



Utah Nonpoint Source Pollution Management Program Fiscal Year 2021 Annual Report

Prepared by the Utah Department of Environmental Quality,
Division of Water Quality
In cooperation with the Water Quality Task Force
January 2022

Acknowledgements

Appreciation is expressed to the following individuals for contributing information and writing portions of this report: Hope Braithwaite, Rhonda Miller, Utah State University Extension; Amy Dickey, Lucy Parham, Christine Osborne, Jodi Gardberg, Mark Stanger, and Ryan Parker, Utah Division of Water Quality (DWQ); Jim Bowcutt and Hannah Freeze, Utah Department of Agriculture and Food; and Eric McCulley, River Restoration.

The Utah Division of Water Quality (DWQ) also appreciates the following local watershed coordinators who submitted progress reports: Wally Dodds, Upper Sevier River; Jace Farnsworth, San Pitch and Fremont River; Melissa Early, Upper Weber River; Katy Slebodnick, Upper Provo and Utah Lake; Arne Hultquist, Southeastern Utah, and Gabe Murray, Bear River.

DWQ is also grateful to Erika Larsen, Watershed Team, U.S. Environmental Protection Agency, Region 8, for her review and input to the report.

Cover Photo: Logan River Restoration project. Completed July 2021 using Section 319 funding.

Table of Contents

Introduction and Program Overview	5
Grant Management and Program Administration	6
Staffing and Support	8
FY 2021 Accomplishments and Milestones	8
Summary of Active Utah 319(h) Grants during FY 2021	10
Watershed Based Plans/TMDLs	11
Project Proposals Approved for Funding during FY 2021 Solicitation Process	11
NPS Program Strategic Approach	12
Targeted Basin Approach	12
Utah Nonpoint Source Funding	13
Program Match Status	13
Integrating Watersheds and NPS Funding (Basin-wide Summary)	14
Nonpoint Source Water Quality Task Force	18
Grants Reporting and Tracking System	19
Water Quality Information	19
Sampling and Assessment Activities	19
Assessment/Integrated Report- DWQ	20
Utah Water Watch Citizen Monitoring	22
The Ambient Water Quality Monitoring System (AWQMS) Database- DWQ	22
Groundwater Protection	23
Outreach Activities	23
Utah State University Extension	23
Youth Outreach and Teacher Training	24
Producer's Website	25
Statewide Water Quality Outreach Campaigns	25
Notable NPS Projects in FY 2021	28
Shoreline Stabilization Project Reduces Phosphorus Loading into Matt Warner Reservoir	28
Agricultural Community Utilizes Ag VIP Program Incentives to Manage Wastes, Improve Water Quality	30
Trough System, BDAs Improve Riparian Areas in South Fork Chalk Creek	31
Big Bend Bank Stabilization Project Supports Restoration of a Unique Urban Landscape	36
Division of Wildlife Projects Remove Sediment at Pelican Lake and Create a Living Shoreline	37
Weber River Kayak Park Project Supports Fish Passage, Recreation, and Water Quality	40
Utah Nonpoint Source MOU	42
Federal Consistency Review and NPS Project Tours for FY 2021	42
Appendix	49

Figures

Figure 1. FY 2021 Section 319 Project Funding	6
Figure 2. Utah Water Watch Participation	21
Figure 3. UWW Monitoring Events	22
Figure 4. Utah's Nonpoint Source Section 319 Project Locations	49

Tables

Table 1. Section 319(h) Nonpoint Source Funding Project Allocations FY 2015 to FY 2021	7
Table 2. FTEs Funded by 319 Funds and State Revenue in FY 2021	8
Table 3. 2021 Projects Selected for CWA Section 319 Funding	12
Table 4. Basin Priority Funding Schedule	13
Table 5. FY 2021 Match for Federal 319(h) Funds	14
Table 6. Drainage Area Pollutants Matt Warner FY 2021	29
Table 7. Drainage Area Pollutants South Fork Chalk Creek FY 2021	31
Table 8. Completed and Active 319 Projects (Refer to Figure 5)	50
Table 9. 319 Final Project Reports Submitted in FY 2021	50
Table 10. Summary of Active Utah 319(h) Grants FY 2021	51
Table 11. Approved TMDLs	51
Table 12. Watershed Plans	54
Table 13. State Nonpoint Source Funds Allocated in 2021	55
Table 14. Milestones of the Utah Statewide Nonpoint Source Program	56

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 (DEQ), Division of Water Quality (DWQ) prepares this report annually to inform the public, the U.S. Congress, and the U.S. Environmental Protection Agency (EPA) on the state's progress in nonpoint source water pollution abatement. While this report should not be considered a complete account of all nonpoint source activities, it describes the most important features of Utah's program.

The mission of the Utah Nonpoint Source Pollution Management Program (NPSPP) is to support the environmental protection goals of the state as described in Utah Administrative Code (UAC) R317-2, in part to:

1. Eliminate pollution which creates hazards to the public health.
2. Protect, maintain, and improve the quality of the Waters of the State for public water supplies, species protection and propagation, and other designated uses.
3. Provide for the prevention, abatement, and control of new or existing sources of polluted runoff.



Beaver dam analogs (BDAs) hold sediment on Fish Creek.

The NPSPP works to achieve these goals by working with numerous local, state, and federal agencies and private parties pursuant to the NPSPP 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 pollution comes from land runoff, percolation, precipitation, or atmospheric deposition. Precipitation washes pollutants from the air and land into streams, lakes, reservoirs, and groundwater. These pollutants can include sediment, nutrients, pathogens (bacteria and viruses), toxic chemicals, pesticides, oil, grease, salts, and heavy metals. The most common pollutants in Utah are nutrients, pathogens, metals, sediment, and salts. These pollutants alter the chemical, physical, and biological integrity of the water and can impair their designated beneficial uses (e.g., drinking water, recreation, aquatic life, and/or agriculture). Most waterbodies listed on the state's Clean Water Act Section 303(d) list of waters that don't meet water quality standards are impaired due to nonpoint source pollution. Some common sources of nonpoint source pollution include agricultural activities, runoff from paved surfaces, mining

and timber operations, recreational activities, onsite septic systems, construction, stream/riparian habitat degradation, and natural sources.

Grant Management and Program Administration

In Fiscal Year 2021 (FY 2021), DWQ received \$1,547,000 in federal Section 319(h) funds. Of these funds, \$500,000 was used for program related staffing and support, while the remaining \$1,047,000 was dedicated to four project grants. This is a 1.1% increase in project funding from the previous year (FY 2020).

Section 319(h) funds are distributed to project sponsors at the local and state level to help address water quality issues contributing to nonpoint source pollution. Recipients include local governments, conservation districts, watershed groups, and individual cooperators. The projects selected for funding in FY 2021 included the Utah State University Extension Utah Water Watch program, salaries and benefits for the local watershed coordinators and nutrient management planner, and on-the-ground implementation projects focused on improving water quality in (see Figure 1).

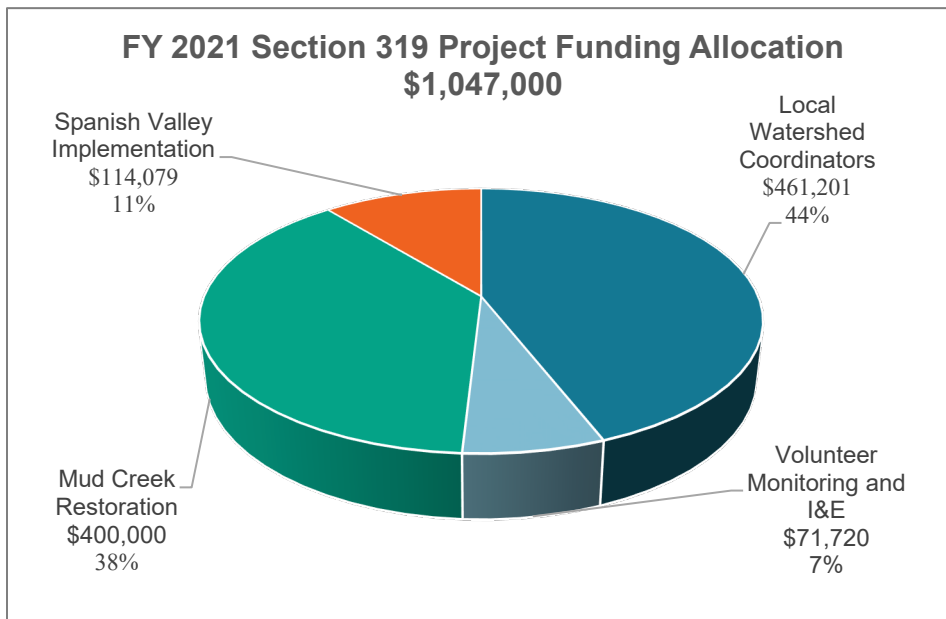


Figure 1. FY 2021 Section 319 Project Funding

In addition to the FY 2021 Section 319 funds, DWQ continues to manage four additional federal Section 319 grant awards which were partially or completely expended in FY 2021. Table 1 summarizes grant awards by year and the approximate percentage expended in each grant.

Table 1. Section 319(h) Nonpoint Source Funding Project Allocations FY 2016 to FY 2021

Federal Fiscal Year	Grant Award	Expenditures in FY 2021	Total Expenditures	Percent Expended
FY 2017	\$1,004,260	\$107,941	\$1,004,260	100%
FY 2018	\$970,494	\$159,519	\$712,006	73%
FY 2019	\$959,059	\$88,514	\$535,002	56%
FY 2020	\$879,703	\$549,778	\$549,778	63%
FY 2021	\$1,047,000	\$0	\$0	0%
Total	\$4,860,516	\$905,752	\$2,801,046	58%



Stakeholders meet near Matt Warner Reservoir to provide input on the Pot Creek Watershed Plan

Staffing and Support

DWQ employed nine employees, fully or partially, with funding from the Section 319 Performance Partnership Grant (PPG) in FY 2021. Section 319 PPG funding was utilized to fund 4.75 of the nine full-time employees (FTE) utilized for these positions. Table 2 shows the positions and FTEs funded by DWQ using Section 319 funds.

Table 2. FTEs funded by 319 funds and state revenue in FY 2021

Personnel (# FTE's)	Salary	Benefits	FTE	Total Expenses	State (40%)	EPA 319 (60%)
Program Coordinator	\$85,048	\$52,897	1	\$137,945	\$55,178	\$82,767
Environmental Scientist	\$74,564	\$48,308	0.50	\$61,436	\$24,574	\$36,862
Environmental Scientist	\$76,320	\$48,915	0.50	\$62,618	\$25,047	\$37,571
Environmental Scientist	\$72,234	\$46,668	0.50	\$59,451	\$23,780	\$35,671
Environmental Scientist	\$75,849	\$29,491	0.50	\$52,670	\$21,068	\$31,602
Environmental Scientist	\$87,257	\$14,271	0.50	\$50,764	\$20,306	\$30,458
Environmental Scientist	\$78,207	\$48,885	0.50	\$63,546	\$25,418	\$38,128
Watershed Protection Section Manager	\$89,613	\$53,487	0.50	\$71,550	\$28,620	\$42,930
Administrative Services Manager	\$75,891	\$47,491	0.25	\$30,846	\$12,338	\$18,507
Total Staffing (4.75 FTEs)	\$714,984	\$390,413	4.75	\$590,825	\$236,330	\$354,495
						Support
Travel				\$17,000	\$6,800	\$10,200
Current Expenses				\$150,000	\$60,000	\$90,000
Indirect Costs				\$75,507	\$30,203	\$45,304
Total Support				\$242,507	\$97,003	\$145,504
Total Staffing and Support				\$833,333	\$333,333	\$500,000

FY 2021 Accomplishments and Milestones

Accomplishments

- Utah closed out the FY 2017 Section 319 grant and entered all required information into the Grants Reporting and Tracking System (GRTS).

- The Water Quality Task Force held meetings on December 9, 2020; June 24, 2021; and September 9, 2021.
- The annual agency coordination meeting was held on February 23, 2021. Partner agencies gave 15-minute presentations highlighting the nonpoint source pollution issues their agencies are addressing.
- Two Type I success stories were submitted to EPA, one for East Canyon Creek and one for East Canyon Reservoir.
- DWQ's Nonpoint Source Program Coordinator and Monitoring Section staff updated the statewide nonpoint source monitoring plan that identifies monitoring requirements for documenting project effectiveness and facilitating the collection of data required for delisting waterbodies and generating success stories.
- The Agricultural Volunteer Incentive Program (Ag VIP) has proven to be a popular program with producers. Prior to Ag VIP, less than 9,000 acres statewide were covered under current Certified Nutrient Management Plans (CNMPs). That acreage doubled in the first and second years of the program. During year one (2020), 32 Ag VIP applications were funded for \$730,542 (19,312 acres). For year two (2021), 69 Ag VIP applications were funded for \$1,489,868 (47,010 acres). Over one hundred producers will have current CNMPs as a result of the program.
- DWQ hosted an EPA Region 8 tour of Section 319 and state nonpoint source (NPS) projects from August 30th to September 1st, 2021.

Milestones

The state has developed annual milestones based on the five objectives identified in the Statewide Management Plan to help Utah gauge the success of its NPS Program.

Objective 1: Environmental Protection

Annual Milestones

- Number of Total Maximum Daily Load (TMDLs) studies completed
- Number of TMDLs initiated during the state fiscal year
- Number of nine-element watershed-based plans developed
- Number of nine-element watershed-based plans initiated during the state fiscal year
- Number of projects dedicated to the protection of threatened waterbodies identified in Utah's 303(d) list
- Number of projects focused on groundwater protection throughout the state

Objective 2: Improve Program Efficiency and Effectiveness through Reporting and Evaluation

Annual Milestones

- Total number of stream miles restored annually
- Total estimated load reductions (i.e., total phosphorus, total nitrogen, total suspended solids) in project areas annually
- Number of final project reports submitted annually
- Number of Section 319 grants currently open during the fiscal year
- Amount of unexpended funds in each open 319 grant

- Number of success stories showing the environmental benefits of completed NPS projects submitted to EPA for approval.

Objective 3: Improve Public Participation and Understanding of NPS Issues

Annual Milestones

- Number of participants involved in the statewide volunteer monitoring program
- Number of information and education projects implemented with Section 319 and state NPS funding
- Updates made to the NPS program website

Objective 4: Improve Data Collection and Management

Annual Milestones

- Updates made to enhance NPS monitoring in DWQ's annual monitoring strategy
- Number of sampling analysis plans (SAPs) developed
- Status and updates of Utah's AWQMS database
- Upload of report on water quality data to EPA's WQX database

Objective 5: Improve Coordination of Governmental and Private Sectors

Annual Milestones

- Annual NPS coordination meetings
- Annual consistency reviews with state and federal agencies
- Number of Water Quality Task Force meetings held during the fiscal year
- Amount of funding used to leverage Section 319 funding throughout the state. This funding can include program funding from the Utah Department of Agriculture and Food (UDAF), DWQ, Utah Division of Wildlife Resources (UDWR), United States Department of Agriculture (USDA), and other state, federal, and local agencies.

For a complete report of how these annual milestones were met in FY 2021, refer to Table 14 in the Appendix.

Summary of Active Utah 319(h) Grants during FY 2021

For a summary of active Utah 319(h) projects see Tables 8, 9, and 10 in the Appendix.

Watershed-based Plans/TMDLs

Section 303(d) of the federal Clean Water Act requires states to develop and submit for approval a list of impaired waters, referred to as the 303(d) list, every two years. The most recent version of the EPA-approved 303(d) list for the state of Utah was issued in 2020. Waterbodies listed as impaired require additional study to determine the sources of impairment, and if appropriate, a Total Maximum Daily Load (TMDL) determination made for the pollutant of concern. Currently, Utah is implementing 66 TMDLs. DWQ prioritized the waterbodies listed on the 303(d) list of impaired waterbodies to determine where efforts should be focused to develop TMDLs and implement watershed plans. For a list of all TMDLs and watershed plans the state of Utah is currently implementing, see Tables 11 and 12 in the Appendix.



A J-hook helps restore a section of river covered under the Duchesne River TMDL

Project Proposals Approved for Funding During the FY 2021 Solicitation Process

The state of Utah requires entities applying for funding to submit pre-proposals for review. Fifty-seven pre-proposals totaling over \$4.48 million were accepted from the first of February through mid-April for FY 2021. These pre-proposals were reviewed by DWQ using a project selection ranking criterion developed by the Water Quality Task Force. Once the proposals were ranked, they were reviewed by a subcommittee of the Water Quality Task Force, who determined the final grant awards.

Four projects were selected for funding with Section 319 funds. The Mud Creek Restoration project, the largest tributary into Scofield Reservoir, received the majority of the project funds. Funding was also awarded to the Moab Area Watershed Partnership to implement projects in the Spanish Valley. The local watershed coordinators and nutrient management planner, as well as an information and education (I&E) grant given to Utah State University Extension that included the Utah Water Watch Program, were also funded (Table 3). The projects that were not selected for funding with Section 319(h) funds were then considered for funding with state NPS funds.

Table 3. 2021 Projects Selected for CWA Section 319 Funding

Project Name	Allocation
Utah State University volunteer monitoring and I&E	\$ 71,720
Local watershed coordinators and nutrient management planner	\$ 461,201
Mud Creek restoration	\$ 400,000
Spanish Valley restoration	\$ 114,079
Total	\$ 1,047,000

NPS Program Strategic Approach

Nonpoint source projects must be located on a waterbody or a tributary to a waterbody identified on the 303(d) list of impaired waterbodies, or in a waterbody that is at risk of becoming impaired, to be eligible for funding. A current watershed plan should also be in place, covering all nine elements required in an EPA-approved watershed-based plan. The targeted basin approach gives watershed planners time to develop watershed plans between funding cycles. DWQ conducts annual intensive monitoring runs two years before funding is scheduled to be received by the targeted basin to facilitate the development of watershed plans and identify sources of pollutant loading.

Targeted-Basin Approach

The state of Utah uses a targeted-basin approach to reduce nonpoint source pollution. FY 2021 represents the 12th year the state has implemented the targeted-basin approach (see Table 4). This approach allows the state to focus implementation efforts on a specific watershed and promote effective implementation of TMDLs and watershed plans.

The Colorado River Basin obtained the majority of the 319(h) funds allocated for implementation in FY 2021. Projects located in the targeted basin also receive additional points in the ranking process, increasing their likelihood of being funded.



Sampling with Trout Unlimited partners

Table 4. Basin Priority Funding Schedule

Basin Priority Funding Schedule											
Watershed	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
(1) Jordan/ Utah Lake											
(2) Colorado River											
(3) Sevier, Cedar-Beaver											
(4) Bear River											
(5) Weber River											
(6) Uinta Basin											

Utah Nonpoint Source Funding

DWQ uses funds generated from interest earnings on State Revolving Fund (SRF) loans awarded by the Utah Water Quality Board to address nonpoint source issues. 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 or human health concerns and would not be economically feasible without the grant. In FY 2021, 28 projects were funded using State NPS grants, totaling \$1,000,000. For a complete summary of FY 2021 funded projects, see Table 12 in the Appendix.

Program Match Status

Federal 319(h) funds received by the state require a 40 percent (40%) non-federal match for staffing, support, and project funding. Most of the match for projects is provided at the local level by project sponsors and cooperating landowners. DWQ provides state NPS funds as a match to selected 319(h) projects to provide an additional incentive to implement best management practices (BMPs).

There are several state and local programs that are very helpful in generating the match for the Section 319 projects. Table 5 shows the match associated with the projects where FY 2021 state NPS and Section 319 grants were used. Of the NPS grants funded, \$8,312,532 in match is generated from other programs or landowner match. This equates to a 4:1 ratio of NPS grant to partner funding. Funding from federal agencies is not counted as match for 319(h) funds.

DEQ provides state revenue to match the staffing and support 319(h) funds that are part of the Performance Partnership Grant (PPG). All sub-recipients are expected to track all match accrued for their projects. An accounting of that match is provided in the final report prior to closing out a Section 319 grant.

Table 5. FY 2021 match for federal 319(h) funds

Funding Source	Match Amount
Natural Resource Conservation Service	\$2,505,384
Utah Department of Agriculture and Food	\$278,019
Local government	\$250,073
Utah Watershed Restoration Initiative	\$1,150,982
Bureau of Land Management	\$58,270
Universities	\$137,751
Gold King Mine settlement funding	\$1,000,000
Legislative one-time funding	\$2,000,000
Local health departments	\$125,000
Private landowners	\$655,661
Other	\$151,391
Total	\$8,312,532
Note: Federal funding (e.g., NRCS or BLM) is not counted towards the 319(h) match requirements	

Integrating Watersheds and NPS Funding (Basin-wide Summary)



Weber River Basin Watershed Coordinator Melissa Early (right) conducting monthly water sampling with an intern from partner Trout Unlimited

Watershed coordinators play an important role in implementing water quality projects. Local watershed coordinators develop relationships with landowners and educate them on the benefits of installing BMPs. They oversee all project planning, design, project implementation, and reporting. They help organize and facilitate meetings for local watershed groups involved in watershed planning and in the project solicitation and selection process. They are also responsible for much of the project-effectiveness monitoring of projects implemented in their watersheds.

Southeastern Colorado River Watershed- Arne Hultquist

The Southeastern Colorado River watershed coordinator focused on the revision of the Moab Area Watershed Management Plan in 2021. This watershed plan addresses issues and concerns in surface and groundwater in Grand County, Utah. The watershed coordinator completed the watershed management plan update in coordination with the Moab Area Watershed Partnership (MAWP). The plan will be updated in 2022 to include resource concerns and watershed management opportunities that arose from the Pack Creek Fire in July 2021. Efforts continue to implement the Montezuma Creek Watershed Management Plan in San Juan County. As of July 1, 2021, there are seven active projects in Grand County and one in San Juan County.

Three NPS projects were completed in 2021, including 1) the Southeast Utah Health Department Phase I Onsite Wastewater Digitization Project, 2) the BLM Mill Creek Phase IV project to treat numerous gullies to prevent further erosion and social trailing, and 3) the Rim-to-Rim Mill and Pack Creek Active Revegetation Phase I to revegetate areas cleared of invasive species.

Funding continues for the Montezuma Creek watershed groundwater study project in San Juan County. The project is tied to pinyon-juniper removal projects on the benches of Montezuma Creek. This project will help identify the benefits of removing pinyon-juniper stands on water quality and quantity. It is anticipated that the BLM will have completed the NEPA process by fall 2021 and begin pinyon-juniper removal in Fall 2022.

The watershed coordinator, in cooperation with the MAWP, received funding for two projects in Grand County. The Southeast Utah Health Department received a grant for Phase II of their Human Waste Initiative, specifically to purchase a SCAT machine that cleans portable human waste containers. The second project, Phase II of the Mill and Pack Creek Active Revegetation Plan conducted by Rim-to-Rim Restoration, aims to reduce fire hazards and restore riparian areas.

Bear River Watershed- Gabe Murray

The Bear River Watershed Coordinator oversaw completion of several projects and initiatives along the Logan River in 2021. Projects included Jeff Kunzler's streambank, revegetation, and debris removal project; two revegetation projects along the commercial section of the Logan River; education and outreach for Logan River mitigation wetlands; and tree removal at the Linton property. Other projects included no-till and cover crop implementation in the Clarkston Newton Watershed and continued use of the InterSeede and no-till drill. Colton Russon's surge irrigation and bank restoration project began, and a streambank was stabilized along the lower Bear River. The coordinator also completed two nutrient management plans under the Ag VIP initiative.

The coordinator assisted with the development of several projects in 2021. These projects were diverse and included soil health, education and outreach, dairy waste management, beaver dam analogs (BDAs), riparian improvements, and streambank stabilization.

The coordinator continues to work with various stakeholders to develop partnerships focused on water quality monitoring and project development. These partners provide feedback and help prioritize and develop projects that benefit the Bear River Watershed. The coordinator attended several stakeholder meetings to identify future projects on the Bear River, helped with soil health workshops, and assisted the Conservation Districts with various tasks. He worked with the Logan River Task Force in the development of a Blue Trail and with the Bear River Association of Governments to create an education and outreach tool.

Provo River/ Utah Lake - Katie Slebodnik

The Provo River/Utah Lake Watershed Coordinator oversaw the completion of five projects during 2021, including:

1. Byron Betts project to install rock riprap along the banks of the lower Spanish Fork River, install a structure for water control, and plant riparian vegetation to reduce erosion, sedimentation, and nutrient loading in the river
2. Phelps/Daly project along Main Creek to install riparian vegetation, fencing, obstruction removal, and a livestock stream crossing to reduce erosion and sedimentation as well as nutrient and bacteria loading
3. Rex Larsen project along the lower Spanish Fork River to install fencing, J-hooks, riprap, and bank laybacks to stabilize eroding river banks as well as land leveling, irrigation pipelines, and a structure for water control to improve irrigation efficiency and reduce field runoff to reduce sediment, nutrient, and bacteria loading
4. Kelly Mitchell project along Nebo Creek to install cross vanes, riprap, bank laybacks, J-hooks, head gates, and conifer revetment to reduce erosion and sediment loading
5. Lower Spanish Fork River Section 319 project to reduce sediment, nutrient, bacteria loading and harmful algal blooms and increase dissolved oxygen in the lower Spanish Fork River watershed and Utah Lake through installation of stream restoration, fencing, land leveling, stream crossings, riparian plantings, ditch improvements, and obstruction removal to improve bank stability, provide riparian buffers along the river, and improve livestock and irrigation management to reduce pollutant loading.

The coordinator is also working with various partners and taking the lead in several outreach activities, such as installing watershed signage and developing educational materials for the Provo River Watershed Council (PRWC) and managing its social media.

Funding has been secured for several current and ongoing projects that include development of a nine-element watershed-based plan for the Heber Valley to help identify local concerns and allow access to section 319 funds in the future. In addition, several stream restoration projects and offsite watering efforts are underway along Hobble Creek, Main Creek, Provo River, Spanish Fork River, and Snake Creek. Lastly, the coordinator will continue working with the PRWC on development of outreach and educational activities such as river cleanups and education days.

Weber River Watershed - Melissa Early

The Weber River Watershed Coordinator oversaw the South Fork of Chalk Creek's Section 319 Water Quality Improvement Coordinated Research Management Plan and eleven ongoing nonpoint source projects across three conservation districts. Four projects were completed during FY 2021, including fuels reduction and BDA construction in Summit Park and Toll Canyon to improve riparian health; implementation of a nutrient management plan on a ranching feedlot in Morgan County that filtered excess water for nutrient uptake; improved riparian management in the Huff Creek Watershed; and streambank restoration on Heiner Creek that also included offsite watering construction. Lastly, a nutrient management plan under the Ag VIP initiative was completed for a local dairy.

Several exciting projects are ongoing and include grazing management in the Fish Creek Watershed, pinyon-juniper removal in Chalk Creek, offsite watering installation and grazing management in the Grass Valley watershed, streambank restoration along the Weber River, riparian enhancement and BDA installation in Franklin Canyon and along East Canyon Creek. The coordinator developed new relationships with stakeholders in Davis County that resulted in development of a riparian project to fence and remove invasive vegetation while also serving as a demonstration for other landowners in the area. This project was funded in February 2021.

The coordinator also chairs one of the larger stakeholder groups in the area - East Canyon Creek Watershed Committee - and is responsible for developing and coordinating outreach and educational materials.

San Pitch Watershed - Jace Farnsworth

The San Pitch Watershed Coordinator oversaw completion of six projects in FY 2021 that resulted in 1,106 feet of streambank bioengineering, 1,035 feet of streambank vegetation, 5,319 feet of fencing, and five acres of riparian herbaceous cover plantings. The coordinator also worked with the Natural Resource Conservation Service (NRCS) to write two strategic funding proposals that guarantee \$500,000 over the next 5 years for both the San Pitch Watershed and the Otter Creek Watershed.

The watershed coordinator continues to work with nine landowners in the watershed on projects that include additional riparian restoration work, animal feeding operations, pasture management, and irrigation water management projects.

Upper Sevier Watershed- Wally Dodds

The Upper Sevier River Watershed Coordinator oversaw five National Water Quality Initiative (NWQI) projects this year. Four projects have Section 404 permits in place to reduce phosphorus and sediment loading in the watershed. A total of 11 projects were completed, planned, or started during the reporting time period. The coordinator wrote a grant to purchase new Flo-Trackers for each of the watershed coordinators to expedite monitoring and provide more precise data. The coordinator wrote two watershed management plans, including the Upper Sevier River Watershed Plan. The watershed coordinator also wrote a PL-566 proposal to NRCS to replace the existing pipeline that services the agricultural land under the West Panguitch Canal Company. The planning phase of this multi-million-dollar project is currently underway.

Utah Water Quality Task Force

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 groundwater. The NPS Program Plan is administered by DWQ through the coordination and assistance of the Utah Water Quality Task Force and its established ad-hoc committees. The Utah Water Quality Task Force advises DWQ in the holistic management of Utah's watersheds with a focus on reduction of nonpoint source pollution. DWQ serves as the chair of the Task Force.

Functions

- Serve as a coordinating body for the review and direction of federal, state, and local nonpoint source management programs to assure that these programs are implemented consistent with the Utah NPS Management Plan (approved by EPA in 2018 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 that reduce nonpoint source pollution.
- Provide a forum for discussing and implementing project monitoring (before and after).
- Provide a common storage area for all data collected.
- 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 mitigation activities on public and private lands to ensure that best management practices are installed and functioning as designed to protect water quality.
- Serve as a coordinating body for outreach and education to increase public awareness regarding nonpoint source pollution management.

Products

- Preparation of the annual Utah Nonpoint Source Program Report. This report is required by EPA but is not restricted to Section 319-funded efforts and is prepared by DWQ in coordination with the Utah Department of Agriculture and Food (UDAF). The Task Force assists in providing content, advice, and review. The report highlights the planning efforts, projects, and successes statewide that are possible through the broad coalition of partners on the Task Force
- Presentation of the annual Utah Nonpoint Source Program Report each year to the Utah Water Quality Board and the Utah Conservation Commission
- Organization of a nonpoint source conference periodically to share information, highlight successes, and improve networking throughout the state and region
- Maintenance of an institutional repository (e.g., a website) that includes originals/links to documents, reports, and minutes

Membership

The Task Force includes representation from entities with programs that could potentially cause or mitigate nonpoint source water pollution. As new nonpoint source program components are developed and implemented, additional entities will be invited to participate. Current invited members include:

- Local governments
- U.S. Army Corps of Engineers, Planning Division
- 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
- Utah State University Cooperative Extension
- Utah School and Institutional Trust Lands Administration
- Utah League of Cities and Towns

Grants Reporting and Tracking System

The Section 319(h) Grant Reporting and Tracking System (GRTS) is a national database developed by EPA to track projects and activities funded with CWA Section 319(h) funds. The database tracks 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 8 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.

Water Quality Information

Sampling and Assessment Activities

DWQ utilizes a targeted, rotational basin approach to implement nonpoint source projects. This approach improves monitoring of nonpoint source projects statewide and concentrates projects into a targeted area to make it easier to identify benefits.

As part of this strategy, DWQ conducts an intensive monitoring run within the targeted watersheds two years prior to implementation of the projects identified in the grant work plan. Additional monitoring occurs two years after the projects have been completed. These data are used to determine project effectiveness and update the watershed plan in the target basins.

DWQ realized that the intensive monitoring schedule is useful, but it needed to collect data more frequently, so it developed sampling analysis plans (SAPs) for areas implementing nonpoint source projects rather than monitoring individual projects. SAP monitoring includes chemical, physical, and biological monitoring. The frequency of this monitoring is determined by the protocol of each sample assessment type. Samples are collected at a minimum of five years after the project is completed. This has helped with project implementation by identifying additional pollution sources in the watershed and projects for funding through state nonpoint source monies.

The state also developed a statewide nonpoint source monitoring SAP in addition to the more detailed monitoring plans mentioned above. The statewide SAP identifies sites and parameters to be collected throughout the state to document project effectiveness in areas with large expenditures of nonpoint source funding. The SAP also identifies the costs associated with collecting and processing samples to ensure the costs associated with statewide monitoring are covered. When needed, additional funding will be requested from the PPG to supplement this monitoring. The statewide SAP is a cooperative effort between DWQ's Monitoring and Watershed Protection Sections. By working together, each section is able to verify that the samples collected meet all of their programmatic needs. For example, when trying to delist a waterbody from the 303(d) list of impaired waterbodies, certain locations and frequencies of data collection need to take place. DWQ's Integrated Report Program and Monitoring Section staff were able to identify additional monitoring locations within those assessment units to realize this objective. This process occurs annually, and a finalized statewide SAP is completed by the end of June in coordination with the grant awards.

In most cases, monitoring is conducted by the local watershed coordinators. DWQ has used state NPS funding to purchase the needed equipment to collect field data, and it continues to offer training as necessary to local watershed coordinators and cooperating partners to verify that they are equipped to collect the needed data. The local watershed coordinators also partner with volunteers from Utah Water Watch for safety reasons when doing field work.

Assessment/ Integrated Report- DWQ

DWQ published its draft 2022 Integrated Report (IR) on October 29, 2021, and opened it for public comment. DWQ's draft report is available on the [program's website](#) and includes results from water quality data collected from October 1, 2014, through September 30, 2020. The report is divided into four main sections:

- Executive Summary: Overview of the IR
- Chapter 1: Assessment Methods (previously released for public comment)
- Chapter 2: Assessments Specific to Lakes and Reservoirs
- Chapter 3: Assessments Specific to Rivers and Streams.

Users and reviewers of the report can access a series of interactive maps/figures of the draft assessments of Utah's rivers, streams, and lakes on the website before providing comments in an online form.

The visualization tools and public comment forms on the website are two examples of a four-year long continuous improvement effort led by the IR’s programming team. Redesign efforts focused on increasing DWQ’s ability to further automate its assessment processes and increase accuracy, efficiency, and consistency in reporting results between draft and final reports and across multiple reporting cycles.

Utah Water Watch Citizen Monitoring

Utah Water Watch (UWW) is a statewide, citizen-science water quality monitoring program. This program remains an active and growing part of the state’s NPS outreach efforts. In response to continued COVID-19 restrictions this year, the program provided virtual UWW trainings and developed an online course launched in the spring of 2021 for new participants and current volunteers to take at their own pace.

In 2021, UWW recruited and trained 41 new Tier 1 volunteers and supported 53 total volunteers (Figure 2). These volunteers engaged others (family members, students, community groups, etc.) in monitoring, for a total of 1,086 participants this year. Volunteers collected water quality data at 98 sites with 496 monitoring events (Figure 3). UWW also continued to support Tier 2 volunteers who received additional training and worked with watershed coordinators or with partners with special projects around the state to help collect data as needed. Tier 2 monitors trained in the state-approved IDEXX method for *E. coli* monitoring continue to support DWQ’s *E. coli* monitoring efforts. UWW staff and Tier 2 volunteers assisted with *E. coli* monitoring at four sites in Cache Valley. They also continued their partnership with River Restoration (a consulting firm working on several watershed projects) to monitor sites on the Jordan River and Weber River before and after restoration projects.

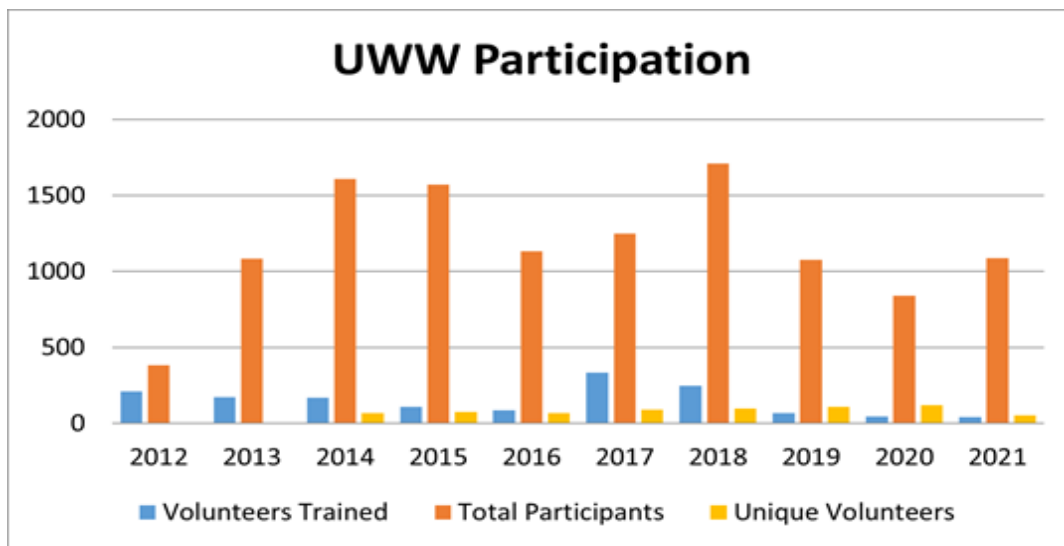


Figure 2. Utah Water Watch Participation

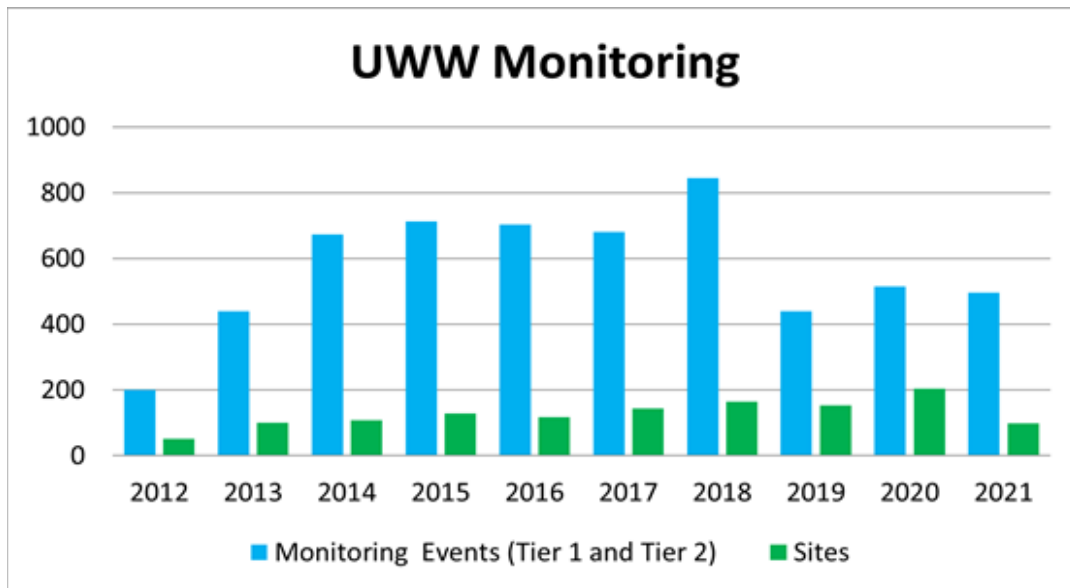


Figure 3. Utah Water Watch Monitoring Events

UWW continued to work closely with DWQ’s harmful algal bloom (HAB) monitoring program. It launched the Utah HAB Squad, a group of volunteers that focus specifically on monitoring Utah’s waters for the presence or absence of harmful algal blooms. In addition to their usual Tier I duties, these volunteers monitored frequently (weekly or every other week) for HABs at priority waterbodies across the state. The monitoring sites were a combination of the DWQ’s priority waterbodies list and previous years’ priority waterbodies. Launching the HAB Squad included creating a [webpage](#), a map of available and active monitoring sites, instructional materials, and identification guides. UWW monitored 10 sites for HABs in the 2021 recreation season and plan to actively recruit more volunteers to the Utah HAB Squad to expand these efforts in 2022.

UWW volunteers expanded the reach and capabilities of monitoring efforts statewide. UWW volunteer driving and monitoring time in 2021 is [valued at](#) >\$27,124 (10,582 miles at \$0.50/mile and 765 hours at the 2021 volunteer hourly rate of \$28.54). Water quality data collected by volunteers were entered into the [publicly available online database](#) and shared with monitoring partners.

The Ambient Water Quality Monitoring System (AWQMS) Database

DWQ’s version of AWQMS has been updated to version 8.0, a major update that includes the following notable enhancements:

1. A new environmental portal for managing users and accessing AWQMS
2. A new data explorer page that provides users with a new way to query, review, and analyze results
3. A revised map option that includes new features to expand the user’s ability to search for and analyze data available from the map

DWQ's data review, validation, and verification process is currently in progress for the 2021 water year. Data collected for rivers and lakes during Quarters 1 and 2 of the 2021 water year have been imported into AWQMS and are currently available online. The data collected during Quarters 3 and 4 of the 2021 water year are undergoing quality control checks and will be imported after validation is completed.

DWQ has been utilizing the R open source programming language to read data directly from the AWQMS cloud environment. This functionality has allowed staff to more efficiently and consistently query and explore data within the database, providing a more streamlined and customizable approach to managing and quality controlling data within the system. DWQ plans to continue to develop and expand upon this functionality to enhance efficiency and data quality.

Groundwater Protection

Groundwater protection remains a priority in the state of Utah. DWQ, NRCS, and the Utah Division of Drinking Water are working together to identify areas with source water protection plans that may be good candidates for project implementation to help protect or restore groundwater quality. A map is currently being developed by NRCS that will be used to prioritize projects located in those targeted areas.

DWQ continues to fund projects focused on the protection of groundwater, specifically projects that will reduce loading from onsite septic systems. In FY 2021, two projects totaling \$64,000 were awarded to help better manage septic systems in the state. These include the DWQ Hardship Grant Program for individuals with failing septic systems as well as funding for Phase II of a database under development by the Southeastern Utah Health Department to better track and evaluate septic systems in its jurisdiction.

Outreach Activities

Utah State University Extension

The goal of USU's Water Quality Extension program (USU WQE) is to reduce the impacts of nonpoint source pollution by increasing public awareness of water quality issues and motivating behavior changes that will be more protective of water quality. USU WQE's efforts typically fall into the following three areas:

- Support and expansion of the Utah Water Watch program that trains citizens to monitor lakes, reservoirs, and rivers across the state. The program increases citizen understanding of water quality concepts and encourages stewardship efforts.
- Youth outreach through hands-on activities, curriculum development, and training and support for teachers who utilize USU WQE lessons
- Support of recently established water quality outreach campaigns addressing water quality best practices on small acreage farms, watershed cleanup events, and proper human waste disposal on Utah's public lands

This year brought continued challenges due to COVID-19, such as limited in-person gatherings and reduced travel. However, USU WQE quickly adapted to overcome these challenges. It developed online resources and provided safe, in-person events when appropriate while following University and local health guidelines. This report summarizes highlights and innovative approaches implemented to continue to provide water quality education and outreach in 2021.

Youth Outreach and Teacher Training

Due to the continuation of the pandemic, many in-person events with youth were cancelled, especially during the first half of the year. However, staff still reached over 1,100 people during general public outreach events (primarily the Three Creeks Confluence Opening Celebration and Emigration Canyon Watershed Celebration), where most of the turnout was families and youth. USU WQE created multiple videos and other online resources that were made available to students and educators. The videos cumulatively have received over 600 views this year, which is likely a conservative estimate since educators usually watch a video with many students.

Bringing Kids and Teachers to Water



Lessons by Grade



Lessons by Topic



Educator Workshops



Citizen Science Connection

The Utah Education Network (UEN) was only able to provide one community mapping workshop for teachers this year. USU WQE participated and provided information on watershed basics and hands-on monitoring experience for participants. It also partnered with the Natural History Museum of Utah to provide supplies and water quality monitoring training for its Geo-Inquiry Watershed Exploration educator workshops. USU WQE trained 31 educators in total this year.

There are 10 active Utah Water Watch volunteers who are also educators who monitor with their students. In addition, USU WQE is working with the U.S. Forest Service and teachers in the Salt Lake School District to center their curriculum around the Jordan River Watershed. USU WQE is in the process of updating and realigning its lessons and activities to the Utah Science with Engineering Education (SEEd) standards and are continually updating its [Stream Side Science website](#).

USU WQE secured \$5,000 of outside funding to develop educational signs about water quality and aquatic life for the USU Botanical Center and Wetland Discovery Point in Kaysville, Utah. Staff worked with the Bear River Heritage Area and Utah Humanities to produce an exhibit, called "H2Oh, How Miraculous!" about the wonders of water, its unique properties, and easy

ways to conserve it. This traveling exhibit was featured in the Bear River Heritage Area during the fall and winter of 2021.

Producer's Website

EPA regulates animal feeding operations (AFOs) and concentrated AFOs (CAFOs) under the Clean Water Act (CWA). The [Producer's Website](#) offers livestock producers “one-stop” shopping for information that helps them protect water and air quality and remain in compliance with state and federal laws. Information on the regulations (including clarifications in laymen’s terms), nutrient management plans (NMPs), best management practices (BMPs), factsheets, and other resources are provided on the website. The Producer’s Website also hosts Utah’s NMP Template.



The Producer’s Website helps livestock producers address waste management issues and provides understandable information about federal and state water quality regulations.

Statewide Water Quality Outreach Campaigns

Utah’s public lands experienced a surge of outdoor recreation this year that led to an increase in garbage on trails, parks, neighborhoods, and eventually in waterways. USU WQE responded by partnering with local governments and nonprofits across Utah to host the second annual statewide trails and waterways cleanup. It encouraged people across the state to take initiative and act as stewards of their watersheds and public lands. Participants collected trash in seven of the major watersheds. USU WQE had 570 participants clean up >10,730 pounds of trash

during the week-long event, held from October 31 – November 8, 2021. It also used this event as a way to promote Utah Water Watch, Stream Side Science, and the water quality outreach campaigns. It had widespread support from partners and participants and plans to continue this statewide cleanup as an annual event.

In 2021, USU WQE continued its partnership with the Utah Water Quality Task Force to promote two statewide water quality outreach campaigns:

1. “Small Farm Neighbor,” which addresses water quality best practices on small acreage farms
2. “Gotta Go,” which focuses on protecting public lands from impacts of human waste due to recreational activities

Small Farm Neighbor

Using the results from a 2019 survey of small farm owners and operators, USU WQE created a content-rich website and social media campaign encouraging small acreage owners to use practices protective of water quality.

By the end of 2020, it learned that the original “Don’t Share” messaging wasn’t well-received by partners and the potential target audience. In 2021, it overhauled the name, logo, graphics, and main messaging strategy of “Don’t Share” to the more welcoming and positive “Small Farm Neighbor.” Feedback indicated that use of the words “good neighbor” versus “bad neighbor” felt judgmental. In addition, it was suggested that using the phrase “don’t share” felt negative and could be perceived as pushy. Partners suggested using positive messaging and focusing more on how small farmers/gardeners can provide community value.

Small Farm Neighbor aims to help support and inform small farmers and neighborhood gardeners on how to keep Utah’s waters healthy and clean. USU WQE also transitioned its social media approach to be one of both content creation and curation. A portion of its content is original and directs viewers to its website or other resources, while the other portion includes shared content from other agriculture and garden-focused groups, including financing opportunities, tips, webinars, and other resources the audience would find helpful in addition to water quality best practices. While 2021 was a transition year for this campaign, USU WQE plans to increase social media presence and outreach to partners to create more campaign awareness and opportunities. Additional information is available at the [Small Farm neighbor website](#) and on [Facebook](#) and [Instagram](#).



Gotta Go

In 2019, USU WQE conducted structured interviews with federal and state land managers across Utah and found that concerns about managing human waste associated with recreation were widespread across public lands. This issue has only been exacerbated as more people recreated during the COVID-19 pandemic. In 2020, USU WQE responded by developing and launching a website and social media campaign focused on protecting public lands from the impacts of human waste due to recreational activities and teaching proper outdoor bathroom etiquette. The campaign uses humorous memes, informational posts, and targeted messaging to teach people how to “go” when nature calls in the great outdoors. It has updated and maintained an accurate, content-rich website and social media presence throughout 2021. USU WQE has also focused on gaining new partnerships to increase collaborative efforts on human waste management across the state. These partnerships and new social media content and web pages planned for 2022 will help the campaign continue to grow into the future. *Gotta Go* has been well received and promoted throughout Utah by many recreational groups, agencies, partners, and the general public via social media. USU WQE was presented with the 2021 Utah Outdoor Summit Stewardship Award from the Utah Office of Outdoor Recreation for its efforts and collaboration with partners to make this campaign effective

One *Gotta Go* initiative currently being launched is the Porta Potty Pilot Project, a collaborative effort between the DWQ and other state agencies. The plan will use a small amount of one-time funding to put porta potties at several locations that are heavily utilized by recreators but do not have toilets of any kind. As of November 2021, porta-potties have been placed at four sites in Farmington Bay of Great Salt Lake and are planned for additional locations in and near the new Utah Raptor State Park. USU WQE provided messaging and marketing materials to help educate recreators about the challenge of providing bathroom facilities, the need for personal accountability, and knowing how to “go” in nature specific to these sites and projects. Additional information is available at the [Gotta Go website](#) and on [Facebook](#) and [Instagram](#).

Do You Know How to 'Go'? GOTTA GO!

THE CHALLENGE:
Utah's public lands and outdoor spaces are experiencing increased recreation each year, which is great! Unfortunately, many people do not know the proper way to go to the bathroom while outdoors. Improper disposal of human waste can lead to water pollution, spread of disease, and other people or wildlife finding left-behind waste and toilet paper.

TEMPORARY SOLUTION:
Placing temporary bathroom facilities, like these porta potties, helps prevent human waste from ending up in places it shouldn't be, such as next to waterbodies, off the sides of trails, near campgrounds, and behind buildings. However, funding and staffing is limited to help maintain these facilities. That is why it is so important to know how to "go" outdoors before you head outside.

HOW YOU CAN HELP:
Be a part of the solution. Next time you head outside, come prepared with the equipment and knowledge to properly go to the bathroom anywhere outdoors.

Quick Guide to 'Going' in Nature

FORESTS	DESERTS	ALPINE	RV
 Use a trowel to dig a cat hole, bury waste & TP.	 Pack out waste & TP in a WAG bag.	 Pack out waste & TP in a WAG bag.	 Dump waste at dump station.

Notable NPS Projects in FY 2021

Shoreline Stabilization Project Reduces Phosphorus Loading into Matt Warner Reservoir

Matt Warner Reservoir was first listed on Utah's 303(d) list in 2004 for low minimum dissolved oxygen (DO) and high total phosphorus (TP) concentrations. The reservoir is also impaired for harmful algal blooms, maximum temperature, and pH. DWQ completed a Total Maximum Daily Load (TMDL) for the reservoir in 2007 to address DO and TP impairments. Implementation strategies to address sediment and TP loading from the north shoreline of the reservoir included stabilizing the bank through reshaping and riprapping.



Northern shoreline prior to bank stabilization

The property owner of this portion of the shoreline was not initially receptive to work on his property. The project sponsor, Uintah County Conservation District, and other local stakeholders worked with the landowner to emphasize the importance of shoreline stabilization to protect water quality. The landowner ultimately agreed to the work and provided 1,760 cubic yards of bedrock for the shoreline riprap.

The Section 319 project stabilized approximately 2,400 feet of bank along the north shore of Matt Warner Reservoir through reshaping, riprapping, and reseeding. Approximately 1,600 feet of 4-foot bank and 800 feet of 6-8-foot bank were reshaped to a slope of 2:1, rip rapped, and reseeded.

This BMP is expected to reduce sediment and phosphorus loading into the reservoir. Reseeding was successful despite the extreme drought, and slopes held during snow, rain, and storm events.



Heavy equipment positioned bedrock riprap and recontoured the shoreline.



Northern shoreline following recontouring, riprapping, and reseeding.

Table 6. shows estimated sediment and pollutant load reductions from the shoreline stabilization project. These estimated reductions more than meet the nonpoint source load allocation for sediment identified in the 2007 TMDL.

Table 6. Drainage Area Pollutants Matt Warner FY 2021 (load reductions calculated using STEPL)

Pollutant	Annual Load Reduction	Units	TMDL
Sediment	191.5	tons/yr	yes
Phosphorus	135.7	lbs/yr	yes
Nitrogen	352.4	lbs/yr	yes
BOD	125.3	lbs/yr	yes

Agricultural Community Utilizes Ag VIP Program Incentives to Manage Wastes, Improve Water Quality

The Agricultural Voluntary Incentives Program (Ag VIP) helps producers implement practices that protect water quality, increase crop yield, and improve soil health. The Division of Water Quality (DWQ) created Ag VIP in cooperation with the Utah Department of Agriculture and Food (UDAF). The program assists producers in the development and implementation of Comprehensive Nutrient Management Plans (CNMPs). These plans help producers maximize crop yields while staying in compliance with state and federal water quality regulations.

Participants in Ag VIP meet with nutrient management planners from UDAF to discuss their agricultural operation. Planners use soil tests, manure tests, and other evaluation criteria to develop CNMPs that identify best management practices (BMPs) for every field in an operation. DWQ offers each producer a one-time payment of \$1,000 to work with a UDAF planner to develop a CNMP for their operation as an incentive for program participation. Once the CNMP is complete, the \$1,000 payment is made to the producer. DWQ pays the producer an annual payment of \$12/acre for each acre covered under their CNMP after it's been implemented for a year. Producers can sit down with a UDAF planner annually to review their records, including soil tests, manure tests, and nutrient application. If the planner determines the producer followed the CNMP correctly, DWQ issues a check to the producer. Since this is a voluntary, incentive-based program, a producer's inability to follow the CNMP does not result in regulatory actions.

Although it's only two years old, the Ag VIP program has proven to be popular with producers. Prior to Ag VIP, less than 9,000 acres statewide were covered under current CNMPs. That acreage doubled in the first year, with an additional 47,000 acres covered under CNMPs by the second year of the program. Applications more than doubled from the first to second year. During year one, 32 Ag VIP applications were funded for \$730,542 (19,312 acres). For year two, sixty-nine Ag VIP applications were funded for \$1,489,868 (47,010 acres). To date, the program has paid a total of \$2,140,410 for contracted CNMP and incentive payments covering 66,332 acres throughout the state. Over 100 producers will have current CNMPs as a result of the program.

This collaboration between DWQ, UDAF, and NRCS through Ag VIP builds strong relationships with producers, creates credibility for regulatory authorities through voluntary participation in the program, and incentivizes the use of BMPs that improve water quality and soil health.



New manure management system through the Ag VIP program at Sun Ray Dairy CAFO, Corinne, Utah

Trough System, BDAs Improve Riparian Areas in South Fork Chalk Creek

The Chalk Creek Watershed is one of Utah's high priority watersheds. The creek is a major tributary to the Weber River, which supplies water to a number of heavily populated communities as well as Echo Reservoir, a popular recreation area in the watershed. Bank erosion, downcutting, deteriorating alluvial fans, and eroding rangeland have led to excessive sediment and nutrient loading into the creek and reservoir. Incised channels, unstable streambanks, and poor vegetative cover in riparian areas have raised stream temperatures and impaired water quality. A 1994 Coordinated Resource Management Plan (CRMP) aimed to reduce sediment and phosphorus loading to Chalk Creek by reducing livestock impacts in riparian areas and capturing sediment before it reached the reservoir.

The Summit Conservation District used Section 319 funding to help meet the goals outlined in the 1994 CRMP and 2015 South Fork Chalk Creek CRMP through its support of landowner projects to reduce sediment and nutrient loading into South Fork Chalk Creek. Table 7 shows the estimated sediment and pollutant load reductions from BMP projects on the creek.

Table 7. Drainage Area Pollutants South Fork Chalk Creek FY 2021 (load reductions calculated using STEPL)

Pollutant	Annual Load Reduction	Units	TMDL
Sediment	120	tons/yr	yes
Phosphorus	182	lbs/yr	yes
Nitrogen	1204.4	lbs/yr	yes
BOD	767.8	lbs/yr	yes

Water Trough System

Upland overgrazing and overuse by livestock of the riparian corridor along Fish Creek led to severe bank erosion and high sediment loading in South Fork Chalk Creek and its tributaries. The owners of an 11,000-acre ranch located in the middle of the South Fork of Chalk Creek are playing an active role in restoring upland range and riparian areas on their property. In FY 2019, the landowners developed a water trough system to pull cattle away from the riparian area along Fish Creek. They installed 21,622 feet of two-inch HDPE pipe along with 7,500 gallons of storage and seven troughs on their property.

Landowners also installed 25,685 feet of cross-fence in collaboration with NRCS in FY 2020 and instituted a rotational grazing plan on 11,000 acres to give pastures the opportunity to rest and restore. The landowners established a semi-permanent camp near Fish Creek and family-initiated range-rider patrols in FY 2020-2021 as part of their rotational grazing implementation plan. Fence installation was supported by a cost-share among Section 319 (\$42,612), NRCS (\$28,196), and Watershed Restoration Initiative (WRI) (\$22,000) funding.

The system has successfully moved cattle away from the creek and onto ridgeline pastures. The piping and trough system provided sufficient water despite the extreme drought conditions of summer 2021 and pulled the cattle to the upland range, taking pressure off previously degraded pastures.



Cross-fencing protects the riparian area along Fish Creek from overgrazing. Note the trough pumping system at right.



Water is pumped uphill and distributed through pipes to troughs along the ridgeline.



Livestock congregate at water troughs on ridgeline pastures during the height of the summer heat.

Beaver Dam Analogs (BDAs)

The landowners mentioned above also worked with Trout Unlimited and WRI to capture sediment in Fish Creek using beaver dam analogs (BDAs). The ranch owners installed over 30 BDAs on their property in November 2020. By the end of FY 2021, monsoonal summer rains following a prolonged drought flushed water and sediment down Fish Creek. Much of the sediment was captured by the BDAs as water rushed through the ranch and lower South Fork Chalk Creek.

Natural beaver recolonization in prime beaver habitat on a ranch in the headwaters negated the need for BDAs. However, a FY 2021 survey revealed a need for BDAs in two key tributaries to Chalk Creek, so Section 319 funding priorities have shifted to BDA construction in Porcupine and Snake Creeks.



BDAs retain sediment in Fish Creek, providing new areas for vegetation to emerge. June 2021



This sandbar increased in size following late summer monsoons. Note the sediment held behind the BDA seen at the top right in the photo. September 2021.

Big Bend Bank Stabilization Project Supports Restoration of a Unique Urban River Landscape

The Big Bend Restoration Area is located along an industrialized stretch of the Jordan River in Midvale, Utah. The land once housed the Sharon Steel Mill and Portland Cement Company, both currently listed as Superfund sites. Forceable straightening of the river to make way for manufacturing facilities led to channelization, streambank erosion, and the separation of the river from its floodplain. Estimated historic erosion from the 12-foot banks showed annual deposits of approximately 100-670 cubic yards of sediment into the river.

Big Bend, named for the U-shape formed around it by the Jordan River, contains ~70 acres of potential migratory bird and wildlife habitat. The restoration project aims to rehabilitate one mile of the river channel, re-establish riparian and wetland habitat, and create urban fisheries. DWQ allocated Section 319 funding to help restore roughly 680 feet of eroding stream bank. Other partners funded a community fishing pond and weed control on the property.

Project work included bank stabilization using large rocks buried approximately four to eight feet across the section, with bioengineering on top to create a natural feel. These bank stabilization techniques allow the river to adapt to varying flows rather than maneuver around harder structures. Access steps and landscaping boulders were also installed to provide water access while deterring swimming. Volunteers planted 200 deep-rooted cottonwoods and peach-leaf willows in the floodplain and seeded the banks.

Cottonwood and willow plantings had an 88 percent (88%) survival rate in 2021 despite extreme drought conditions. The restored streambank experienced no erosion from a recent flood in the Jordan River thanks to the restoration techniques used. The recontoured channel will improve aquatic and riparian habitat, improve filtration, expand the active channel connection with the floodplain, and reduce stormwater runoff.



Big Bend streambank before restoration



Big Bend streambank after restoration

Division of Wildlife Projects Remove Sediment at Pelican Lake and Create a Living Shoreline

The Pelican Lake fishery had declined over the past two decades from continued sediment deposition from the Bullock Canal and an influx of common carp. Water quality in the lake was also impaired due to elevated pH and phosphorus levels. The Utah Division of Wildlife Resources (UDWR) partnered with private landowners and state and federal agencies to restore the water quality and the blue-ribbon fishery at Pelican Lake. UDWR and its partners completed construction of a 3.1-acre sediment catch basin in 2019 to reduce sediment inflow and turbidity in the lake. In Fall 2021, UDWR returned to Pelican Lake to complete maintenance on the catch basin by removing sediment and protecting it from erosion along the concrete structures.

Catch Basin

UDWR drained the sediment basin in September 2021, excavating 11 dump-truck loads of heavy sand from the catchment basin. This equaled 132 cubic yards of material from the sediment catch basin, with an estimated weight of 422,400 pounds of sand material that had accumulated over the past two years. Another layer of approximately 3,900 cubic yards of fine materials was also deposited throughout the basin. UDWR estimates ~9.4 million pounds of fine sediments were removed by the sediment catch basin. The heavy sands accumulating at the mouth of the sediment catch basin will be a reoccurring problem into the future, but the sediment catch basin is proving effective at removing sediments before they enter Pelican Lake.

The final phase of the sediment control project will occur upstream of the fish screen and sediment catch basin and will address the canal erosion along the banks. UDWR plans to complete canal armoring in April/May of 2022 using Flexamat.



Total amount of heavy sands excavated from the Pelican Lake sediment catch basin in 2021

Reef Ball Structures

UDWR completed the living shoreline reef ball project on the southern shoreline of Pelican Lake in October 2021. The shoreline has been devoid of vegetation for decades and is known to contribute sediment and increase turbidity in the lake when waves break on the shoreline and pull materials out. The living shoreline reef ball project was designed to dissipate wave action at various water levels to provide a unique form of fish habitat and allow potential stands of hard-stem bulrush to establish.

Approximately 230 mini-bay reef balls from southwest Florida were shipped to Pelican Lake in October 2021. UDWR placed the balls in double lines at three different elevations to dissipate wave action and help them stay in place when ice forms and melts. The project will be closely monitored as the lake fills this fall and winter. If these structures hold in place and provide protection of this shoreline, UDWR plans to install additional structures on bare shoreline to the south and west of the project site.



Reef ball structures to create a living shoreline and reduce both turbidity and wave action on this southern shoreline.



Reef ball structures at three in-lake elevations and one high-water shoreline elevation.

Weber River Kayak Park Project Supports Fish Passage, Recreation, and Water Quality

Ogden City has collaborated with DWQ and other partners to improve aquatic habitat and water quality on a stretch of the Weber River near the Kayak Park. This section of the river flows near the historic Ogden Swift Building, a former meatpacking plant that also served as storage space for thousands of containers that were later found to be filled with hazardous chemicals and corrosives. A leaking underground storage tank had contaminated soils and groundwater near the park, and an above ground sewer needed to be buried. The Section 319 project supported city efforts to revitalize this part of town by stabilizing streambanks, upgrading the Kayak Park, accommodating fish passage, and improving aquatic habitat in an impaired portion of the Weber River.

The project diverted the river to the west, with approximately 1,000 cubic yards of river bank and bottom material excavated and graded to support the installation of boulders and concrete features. Boulders were installed along the east river bank, as in-channel scour protection boulders at the toe of each of the three whitewater features, and along the middle island to protect water quality during flood events. A new concrete structure was installed to help protect the sewer line from damage caused by undermining, settling, and scour erosion. Boulders were also installed along the west bank, the in-channel fish passage, and middle island. The fish passage allows the bluehead sucker and other fish species to easily bypass the whitewater features and continue down the Weber River. Many of the existing willows, trees, and vegetation were preserved in the island and banks until new vegetation could take root and mature. Topsoil, an erosion control blanket, and seed were spread along the west bank and middle island to support establishment of a healthier riparian habitat.



Construction on the three levels of the Kayak Park



Weber River diverted to the west as construction continued on the eastside Kayak Park.



Water flows through the “whitewater” portion of the project.

Utah Nonpoint Source MOU

The original Memorandum of Understanding (MOU) between DEQ, the U.S. Forest Service, and the Bureau of Land Management was executed in 1992. This MOU was updated, reviewed, and signed by all parties in 2017. The following entities are a part of the newly revised MOU: U.S. Forest Service, Bureau of Land Management, National Park Service, Utah Department of Agriculture and Food, Division of Forestry, Fire and State Lands, Utah Division of Wildlife Resources, and DEQ's DWQ. The MOU is to be reviewed and updated as needed every five years.

Federal Consistency Review and NPS Project Tours for FY 2021

2021 EPA Project Tour

August 30-September 1, 2021

Locations

Bear River, Weber River, Jordan River, Scofield Reservoir, Otter Creek, Upper Sevier Watersheds

Participants

Erika Larsen, Madeline Castro (Environmental Protection Agency); Jim Bowcutt, Krystal Karfaro, Mike Allred, Amy Dickey, Sandra Wingert, Christine Osborne (Utah Division of Water Quality); Eric McCulley, Jack Dahlquist (River Restoration); Nic Braithwaite, Frank Howe (Utah Division of Wildlife Resources), Jay Olsen, Ryan Jones, Melissa Early, Gabe Murray, Jace Farnsworth, Wally Dodds, Julie Weber, Kendra Young (Utah Department of Agriculture and Food); Jeremy Olsen, Isaac Astill (City of South Jordan); Lacey Moore (Governor's Office of Economic Development); Jason Dodds (NRCS); Jordan Nielson (Trout Unlimited); Bruce Rickenbach (Private Landowner); Justin Anderson, Taylor Nelson, Phil Suiter (Ogden City); Dave Meyer (Redoubt Restoration)

Day 1 - August 30, 2021

Logan River Watershed

The Logan River restoration project was completed in July 2021. This large-scale restoration effort cost over \$1.7 million and received funding from various sources, including \$558,630 in Section 319 funding. Much of the project work focused on reestablishing and restoring the floodplain in urban areas to reduce flooding, slow the velocity of high-flow events, and reduce downstream erosion. The project also focused on removing the non-native cracked willows from the riparian area, which created massive amounts of deadfall, causing large-scale erosion throughout the watershed.

The first site visited was located in downtown Logan and was a restoration site where roughly 1,000 feet of the riparian corridor was restored. This section was previously channelized with old cars and riprap. The riparian area was widened and the floodplain was restored. The non-native cracked willows were removed and the river corridor replanted with native vegetation. Signage let the public know the purpose of the project, and the improvements were well-received by the community.



Logan River restoration area

The second site visited on the Logan River was a mitigation project near 1000 West. The mitigation project was in response to a Utah Department of Transportation (UDOT) project in the valley that impacted wetlands. Tour participants discussed the importance of easements and protecting the wild parts of the Logan River. The property covers nearly 60 acres and has artesian springs onsite. Project activities included clearing out cracked willows and preserving the floodplain in the area.



Wetland mitigation site, Logan River corridor

Weber River Watershed

Ogden City reached out to DWQ and other partners to implement projects that improved aquatic habitat and protected water quality on a stretch of the Weber River near the Kayak Park. This section of the river flowed through land that once housed the Swift meatpacking plant and storage of thousands of barrels of hazardous chemicals. An aboveground sewer line that required burial and a leaking underground storage tank posed additional hazards to water quality. These issues were being addressed during the site visit.

The project will also help improve aquatic life, a beneficial use for which this section of the Weber River is currently impaired. It will stabilize stream banks, upgrade the kayak park, and help with fish passage. The project was completed in Fall 2021.



Weber River Restoration

Day 2 – August 31, 2021

Jordan River Watershed

DWQ has been partnering with the City of South Jordan since 2017 when it awarded funds to the city to help with the design of the Big Bend project. The project consists of a hundred-acre tract of land adjacent to the Jordan River. The Big Bend project is a great example of what can be accomplished when partners work together. DWQ funded the restoration of roughly 680 feet of eroding streambank, and other partners helped fund a community fishing pond and weed control on the property. Finding large tracts of land to implement water quality projects in an

urban watershed can be difficult, so this was a great opportunity to improve an urban riparian area and reduce sediment loading into the Jordan River.



Big Bend Restoration Area

Mud Creek/Scofield Reservoir

DWQ partnered with UDWR in early 2010 to perform several miles of stream restoration on Mud Creek, a major tributary to Scofield Reservoir. A large tract of land was identified as a problem area, but the landowner was unwilling to implement water quality improvement projects on the property.

The landowner recently agreed to work with Trout Unlimited (TU) on restoration work in the high-priority sections not addressed in 2010. This restoration work will include development of a grazing management plan, reducing the sinuosity of the river, installing structures to reduce erosion, and sloping back stream banks where appropriate.



Mud Creek area slated for restoration work

The tour visited the section of Mud Creek that was restored in 2010. This section was doing very well, with robust vegetation present and very little erosion taking place in the riparian area.

Otter Creek

The nine-element Otter Creek Watershed Plan was approved by EPA in 2020. DWQ and UDAF held several stakeholder meetings to look for willing landowners to help implement the watershed plan. Several landowners decided to implement water quality projects on their property following those meetings, including a five-mile stretch of Otter Creek that was historically overgrazed and currently denuded of any woody vegetation. The landowner will install beaver dam analogs, implement grazing management plans, develop offsite water, and improve pastures in other locations around his operations to better disperse his cattle so they don't concentrate in riparian areas for long periods of time.



2010 Mud Creek restoration site

Other project types to be funded include irrigation improvement, streambank stabilization, riparian fencing, and additional grazing management practices. Project implementation for this project will begin in the coming year, and landowners continue to be excited about this project work.



Area to be treated in Otter Creek Watershed

Day 3 – September 1, 2021

Upper Sevier Watershed

Restoration work has occurred in the Upper Sevier Watershed since the Utah Nonpoint Source Program was established in the early 1990's. Since then, over 15 miles of riparian area has been treated on the main stem of the Upper Sevier River and its tributaries.

The Upper Sevier River contains two watersheds selected to participate in the National Water Quality Initiative (NWQI) program. This program has helped generate an additional \$1 million a year to implement projects in the Upper Sevier. Dave Rosgen visited the area to help design and offer training to the planners involved in the project, give his feedback on projects that have taken place, and offer advice for future projects.

DWR continues to do work on the Upper Sevier River in addition to the work done by the local watershed coordinator and the NRCS. DWR recently utilized a Section 319 grant to implement stream bank stabilization practices on roughly 1,000 feet of river. Fencing has been installed to help deter trespass cattle. DWR has additional restoration work planned that should take place in the coming year.



Recent work in the Upper Sevier River



Uintah Conservation District, NRCS, UDWR, and landowners discuss options to address downcutting and erosion in the Bullock Canal that feeds into Pelican Lake.



Ashley National Forest hydrologist Ryan Mower inspects gully plugs in Sowers Canyon.

Appendix

Utah's 2021 Nonpoint Source Section 319 Projects

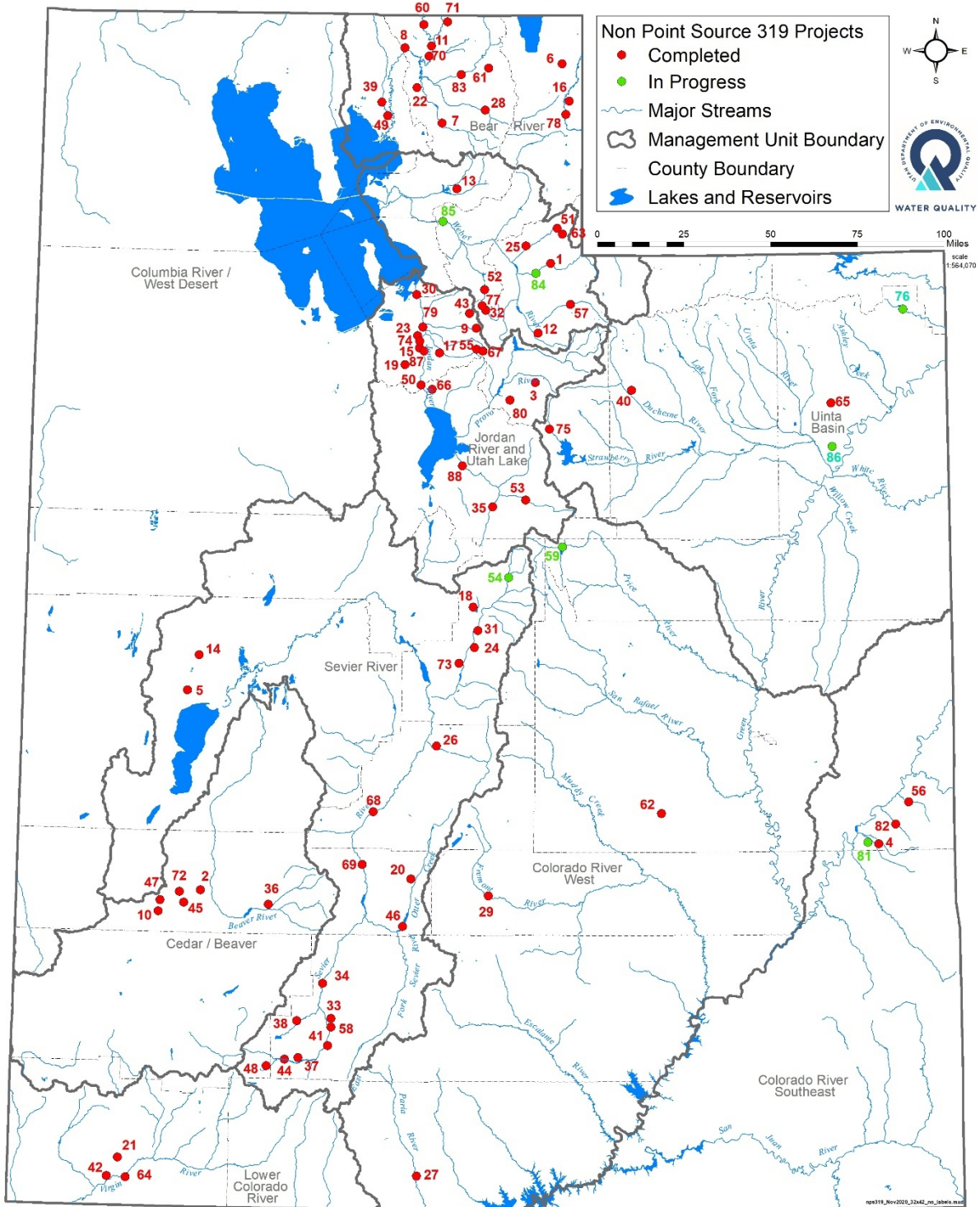


Figure 4. Utah's Nonpoint Source Section 319 Project Locations

Table 8. Completed and Active 319 Projects (refer to Figure 4)

Map_ID	STATUS	PROJECT_NAME	Map_ID	STATUS	PROJECT_NAME
1	Completed	Chalk Creek	45	Completed	Mitigation of NPS Chemicals - Milford Groundwater
2	Completed	Milford Baseline GW and Aquifer Mapping	46	Completed	Otter Creek Reservoir TMDL
3	Completed	Wasatch County GW Study and Aquifer Mapping	47	Completed	Milford Microbial Contamination GW Study
4	Completed	Spanish Valley Baseline GW Mapping	48	Completed	Cedar Mountain GW Assessment
5	Completed	South Sevier Desert GW Recharge Area Mapping	49	Completed	Bear River Information / Education
6	Completed	Bear River Watershed Outreach Information/Education	50	Completed	Jordan River WQ/TMDL Assessment
7	Completed	Little Bear River Animal Waste System	51	Completed	Rees Creek Demonstration
8	Completed	Bear River TMDL Development	52	Completed	East Canyon Instream Flow
9	Completed	Millcreek Canyon Watershed Phase II	53	Completed	Soldier Creek Spanish Fork
10	Completed	Milford Baseline GW Contaminant Inventory	54	In Progress	San Pitch Watershed Implementation
11	Completed	Bear River Groundwater Contaminant Inventory	55	Completed	Little Cottonwood ImplementationTMDL
12	Completed	Kamas Valley Groundwater	56	Completed	Onion Creek Impementation TMDL
13	Completed	Ogden Valley GW Recharge Area Mapping	57	Completed	Upper Weber River Tech. Assist. & Information and Education
14	Completed	Millard County Groundwater	58	Completed	Upper Sevier River TMDL Implementation
15	Completed	Jordan River Wetland	59	Completed	Scotfield Reservoir TMDL Implementation
16	Completed	Bear River (Rich County)	60	Completed	Middle Bear River
17	Completed	SL County Lawn Fertilizer/Pesticides Impacts on GW	61	Completed	Spawn Creek Bank Restoration
18	Completed	Sanpete / Moroni Groundwater	62	Completed	Colorado River West
19	Completed	Salt Lake Valley Drink. Water Source Protect.	63	Completed	Rees Creek Phase II
20	Completed	Otter Creek	64	Completed	Virgin River TMDL Implementation
21	Completed	Washington County Septic Tank Effects on GW	65	Completed	Oil/Gas Erosion Control
22	Completed	Cache Valley GW/Aquifer Assessment & Classification	66	Completed	Jordan Watershed Council
23	Completed	Jordan River Parkway Millcreek Riparian	67	Completed	Alta Fen Rehab
24	Completed	Sanpete Valley WQ Assessment and GW Mapping	68	Completed	Middle Sevier River Watershed TMDL Implementation
25	Completed	Echo Creek Demonstration	69	Completed	Sevier River @Marysvale Animal Waste Demonstr
26	Completed	Stuart Johnson Salina Canyon	70	Completed	Bear River Amalga
27	Completed	Paria River Restoration Demonstration	71	Completed	Cub River
28	Completed	Hardware Ranch Demonstration	72	Completed	Milford (Private Wells)
29	Completed	Fremont River Demonstration	73	Completed	Sanpete Valley GW Recharge Area Mapping
30	Completed	Peace Trees Information/Education (Salt Lake City)	74	Completed	Jordan River Ecosystem Restoration
31	Completed	San Pitch River Information/Education	75	Completed	Upper Strawberry River Riparian Management
32	Completed	East Canyon Creek	76	Completed	Matt Warner Reservoir/ Pot Creek Riparian Management
33	Completed	Upper Sevier Rangleland Improvement Demonstration	77	Completed	East Canyon Stream Restoration
34	Completed	USU Panguitch - Sevier River	78	Completed	Upper Bear River Riparian Restoration, BLRC
35	Completed	Thistle Creek	79	Completed	Jordan River Restoration
36	Completed	Beaver River	80	Completed	Wallsburg Watershed Restoration
37	Completed	Mammoth Creek	81	Completed	Spanish Valley Watershed Implementation
38	Completed	Panguitch Creek	82	Completed	Castle Creek Restoration
39	Completed	Lower Bear River Malad	83	Completed	Logan River Restoration
40	Completed	Duchesne River	84	In Progress	Chalk Creek Restoration
41	Completed	Upper Sevier River Information / Education	85	In Progress	Weber River Restoration
42	Completed	Virgin River Information / Education	86	In Progress	Pelican Lake Restoration
43	Completed	Emigration Creek Water Quality Study	87	Completed	Jordan River Big Bend Project
44	Completed	Groundwater (Mammoth Creek)	88	Completed	Lower Spanish Fork River Restoration

nps319_projects_2021.xlsx

Table 9. 319 Final Project Reports Submitted in FY 2021

Project Title	Total 319 Award	Date Received
FY 2016 San Pitch Watershed Project	\$99,384	8/25/2020
FY 2017 USU Volunteer Monitoring Program	\$75,630	11/18/2020

Table 10. Summary of Active Utah 319(h) Grants FY 2021

Project Title	Total NPS Award	Grant Status
USU Volunteer Monitoring Program FY 2018	\$64,158	Project Completed, Awaiting Final Report
Local Watershed Coordinators FY 2018	\$370,000	Project Completed, Awaiting Final Report
Lower Weber River Restoration Project FY 2018	\$149,466	Ongoing
Chalk Creek Watershed Restoration FY 2018	\$386,870	Ongoing
USU Volunteer Monitoring Program FY 2019	\$73,882	Ongoing
Local Watershed Coordinators FY 2019	\$400,000	Ongoing
Pelican Lake Restoration FY 2019	\$426,000	Ongoing
Matt Warner Reservoir Restoration FY 2019	\$59,213	Ongoing
USU Volunteer Monitoring Program FY 2020	\$69,948	Ongoing
Local Watershed Coordinators FY 2020	\$410,000	Ongoing
Big Bend Restoration FY 2020	\$368,451	Ongoing
San Pitch Restoration FY 2020	\$87,400	Ongoing
Lower Spanish Fork River Restoration FY 2020	\$100,000	Ongoing
USU Volunteer Monitoring Program FY 2021	\$71,721	Ongoing
Local Watershed Coordinators FY 2021	\$461,201	Ongoing
Mud Creek Restoration FY 2021	\$400,000	Ongoing
Spanish Valley Implementation FY 2021	\$114,079	Ongoing

Table 11. Approved TMDLs

Waterbody	Date Approved
Chalk Creek	12/23/1997
Otter Creek	12/23/1997
Little Bear River	05/23/2000
Mantua Reservoir	05/23/2000
East Canyon Reservoir	09/14/2010
East Canyon Creek	09/01/2000
Kent's Lake	09/01/2000

Waterbody	Date Approved
LaBaron Reservoir	09/01/2000
Minersville Reservoir	09/01/2000
Puffer Lake	09/01/2000
Scofield Reservoir	09/01/2000
Onion Creek	07/25/2002
Cottonwood Wash	09/09/2002
Deer Creek Reservoir	09/09/2002
Hyrum Reservoir	09/09/2002
Little Cottonwood Creek	09/09/2002
Lower Bear River	09/09/2002
Malad River	09/09/2002
Mill Creek	09/09/2002
Spring Creek	09/09/2002
Forsyth Reservoir	09/27/2002
Jonson Valley	09/27/2002
Lower Fremont River	09/27/2002
Mill Meadow Reservoir	09/27/2002
UM Creek	09/27/2002
Upper Fremont River	09/27/2002
Deep Creek	10/09/2002
Uinta River	10/09/2002
Pineview Reservoir	12/09/2002
Browne Lake	02/19/2003
San Pitch River	11/18/2003
Newton Creek	06/24/2004
Panguitch Lake	06/24/2004
West Colorado	08/04/2004
Silver Creek	08/04/2004

Waterbody	Date Approved
Upper Sevier River	08/04/2004
Lower and Middle Sevier River	09/17/2004
Lower Colorado River	09/20/2004
Upper Bear River	008/04/2006
Echo Creek	08/04/2006
Soldier Creek	08/04/2006
East Fork Sevier River	08/04/2006
Koosharem Reservoir	08/04/2006
Lower Box Creek Reservoir	08/04/2006
Thistle Creek	07/09/2007
Strawberry Reservoir	07/09/2007
Matt Warner Reservoir	07/09/2007
Calder Reservoir	07/09/2007
Lower Duchesne River	07/09/2007
Lake Fork River	07/09/2007
Brough Reservoir	08/22/2008
Steinaker Reservoir	08/22/2008
Red Fleet Reservoir	08/22/2008
Newcastle Reservoir	08/22/2008
Cutler Reservoir	02/23/2010
Middle Bear River	02/23/2010
Pariette Draw	09/28/2010
Emigration Creek	07/18/2012
Jordan River Phase I	06/05/2013
Echo Reservoir	09/16/2014
Colorado River	06/17/2014
Rockport Reservoir	09/16/2014
Nine Mile Creek	03/02/2017
North Fork Virgin River	06/26/2018
Fremont River Watershed	12/18/2020

Waterbody	Date Approved
Spring Creek (Heber)	01/13/2022

Table 12. Watershed Plans

Watershed	Date Approved
Middle and Lower Sevier	October 2010
San Pitch	January 2006
Upper Sevier	June 2004
Virgin River	February 2006
Paria River	2006
Escalante River	2006
Salt Lake Countywide Water Quality Stewardship Plan	2009
Wallsburg CRMP	October 1, 2012
Duchesne River	July 31, 2014
Strawberry River Watershed	December 18, 2014
Spanish Valley Watershed Plan	January 5, 2014
Upper Bear River Watershed Plan	January, 2017
San Pitch Watershed Plan (revision)	June 2, 2017
Lower Weber River	January 2019
South Fork of Chalk Creek	August 2018
Spanish Fork River	January 2019 (alternative plan)
Upper Sevier River (revision)	Initiated
Montezuma Creek	December 2018
Logan River	May 2017
Otter Creek	Initiated
Pelican Lake	April 2018
Huff Creek	December 2017
Sevier River- East Ditch	September 2019 (NWQI)
Sevier River-West Bench	September 2019 (NWQI)
Emigration Creek	Initiated

Watershed	Date Approved
Heber Valley	Initiated
Pot Creek	Initiated

Table 13. State Nonpoint Source Funds Allocated in 2021

Project Title	Watershed	Project Type	Proposed Funding
Southeast Watershed Coordinator	SE Colorado	Technical Assistance	\$38,500
Voluntary Agricultural Incentive Program (Ag VIP)	Statewide	Nutrient Management	\$150,000
Onsite Waste Water Program	Statewide	Onsite	\$45,894
Upper Sevier NWQI Match	Upper Sevier	Stream Restoration	\$150,000
BLM Mill Creek Restoration	SE Colorado	Watershed Restoration	\$33,075
Rose and Yellow Fork Creeks	Jordan River	Stream Restoration	\$7,300
Bench Riparian Project Phase 2	San Pitch	Stream Restoration	\$5,500
West Mountain Water Project	San Pitch	Irrigation	\$18,000
Wallsburg Restoration	Provo River	Stream Restoration	\$60,000
Otter Creek Riparian and Water Quality Restoration Project Phase 1a	Upper Sevier	Stream Restoration	\$20,000
Wastewater Digital Database Development Phase II	SE Colorado	Onsite	\$19,000
MST Monitoring	Jordan River	Monitoring	\$13,208
Project Repairs	San Pitch	Stream Restoration	\$36,000
Small Farm Water Quality Improvement Project	Statewide	Small Farm	\$75,000
Montezuma Creek Project Effectiveness Monitoring	SE Colorado	Monitoring	\$15,000
Duchesne River Restoration	Uinta Basin	Stream Restoration	\$20,608
Chalk Creek Monitoring	Weber River	Technical Assistance	\$15,000
Upper Provo River Restoration	Provo River	Stream Restoration	\$6,400
Southeast Utah Human Waste Initiative	SE Colorado	I&E	\$75,000

Project Title	Watershed	Project Type	Proposed Funding
Pot Creek Watershed Plan	Uinta Basin	Watershed Planning	\$40,000
Beaver River Restoration Project	Beaver River	Stream Restoration	\$22,645
Richins Easement	Weber River	Easement	\$15,000
Lower Jordan River Basin Watershed Restoration	Jordan River	Stream Restoration	\$30,000
AWWA Water Week	Statewide	I&E	\$5,000
Pelican Lake	Uinta Basin	Stream Restoration	\$40,000
Kent Baker Riparian Project	Bear River	Stream Restoration	\$5,500
Producer Website	Statewide	I&E	\$10,000
Russon Irrigation/Soil Health	Bear River	Soil Health/Irrigation	\$28,370
West Mountain Water Project	SE Colorado	Technical Assistance	\$38,500
Total Requested			\$ 1,000,000

Table 14. Milestones of the Utah Statewide Nonpoint Source Program

Milestone	2019	2020	2021
Objective 1: Environmental Protection:			
Number of TMDLs completed	0	1	1
Number of TMDLs initiated	1. Jordan River Phase 2 for DO 2. Spring Creek TMDL for <i>E. coli</i>	1. Jordan River watershed-wide for <i>E. coli</i>	0
Number of 9-Element Watershed-Based plans completed	0	Otter Creek	0
Number of 9-Element Watershed-Based plans initiated	1. Otter Creek 2. Heber Valley (Spring Creek)	1. Emigration Creek 2. Pot Creek	0
Number of projects dedicated to the protection of threatened waterbodies identified in Utah's 303(d) list	None of the projects funded in 2019 were focused on the protection of threatened waterbodies. All proposals were located in a watershed that was	The Spanish Fork River Project was dedicated to the protection of the Lower Spanish Fork River. This project will focus on improved irrigation practices as well as stream bank improvement practices.	All project proposals funded were located in a watershed that was previously listed on the 303(d) list of

Milestone	2019	2020	2021
	previously listed on the 303(d) list of impaired waterbodies.	\$100,000 was dedicated to this project.	impaired waterbodies.
Number of projects focused on groundwater protection throughout the state	<p>\$62,000 was dedicated to the development of an onsite waste water demo site in Southern Utah, similar to the one that currently exists at Utah State University in Cache Valley.</p> <p>\$35,000 was awarded to DWQ to assist landowners with septic systems that are failing to improve their systems. The purpose of this is a hardship grant for those that otherwise could not afford it.</p>	<p>\$35,000 was awarded to DWQ to assist landowners with septic systems that are failing. This is a hardship grant for those that otherwise could not afford it.</p> <p>\$8,000 was awarded to the South Eastern Health Department to help develop an onsite wastewater digital database.</p>	<p>\$45,894 was awarded to DWQ to assist landowners with septic systems that are failing. This is an NPS hardship grant for those that otherwise could not afford to fix it themselves due to financial hardships.</p> <p>\$19,000 was awarded to the Southeastern Health Department to help develop Phase II of an onsite wastewater digital database.</p>

Objective 2: Improve Program Efficiency and Effectiveness Through Reporting and Evaluation

Total Number of Stream Miles Restored	<p>4.49 miles of stream restoration was implemented in FY 2019. This includes projects implemented using 319, state NPS, and NRCS EQIP funding.</p> <p>3.8 miles of fencing was installed to better control grazing in both the uplands and riparian areas.</p> <p>78.44 acres of riparian planting was completed in 2019</p>	<p>9.07 miles of streambank was restored in FY 2020, Much of the restoration work took place in the San Pitch and Upper Sevier Watersheds. This includes projects implemented using state NPS, 319, and NRCS EQIP funding.</p> <p>Two animal feeding operations were addressed using FY 2020 NPS Funding.</p> <p>105 acres of riparian Improvement was implemented in FY 2020.</p>	<p>9.59 miles of streambank were restored in FY 2021. Much of this restoration work took place in the San Pitch and Upper Sevier River Watersheds.</p> <p>2.5 miles of riparian fencing was installed to better control grazing.</p> <p>6.1 miles of pipeline was installed to help install systems that will distribute cattle better across the landscape, thus reducing pressure on the riparian areas.</p>
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Milestone	2019	2020	2021
			167 beaver dam analog structures were installed.
Total estimated load reductions reduced in project areas (includes reductions from annual and final reports)	Nitrogen: 3,971.2 lbs/year Sediment: 1,319.8 tons/year Phosphorous: 1,156.5 lbs/year	Nitrogen: 4,772 lbs/year Sediment: 1,567.51 tons/year Phosphorous: 852.24 lbs/year	Nitrogen: 4,288.2 lbs/year Sediment: 985.9 tons/year Phosphorous: 1,027 lbs/year
Number of final project reports submitted (see Table 10)	5	5	2
Number of 319 Grants closed during the fiscal year	FY 2015	FY 2016	FY 2017
Amount of unexpended funds in each open 319 grant (see Table 1)	FY 2015: \$20,722 FY 2016: \$278,074 FY 2017: \$223,888 F 2018: \$816,409 FY 2019: \$959,059	FY 2017: \$107,941 FY 2018: \$418,007 FY 2019: \$512,571 FY 2020: \$879,703	FY 2018: \$258,487 FY 2019: \$424,056 FY 2020: \$329,925 FY 2021: \$1,047,000
Number of success stories showing the environmental benefits of completed NPS projects submitted to EPA for approval	Main Creek- temperature delisting.	Spring Creek near Hyrum, Utah. Significant reductions in phosphorous and ammonium.	1. East Canyon Reservoir (temperature, dissolved oxygen) 2. East Canyon Creek (macroinvertebrates)
Objective 3: Improve Public Participation and Understanding of NPS Issues			
Number of participants involved in the statewide volunteer monitoring program	In 2019, Utah Water Watch had 109 individuals participate in water quality monitoring.	In 2020, Utah Water Watch had 121 individuals participate in water quality monitoring.	In 2021, Utah Water Watch had 53 individuals participate in water quality monitoring.
Number of I&E projects implemented with	6 Projects	8 Projects	4 Projects

Milestone	2019	2020	2021
Section 319 and state NPS funding	<ol style="list-style-type: none"> 1. Development of onsite wastewater demo site 2. 2018 Water Week 3. Provo River Watershed Education Days 4. Envirothon 5. Producer's website and small hobby farm education -Volunteer Monitoring Program	<ol style="list-style-type: none"> 1. Wasatch Front Urban Ranger Program 2. Envirothon 3. Producer website and small farm education 4. Provo River Watershed Council Watershed education 5. Catalyst for Change. 6. Upper Sevier I&E 7. Volunteer Monitoring Program 8. Stormwater Prevention BMP Workshop. 	<ol style="list-style-type: none"> 1. Southeast Human Waste Initiative 2. AWWA Water Week 3. Producer Website 4. Utah Water Watch
Updates made to the state NPS program website	The NPS Program website is updated by Utah State University Extension as new information becomes available.	In FY 2020, the DWQ website was updated with a project story map highlighting the large-scale projects implemented around the state as well as success stories highlighting projects that have resulted in delistings or significant pollutant reductions. https://deq.utah.gov/water-quality/nonpoint-source-projects-and-success-stories	In FY 2021, only slight changes were made to the DEQ NPS website. Water Quality Task Force minutes were uploaded, grant recipients were announced, and the correct application materials were uploaded.
Objective 4: Improve Data Collection and Management			
Track updates made to enhance NPS monitoring in the Division of Water Quality's annual monitoring strategy	There were no changes made to the FY 2019 statewide SAPs. A SAP was developed for Matt Warner Reservoir that will be implemented in FY 2020. Matt Warner Reservoir and Pelican Lake received the majority of funding in FY 2019. As a result, DWQ deployed water quality buoys with sensors that collect pH, temperature, dissolved oxygen, turbidity, and chlorophyll a data.	Only small changes were made to existing SAPs in FY 2020. The frequency in which samples would be collected was changed in the Main Creek, and North Fork, Virgin River Watersheds. SAPs were developed for the Lower Spanish Fork River and Big Bend Restoration Projects.	Only small changes were made to existing SAPs in FY 2021. SAPs were included for Otter Creek and Mud Creek. The Strawberry Reservoir tributaries were removed from the existing SAP due to a delisting in the reservoir.
Number of SAPs developed	No changes were made to the SAPs that were developed in 2019. One	SAPs were developed for the Lower Spanish Fork River	SAPs were developed for Otter

Milestone	2019	2020	2021
	SAP was developed for Matt Warner Reservoir. All SAPs were effectively implemented in FY 2019.	Project and the Big Bend Project on the Jordan River.	Creek and Mud Creek.
Track status and updates of AWQMS database	See section 4.4 of this report	See section 4.4 of this report	See section 4.4 of this report
Report on water quality data uploaded to the EPA's WQX database	See the Ambient Water Quality Monitoring Section found on page 19 of this report.	See the Ambient Water Quality Monitoring Section found on page 19 of this report.	See the Ambient Water Quality Monitoring Section found on page 19 of this report.
Objective 5: Improve Coordination of Governmental and Private Sectors			
Hold Annual NPS management program coordination meetings	Held February 28, 2019	Held March 4, 2020	Held February 23, 2021
Conduct annual consistency reviews with state and federal agencies	The federal consistency review tour was held October 17 th , 2019. The tour was held in the Raft River Mountain Range area. A summary of the tour is found within this report.	No tours were held in FY 2020 due to the COVID-19 travel restrictions.	An EPA Region 8 NPS tour was held from August 30 to September 1, 2021. The federal consistency review tour was not held in FY 2021 due to COVID-19 restrictions.
Number of Water Quality Task Force meetings held during the fiscal year	Three Water Quality Task Force Meetings were held on: September 11, 2018, December 6, 2018, and June 27, 2019,	Three Water Quality Task Force meetings were held on September 10, 2019, December 5, 2019, and June 3, 2020,	Three Water Quality Task Force meetings were held: December 9, 2020, June 24, 2021, and September 9, 2021.
Amount of funding used to leverage 319 funding throughout the state	\$6,397,551 (See Table 5)	\$6,184,892 (See Table 5)	\$8,312,532 (See Table 5)