

**UTAH
NONPOINT SOURCE
POLLUTION MANAGEMENT PROGRAM**



**FISCAL YEAR 2012
ANNUAL REPORT**

**January 2013
Prepared by:
The Utah Department of Environmental Quality
In cooperation with NPS Task Force**

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Cover Photo: River Restoration Project, Strawberry River

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1. Introduction and Program Overview

This report fulfills the requirements of Section 319(m)(1) of the federal Clean Water Act of 1987. The Utah Department of Environmental Quality's Division of Water Quality annually prepares this report to inform the public, the U.S. Congress and the U.S. Environmental Protection Agency (EPA) on the state's progress in the area of nonpoint source water pollution abatement. Although this report should not be considered a complete enumeration of all nonpoint source activities, it describes the most important features of Utah's nonpoint source program.

The mission of the Utah Nonpoint Source Pollution Management Program is to support the environmental protection goals of the state as described in the Utah Administrative Code R317-2 in part to: 1) to conserve the waters of the state; 2) to protect, maintain, and improve the quality of the waters of the state for public water supplies, species protection and propagation and for other designated uses; and 3) to provide for the prevention, abatement and control of new or existing sources of polluted runoff. The Utah NPS Management Program works to achieve these goals by working in concert with numerous local, state and federal agencies and private parties pursuant to the Utah NPS Pollution Management Plan.

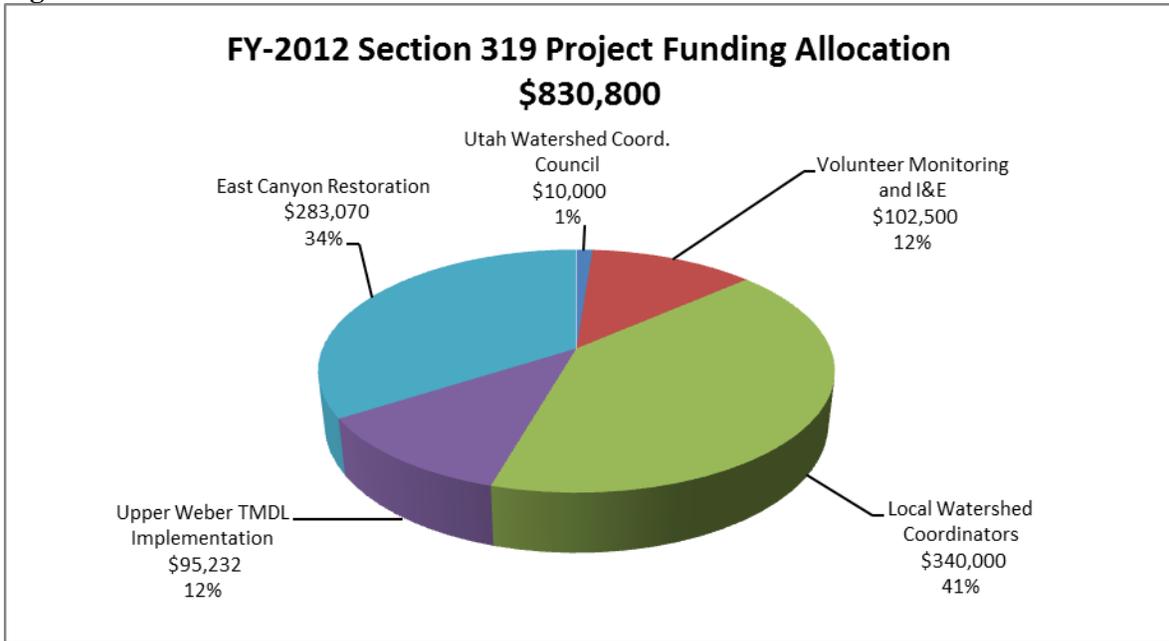
Nonpoint source pollution refers to diffuse pollutants that when added together from an entire watershed can significantly impact water quality in streams, lakes and reservoirs. Nonpoint source (NPS) pollution is diffuse, coming from land runoff, percolation, precipitation or atmospheric deposition. Precipitation washes pollutants from the air and land and into our streams, lakes, reservoirs and groundwater. Such pollutants can include sediment, nutrients, pathogens (bacteria and viruses), toxic chemicals, pesticides, oil, grease, salts and heavy metals. In Utah our most common problems are sediment, nutrients, metals, salts and pathogens. These pollutants alter the chemical, physical and biological integrity of the water and can impair their designated uses. Most assessment units (waterbodies) are listed on the State's 2010 303(d) List of Impaired Waters because of nonpoint source pollution. Some of the common sources of NPS pollution include agricultural activities, runoff from parking lots, streets and residential areas, mining and forestry operations, recreational activities, onsite septic treatment systems, construction and development activities, stream/riparian habitat degradation and natural sources.

2. Grant Management and Program Administration

In Fiscal Year 2012 (FY-12) the Utah NPS program received \$1,439,000 in federal Section 319(h) funds. Of these funds, \$608,200 was used for program related staffing and support, while the remaining \$830,800 was dedicated to 5 project grants. Due to federal budget cuts, the FY-2012 grant was reduced by 7% from the previous fiscal year.

Section 319(h) funds are distributed at the local level to help address water quality issues contributing to nonpoint source pollution. Recipients of these funds can include local government entities, watershed groups and individual cooperators. The projects selected for funding consisted of the Volunteer Monitoring Program, support of local watershed coordinators, Best Management Practice (BMP) implementation, and watershed group support (Figure 1).

Figure 1



In addition to the FY-12 funds, Utah continues to manage five other federal grant awards which have been partially or completely expended. Table 1 summarizes grant awards by year and the approximate percentage that has already been expended in each grant. The FY-07 contract expires August 22, 2012 and is on schedule to be completely spent out by that date.

Table 1

Current Section 319(h) Nonpoint Source Funding Project Allocations Through June 30, 2012				
Federal Fiscal Year	Grant Award	Expenditures in FY-12	Total Expenditures	Percent Expended
FY-07	\$1,126,500	\$146,288	\$910,321	81%
FY-08	\$1,161,585	\$156,499	\$1,004,943	87%
FY-09	\$1,119,400	\$128,016	\$828,110	74%
FY-10	\$1,065,000	\$335,865	\$751,965	71%
FY-11	\$832,921	\$221,243	\$221,243	27%
FY-12	\$830,800	\$0	\$0	0%
Total	\$6,136,206	\$987,910	\$3,716,582	61%

2.1. Staffing and Support

In FY-2012 the Division of Water Quality devoted 7 FTEs to the NPS Pollution Management Program that are funded 60% with 319 funds and 40% state revenue. Table 2 shows the positions and FTEs funded by the Division of Water Quality using section 319 funds.

Table 2

PERSONNEL (# FTE's)	SALARY	FRINGE (44%)	TOTAL EXPENSES	STATE (40%)	EPA 319 (60%)
Program Coordinator (1.0)	\$59,691	\$26,264	\$85,955	\$34,382	\$51,573
Environmental Scientist (0.40)	26,545	11,680	38,225	15,290	22,935
Environmental Scientist (1.0)	59,691	26,264	85,956	34,382	51,573
Environmental Scientist (0.40)	26,077	11,474	37,550	15,020	22,530
Environmental Scientist (0.20)	13,338	5,869	19,207	7,683	11,524
Environmental Scientist (0.40)	24,077	10,594	34,670	13,868	20,802
Environmental Scientist (0.20)	15,431	6,790	22,221	8,888	13,332
Monitoring Specialist (1.0)	59,691	26,264	85,956	34,382	51,573
Two Seasonal Temps (0.70)	32,739	14,405	47,144	18,857	28,286
Program Administrator (0.1)	5,038	2,217	7,255	2,902	4,353
Watershed Section Manager (0.60)	44,161	19,431	63,592	25,437	38,155
Asst. Div. Director (0.25)	21,668	9,534	31,202	12,481	18,721
Division Director (0.15)	16,152	7,107	23,258	9,303	13,955
TOTAL 7 FTEs	\$404,299	\$177,892	\$582,191	\$232,876	\$349,315

Section 319 funds allocated to staffing and support functions are also utilized to pay for laboratory support and report preparation. This includes laboratory analysis of water samples. Phytoplankton samples are also collected annually from selected lakes and reservoirs by DWQ monitoring staff. Macroinvertebrates are also collected in various locations. The analysis of these samples and annual reports are paid for in part with 319 funds, and help determine if the BMPs that are being implemented are achieving the desired environmental results.

The Utah Department of Agriculture and Food's (UDAF) Environmental Quality Section via contract with DEQ has management and statewide responsibility for the agricultural component of the NPS Program. UDAF received \$127,865 in FY-12 319(h) funds to help fund 2 positions which include: Program Tracking Specialist; and a temporary position to establish an Environmental Stewardship Certification program. This will be the last year that UDAF will be using 319 to fund FTEs in that agency.

2.2. Milestones

- Utah closed out the FY-06 Section 319 Grant, and all information has been entered into the Grant Recording and Tracking System (GRTS)
- The NPS Task Force meetings were held October 13th 2011, December 14th, 2011, and June 28th 2012. Instead of a spring meeting it was decided that the Task Force would hold an initiatory meeting to revise the Statewide NPS management plan. This meeting was held on March 29th, 2012.
- The annual agency coordination meeting was held on February 22nd. This meeting allowed relevant agencies the opportunity to give a 15 minute presentation highlighting the issues their agencies are currently addressing regarding NPS pollution.
- The Utah Watershed Coordinating Council (UWCC) met 3 times during the 2012 fiscal year including a field tour to the Upper Sevier Watershed.
- The Utah State Monitoring Council conducted two trainings that focused on developing Sampling Analysis Plans (SAPs). These trainings took place on February 15th and May 31st, and were attended by representatives from various state and federal agencies.
- Utah State is in the final phase of the Utah NPS program review. This evaluation will help determine more effective ways to administer and implement the NPS program. It will also look at the effectiveness of the practices that are currently being installed to reduce nonpoint source pollution. This evaluation will be delivered to the Division of Water Quality by October 31st.
- The Utah Abandoned Mine Plan was approved September 2012.
- The storm water management plan is in the final stages of development, and will be integrated into the revised statewide nonpoint source management plan.
- The Emigration Creek TMDL and phase I of the Jordan River TMDL were submitted to EPA for approval.
- Revision of the Utah Nonpoint Source Management Plan has begun, and is anticipated to be completed in the summer of 2013.
- A success story highlighting the environmental benefits of the NPS project work that has recently taken place on the East Canyon Creek Watershed has been submitted to EPA for approval.
- The Federal Consistency Review was conducted with the Division of Water Quality and the Forest Service in the Dixie National Forest on May 29th-31st.
- The Utah Division of Water Quality and the Environmental Protection Agency participated in a project evaluation tour in the Uintah Basin, as well as the San Pitch and Middle Sevier Watersheds on September 10th-13th.
- The Utah State Volunteer Monitoring Program was initiated, and began taking samples in various locations throughout the state.
- The State Division of Water Quality and the Natural Resource Conservation Service worked together to identify three 12 Digit HUCs in the Weber River and Bear River Watersheds in which the Water Quality Initiative funding will be spent.
- The Utah Division of Water Quality and the NRCS are currently working on a MOU that will allow the Division of Water Quality to have access to NRCS records, thus improving the effectiveness of both programs by better correlating program efforts.

2.3. Summary of Active Utah 319(h) Grants During FY-12

For an entire summary of active Utah 319(h) projects see Table A, B, &C in the appendices.

2.4. Watershed Based Plans/ TMDLs

Section 303(d) of the federal Clean Water Act (CWA) requires states to develop and submit for

approval a list of impaired waters every two years. This is referred to as the 303(d) list. The most recent version of the 303(d) list published for the state of Utah was issued in 2010. Waterbodies listed as impaired require additional study to determine the sources of impairment and if appropriate have a Total Maximum Daily Load (TMDL) determination made for the pollutant of concern. Currently the State of Utah is implementing 80 TMDLs, with Phase 1 of the Jordan River, and Ashley Creek TMDLs awaiting approval. (See Table D and E in the appendices). Additionally, a comprehensive tracking tool for TMDLs and waterbody assessments has been provided by EPA that will assist in accurately reporting the status of completed TMDLs.

2.5. Project Proposals Approved for Funding During FY- 12 Solicitation Process

Due to the high demand for 319(h) funds the State of Utah has required that entities applying for funding submit pre-proposals to the State for review. Forty-one NPS pre-proposals totaling more than \$4.2 million were accepted from the middle of April to first of June for the 2012 fiscal year. These pre-proposals were reviewed by the Utah Division of Water Quality using a project selection ranking criterion developed by the Water Quality Task Force. Of the proposals received, five projects were selected for funding with Section 319 funds. The Weber Watershed received the majority of Project funds available, since it was the targeted basin in FY-2012. The local watershed coordinators, the Utah Watershed Coordinating Council, and an information and education grant to USU which included the volunteer monitoring program were also funded (Table 3). The Projects that were not selected for funding with section 319 funds were then considered for funding with State NPS funding.

Table 3

2012 Project Implementation Plans (PIPs) for CWA Section 319 Funding (Prepared June 30th, 2011)

<u>Proposal Title</u>	<u>Base Fund Allocation</u>
1. Utah Watershed Coordinating Council Support	\$ 10,000
2. USU Volunteer Monitoring and I&E	<u>\$102,500</u>
Sub Total	\$112,500
	Incremental
<u>Proposal Title</u>	<u>Fund Allocation</u>
3. Local Watershed Coordinators	\$340,000
4. East Canyon Restoration	\$283,070
5. Upper Weber Watershed TMDL Implementation	<u>\$ 95,230</u>
Sub Total	\$718,300
Grand Total	\$830,800

3. NPS Program Strategic Approach

To be eligible for funding, NPS projects must be located on a waterbody, or a tributary to a waterbody, identified on the state 303(d) list of impaired waterbodies. A current watershed plan should also be in place which covers all nine elements required in an EPA approved Watershed based plan. Using a targeted basin approach will allow watershed planners time to develop

watershed plans between funding cycles. To help facilitate the development of watershed plans and identify sources of pollutant loading, the Utah State Division of Water Quality will conduct annual intensive monitoring runs two years before funding is scheduled to be received by the targeted basin.

3.1. Targeted Basin Approach

The State of Utah uses a targeted basin approach to reduce nonpoint source pollution. FY-2012 represents the third year of implementing the targeted basin approach (see Table 4). This approach allows the state to focus implementation efforts on a specific watershed and will promote effective implementation of TMDLs and watershed plans.

The Weber River Watershed obtained 100% of the 319 funds allocated for BMP implementation, and will also receive an additional \$150,000 in State Nonpoint Source funds in FY-2013. The majority of these funds will be used to implement projects on East Canyon Creek and the Upper Weber Watershed, as identified in the established watershed plans. Projects have already been identified in the Uinta Basin, since they will be the targeted basin in 2013.

Table 4

Basin Priority Funding Schedule											
Watershed	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(1) Jordan/ Utah lake											
(2) Colorado River											
(3) Sevier, Cedar-Beaver											
(4) Bear River											
(5) Weber River											
(6) Uinta Basin											

3.2. Utah State NPS Funding

The Utah Division of Water Quality used NPS funding to reduce NPS pollution throughout the state. NPS funds are acquired from interest generated from hardship grant loans given by the Utah Water Quality Board for private and municipal water treatment facilities. Individuals, businesses, private entities, associations, and government agencies are eligible to receive these grants. Much like section 319(h) funds, all project proposals received are ranked and prioritized. The highest priority projects are those that address a critical water quality need, will improve human health concerns, and would not be economically feasible without the grant. In the 2012 fiscal year, 22 projects were funded, totaling \$983,866. In addition to these projects an additional \$16,114 was reserved for possible on-site septic projects that may arise during the year. For a complete summary of FY-12 funded projects see Table F in the appendices.

3.3. Program Match Status

The 319(h) federal money received by the State requires a 40% non-federal match for both the staffing and support funds used by DEQ and UDAF and the dollars allocated for projects. Most of the match for projects is provided at the local level by individual producers and landowners. The DWQ provides State NPS funds as match to selected 319 projects to provide an additional incentive to implement BMPs.

There are several State and local programs which have been very helpful in generating match for the 319 projects. The Division of Wildlife Resources manages several state general funding grant programs, which include Habitat Council funds, Blue Ribbon Fishery program, and Watershed Restoration Initiative funding. These funds are dedicated to the improvement of wildlife habitat on public and private lands, while improving water quality. Table G in the appendices gives a summary of these funds used in conjunction with section 319 funding.

The Utah Conservation Commission manages an Agriculture Resource Development Loan Program, ARDL, which in recent years has been expanded to include water quality improvement projects on farms and ranches. These state programs are tremendous assets to the improvement of water quality in this state. The Grazing Improvement Program (GIP) at the Utah Department of Agriculture and Food also provides state revenue to improve upland and riparian areas throughout the state. All of the programs mentioned above have provided match for 319 revenues in jointly funded projects.

The Department of Environmental Quality provides state revenue to match the staffing and support 319(h) funds that are part of the Performance Partnership Grant (PPG). The Utah Department of Agriculture and Food also provides state revenue to match the portion of those funds passed through to UDAF via an annual contract. Table 5 shows the amount of match accrued for all open Section 319 grants.

Table 5

Grant Year	319 Funds Spent in FY-12	Match Accrued in FY-12	Total 319 Funds Spent	Total Match Accrued
FY-06	\$146,288	\$97,525	\$910,321	\$606,881
FY-07	\$156,499	\$104,333	\$1,004,943	\$669,962
FY-08	\$128,016	\$85,344	\$828,110	\$552,073
FY-09	\$335,864	\$223,909	\$751,965	\$501,310
FY-10	\$221,243	\$147,495	\$221,243	\$147,495
FY-11	\$0	\$0	\$0	\$0
Total	\$987,910	\$658,607	\$3,716,582	\$2,477,721

3.4. Integrating Watersheds and NPS Funding (Basin wide summary)

Watershed coordinators have proven to be very effective at helping implement water quality projects on the ground. Local watershed coordinators develop relationships with landowners and educate the public on the benefits of installing Best Management Practices (BMPs). They also oversee all project planning, design, project implementation, and reporting. They help organize and facilitate meetings for local watershed groups. These groups are involved in watershed planning and the project selection process.

Middle and Lower Sevier River Watershed- Lynn Koyle

In 2012 three projects were completed in the Middle Sevier Watershed. These projects consisted of fencing and stream bank stabilization projects on the main stem of the Sevier River. Much of the work that has recently taken place has been focused in the Marysvale area south of Richfield. The local watershed coordinator is optimistic that other landowners in that area will also implement projects in the future.

The local watershed group continues to employ the recently completed Stream Visual Assessment Protocol (SVAP) to identify problem areas in the watershed. The local watershed coordinator

facilitates these meetings, and attends other agency meetings to assure that partnerships are developed and strengthened.

The local watershed coordinator has also assisted with monitoring in the watershed, specifically on Yuba Reservoir. He has also been involved in project monitoring, and will continue monitoring the projects that were recently completed to determine project effectiveness and environmental results. These results will be included in final reports and success stories that will ultimately be submitted to EPA, and made available to the general public.

Southeastern Colorado River Watershed- Tessa Groff

The Southeastern Colorado local watershed position is a part time position. The main responsibility of this coordinator is to oversee the Moab Area Watershed Partnership (MAWP). The MAWP is a diverse watershed group that has been fully active for a year and a half. The coordinator has worked closely with this group to successfully develop a mission statement, partnership agreement, by-laws, website and brochure.

The largest goal for this group is to develop a holistic watershed management plan for the Mill Creek and Castle Creek watersheds, both of which have had completed TMDLs. The coordinator worked closely with partners to gather data and draft a watershed inventory to be used in the development of this plan. Lastly, the coordinator had the opportunity to take the lead in the development of two "Education & Outreach" proposals on behalf of MAWP. The total amount awarded was \$1759.77 to support the development of water quality programs for the Moab community in addition to the development of an educational kiosk located at the head of a heavily used trail.

Scofield and West Colorado Watershed- Daniel Gunnell

Phase one of the Price River Planting project, which uses Watershed Restoration Initiative and Montezuma Creek Mitigation monies is almost complete. Over 400 plants have already been planted, and other plantings will shortly follow.

A project implementation plan for an animal feeding operation in Moab, Utah was developed, and funding was received from the State non-point source revolving fund. The diversion (berm) has been completed, and sections of fencing have been installed. The landowner will be working on completing the fence and cement pads, and the project is estimated to be complete by early 2013.

Gordon Creek, a tributary to the Price River is listed for TDS exceedances. A project using Watershed Restoration Initiative funds and BLM money were used to remove noxious and invasive Russian olive and Tamarisk. 198 acres were cleared below the trestle bridge. Mulch was left onsite with a seed mixture from the Division of Natural Resources to reduce possible erosion. Since the treatment, beaver have already begun to spread throughout the vicinity.

The Buckhorn Stock Water Project is nearing completion, 12 miles of ditch through Mancos shale and 2 ponds are being replaced with pipelines and troughs. Return flows from the ditches will be completely eliminated, reducing TDS inputs drastically. Pipelines have now been placed into the ground and the troughs will be installed shortly.

The NRCS plant materials center has donated seed for Price River Planting projects. CEU (College of Eastern Utah) will provide greenhouse space and the associated care for the growing plants. Containers were purchased with WRI funding, while the potting material was donated by the local Wal-Mart. A wide variety of native plants will be grown and planted by an Eagle Scout

project later in 2012. Plant education signs were also developed and will be placed with the plants when planted. 40 plug trays have been grown along with 250 potted plants. All of the plants will be planted along the newly established Price River Trail.

Jordan River Watershed- Marian Hubbard

Over the past twelve months, the Salt Lake County Watershed Planning and Restoration Program of Salt Lake County has engaged in several restoration and planning efforts, aimed towards achieving TMDL and Salt Lake County's Water Quality Stewardship Plan's goals.

In 2008, Salt Lake County received \$1.5 million in grant funds from the EPA for a large-scale ecosystem restoration project along the Jordan River between 6400 South and 7800 South (East Bank) totaling approximately 7000 linear feet. This is part of the Bingham Junction Project, with Salt Lake County working collaboratively with EPA, DEQ, USGS, UTA, and Midvale City. Work has been completed with vegetation becoming established. The Remedial Action Completion report (RAC) is complete and has been approved by EPA. A media day occurred on October 5th 2011 with Mayor Corroon, the Salt Lake County Watershed Planning & Restoration Program, EPA, DEQ, Midvale City and TAG. In addition, in May 2012 Salt Lake County partnered with EPA to educate Midvale School fourth graders on watershed stewardship and the Jordan River. Furthermore, Salt Lake County restored and stabilized approximately 550 linear feet of bank on the Jordan River near West Jordan in December 2011, which included weed mitigation and seeding.

In 2007, Salt Lake County received 319 Nonpoint Source funds to relocate, redesign, and reconstruct the Alta Wetland Fen. Due to issues of where to place the Fen, the project stalled. Salt Lake County did complete a conceptual design of a limestone channel, which is to be used in conjunction with another form of treatment. With no feasible option to expand the Fen, the project is now closed.

Riparian Restoration and New Stream Gage on Red Butte Creek (a Chevron Mitigation Fund Project): This project aims to restore riparian vegetation in the University of Utah stretch of Red Butte Creek (below Red Butte Garden to Foothill Drive) to repair damage caused by the 2010 Chevron oil spills and subsequent cleanup activities. Restoration goals are to: stabilize streambanks, protect against erosion, protect water quality, improve riparian habitat, and slow high flows. Plant-based streambank bioengineering techniques will be used primarily, specifically the installation of dormant woody plant cuttings called live-stakes. Native species of dogwood and willow will be used, which are naturally occurring in the riparian plant communities of Red Butte Creek.

Salt Lake County will also install one new automated stream gage to continuously monitor stream flow and water quality in Red Butte Creek. The gage will be installed in the Miller Park section of the creek, with placement determined in collaboration with Salt Lake City's Miller Park restoration project (another Chevron Mitigation Fund project).

Bangerter Restoration: The Jordan River's west bank north of Bangerter Highway had been eroding its banks and consuming the Jordan River Parkway trail since 2009. In August of 2012 Salt Lake County Flood Control Crews re-graded and stabilized 474' of the eroding bank. There was no irrigation available for tree plantings so native seed was distributed in the toe rock and upland areas in an effort to control invasive weeds in the area.

126th South Restoration Project: At Rotary Park in Draper, Salt Lake County Flood Control crews re-graded 492' of the Jordan River's east bank. The design used 48" riprap at the toe of the slope and 4 J-Hook vanes in the channel to dissipate energy. 200 Sandbar Willows, 10 Narrow-Leaf Cottonwoods and 25 Fremont Cottonwoods were planted in June to help with bank stabilization. All disturbed areas were reseeded to control weed infestations.

In August 2008 the Watershed Planning and Restoration Program finalized the Water Quality Stewardship Plan (WaQSP) for Salt Lake County. The WaQSP identified 15 priority recommendations for this planning cycle, which Salt Lake County is in the process of implementing. These recommendations focus on water quality and quantity, and also restoration projects in the Salt Lake Countywide watershed. The 2015 WaQSP update has already started with data collection. Furthermore, Salt Lake County continues an extensive public involvement and outreach effort. This includes the Salt Lake Countywide Watershed Symposium, the bi-annual Watershed Watch Newsletter, informational table events throughout the year, and the Jordan River Watershed Council. WaQSP planning implementation includes the "I Love the Jordan River" campaign, flow and water quality data collection, macroinvertebrate sampling, and water quality sampling

Weber River Watershed- Jake Powell and Lars Christensen

The Echo and Rockport Reservoir TMDL is currently in the development stages with the public comment phase to be initiated during the spring of 2013. The TMDL is on schedule to be completed by the middle to end of 2013. The watershed coordinator has been involved throughout the TMDL development process, providing technical expertise as well as engaging and encouraging local stakeholder's participation in the process. The watershed coordinator has attended all the TMDL development meetings and continues to act as a liaison between stakeholders, state and federal agencies, and subcontractors on the project.

A streambank stabilization project was completed in November 2011 on Chalk Creek. This consisted of over 250 linear feet of streambank stabilization using root wads, rock vanes, rock barbs, and vegetative planting. The project was also fenced off from adjacent pastures to protect the project from grazing. The project was funded using FY-06 319 grant.

Several projects were completed in the East Canyon Creek drainage. The two implementation projects were streambank stabilization projects which used soil lifts, streambank sloping, vegetative planting, and revetments. These projects utilized 319 funding in addition to State NPS funds and a non-point source grant from the Central Weber Sewer Improvement District. These two projects encompassed over 5,900 linear feet of stream and riparian area stabilization and re-vegetation.

Projects implemented in previous years also required monitoring and maintenance to ensure the long term viability of the projects and that previously funded projects continue to function and accomplish project goals. Funding from both 2010 and 2011 319 grants was used to fund monitoring and management of invasive weeds, replace vegetation, maintain soil lifts, revetments, and stabilization structures, as well as monitor the projects so that lessons learned on prior projects can be effectively transferred into future projects. The monitoring conducted by the watershed coordinator include: E.coli monitoring, photo monitoring, as well as the installation of a monitoring station near the Swaner Eco Center.

A pre-project survey was conducted in March of 2012 to assess and provide recommendations on Fish Creek for over 70' of culvert that was washed out in the spring of 2011. The watershed coordinator assisted in preparing permit documents and with overall project implementation of a new bridge to replace the washed out culvert. The project has further developed into a partnership with Trout Unlimited, the Utah Division of Wildlife Resources, and the landowner to

develop a project intent on repairing the current eroding banks where the culvert was washed out and re-establish once severed fish passage for the threatened Bonneville Cutthroat Trout.

The Watershed coordinator also conducted several information and education type activities throughout the watershed. These activities include assistance in research studies with Utah State University, managing booths at the county fair, conducting watershed tours, and presenting at conferences and meetings throughout the watershed

Middle and Lower Bear River Watershed- Justin Elsner

During FY-2012 the local watershed coordinator completed 6 projects to help improve water quality throughout the watershed. These projects included: 2 stream bank stabilization projects that took place on the Little Bear River and the Blacksmith Fork Rivers. There were also four animal feedlot projects that were completed. These projects took place on Spring Creek, Little Bear River, Middle Bear River, and Lower Bear River. In addition to completing these projects the local watershed coordinator continues to work on six additional projects that are scheduled to be completed in the next couple of years.

In addition to project implementation the local watershed coordinator has been actively involved in educating the public in his watershed. His efforts have focused on proper pharmaceutical disposal, storm water awareness, and informing landowners of practices that can be implemented on their property to improve water quality.

The local watershed coordinator also continues to facilitate two different watershed groups in the Middle and Lower Bear River Watersheds. The Cutler Reservoir Advisory Committee is active in the middle Bear River Watershed, and is currently developing the implementation plan for the Cutler Reservoir TMDL. The watershed group in the Lower Bear River has recently begun the process of revising the TMDL on the Lower Bear River.

San Pitch Watershed- Alan Saltzman

The San Pitch Watershed coordinator completed 7 projects during the 2012 fiscal year including the Kevin Turpin River Restoration project, the M. Kyle Christensen pasture improvement/riparian project, the Quedell Jensen irrigation project, the Affel Erekson corral project, the Edward Jessen Corral project, and the Reed Christensen pasture project. Besides the projects that were completed two additional projects are nearing completion. These projects are the Journey Blazing New Trails irrigation/pasture project and the Gunnison and Mayfield Irrigation projects.

The local watershed coordinator, with assistance from the Watershed Stewardship group, sponsored two watershed education days, one in the fall for 5th grade students, and one in the spring for 4th grade students. Normally there is only one held per year. However, due to increased demand an additional day was added. The Watershed Stewardship group also held a producer of the year dinner where the water quality conservation efforts of an individual were highlighted and different projects were showcased.

In addition to the many projects that were implemented in 2012 by the San Pitch watershed coordinator, he also submitted annual reports for the grants that were expended during this period. To generate these reports the coordinator gathered additional data which included photo points, and grab samples from project areas. Much of this information is currently being used to generate a success story showing the environmental benefits that have been observed due to project implementation.

Upper Sevier Watershed- Wally Dodds

The Upper Sevier Watershed Coordinator has continued to implement several projects on the East Fork of the Sevier River, as well as various projects on the main stem of the Upper Sevier River. While none of the projects were completed in FY-2012, several large projects were initiated, and are anticipated to be completed in the fall or winter of FY-2013. The local watershed coordinator worked with the BLM to complete a project in the upper end of the watershed, establishing grass cover in place of bare ground pinyon-juniper stands. This project has shown very large reductions in sediment loading over several thousand acres.

In addition to project implementation the local watershed coordinator has been able to work with several local entities, and serve on many of their boards, including: the local sage grouse work group, the county weed board, and the local irrigation company. He also facilitates meetings for the local watershed groups, and attends all meetings held by the local Conservation District.

Several Information and Education projects have taken place in the Upper Sevier Watershed including: field days for the local fourth graders; two workshops for producers where recently gathered water quality data and studies were presented; and a watershed tour for all parties interested in seeing what has been accomplished in the watershed.

The local watershed coordinator is actively applying for grants from various agencies to be able to keep the momentum going in the areas where he has generated interest from the local landowners in impaired waterbodies throughout the watershed.

The Uintah Basin- Gary Wieser

Since the Uinta Basin will be the targeted basin in 2013 the local watershed coordinator has spent the majority of his time preparing to receive this funding. This preparation included the organization of a local work group to identify NPS concerns that exist in the watershed, approaching landowners with existing NPS concerns on their property, soliciting proposals for projects, and ranking these projects. The coordinator has also been heavily involved in the development of watershed plans that address all nine elements required to meet EPA watershed planning standards. The local coordinator has also been in contact with the NRCS in determining where USDA Water Quality Initiative funding will be spent.

The local watershed coordinator has also been working on two additional projects that involve several other partner agencies. These projects are located in the Matt Warner / Pot Creek Watershed, and the Strawberry River / Lower Duchesne Watershed.

The Matt Warner Pot Creek project deals with a large erosional problem that is currently occurring around the reservoirs and the tributaries. In 2012 an improved culvert and retention pond was installed, and the road was graveled to reduce the amount of nutrient rich sediment entering into the tributaries of Calder Reservoir. Additional work is scheduled to take place in the watershed, and should be completed by December of 2012.

The Strawberry River/ Lower Duchesne project deals largely with Russian Olive and Tamarisk removal. The majority of the funding used for this project is Watershed Initiative funding from the DWR, and funding from the County. This project will help the restore riparian health, and increase wildlife habitat while reducing erosional potential to the stream bed.

Project Summary

In 2012 local watershed coordinators have been involved with the completion of 22 projects throughout the state of Utah. These projects used over \$500,000 in section 319 funds and generated over \$3,285,144 of funding from other sources. These projects are estimated to result in a reduction of 1,954 pounds of phosphorous per year and 15,630 tons of sediment per year. In addition to the projects that have been completed additional funding is also being spent on other projects that are scheduled to be completed in the next fiscal year. Table 6 shows a summary of accomplishments by watershed.

Table 6

Watershed	Number of Projects Completed	319 Funding	Funding from Other Agencies	Estimated Total P Load Reductions (lbs/year)	Estimated Sediment Load Reductions (tons/year)
Middle Sevier	3	\$135,317	\$76,811	22	42
West Colorado	1	\$0	\$88,000	220	175
Jordan River	2	\$87,500	\$853,524	222	181
Weber River	1	\$4,846	\$2,423	5	7
Bear River	6	\$114,550	\$374,236	1043	97
San Pitch	7	\$167,494	\$750,150	300	15,007
Upper Sevier	1	\$0	\$1,140,000	133	108
Uintah Basin	1	\$0	\$31,536	9	13
Total	22	\$509,707	\$3,285,144	1954	15,630

3.5. NPS Water Quality Task Force/ Monitoring Council

The mission of the Utah Water Quality Task Force is to facilitate coordinated and holistic management of Utah's watersheds for the protection and restoration of Utah's surface and ground waters.

The Utah Nonpoint Source (NPS) Program is administered by the Division of Water Quality (DWQ) of the Utah Department of Environmental Quality (DEQ) through the coordination and assistance of the Utah Water Quality Task Force, and its established ad hoc committees. The responsibility of the Utah Water Quality Task Force is to advise the DEQ in the holistic management of Utah's watersheds, with a focus on reduction of nonpoint source pollution.

The Utah Department of Agriculture and Food has been delegated management and implementation responsibility for eliminating agricultural sources of NPS pollution via a memorandum of understanding with DEQ. The chairmanship of the Water Quality Task Force is shared by the Executive Directors of the DEQ and UDAF or their designated representatives. The UDAF is responsible for chairmanship on even numbered years and the DEQ is responsible on odd numbered years. The Task Force meets quarterly, but may meet more frequently if deemed necessary.

Specific functions of the Utah Water Quality Task Force include:

- Serve as a coordinating body for the review and direction of federal, state and local NPS management programs to assure that these programs are implemented consistently with

the Utah Nonpoint Source Management Plan (approved by EPA in 2000 and as amended or revised);

- Promote and foster better alignment of relevant programs to assure efficient and effective watershed management efforts that improve water quality, in addition to other benefits;
- Provide a forum for the exchange of information on activities which reduce nonpoint source pollution;
- Provide a forum for discussion and recommended resolutions to program conflicts;
- Work with partner agencies to coordinate the prioritization of watersheds for nonpoint source activities. Prioritization criteria should include local involvement (e.g. locally led watershed committees), effective use of partnerships, and evidence of leveraged sources of funding;
- Establish and implement a process for field inspections of nonpoint source reduction activities on public and private lands to ensure that best management practices are installed and functioning as designed to protect water quality; and
- Serve as a coordinating body for outreach and education to increase public awareness regarding nonpoint source pollution abatement.

Specific Products of the Utah Water Quality Task Force include:

- The Annual Utah Nonpoint Source Program Report. This report is required by EPA, but is not restricted to 319 funded efforts. The report is prepared by DEQ. The task force will assist in providing content, advice and review. The report will highlight the planning efforts, projects, and successes statewide that are possible with the broad coalition of partners encompassed in the Water Quality Task Force;
- Presentation of the Annual Utah Nonpoint Source Program Report each year to the Utah Water Quality Board and the Utah Conservation Commission.
- An institutional repository (e.g. a web site) that includes originals or links to documents, reports, minutes, etc.

Membership:

The Task Force includes representation of those entities with programs that could potentially cause or prevent nonpoint source water pollution. As new NPS program components are developed and implemented additional entities will be invited to participate. Current membership includes representatives of:

Local Governments

U.S. Army Corps of Engineers, Intermountain Civil Works Office

U.S. Department of Interior Bureau of Land Management

U.S. Department of Interior Bureau of Reclamation

U.S. Department of Interior National Park Service

U.S. Department of Agriculture Forest Service

U.S. Department of Agriculture Natural Resources Conservation Service

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

U.S. Geological Survey

Utah Association of Conservation Districts

Utah Department of Agriculture and Food

Utah Department of Environmental Quality

Utah Department of Natural Resources

Utah Department of Transportation

Utah Farm Bureau, Trout Unlimited, the Nature Conservancy, and other NGOs

Utah Monitoring Council- Jim Harris

The Utah Water Quality Monitoring Council is now in its fourth year of working with cooperators, Utah State University, citizen monitors, and the Division of Water Quality. During this time we have established a solid community of volunteers. We are working to enhance a Lake Watch program and expanding our citizen based monitoring by providing monitors with equipment and lab services for chlorophyll a analysis. This can be used with secchi depth to identify lakes in Utah that might be impaired. Samples will be shipped by volunteers to the Unified Laboratory Services to be analyzed.

In addition, we have begun working with the new USU Extension Citizen Monitoring Coordinator, Brian Greene, to develop monitoring strategies for citizens and a tiered approach for using their data for DWQ's assessment program. DWQ's new data base is now on line and we are in the process of setting up customized portals for our cooperators to enter data. They will also be able to download and submit data without having to go through DWQ's staff.

3.6. Grants Reporting and Tracking System

The Section 319(h) Grant Reporting and Tracking System is a national database developed by EPA to track projects and activities funded with CWA Section 319(h) funds. The primary purpose of the database is to track project progress, accomplishments, funding information and environmental results using several nationally mandated information items that are reported to Congress annually by EPA. Information extracted from this system forms part of the justification to Congress for funding the Section 319 Program. EPA Region VIII uses GRTS to enable the States to electronically fulfill reporting requirements using the Project Evaluation Form and other attachment features in GRTS such as final reports, GIS maps or other project publications.

DEQ is the lead agency for administering the 319 Program. Until recently UDAF had been tasked with entering relevant data into the GRTS Database. However, due to budget cuts the GRTS database entry position has been dissolved, and the responsibility of entering this data will be assumed by the DEQ. The majority of the data entry will be done by the State NPS program coordinator.

4. Water Quality Information

4.1. Sampling and Assessment Activities- Jim Harris

As more restoration projects are being implemented around the state, monitoring of individual projects is becoming more difficult to perform. The majority of 319 projects in Utah address impacts to stream and riparian habitats in order to restore aquatic life beneficial uses. Often, these projects substantially reduce erosion and inputs of nutrients to streams and rivers, in addition to improving the localized conditions of aquatic habitats. Unless restoration is widespread and inclusive of a large portion of a watershed, it is often difficult to document improvements in ambient water quality trends given the resources available. The DWQ's monitoring strategy identifies a couple of key changes in the approach to assessing the effectiveness of nonpoint source projects.

The first of these monitoring approaches involves the direct measure of the aquatic communities affected by restoration utilizing UCASE protocols in a BACI (Before-After-Control-Impact) approach. DWQ staff have already performed UCASE monitoring at sites where restoration

projects are planned and linked them to sites of similar condition not anticipating management or restoration changes (Before-Control). In coming years, those same sites will be visited again to assess the changes from restoration activities (After-Impact). The BACI design provides statistically rigorous comparisons between the control site(s) with the restored site (impact) to quantify changes in biological and physical parameters that have occurred since the restoration was conducted. In reality, grab samples of chemistry are sufficiently variable that even statistically rigorous approaches like BACI may not demonstrate discrete changes in the chemical composition of surface waters following restoration activities. However, similar analyses will be conducted for measures of biological composition, which may help demonstrate relatively rapid improvements that result from remediation activities. Measures of biological composition are also useful because they directly measure improvements of the biological designated uses the numeric criteria are intended to protect. Of course, measures of both biological and chemical improvements will be dependent on the relative size of the watershed and restoration activity.

In FY 2012, the majority of the biological monitoring occurred as part of the Probabilistic Surveys performed in the Bear River Basin and as a result there were few sites targeted specifically for the evaluation of nonpoint source projects utilizing UCASE protocols. However, the focus of the Targeted Monitoring Program which collects primarily water chemistry data was centered on the Jordan River/Utah Lake Basin and Colorado watersheds as well. These sites were targeted with several objectives in mind: supplying data for assessment and listing, Total Maximum Daily Load analysis, permitting and compliance and nonpoint source assessment. As such many of these sites may fulfill more than one of these objectives and to create an efficient annual monitoring plan the Monitoring Section consults with Water Quality Management and Watershed Protection staff to identify particular assessment and evaluation needs to meet their program objectives.

Another proposed improvement to monitoring nonpoint source projects on a watershed or sub-watershed scale is the installation of long-term continuous monitoring stations. Depending on the parameters of concern and the nature of restoration activities, these automated stations could measure a variety of constituents, including dissolved oxygen, specific conductivity, pH, turbidity and discharge. Since these probes collect a limited set of water quality parameters, surrogate measures may be used and additional water chemistry monitoring implemented to develop relationships between parameters of concern and the surrogate measures. For instance, positive relationships may be developed between continuous turbidity data and chemistry data such as nutrients to provide the necessary linkage between changes at long-term stations and project effectiveness. While the installation of long-term stations isn't feasible for the assessment of individual projects on a small scale, they could be used to document the effects of a number of projects implemented as part of a watershed-scale implementation strategy as in the case of irrigation efficiency projects to reduce TDS or range improvements to reduce TSS (turbidity).

Currently, Sandy Wingert is implementing a long-term monitoring project in the Strawberry River Basin in conjunction with Division of Wildlife Resources and the Forest Service. This project seeks to evaluate the relationship between phosphorus and other measures such as turbidity to generate data sets sufficient in size to perform trend analysis. In this way, watershed improvements due to restoration activities may be discernible over time.

4.2. Data Analysis and Assessment

Data analysis for evaluating the effectiveness of nonpoint source projects will vary depending on the type of project and the available data sources. Biological monitoring will provide background condition of the biotic community for both the "Before" and "Control" collection events. Once implemented, projects will be assessed by revisiting the "Control" and "Impact" site. Data will

be compared using similar tools described in the biological monitoring component of the probabilistic and targeted assessments. Scores of biological condition can be evaluated for the “Impact” or restoration site (Before vs. After) in conjunction with the “Control” site not receiving treatment (Before vs. After). In this way, changes in the biological condition can be evaluated against year-to-year variability.

Methods for long-term trend analysis have yet to be developed. However, these sites will likely utilize a combination of continuous monitoring data coupled with water chemistry to establish a relationship between the surrogate measures and chemical parameters of concern linked to PIPs and TMDLs. For example, correlations can be readily established between total dissolved solids collected by grab samples and specific conductance as measured by probe sensors. Continuous monitoring datasets are sufficiently large enough to perform trend analysis with a level of confidence not possible through periodic grab sampling. Developing correlations between probe data and other parameters such as nutrients and sediment prove more difficult than the above described scenario. In these cases, measures for dissolved oxygen, turbidity or other surrogates may need to be evaluated. As mentioned above, specific monitoring plans will be developed individually for implementation strategies and QAPPs and subsequent reporting documentation will detail specific data analysis for each project.

4.3. Ground Water Protection

Ground water protection remains a priority in the State of Utah. In the past, various projects were funded using 319(h) funds to help analyze ground water around the state. Recently the State has noticed an increase in nutrients in various ground water sources. This monitoring will help assess the problem, and identify the sources of the contaminants. The Utah Division of Water Quality and the Division of Drinking water will continue to fund monitoring and information and education programs around the state to identify groundwater issues, and educate the public on what they can do to protect groundwater in the State.

5. Outreach Activities

Utah State University Extension- Nancy Mesner (USU Water Quality Extension Specialist)

USU Water Quality Extension’s outreach program represents a true partnership with agencies and non-governmental organizations across Utah, the region and the nation. Each year we seek input on those elements in our program that work well and identify new and emerging areas that we should be addressing. We also work with other water quality and watershed Extension programs and professionals throughout the country, and regularly make presentations at regional and national meetings. The result is increased efficiency and effectiveness in our programs and the ability to reach broader and more diverse audiences. Below we describe

several of USU Water Quality Extension’s major program areas.

Citizen Monitoring

In 2012, we initiated a statewide volunteer monitoring program called Utah Water Watch (UWW), which has created a network of engaged



High school volunteers are trained in Tier I techniques at Ogden Nature Center.



Adult volunteers completed a training along Red Butte Creek in Salt Lake City.

citizens partnering with the UDWQ to monitor streams and lakes. Our goals are 1) to improve citizen understanding of NPS and watershed concepts, and 2) to collect credible data that UDWQ can use in its watershed protection programs.

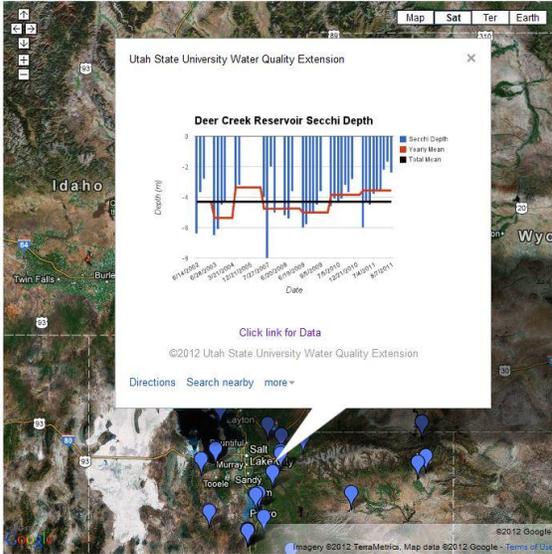
2012 was the initial proof of concept year to establish the functionality and feasibility of the program. In its first year, UWW held 18 trainings in 9 different counties with over 200 total participants. These volunteers have completed over 160 monitoring events at 60 different sites on lakes and streams across Utah. They utilized “Tier I” monitoring methods for turbidity, water temperature, air temperature, pH, and *E. coli*. The use of Coliscan EasyGel monitoring for *E. coli* has proven to be comparable to state *E. coli* methods and a good indicator for bacteriological pollution. This first year of has also provided a sound foundation for program growth in 2013. In addition to Tier I data, we are working with

UDWQ to develop Tier II data protocols to collect credible data with higher QA/QC criteria. Next year we intend to monitor more sites, collect higher quality data, and increase awareness about water quality in Utah. We are working directly with watershed coordinators so they can utilize UWW monitors.

Utah Water Watch was featured in newspaper articles across the state and has an active following via social media allowing for the dissemination of water quality information on Facebook and Twitter.

We created a website for UWW as a successful way to promote the program and distribute information. It quickly became one of the top two Google search results for Utah and water quality. The website also serves as an online way for volunteers to submit collected data. These data are then displayed using maps, graphs, and spreadsheets. Our volunteers have

commented that this is a useful and efficient way to submit data. We are in the process of enhancing our database to provide data queries, automated graphs, and statistics.



Screen shot of interactive map displaying Secchi Disk depth measurements collected by volunteers

Youth outreach and teacher training:

During the 2012 calendar year, USU Water Quality Extension provided hands-on NPS water quality educational activities to over 5,500 youth in 8 counties at venues across the state. We continue to develop new water quality materials to cover emerging concepts and new audiences such as. high school and junior high students at the Utah Science Olympiad.)



High school students test water quality for the Utah Envirothon competition.

We also continue to provide excellent teacher trainings for our Stream Side Science and other interdisciplinary curricula. In 2012 we trained 196 educators at workshops in 6 counties throughout the state. This past year we partnered with the Utah Education Network, Utah Society of Environmental Education, the Utah Master Naturalist Program, the Utah Envirothon, and others.

Watershed Coordinator Support:

We continue to support Local Watershed Coordinators in many ways. We are currently working on 7 new watershed factsheets to add to the 17 fact sheets we have already produced. In

addition to printed copies of these factsheets, we are creating online versions with hot links to maps, data and other timely information. We have also continued to develop outreach materials and trainings focused on establishing improved monitoring techniques. We have conducted several workshops and provide support for the Utah Watershed Coordinating Council on developing better monitoring programs and implementation of more effective BMPs, including a workshop on innovative ways to incorporate beaver dam construction into riparian restoration.

We continue to assist the local watershed coordinators and other agencies with a pharmaceutical disposal education project in Cache County. Through this project, over 285 pounds of drugs were properly disposed at our last take back event.

We also continue to maintain several websites with valuable information for the public (see www.extension.usu.edu/waterquality.) Our main extension site provides current and useful information for many different audiences (educators, students, homeowners, producers). We are finalizing an interactive website for East Canyon Creek at the Swaner Ecocenter and have rebuilt and updated the Bear River Watershed Information System website.

USU Extension AFO/ CAFO Education Efforts- Rhonda Miller

Current efforts are focused on developing a manure application “app” for smartphones. This “app” will assist producers in maintaining manure application records for their nutrient management plan (NMP). The information can also be downloaded into a spreadsheet that will help producers with their overall nutrient management. A Producer’s website, which provides “one-stop” shopping for the producers, is being maintained and expanded. This website provides information, in laymen’s terms, on the regulations producers are likely to encounter. Factsheets aimed at helping producers with their NMPs are also being developed.

6. State/Local Agency Contributions

1) Utah Conservation Districts/Utah Association of Conservation Districts- Gordon Younker

Utah Conservation Districts have statutory authority for the prevention of nonpoint source pollution (Utah Code 17D-3). They provide local leadership to identify resource needs and assist private property owners/managers obtain the resources to address those needs. The Districts and UACD partner with the Utah Division of Water Quality to implement the Clean Water Act, Section 319 projects throughout Utah.

Assistance available through Utah Conservation Districts includes conservation planning, engineering, and GIS/GPS services. Further, Districts promote and fund educational activities for children including fairs, field days, and in-classroom presentations.

UACD has contracted with the Utah Division of Water Quality for 319 Agricultural NPS Management Contract Tracking and Administration. The state-level administration is accomplished through member conservation districts that contract NPS program funding for best management practices with district cooperators. UACD administers the cost-sharing grants making payments to landowners implementing projects. Further, UACD provides payroll, accounting, and personnel management for conservation districts employing staff, including NPS program watershed coordinators.

2) Utah Division of Natural Resources- Rory Reynolds

The Watershed Restoration Initiative focuses on protecting and managing core values that are important for our present and future quality of life: water quality and yield, wildlife, and agriculture.

This is accomplished through a diverse group of state and federal agencies working together with non-governmental organizations, industry, local elected officials and stakeholders. Locally led teams identify conservation issues and develop plans to address local needs.

In fiscal year 2012 with support of \$1.7 million from the Utah Legislature, the Watershed Restoration Initiative has implemented over 150 rangeland and river restoration projects involving over 98,095 acres of rangeland and 67 miles of stream restoration. For a full list of WRI projects implemented go to: <http://wri.utah.gov/WRI/Projects.aspx?display=Complete>. Through the partnership effort, funding from the Legislature has been successfully leveraged over 6 to 1 in on-the-ground projects.

The long-term results from this effort will be measured in the reduced cost of fighting wildfires, reduced soil loss from erosion, improved water quality and yield, improved wildlife populations, reduced risk of additional federal listing of species under the Endangered Species Act, improved agricultural production, and resistance to invasive exotic plant species.

3) Utah Department of Agriculture and Food- Ray Loveless

The Utah Department of Agriculture and Food regularly collaborates with state and federal partners to assist agricultural producers to maintain viable and productive agricultural lands and to protect Utah's natural resources. A strong partnership provides technical and financial resource options to Utah's agriculture producer while promoting agricultural sustainability. A watershed approach is used to work cooperatively with private land owners to prepare conservation plans that will solve resource problems. Funding options are available from multiple state and federal programs.

Utah Conservation Commission (UCC)

The UCC is authorized under Title 4, Chapter 18 of the Utah Code. The act's Purpose Declaration states that "The Legislature finds and declares that the soil and water resources of this state constitute one of its basic assets and that the preservation of these resources requires planning and programs to ensure the development and utilization of these resources and to protect them from the adverse effects of wind and water erosion, sediment, and sediment related pollutants." With this in mind, the Legislature created in 1937 this unique state government entity and it has been active continually since, evolving to meet new environmental and social conditions. Today this 16 person board strives to protect the natural resources within the state.

Utah Certification of Environmental Stewardship (UCES)

Utah law (Title 4 Section 18, Utah Code) requires the Conservation Commission to develop the Utah Certification of Environmental Stewardship (UCES), applicable to each agricultural sector. It will help agricultural producers, of all sizes, evaluate their entire operation and make management decisions that sustain agricultural viability, protect natural resources, support environmentally responsible agricultural production practices, and promote positive public opinion.

The UCES assesses storage, handling and application of fertilizer, pesticides, fuels, and hazardous wastes. It also assesses grazing management, soil erosion, cropping and irrigation systems, storage and application of manure, and other agricultural practices that may cause an impact on natural resources.

A draft copy of the UCES workbook has been written and reviewed by agriculture producer groups, environmental groups, and some State and Federal agencies. Comments have been favorable while the workbook is still under review.

Once the workbook is complete, an agriculture producer must complete three comprehensive steps: 1) document completion of education requirements, 2) complete a detailed workbook to evaluate on-farm risk, and 3) participate in an on-farm inspection to verify program requirements of state and federal environmental regulations. The certification will be for a 5-year term, with renewal for an additional 5 years upon inspection.

Environmental Quality Section

The Utah Department of Agriculture has changed their organizational structure and there is no longer an Environmental Quality Section. Upon mutual agreement, UDAF no longer receives EPA Section 319 money from the Utah Department of Environmental Quality to provide technical and administrative services. UDAF continues to play an important role in water quality with representation on the Utah Water Quality Task Force, Nutrient Management Team, and other committees as assigned.

Utah Grazing Improvement Program

The Utah Grazing Improvement Program (UGIP) is a broad-based program focused on rangeland resource health. Its mission is to “improve the productivity, health and sustainability of our rangelands and watersheds.” A keystone benefit is the reduction of NPS water pollution and the protection and improvement of water quality and habitat components.

A staff of Grazing Coordinators, located in six regions throughout the state, offers the livestock industry sound information and assistance regarding grazing issues. A main focus of the program is to invest in and help facilitate improved resource management. Grants are provided for projects that will enhance grazing management and rangeland resource health.

From 2006 to August 2012, over \$8.1 million in UGIP funds have been obligated to 425 projects. Over \$20 million has been invested in the program when matching funds are included from producers, NRCS (Natural Resource Conservation Service), BLM (Bureau of Land Management), USFS (U.S. Forest Service), SITLA (State Institutional and Trust Lands Administration), DWR (Division of Wildlife Resources), and other sources.

Most of the projects are focused on improving grazing management by increasing water availability and building fences to manage the timing, duration and intensity of livestock grazing. By summer 2013, we estimate that the program will have benefited 2.5 million acres.

UDAF/UGIP is currently working with partners on three large-scale projects in Rich, Carbon, and Box Elder Counties that total over 1.5 million acres. We believe that investing human and financial resources to create financial, social, and ecological wealth from the public and private rangelands of Utah will elevate the lives of every citizen.

Agriculture Resource Development Loan Program (ARDL)

Projects eligible for ARDL loans include animal waste management, water usage management (irrigation systems), rangeland improvement, on farm energy projects, wind erosion control and disaster mitigation and cleanup. Most of these projects have direct water quality protection or water pollution reduction benefits.

In FY 2012 there were 50 loans totaling \$2,219,208. That is down from the previous year when UDAF administered 57 loans totaling \$4,064,651. The vast majority of these (>90%) were for irrigation water management which can reduce water pollution from leachates to groundwater, percolation of dissolved salts from geologic materials, and reduction of erosion and irrigation runoff.

The ARDL section is also working with the State Revolving Fund (SRF) under the Division of Water Quality to underwrite and book loans to finance projects for eliminating or reducing nonpoint source water pollution on privately owned lands. That program was recently expanded to include grants as well as loans. The loans are now included in the ARDL program with some modifications.

Colorado River Basin Salinity Control Program

The State of Utah currently receives approximately \$2 million from the Colorado River Basin States Salinity Control Forum to reduce salt that enters the Colorado River, which has increased significantly from the initial \$350,000 received in 1997.

Historically, these funds have been allocated solely to improve irrigation practices. However, in 2009 the Forum allowed UDAF to test salt control measures on rangelands. UDAF has acquired \$500,000 for the purpose of testing the feasibility of using rangeland management methods for salinity control. This project has the potential to provide ranchers with another funding source for increasing production and protecting natural resources.

The irrigation projects installed through the salinity program are an economic benefit to agriculture in eastern Utah. The new irrigation systems increase watering efficiency, decrease water use, and improve crop production and uniformity.

Agriculture Sustainability Task Force

To better understand and address the role that agriculture plays in promoting Utah's security, economy, society, culture, and well-being, a Utah Agriculture Sustainability Task Force gathered and analyzed data and information to make recommendations to promote the sustainability of all types of agriculture. Eight major issues emerged:

1. Food Security
2. Invasive Species
3. Grazing Management
4. Immigration
5. Urban Agriculture
6. Agriculture Promotion and Profitability
7. Next Generation Farms
8. Irrigation Infrastructure

In order to address these issues, the Task Force developed a list of proposed actions that state, local and federal governments and the private sector can implement. Ag sustainability and protection of natural resources go hand-in-hand.

Resource Assessments

Utah's local Conservation Districts are working in each County to prepare a county wide Resource Assessment to identify local resource concerns. In preparation for that effort, each county has prepared a list of priority resource concerns identified by the local work group, and has submitted those to UDAF. Subsequently, UDAF has prepared a Statewide Resource Assessment which identifies all County priorities. The Resource Assessments will be one tool used to fund priority projects.

Information and Education

UDAF is willing to provide assistance to Utah agricultural groups, and fairly represent agricultural interests at the many committee meetings staff are involved with. Some of those committees include:

Utah Conservation Commission
Utah Association of Conservation Districts
Local Conservation Districts
Utah Water Quality Task Force
Utah Nutrient Core Team
Utah Animal Feed Operation Committee
Local Watershed Committees

UDAF works closely with Utah Legislators to make sure that agriculture is fairly considered in any legislation that is considered. We also maintain an up-to-date website (www.ag.utah.gov) that provides information to agriculture producers and the public.

4) Forestry, Fire and State Lands- Bill Zanotti

Forestry, Fire and State Lands received a grant from Department of Environmental Quality to monitor timber harvesting on private and state lands within the State of Utah called the Forest Water Quality Guideline (FWQG) Monitoring program. The overall goal of this grant is to implement a forest water quality monitoring and evaluation program in conjunction with demonstrated application of Utah's Forest Water Quality Guidelines (FWQG) identified in Utah's State Non-Point Pollution Prevention Plan. Protocols for conducting FWQG's monitoring have been developed for use by FFSL's service foresters.

During the State FY-2012, the following tasks have been accomplished:

- Processed 6 notifications to conduct timber harvesting activities
- Conducted 4 post harvest inspections
- Conducted 5 pre/in progress inspections of timber harvesting activities
- Analysis findings in preparation for writing a report on the effectiveness of the FWQG's

7. Federal Agency Contributions

The original MOUs between the Department of Environmental Quality and the Forest Service and the Bureau of Land Management were executed in 1992. These MOUs have been reviewed and were revised in 2009. The following entities are now part of the MOU: Forest Service, Bureau of Land Management, National Park Service, Utah Department of Agriculture and Food, Division of Forestry, Fire and State Lands, and DEQ – Division of Water Quality.

1) Natural Resource Conservation Service- Norm Evenstad

NRCS employees work in partnership with land users to conserve natural resources on private lands. These employees are distributed among 26 field offices and 3 area offices that cover the state of Utah. These offices are managed by District Conservationists. NRCS employees along with Utah Association of Conservation District (UACD) employees report progress on activities in the USDA-NRCS system, which is the basis for the following information.

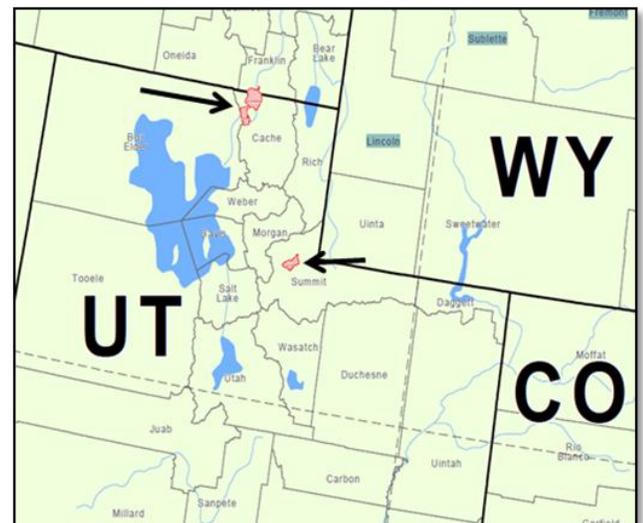
Financial and technical assistance was provided to land owners, sponsors & managers in Utah during FY2012 through the various USDA-NRCS programs. Work that directly benefited Non-Point Source AFO/CAFO concerns in Utah included 4 CNMP plans applied and 12 CNMP plans written in FY2012. Land with conservation applied to improve water quality totaled to 190,345 acres.

Non-Point Source/Water Quality related practices: The results shown in table H in the appendices are for all conservation practices planned and applied during FY 2012. The practices highlighted generally have relatively more water quality benefits compared to some practices that are planned for another resource concern. A number of the practices listed may have indirect water quality benefits, that as a whole, can show overall positive benefits for surface and ground water quality.

NRCS Water Quality Initiative (WQI) 2012:

The NRCS National Water Quality Initiative (WQI) established priority watersheds nationwide to help farmers, ranchers and forest landowners improve water quality and aquatic habitats in impaired streams. NRCS offered producers an opportunity to implement conservation and management practices through a systems approach to control and trap nutrient and manure runoff. Qualified producers received assistance for installing conservation practices such as cover crops, filter strips and terraces.

Three qualified areas (HUC-12 Watersheds) were selected in Utah located in Cache and Summit Counties. A total of \$500,000 was made available through an application process conducted under authority of the Environmental Quality Incentives Program. Applications were approved within the watersheds totaling **\$473,978**.



Watershed areas selected for the Utah NRCS Water Quality Initiative Funding – FY2012.

The priority areas were selected through the help of local partnerships and state water quality agencies. Partners sometimes offer financial assistance in addition to NRCS programs. Practices planned with WQI 2012 assistance include: Waste Storage Facility, Pond Sealing/Lining, Solid/Liquid Waste Separation Facility, Waste Transfer, Pumping Plant, Fence, Irrigation

System, Sprinkler, Pumping Plant, Structure for Water Control, Irrigation Pipeline, Forage and Biomass Planting, Obstruction Removal, Nutrient Management, Irrigation Water Management, Integrated Pest Management.

NRCS will continue to coordinate with local and state agencies, conservation districts, nongovernmental organizations and others to implement this initiative. This strategic approach will leverage funds and provide streamlined assistance to help individual agricultural producers take needed actions to reduce the flow of sediment, nutrients and other runoff into impaired waterways. Plans are underway using the State Division of Water Quality's strategy of rotating planning/funding efforts by River Basin. The fiscal year 2013 WQI effort will be targeted for up to three impaired HUC-12 watersheds within the Uinta Basin.

2) **Forest Service- Greg Bevenger**

The Forest Service, an agency of the U.S. Department of Agriculture, manages National Forests lands (NFS) across the country. All or a portion of six National Forests are in Utah. These public lands are managed by staff at Forest Headquarters and Ranger District offices throughout the State, with support from the Intermountain Regional Forester's office in Ogden.

High-quality water is one of the most important natural resources coming from these NFS lands. In addition to providing drinking water and other municipal needs, this water sustains populations of fish and wildlife, affords recreation opportunities, and provides supplies to meet agricultural and industrial needs throughout the State.

Non-point source pollution control is a key component of managing NFS lands for high-quality water. Direct control is accomplished through two primary mechanisms:

- prescription, implementation, and monitoring of best management practices (BMPs) for a myriad of land use and management activities¹, and
- implementation of watershed improvement projects.

Additionally, direct non-point source pollution control may occur after wildfire if the burned area emergency response (BAER) assessments prescribe the implementation of treatments designed to mitigate fire effects. Indirectly, the Forest Service provides for non-point source pollution control through sustaining or restoring watershed function and resilience so that NFS lands are resistant to catastrophic events such as fire, insects and disease, and a changing climate.

In 2012 the Forest Service implemented a national best management practices program to provide a standard set of core BMPs² and a consistent means to track and document the use and effectiveness of BMPs on NFS lands across the country. These core BMPs integrate individual State and NFS regional BMPs under one umbrella. They are general and non-prescriptive and will not change the substance of site-specific BMP prescriptions. Site-specific prescriptions will continue to be based on State of Utah BMPs, the Intermountain Region Soil and Water Conservation Practices (SWCP) handbook, Land and Resource Management Plan (LRMP) standard and guidelines specific to each of the six Forests, annual BMP monitoring information, and professional judgment. The national forests in Utah, in addition to their long-standing use of these resources, are now using these national core BMPs in project planning, design, and implementation. Implementation and effectiveness monitoring by individual personnel and interdisciplinary teams is a core part of Forest Service best management practices.

¹ For example, motorized and non-motorized recreation, leasable and locatable minerals, range management, timber management, special uses permitting, wildlife and fisheries habitat management

² http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf

In 2012 the Forest Service continued implementation of the Watershed Condition Framework³. Forests within Utah began execution of integrated (essential) projects identified in priority watershed restoration action plans written in 2011. These projects are specifically designed to improve or maintain watershed health, including the reduction or elimination of non-point source pollution. In addition to work in these priority watersheds, Forests completed watershed improvement projects in non-priority watersheds. In total, 4,417 acres of NFS lands in Utah were directly improved. Project types varied but included, among other things, road and trail decommissioning and re-routing, gully control, spring and riparian area fencing, and stream restoration. An additional 129,796 acres were treated to sustain or restore watershed function and resilience. Again, project types varied, but included fuel reduction, aquatic habitat improvement, invasive plant treatment, and forest and rangeland vegetation improvement.

The summer of 2012 was a very active wildfire season on NFS lands in Utah. Forest Service BAER teams assessed these fires for potential effects on life and property, long-term soil productivity, and water quality. These team's recommended aerial mulching 5,439 acres, aerial seeding 35,760 acres, invasive weed treatment on 6,780 acres, and storm proofing 145 miles of road and trail. Some of these treatments were completed in the fall of 2012. The remainder will be completed in the spring and summer of 2013.

3) Bureau of Land Management- Jeremy Jarnecke

In 2012, Utah BLM continued to implement a strong Healthy Lands and Watershed Restoration program, focused on improving habitat, vegetation, and improving water quality by reducing erosion from BLM lands. These efforts included many watershed improvement projects that will contribute to improved land health and long term reduction of erosion, and sediment, which also benefits the salinity program.

The following section lists work completed by the BLM Field Offices.

Moab Field Office

Stream and Lake Assessments:

The Moab Field Office assessed riparian conditions on 25 acres of lentic resources and 30 miles of lotic resources following guidance in BLM Technical References 1737-15 and 1737-16 (Proper Functioning Condition). Each riparian reach was evaluated using an experienced Interdisciplinary Team, and involved the grazing permittees and interested publics. Western Watersheds, the Great Old Broads and Southern Utah Wilderness Association (SUWA) are interested publics in several grazing allotments and have sent representatives to our PFC assessments in the Ten Mile Wash ACEC.

³ <http://www.fs.fed.us/publications/watershed/>



ID team and interested publics getting ready for PFC assessment

Weed Treatments:

The Moab Field Office treated 50 acres on the Dolores River at Roberts Bottom for weeds including Russian Knapweed and kochia located within a tamarisk treatment initiated in 2004.

Stream Treatments:

The Moab Field Office completed 5 miles of tamarisk removal and associated riparian restoration treatments on the Colorado River and major tributaries, and 1 mile of treatments on the Dolores River. This involved hand crews cutting tamarisk re-sprouts, applying herbicides to weeds including kochia and Russian knapweed, planting native grasses, shrubs and trees and watering these plantings most of the summer. These treatment sites still need several more years of restoration work and maintenance, as secondary weeds move in and locally sourced native species plantings are conducted. Several volunteer planting projects were conducted in the spring in cooperation with the Dolores River Restoration Partnership and The Tamarisk Coalition.



High School volunteers after planting willows on Beaver Creek, near the Dolores River

Riparian Improvements:

The Moab Field Office completed several riparian protection projects. A local youth corps was contracted to construct grazing exclosures at a 2 small spring sites and along 0.25 miles of the Colorado River riparian corridor. BLM staff constructed 10 riparian protection fences in the Ten Mile Wash ACEC to reduce trespass cattle situations in this ecologically important area.



Riparian protection fencing in Ten Mile Wash ACEC

Grazing Enclosures on Moderately Saline Soils:

The Moab Field Office contracted with a local youth corps to construct 6 grazing enclosures on moderately saline soils. These enclosures provide an important opportunity to compare the impacts to soils and vegetation from grazing on sensitive soils. This is an ongoing project, with 18 enclosures built in the last several years. These 2-3 acre enclosures are located near long term range study sites.



Grazing enclosure on Mancos Shale derived saline soils

Cedar City Field Office

Water Resource Inventory

The Cedar City Field Office (CCFO) inventoried 10 acres of lentic and 10 miles of lotic riparian areas. Each riparian area was evaluated using an Interdisciplinary Team and appropriate Technical References. These assessments are being utilized to support ongoing grazing permit renewal, watershed level vegetative treatments and the ongoing Resource Management Plan. The future vegetative treatments would include removal of pinyon and juniper within and adjacent to riparian areas.

Riparian Structures

The CCFO completed maintenance on approximately 45 existing riparian exclosures. Some of these exclosures required major maintenance to ensure that livestock, wild horses and wildlife were not negatively impacting riparian areas that have been excluded from grazing. The completion of annual riparian exclosure maintenance ensures that progress toward the attainment of the Standards and Guidelines occurs.

Monitoring

Quantitative monitoring was completed on 2.3 miles of stream within Birch Creek in 2012. A recent riparian treatment occurred within the riparian zone to eliminate pinyon and juniper from the system. Monitoring results will be compared to baseline data collected in 2009 (pre-treatment) to determine success/failure of the treatment. The stream is an important Bonneville cutthroat trout fishery. Upland treatments were completed adjacent to Birch Creek in 2010. These areas were dominated by pinyon and juniper with very little herbaceous understory. Pinyon and juniper were removed from these areas utilizing a bull hog machine. The area was aerielly seeded with a diverse composition of perennial grasses, forbs and shrubs. The upland treatment was very successful.



Multiple Indicator Monitoring (MIM) – 2012



Uplands Adjacent to Birch Creek (Pre-Treatment)



Uplands Adjacent to Birch Creek (Post Treatment) - 2011

Salt Lake Field Office

Water Resource Inventory

In August an ID Team in cooperation with the Utah Riparian Team conducted a Lentic Proper Functioning Condition assessment on Birch Creek Reservoir (~30 acres), west of Woodruff, UT. The reservoir was found to be in functioning condition.

Monitoring

Salt Lake Field Office (SFLO) completed Multiple Indicator Monitoring (MIM) on 7 stream sites in Rich County. These sites are representative of conditions for approximately 10 miles of stream. Streams monitored include Big Creek, Randolph Creek, South Fork Otter Creek, and Middle Fork Otter Creek. The SLFO and members of the National Riparian Service Team completed short-term monitoring of MIM on two sites along Duck Creek and the South Fork of Sixmile Creek.



Throughout the summer water quality samples were collected on a number of streams that cross BLM administered lands in north central Rich County. Big Creek, on the 303d list, was also

included in this sample. Data is given to the state DEQ to help them determine water quality on years they are not actively monitoring in an area.

Riparian Improvement Projects

This fall a project was completed for Columbia spotted Frog (CSF) in a pond south of Ibapah, Utah. SLFO staff worked with livestock permittees, Utah Division of Wildlife Resources, and the Utah Division of Water Rights to obtain water rights and fence off part of the pond and create a water gap for livestock to help protect CSF habitat. Funding for this project was received through WRI.



West Desert District Watershed Restoration Initiative Projects

The West Desert District Fuels team remains an active part of the Watershed Restoration Initiative process. This year they worked on 6 projects in the Salt Lake Field Office to enhance watershed health and minimize fire risk. Each was focused on preserving sagebrush habitat, increasing water availability, and restoring native, perennial understory species by thinning juniper and pinyon trees.

- a. Crawford Mountain bullhog treatment- 1,016 acres
- b. Crawford Mountain hand thinning- 254 acres
- c. Stockton bullhog treatment phases 1 and 2- 2,429 acres

- d. Pole Creek bullhog treatment phase 3- 857 acres
- e. Grouse Creek bullhog treatment phase 2-1,027 acres
- f. Onaqui Mountain hand thinning- 254 acres

Grand Staircase-Escalante National Monument (GSENM)

Escalante River Watershed Partnership (ERWP)

With the formation of the Escalante River Watershed Partnership in 2009 a ten year action plan and a woody invasive control plan has been developed to address many issues that need attention. The ten year action plan has seven targets that address topics such as water quality, fish habitat, beaver reintroduction and woody invasive control. Some of these targets include projects that serve to reduce non-point source (NPS) pollution. The ten year action plan was a year and half endeavor before the Partnership finalized the document. Most work that has been done on GSENM (and Glen Canyon National Recreation Area: GCNRA) has been woody invasive control and active and passive restoration. Fish habitat improvement and beaver damage reduction occurred on the Aquarius Plateau within the Dixie National Forest. Indicated below are accomplishments that GSENM made that are relevant to NPS reduction.

Woody Invasive Control (165 acres/2.5 miles GSENM; 36 acres/1 miles GCNRA)

There were four project sites along the Escalante River slated for initial Russian olive removal. All woody invasive control projects include elements of either passive or active revegetation with native species, thereby providing NPS reduction through both bank stabilization and restoration/enhancement of the riparian community and associated hydrologic, sediment trapping and biogeochemical processes. The first site was upstream and downstream from the Death Hollow confluence (27 acres). The second site was upstream from the confluence of Sand Creek (19 acres). The third site was upstream from the confluence of Calf Creek, about 2 miles up (33 acres). The last site was at and downstream from the confluence of Boulder Creek (14 acres).

Initial treatments also occurred in the side tributaries of the Escalante River; Boulder and Deer Creek (55 acres), North Creek (9 acres), and Pine Creek (8 acres).

Glen Canyon NRA also had a project site along the Escalante River in the Harris Wash area: they treated 36 acres.

These acreages are equivalent to a total of 2.5 rivers miles treated within GSENM and 1 river mile treated within GCNRA.

Re-treatment of previously treated areas also occurred within these side tributaries: Deer Creek, Boulder Creek, Death Hollow, Main Canyon, North Creek, Pine Creek, Sand Creek, Calf Creek, Phipps Canyon, Deer Canyon and at the Headwaters Demonstration site where the Escalante River begins. This is a 45 acre project area that the ERWP uses for monitoring passive riparian recovery and geomorphic changes after Russian olive removal, and other studies.

Restoration (10 acres)

At the confluence and downstream of Death Hollow is an area that is used by backpackers during the warmer months. This site opened up quite a bit, after removing the woody invasives. During October we received assistance from one of the youth corps who worked on Russian olive removal to plant native plants at that site. These plants came from seeds or plant material that was collected from the site or at least within the watershed. These plants grew for at least a year in a nursery and were planted with the oversight of the Monument botanist. This 10 acre site is

small in comparison to the amount of removal work. We are finding that after one year the native vegetation fills in these areas at a phenomenal rate. Active restoration work has occurred in those areas that have been slow to fill in with native vegetation, have secondary weed invasions such as Russian thistle, or they are dry due to upstream water diversions in the spring and summer months. Sites below the Death Hollow confluence have a year round supply of water; in these locations regrowth of native vegetation has been very successful.

Inventory

Alvey Wash is a major tributary of the Escalante River that is almost the same length as the mainstem Escalante River. It doesn't carry the same amount of water as the Escalante River and is a more flashy system with most water flowing during the summer monsoon months. The ERWP and GSENM had a crew of university interns from Utah State University inventory this particular watershed of the Escalante. They inventoried 4,639 acres for Russian olive, tamarisk, and herbaceous plants such as Hoary cress, Russian Knapweed, and perennial pepperweed. None of the herbaceous species were found; a total of 351 acres of Russian olive and tamarisk infestations were recorded. This information will help in planning the next two to three years' treatment and restoration projects with associated NPS reduction benefits.

Watershed Improvement Projects

Approximately 1,150 acres were mechanically treated on Fivemile Mountain to improve soil and vegetation conditions. The area was seeded and mechanically treated to remove dead and decadent sagebrush with the purpose being to improve the vigor of the sagebrush and increase the grass/forb composition in the treatment, which would result in more stable soils and a decrease in erosion.

The GSENM completed a number of non-mechanical (hand thinning) vegetation improvement projects as well including approximately 1,900 acres on Jenny Clay and Buckskin and 100 acres in Calf Pasture and 60 acres on Eagle Sink. Pinyon and Juniper trees were cut and spread out over the soil. This was done to lower soil erosion rates by increasing groundcover and improving conditions for grass and shrub establishment.

Riparian Improvement Projects

The following lengths of streambank were stabilized by planting willows: Birch Creek (0.5 mile), Dry Valley (300 yd), Henrieville Creek (0.25 mile) and Paria River (300 yd).

Three irrigation pipeline crossings of Henrieville Creek were stabilized with grade stabilization structures. Streambanks were protected with rock walls and willow plantings.

Two springs (Fourty-Mile Spring and Wilcox Spring) were fenced to keep cattle out, thereby reducing erosion and resulting sediment load, and protecting riparian vegetation and associated sediment trapping and biogeochemical processes. Approximately 0.5 miles of Steep Creek were fenced to keep cattle out of a six-mile stream reach, with the same effects on NPS.

Stock pond/erosion control pond cleanout: seven ponds on Jack Riggs bench and four ponds on Wiggle Rim were cleaned out, restoring their capacity to capture sediment.

Four miles of pipeline in Calf Pasture and four miles of pipeline in Coyote were replaced, providing alternative water sources to keep cattle out of springs and riparian zones, with the same effects on NPS as discussed above.

Vernal Field Office

Pariette Wetlands

Pariette Wetlands are an oasis in the Uinta Basin of northeastern Utah. The system is a large artificially-augmented wetland developed in 1972 to improve waterfowl production and provide seasonal habitat for other wildlife species. It encompasses 9,033 acres, 2,529 of which are classified wetlands or riparian and is the largest BLM wetland development in Utah. The wetland contains diverse vegetation and wildlife in an arid climate. Elevated levels of Selenium (Se) have been measured in the wetland and pose concern for wildlife using the wetlands.

Management of the Pariette wetlands is a long-term and multi-faceted endeavor. Major components of this include facility operation and monitoring the wetland area for wildlife management and salinity/water-quality control. In 2012, the BLM received \$97,000 in salinity funding. Management activities funded with these dollars include:

- A portion was used to match other funds and contribute to labor for a Pariette Wetland Manager. A key purpose of this position is to maintain structures, manage pond water levels and water controls, so that sedimentation/salinity controls operate effectively as designed.
- Completion of facility maintenance including clean-out and removal of sediment from the water diversion structures, rebuilding dikes and invasive weed control.
- Collection of water quality sampling as part of our cooperative agreement for water quality monitoring with Utah Division of Water Quality. Data collected included flow (cfs), specific conductance (uS/cm), temperature (deg C), pH, dissolved oxygen (mg/l), and salinity (ppt). Data were collected monthly and sent to the Utah Department of Environmental Quality, Division of Water Quality, who will conduct ion & major constituent analyses, which will be reported in the state water quality database.

Salinity program funding is being used to support a study through Utah State University Uintah Basin Hydrology Faculty. These studies will be run in collaboration with USGS – Denver, and Dept. of Geology, Kansas State University. USGS's focus is on collecting information that will enable USU to help land managers determine whether or not the salt and associated contaminants in the Pariette Draw can be managed. USGS is collecting data to refine USU's knowledge about the role of rock weathering and soil formation in the transport and storage of salt in the watershed and show how salt is cycled under irrigated and natural conditions. KSU is focusing on using state-of-the-art spectroscopic techniques to assess the mineralogy and Se sorption dynamics in upland soils and sediments. This framework will provide temporal and spatial geochemical data for salt and associated contaminants.

The goal of these studies is to determine the processes responsible for regulating bioavailable Se within the wetland, so as to predict, prevent, and mitigate the potentially toxic build-up of bioavailable Se. We are in the second year of this five-year study. To date our research efforts have involved sample collection and monitoring. This includes measurement of total Se, as well as Se species in wetland soils, sediments, pore waters, and the water column. We are also investigating the role that salinity and organic matter play in Se biogeochemistry.

Utah Watershed Restoration Initiative

Utah BLM is in its tenth year of a cooperative effort in implementing the statewide Utah Watershed Restoration Initiative through its participation in the Utah Partners for Conservation

and Development. This is a multi-agency Federal, State, and private partnership treating lands of various ownerships with an emphasis on watershed improvements and long-term habitat restoration. Funds are contributed by partners, including non-governmental organizations and wildlife groups. Projects are submitted and prioritized by regional teams prior to submittal for final approval and funding by the statewide oversight team. BLM funds primarily come through the Wildlife, Fuels, and Healthy Lands Initiative programs. Although the projects are being conducted statewide, approximately 13 of these were located on BLM lands in the Colorado Plateau Ecoregion and have significant potential long-term benefits; reducing runoff, erosion, sedimentation and salinity to the Colorado River Basin. Additionally Moab BLM has entered into an agreement with the Dolores River Restoration Partnership, which has multiple NGOs, private, BLM, and other federal partners focusing efforts on the Dolores River.

Over 12,900 acres of BLM lands and 42.44 miles of stream corridor within the Colorado Plateau were treated in 2012 under this program, although total treatment areas including other Federal, State and private lands as part of the cooperative effort is well more than 2 to 3 times that number. Treatments include riparian restoration, tamarisk and Russian olive removal, sagebrush restoration (Dixie-harrow and seeding), removal of juniper through bullhog and hand thinning methods, wildlife and rangeland seeding, cheatgrass treatment and reseeding degraded rangelands, and other similar projects. The Utah Division of Wildlife Resources website has interactive maps and project descriptions at <http://wildlife.utah.gov/WRI/>

Table 7 below includes a partial list of projects to be completed by September 30, 2012. These are interagency funded projects and funding for most projects is based on the state fiscal year and so most of these were completed earlier this summer and new projects have been initiated after July 1, but will not be reported until next year. More information can be found searching the database utilizing the project number and various report features.

Table 7

Watershed Restoration Initiative Projects for 2012		
WRI #	Utah Watershed Restoration Initiative Project Name	Acres/ miles treated*
1606	Bitter Creek Restoration	1,224/8.7
1935	Dugout Creek Habitat Restoration	744/2.94
1940	Price Canyn Habitat Restoration	603/2.27
1944	Peters Point Phase I	1,498/3.95
2037	Airplane Springs Reseeding	2,100/6.15
1950	Seep Ridge	476/.60
1951	Seep Ridge Chaining	769/.35
1965	Anthro Big Wash	406/1.18
1973	Moon Ridge Bullhog	324
1989	Raven Ridge	501/1.94
2041	Trail Hollow Lop and Scatter	1152/7.72
2124	Trail Hollow West Lop and Scatter	982/2.61

*Column includes treatment acres and miles of stream improved.

Studies and Research related to Watershed Condition and Water Quality

Soil-related Studies - BLM-USGS Partnership

There are a number of studies underway or recently completed that focus on wind/ water erosion processes/ interactions and and delivery processes of salts & sediment to waterbodies in high contribution geologic settings.

The USGS Canyonlands Research Station has several on-going research projects addressing erosion and hydrologic processes in Utah. These research projects are designed to address two significant issues in the region: land-use effects on erosion and sediment delivery and land-use effects on dust erosion from low-lying deserts and subsequent deposition on mountain snowpack.

The USGS, in collaboration with the BLM, had two water erosion processes field studies underway in 2012. Factory Butte, near Hanksville UT, is a popular recreational off-highway vehicle (OHV) use area located on Mancos Shale substrates and there is concern that such recreational activities are contributing significant levels of salinity to the Colorado River. The USGS and BLM initiated a manipulative study 2007 evaluating the increase in hillslope erosion due to OHV activity by establishing six paired hillslopes (OHV use/control) and running motorcycles over one of each of the pairs in a manner consistent with the public's use. We have continued to apply treatments and monitor sediment produced by these treatments. The USGS is also evaluating the importance of eolian processes in delivering sediments to fluvial systems. Observations indicate that large amounts of sediment are being deposited in washes by wind and subsequently entering the river system with the next flow event. If confirmed, this would represent a new mechanism for delivery of sediment (including saline material) to the river system. The USGS has installed a network of monitoring stations to document this phenomenon on the Colorado Plateau using high precision GPS, photogrammetry, and time-lapse cameras.

Dust falling on snow increases albedo, causing an earlier snow melt and increased evapo-transpirational water losses, resulting in a net decrease of Colorado River flows of 5% on average. The USGS has several research projects evaluating how land-use activities on the Colorado Plateau are potentially contributing to the dust fluxes. The USGS maintains a large network of dust monitoring stations that span land-use, soil, and vegetation types. Additionally, the contribution of roads and trails to the total dust flux is unknown. In 2012, the USGS initiated a comprehensive study of this source, including monitoring and manipulations integrated with GIS analyses. This study is designed to evaluate the contribution of roads to dust on snow in the region, as well as provide guidance to managers on dust mitigation approaches.

Riparian Exclosure Monitoring -Brigham Young University/BLM Partnership

The Moab Field Office has coordinated with Dr. Richard Gill of Brigham Young University on this project. Dr. Gill plans to collect soil and vegetation data within and adjacent to all the new exclosures to document current conditions, and will monitor long term to better understand grazing impacts to moderately saline soils. Monitoring by BLM range and watershed staff will also continue over the long term.

4) National Park Service- Rebecca Weissinger

National Park Service Water Quality Activities, Fiscal Year 2012 (October 2011 – September 2012)

The National Park Service units in Utah work closely with the Utah Division of Water Quality to monitor water quality and mitigate non-point source impacts when noted. During fiscal year

2012 water quality in Utah National Parks was monitored at 23 sites, most of them on a monthly basis (Table 8).

Table 8. Water Quality monitoring sites in Utah National Parks in fiscal year 2011

Park	Coop Sites Monitored by NPS
Arches	1
Bryce Canyon	2
Capitol Reef	2
Canyonlands	¹ 9
Glen Canyon	3
Timpanogos Cave	2
Zion	4
Total	23

¹Three sites on the Green River and Colorado River near their confluence in Canyonlands, and downstream in the rapids of Cataract Canyon were monitored eight times in the 2012 river season. The site at Potash on the Colorado River upstream of the park was monitored seven times, and the site upstream of the park at Mineral Bottom on the Green River was monitored two times.

Northern Colorado Plateau Network Park Projects

Monthly monitoring of spring flow in the western part of Arches National Park has been ongoing since early 2001.

There were historic low water flows on the Green and Colorado Rivers during the minimal 2012 snowmelt event, in contrast with the previous year's record high flows. Canyonlands staff completed eight water quality monitoring runs on the rivers from mid-April through mid-November, 2012.

The National Park Service's Southeast Utah Group Resource Stewardship and Science staff continued planning and prioritizing for a funded riparian restoration project on the Green and Colorado Rivers in Canyonlands. The project is funded through 2013-2015. Some restoration efforts on these rivers is ongoing, including repeat invasive weed treatments, and maintenance and watering of some cottonwood trees planted in the popular Spanish Bottom area.

Restoration efforts in other Southeast Utah Group riparian areas in 2012 included: Arches National Park; removal of several substantial patches of tamarisk and Russian olive; treatment of Russian olive in more extensive stretches of Courthouse Canyon; treatment of Russian knapweed in Salt Wash; treatment of ripgut brome in Courthouse Canyon and treatment of dense Russian thistle stands at wash-road intersections near Wolfe Ranch. Ripgut brome was treated in Salt Creek in Canyonlands. Scattered tamarisk in the canyons and sidecanyons of Natural Bridges National Monument were treated, and a few invasive herbaceous species were treated in canyons within a few units of Hovenweep National Monument.

Integrated monitoring of riparian vegetation, shallow ground water and channel morphology was continued in Arches, Zion and Capitol Reef in 2012. A brief summary of project objectives is available on-line at:

http://science.nature.nps.gov/im/units/ncpn/Link_Library/Web_Briefs/Riparian_Brief_2012.pdf

A cooperative study with Utah Division of Water Quality to determine the source and degree of bacterial contamination in the North Fork Virgin River continued upstream from Zion National Park in 2012. Progress was made with agency coordination seeking a resolution to the *E. coli*

contamination problem. The National Park Service entered into an agreement with the Utah Association of Conservation Districts to work with landowners and permittees on improving irrigation practices to reduce return flow back to the river. Limited monitoring in 2012 showed that the contamination is continuing similar to previous years. It was noted that *E. coli* levels have increased over background by the time the water reaches the Narrows Trailhead sampling station, indicating that the fecal loading was occurring throughout the irrigated reach.

In cooperation with EPA Region 8 the Park Service analyzed seven sites in Utah for waste indicator compounds, pharmaceutical and personal care products, and pesticides. Sites include Courthouse Boundary spring at Arches, Yellow Creek at Bryce Canyon, the Colorado River at Canyonlands, the Fremont River at Capitol Reef, two locations in Middle Cave at Timpanogos Cave, and North Creek at Zion.

Glen Canyon National Recreation Area

Water Quality Monitoring

During 2012, the Lake Powell Beach Monitoring Program at Glen Canyon National Recreation Area (NRA) sampled Lake Powell for *E. coli* to protect public health. 429 samples were collected from Lake Powell beaches. The National Park Service operates two state certified laboratories for sample processing. Lake Powell sanitary water quality in 2012 remained very good, with only one swimming closure event, related to cattle activity on the shoreline.

Monitoring of water quality parameters, nutrients, metals, and other constituents was conducted at over twenty sites throughout Lake Powell, including major inflows, the dam, and the tail waters in cooperation with the Grand Canyon Monitoring and Research Center.

Other sites throughout the park including the Escalante River, Coyote Gulch, and a natural off-channel impoundment, were monitored for water quality parameters and constituents.

Grazing Management

Grazing is managed on nearly a million acres of land within Glen Canyon NRA. The Park, working closely with the Bureau of Land Management, has undertaken many water quality pollution abatement activities associated with grazing.

Dreissenid Mussel Prevention

Zebra and quagga mussel prevention continued at Glen Canyon NRA. All vessels and equipment brought to Lake Powell were screened for risk of spreading dreissenid mussels. Over 20,000 watercraft were sent to the decontamination station. Thirty-eight watercraft were found to be harboring adult mussels and were decontaminated (including a desiccation period) prior to being released. About 400 citations were issued to visitors who failed to comply with park regulations.

The dreissenid monitoring program was operational all year. The development of an in-house PCR laboratory was completed. Over 500 plankton samples were collected lake-wide and analyzed for early detection of dreissenid mussels in 2012. Thus far, no evidence of the presence of mussels has been found and Lake Powell remains mussel free.

Riparian Restoration

Riparian restoration and invasive plant control efforts continued in 2012. Weeds, including Russian olive, tamarisk, Ravenna grass, and others were removed from riparian areas. Glen Canyon is organizing and participating in the new Escalante River Watershed Partnership, which is focused on watershed level management of both public and private lands in the Escalante River watershed.

Special Projects

- Glen Canyon continued work on an Off-Highway Vehicle Environmental Impact Statement addressing public use on Glen Canyon's many miles of backcountry roads.
- Two large studies on Lake Powell which began in 2010 were concluded in 2012. These studies, conducted in cooperation with the U.S. Geological Survey, complete development of baseline data regarding hydrocarbon constituents and explore what contaminants are being accumulated in the sediment deltas of the San Juan and Escalante Rivers.
- A bonytail chub reintroduction project has been ongoing, including survey work done with USGS to gather bathymetric data of natural impoundment introduction locations.
- A study of bank erosion on the Colorado River from Glen Canyon Dam to Lee's Ferry was continued in 2012. Time-lapse monitoring cameras monitor changes in beaches and terraces along the river.

5) US Army Corps of Engineers- Scott Stoddard

The Rural Utah Environmental Infrastructure (Sec 595) Program- This program was authorized in 2004 and initially funded in 2005. The program assists rural communities in funding both improvements, as well as new infrastructure, to provide clean, safe drinking water and wastewater collection and treatment to Rural Utah communities on a cost-shared basis. At least one of our Sec. 595 - Environmental Infrastructure Projects is considered an NPS project:

Construction is nearing completion on the Elwood wastewater treatment facility. This was after water quality testing identified that septic lines were impacting water quality in the area that will be serviced by the new facility.

The Corps of Engineers has also completed or is working on several other wastewater projects in Rural Utah - Moroni, Cedar City/Iron County, Richmond & Mona (which along with Elwood is still ongoing).

8. Federal Consistency Review and NPS Project Tours for FY-2012

During FY-2012, DEQ continued to use a combination of approaches to work collaboratively with federal land management agencies and others to promote federal consistency with the state NPS Pollution Management Program. As part of this program tours of projects implemented by federal agencies are organized every year. The following is a summary of a tour that took place in the Strawberry Valley and surrounding areas.

Utah Federal Consistency Review Dixie National Forest May 29th and 30th, 2012

Jim Bowcutt (UDEQ), Carl Adams (UDEQ), Scott Daly (UDEQ), Bill Goodman (USFS), Greg Bevenger (USFS), Rich Jaros (USFS), Hope Woodward (USFS), Kevin Schulkowski (USFS), Chris Butler (USFS), Veronica Magnuson (USFS)

May 29th (Day 1)

Wet Sandy- South East slope of Park Mountain

With high quality water becoming an increasingly scarce commodity in Southern Utah, the Forest Service has become concerned with streams on Forest Service land being dewatered by local irrigation companies and other water providers. Irrigation diversions are typically located within Forest Service lands, and some permitted water users make unauthorized modifications to channels to help increase the efficiency of those structures in capturing and diverting flow from the streams.

The Wet Sandy site was an example of a water company making modifications to the stream channel to divert more water through the irrigation conveyance system. In this instance the local conservancy district had constructed a berm stretching 500 feet above the diversion structure to channel the flow into the diversion. Before this modification the stream was more braided, increasing maintenance of the diversion structure for the Water Conservancy District following high flow events. As a result of these modifications the stream below the diversion structure was completely dewatered at the time of the tour.



Water Conservancy Diversion Structure



Constructed Berm to Channelize Stream

The Forest Service has begun working with the water conservancy district to restore the channelized section of stream to provide an overflow channel and possibly help stabilize the system by installing weirs and rock veins in the channel. Construction should begin by the fall of 2012.

Cache Creek

The second site visited was Cache Creek. This is another example of diversion structures that have been installed at the Forest Service boundary for the purpose of irrigation. While this site was not on Forest Service Land, the Forest Service expressed concern that in the future people will look to develop the streams higher up on Forest Service land before it enters groundwater by seeping into the alluvial aquifer.



Irrigation Diversion on Cache Creek

Mammoth Basin (Day2)

In the Dixie National Forest there has been a large effort to decommission and re-route roads located in environmentally sensitive areas. This has helped decrease erosion and sediment loads into local waterbodies and improve habitat. While some recreationists appreciated the road closures, others felt as though the closures limited their access. The road decommissioning projects had been a bit of a political battle in some areas but the Forest Service has been able to work with local governments to help put the public's concerns at ease.

Dead and Porcupine Lakes

Dead and Porcupine Lakes were very popular destinations for ATV owners. They would often drive their ATVs right up to the edge of the lake, and often times into the lake and fish off of them. This causes large erosional issues along the edge of the lake. To remedy this the Forest Service installed a gate across the road that still made the short walk down to the lakes handicap accessible. As a result much of the vegetation around the lakes has been able to recover, and erosion is no longer an issue.



Access Gate to Dead & Porcupine Lakes



Recovering Vegetation at Dead Lake

John L Flat

John L Flat was another road decommissioning project adjacent to the Dead and Porcupine Lake projects. Previously the “road” traveled through the meadow area above the lakes. There were obvious erosional problems, the ATV activity disturbed wildlife, and scarred the wet meadows present in the drainage. The decommissioned road was ripped, reseeded and covered with coconut fiber netting in areas prone to erosion.



John L Flat Road Decommissioning



John L Flat Road Decommissioning

Another project was visited in the Mammoth Basin which consisted of approximately 1 mile of decommissioned road that is currently in the restoration phase.

Bridge Fire

Forest Fires can be a significant source of nonpoint source pollution if remediation is not performed properly and promptly. The Bridge Fire was started by lightning and was allowed to burn to accomplish forest health objectives. As a result of this burn much of the understory was depleted, and soil was prone to erosion during the summer monsoon season. In an attempt to reduce erosion from the fire the Forest Service hired a contractor to come in and replant conifers, and perform contour falling. Contour falling is where the burned trees are cut down and laid perpendicular to the slope of the hill. By doing this overland flow is slowed, and much of the soil is able to be stabilized on the mountain.



Erosion resulting from the Bridge Fire at Ingram Hollow



Hillside where replanting and contour falling was implemented

2012 EPA Project Tour

September 10th-13th

Location:

Jordan River, Uinta Basin, San Pitch, and Middle Sevier Watersheds

Participants:

Gary Kleeman (Environmental Protection Agency), Jim Bowcutt, Carl Adams, Scott Daly (Utah Division of Water Quality), Lars Christensen (UACD), Justin Robinson (Utah Division of Wildlife Resources), Gary Wieser, Lynn Koyle, Alan Saltzman, Jay Olsen (local Conservation Districts), Jim Percy, Melissa Hendrickson (US Forest Service), Bart Powakee (Ute Indian Tribe)

Wallsburg Watershed

The Wallsburg Watershed is one of the major contributing watersheds to Deer Creek Reservoir which is currently impaired due to excess levels of phosphorus. Recently various agencies worked together to complete a Coordinated Resource Management Plan (CRMP) for the Wallsburg Watershed. This plan will begin implementing this plan in the fall of 2012. The implementation of this plan will include stabilizing several miles of stream bank, fencing animals off of the main stem of Main Creek, as well as projects to improve grazing and irrigation efficiency. On our tour we visited two sites. Site #1 was a reach where eroding banks will be stabilized, and animals will be removed from the riparian corridor. At site #2 the river had been channelized. This reach of the river will be restored to develop a flood plain and allow the river to gain more sinuosity, and an improved pool/riffle count. Various agencies have dedicated funding to the implementation of this plan including the Natural Resource Conservation Service, The Utah Department of Agriculture and Food, Utah Division of Wildlife Resources, and the Utah Division of Water Quality. A large majority of the 2014 Section 319 funding will also be used in this watershed.



Site #1 Proposed Stream Restoration Site



Site #2: Proposed Floodplain Restoration Site

Strawberry/ East Daniels Grazing Project

Currently the State of Utah is working with the Forest Service to complete a grazing management project at the top of the Strawberry River Watershed. The purpose of this project is to construct a fence along the upper reaches of the watershed that will reduce the amount of grazing that takes place within the Strawberry River Drainage. Currently several miles of fencing has been installed. Much of the fence is constructed using lodge pole Pines, but there are also other sections that are constructed using a standard T-post and barbed wire design. The section the Forest Service is currently working on is very

difficult to access, and requires that workers carry all supplies long distances to complete the work. It is anticipated that this project will be completed by September of 2013.



Completed Fence in the Upper Strawberry/ East Daniels Watershed

Strawberry River Restoration Project

Work has been taking place on the Strawberry River since 2008. The Strawberry River is the major tributary to Strawberry Reservoir, which is listed for High phosphorus levels. Currently several miles of the river have already been restored, and the last reach of the river in need of restoration will be completed using 319 funding in 2013. Since the initiation of this project the Division of Wildlife Resources has documented increased numbers of fish in the restored reaches. They also have evidence showing that the project has resulted in decreased phosphorus and Total Suspended Solids (TSS) concentrations in the river. More information regarding this project can be found online at <https://sites.google.com/site/strawberryriverdatabase/home>.



Reach of the Strawberry River Restoration Project Completed in July 2012

Duchesne River Projects

According to the 2013 Section 319 PIP five projects are scheduled to take place on the Duchesne River using Section 319 Funding. These projects consist of four stream bank stabilization projects, as well as an animal feedlot project. These projects will be funded mainly Water Quality Initiative funding from the NRCS, but will also include funding from section 319 grants and nonpoint source funding. The local watershed coordinator anticipates that work will continue in this reach of the river, and will begin working with neighboring landowners to implement additional projects.

In addition to the river restoration projects the Utah Division of Wildlife Resources will also be working together with the Division of Water Quality to fly and take photographs of a large reach of the Duchesne to help identify where work will be needed. They said that this will be similar to an SVAP, and can also be used when the watershed plan is revised. Aggie Air from Utah State University will be used to gather the images.



Proposed Restoration Project on Duchesne River



Animal Feedlot on the Duchesne River

Cart Creek Watershed and Surrounding Areas

There are various issues that the forest service has been trying to address in the Cart Creek Watershed, and the Uinta mountains. During this tour the Forest Service stopped at two sites to highlight the larger issues they are currently working on.

Fish passage has been an issue for some time in the Uinta Basin. The Forest Service has installed culverts that are more conducive to fish passage, and less conducive to erosion. These culverts have step structures inside the culvert to allow fish to pass during high flows. They have also installed large amounts of rip-rap above and below the culverts to reduce erosion that often occurs in these locations.

The use of ATVs is very popular in the Cart Creek Watershed. Unfortunately, many of the people recreating in this area regularly travel off of approved trails. This has caused many erosional issues throughout the watershed. To help reduce the erosion caused by these ATVs many of these unauthorized roads will be decommissioned. The State will be using 319 funds to assist with the road decommissioning to protect the watershed.



Forest Service Culvert



Unauthorized ATV Usage

Pot Creek/ Matt Warner Watershed

Due to high phosphorus concentrations in Pot Creek and Matt Warner Reservoirs large blue green algal blooms have been observed in the reservoir. Several NPS projects have been implemented in the Pot Creek watershed including fencing of cattle from the reservoirs and improving culverts on tributaries to the reservoir. The local watershed coordinator has also identified several other projects that will be implemented in the fall of 2012 to help reduce phosphorus concentrations. The Local Conservation District has conducted soil sampling to determine if soil erosion in the tributaries and on the shorelines of the reservoirs are contributing to the phosphorus loading. The samples identified very high concentrations of phosphorus in the soil samples gathered.

To help reduce erosion in proximity to the reservoir the local watershed coordinator will be working with the DWR to slope and reseed eroding banks on Matt Warner Reservoir. Mass erosion has also been occurring at the reservoir overflow during spring runoff events. Both these sites will be treated in the fall of 2012.



Eroding Banks on Matt Warner Res.



Fencing at Matt Warner Res.



Blue Green Algae at Matt Warner Res.



Erosion at Matt Warner Res. Outlet

Additional work has also been done around Calder Reservoir. This includes road decommissioning and placement of gravel and grates to reduce the amount of sediment entering into the reservoir from large storm events.



Road Decommissioning at Calder Reservoir



Gravel and Grate at Calder Reservoir

San Pitch Watershed

Over the past few years many projects have been installed in the San Pitch Watershed, specifically the upper reaches of the San Pitch River outside of Fairview. During the tour three sites were visited, all of which were stream bank stabilization projects. The first project had been implemented several years previously, and has served as a demonstration project for many of the other landowners in the area. This project has responded well to the treatments, and the Division of Wildlife Resources reported increased numbers of trout in the reach. Unfortunately, many of the trout in the river died due to erosion resulting from forest fires which occurred during the summer months. Even during the visit in the late summer the water was very cloudy and laden with a heavy sediment load.

The two other projects visited were still in various stages of implementation. One project had already done the earth work, installed rock barbs and planted willows. They had seeded the sloped banks, but due to the dry conditions no seed was able to grow. The other project visited took a different approach. The engineer that created the design focused mainly on the corners that were heavily eroded, and used large amounts of rock. The fence was partially installed, and no willows had been planted. The land owner was on site, and was very pleased with the way the project was going to date.



Completed San Pitch Project



San Pitch Project One Year Post Implementation



San Pitch Project during Implementation

Middle Sevier River Watershed

The majority of the tour in the Middle Sevier Watershed took place in Marysvale just outside of Richfield where several river restoration projects have taken place on the main stem of the Sevier River. The tour visited two locations. The first location had been implemented in the spring of 2012. The project consisted of a fairly large reach, and used rock structures to divert water from banks that had been eroded. This project was unique because the banks had not been sloped as far back as other projects. However, this seemed to be very effective since the cattle that had been in the area stayed off the bank due to the steep slope. However, the slope had been decreased just enough for willows to grow and stabilize the soil.

The second location was a project that had been implemented two years ago. This project was coming along very well, and the rock structures seemed to be doing a good job of stabilizing the banks and allowing sediment to drop out behind them. In both projects visited it was pointed out that more willows should be planted. The local watershed coordinator stated that they are currently working with the DWR to bring in volunteers to plant more willows.



Middle Sevier- First Project Location



Middle Sevier-Second Project Location

9. APPENDICES

Figure 1 Project Location Map

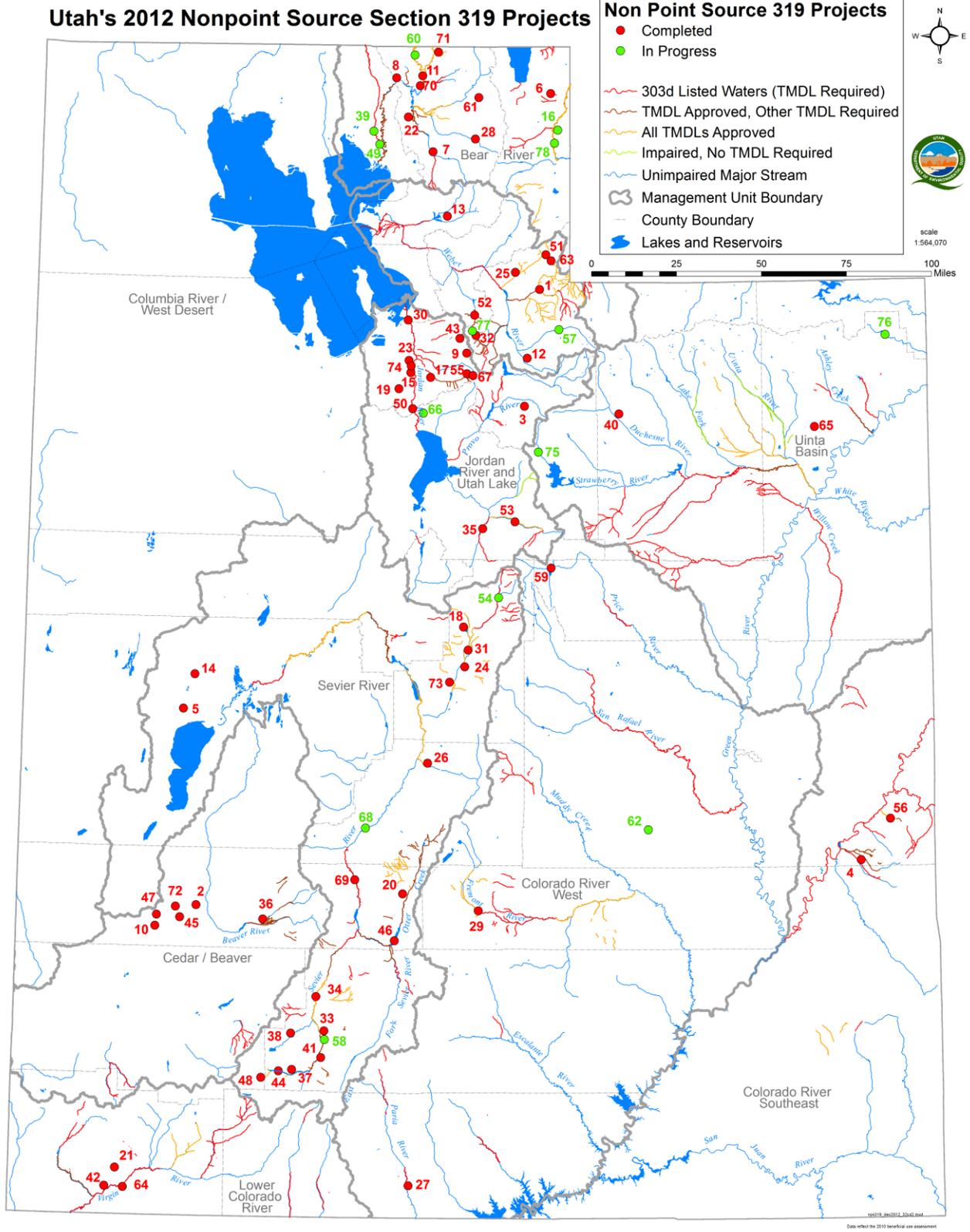


TABLE A- COMPLETED AND ACTIVE 319 PROJECTS (SEE FIGURE 1)

Map_ID	STATUS	PROJECT_NAME	Map_ID	STATUS	PROJECT_NAME
1	Completed	Chalk Creek	40	Completed	Duchesne River
2	Completed	Milford Baseline GW and Aquifer Mapping	41	Completed	Upper Sevier River Information / Education
3	Completed	Wasatch County GW Study and Aquifer Mapping	42	Completed	Virgin River Information / Education
4	Completed	Spanish Valley Baseline GW Mapping	43	Completed	Emmigration Creek Water Quality Study
5	Completed	South Sevier Desert GW Recharge Area Mapping	44	Completed	Groundwater (Mammoth Creek)
6	Completed	Bear River Watershed Outreach Information/Educatio	45	Completed	Mitigation of NPS Chemicals - Milford Groundwater
7	Completed	Little Bear River Animal Waste System	46	Completed	Otter Creek Reservoir TMDL
8	Completed	Bear River TMDL Development	47	Completed	Milford Microbial Contamination GW Study
9	Completed	Millcreek Canyon Watershed Phase II	48	Completed	Cedar Mountain GW Assessment
10	Completed	Milford Baseline GW Contaminant Inventory	49	In Progress	Bear River Information / Education
11	Completed	Bear River Groundwater Contaminant Inventory	50	Completed	Jordan River WQ/TMDL Assessment
12	Completed	Kamas Valley Groundwater	51	Completed	Rees Creek Demonstration
13	Completed	Ogden Valley GW Recharge Area Mapping	52	Completed	East Canyon Instream Flow
14	Completed	Millard County Groundwater	53	Completed	Soldier Creek Spanish Fork
15	Completed	Jordan River Wetland	54	In Progress	San Pitch Watershed Implementation
16	In Progress	Bear River (Rich County)	55	Completed	Little Cottonwood ImplementationTMDL
17	Completed	SL County Lawn Fertilizer/Pesticides Impacts on GW	56	Completed	Onion Creek Impementation TMDL
18	Completed	Sanpete / Moroni Groundwater	57	In Progress	Upper Weber River Tech. Assist. Information and Edu
19	Completed	Salt Lake Valley Drink. Water Source Protect.	58	In Progress	Upper Sevier River TMDL Implementation
20	Completed	Otter Creek	59	Completed	Scofield Reservoir TMDL Implementation
21	Completed	Washington County Septic Tank Effects on GW	60	In Progress	Middle Bear River
22	Completed	Cache Valley GW/Aquifer Assessment & Classification	61	Completed	Spawn Creek Bank Restoration
23	Completed	Jordan River Parkway Millcreek Riparian	62	In Progress	Colorado River West
24	Completed	Sanpete Valley WQ Assessment and GW Mapping	63	Completed	Rees Creek Phase II
25	Completed	Echo Creek Demonstration	64	Completed	Virgin River TMDL Implementation
26	Completed	Stuart Johnson Salina Canyon	65	Completed	Oil/Gas Erosion Control
27	Completed	Paria River Restoration Demonstration	66	In Progress	Jordan Watershed Council
28	Completed	Hardware Ranch Demonstration	67	Completed	Alta Fen Rehab
29	Completed	Fremont River Demonstration	68	In Progress	Middle Sevier River Watershed TMDL Implementation
30	Completed	Peace Trees Information/Education (Salt Lake City)	69	Completed	Sevier River @Marysvalle Animal Waste Demonstratio
31	Completed	San Pitch River Information/Education	70	Completed	Bear River Amalga
32	Completed	East Canyon Creek	71	Completed	Cub River
33	Completed	Upper Sevier Rangleland Improvement Demonstratio	72	Completed	Milford (Private Wells)
34	Completed	USU Panguitch - Sevier River	73	Completed	Sanpete Valley GW Recharge Area Mapping
35	Completed	Thistle Creek	74	Completed	Jordan River Ecosystem Restoration
36	Completed	Beaver River	75	In Progress	Upper Strawberry River Riparian Management
37	Completed	Mammoth Creek	76	In Progress	Matt Warner Reservoir/ Pot Creek Riparian Managemen
38	Completed	Panguitch Creek	77	In Progress	East Canyon Stream Restoration
39	In Progress	Lower Bear River Malad	78	In Progress	Upper Bear River Riparian Restoration, BLRC

TABLE B- 319 FINAL PROJECT REPORTS SUBMITTED IN FY-2012

Project Title	Total NPS Award	Date Received
FY-07 Jordan River Watershed Council Capacity Building	\$35,350	2/16/12
FY-07 Rich County Watershed Coordinator	\$30,000	2/6/2012
FY-07 Middle Sevier Watershed TMDL Implementation	\$105,210	5/11/2012
FY-07 West Colorado Watershed Improvement Project	\$70,000	1/3/2012
FY-08 Upper Bear River WS TMDL Implementation Project	\$30,000	6/6/2012
FY-08 Middle Sevier Watershed TMDL Implementation	\$137,085	5/11/2012

TABLE C- SUMMARY OF ACTIVE UTAH 319(H) GRANTS FY-12

Project Title	Total NPS Award	Grant Status
Oil & Gas Sediment Erosion FY-07	\$6,000	Project Complete Awaiting Final Report
San Pitch River Watershed TMDL Implementation FY-07	\$153,000	Project Complete Awaiting Final Report
Alta Fen Rehab FY-07	\$13,500	Project complete awaiting final report
Upper Sevier River Watershed TMDL Implementation FY-07	\$155,000	Project Complete Awaiting Final Report
Upper Bear River WS TMDL Implementation FY-08	\$30,000	Project Complete Awaiting Final Report
Middle Bear River TMDL Implementation FY-08	\$32,100	Ongoing
Lower Bear River TMDL Implementation FY-08	\$212,500	Ongoing
Strawberry River/ East Daniels FY-08	\$61,600	Ongoing
San Pitch River WS TMDL Implementation FY-08	\$118,000	Ongoing
Middle Sevier River WS TMDL Implementation FY-08	\$137,085	Ongoing
West Colorado River Watershed Improvement Project FY-08	\$70,000	Project complete awaiting final report
Matt Warner, Calder Reservoir/ Pot Creek FY-08	\$64,800	Ongoing
Scofield Reservoir Riparian Revegetation FY-08	\$35,500	Project Complete awaiting final report
Local Watershed Coordinators Support FY-08	\$400,000	Project Complete Awaiting Final Report
USU Extension NPS I&E Outreach FY-09	\$33,500	Project complete awaiting final report
Lower Bear River WS TMDL Implementation FY-09	\$84,000	Ongoing
Upper Bear River WS TMDL Implementation FY-09	\$110,140	Ongoing
Middle Sevier River WS	\$60,000	Ongoing

TMDL Implementation FY-09		
Upper Sevier River WS TMDL Implementation FY-09	\$122,790	Ongoing
West Colorado River WS TMDL Implementation FY-09	\$70,000	Ongoing
Forest Water Quality Guidelines Monitoring FY-09	\$33,870	Ongoing
Jordan River Ecosystem Restoration FY-09	\$96,000	Ongoing
Local Watershed Coordinator Support FY-09	\$509,100	Project complete awaiting final report
Matt Warner/Pot Creek Road Rehabilitation FY-10	\$63,600	Ongoing
USU NPS I & E Outreach FY-10	\$37,000	Project complete awaiting final report
Lower Bear R TMDL Impl. FY-10	\$80,000	Ongoing
Middle Bear R TMDL Impl FY-10	\$100,000	Ongoing
Upper Bear R TMDL Impl FY-10	\$70,000	Ongoing
West Colorado River Watershed Improvement FY-10	\$45,000	Ongoing
USU Septic System Ed. Enhancement FY-10	\$51,100	Ongoing
Utah Watershed Coordinating Council FY-10	\$30,000	Ongoing
Upper Bear Riparian Restoration FY-10	\$15,600	Ongoing
East Canyon Stream Restoration - Phase IV FY-10	\$50,000	Ongoing
Mud Ck/Scofield Riparian Restoration FY-10	\$50,000	Project complete awaiting final report
Salt Lake County Stream Guide FY-10	\$31,100	Ongoing
Jordan River Council Capacity - I&E FY-10	\$41,600	Project Complete Awaiting Final Report
TMDL Local Watershed Coordinators FY-10	\$400,000	Project Complete Awaiting Final Report

Utah NPS Program - Management Review FY-10	\$66,582	Ongoing
Utah Watershed Coordinating council FY-11	\$10,000	Ongoing
USU Volunteer Monitoring and I&E FY-11	\$102,500	Ongoing
Utah Watershed Coordinating council FY-11	\$340,000	Ongoing
East Canyon Restoration FY-11	\$380,421	Ongoing
Utah Watershed Coordinating council FY-12	\$10,000	Ongoing
USU Volunteer Monitoring and I&E FY-12	\$102,500	Ongoing
East Canyon Restoration FY-12	\$283,070	Ongoing
Upper Weber TMDL Implementation FY-12	\$95,230	Ongoing

TABLE D- APPROVED TMDLS

Water Body	Date Approved
Chalk Creek	12/23/1997
Otter Creek	12/23/1997
Little Bear River	5/23/2000
Mantua Reservoir	5/23/2000
East Canyon Creek	9/1/2000
East Canyon Reservoir	9/1/2000
Kents Lake	9/1/2000
LaBaron Reservoir	9/1/2000
Minersville Reservoir	9/1/2000
Puffer Lake	9/1/2000
Scofield Reservoir	9/1/2000
Onion Creek (near Moab)	7/25/2002
Cottonwood Wash	9/9/2002
Deer Creek Reservoir	9/9/2002
Hyrum Reservoir	9/9/2002
Little Cottonwood Creek	9/9/2002
Lower Bear River	9/9/2002
Malad River	9/9/2002
Mill Creek (near Moab)	9/9/2002
Spring Creek	9/9/2002

Forsyth Reservoir	9/27/2002
Johnson Valley Reservoir	9/27/2002
Lower Fremont River	9/27/2002
Mill Meadow Reservoir	9/27/2002
UM Creek	9/27/2002
Upper Fremont River	9/27/2012
Deep Creek	10/9/2002
Uinta River	10/9/2002
Pineview Reservoir	12/9/2002
Browne Lake	2/19/2003
San Pitch River	11/18/2003
Newton Creek	6/24/2004
Panguitch Lake	6/24/2004
West Colorado	8/4/2004
Silver Creek	8/4/2004
Upper Sevier River	8/4/2004
Lower and Middle Sevier River	9/17/2004
Lower Colorado River	9/20/2004
Upper Bear River	8/4/2006
Echo Creek	8/4/2006
Soldier Creek	8/4/2006
East Fork Sevier River	8/4/2006
Koosharem Reservoir	8/4/2006
Lower Box Creek Reservoir	8/4/2006
Otter Creek Reservoir	8/4/2006
Thistle Creek	7/9/2007
Strawberry Reservoir	7/9/2007
Matt Warner Reservoir	7/9/2007
Calder Reservoir	7/9/2007
Lower Duchesne River	7/9/2007
Lake Fork River	7/9/2007
Brough Reservoir	8/22/2008
Steinaker Reservoir	8/22/2008
Red Fleet Reservoir	8/22/2008
Newcastle Reservoir	8/22/2008
Cutler Reservoir	2/23/2010
Middle Bear River	2/23/2010

Pariette Draw	9/28/2010
Emigration Creek	7/18/2012
Jordan River Phase I	Awaiting EPA Approval
Ashley Creek	Awaiting EPA Approval

TABLE E- WATERSHED PLANS

Watershed	Date Approved
Middle and Lower Sevier	October-10
San Pitch	January-06
Upper Sevier	June-04
Virgin River	February-06
Paria River	2006
Escalante River	2006
Strawberry Watershed	April-04
Wallsburg CRMP	October-12
Duchesne River	Nearing Completion
Upper Green	Nearing Completion
Lower green	Nearing Completion
Strawberry River Watershed	Nearing Completion

TABLE F- STATE NPS FUNDS ALLOCATED IN 2012

Watershed	Project Sponsor	Project Description	Grant Award
Sevier	Private Landowner	Stream Restoration	\$53,446
Bear	DNR, FFSL	Conservation Easement	\$50,000
West Colorado	DNR, DOGM	Mine land reclamation - Whiskey Creek	\$5,000
Statewide	USU	Onsite Training Center	\$112,260
Cedar-Beaver	USGS	Newcastle Hg Project	\$55,950
Weber	Snyderville Basin	Project Implementation	\$150,000
Moab	Private Landowner	Animal Feeding Operation	\$36,591
West Colorado	Private Landowner	Fremont R stream bank stabilization	\$41,862
Statewide	DWQ	Mercury take back	\$6,000
Statewide	DWQ	Watershed Coordinators	\$30,000
Upper Sevier	Private Landowner	Stream bank	\$49,275
Middle Sevier	Private Landowner	Stream Bank	\$17,720
Middle Sevier	Private Landowner	Stream Bank	\$14,268
Jordan	DWQ	Jordan River OM budget	\$90,000
Bear	DWQ	Lower Bear Source ID	\$50,000
Statewide	DWQ	Ecological benefits study	\$45,000
Statewide	DWQ	Economic costs study	\$45,000
Weber	DWQ	Rockport/Echo model	\$90,000
Statewide	USU	Septic / Onsite I&E	\$23,514
Jordan	SLC Corp.	Design of wetland	\$18,000
Statewide	DWQ	Reserve for onsite grants and ARDL	\$16,114
		Total	\$1,000,000

TABLE G- ADDITIONAL FUNDING CURRENTLY ALLOCATED IN CONJUNCTION WITH SECTION 319 FUNDING IN FY-2012.

Funding Source	Amount
Utah State NPS Funding	\$887,036
ARRA	\$8,341
Watershed Restoration Initiative	\$61,208
Environmental Quality Incentive Program (EQIP)	\$1,157,896
CERCLA	\$1,500,000
Central Weber Sewer Improvement District	\$71,250
Grazing Improvement Program	\$85,029
BLM	\$608,000
Mitigation funds	\$307,500
Salt Lake County	\$2,178,141
Utah Partners for Conservation	\$570,000
South Valley Water Reclamation Facility	\$738,000

**TABLE H- SUMMARY CONSERVATION PRACTICES- NRCS FISCAL YEAR
2012**

Summary Conservation Practices - NRCS Fiscal Year 2012	Planned	Applied	Planned Count	Applied Count
Access Control (472) (ac)	271	627	2	8
Access Road (560) (ft)	4,745	3,712	4	4
Agriculture Energy Management Plan, Headquarters - Written (122) (no)	1		1	
Anaerobic Digester (366) (no)	1		1	
Apply nutrients no more than 30 days prior to planned planting date (WQL05) (ac)	303		17	
Brush Management (314) (ac)	52,013	18,477	236	80
Combustion System Improvement (372) (no)		9		9
Composting Facility (317) (no)	1		1	
Comprehensive Nutrient Management Plan - Applied (103) (no)		1		1
Comprehensive Nutrient Management Plan - Written (102) (no)	4		4	
Comprehensive Nutrient Management Plan (100) (no)	8	3	8	3
Conservation Cover (327) (ac)	43,836	49,518	782	1,095
Conservation Crop Rotation (328) (ac)	3,766	17,690	61	181
Continuous cover crops (SQL02) (ac)	0		1	
Cover Crop (340) (ac)	45	49	5	2
Critical Area Planting (342) (ac)	19	7	3	2
Dam, Diversion (348) (no)	1		1	
Dike (356) (ft)		5,532		2
Diversion (362) (ft)	2,811	447	3	2
Dust Control on Unpaved Roads and Surfaces (373) (sq ft)	41,088	354,942	1	1
Enhancement - Energy Management (EEM) (ac)		101		1
Enhancement - Grazing Management (EGM) (ac)		1,058		1
Enhancement - Habitat Management (EHM) (ac)		324		2
Enhancement - Pest Management (EPM) (ac)		324		2
Enhancement - Soil Management (ESM) (ac)		324		2
Fence (382) (ft)	389,721	219,825	154	98
Filter Strip (393) (ac)		2		1
Firebreak (394) (ft)	32,000	4,600	6	1
Forage and Biomass Planting (512) (ac)	662	716	40	32
Forage Harvest Management (511) (ac)	4,434	1,997	87	75
Forest Management Plan - Written (106) (no)	1	2	1	2
Forest Stand Improvement (666) (ac)	319	112	6	10
GPS, targeted spray application (SmartSprayer), or other chemical application electronic control tec (AIR07) (ac)	803		53	
Grade Stabilization Structure (410) (no)	27	6	10	4
Grazing Management Plan - Written (110) (no)	1		1	
Grazing management to improve wildlife habitat (ANM09) (ac)	1,773		10	
Harvest hay in a manner that allows wildlife to flush and escape (ANM10) (ac)	2,935	375	175	17
Heavy Use Area Protection (561) (ac)	1		4	
Herbaceous Weed Control (315) (ac)	4,559	518	150	13
High level Integrated Pest Management to reduce pesticide environmental risk (WQL13) (ac)	803		53	
Incorporate native grasses and/or legumes into 15% or more of the forage base (ANM03) (ac)	1		1	
Integrated Pest Management (IPM) (595) (ac)	53,943	26,027	469	365
Irrigation Ditch Lining (428) (ft)	17,142	9,494	17	12

Irrigation Field Ditch (388) (ft)	1,000		1	
Irrigation Land Leveling (464) (ac)	463	382	28	31
Irrigation Pipeline (430) (ft)	557,097	290,587	530	297
Irrigation Regulating Reservoir (552) (no)		2		2
Irrigation Reservoir (436) (ac-ft)	134	113	11	10
Irrigation System, Microirrigation (441) (ac)	159	76	27	12
Irrigation System, Sprinkler (442) (ac)	14,974	13,320	502	444
Irrigation System, Surface and Subsurface (443) (ac)	3,359	333	29	19
Irrigation Water Conveyance (430) (ft)	3,240	1,757	4	6
Irrigation Water Conveyance, Ditch and Canal Lining, Plain Concrete (428A) (ft)		5,807		9
Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic (430DD) (ft)	11,615	104,765	17	123
Irrigation Water Conveyance, Pipeline, Low-Pressure, Underground, Plastic (430EE) (ft)	11,772	2,846	16	7
Irrigation Water Conveyance, Pipeline, Nonreinforced Concrete (430CC) (ft)		41		1
Irrigation Water Conveyance, Pipeline, Steel (430FF) (ft)		40		2
Irrigation Water Management (449) (ac)	18,933	11,356	812	522
Land Clearing (460) (ac)	129		4	
Land Smoothing (466) (ac)	39		2	
Leave standing grain crops un-harvested to benefit wildlife (ANM34) (ac)	299		13	
Livestock Pipeline (516) (ft)	498,383	248,658	113	64
Monitor key grazing areas to improve grazing management (PLT02) (ac)	28,621	82	44	3
Monitoring and Evaluation (799) (no)				
Mulching (484) (ac)	9	3	3	3
Nitrification inhibitors or urease inhibitors (AIR08) (ac)	1,765		65	
Nutrient Management (590) (ac)	9,904	6,505	396	286
Nutrient Management Plan - Written (104) (no)	2		2	
Obstruction Removal (500) (ac)	148	48	11	4
Patch-burning to enhance wildlife habitat (ANM11) (ac)	2,528		10	
Plant Tissue Testing and Analysis to Improve Nitrogen Management (WQL04) (ac)	372		20	
Pond (378) (no)	21	6	14	6
Pond Sealing or Lining, Bentonite Sealant (521C) (no)	3	2	3	3
Pond Sealing or Lining, Compacted Clay Treatment (521D) (no)	8	4	8	4
Pond Sealing or Lining, Flexible Membrane (521A) (no)	6	3	6	3
Pond Sealing or Lining, Soil Dispersant (521B) (no)		1		1
Prescribed Burning (338) (ac)	100	2,296	19	30
Prescribed Grazing (528) (ac)	458,283	223,712	827	395
Prescribed Grazing (528A) (ac)		11		1
Pumping Plant (533) (no)	142	171	115	89
Range Planting (550) (ac)	16,364	9,521	80	63
Regional weather networks for irrigation scheduling (WQT04) (ac)		620		21
Renewable Energy System (716) (no)	1	12	1	8
Residue and Tillage Management, Mulch Till (345) (ac)	712	1,722	24	13
Residue and Tillage Management, No-Till/Strip Till/Direct Seed (329) (ac)	5,376	877	52	14
Residue Management, Seasonal (344) (ac)		2,568		32
Restoration and Management of Rare and Declining Habitats (643) (ac)	228		4	
Retrofit watering facility for wildlife escape (ANM18) (no)	35	2	23	2

Riparian Herbaceous Cover (390) (ac)	240	0	14	1
Rotation of supplement and feeding areas (WQL03) (ac)	44,015		71	
Seasonal High Tunnel System for Crops (798) (sq ft)	46,273	47,560	23	27
Solid/Liquid Waste Separation Facility (632) (no)	10	1	10	1
Split applications of nitrogen based on a PSNT (WQL25) (ac)	303		17	
Split nitrogen applications 50% after crop/pasture emergence/green up (WQL07) (ac)	317	39	32	1
Spoil Spreading (572) (ac)				
Spring Development (574) (no)	1,578	6	8	5
Stewardship Payment (SP) (ac)	1		2	
Stream Habitat Improvement and Management (395) (ac)	5	14	2	1
Streambank and Shoreline Protection (580) (ft)	16,845	13,805	27	19
Structure for Water Control (587) (no)	556	581	227	222