Companies. Teresa is an active member of the Utah Public Health Association and the Utah Environmental Health Association. She is currently serving on the Advisory Committee for the Utah State Emergency Response Commission.

Val John Halford has been with the Wasatch Front Regional Council for the past 16 years. During that time, he has helped guide four regional transportation plans from conception to adoption. His recent work includes the 2011-2040 Regional Transportation Plan, which was adopted by the Regional Council in May 2011. Val has worked for West Valley City and Salt Lake City under former Mayor Deedee Corradini. During his stint at Salt Lake City, he was involved in the planning and development of the City's first TRAX line and the design of I-15 and its access to and from Downtown during its reconstruction in 2001. He graduated from the Georgia Institute of Technology with a Master in City Planning degree and currently teaches several courses in the Geography Department at both the University of Utah and the Salt Lake Community College.

Laura Hanson joined the Jordan River Commission as Executive Director in spring of 2011. She brings with her eleven years of experience in community and environmental planning. Prior to joining the Commission, Laura was a Principal at CRSA, a Salt Lake City based architecture and planning firm. While there she managed a team of planners, landscape architects and urban designers. Her work focused on long range land use planning, redevelopment area planning and ordinance drafting, and included projects throughout Utah, Idaho and Nevada. Laura's planning career began at the Bear West Company, where she managed a number of National Environmental Policy Act (NEPA) analyses and planning studies. These efforts often included coordinating input from the public and multiple agencies throughout the Intermountain West on projects that were often controversial. Laura is a Certified Planner. She holds Bachelor of Science degrees in both Urban Planning and Environmental Studies as well as a Master of Urban Planning, all from the University of Utah. Her work has been recognized with awards from the American Society of Landscape Architects, the American Planning Association, Envision Utah and the Utah Quality Growth Commission.

Ben Holcomb received a Bachelor of Science degree in Environmental Science from Allegheny College, Pennsylvania and a Master of Science degree in Fisheries Science from South Dakota State University. He has worked for various institutions in aquatic ecology and water resource management across the United States from non-profit, local, state, federal and most recently the Nez Perce Tribe of Idaho. Currently, Ben is the Biological Assessment Coordinator for the Utah Division of Water Quality. His primary role is to collect and analyze biological data to assess the water quality conditions throughout the State. Additionally, another critical component to the biological assessment program is collecting physical habitat information of the water resources.

Marian Hubbard is a Watershed Scientist and Planner in the Salt Lake County Watershed Planning and Restoration Program. She is also the Jordan River Watershed Coordinator for the Utah Watershed Coordinating Council. She has a Bachelor of Science Degree in Biology from Portland State University and a MPA in Natural Resource Management from University of Utah. She works closely and collaboratively with agencies, local stakeholders, and the general public to implement the 2009 Salt Lake Countywide Water Quality Stewardship Plan (WaQSP) in Salt Lake County. Before coming to the County, Marian worked in the Portland Metro area in environmental management. Later she moved to Utah from Portland Oregon to work with the U.S. Forest Service in the beautiful Strawberry River Watershed.

Leah Ann Lamb is Assistant Director of the Utah Division of Water Quality (DWQ). She returned to the division in March 2008 after serving for 12 years as the Director of the Department of Environmental Quality's Office of Planning and Public Affairs. In her current position, Leah Ann oversees the Groundwater Protection, Water Quality Management, Engineering and Monitoring functions of the division. She also serves on the U.S. Environmental Protection Agency's National Advisory Council for Environmental Policy and Technology. Leah Ann has over 29 years of experience in environmental policy, planning and program implementation having served as: a Wetland Biologist

in the 404 program for the Detroit District of the Army Corps of Engineers, completing wetland determinations and enforcement actions; Water Quality Director for the Southeastern Utah Association of Local Governments, implementing point and nonpoint pollution control projects; an Environmental Scientist for the Utah Division of Water Quality, completing NEPA reviews for wastewater projects and coordinating outreach and public education events; and Director, Office of Planning and Public Affairs, coordinating planning, public affairs, pollution prevention, small business assistance, and environmental education initiatives for the Utah Department of Environmental Quality (UDEQ). In this role, she also represented Utah in national environmental policy forums by serving in leadership positions with the Environmental Council of the States (ECOS), the Forum on State and Tribal Toxic Action (FOSTTA), the National Pollution Prevention and Toxics Advisory Council (NPPTAC) and the Exchange Network Leadership Council (ENLC). Leah Ann has a B.S. in Natural Resources and M.S. in Water Resources Management from the University of Michigan, Ann Arbor.

Lynn Larsen is a Senior Landscape Architect for Salt Lake County Parks & Recreation, Planning & Development Section. In this capacity he has managed the preparation of the Jordan River Trail Master Plan and overseen the design and construction of many trail, park, and golf projects throughout the County. Mr. Larsen is a member of the American Society of Landscape Architects and the Jordan River Foundation, formerly known as the Foundation for the Provo-Jordan River Parkway. He is a Utah State University graduate in Landscape Architecture and Environmental Planning.

Rolf Larsen was born in Salt Lake City, but his father was an Army doctor who dragged his family of six all over the world. Rolf eventually moved back to Salt Lake City to ski and never left. He received a degree in Chemistry from the University of Utah in 1982 and worked as Quality Assurance Manager for Huish Detergents from 1983 to 1991. Rolf then worked as Senior Project Manager/Client Services Manager for Mountain States Analytical, an environmental laboratory, from 1992 to 2004. When Safety Kleen went bankrupt in 2001, owing Mountain States a whole lot of money, the lab went out of business in 2003. Rolf then ended up with a bunch of hard-working, idealistic people working in Environmental Health at Salt Lake Valley Health Department. Rolf likes traveling to new places with his wife, hiking, camping, backpacking, woodworking, botany, stained glass and animal charities.

Ray Limb has worked for the past six years in the Midvale City Community & Economic Development Department as the Development Site Coordinator for the Midvale EPA Superfund Sites. He oversees the material management on the sites pre, during, and post development to insure the remediated remedy of the sites are environmentally protected which includes the riparian area of the Jordan River. He has hosted the nationwide EPA project managers and serves on various committees in re-developing the Midvale EPA Superfund Sites. Ray has worked in the public sector for 31 years, 25 of those years in municipal government, and 16 years as a City Administrator. He has served in various capacities as: Director of Community Education, Town Councilman, City Treasurer, Finance Director, Public Works Director, member of Board of Directors of URMA Municipal Insurance Company, member and chair of Sanpete County Community and Economic Development Committee, member of Sanpete County Mayors/Managers Association, member of Gunnison Business Association, Past Lions Club officer, Zoning Administrator of Pleasant Grove City, member of Pleasant Grove Businessman Alliance Association, member of Utah Ordinance Compliance Association, member and secretary of Utah City Managers Association. Ray has the following certifications: HAZWOPER certified, CERT trained, past certified in water, sewer and building inspection. He has written and administered water, sewer, and economic grants, and he is a staff member of Jordan River Stakeholders and Midvale Technical Advisory Committee (TAG) for the Midvale Superfund Sites. Ray has a Bachelor's Degree from Utah State University, a Master's Degree in Administration from Brigham Young University, and post graduate studies at University of Utah and Utah State University.

Alan Matheson has been the Executive Director of Envision Utah since December 2004. In that role, he has overseen numerous public planning processes, regional initiatives, and implementation of the Quality Growth Strategy designed to keep Utah beautiful, prosperous, healthy and neighborly for future generations. He is a frequent speaker at national conferences, has consulted with several regions seeking to address the challenges of growth, and has published articles on water, transportation and land use. Alan has had private sector experience as a partner in a Phoenix law firm, as senior attorney and environmental policy advisor for Arizona's largest electric utility, and as the founding director of the Utah Water Project. In the community, Alan serves on the Brookings Institution Blueprint for American Prosperity Metropolitan Partnership, Wasatch Front Regional Council, and the Sandy City Planning Commission. Alan received his A.B. in International Relations from Stanford University and graduated from the

UCLA School of Law where he was an editor of the UCLA Law Review. He was a finalist for the 2010 Ernst & Young Entrepreneur of the Year Award.

Phil McCraley has been employed by Salt Lake County for over 40 years and has served as the Salt Lake County Weed Supervisor for the past 12 years. Phil has been the President of the Utah Weed Supervisors Association and is currently the newly elected President of the Utah Weed Control Association. Phil also serves on the Board of the Bonneville Cooperative Weed Management Area (CWMA), and in that capacity, has been a part of implementing the "Purge Your Spurge" and "Bugs with an Attitude" programs. With grant money assistance, the Bonneville CWMA has implemented successful projects such as the restoration of the land in Coon Canyon from Scotch thistle infestation, and the spraying of Yellow star thistle in City Creek Canyon and the area surrounding Little Dell Reservoir. Phil is active in the aggressive control of noxious weeds using not only chemical application, but also with bio-control and mechanical control.

David McLean, a Senior Engineer with Jordan Valley Water Conservancy District, is a graduate of Brigham Young University in Mechanical and Civil Engineering. He has spent the last 19 years as a water resources engineer. Six of those years were spent in advanced treatment technologies including reverse osmosis. He is currently the Project Manager for Jordan Valley Water of the Southwest Groundwater Treatment Plant utilizing reverse osmosis technology to remediate groundwater contamination in the southwest portion of the Salt Lake Valley and to enhance local water supplies.

Nancy Mesner is an Associate Professor in the Department of Watershed Sciences and the Associate Dean of the College of Natural Resources at Utah State University. She conducted her graduate work in limnology and environmental engineering at the University of Washington and worked for several regional and state agencies and as a private consultant before coming to Utah State University in 1999. Nancy teaches, conducts research and is USU's Extension Specialist in water quality. Her extension and research programs focus on improved monitoring to better evaluate impacts to our waters, and on development and assessment of water quality and watershed K-16 education programs.

Kade Moncur has more than 10 years of professional experience and specializes in water resource engineering for flood protection, transportation stormwater drainage, and public infrastructure projects; planning, coordinating and supervising countywide flood insurance studies; detailed hydraulic and hydrologic modeling; and storm drainage master planning. Kade received his B.S. and M.S. degrees in Civil and Environmental Engineering from Utah State University and is a registered Professional Engineer in Utah.

Arthur Morris received a PhD in natural resources with an ecology emphasis from Ohio State University with whom he studied relationships between riparian forests and stream geomorphology in a landscape context in northern Michigan. He received a M.S. degree in biology/ecology from Utah State University where he studied reciprocal connections between streams and riparian systems with brown bears in coastal British Columbia. After about a year of post-doctoral research focused on salamanders and riparian wood in northern Ohio, he came back to Utah, and has been working for Utah Open Lands Conservation Association since 2007.

Leland Myers is Chair of the Great Salt Lake Advisory Council. Governor Herbert appointed Leland in 2010 to the statutory council after serving two years on the temporary council established by Governor Huntsman. Leland is also a member of the State of Utah Water Quality Board. Leland is employed as the District Manager of Central Davis Sewer District, a wastewater collection and treatment district in Davis County, Utah. Leland is active in several professional organizations including the Utah Association of Special Districts, the Water Environment Federation and is a board member for the Blue Stakes of Utah. Leland is a graduate of the University of Utah with a Bachelor of Science Degree in Civil Engineering and a Master of Environmental Engineering. He is a licensed Professional Engineer in Utah and California and is a certified Wastewater Collection and Treatment Grade IV operator. For the past 8 years Leland has also been actively involved in Great Salt Lake research.

Patrick Nelson works as the Watershed Supervisor at the Salt Lake City Department of Public Utilities. Past experience includes founding the nonprofit Cottonwood Canyons Foundation as well as working seasonally for the U.S. Forest Service, the National Park Service and The Nature Conservancy.

Sarah Nelson has a Bachelor's degree in Anthropology from the University of Southern Mississippi and a Master's in Landscape Architecture and Environmental Planning from Utah State University, where she focused on ecological design and landscape planning for wildlife. She currently works for the Center for Green Infrastructure Design in Salt Lake City, where she is involved in green infrastructure mapping and open space design.

Jeff Ostermiller currently has the pleasure of leading an outstanding team of scientists at the Utah Division of Water Quality, who together are primarily responsible for the water quality standards and beneficial use assessments of Utah's rivers and streams. This team is currently conducting research to develop and implement several water quality programs including: revisions to chemical and biological assessment methods for Utah's Integrated Report, water quality standards and assessment methods for Great Salt Lake and its surrounding wetlands, and several significant projects aimed at addressing excessive nitrogen and phosphorous inputs to Utah's waters. Jeff is actively engaged in several Clean Water Act policy efforts nationally, including serving for several years as a member of the National Water Quality Monitoring Council.

Christine A. Pomeroy is a registered Professional Engineer and an Assistant Professor of Civil and Environmental Engineering at the University of Utah, where she teaches courses in hydraulics, open channel flow, stormwater management and design, and water distribution system analysis. Dr. Pomeroy has more than 15 years of academic and consulting experience in stormwater management, watershed management, permitting and compliance, modeling, GIS applications in water resources, hydraulics and hydrology. Dr. Pomeroy is currently co-chair of the Water Environment Federation task force to update the Manual of Practice No. 23 Design of Urban Runoff Controls.

Reed S. Price was named the first Executive Director of the Utah Lake Commission in July 2007. The Commission was formed by an Interlocal Cooperation Agreement with numerous local governments in Utah County and several state agencies. He graduated with a Bachelor's degree in microbiology from Brigham Young University in April 1998 and accepted a position with Orem City as the Laboratory Director at the wastewater treatment plant. As the Laboratory Director, he developed a passion for the water industry and water-related issues in the state. While with Orem City, he pursued a Master's degree in Public Administration through the George W. Romney Institute of Public Management in the Marriott School of Management at Brigham Young University, completing his degree in April 2002. In 2004, he accepted the position of Management Analyst working in the office of the City Manager in Orem City. His duties included numerous financial and economic impact studies, promoting emergency preparedness in the community. In 2006, his responsibilities were changed to work as a full-time Emergency Manager for the City. For the several years prior to his appointment, he had been involved in the Utah Lake Technical Committee which advised the Utah Lake Study Group as they determined the need and feasibility of forming what is now known as the Utah Lake Commission. After a year-and-a-half process that created the Utah Lake Master Plan, completed in June 2009, Reed has been instrumental in guiding not only the Commission, but municipal governments and state agencies with responsibilities on or around Utah Lake to develop plans to accomplish the goals identified in the plan. Areas of focus of the Utah Lake Master Plan include, land use, transportation, recreation, natural resources, and physical facilities.

Florence Reynolds, Water Quality and Treatment Administrator, has been with Salt Lake City Public Utilities, since 1987. Coming from Chicago, Florence spent several years with utilities in the East. Currently responsible for the water quality in the City, the Riparian Corridor Project falls under her purview.

Patrick A. Shea was an associate and a partner with the law firm VanCott, Bagley, Cornwall & McCarthy from 1976 to 1985. In 1979 Mr. Shea took a leave of absence and was the counsel to the United States Senate Foreign Relations Committee. Senator Frank Church and Senator Jacob Javits were the chair and ranking minority members of the committee. In 1985 Mr. Shea became the General Counsel and Corporate Secretary for Standard Communications, Inc. which was a privately held telecommunications company which owned 12 television stations, 12 radio stations, 6 cable systems and 8 newspapers. In 1992 Mr. Shea started Patrick A. Shea, P.C. and specialized in telecommunications, natural resources, and complex corporate transactions. Beginning in 1992 Mr. Shea helped organized the Huntsman Cancer Institute and worked on a network basis with Mr. Scott Parker, CEO of Intermountain Health Care. In 1996 President Clinton named Mr. Shea to the President's Commission on Aviation Safety and Security after the TWA 800 crash. In 1997 President Clinton named Mr. Shea as the National Director of the Bureau of Land Management in the Department of Interior. In 1999 Mr. Shea was named Deputy Assistant Secretary for Land and Minerals. In November of 2000 Mr. Shea returned to Salt Lake and became of Counsel with the Philadelphia law firm Ballard Spahr Andrews

& Ingersoll. In June of 2004 Mr. Shea reopened Patrick A. Shea, P.C. Since then his time has been devoted to solving complex business problems which involve legal, political and economic questions. He represents the University of Utah's Department of Physics in implementing an international high-energy physics experiment. Mr. Shea is an Adjunct Professor of Agronomy at Kansas State University with a particular focus on native grasses. Mr. Shea is an advisor at Westminster College for faculty grants and student scholarships as well as an associate research professor of Biology at the University of Utah.

Todd Stonely has worked for the Utah Division of Water Resources since 1998, first as an engineer in the River Basin Planning Section, then as its manager since 2002. Todd was the primary author of several major publications by the division, including the latest Utah State Water Plan, Utah's Water Resources—Planning for the Future (2001), Utah's M&I Water Conservation Plan (2003), and Weber River Basin—Planning for the Future (2009). Todd also oversaw the production of four detailed planning studies on water reuse, conjunctive management of surface and ground water, drought, and reservoir sedimentation; and directed the division's effort to create a water conservation web page for the state of Utah: www.conservewater.utah.gov. Todd was born and raised in Utah. He grew up in the Millcreek area of the Salt Lake Valley, attending Skyline High School and later Brigham Young University where he obtained a BS degree in Civil and Environmental Engineering in 1995. While at BYU, Todd met and married his sweetheart, Daisy. They live in Orem and are the proud parents of four children.

Bob Thompson has been a Watershed Scientist and Planner at Salt Lake County since 2009. His current assignments include field data collection for Pfankuch Level 3 Stream Channel Assessments, Physical Habitat Assessments using EMAP, RSRA and EPA Rapid Bioassessment protocols, creating and maintaining database and GIS data related to field collection and is the Project Manager for a Riparian Restoration project north of Bangerter Highway on the Jordan River. He has a background in teaching and hydrogeology and has been an avid whitewater kayaker for 25 years.

Laura Burch Vernon has worked with federal, state, and local governments and industry leaders over the last decade on contemporary planning and environmental policy issues in the West. Her education and professional experience focus on land use planning, public involvement, socioeconomic analysis, project management, and technical writing. Laura received her Master of Public Administration from the University of Utah in 2003. As a senior planner with SWCA Environmental Consultants, she has been involved with numerous National Environmental Policy Act-related projects and is currently serving as the project manager for the Great Salt Lake Comprehensive Management Plan Revision.

Erna Waterman began her career with the Environmental Protection Agency 20+ years ago serving the bulk of her time as Project Manager at Superfund sites in Utah, Colorado and North Dakota. A year and half of her time at the EPA included work in the RCRA program in the weapons of mass destruction and incineration unit. A 2007 graduate of the Colorado Leadership Development Program, Erna earned a B.S. in Civil Engineering, University of Colorado, 1989, and a B.S. in Geology & Art from Adams State College, 1981. She has also taken graduate classes in Public Administration and Petroleum Geology. Married with two girls, 12 and 16, Erna makes time for an avocation in art, as time permits.

Tim Witman is a Project Manager with the Utah-Nevada Regulatory Branch, U.S. Army Corps of Engineers-Sacramento District. Tim is responsible for administering the Corps Regulatory Program under authority of Section 404 of the Clean Water Act for six counties within Utah. The Regulatory Program mission entails protecting the integrity of the nation's aquatic resources, while at the same time allowing for reasonable development through fair, flexible and balanced permit decisions. Prior to joining the Corps Regulatory team, Tim worked as a consultant in Utah and Boston, Massachusetts. He was awarded his B.S. in Environmental Studies and Geology from St. Lawrence University.