NEW MEXICO ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

SURFACE WATER ASSESSMENT AND STANDARDS DATA NEEDS SURVEY

2016

FIELD SAMPLING PLAN

4/1/2016

Prepared by

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APPROVAL PAGE

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INTRODUCTION

The purpose of this revised Field Sampling Plan (Plan) is to provide a detailed description of the priority data needs for the Assessment and Standards teams of the Monitoring, Assessment, and Standards Section (MASS) during the 2016 field season. It has been 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. It may be amended as the need arises. Amendments will be documented and justified in the subsequent survey report.

This is a companion document to the SWQB *Quality Assurance Project Plan for Water Quality Management Programs* (NMED/SWQB 2016) (QAPP). Data will be collected according to the QAPP and the appropriate SWQB Standard Operating Procedures (SOPs) for water quality data collection.

The survey includes the Mimbres River downstream from Cooney Canyon, Pecos River from Villanueva State Park to Tecolote Creek; and Tecolote Creek from I-25 to Blue Creek.

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 watersheds includes the Bureau of Land Management , Forest Service, Bureau of Reclamation, Fish and Wildlife Service, National Park Service, New Mexico State Parks, New Mexico Department of Game and Fish, and state, tribal, and private parcels.

1.0 PROJECT PERSONNEL

1.1 Personnel Roles and Responsibilities

Table 1 details the responsibilities for this project. Each team member is responsible for implementing the assigned responsibilities. If individuals are unable to fulfill their duties, it is the individual's responsibility to find assistance and/or a replacement, in coordination with appropriate supervisors.

Table 1. Personnel Roles and Responsibilities

Team Member	Position/Role	Responsibilities
Kris Barrios Monitoring Team Coordinator kristopher.barrios@state.nm.us (505) 827-2621 Charles Dentino Field Team Supervisor Lakes Coordinator charles.dentino1@state.nm.us (505) 827-0101	MASS Project Coordinators	• Coordinate survey planning efforts (integrate the documentation of various team members' information into the field sampling plan and planning spreadsheet); • 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); • Prepare final survey report integrating information from all team members.
Kristine Pintado kristine.pintado@state.nm.us (505) 827-2822	Standards Liaison	• Provide information and data needs pertaining to water quality standards development and refinement located within the study area.
Heidi Henderson heidi.henderson@state.nm.us (505) 827-2901	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.

1.2 Organization

For the responsibilities defined in this project, the Project Coordinators, Standards liaison and Total Maximum Daily Load (TMDL) liaison report to the MASS Program Manager.

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, wasteload allocations, and TMDLs. The current §303(d) Program

in New Mexico consists of three major steps: monitoring of surface waters; assessing monitoring data against the water quality standards (WQS); and developing Total Maximum Daily Loads (TMDLs) for those waters not meeting water quality standards (i.e. impaired).

The stream reaches targeted in this plan have been identified as waters in need of additional data collection to support standards changes, confirm impairment listing, or in response to public concern. While the Pecos River assessment unit is not currently listed as impaired, there is public concern that this reach may be impaired for turbidity. 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. 2015) 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. 2016) on the State's List of Assessed Waters and TMDLs or TMDL alternatives are developed for impaired AUs.

Table 2. Impairment and TMDL Status of Survey Assessment Units (NMED/SWQB 2014)

Assessment Unit (AU)	AU_ID	Impairments	IR Category	TMDL Status
Mimbres River (Pereninnial reaches Willow Springs to Cooney Canyon)	NM-2804_00	Temperature	5	303(d) List
Mimbres River (Perennial reaches downstream of Willow Springs)	NM-2803_00	Temperature E. coli	5	303(d) List
Pecos River (Villanueva State Park to Cow Creek)	NM-2213_01	None	1	Fully supporting
Pecos River (Tecolote Creek to Villanueva State Park)	NM-2213_00	Temperature	5	303(d) List
Tecolote Creek (I-25 to Blue Creek)	NM-2212_10	Specific Conductance Temperature Nutrient/Eutrophication	5/5B	303(d) List
Tecolote Creek (Pecos River to I-25)	NM-2212_08	Not Assessed	3/3A	This AU often goes dry. Additional data required

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, Point Source Regulation Section (PSRS), and Watershed Protection Section (WPS) staff as well as other state agencies, federal agencies, tribes, local watershed groups, and interested parties.

Table 3. Project Objectives

	Purpose for 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 survey 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
	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

The progress of this project will be documented and tracked from its inception through implementation to ensure all data collection 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	Spring 2016	Summer 2016	Fall 2016	Winter 2016-2017	Spring 2017	Fall 2017
Data Collection & Analysis	==========►					
Data Verification & Validation Assessment of data				==========►		

2.4 Location

The survey includes the perennial reaches of the Mimbres River below Cooney Canyon; the Pecos River from Tecolote Creek to Cow Creek; and Tecolote Creek from the Pecos River to Blue Creek. Table 5 shows a complete list of stations as presented in Figures 1a and 1b.

Figure 1a. Pecos-Tecolote Survey Area

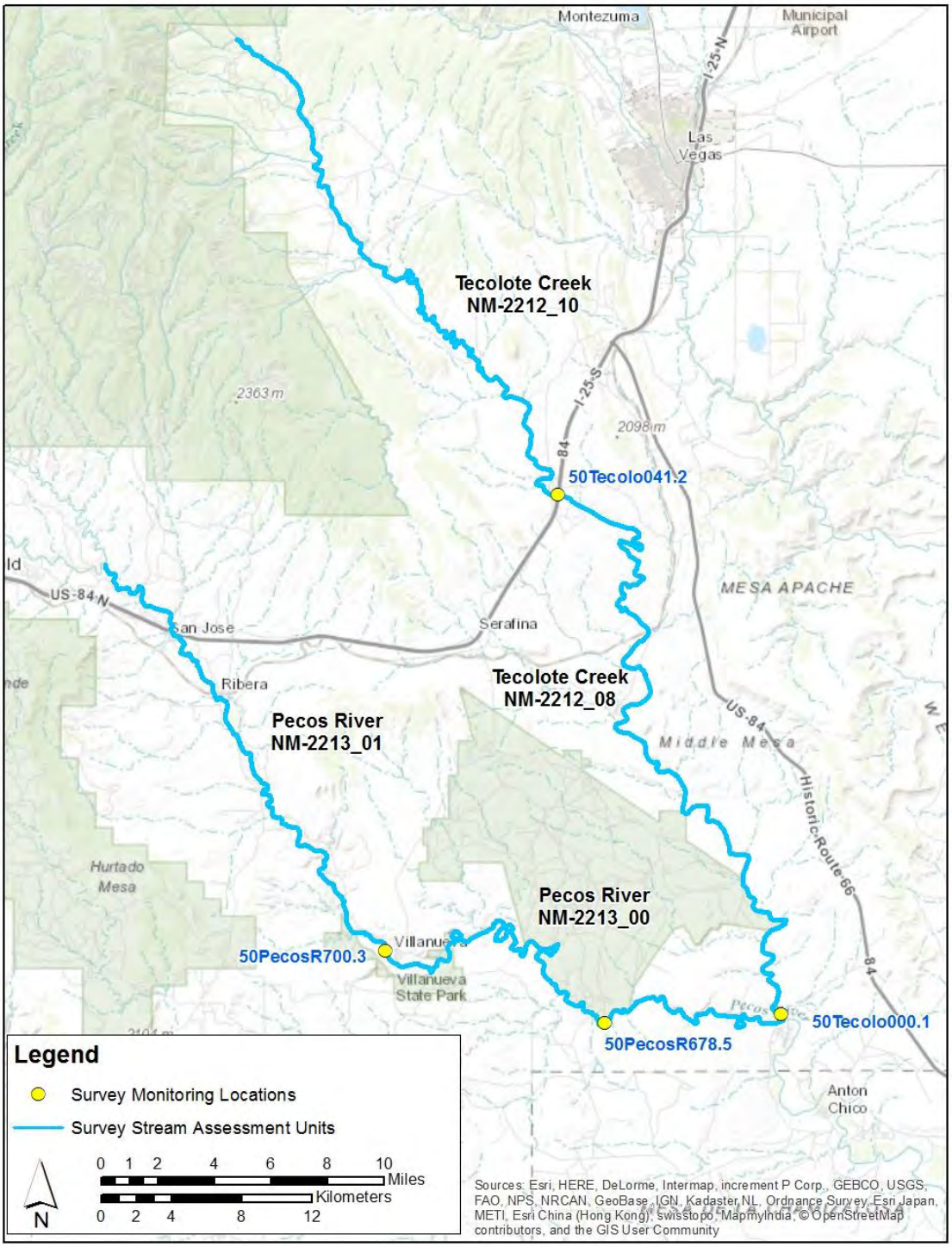

Figure 1b. Mimbres Survey Area

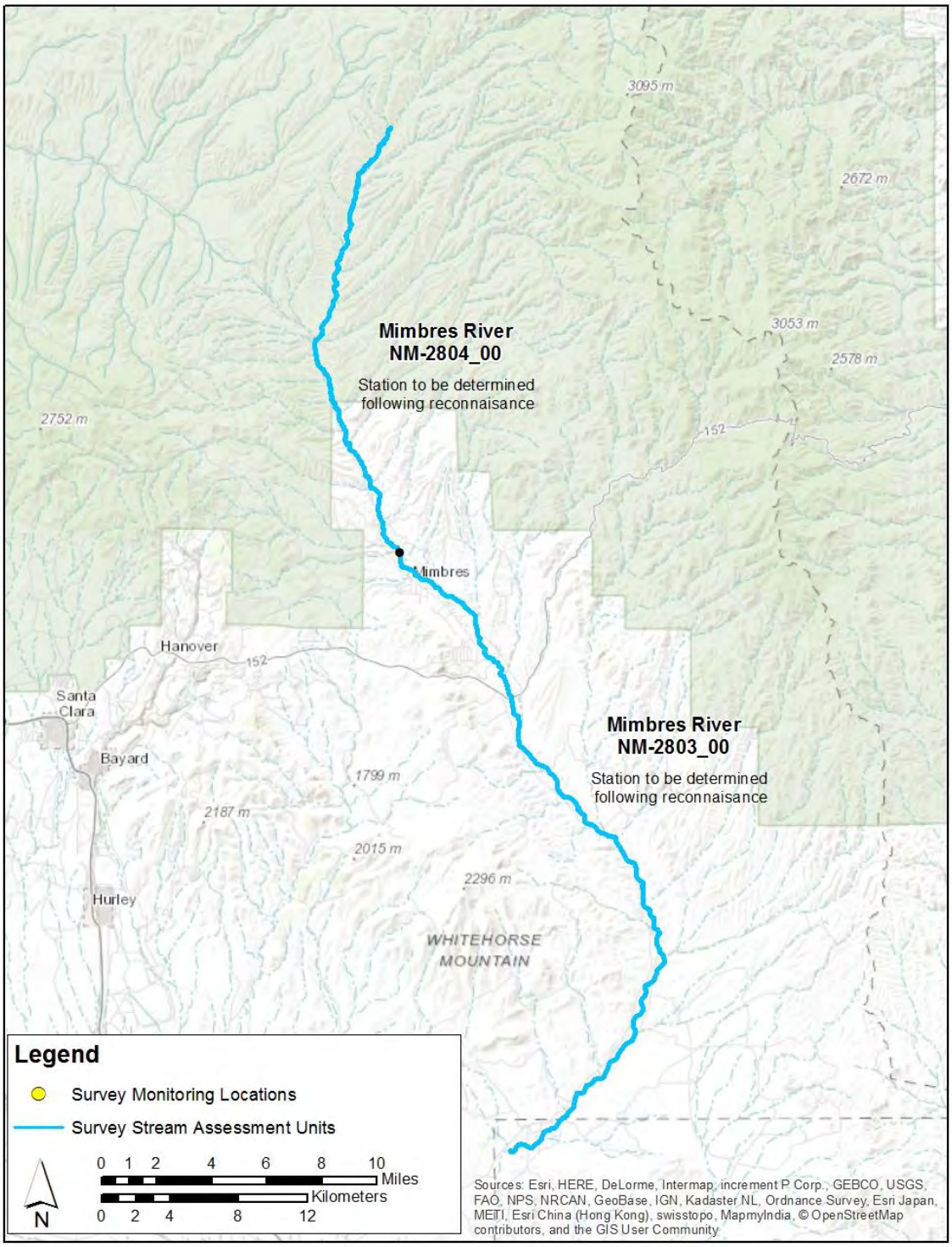

Table 5. Monitoring Stations: Data Needs Survey 2016

Station Name	Station ID	Assessment Unit	Rationale/Comments
To Be Determined (TBD)	TBD	Mimbres R (Perennial reaches Willow Springs to Cooney Cny)	Confirm temperature impairment
TBD	TBD	Mimbres R (Perennial reaches downstream of Willow Springs)	Confirm temperature impairment
Pecos River at Los Schiffmillers	50PecosR700.3	Pecos River (Villanueva State Park to Cow Creek)	Address public concern regarding turbidity
Pecos River at Comanchero	50PecosR678.5	Pecos River (Tecolote Creek to Villanueva State Park)	Adddress public concern regarding turbidity
Tecolote Creek at I-25	50Tecolo041.2	Tecolote Creek (I-25 to Blue Creek)	Confirm temperature and specific conductance impairment
Tecolote Creek above confluence with Pecos River	50Tecolo000.1	Tecolote Creek (Pecos River to I-25)	Determine appropriate WQS

3.0 DOCUMENTATION

Project documents include this field sampling plan, probable source sheets, calibration records, field sheets (including sonde and thermograph deployment/retrieval sheets), electronic data logger downloads, and data validation and verification records.. Documents will be maintained in accordance with the requirements of the SWQB QAPP.

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 Section Field Sheets. Information from field sheets are entered in the SWQB database or maintained in the Project Coordinator's files which are placed in the 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 the Survey Report.

4.0 SAMPLING PLAN

Sampling methods are conducted in accordance with the SWQB SOPs. Sondes and Data Loggers are deployed at select sites in streams for 3-10 days to record dissolved oxygen, turbidity, specific conductance or pH fluctuations. Thermographs (data logging thermometers) are deployed from May through September to measure temperature fluctuations.

Table 6. Sediment Survey and Sonde Deployment

Station Name	Station ID	Sonde Deployment	Specific Conductance + Thermograph Deployment	Thermograph Deployment	Sediment Survey	Hydrologic Protocol
Station TBD during reconnaissance Mimbres R (Perennial reaches Willow Springs to Cooney Cny)		**0**	**0**	**1**	**1**	**0**
Station TBD during reconnaissance Mimbres R (Perennial reaches downstream of Willow Springs)		**0**	**0**	**1**	**1**	**0**
Pecos River at Los Schiffmillers	**50PecosR700.3**	**1**	**0**	**0**	**0**	**0**
Pecos River at Comanchero	**50PecosR678.5**	**1**	**0**	**0**	**0**	**0**
Tecolote Creek at I-25	**50Tecolo041.2**	**0**	**1**	**0**	**0**	**0**
Tecolote Creek above confluence with Pecos River	**50Tecolo000.1**	**0**	**0**	**0**	**0**	**1**

5.0 RESOURCE REQUIREMENTS

It is anticipated that staff requirements for the Data Needs Survey will not exceed five workdays. Staff, material and fuel expenses are summarized in Table 8. Vehicles will require standard preventative maintenance and unforeseen costs may arise at any time. Costs not included below may involve general sampling supplies such as sonde calibration solutions and habitat sampling/monitoring equipment.

Table 8. Estimated Costs

Salary Days*	Supplies $	Fuel $
16	**$100**	**$400**

*Salary days are estimated for one crew of two going out for eight days

Questions or comments on this Field Sampling Plan should be directed to the SWQB project coordinators.

Surface Water Quality Bureau

Our mission is to preserve, protect, and improve New Mexico's surface water quality for present and future generations.

6.0 REFERENCES

New Mexico Administrative Code (NMAC). 2013. *State of New Mexico Standards for Interstate and Intrastate Surface Waters; 20.6.4.* New Mexico Water Quality Control Commission. Santa Fe, NM. Available at: https://www.env.nm.gov/swqb/Standards/.

NMED/SWQB. 2014. *State of New Mexico Clean Water Act §303(d)/ §305(b) Integrated List and Report*. Santa Fe, NM. Available at: https://www.env.nm.gov/swqb/303d-305b/2014-2016/index.html.

NMED/SWQB. 2015. *Standard Operating Procedure 2.1: Field Sampling Plan Development and Execution.* Santa Fe, NM. Available at: https://www.env.nm.gov/swqb/SOP/.

NMED/SWQB. 2016. *Quality Assurance Project Plan for Water Quality Management Programs*. Santa Fe, NM. Available at: Available at: https://www.env.nm.gov/swqb/QAPP/.

APPENDIX A

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 (n = 0 to 1) 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 (n = 1) 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 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 particular 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.