WATER QUALITY SURVEY SUMMARY

FOR THE

UPPER RIO GRANDE WATERSHED

2017-2018

Rio Grande downstream of the Rio Hondo

Prepared by

Surface Water Quality Bureau

New Mexico Environment Department

December 2020

Water quality surveys and assessments conducted by the New Mexico Environment Department Surface Water Quality Bureau are completed to fulfill Section 106 of the Clean Water Act [33 USC 1251 et seq.], Work Program for Water Quality Management. This project was funded, in part, by a grant from the U.S. Environmental Protection Agency.

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1.0 INTRODUCTION

SWQB conducts concentrated watershed-based water quality surveys to fulfill work plan requirements of the Clean Water Act (CWA) Section 106 grant. This grant provides federal funding to ensure that high quality, defensible data are collected and available to make informed resource management decisions. Data are publicly available to interested parties by making a formal request to the SWQB Monitoring, Assessment, and Standards Section or by downloading from the Environmental Protection Agency's Water Quality Data Portal[1]. The purpose of water quality sampling is to assess the quality of surface waters in the state, determine where water quality standards are not being met (i.e. where water quality is impaired), and to inform development of Total Maximum Daily Loads (TMDLs) for impaired waters, which lay the foundation for restoring these waters. Assessment conclusions are published in the State of New Mexico 303(d)/305(b) Integrated Report, available from the SWQB website[2].

The project area includes the Rio Grande watershed upstream from Cochiti Reservoir to the Colorado border (Figure 1). Some of the major tributaries included in this study are Embudo Creek, Red River, Rio Hondo, Rio Pueblo de Taos, Rio Costilla, Santa Cruz, and the Rio de los Piños. Lake sampling was conducted at Santa Cruz, Cabresto, and Goose Lakes. The Rio Chama and tributaries that drain Los Alamos and the Pajarito Plateau were not sampled in this survey by SWQB. The survey for Rio Chama is scheduled for completion in 2023-2024. Tributaries located within Los Alamos National Laboratory managed areas on the Pajarito Plateau are monitored by the NMED DOE Oversight Bureau and the Los Alamos Lab in consultation with NMED.

Historic and current land uses in the watersheds include agriculture (range, pasture, and croplands), mining, forest, grassland, residential, shrubland, water, and wetlands. Land ownership in the watershed includes the Bureau of Land Management (BLM), U.S. Forest Service, Bureau of Reclamation (USFS BOR), U. S. Fish and Wildlife Service (USFWS), National Park Service, New Mexico State Parks, New Mexico Department of Game and Fish, and state, tribal, and private parcels. The study encompasses approximately 3,450 square miles (8,900 square kilometers) in New Mexico. The watershed is located in Omernik Level III Ecoregion 21 (Southern Rockies) in the headwaters and Level III Ecoregion 26 (Southwest Tablelands) in the lowlands.

Rivers are divided into assessment units (AUs) based on differing geological and hydrological properties, and each AU is assessed individually using data from one or more monitoring sites located within the AU. Selected monitoring locations were sampled for water quality constituents 6-10 times over two years. The total number of samples for each location was determined through a priority ranking of Integrated Report (IR) classification, presence of point source discharge, and TMDL status, among other considerations. The framework for monitoring prioritization is discussed in the SWQB 10-Year Monitoring and Assessment Strategy (NMED/SWQB 2016d). Monitoring activities conducted at each site are summarized in Tables 6 and 7.

1.1 Principal Investigators

Table 1 details the responsibilities for this project. Each team member was responsible for implementing

[1] https://www.waterqualitydata.us/portal/

[2] https://www.env.nm.gov/surface-water-quality/303d-305b/

the assigned responsibilities. Questions or comments regarding this survey report should be directed to the MASS project coordinators.

Table 1. Personnel Roles and Responsibilities

Team Member	Position/Role	Responsibilities
Kris Barrios Monitoring, Assessment, and Standards Section Program Manager kristopher.barrios@state.nm.us (505) 946-8713 Charles Dentino Monitoring Team Supervisor charles.dentino1@state.nm.us (505) 946-8868	MASS Project Coordinators	• Coordinate survey planning efforts (integrate the documentation of various team members' information into the field sampling plan and planning spreadsheet); • Prepare final survey report integrating information from all team members.
Meredith Zeigler Monitoring Team Scientist meredith.zeigler@state.nm.us (505) 819-9972	MASS Field Team	• Coordinate and participate in the collection of chemical, biological, and habitat data including sonde and thermograph data collection efforts; • Manage data for study (forms, data entry, data verification and analysis);
Jennifer Fullam jennifer.fullam@state.nm.us (505) 946-8954	Standards Liaison	• Provide information and data needs pertaining to water quality standards development and refinement located within the study area.
Sarah Holcomb sarah.holcomb@state.nm.us (505) 819-9734	Point Source Regulation Section (PSRS) Liaison	• Provide information and data needs pertaining to point source discharges located within the study area; • Assist with development of final survey report, as needed.
Alan Klatt alan.klatt@state.nm.us (505) 819-9623	Watershed Protection Section (WPS) Liaison	• Provide information and data needs pertaining to nonpoint sources of pollution and BMPs located within the study area. • Assist with development of final survey report, as needed.
Heidi Henderson Heidi.henderson@state.nm.us (505) 819-9986	TMDL Liaison	• Provide information and data needs pertaining to TMDL development to be conducted in the study area; • Assist with development of final survey report, as needed; and • Develop TMDLs as needed.

2.0 PROJECT DESCRIPTION

2.1 Background

Section 303(d) of the Federal Water Pollution Control Act, known as the Clean Water Act (CWA), requires that each state submit to the U.S. Environmental Protection Agency (EPA) a list of water quality limited segments that require load allocations, waste load allocations, and TMDLs. The current §303(d) Program in New Mexico consists of three major steps: monitoring of surface waters; assessing monitoring data against water quality standards (WQS); and developing TMDLs for those waters not meeting water quality standards (i.e. impaired).

CWA §305(b) requires that each state also submit a biennial report to the U.S. Congress through the EPA. The two requirements are combined into *The State of New Mexico §303(d)/§305(b) Integrated List and Report* (NMED/SWQB 2018a) (IR). It also serves as a source of basic information on water quality and water pollution control programs in New Mexico.

In accordance with the above stated statutory requirements, the IR report contains the following information:

- An assessment of surface water quality;
- An analysis of the extent to which the CWA §101(a) goal of surface water quality to provide for protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water is being achieved;
- An overview of progress in water pollution control and recommendations for further action; and
- A description of the nature of nonpoint source pollution and of programs for nonpoint source control.

The activities described in this Report are focused toward meeting the goals of the most recent, EPA-approved IR published prior to the survey (NMED/SWQB 2016a). Impairments for AUs in this survey area were identified during SWQB's previous surveys of this watershed, last conducted in 2000 and 2010, and include assessments based on data from a variety of other investigations. Table 2 lists AU impairment status for surveyed waterbodies in the most recent approved IR published prior to this report (NMED/SWQB 2018a). The "IR Category" column provides the current AU status in the IR (see Appendix A for definitions). "Water Quality Section" provides the applicable WQS section as assigned to each AU and described in Section 20.6.4 New Mexico Administrative Code (NMAC) as governed by the New Mexico Water Quality Control Commission (WQCC) (NMAC 2020). The purpose of 20.6.4 NMAC is to establish WQS that consist of the designated uses of surface waters of the state, the water quality criteria necessary to protect those uses, and an antidegradation policy. The "TMDL Status" column lists the EPA-approved TMDLs for the Assessment Unit.

Monitoring of surface waters across the State has traditionally occurred on an eight-year rotational watershed approach, meaning a given waterbody is generally surveyed intensively, on average, every eight years. Monitoring occurs during the non-winter months (March through November); focuses on physical, chemical, and biological conditions in perennial waters; and includes sampling for most pollutants that have numeric and/or narrative criteria in the WQS. Each AU is represented by a small number of monitoring stations (often only one), each of which receives 6–10 site visits during the survey.

The monitoring described in this report was planned and documented in a Field Sampling Plan (SWQB 2018b) prepared in accordance with SWQB Standard Operating Procedure 2.1: Field Sampling Plan Development and Execution (NMED/SWQB 2015). The Plan describes project objectives and decision criteria, and it includes the sampling schedule with locations, constituents, and frequencies for physical, chemical, and biological data collection. Through public outreach, inter-agency coordination, and a scoring system which takes into account a variety of factors, a three-tier monitoring system – primary, secondary, and tertiary – was developed to prioritize AUs. High ranking priority waters (primary AUs) received the greatest amount of monitoring, whereas low ranking waters (*i.e.*, tertiary AUs) received the least. The two-year monitoring allows more data to be collected from the highest priority waters to better capture inter-annual variability due to hydrologic conditions during sampling events, and year-2 monitoring may be adjusted dependent on year-1 analytical results

Assessment of surface waters against the WQS occurs after the monitoring data have been verified and validated, using the most recent assessment protocols. These protocols are updated every odd year (e.g. 2019) and are opened for the EPA and the public to review and comment as part of the update process. Waterbodies determined to be impaired are reported as such every even year (e.g. 2020) on the State's IR List and TMDLs or TMDL alternatives are developed for listed AUs.

Table 2. Impairment and TMDL Status of Survey Assessment Units (NMED/SWQB 2016)

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
Alamitos Creek (Rio Pueblo to headwaters)	20.6.4.123		2	None
Apache Canyon (Rio Fernando de Taos to headwaters)	20.6.4.123	*Escherichia coli*	4A	Temperature 2012
Arroyo Seco Creek (perennial prt HWY 522 to headwaters)	20.6.4.99		2	None
Beaver Creek (Rio de los Piños to headwaters)	20.6.4.123		3/3A	None
Bitter Creek (Red River to headwaters)	20.6.4.123	Aluminum|Turbidity	5/5A	TMDL for SBD (sedimentation/siltation) and Al acute 2006.
Bobcat Creek (Red River to headwaters)	20.6.4.123		1	None
Cabresto Creek (Red River to headwaters)	20.6.4.123		1	None
Cabresto Lake	20.6.4.134		3/3A	None
Capulin Creek (Rio Grande to headwaters)	20.6.4.121		2	None

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
Cañada Tio Grande (Rio San Antonio to headwaters)	20.6.4.123	Nutrient/ Eutrophication Biological Indicators| Temperature, water	5/5A	None
Casias Creek (Costilla Reservoir to headwaters)	20.6.4.123		2	None
Chuckwagon Creek (Comanche Creek to headwaters)	20.6.4.123		3/3A	None
Columbine Creek (Red River to headwaters)	20.6.4.123		1	None
Comanche Creek (Costilla Creek to headwaters)	20.6.4.123	Temperature, water	4A	TMDL for temperature 2004.
Cordova Creek (Costilla Creek to headwaters)	20.6.4.123	Sedimentation/ Siltation	4A	TMDL for total phosphorus, SBD (sedimentation/siltation) and turbidity 1999.
Costilla Creek (CO border to Diversion abv Costilla)	20.6.4.123	Low flow alterations	4C	None
Costilla Creek (Comanche Creek to Costilla Dam)	20.6.4.123		1	None
Costilla Creek (Diversion abv Costilla to Comanche Creek)	20.6.4.123		2	TMDL for temperature 2004.
East Fork Red River (Red River to headwaters)	20.6.4.123		2	None
Embudo Creek (Cañada de Ojo Sarco to Picuris Pueblo bnd)	20.6.4.114	Nutrient/ Eutrophication Biological Indicators	5/5C	None
Embudo Creek (Rio Grande to Cañada de Ojo Sarco)	20.6.4.114	Sedimentation/ Siltation| Temperature, water|Turbidity	5/5A	TMDL for turbidity and sedimentation/ siltation (SBD) 2005.
Fernandez Creek (Comanche Creek to headwaters)	20.6.4.123		1	None
Gold Creek (Comanche Creek to headwaters)	20.6.4.123	Aluminum| Temperature, water	5/5C	TMDL for temperature 2011.
Goose Creek (Red River to headwaters)	20.6.4.123		3/3A	None
Goose Lake	20.6.4.133		1	None

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
Grassy Creek (Comanche Creek to headwaters)	20.6.4.123	Turbidity	5/5C	None
Holman Creek (Comanche Creek to headwaters)	20.6.4.123	Temperature, water	4A	TMDL for temperature (2011).
Jicarita Creek (Rio Santa Barbara to headwaters)	20.6.4.123		2	None
La Cueva Creek (Costilla Creek to headwaters)	20.6.4.123		1	None
LaBelle Creek (Comanche Creek to headwaters)	20.6.4.123	Temperature, water	4A	TMDL for temperature (2011).
Lake Fork (Cabresto Creek to Cabresto Lake) new				None
Lake Fork (Cabresto Lake to Headwaters) new				None
Lake Fork Creek (Rio Hondo to headwaters)	20.6.4.123		2	None
Latir Creek (Costilla Creek to headwaters)	20.6.4.123		1	None
Little Costilla Creek (Comanche Creek to headwaters)	20.6.4.123		1	None
Little Tesuque Creek (Rio Tesuque to headwaters)	20.6.4.121	Aluminum	4A	TMDL for aluminum 2005.
Middle Fork Red River (Red River to headwaters)	20.6.4.123		1	None
North Fork Tesuque Creek (Tesuque Creek to headwaters)	20.6.4.121		2	None
Pioneer Creek (Red River to headwaters)	20.6.4.123	Sedimentation/ Siltation|Turbidity	5/5A	TMDL for turbidity 2006.
Placer Creek (Red River to headwaters)	20.6.4.123		1	TMDL for Al acute 2006.
Pojoaque River (San Ildefonso bnd to Pojoaque bnd)	20.6.4.114	PCB in Water Column	5/5A	None
Powderhouse Creek (Costilla Creek to headwaters)	20.6.4.123		1	None
Red River (Placer Creek to headwaters)	20.6.4.123	Nutrient/ Eutrophication Biological Indicators	5/5A	None

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
Red River (Rio Grande to Placer Creek)	20.6.4.122		2	None
Rio Chiquito (Picuris Pueblo bnd to headwaters)	20.6.4.123		2	None
Rio Chiquito (Rio Grande del Rancho to headwaters)	20.6.4.123		2	None
Rio Chupadero (USFS bnd to headwaters)	20.6.4.121		1	None
Rio de los Piños (New Mexico reaches)	20.6.4.123	Temperature, water	4A	TMDL for temperature.
Rio de Truchas (Perennial portions Rio Grande to headwaters)	20.6.4.123		2	None
Rio en Medio ((non-pueblo lands Pojoaque R to Aspen Ranch))	20.6.4.121		2	None
Rio Fernando de Taos (R Pueblo d Taos to USFS bnd at canyon)	20.6.4.123	*Escherichia coli*| Nutrient/ Eutrophication Biological Indicators| Sedimentation/ Siltation|Specific Conductance| Temperature, water	5/5A	TMDLs for temperature and specific conductance 2004. TMDL for *E. coli* 2012.
Rio Fernando de Taos (Tienditas Creek to headwaters)	20.6.4.123	*Escherichia coli*	4A	TMDLs for temperature and specific conductance 2004. TMDL for E. coli 2012.
Rio Fernando de Taos (UFSF bnd at canyon to Tienditas Creek)	20.6.4.123	*Escherichia coli*	4A	TMDLs for temperature and specific conductance 2004. TMDL for *E. coli* 2012.
Rio Frijoles (Rio Medio to Pecos Wilderness)	20.6.4.121		1	None
Rio Grande (Cochiti Reservoir to San Ildefonso bnd)	20.6.4.114	ALUMINUM, DISSOLVED|CYANIDE|Gross Alpha|PCB in Fish Tissue|PCB in Water Column | Selenium, Total Recoverable | Thallium | Turbidity	5/5C	None

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
Rio Grande (Embudo Creek to Rio Pueblo de Taos)	20.6.4.114	Turbidity	5/5C	None
Rio Grande (Ohkay Owingeh bnd to Embudo Creek)	20.6.4.114	PCB in Fish Tissue | Turbidity	5/5C	TMDL for turbidity 2005.
Rio Grande (Red River to CO border)	20.6.4.122	Temperature, water|pH	5/5A	TMDL for temperature 2004.
Rio Grande (Rio Pueblo de Taos to Red River)	20.6.4.122		2	None
Rio Grande (Santa Clara Pueblo bnd to Ohkay Owingeh bnd)	20.6.4.114	PCB in Fish Tissue|Turbidity	5/5C	None
Rio Grande (Santa Clara Pueblo) Place holder				None
Rio Grande del Rancho (HWY 518 to headwaters)	20.6.4.123		2	None
Rio Grande del Rancho (Rio Pueblo de Taos to HWY 518)	20.6.4.123	*Escherichia coli*| Nutrient/ Eutrophication Biological Indicators|Specific Conductance| Temperature, water	5/5A	TMDL for specific conductance 2004.
Rio Hondo (Lake Fork Creek to headwaters)	20.6.4.129		2	None
Rio Hondo (Rio Grande to USFS bnd)	20.6.4.129	Temperature, water	4A	TMDL for temperature 2004.
Rio Hondo (South Fork Rio Hondo to Lake Fork Creek)	20.6.4.129		2	None
Rio Hondo (USFS bnd to South Fork Rio Hondo)	20.6.4.129		1	None
Rio Medio (Rio Frijoles to headwaters)	20.6.4.121		1	None
Rio Pueblo (Picuris Pueblo bnd to headwaters)	20.6.4.123	Nutrient/ Eutrophication Biological Indicators	5/5A	None
Rio Pueblo de Taos (Arroyo del Alamo to R Grande del Rancho)	20.6.4.122	Nutrient/ Eutrophication Biological Indicators| Temperature, water	5/5A	TMDL for temperature and sedimentation/ siltation (SBD) 2004.
Rio Pueblo de Taos (R Grande del Rancho to Taos Pueblo bnd)	20.6.4.123	*Escherichia coli*| Temperature, water	4A	TMDL for temperature 2004. TMDL for *E. coli* 2012.

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
Rio Pueblo de Taos (Rio Grande to Arroyo del Alamo)	20.6.4.122	Nutrient/ Eutrophication Biological Indicators| Temperature, water	5/5C	TMDL for temperature 2004.
Rio Nutritas (Rio San Antonio to headwaters)	20.6.4.123		3	None
Rio Quemado (Rio Arriba Cnty bnd to headwaters)	20.6.4.123		3/3A	None
Rio Quemado (Santa Cruz River to Rio Arriba Cnty bnd)	20.6.4.121	*Escherichia coli*	4A	TMDL for *E. coli* 2012.
Rio San Antonio (CO border to Montoya Canyon)	20.6.4.123	Oxygen, Dissolved| Temperature, water	5/5C	None
Rio San Antonio (Montoya Canyon to headwaters)	20.6.4.123	*Escherichia coli* | Oxygen, Dissolved | Temperature, water	5/5C	TMDL for *E. coli* 2012.
Rio Santa Barbara (non-pueblo Embudo Ck to USFS bnd)	20.6.4.123	*Escherichia coli*| Temperature, water	5/5A	TMDL for turbidity (2005, de-list 2012) and *E. coli* (2012).
Rio Santa Barbara (USFS bnd to confl of E and W forks)	20.6.4.123		1	None
Rio Tesuque (Tesuque Pueblo to Tesuque Creek)	20.6.4.114		1	None
Rito de la Olla (Rio Grande del Rancho to headwaters)	20.6.4.123		2	None
Rito de los Frijoles (Rio Grande to headwaters)	20.6.4.121	Aluminum, Total Recoverable | DDT – Fish Consumption Advisory	5/5A	None
San Cristobal Creek (Rio Grande to headwaters)	20.6.4.123		2	None
Sanchez Canyon (Costilla Creek to headwaters)	20.6.4.123		1	None
Santa Cruz Lake	20.6.4.121	Temperature, water	5/5A	None
Santa Cruz River (San Clara Pueblo bnd to Santa Cruz Dam)	20.6.4.114	*Escherichia coli*| Temperature, water	5/5A	TMDL for *E. coli* 2012.
Santa Cruz River (Santa Cruz Reservoir to Rio en Medio)	20.6.4.121		2	None

Assessment Unit	WQS Reference	Impairments(s), if any	IR Category (by AU)	TMDL Status
South Fork Rio Hondo (Rio Hondo to headwaters)	20.6.4.129		3/3A	None
South Fork Tesuque Creek (Tesuque Creek to headwaters)	20.6.4.121		2	None
Tesuque Creek (Rio Tesuque to confl of forks)	20.6.4.121		1	None
Tienditas Creek (R Fernando de Taos to headwaters)	20.6.4.98		3/3A	None
Trampas Creek (Rio Embudo to headwaters)	20.6.4.123		2	None
Unnamed Arroyo (Rio Pueblo de Taos to Taos WWTP)	20.6.4.99	Ammonia (Total) | Nutrient/ Eutrophication Biological Indicators	5/5A	None
Ute Creek (Costilla Creek to headwaters)	20.6.4.123		1	None
Vidal Creek (Comanche Creek to headwaters)	20.6.4.123	Temperature, water	5/5A	None
West Fork Red River (Red River to headwaters)	20.6.4.123		3/3A	None

2.2 Objectives

Table 3 outlines the project objectives that have been identified to meet the various needs within the SWQB. Data needs have been determined based on impairments from previous studies, identified data gaps, and consultation with SWQB MASS, PSRS, and WPS staff as well as other state agencies, federal agencies, tribes, local watershed groups, and interested parties.

Table 3. Project Objectives

	Purpose for Water Quality Data Collection	Question to be answered	Products/ Outcomes	Decision Criteria
Primary Objective	Assess designated use attainment for the *Integrated Report* and provide information to the public on the condition of surface waters	Are sampled waterbodies meeting WQS criteria?	Integrated Report	WQS as interpreted by the Assessment Protocols

Secondary Objectives	Develop load and waste load allocations for TMDLs	What is the maximum pollutant load a waterbody can receive and meet the requirements of the WQS?	TMDL loading calculations and NPDES permit limits	WQS as interpreted by the Assessment Protocols
	Evaluate restoration and mitigation measures implemented to control NPS pollution	Have watershed restoration activities and mitigation measures improved water quality?	Project Summary Reports, NPS Annual Report, *Integrated Report (De-Listing)*	WQS as interpreted by the Assessment Protocols
	Develop or refine the WQS	Are the existing uses appropriate for the waterbody?	Use Attainability Analyses (UAA); Amendments to WQS	Are data sufficient to support a petition to the WQCC to revise WQS?

2.3 Schedule

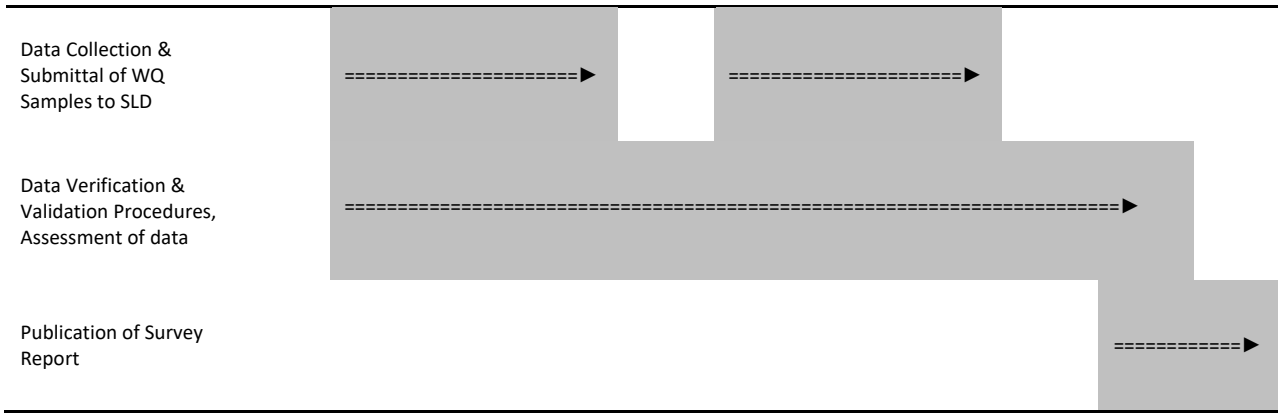
As part of the survey planning process, public meetings were held to receive input on any areas of concern within the AUs surveyed and to inform interested parties about the SWQB water quality survey process, specific sampling plans in the watershed, and the assessment and TMDL processes.

Water chemistry results typically take several months to return from the analytical laboratory, the New Mexico Scientific Laboratory Division (SLD). When these data are received, they are verified and validated according to SWQB SOPs. Once all data have been received, validated, and verified, the data will be assessed according to assessment protocols in time for incorporation into the 2020-2022 IR List. Once the assessments are complete, the TMDL development process will begin in 2021 for any identified impairments.

The progress of this project will be documented and tracked from its inception through implementation to ensure all sampling and analytical activities are performed in accordance with all applicable requirements and in a cost-effective manner. **Table 4** provides the project timeline.

Table 4. Project Schedule

Activity	Winter 2016-2017	Spring 2017	Summer 2017	Fall 2017	Winter 2017-2018	Spring 2018	Summer 2018	Fall 2018	Winter 2018-2019	Spring 2019	Fall 2019
Survey Planning, Site Reconnaissance, and Public Input Period	==►										



2.4 Location

The project area includes the Rio Grande watershed upstream from Cochiti Reservoir to the Colorado border (**Figure 1**). Some of the major tributaries included in this study are Embudo Creek, Red River, Rio Hondo, Rio Pueblo de Taos, Rio Costilla, Santa Cruz, and the Rio de los Piños. Lake sampling was conducted at Santa Cruz, Cabresto, and Goose Lakes. The Rio Chama and tributaries in the Pajarito Plateau (including areas within the Los Alamos National Laboratory) were not be sampled in this survey. **Table 5** lists the water quality stations in the survey and **Figures 2-5** show sub-watersheds within the survey area.

Figure 1. 2017-2018 Survey Area.

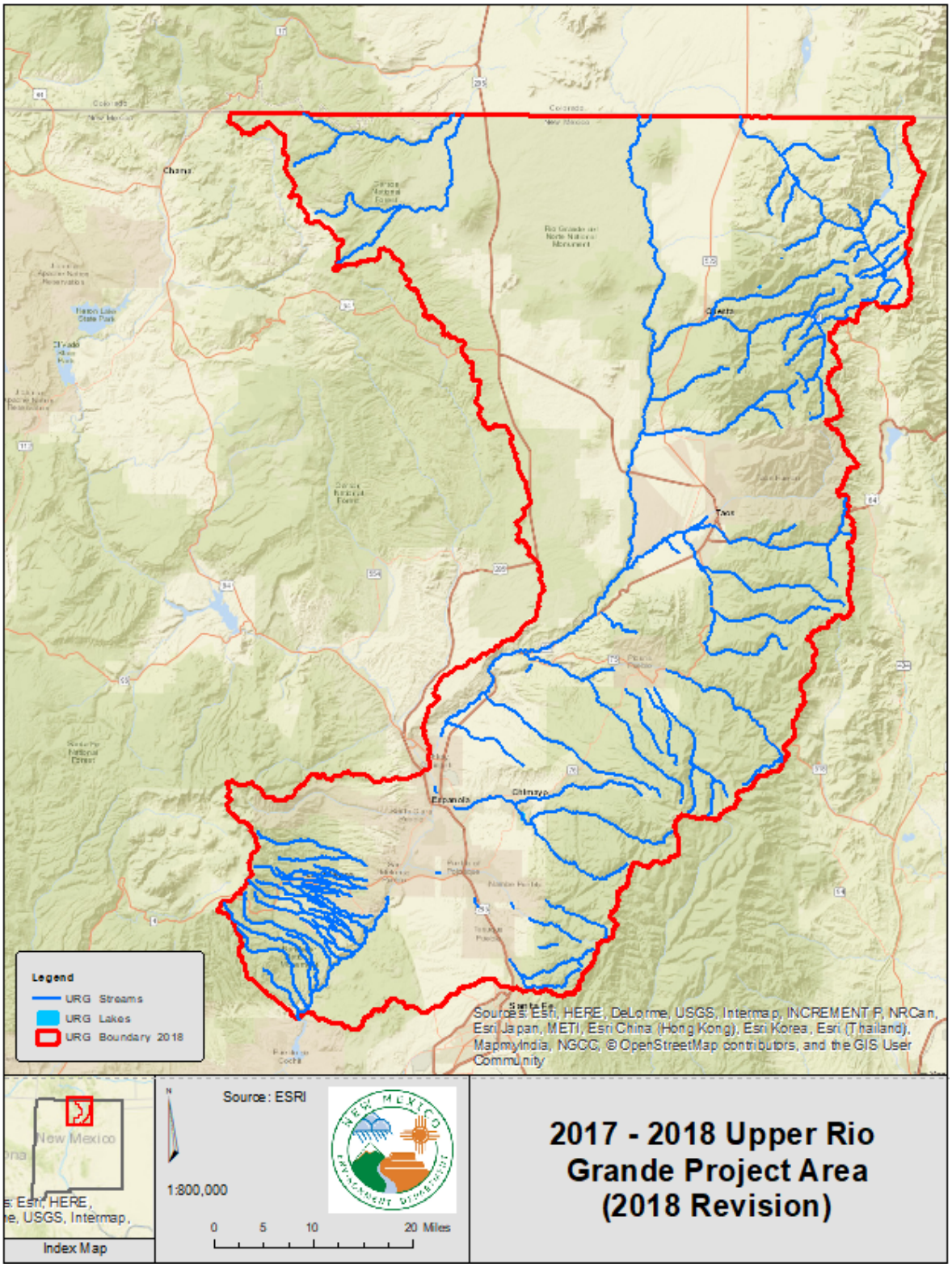


Table 5. Water Quality Stations: Upper Rio Grande Watershed Survey 2017-2018

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
1	Alamitos Creek abv FR 161	28Alamit003.6	Alamitos Creek (Rio Pueblo to headwaters)	Only station in AU.
2	Apache Canyon abv Rio Fernando - 28Apache000.2	28Apache000.2	Apache Canyon (Rio Fernando de Taos to headwaters)	Only station in AU, impairment.
3	Arroyo Seco @ NM230 - 28ArrSec12.4	28ArrSec12.4	Arroyo Seco Creek (perennial prt HWY 522 to headwaters)	Only station in AU.
4	Beaver Creek blw Diablo Creek - 27Beaver004.6	27Beaver004.6	Beaver Creek (Rio de los Piños to headwaters)	Alternate station, impairment.
4.1	Beaver Creek abv Rio de los Piños - 27Beaver000.1	27Beaver000.1	Beaver Creek (Rio de los Piños to headwaters)	Lowest station in AU, impairment
5	Bitter Creek about 100 meters abv Red River - 28Bitter000.1	28Bitter000.1	Bitter Creek (Red River to headwaters)	Lowest station in AU.
5.1	Bitter Creek abv town of Red River - 28Bitter003.0	28Bitter003.0	Bitter Creek (Red River to headwaters)	Alternate station to 28Bitter000.1
6	Bobcat Creek at NM Hwy 578 - 28Bobcat000.3	28Bobcat000.3	Bobcat Creek (Red River to headwaters)	Only station in AU.
7	Cabresto Creek at NM Hwy 38 - 28Cabres000.9	28Cabres000.9	Cabresto Creek (Red River to headwaters)	Lowest station in AU.
8	Cabresto Lake Deep	28CabrestoLkD	Cabresto Lake	Recreational lake.
9	Cañada Tio Grande abv Rio San Antonio - 27CTGran000.7	27CTGran000.7	Cañada Tio Grande (Rio San Antonio to headwaters)	Only station in AU, impairment.
9.1	Capulin Creek at Base Camp - 30Capuli008.5	30Capuli00.85	Capulin Creek (Rio Grande to headwaters)	Accessible station in a remote AU.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
10	Casias Creek above Costilla Reservoir - 28Casias000.7	28Casias000.7	Casias Creek (Costilla Reservoir to headwaters)	Lowest station in AU.
11	Chuckwagon Cr abv Comanche Cr - 28Chuckw000.1	28Chuckw000.1	Chuckwagon Creek (Comanche Creek to headwaters)	Only station in AU.
12	Columbine Creek at Columbine Camp Ground - 28Columb000.2	28Columb000.2	Columbine Creek (Red River to headwaters)	Only station in AU.
13	Comanche Creek above Costilla Creek - 28Comanc000.1	28Comanc000.1	Comanche Creek (Costilla Creek to headwaters)	Lowest station in AU, impairment.
14	Cordova Creek above Costilla Creek above Hwy 196 - 28Cordov001.5	28Cordov001.5	Cordova Creek (Costilla Creek to headwaters)	Lowest station in AU, impairment.
15	Rio Costilla at NM Hwy 522 - 28RCosti001.6	28RCosti001.6	Costilla Creek (CO border to Diversion abv Costilla)	Lowest station in AU, impairment.
16	Costilla Cr abv Comanche Cr - 28RCosti032.5	28RCosti032.5	Costilla Creek (Comanche Creek to Costilla Dam)	Lowest station in AU.
17	Costilla Creek above Costilla Reservoir - 28Costi042.6	28Costi042.6	Costilla Creek (Costilla Reservoir to CO border)	Only station in AU.
18	Costilla Creek above Costilla at Hwy 196 bridge - 28RCosti005.7	28RCosti005.7	Costilla Creek (Diversion abv Costilla to Comanche Creek)	Lowest station in AU.
19	E Fk Red River above Upper Red River Valley Road	28EFkRed000.1	East Fork Red River (Red River to headwaters)	Lowest station in AU.
20	Embudo Creek above Canoncito - 28Embudo010.1	28Embudo010.1	Embudo Creek (Cañada de Ojo Sarco to Picuris Pueblo bnd)	Lowest station in AU, impairment.
21	Embudo Creek at Hwy 68 bridge nr Dixon at USGS gage 0827900 - 28Embudo000.8	28Embudo000.8	Embudo Creek (Rio Grande to Cañada de Ojo Sarco)	Lowest station in AU, impairment.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
22	Fernandez Cr abv Comanche Cr - 28Fernan000.1	28Fernan000.1	Fernandez Creek (Comanche Creek to headwaters)	Only station in AU.
23	Gold Cr abv Comanche Cr - 28GoldCr000.1	28GoldCr000.1	Gold Creek (Comanche Creek to headwaters)	Only station in AU, impairment.
24	Goose Creek above Red River - 28GooseC000.1	28GooseC000.1	Goose Creek (Red River to headwaters)	Lowest station in AU.
25	Goose Creek below Goose Lake - 28GooseC008.0	28GooseC008.0	Goose Creek (Red River to headwaters)	Lake outlet.
26	Goose Lake - 28GooseLakeDp	28GooseLakeDp	Goose Lake	Recreational lake.
26.1	Goose Lake Inlet - 28GooseLakeIn	28GooseLakeDp	Goose Lake	Lake Inlet
27	Grassy Creek above Comanche Creek - 28Grassy000.1	28Grassy000.1	Grassy Creek (Comanche Creek to headwaters)	Only station in AU, impairment.
28	Holman Cr abv Comanche Cr - 28Holman000.1	28Holman000.1	Holman Creek (Comanche Creek to headwaters)	Only station in AU, impairment.
29	Jicarita Cr abv Rio Santa Barbara	28Jicari000.1	Jicarita Creek (Rio Santa Barbara to headwaters)	Only station in AU.
30	La Cueva Cr abv Costilla Cr - 28LaCuev000.2	28LaCuev000.2	La Cueva Creek (Costilla Creek to headwaters)	Only station in AU.
31	La Belle Cr abv Comanche Cr - 28LaBell000.1	28LaBell000.1	LaBelle Creek (Comanche Creek to headwaters)	Only station in AU, impairment.
32	Lake Fork Creek below Cabresto Lake - 28LkFork001.8	28LkFork001.8	Lake Fork (Cabresto Creek to Cabresto Lake)	Lake outlet.
33	Lake Fork Creek above Cabresto Lake - 28LkFork002.4	28LkFork002.4	Lake Fork (Cabresto Lake to Headwaters)	Lake inlet.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
34	Lake Fork Creek abv Hondo - 28LKFork000.1	28LKFork000.1	Lake Fork Creek (Rio Hondo to headwaters)	Lowest station in AU.
35	Latir Creek at Costilla Creek - 28LatirC000.1	28LatirC000.1	Latir Creek (Costilla Creek to headwaters)	Only station in AU.
36	Little Costilla Cr abv Comanche Cr - 28LCosti000.1	28LCosti000.1	Little Costilla Creek (Comanche Creek to headwaters)	Only station in AU.
37	Little Tesuque Creek at first crossing of Hyde Park Road (Hwy 475) - 28LTesuq004.5	28LTesuq004.5	Little Tesuque Creek (Rio Tesuque to headwaters)	Lowest station in AU, impairment.
38	Middle Fork Red River abv Red River	28MFkRed000.1	Middle Fork Red River (Red River to headwaters)	Lowest station in AU.
38.1	Middle Fork Red River blw West Fork Red River - 28MFkRed002.1	28MFkRed002.1	Middle Fork Red River (Red River to headwaters)	Inadvertently sampled in May and July 2017.
39	N.FORK OF TESUQUE CR ABV HYDE PARK (475) RD - 28NFkTes000.6	28NFkTes000.6	North Fork Tesuque Creek (Tesuque Creek to headwaters)	Lowest station in AU.
40	Pioneer Creek about 400 yards above the Red River - 28Pionee000.7	28Pionee000.7	Pioneer Creek (Red River to headwaters)	Lowest natural channel station in AU, impairment.
40.1	Pioneer Creek at ball field	28Pionee000.2	Pioneer Creek (Red River to headwaters)	Alternate site to 28Pionee000.7
41	Placer Creek, about 400 yds above Red River - 28Placer000.2	28Placer000.2	Placer Creek (Red River to headwaters)	Only station in AU.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
42	Pojoaque River at State Road 84D	28Pojoaq005.0	Pojoaque River (San Ildefonso bnd to Pojoaque bnd)	Only station in AU, impairment.
43	Powderhouse Cr abv Costilla Cr - 28Powder000.1	28Powder000.1	Powderhouse Creek (Costilla Creek to headwaters)	Only station in AU.
44	Red River blw Goose Creek - 28RedRiv034.8	28RedRiv034.8	Red River (Placer Creek to headwaters)	Lowest station in AU, impairment.
44.1	Red River at Elephant Rock C.G. bridge blw WWTP outfall - 28RedRiv026.7	28RedRiv026.7	Red River (Rio Grande to Placer Creek)	Below point source.
45	Questa Mine outfall 001 - NM0022306	NM0022306-1	Red River (Rio Grande to Placer Creek)	Point source monitoring.
46	Red River abv Molycorp Outfall 002 - 28RedRiv009.0	28RedRiv009.0	Red River (Rio Grande to Placer Creek)	Above point source
47	NMG&FD/Red River Fish Hatchery-001	NM0030147 - 001	Red River (Rio Grande to Placer Creek)	Point source.
48	NMG&FD/Red River Fish Hatchery-002	NM0030147 - 002	Red River (Rio Grande to Placer Creek)	Point source.
49	NMG&FD/Red River Fish Hatchery-003	NM0030147 - 003	Red River (Rio Grande to Placer Creek)	Point source.
50	Red River above Fish Hatchery and diversion - 28RedRiv005.9	28RedRiv005.9	Red River (Rio Grande to Placer Creek)	Above point source.
50.1	Red River below Fish Hatchery near USGS - 28RedRiv005.3	28RedRiv005.3	Red River (Rio Grande to Placer Creek)	Habitat data collection site for 28RedRiv005.9
51	Red River above Rio Grande - 28RedRiv000.9	28RedRiv000.9	Red River (Rio Grande to Placer Creek)	Lowest station in AU
52	Red River at Molycorp Boundary - 28RedRiv024.4	28RedRiv024.4	Red River (Rio Grande to Placer Creek)	Upstream of closed mine.
53	Red River abv Capulin Cr. - 28RedRiv016.2	28RedRiv016.2	Red River (Rio Grande to Placer Creek)	Above point source.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
54	Red River at USGS gage (Questa) - 28RedRiv014.0	28RedRiv014.0	Red River (Rio Grande to Placer Creek)	Middle of AU. Below closed mine.
55	Rio en Medio 200 m below ski area parking lot - 28REnMed016.3	28REnMed016.3	Red River (Rio Grande to Placer Creek)	Below point source.
56	Red River WWTP effluent - NM0024899	NM0024899-M	Red River (Rio Grande to Placer Creek)	Point source.
57	Rio Chiquito near National Forest boundary - 28RChiqB008.4	28RChiqB008.4	Rio Chiquito (Picuris Pueblo bnd to headwaters)	Lowest station above diversion in AU.
58	Rio Chiquito abv Rio Grande del Rancho - 28RChiqA001.1	28RChiqA001.1	Rio Chiquito (Rio Grande del Rancho to headwaters)	Lowest station in AU.
59	Rio Chupadero at FR 102 - 28RChupa014.3	28RChupa014.3	Rio Chupadero (USFS bnd to headwaters)	Lowest station in AU.
59.1	Rito de los Frijoles at Bandelier Visitor Center - 30RFrijo003.0	30RFrijo003.0	Rito de los Frijoles (Rio Grande to Upper Crossing)	Lowest accessible station in AU. Impairment.
60	Rio de los Piños abv Beaver Cr - 27RPinos024.9	27RPinos024.9	Rio de los Piños (New Mexico reaches)	Possible AU break for temperature.
61	Rio de los Piños at USGS gage - 27RPinos002.6	27RPinos002.6	Rio de los Piños (New Mexico reaches)	Station above diversion, impairment.
61.1	Rio de los Piños @ CR 443B - 27RPinos001.3	27RPinos001.3	Rio de los Piños (New Mexico reaches)	Thermograph site for 27RPinos002.6
61.2	Rio de los Piños near Ortiz - 27RPinos007.3	27RPinos007.3	Rio de los Piños (New Mexico reaches)	Added for habitat monitoring.
62	Rio de Truchas abv Rio de la Cebolla - 28RTruch028.3	28RTruch028.3	Rio de Truchas (Perennial portions Rio Grande to headwaters)	Station located in perennial portion of AU.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
63	Rio en Medio at USFS boundary - 28REnMed007.2	28REnMed007.2	Rio en Medio (non-pueblo lands Pojoaque R to Aspen Ranch)	Lowest station in AU.
64	Rio Fernando de Taos near Lower Ranchito - 28RFerna001.5	28RFerna001.5	Rio Fernando de Taos (R Pueblo d Taos to USFS bnd at canyon)	Lowest accessible station in AU, impairment.
64.1	Rio Fernando de Taos abv Rio Pueblo de Taos - 28RFerna000.3	28RFerna000.3	Rio Fernando de Taos (R Pueblo d Taos to USFS bnd at canyon)	Added for habitat monitoring.
65	Rio Fernando de Taos above Apache Canyon - 28RFerna028.7	28RFerna028.7	Rio Fernando de Taos (Tienditas Creek to headwaters)	Lowest accessible station in AU, impairment.
65.1	Rio Fernando de Taos at Hwy 64 bridge - 28RFerna031.7	28RFerna031.7	Rio Fernando de Taos (Tienditas Creek to headwaters)	Impairment. WQC verification
66	Rio Fernando de Taos at USGS gage - 28RFerna008.2	28RFerna008.2	Rio Fernando de Taos (UFSF bnd at canyon to Tienditas Creek)	Only station in AU, impairment.
67	Rio Frijoles above Rio Medio - 28RFrijo000.1	28RFrijo000.1	Rio Frijoles (Rio Medio to Pecos Wilderness)	Only station in AU.
68	Rio Grande at Buckman Road - 30RGrand586.5	30RGrand586.5	Rio Grande (Cochiti Reservoir to San Ildefonso bnd)	Lowest accessible station in AU, PWS intake, impairment.
69	Rio Grande blw Rinconada - 28RGrand645.6	28RGrand645.6	Rio Grande (Embudo Creek to Rio Pueblo de Taos)	Lowest accessible station in AU, impairment.
70	Rio Grande near Los Luceros - 28RGrand623.6	28RGrand623.6	Rio Grande (Ohkay Owingeh bnd to Embudo Creek)	Lowest station in AU, impairment.
71	Rio Grande abv NM-CO border at USGS gage 08249200 in CO - 28RGrand764.6	28RGrand764.6	Unassessed Waters with no AU	State line station.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
72	Rio Grande abv Red River - 28RGrand704.5	28RGrand704.5	Rio Grande (Red River to CO border)	Lowest station in AU, impairment.
72.1	Rio Grande at Chiflo - 28RGrand716.2	28RGrand716.2	Rio Grande (Red River to CO border)	Moved station due to trail closure.
73	Rio Grande above the Rio Pueblo de Taos - 28RGrand667.3	28RGrand667.3	Rio Grande (Rio Pueblo de Taos to Red River)	Lowest station in AU, impairment.
74	Rio Grande above Espanola at Valdez Bridge - 28RGrand609.5	28RGrand609.5	Rio Grande (Santa Clara Pueblo bnd to Ohkay Owingeh bnd)	Only station in AU, impairment.
75	Rio Grande del Rancho at Hwy 518 bridge - 28RGRanc015.6	28RGRanc015.6	Rio Grande del Rancho (HWY 518 to headwaters)	Only station in AU.
76	Rio Grande del Rancho abv Rio Pueblo de Taos - 28RGRanc000.2	28RGRanc000.2	Rio Grande del Rancho (Rio Pueblo de Taos to HWY 518)	Lowest station in AU, impairment.
77	Rio Hondo above Lake Fork at Taos Ski Valley Parking Lot - 28RHondo027.3	28RHondo027.3	Rio Hondo (Lake Fork Creek to headwaters)	Only station in AU.
78	Rio Hondo at Rio Grande confluence - 28RHondo000.1	28RHondo000.1	Rio Hondo (Rio Grande to USFS bnd)	Lowest station in AU, impairment.
79	RIO HONDO 2.4 MILES BLW STP - 28RHondo022.4	28RHondo022.4	Rio Hondo (South Fork Rio Hondo to Lake Fork Creek)	Below point source, lowest station in AU.
80	Twining WWTP effluent at Taos Ski Valley - NM0022101	NM0022101-M	Rio Hondo (South Fork Rio Hondo to Lake Fork Creek)	Point source.
81	Rio Hondo 1.5 miles above Valdez at USGS gage - 28RHondo014.8	28RHondo014.8	Rio Hondo (USFS bnd to South Fork Rio Hondo)	Only station in AU.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
82	Rio Medio above Santa Cruz River - 28RMedio000.1	28RMedio000.1	Rio Medio (Rio Frijoles to headwaters)	Only station in AU.
83	Rio Pueblo @ Camino del Medio - 28RPuebl009.3	28RPuebl009.3	Rio Pueblo (Picuris Pueblo bnd to headwaters)	Lowest station in AU, impairment.
84	Taos, Town Of WWTP	NM0024066	Rio Pueblo de Taos (Arroyo del Alamo to R Grande del Rancho)	Point source.
85	Rio Pueblo de Taos blw Los Cordovas -- USGS 08276300 - 28RPuebT008.2	28RPuebT008.2	Rio Pueblo de Taos (Arroyo del Alamo to R Grande del Rancho)	Below point source, impairment
86	Rio Pueblo de Taos above Rio Grande del Rancho, near Los Cordovas - 28RPuebT013.2	28RPuebT013.2	Rio Pueblo de Taos (R Grande del Rancho to Taos Pueblo bnd)	Lowest station in AU, impairment.
87	Rio Pueblo de Taos above Rio Grande - 28RPuebT000.1	28RPuebT000.1	Rio Pueblo de Taos (Rio Grande to Arroyo del Alamo)	Lowest station in AU, impairment.
88	Rio Quemado @ CR 81 in Cordova - 28RQuema006.9	28RQuema006.9	Rio Quemado (Rio Arriba Cnty bnd to headwaters)	Only station in AU.
89	Rio Quemado abv Santa Cruz R - 28RQuema000.1	28RQuema000.1	Rio Quemado (Santa Cruz River to Rio Arriba Cnty bnd)	Lowest station in AU, impairment.
90	Rio San Antonio at NM-CO border in Ortiz - 27RSanAn000.4	27RSanAn000.4	Rio San Antonio (CO border to Montoya Canyon)	Only station in AU, impairment.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
91	Rio San Antonio at FR 87 bridge - 27RSanAn025.3	27RSanAn025.3	Rio San Antonio (Montoya Canyon to headwaters)	Lowest accessible station in AU, impairment.
91.1	Rio San Antonio abv Montoya Cyn - 27RSanAn018.7	27RSanAn018.7	Rio San Antonio (Montoya Canyon to headwaters)	Thermograph only. Lowest station in AU, impairment
91.2	Rio Nutritas abv Rio San Antonio - 27RNutri002.0	27RNutri002.0	Rio Nutritas (Rio San Antonio to headwaters)	Unassessed tributary.
91.3	Rio San Antonio abv Rio Nutritas - 27RSanAn031.5	27RSanAn031.5	Rio San Antonio (Montoya Canyon to headwaters)	Thermograph only. Possible standards revision.
92	Rio Santa Barbara @ NM 73 nr Rodarte - 28RSanBa008.0	28RSanBa008.0	Rio Santa Barbara (non-pueblo Embudo Ck to USFS bnd)	Only station in AU, impairment.
93	Rio Santa Barbara at Hodges Campground - 28RSanBa013.2	28RSanBa013.2	Rio Santa Barbara (USFS bnd to confl of E and W forks)	Only station in AU.
94	Rio Tesuque at Tesuque Village Road - 28RTesuq018.5	28RTesuq018.5	Rio Tesuque (Tesuque Pueblo to Little Tesuque Creek)	Only station in AU.
95	Rito de la Olla at bridge on Hwy 518 - 28RiOlla000.8	28RiOlla000.8	Rito de la Olla (Rio Grande del Rancho to headwaters)	Only station in AU.
96	San Cristobal Creek - 28SanCri003.7	28SanCri003.7	San Cristobal Creek (Rio Grande to headwaters)	Only station in AU.
97	Sanchez Creek above Costilla Creek - 28Sanche000.2	28Sanche000.2	Sanchez Canyon (Costilla Creek to headwaters)	Only station in AU.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
98	Santa Cruz Lake (deep) - 28SantaCruzDp	28SantaCruzDp	Santa Cruz Lake	Recreational lake.
99	Santa Cruz R @ NM 106 - 28SanCru003.2	28SanCru003.2	Santa Cruz River (San Clara Pueblo bnd to Santa Cruz Dam)	Lowest station in AU, impairment.
99.1	Santa Cruz River at town of Quarteles - 28SanCru004.2	28SanCru004.2	Santa Cruz River at town of Quarteles - 28SanCru004.2	Habitat Station
100	Santa Cruz River below Santa Cruz Lake - 28SanCru016.0	28SanCru016.0	Santa Cruz River (San Clara Pueblo bnd to Santa Cruz Dam)	Lake outlet.
101	Santa Cruz River at USGS gage 08291000 - 28SanCru019.1	28SanCru019.1	Santa Cruz River (Santa Cruz Reservoir to Rio en Medio)	Lake inlet, only station in AU.
102	South Fork Rio Hondo above Rio Hondo - 28SFRHon000.1	28SFRHon000.1	South Fork Rio Hondo (Rio Hondo to headwaters)	Only station in AU.
103	Tesuque Creek (south fork) above Hyde Park Road (Hwy 475) - 28SFkTes000.5	28SFkTes000.5	South Fork Tesuque Creek (Tesuque Creek to headwaters)	Only station in AU.
104	Tesuque Creek at gage 08302500 near Santa Fe - 28TesuCr001.5	28TesuCr001.5	Tesuque Creek (Rio Tesuque to confl of forks)	Only station in AU.
105	Tienditas Creek abv Rio Fernando de Taos (Need to Recon.)	28Tiendi002.1	Tienditas Creek (R Fernando de Taos to headwaters)	Only station in AU.
106	Rio de las Trampas @ Vallecito - 28Trampa002.8	28Trampa002.8	Trampas Creek (Rio Embudo to headwaters)	Lowest station in AU.
107	Unnamed Arroyo above Rio Pueblo de Taos	28Unnamed000.1	Unnamed Arroyo (Rio Pueblo de Taos to Taos WWTP)	Below point source.

Map #	Station Name	Station ID	Assessment Unit	Rationale/ Comments
108	Ute Creek above Costilla Creek at Hwy 196 in Amalia - 28UteCre000.3	28UteCre000.3	Ute Creek (Costilla Creek to headwaters)	Only station in AU.
109	Vidal Creek above Comanche Creek - 28VidalC000.1	28VidalC000.1	Vidal Creek (Comanche Creek to headwaters)	Only station in AU, impairment.
110	West Fork Red River abv Middle Fork Red R - 28WFkRed000.1	28WFkRed000.1	West Fork Red River (Red River to headwaters)	Only station in AU.
111	Rio Nambe abv Pueblo Boundary - 28RNambe007.3	28RNambe007.3	Rio Nambe (Nambe Pueblo bnd to headwaters)	Only station in AU

Figure 2. Northeast project area and sampling locations.

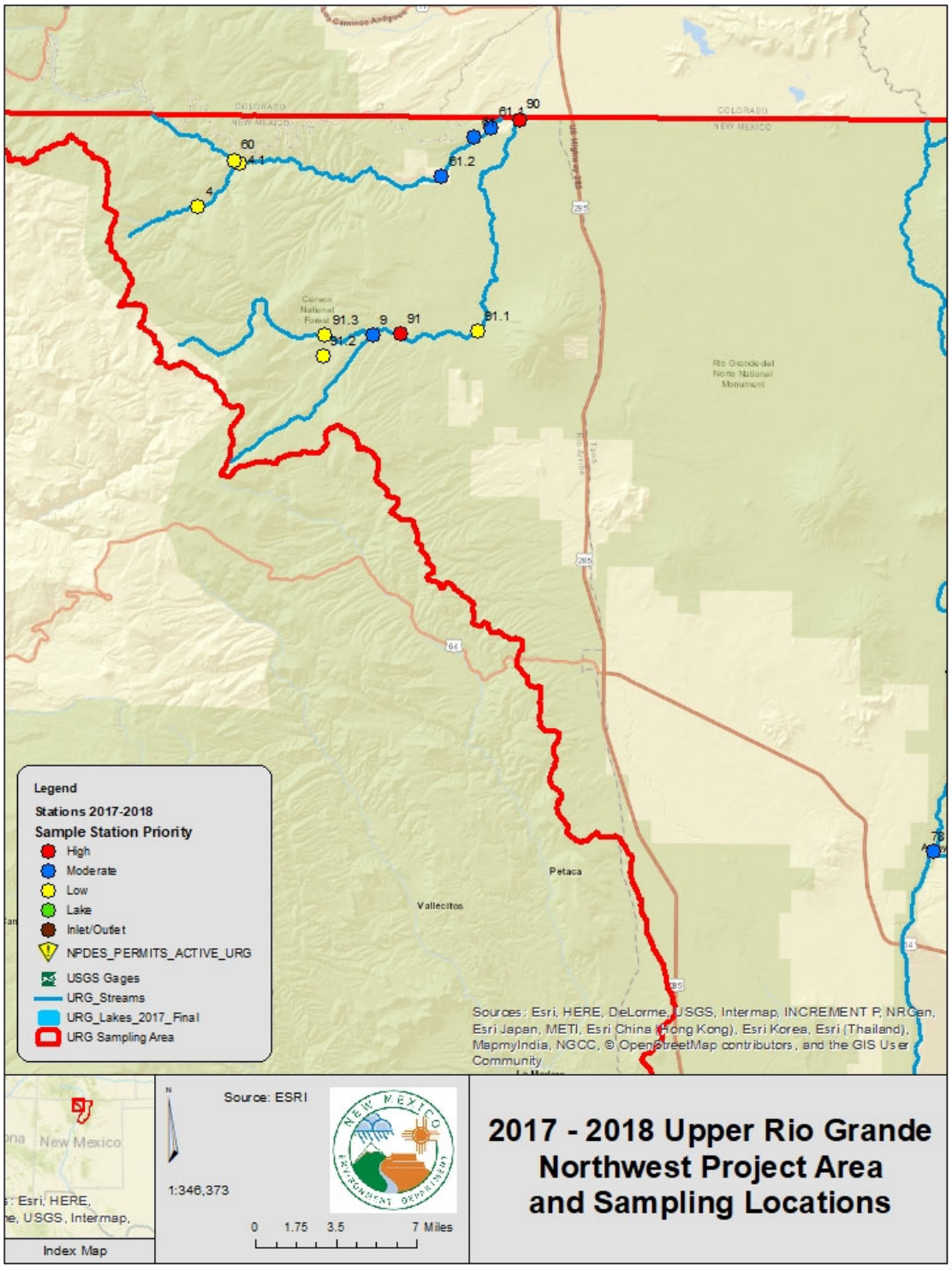


Figure 3. Northwest project area and sampling locations.

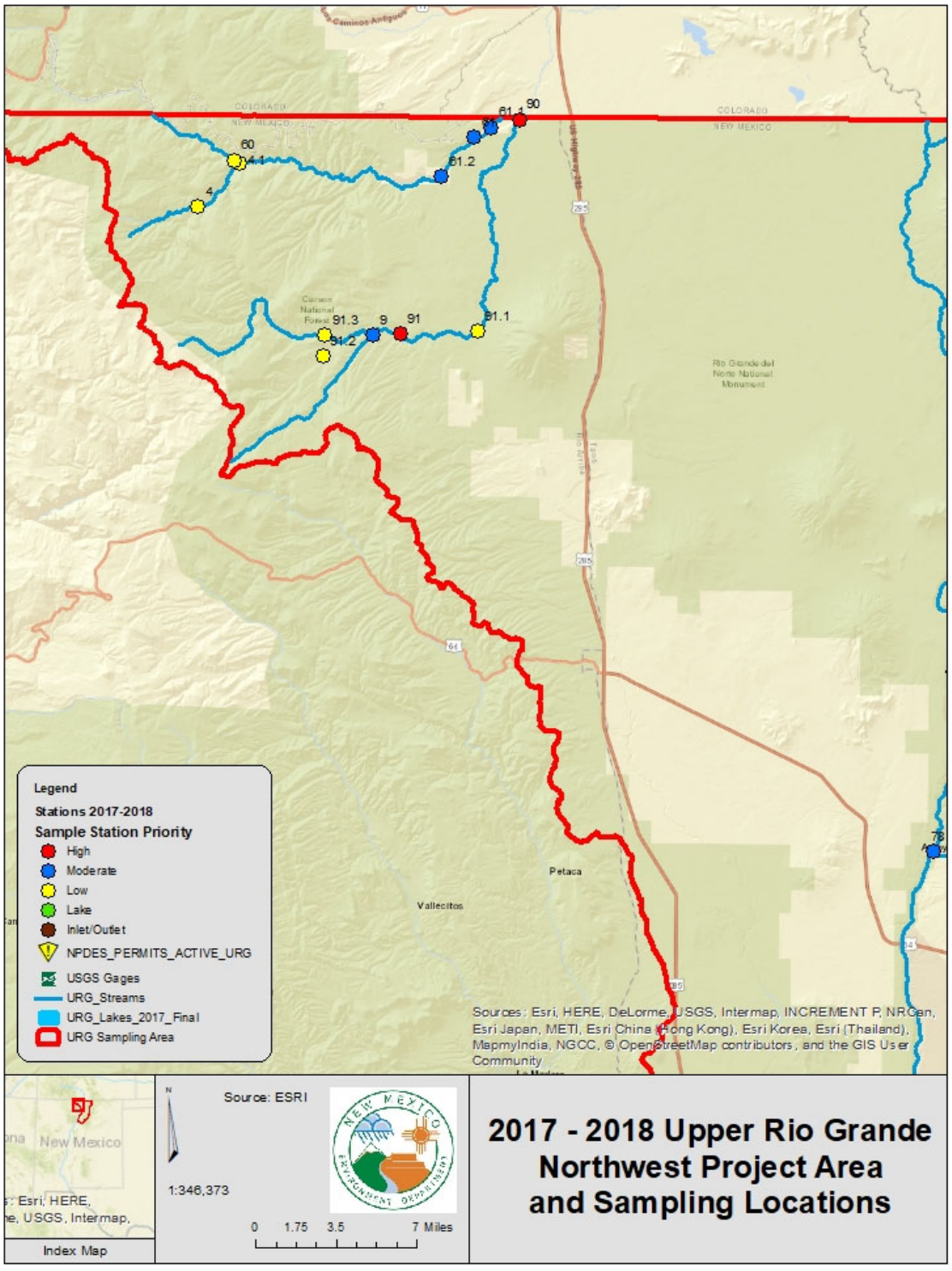


Figure 4. Central project area and sampling locations.

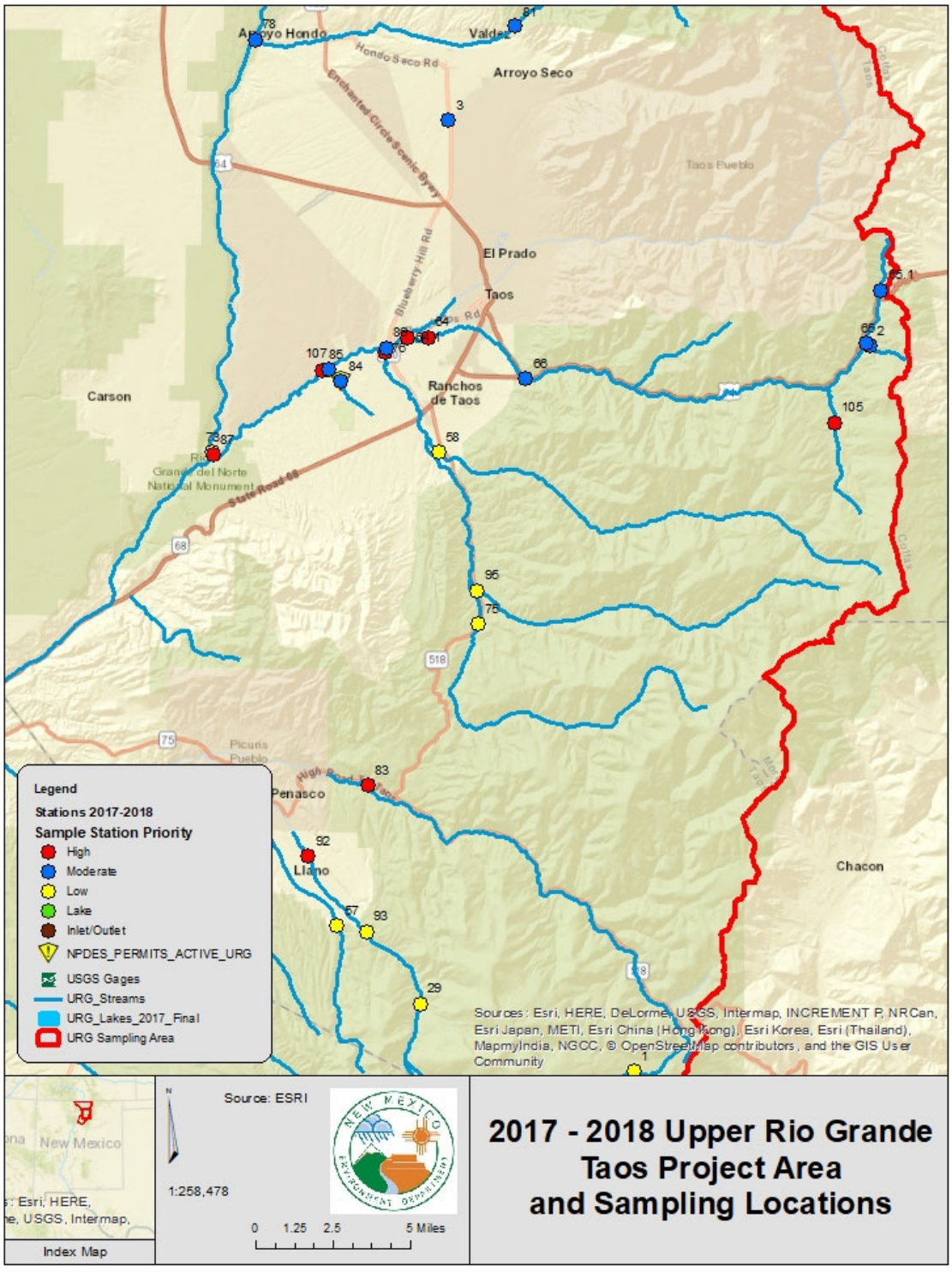
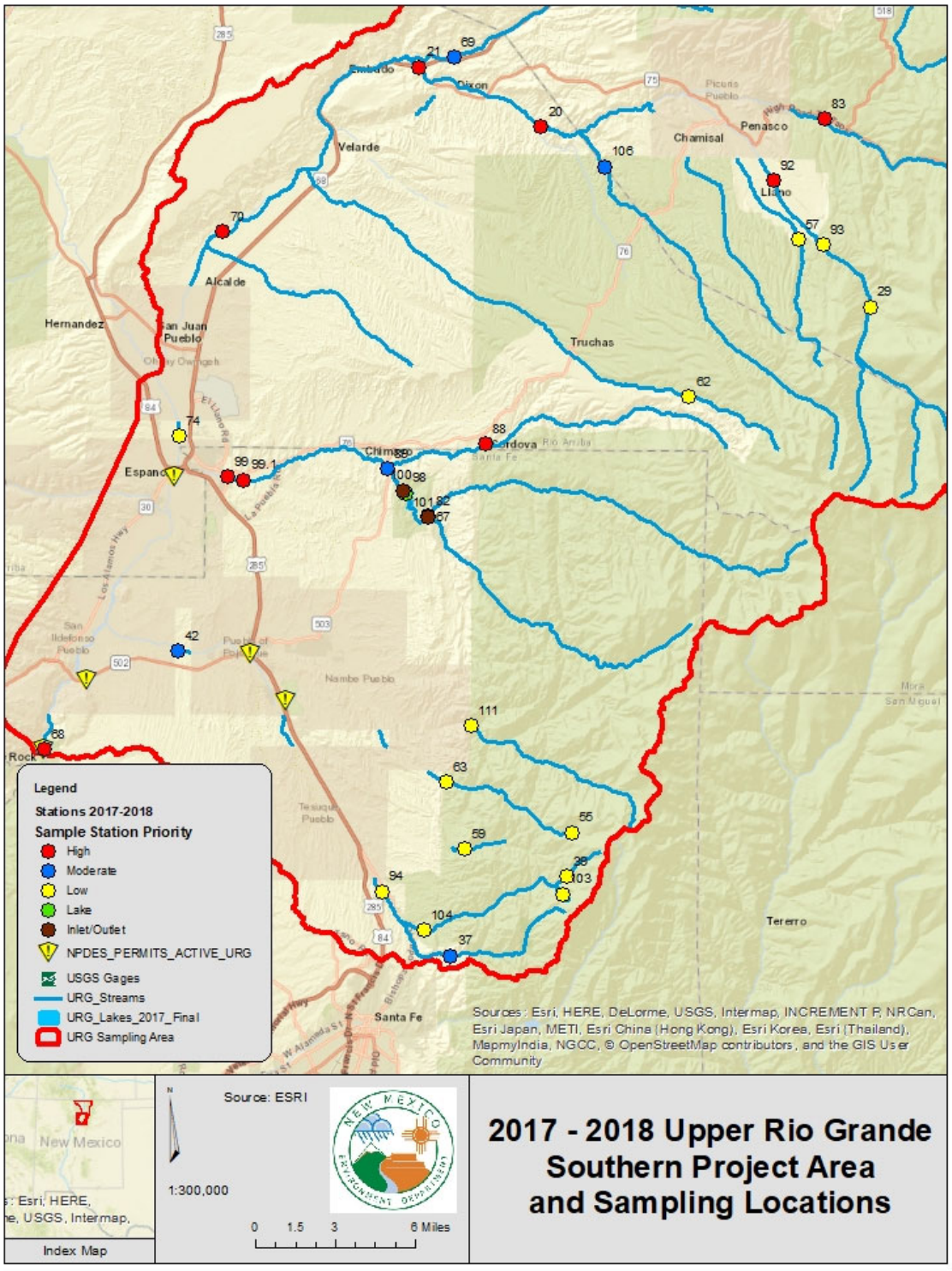


Figure 5. Southern project area and sampling locations.



3.0 DOCUMENTATION

Project documents include the field sampling plan, probable source sheets, calibration records, field sheets (including sonde and thermograph deployment/retrieval sheets), electronic data logger downloads, data validation and verification records, sample collection data, lab submittal forms, and records of analytical data in hard copy or in electronic form. Documents are maintained in accordance with the requirements of the SWQB Quality Assurance Project Plan (QAPP; NMED/SWQB 2016b).

Project documentation will include narrative descriptions of progress throughout the life of the project relating to planning and implementation efforts, including deviations from the original plan and issues that arise along with any associated corrective actions.

Project activities will be documented in SWQB Monitoring Field Sheets. Information from field sheets are entered in the SWQB database or maintained in the Project Coordinator's survey files at the conclusion of the project. Analytical results are electronically transferred into the Bureau's database and eventually moved to US EPA'S Water Quality Exchange database. The project is completed with the finalization of this Survey Report.

4.0 SAMPLING SUMMARY

4.1 Methods

All data were collected in accordance with procedures documented in the SWQB QAPP (NMED/SWQB 2016b) and the applicable SWQB Standard Operating Procedures for Data Collection available at https://www.env.nm.gov/surface-water-quality/protocols-and-planning/. Water quality samples were submitted to the SLD or processed in the SWQB laboratory in accordance with procedures as outlined in the SWQB SOPs.

4.2 Chemistry Sampling

For the survey, one chemical sampling station was planned near the lower end of each AU, access permitting, and at actively discharging NPDES permit locations in the watershed. Additional stations were located to document the conditions downstream of potential pollution sources and where AU or water quality standards revisions are recommended. Stations from previous surveys were used whenever possible to evaluate trends. Water samples for chemical analyses were submitted to the New Mexico Scientific Laboratory Division (SLD). E. coli samples were processed in the SWQB laboratory or with mobile equipment. Table 6 outlines the water quality analytes measured and the sampling conducted for each analyte during the two-year survey. In addition to the analytes listed, field parameters (temperature, specific conductance, salinity, dissolved oxygen concentration, dissolved oxygen saturation, pH, and turbidity) were measured at each site using a multi-parameter sonde.

Table 6. Chemistry Sampling Summary

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
1	Alamitos Creek abv FR 161 - 28Alamit003.6	4	4	4	4	4	4	4	4	4	4										
2	Apache Canyon abv Rio Fernando - 28Apache000.2	8	5	8	5	4	3	4	3	8	5										
3	Arroyo Seco @ NM230 - 28ArrSec12.4	8	5	8	5	4	3	4	3	8	5										
4	Beaver Creek blw Diablo Creek - 27Beaver004.6	4	3	4	3	4	2	4	2	4	3										
4.1	Beaver Creek abv Rio de los Piños - 27Beaver000.1	1	1	1	1	1	1	1	1	1	1										
5	Bitter Creek about 100 meters abv Red River - 28Bitter000.1	4	5	4	5	3	3	3	3	4	5										
5.1	Bitter Creek abv town of Red River - 28Bitter003.0																				
6	Bobcat Creek at NM Hwy 578 - 28Bobcat000.3	4	4	4	4	4	4	4	4	4	4										
7	Cabresto Creek at NM Hwy 38 - 28Cabres000.9	4	4	4	4	4	4	4	4	4	4										
8	Cabresto Lake Deep	6	5	6	5	4	4	4	4	6	5	2	1	2	1	2	2				
9	Canada Tio Grande abv Rio San Antonio - 27CTGran000.7	8	8	8	8	6	6	6	6	8	8										
9.1	Capulin Creek at Boundary Trail - 30Capuli008.5	3	3	3	3	3	3	3	3	3	3										
10	Casias Creek above Costilla Reservoir - 28Casias000.7	2	2	2	2	2	2	2	2	2	2										
11	Chuckwagon Cr abv Comanche Cr - 28Chuckw000.1	10	6	10	6	6	5	6	5	10	6										
12	Columbine Creek at Columbine Campground - 28Columb000.2	4	4	4	4	4	4	4	4	4	4										
13	Comanche Creek above Costilla Creek - 28Comanc000.1	8	8	8	8	4	4	4	4	8	8										
14	Cordova Creek above Costilla Creek above Hwy 196 - 28Cordov001.5	8	7	8	7	4	4	4	4	8	7										
15	Costilla Creek at NM Hwy 522 - 28Costil001.6	8	4	8	4	4	2	4	2	8	4										
16	Costilla Creek abv Comanche Cr - 28Costil032.5	2	2	2	2	2	2	2	2	2	2										
17	Costilla Creek abv Costilla Reservoir - 28Costi042.6	4	1	4	1	4	1	4	1	4	1										

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
18	Costilla Creek above Costilla at Hwy 196 bridge - 28Costil005.7	4	5	4	5	4	4	4	4	4	5										
19	E Fk Red River abv Red River - 28EFkRed000.1	4	5	4	5	3	3	3	3	4	5										
20	Embudo Creek above Canoncito - 28Embudo010.1	10	10	10	10	6	6	6	6	10	10										
21	Embudo Creek at Hwy 68 bridge nr Dixon at USGS gage 0827900 - 28Embudo000.8	10	10	10	10	6	7	6	6	10	10	2	2	2	2	2	2				
22	Fernandez Cr abv Comanche Cr - 28Fernan000.1	4	4	4	4	4	4	4	4	4	4										
23	Gold Cr abv Comanche Cr - 28GoldCr000.1	8	7	8	7	6	7	6	6	8	7										
24	Goose Creek above Red River - 28GooseC000.1	10	10	10	10	6	7	6	6	10	10										
25	Goose Creek below Goose Lake - 28GooseC008.0	6	3	6	3		0			6	3										
26	Goose Lake - 28GooseLakeDp	6	4	6	4	5	4	5	4	6	4										
26.1	Goose Lake Inlet - 28GooseLakeIn	4	1	4	1	1	1	1	1	4	1										
27	Grassy Creek above Comanche Creek - 28Grassy000.1	8	8	8	8	4	4	4	4	8	8										
28	Holman Cr abv Comanche Cr - 28Holman000.1	8	5	8	5	4	3	4	3	8	5										
29	Jicarita Creek abv Rio Santa Barbara - 28Jicari000.1	5	5	5	5	4	4	4	4	5	5										
30	La Cueva Cr abv Costilla Cr - 28LaCuev000.2	2	2	2	2	2	2	2	2	2	2										
31	La Belle Cr abv Comanche Cr - 28LaBell000.1	8	9	8	9	4	4	4	4	8	9										
32	Lake Fork below Cabresto Lake - 28LkFork001.8	6	4	6	4		0			6	4										
33	Lake Fork above Cabresto Lake - 28LkFkCa002.4	6	5	6	5		0			6	5										
34	Lake Fork Creek abv Rio Hondo - 28LKFork000.1	6	6	6	6	4	4	4	4	6	6										
35	Latir Creek at Costilla Creek - 28LatirC000.1	2	2	2	2	2	2	2	2	2	2										
36	Little Costilla Cr abv Comanche Cr - 28LCosti000.1	4	4	4	4	4	4	4	4	4	4										

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
37	Little Tesuque Creek at lowest crossing of Hyde Park Road (NM 475) - 28LTesuq004.5	5	4	5	4	4	3	4	3	5	4										
38	Middle Fork Red River abv Red River - 28MFkRed000.1	4	4	4	4	4	4	4	4	4	4										
38.1	Middle Fork Red River blw West Fork Red River - 28MFkRed002.1	2		2		2		2		2											
39	N.FORK OF TESUQUE CR ABV HYDE PARK (475) RD - 28NFkTes000.6	4	4	4	4	4	4	4	4	4	4										
40	Pioneer Creek about 400 yards above the Red River - 28Pionee000.7	4	4	4	4	4	4	4	4	4	4										
41	Placer Creek, about 400 yds above Red River - 28Placer000.2	4	4	4	4	4	4	4	4	4	4										
42	Pojoaque River at State Road 84D - 28Pojoaq005.0	8	4	8	4	4	3	4	3	4	4	2	1	2	1					4	1
43	Powderhouse Cr abv Costilla Cr - 28Powder000.1	4	4	4	4	4	4	4	4	4	4										
44	Red River blw Goose Creek - 28RedRiv034.8	8	9	8	9	5	6	5	6	8	9										
44.1	Red River at Elephant Rock C.G. bridge blw WWTP outfall - 28RedRiv026.7																				
45	Questa Mine outfall 001 - NM0022306	4	7	4	7	4	8	4	8	4	6	1	2	1	2	1	2				
46	Red River abv Molycorp outfall 002 - 28RedRiv009.0	8	8	8	8	4	5	4	5	8	8										
47	NMG&FD/Red River Fish Hatchery-001	8	8	8	8	2	2	2	2	4	3										
48	NMG&FD/Red River Fish Hatchery-002	8	8	8	8		0														
49	NMG&FD/Red River Fish Hatchery-003	8	8	8	8		0														
50	Red River above Fish Hatchery and diversion - 28RedRiv005.9	8	9	8	9	4	4	4	4	8	9	2	2	2	2	2	2				
50.1	Red River below Fish Hatchery near USGS - 28RedRiv005.3		3		3		2		2		3										
51	Red River above Rio Grande - 28RedRiv000.9	8	5	8	5	4	3	4	3	8	5										

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
52	Red River at Molycorp boundary - 28RedRiv024.4	8	8	8	8	4	5	4	5	8	8	1	1	1	1	1	1				
53	Red River abv Capulin Cr. - 28RedRiv016.2	8	8	8	8	4	5	4	5	8	8										
54	Red River at USGS gage (Questa) - 28RedRiv014.0	8	8	8	8	4	5	4	5	8	8		1		1		1				
55	Rio en Medio 200 m below ski area parking lot - 28REnMed016.3	4	4	4	4	3	3	3	3	4	4										
56	Red River WWTP effluent - NM0024899	8	8	8	8	4	4	4	4	8	8										
57	Rio Chiquito near National Forest boundary - 28RChiqB008.4	4	4	4	4	4	4	4	4	4	4										
58	Rio Chiquito abv Rio Grande del Rancho - 28RChiqA001.1	4	2	4	2	4	2	4	2	4	2										
59	Rio Chupadero at FR 102 - 28RChupa014.3	4	4	4	3	4	3	4	3	4	4										
59.1	Rito de los Frijoles at Bandelier Visitor Center - 30RFrijo003.0	4	4	4	4	4	4	4	4	4	4										
60	Rio de los Piños abv Beaver Cr - 27RPinos024.9	4	4	4	4	4	4	4	4	4	4										
61	Rio de los Piños at gage - 27RPinos002.6	8	8	8	8	4	5	4	5	8	8	2	2	2	2	2	3				
61.1	Rio de los Piños @ CR 443B - 27RPinos001.3																				
61.2	Rio de los Piños near Ortiz - 27RPinos007.3																				
62	Rio de Truchas abv Rio de la Cebolla - 28RTruch028.3	4	4	4	4	4	4	4	4	4	4										
63	Rio en Medio at USFS boundary - 28REnMed007.2	4	4	4	4	4	4	4	4	4	4										
64	Rio Fernando de Taos near Lower Ranchito - 28RFerna001.5	10	9	10	9	6	5	6	5	10	9										
64.1	Rio Fernando de Taos abv Rio Pueblo de Taos - 28RFerna000.3																				
65	Rio Fernando de Taos above Apache Canyon - 28RFerna028.7	8	6	8	6	4	3	4	3	8	6										
65.1	Rio Fernando de Taos at Hwy 64 bridge - 28RFerna031.7																				

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
66	Rio Fernando de Taos at USGS gage - 28RFerna008.2	8	7	8	7	4	4	4	4	8	7										
67	Rio Frijoles abv Santa Cruz R- 28RFrijo000.1	4	2	4	2	4	4	4	4	4	2										
68	Rio Grande at Buckman Road - 30RGrand586.5	10	9	10	9	8	7	8	7	10	7	6	6	6	6	6	6	6	3	6	3
69	Rio Grande blw Rinconada - 28RGrand645.6	8	8	8	8	4	4	4	4	8	7										
70	Rio Grande near Los Luceros - 28RGrand623.6	10	10	10	10	6	7	6	6	10	9	2	2	2	2	2	2				
71	Rio Grande abv NM-CO border at Lobatos Bridge - 28RGrand764.6	10	9	10	9	6	7	6	7	10	9										
72	Rio Grande abv Red River - 28RGrand704.5	10	5	10	5	6	3	6	3	10	5										
72.1	Rio Grande at Chiflo - 28RGrand716.2		4		4		4		4		3										
73	Rio Grande above the Rio Pueblo de Taos - 28RGrand667.3	4	3	4	4	4	4	4	4	4	3										
74	Rio Grande above Espanola at Valdez Bridge - 28RGrand609.5	4	4	4	4	4	5	4	4	4	4							3	2	2	2
75	Rio Grande del Rancho at Hwy 518 bridge - 28RGRanc015.6	4	4	4	4	4	4	4	4	4	4										
76	Rio Grande del Rancho abv Rio Pueblo de Taos - 28RGRanc000.2	10	9	10	9	6	6	6	6	10	8										
77	Rio Hondo above Lake Fork at Taos Ski Valley Parking Lot - 28RHondo027.3	4	5	4	5	4	4	4	4	4	3										
78	Rio Hondo at Rio Grande confluence - 28RHondo000.1	8	8	8	8	4	5	4	5	8	7	2	3	2	3	2	3				
79	RIO HONDO 2.4 MILES BLW STP - 28RHondo022.4	8	8	8	8	4	4	4	4	8	8										
80	Twining WWTP effluent at Taos Ski Valley - NM0022101	8	7	8	7	4	4	4	4	8	7										
81	Rio Hondo 1.5 miles above Valdez at USGS gage - 28RHondo014.8	8	8	8	8	4	4	4	4	8	7										
82	Rio Medio above Santa Cruz River - 28RMedio000.1	4	4	4	4	4	4	4	4	4	4										

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
83	Rio Pueblo @ Camino del Medio - 28RPuebl009.3	10	10	10	10	6	6	6	6	10	10										
84	Taos, Town Of WWTP	8	7	8	7	3	3	3	3	8	7										
85	Rio Pueblo de Taos blw Los Cordovas -- USGS 08276300 - 28RPuebT008.2	10	8	10	8	6	6	6	6	10	8										
86	Rio Pueblo de Taos above Rio Grande del Rancho, near Los Cordovas - 28RPuebT013.2	6	6	6	6	2	2	2	2	6	6										
87	Rio Pueblo de Taos above Rio Grande - 28RPuebT000.1	10	10	10	10	6	7	6	6	10	9	2	2	2	2	2	2				
88	Rio Quemado @ CR 81 in Cordova - 28RQuema006.9	10	10	10	10	6	6	6	6	10	9										
89	Rio Quemado abv Santa Cruz R - 28RQuema000.1	8	8	8	8	4	4	4	4	8	7										
90	Rio San Antonio at NM-CO border in Ortiz - 27RSanAn000.4	10	8	10	8	6	6	6	6	10	8										
91	Rio San Antonio at FR 87 bridge - 27RSanAn025.3	8	8	8	8	6	6	6	6	8	8										
91.1	Rio San Antonio abv Montoya Cyn - 27RSanAn018.7																				
91.2	Rio Nutritas abv Rio San Antonio - 27RNutri002.0	4	5	4	5	4	4	4	4	4	5										
91.3	Rio San Antonio abv Rio Nutritas - 27RSanAn031.5		1		1		0				1										
92	Rio Santa Barbara @ NM 73 nr Rodarte - 28RSanBa008.0	10	10	10	10	6	6	6	6	10	9										
93	Rio Santa Barbara at Hodges Campground - 28RSanBa013.2	4	4	4	4	4	4	4	4	4	4										
94	Rio Tesuque at Tesuque Village Road - 28RTesuq018.5	4	2	4	2	4	2	4	2	4	2										
95	Rito de la Olla at bridge on Hwy 518 - 28RiOlla000.8	4	4	4	4	4	4	4	4	4	4										
96	San Cristobal Cr @ NM 522 - 28SanCri003.7	2	2	2	2	2	2	2	2	2	2										
97	Sanchez Creek above Costilla Creek - 28Sanche000.2	4	3	4	3	4	3	4	3	4	3										
98	Santa Cruz Lake (deep) - 28SantaCruzDp	6	5	6	5	4	4	4	4	6	5	2	2	2	2	2	2				

Map #	Station Name	TDS/TSS		Total Nutirents (TP, NH4, TKN, Nitrate+Nitrite)		Total Metals[1]		Dissolved Metals[2]		E. Coli		Volatile Organics[3]		Semi-Volatile Organics3		Radionuclides4		Cyanide		PCBs	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
99	Santa Cruz R @ NM 106 - 28SanCru003.2	10	10	10	10	6	6	6	6	10	9										
99.1	Santa Cruz River at town of Quarteles - 28SanCru004.2																				
100	Santa Cruz River below Santa Cruz Lake - 28SanCru016.0	6	4	6	4		0			6	4										
101	Santa Cruz River at USGS gage 08291000 - 28SanCru019.1	4	5	4	5	4	4	4	4	4	5										
102	South Fork Rio Hondo above Rio Hondo - 28SFRHon000.1	8	8	8	8	4	4	4	4	8	7										
103	Tesuque Creek (south fork) above Hyde Park Road (Hwy 475) - 28SFkTes000.5	4	4	4	4	4	4	4	4	4	3										
104	Tesuque Creek at gage 08302500 near Santa Fe - 28TesuCr001.5	4	4	4	4	4	4	4	4	4	3										
105	Tienditas Creek abv Rio Fernando de Taos - 28Tiendi002.1	10	9	10	9	6	6	6	6	10	9										
106	Rio de las Trampas @ Vallecito - 28Trampa002.8	8	8	8	8	4	4	4	4	8	8										
107	Unnamed Arroyo above Rio Pueblo de Taos	8	7	8	7	3	3	3	3	8	7										
108	Ute Creek above Costilla Creek at Hwy 196 in Amalia - 28UteCre000.3	4	4	4	4	4	5	4	4	4	4										
109	Vidal Creek above Comanche Creek - 28VidalC000.1	8	8	8	8	6	7	6	7	8	8										
110	West Fork Red River abv Middle Fork Red R - 28WFkRed000.1	2	4	2	4	1	3	1	3	2	4										
111	Rio Nambe abv Nambe Pueblo bnd - 28RNambe007.3	3	4	3	4	3	4	3	4	3	4										
Totals		725	672	725	672	460	460	460	453	701	632	26	27	26	27	24	28	9	5	12	6
Percent Completed		92.7		92.7		100.0		98.5		90.2		103.8		103.8		116.7		55.6		50.0	

[1] Suite includes aluminum, mercury, selenium

[2] Suite includes aluminum, antimony, arsenic, barium, boron, beryllium, calcium, cadmium, chromium, cobalt, copper, lead, manganese, molybdenum, mercury, magnesium, nickel, selenium, silicon, silver, thallium, tin, uranium, vanadium and zinc.

[3] See Appendix B for a complete list of analytes.

[4] Radionuclide samples include gross alpha and gross beta and depending on detections may include Uranium mass and Radium 226 + 228.

4.3 Long-term Dataset, Biological, and Physical Habitat Sampling

Temperature data loggers (thermographs) were deployed at strategic locations within the study area to record maximum and maximum-duration temperature data. Multi-parameter data loggers (sondes) were deployed at stations in selected assessment units primarily to examine diel fluxes in pH and dissolved oxygen (DO) and to record turbidity data for assessment against maximum-duration thresholds. Thermographs and sondes were programmed to record at 15-minute intervals. Chlorophyll and phytoplankton data were collected at lake stations for nutrient assessments. Table 7 summarizes the long-term, biological, and physical habitat sampling conducted during the survey.

Table 7. Summary of Long-Term Deployment, Biological and Physical Habitat Sampling 2017-2018

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
1	Alamitos Creek abv FR 161		1	1	1		1		1	1	1	4	5	1	1				
2	Apache Canyon abv Rio Fernando - 28Apache000.2		1	2	1	1	1	1	1	2	1	8	9	1					
3	Arroyo Seco @ NM230 - 28ArrSec12.4	1		1				1		2	1	8	8	1					
4	Beaver Creek blw Diablo Creek - 27Beaver004.6		1	1			1		1	1	1	4	3	1	1				
4.1	Beaver Creek abv Rio de los Piños - 27Beaver000.1			1			1			1	1	1	1						
5	Bitter Creek about 100 meters abv Red River - 28Bitter000.1			2		1				1	1	5	5	1					
5.1	Bitter Creek abv town of Red River - 28Bitter003.0									1	1				1				
6	Bobcat Creek at NM Hwy 578 - 28Bobcat000.3		1	1	1	2	1	1	1	2	2	4	4	1					
7	Cabresto Creek at NM Hwy 38 - 28Cabres000.9		1	1						1	1	4	4	1	1				
8	Cabresto Lake Deep															6	5		
9	Canada Tio Grande abv Rio San Antonio - 27CTGran000.7	1	1	1				1		2	2	8	8	1	1				
9.1	Capulin Creek at Boundary Trail - 30Capuli008.5									1		4	3	1					
10	Casias Creek above Costilla Reservoir - 28Casias000.6			1						1		4	2	1					
11	Chuckwagon Cr abv Comanche Cr - 28Chuckw000.1	1	1	1	1	1	1	1	1	2	2	10	8	1	1				
12	Columbine Creek at Columbine Camp Ground - 28Columb000.2			1	1	1	1	1	1	1	1	4	4	1	1				
13	Comanche Creek above Costilla Creek - 28Comanc000.1		2	2		1	1	1	1	1	1	8	8	1	1				

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
14	Cordova Creek above Hwy 196 - 28Cordov000.6	1	1	1	1	1	1	1	1	1	1	8	9	1	1				
15	Rio Costilla at NM Hwy 522 - 28RCosti001.6	1	2	1	1	1		1		2		8	7	1	1				
16	Costilla Cr abv Comanche Cr - 28RCosti032.5		1	1	1	1	1	1	1	2	2	4	2	1	1			2	1
17	Costilla Creek above Costilla Reservoir - 28Costi042.6			1						1	1	4	2	1	1				
18	Costilla Creek above Costilla at Hwy 196 bridge - 28RCosti005.7		1	1	1	1	1	1	1	2	2	4	5	1	1			1	
19	E Fk Red River above Upper Red River Valley Road		1	1	1	1	1	1	1	1	1	4	5	1	1				
20	Embudo Creek above Canoncito - 28Embudo010.1	2	2	1	1	1	1	1	1	2	1	10	10	1	1				
21	Embudo Creek at Hwy 68 bridge nr Dixon at USGS gage 0827900 - 28Embudo000.8	2	2	1	1		1	1	1	1		10	10	1	1				
22	Fernandez Cr abv Comanche Cr - 28Fernan000.1	1	2	1	1	1	1	1	1	1	2	4	4	1	1				
23	Gold Cr abv Comanche Cr - 28GoldCr000.1	1		1				1		1	1	8	9	1	1			2	1
24	Goose Creek above Red River - 28GooseC000.1		1	1	1	1	1	1	1	1	1	9	10	1	1				
25	Goose Creek below Goose Lake - 28GooseC008.0											6	3						
26	Goose Lake - 28GooseLakeDp															6	4		
26.1	Goose Lake Inlet - 28GooseLakeIn	1										3	1						
27	Grassy Creek above Comanche Creek - 28Grassy000.1	1	1	1	1	1	1	1	1	1	1	8	8					1	
28	Holman Cr abv Comanche Cr - 28Holman000.1	1		1				1		1	1	8	8	1	1			1	
29	Jicarita Cr abv Rio Santa Barbara	1	1	1	1	1		1	1	1	1	5	6	1	1				
30	La Cueva Cr abv Costilla Cr - 28LaCuev000.2			1	1	1	1	1		1	1	2	2	1	1				
31	La Belle Cr abv Comanche Cr - 28LaBell000.1	1	2	1	1	1	1	1	1	1	1	10	9	1	1			1	1
32	Lake Fork Creek below Cabresto Lake - 28LkFork001.8											6	4						
33	Lake Fork Creek above Cabresto Lake - 28LkFork002.4			1							1	6	6	1	1				
34	Lake Fork Creek abv Hondo - 28LKFork000.1	1	2	1	1	1	1	1	1	1	1	6	6	1	1				
35	Latir Creek at Costilla Creek - 28LatirC000.1			1	1	1	1	1	1	1	1	2	2	1	1				
36	Little Costilla Cr abv Comanche Cr - 28LCosti000.1		1	1	1	1	1	1	1	1	1	4	4	1	1				

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
37	Little Tesuque Creek at first crossing of Hyde Park Road (Hwy 475) - 28LTesuq004.5	1	2	1	1	1	1	1	1		1	5	7		1				
38	Middle Fork Red River abv Red River		1	1	1	1	1	1		1	1	4	4	1	1				
38.1	Middle Fork Red River blw West Fork Red River - 28MFkRed002.1									1	1								
39	N. FORK OF TESUQUE CR ABV HYDE PARK (475) RD - 28NFkTes000.6	1	2	1	1	1	1	1	1	1	1	4	4	1	1				
40	Pioneer Creek about 400 yards above the Red River - 28Pionee000.7		2	2	2	1	2	2	2	1	1	4	4	1	1				
41	Placer Creek, about 400 yds above Red River - 28Placer000.2		1	1	1	1	1	1	1	1	1	4	4	1	1				
42	Pojoaque River at State Road 84D	1		1				1				8	8	1					
43	Powderhouse Cr abv Costilla Cr - 28Powder000.1			1						1	1	4	4	1	1				
44	Red River blw Goose Creek - 28RedRiv034.8	1	2	1	1	1	1	1	1	1	1	7	8		1			2	1
44.1	Red River at Elephant Rock C.G. bridge blw WWTP outfall - 28RedRiv026.7	1	1							1	1								
45	Questa Mine outfall 001 - NM0022306																		
46	Red River abv Molycorp Outfall 002 - 28RedRiv009.0											8	8	1				1	
47	NMG&FD/Red River Fish Hatchery-001																		
48	NMG&FD/Red River Fish Hatchery-002																		
49	NMG&FD/Red River Fish Hatchery-003																		
50	Red River above Fish Hatchery and diversion - 28RedRiv005.9											8	9					1	
50.1	Red River below Fish Hatchery near USGS - 28RedRiv005.3		1		1		1		1				3	1	1			1	1
51	Red River above Rio Grande - 28RedRiv000.9	2	1	1				1		1	1	8	5						
52	Red River at Molycorp Boundary - 28RedRiv024.4											8	8						
53	Red River abv Capulin Cr. - 28RedRiv016.2											8	8						
54	Red River at USGS gage (Questa) - 28RedRiv014.0	1		1				1		1	1	8	8	1	1			1	1

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
55	Rio en Medio 200 m below ski area parking lot - 28RMedio016.3	2	3	1	1	1	1	1	1	1	1	4	4	1	1				
56	Red River WWTP effluent - NM0024899																		
57	Rio Chiquito near National Forest boundary - 28RChiqB008.4	1	2	1	1	1	1	1	1	1	1	4	4	1	1				
58	Rio Chiquito abv Rio Grande del Rancho - 28RChiqA001.1		1	1	1	1	1	1	1	1	1	4	3	1	1				
59	Rio Chupadero at FR 102 - 28RChupa014.3	2	2	1		1	1			1	1	4	5	1	1				
59.1	Rito de los Frijoles at Bandelier Visitor Center - 30RFrijo003.0									1		4	4	1					
60	Rio de los Piños abv Beaver Cr - 27RPinos024.9			1				1		2	2	4	4	1					
61	Rio de los Piños at USGS gage - 27RPinos002.6		1	1	1		1	1	1			8	8	1					
61.1	Rio de los Piños @ CR 443B - 27RPinos001.3			1				1		2	2								
61.2	Rio de los Piños near Ortiz - 27RPinos007.3														1				
62	Rio de Truchas abv Rio de la Cebolla - 28RTruch028.3	1	1	1	1	1	1	1	1	1	1	4	5	1	1				
63	Rio en Medio at USFS boundary - 28RMedio007.2	1	2	1	1	1	1	1	1	1	1	4	4	1	1				
64	Rio Fernando de Taos near Lower Ranchito - 28RFerna001.5	2	2	1				1		2	2	10	10	1				1	
64.1	Rio Fernando de Taos abv Rio Pueblo de Taos - 28RFerna000.3														1				1
65	Rio Fernando de Taos above Apache Canyon - 28RFerna028.7	1	1	1	1	2	2	1	1	2	1	8	9	1					
65.1	Rio Fernando de Taos at Hwy 64 bridge - 28RFerna031.7					1	1			1	1								
66	Rio Fernando de Taos at USGS gage - 28RFerna008.2	1	1	1		1	1	1		2	1	8	8	1	1				
67	Rio Frijoles above Rio Medio - 28RFrijo000.1		1	1	1	1	1	1	1	2	2	2	4	1	1				
68	Rio Grande at Buckman Road - 30RGrand586.5	2	1	1				1		2	6	11	10						
69	Rio Grande blw Rinconada - 28RGrand645.6	1	1	1	1		1	1	1	2	2	8	8						
70	Rio Grande near Los Luceros - 28RGrand623.6	1	2	1	1	1	1	1	1	2	2	10	10	1					
71	Rio Grande abv NM-CO border at USGS gage 08249200 in CO - 28RGrand764.6	1		1				1		2	1	10	9						

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
72	Rio Grande abv Red River - 28RGrand704.5	1		1				1		2	2	10	5						
72.1	Rio Grande at Chiflo - 28RGrand716.2		1		1		1		1				4						
73	Rio Grande above the Rio Pueblo de Taos - 28RGrand667.3	1		1				1		2	1	4	5						
74	Rio Grande above Espanola at Valdez Bridge - 28RGrand609.5	1	1	1	1	1	1	1	1	2	2	4	4						
75	Rio Grande del Rancho at Hwy 518 bridge - 28RGRanc015.6	1	1	1	1		1	1	1	2	2	4	4	1					
76	Rio Grande del Rancho abv Rio Pueblo de Taos - 28RGRanc000.2	2	2	1	1	2	2	1	1	1	2	10	10	1				1	
77	Rio Hondo above Lake Fork at Taos Ski Valley Parking Lot - 28RHondo027.3			1				1		1	1	4	5	1	1				
78	Rio Hondo at Rio Grande confluence - 28RHondo000.1	2	2	1	1		1	1	1	2	2	8	8	1	1			1	1
79	RIO HONDO 2.4 MILES BLW STP - 28RHondo022.4	1	2	1	1	1	1	1	1	1	1	8	8	1	1			1	1
80	Twining WWTP effluent at Taos Ski Valley - NM0022101																		
81	Rio Hondo 1.5 miles above Valdez at USGS gage - 28RHondo014.8	1	2	1	1	1	1	1	1	1	1	8	8	1	1				
82	Rio Medio above Santa Cruz River - 28RMedio000.1	1	3	1	1	1	1	1	1	2	2	4	4	1	1				
83	Rio Pueblo @ Camino del Medio - 28Pueblo009.3	2	2	1				1		2	2	10	10	1	1				
84	Taos, Town Of WWTP																		
85	Rio Pueblo de Taos blw Los Cordovas -- USGS 08276300 - 28RPuebT008.2	2	2	1	1	1	1	1	1	1		10	8	1	1			1	1
86	Rio Pueblo de Taos above Rio Grande del Rancho, near Los Cordovas - 28RPuebT013.2	1	1	1	1	1	1	1	1	2	2	6	6	1	1				
87	Rio Pueblo de Taos above Rio Grande - 28RPuebT000.1	2	3	1	1		1	1	1	2	2	10	10	1	1			1	1
88	Rio Quemado @ CR 81 in Cordova - 28RQuema006.9	2	2	1	1	1	1	1	1	2	1	10	10	1	1				
89	Rio Quemado abv Santa Cruz R - 28RQuema000.1	2	1	1				1		2	2	8	9	1	1				
90	Rio San Antonio at NM-CO border in Ortiz - 27RSanAn000.4	2	1	1				1		2	2	10	9	1	1				
91	Rio San Antonio at FR 87 bridge - 27RSanAn025.3											9	9		1				

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
91.1	Rio San Antonio abv Montoya Cyn - 27RSanAn018.7	1	1	1	1		1	1	1	2	2								
91.2	Rio Nutritas abv Rio San Antonio - 27RNutri002.0	1	1	1	1		1	1	1	2	2	4	5						
91.3	Rio San Antonio abv Rio Nutritas - 27RSanAn031.5	1		1				1		2	2		1						
92	Rio Santa Barbara @ NM 73 nr Rodarte - 28RSanBa008.0	2	2	2	1	1	1	2	1	2	2	10	10	1					
93	Rio Santa Barbara at Hodges Campground - 28RSanBa013.2	1	2	1	1	1	1	1	1	1	1	4	4	1	1				
94	Rio Tesuque at Tesuque Village Road - 28RTesuq018.5											4	4	1					
95	Rito de la Olla at bridge on Hwy 518 - 28RiOlla000.8	1	1	1	1	1	1	1	1	1	2	4	4	1	1				
96	San Cristobal Creek - 28SanCri003.7		1							1	1	2	2						
97	Sanchez Creek above Costilla Creek - 28Sanche000.1	1	1	1	1	1	1	1	1		1	4	5	1					
98	Santa Cruz Lake (deep) - 28SantaCruzDp															6	5		
99	Santa Cruz R @ NM 106 - 28SanCru003.2	2	2	1	1		1	1	1		1	10	10	1					
99.1	Santa Cruz River at town of Quarteles - 28SanCru004.2												1		1				
100	Santa Cruz River below Santa Cruz Lake - 28SanCru016.0											6	4						
101	Santa Cruz River at USGS gage 08291000 - 28SanCru019.1	2	2	1	1	1	1	1	1	2	1	4	5						
102	South Fork Rio Hondo above Rio Hondo - 28SFRHon000.1	1		1				1		1	1	8	8	1					
103	Tesuque Creek (south fork) above Hyde Park Road (Hwy 475) - 28SFkTes000.5		2	1	1	1	1	1	1	1	1	4	4	1	1				
104	Tesuque Creek at gage 08302500 near Santa Fe - 28TesuCr001.5		2	1	1	1	1	1	1	2	1	4	5	1	1				
105	Tienditas Creek abv Rio Fernando de Taos (Need to Recon.)	1	2	1	1		2	1	1	2	2	8	9	1	1				
106	Rio de las Trampas @ Vallecito - 28Trampa002.8	1	2	1	1	1	1	1	1	1	1	8	8	1	1				
107	Unnamed Arroyo above Rio Pueblo de Taos	1								1		9	7	1					
108	Ute Creek above Costilla Creek at Hwy 196 in Amalia - 28UteCre000.3			1	1	1	1			2	2	4	5	1	1				
109	Vidal Creek above Comanche Creek - 28VidalC000.1	1	1	1				1		1	1	8	8	2	1			1	

Map #	Station_Name	Dissolved oxygen		Turbidity		Conductivity		pH		Temperature		Flow		Physical Habitat		Chlorophyll a + Phytoplankton		Macro-invertrebrates	
Planned/Completed		P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
110	No station Station needs to be estabiashed; may be physical access issues											2	4	1	1				
111	Rio Nambe abv Pueblo Boundary - 28RNambe007.3		1	1	1		1	1	1	1	1	4	5	1	1				
Totals		82	112	99	65	58	72	85	63	135	124	658	659	86	70	18	14	21	11
Percent Completed		136.6		65.7		124.1		74.1		91.8		100.1		81.4		77.8		52.4	

4.3.1 Periphyton/Diatoms

Although scheduled at stations 28RCosti032.5, 28RCosti005.7, 28GoldCr000.1, 28VidalC000.1, 28Grassy000.1, 28RPuebT000.1, 28Holman000.1, and 28LaBell000.1, sample collection was not completed due to resource limitations. Higher priority was assigned to monitoring parameters used for assessment.

4.3.2 Fish Community Assemblage

Although scheduled at stations 27CTGran000.7, 27RPinos024.9, 27RSanAn025.3, 27RNutri002.0, and 27RSanAn031.5 sample collection was not completed due to resource limitations. Higher priority was assigned to monitoring parameters used for assessment.

4.3.3 Fish Tissue

Fish tissue sampling to inform updates to the Fish Consumption Advisory was planned at stations 30RGrand586.5, 28RGrand623.6, and 28RGrand609.5. Due to resource limitations and available laboratory budget, fish tissue collection was completed only at station 28RGrand609.5.

4.3.4 Hydro Protocol

Hydro Protocol (HP) surveys to determine or confirm stream hydrologic classification was planned at stations 28Bobcat000.3 and 28LTesuq004.5. Resource limitations prevented completion of HP surveys. Higher priority was assigned to monitoring parameters used for assessment.

4.4 Deviations from the 2017-2018 Field Sampling Plan

Minor deviations from the 2017-2018 Upper Rio Grande Field Sampling Plan were necessary as a result of dry conditions and resource limitations.

5.0 Summary

The data from this project will be assessed to determine the impairment status of the sampled waters. The assessments are conducted in accordance with the Comprehensive Assessment and Listing Methodology which is available on the SWQB website at https://www.env.nm.gov/surface-water-quality/calm/. Assessment conclusions will be incorporated into the 2020-2022 Integrated Report, which is planned for completion in 2020 and will be posted to the SWQB website at https://www.env.nm.gov/surface-water-quality/303d-305b/. In cases where impairments to water and habitat quality are found or confirmed, data from this survey will be used to draft TMDL planning documents.

To supplement data collected for this project, SWQB accepts readily available water quality data submitted from outside sources that meet SWQB QA/QC review and documentation requirements. Data from outside sources will undergo review by the SWQB QA Officer to ensure only data meeting specific requirements are used for assessment purposes.

The data from the 2017-2018 survey have been validated and verified according to SWQB SOP (NMED/SWQB 2016c) and have been uploaded to USEPA's Water Quality Portal via The Water Quality Exchange (WQX). To download this dataset, visit the Water Quality Portal at https://www.waterqualitydata.us/portal/ and query Organization ID *21NMEX_WQX* and HUCs *13020101 and 13010005* , or click on this link. For assistance with queries to the portal, please contact the Project Coordinators listed in Table 1. The data collected during this survey are also available by public records request to the SWQB.

6.0 References

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U.S. Environmental Protection Agency (USEPA), 2006, Level III ecoregions of the continental United States (revision of Omernik, 1987): Corvallis, Oregon, USEPA – National Health and Environmental Effects Research Laboratory, Map M-1, various scales.

APPENDIX A: Integrated Report Categories

IR (Integrated Report) Category: Overall water quality standards attainment category for each assessment unit as determined by combining individual designated use support decisions. The unique assessment categories for New Mexico are described as follows:

IR Category 1 Attaining the water quality standards for all designated and existing uses. AUs are listed in this category if there are data and information that meet all requirements of the assessment and listing methodology and support a determination that the water quality criteria are attained.

IR Category 2 Attaining some of the designated or existing uses based on numeric and narrative parameters that were tested, and no reliable monitored data is available to determine if the remaining uses are attained or threatened. AUs are listed in this category if there are data and information that meet requirements of the assessment and listing methodology to support a determination that some, but not all, uses are attained based on numeric and narrative water quality criteria that were tested. Attainment status of the remaining uses is unknown because there is no reliable monitored data with which to make a determination.

IR Category 3 Insufficient or no reliable data and/or information to determine if any designated or existing use is attained. AUs are listed in this category where sufficient data to support an attainment determination for any use are not available, consistent with requirements of the assessment and listing methodology. In order to relay additional information to stakeholders including SWQB staff, Category 3 is further broken down in New Mexico into the following categories:

3A. Limited data available, no exceedences. AUs are listed in this subcategory when there are no exceedences in the limited data set. These are considered low priority for follow up monitoring.

3B. Limited data available, exceedence. AUs are listed in this subcategory when there is an exceedence in the limited data set. These are considered high priority for follow up monitoring.

IR Category 4A Impaired for one or more designated uses but does not require development of a TMDL because a TMDL has been completed. AUs are listed in this subcategory once all TMDL(s) have been developed and approved by USEPA that, when implemented, are expected to result in full attainment of the standard. Where more than one pollutant is associated with the impairment of an AU, the AU remains in Category 5A (see below) until all TMDLs for each pollutant have been completed and approved by USEPA.

IR Category 4B Impaired for one or more designated uses but does not require development of a TMDL because other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future. Consistent with the regulation under 40 CFR 130.7(b)(i),(ii), and (iii), AUs are listed in this subcategory where other pollution control requirements required by local, state, or federal authority are

stringent enough to implement any water quality standard (WQS) applicable to such waters.

IR Category 4C Impaired for one or more designated uses but does not require development of a TMDL because impairment is not caused by a pollutant. AUs are listed in this subcategory if a pollutant does not cause the impairment. For example, USEPA considers flow alteration to be "pollution" vs. a "pollutant."

IR Category 5A Impaired for one or more designated or existing uses and a TMDL is underway or scheduled. AUs are listed in this category if the AU is impaired for one or more designated uses by a pollutant. Where more than one pollutant is associated with the impairment of a single AU, the AU remains in Category 5A until TMDLs for all pollutants have been completed and approved by USEPA.

IR Category 5B Impaired for one or more designated or existing uses and a review of the water quality standard will be conducted. AUs are listed in this category when it is possible that water quality standards are not being met because one or more current designated use is inappropriate. After a review of the water quality standard is conducted, a Use Attainability Analysis (UAA) will be developed and submitted to USEPA for consideration, or the AU will be moved to Category 5A and a TMDL will be scheduled.

IR Category 5C Impaired for one or more designated or existing uses and additional data will be collected before a TMDL is scheduled. AUs are listed in this category if there is not enough data to determine the pollutant of concern or there is not adequate data to develop a TMDL. For example, AUs with biological impairment will be listed in this category until further research can determine the pollutant(s) of concern. When the pollutant(s) are determined, the AU will be moved to Category 5A and a TMDL will be scheduled. If it is determined that the current designated uses are inappropriate, it will be moved to Category 5B and a UAA will be developed. If it is determined that "pollution" is causing the impairment (vs. a "pollutant"), the AU will be moved to Category 4C.

APPENDIX B: Volatile and Semi-Volatile Organic Analytical Suite

Organics (semi-volatiles)	Organics (volatiles)
1,2,4-Trichlorobenzene	1,1,1,2-Tetrachloroethane
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,2-Dinitrobenzene	1,1,2,2-Tetrachloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,3-Dinitrobenzene	1,1-Dichloroethane
1,4-Dichlorobenzene	1,1-Dichloroethene
1,4-Dinitrobenzene	1,1-Dichloropropene
1-Methylnaphthalene	1,2,3-Trichlorobenzene
2,3,4,6-Tetrachlorophenol	1,2,3-Trichloropropane
2,3,5,6-Tetrachlorophenol	1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol	1,2,4-Trimethylbenzene
2,4,6-Trichlorophenol	1,2-Dibromo-3-chloropropane (DBCP)
2,4-Dichlorophenol	1,2-Dibromoethane (EDB)
2,4-Dimethylphenol	1,2-Dichlorobenzene
2,4-Dinitrophenol	1,2-Dichloroethane
2,4-Dinitrotoluene	1,2-Dichloropropane
2,6-Dinitrotoluene	1,3,5-Trimethylbenzene
2-Chloronaphthalene	1,3-Dichlorobenzene
2-Chlorophenol	1,3-Dichloropropane
2-Methylnaphthalene	1,4-Dichlorobenzene
2-Methylphenol	1,4-Dioxane
2-Nitroaniline	2,2-Dichloropropane
2-Nitrophenol	2-Butanone (MEK)
3,3'-Dichlorobenzidine	2-Chloroethyl vinyl ether
3-Methylphenol & 4-Methylphenol	2-Chlorotoluene
3-Nitroaniline	2-Hexanone
4,4'-DDD	4-Chlorotoluene
4,4'-DDE	4-Isopropyltoluene
4,4'-DDT	4-Methyl-2-pentanone
4,6-Dinitro-2-methylphenol	Acetone
4-Bromophenyl Phenyl Ether	Acetonitrile
4-Chloro-3-methylphenol	Acrolein
4-Chloroaniline	Acrylonitrile
4-Chlorophenyl Phenyl Ether	Allyl chloride
4-Nitroaniline	Benzene
4-Nitrophenol	Bromobenzene
Acenaphthene	Bromochloromethane
Acenaphthylene	Bromodichloromethane
Alachlor	Bromoform
Aldrin	Bromomethane
alpha-BHC	Carbon disulfide
Aniline	Carbon tetrachloride
Anthracene	Chlorobenzene

Organics (semi-volatiles)	Organics (volatiles)
Atrazine	Chloroethane
Azobenzene	Chloroform
Benzidine	Chloromethane
Benzo(a)anthracene	Chloroprene
Benzo(a)pyrene	cis-1,2-Dichloroethene
Benzo(b)fluoranthene	cis-1,3-Dichloropropene
Benzo(g,h,i)perylene	cis-1,4-Dichloro-2-butene
Benzo(k)fluoranthene	Dibromochloromethane
Benzyl alcohol	Dibromomethane
beta-BHC	Dichlorodifluoromethane
bis(2-Chloroethoxy)methane	Ethyl methacrylate
bis(2-Chloroethyl)ether	Ethylbenzene
bis(2-Chloroisopropyl)ether	Hexachlorobutadiene
bis(2-Ethylhexyl)adipate	Iodomethane
bis(2-Ethylhexyl)phthalate	Isobutyl alcohol
Butyl Benzyl Phthalate	Isopropylbenzene
Carbazole	m- & p-Xylenes
Chrysene	Methyl methacrylate
cis-Chlordane	Methylacrylonitrile
Cyanazine	Methylene chloride (Dichloromethane)
delta-BHC	Naphthalene
Dibenz(a,h)anthracene	n-Butylbenzene
Dibenzofuran	Nitrobenzene
Dieldrin	o-Xylene
Diethylphthalate	Pentachloroethane
Dimethylphthalate	Propionitrile
Di-n-butyl Phthalate	Propylbenzene
Di-n-octyl phthalate	sec-Butylbenzene
Endosulfan I	Styrene
Endosulfan II	tert-Butyl methyl ether (MTBE)
Endosulfan sulfate	tert-Butylbenzene
Endrin	Tetrachloroethene
Endrin aldehyde	Tetrahydrofuran (THF)
Endrin ketone	Toluene
Fluoranthene	Total trihalomethanes
Fluorene	Total xylenes
gamma-BHC (lindane)	trans-1,2-Dichloroethene
Heptachlor	trans-1,3-Dichloropropene
Heptachlor epoxide	trans-1,4-Dichloro-2-butene
Hexachlorobenzene	Trichloroethene
Hexachlorobutadiene	Trichlorofluoromethane
Hexachlorocyclopentadiene	Vinyl acetate
Hexachloroethane	Vinyl chloride
Indeno(1,2,3-cd)pyrene	
Isophorone	

Organics (semi-volatiles)	Organics (volatiles)
Methoxychlor	
Metolachlor	
Metribuzin	
Naphthalene	
Nitrobenzene	
N-nitrosodimethylamine	
N-nitroso-di-n-propylamine	
N-nitrosodiphenylamine	
Pentachlorophenol	
Phenanthrene	
Phenol	
Prometryne	
Pyrene	
Pyridine	
Simazine	
trans-Chlordane	