

Arizona Department of Environmental Quality Nonpoint Source Annual Report

JULY 1, 2012—JUNE 30, 2013

ADEQ's Nonpoint
Source Program
Activities for state
fiscal year 2013

Prepared by the
Grants & Outreach
Unit of the Water
Quality Division's
Surface Water
Section

ADEQ Pub # EQR 13-02



Tonto Creek near Payson, Arizona



Janice K. Brewer, Governor
Henry R. Darwin, Director

PROTECTING AND ENHANCING PUBLIC HEALTH
AND THE ENVIRONMENT IN ARIZONA

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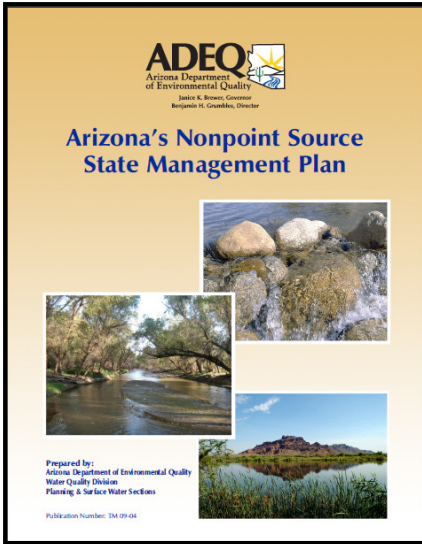
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Acronym List

- **ADEM** Arizona Division of Emergency Management
- **ADEQ** Arizona Department of Environmental Quality
- **ADOA** Arizona Department of Administration
- **ADOT** Arizona Department of Transportation
- **ADWR** Arizona Department of Water Resources
- **AGWA** Automated Geospatial Watershed Assessment
- **ASLD** Arizona State Land Department
- **AZPDES** Arizona Pollutant Discharge Elimination System
- **BLM** Bureau of Land Management
- **CGP** Construction General Permit
- **CWA** Clean Water Act
- **DO** Dissolved Oxygen
- **EPA** Environmental Protection Agency
- **MSGP** Multi Sector General Permit
- **MTL** Master Target List
- **NRCS** Natural Resource Conservation Service
- **PGP** Pesticide General Permit
- **TMDL** Total Maximum Daily Load
- **USDA** United States Department of Agriculture
- **USFS** United States Forest Service
- **WBP** Watershed Based Plan
- **WIP** Watershed Implementation Plan
- **WLA** Waste Load Allocation
- **WQIG** Water Quality Improvement Grant

I. Executive Summary



Arizona’s Nonpoint Source (NPS) Annual Report for Fiscal Year 2013 presents a synopsis of the Arizona Department of Environmental Quality (ADEQ) NPS Program activities for fiscal year 2013 (July 1, 2012 through June 30, 2013). The majority of work performed by ADEQ’s NPS Program is funded by Clean Water Act Section 319(h) grant monies, awarded by the U.S. Environmental Protection Agency (EPA). Section 319(h)(11) requires states to report annually on progress in meeting the schedule of milestones contained in their Nonpoint Source Management Plans, and, to the extent that appropriate information is available, report reductions in nonpoint source pollutant loadings and improvements in water quality resulting from program implementation. [Arizona’s current Five -Year Management Plan](#) (NPS Management Plan) is available for viewing and download on the ADEQ Web site. This report summarizes activities carried out during year three of the current five-year plan.

Overall, ADEQ is on track to complete the majority of the goals set forth in the current NPS Management Plan. State programs have made significant progress in the following areas:

- Completing four community-led Watershed Implementation Plans (WIPs) to identify implementation needs and prioritize projects for nonpoint source funding (links provided in Table 1).
- Development of broad-based watershed plans for Arizona’s 10 major watersheds
- Creation of a “[BMP Toolbox](#)”, in conjunction with the University of Arizona, with a focus on best management practices that apply to arid environments.
- Development of an [Interactive Mapping Service](#) (IMS) that gives the public access to a wide variety of GIS layers and allows them to create their own maps for grant applications and other watershed planning purposes
- Ensuring that ADEQ’s sampling methods and protocols are up to date and readily available to the public [via the ADEQ website](#)
- Developing [AZPDES](#) permit language requiring that surface water quality monitoring meet ADEQ’s credible data requirements
- Adapting and completing [EPA’s Environmental Monitoring and Assessment Program](#) (EMAP) for Arizona
- Training watershed stakeholders in ADEQ’s Targeted Watersheds to perform watershed surveys, water quality sampling and data analysis

More information about all of these topics and how they relate to the Nonpoint Source Plan goals can be found in the Strategic Plan update section of this document, located in Appendix A .

ADEQ-Funded Watershed Planning Documents
Large-scale Watershed Plans [8-digit Hydrologic Unit Code (HUC)]
Colorado River/Grand Canyon
Little Colorado (and the San Juan watershed)
Colorado River/Lower Gila
Bill Williams
Verde
Middle Gila (and the Agua Fria sub-watershed)
Salt
Santa Cruz
San Pedro
Upper Gila
Impairment-Driven Watershed Implementation Plans (WIPs)
Granite Creek
Oak Creek
San Francisco/Blue
San Pedro
Other Watershed Planning Documents
Coyote Creek

Table 1: Watershed plans

ADEQ has seen a 25 percent staffing decrease in water programs since the original writing of the existing NPS plan. This has had an effect on progress rates toward achieving certain goals. Strategies that have been impacted include grant-specific effectiveness monitoring, TMDL/TIP development, and outreach and education activities. In addition, the state moratorium on rule making has prevented progress in developing and implementing new water quality standards to support water quality assessments and impairment identification.

ADEQ has strived to adapt and find new ways to meet its NPS management goals in recent years. Increased emphasis has been made on finding common priorities both across internal programs and with external partners to maximize the potential of our combined resources. Some examples of this include coordination with:

- Coordination with the Arizona Natural Resource Conservation Service (NRCS) to identify priority watersheds for the United States Department of Agriculture's National Water Quality Initiative (NWQI)
- Coordination with US Forest Service (USFS) and Bureau of Land Management (BLM) to identify annual shared monitoring and implementation priorities
- Coordination with Arizona Game and Fish Department (AZGFD) to update GIS coverage for Arizona lakes
- Coordination with Arizona Department of Emergency Management (ADEM) to address post-fire erosion control needs in the Wallow Fire burn area
- Coordination between Grants and Outreach (G&O) and Total Maximum Daily Load (TMDL) staff to identify and support Targeted Watershed projects
- Partnership with the University of Arizona to provide technical support to Targeted Watershed projects
- Partnership with local groups such as the Upper Gila Watershed Partnership, Prescott Creeks Preservation Association, Oak Creek Watershed Council, Little Colorado River Resource Conservation & Development (RC&D) council, and Coronado RC&D council to develop community-driven watershed based plans

While ADEQ's NPS Program has faced staffing and budget challenges in recent years, there is an ongoing, demonstrable commitment to achieving the goals set out in the current NPS Management Plan. The Program continues to be successful in adapting current strategies and coordinating resources both internally and externally in order to maximize effectiveness. During the remaining two years covered by the current NPS Management Plan, staff will focus on increased coordination with state and local entities to address pollutants in impaired and non-attaining water bodies. Additional efforts will also be made to assess the effectiveness of WQIG projects and report to EPA on CWA Section 319-leveraged watershed improvements in order to better communicate the continued success and relevance of nonpoint source efforts in Arizona.

II. Arizona's Nonpoint Source Management Program

Background

ADEQ's NPS Program uses a combination of tools to protect the state's water resources from nonpoint source pollution. Identifying and addressing water quality concerns are part of an ongoing cycle that includes water quality standards development, surface and groundwater monitoring, water quality assessment reports, Total Maximum Daily Load (TMDL) studies, TMDL implementation plans (TIPs), watershed inventories and characterizations, watershed-based plans, and Water Quality Improvement Grant (WQIG) projects.

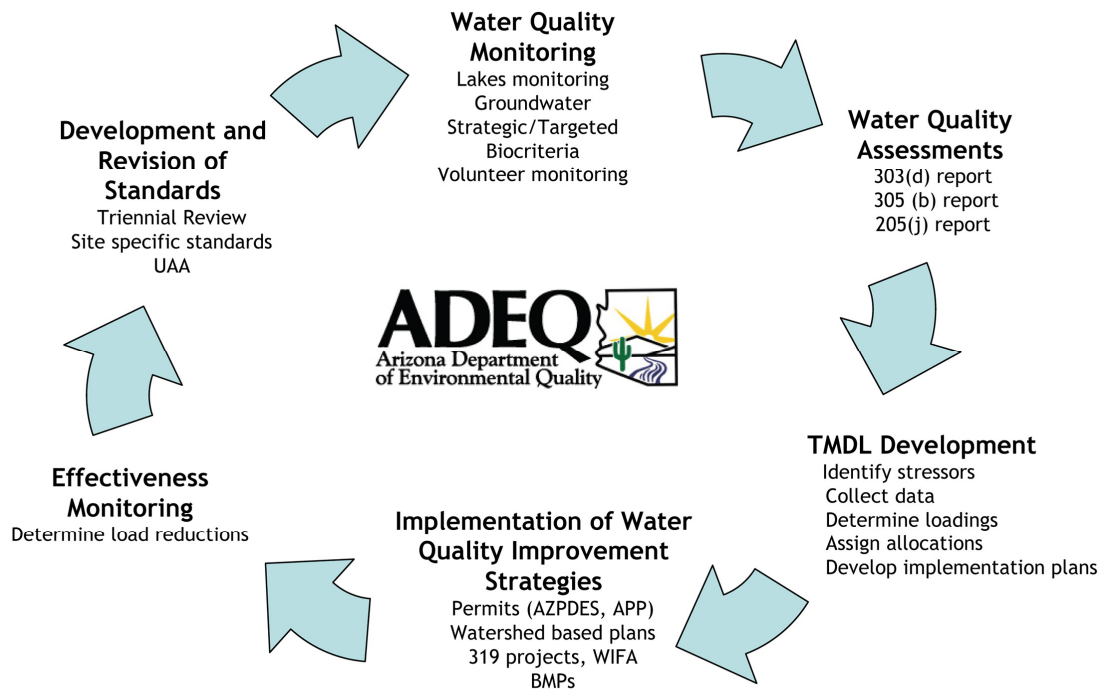


Figure 1: Identifying and addressing water quality concerns are part of an ongoing cycle.

Arizona's Primary Nonpoint Source Pollutants

Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even groundwater.

Today, nonpoint source pollution remains the nation's largest source of water quality problems. It is the main reason that approximately 40 percent of our surveyed streams and lakes are not clean enough to meet basic uses such as fishing or swimming. The primary nonpoint source pollutants causing impairments in Arizona's most recent assessment (2010) are:

- Suspended sediment
- Nutrients or related parameters (nitrogen, phosphorus, low dissolved oxygen, high pH)
- *E. coli* bacteria
- Metals and low pH
- Selenium
- Boron
- Historic pesticides

Sources of these pollutants include livestock grazing, recreation, crop production, mining, forestry, and wildlife. A breakdown of pollutant stressor categories impacting lakes and streams can be seen in Table 2 below. Please refer to the [2010 Integrated 305\(b\) Assessment and 303\(d\) Listing Report](#) for additional details.

Pollutant Stressor Category	# Lakes	% Lake Impairments per Pollutant Stressor	Acres	# Reaches	% Stream Impairments per Pollutant Stressor	Miles
Nutrients & related (N, P, DO, pH)	34	65%	7783	18	9%	204
Metals & related	0	0%	0	102	53%	608
Selenium	1	2%	27045	14	7%	270
Arsenic	0	0%	0	4	2%	36
Mercury	13	25%	31693	3	2%	46
Boron	0	0%	0	3	2%	59
Solids (turbidity, sedimentation)	0	0%	0	15	8%	196
E. coli (& biological - lakes)	2	4%	27	19	10%	374
Pesticide (DDT, chlordane, toxaphene)	2	4%	286	10	5%	105
Other (nitrate and chlorine)	0	0%	0	4	2%	23

*Cannot total miles or acres because some waters are impaired by multiple stressors

Table 2: 2010 Impairments by Pollutant Stressor Category

Some lakes and streams are listed as impaired for more than one of these pollutants. The draft 2010 Status of Ambient Surface Water Quality in Arizona (Arizona's Integrated 305(b) and 303(d) Listing Report) indicates that Arizona has 22 lakes listed as impaired for 32 pollutants and 70 stream reaches for 118 pollutants. These numbers may change prior to finalizing the current draft document, as EPA will have the opportunity to list additional water bodies and/or pollutants. Although in a few drainages point sources may be contributing, these impairments are primarily the result of nonpoint source contributions.

Use Support Category	# Lakes	Acres	# Reaches	Miles
Category 1 (Attaining all uses)	0	0	24	288
Category 2 (Attaining some uses)	6	23609	78	976
Category 3 (Inconclusive)	28	4459	152	1430
Categories 4A, 4B, 4A/5 (Not attaining)	12	2732	42	309
Category 5 (Impaired)	22	69,663	70	982
Total Assessed	68	100463	366	3985
Total Attaining or Impaired	40	96,004	214	2555

Table 3: 2010 Status of Assessed Waters

Funding Allocations

The total amount of Section 319 funding available nationally in given year is determined by Congressional appropriation. State shares of that total are determined by a state-by-state allocation formula developed by EPA in conjunction with the states.

In FY13, the total nonpoint source award of \$2,613.129 was split into separate base (\$929,000) and incremental (\$1,684,129) grants. Figure 2 demonstrates the allowable use of each type of funding, and how that funding was allocated by ADEQ to manage and implement the state nonpoint source program. Half of the overall funding was committed to funding on-the-ground implementation, watershed planning, and stakeholder education and training projects via the Water Quality Improvement Grant (WQIG) program. The remaining was utilized internally to fund NPS Program and supporting staff and TMDL development.

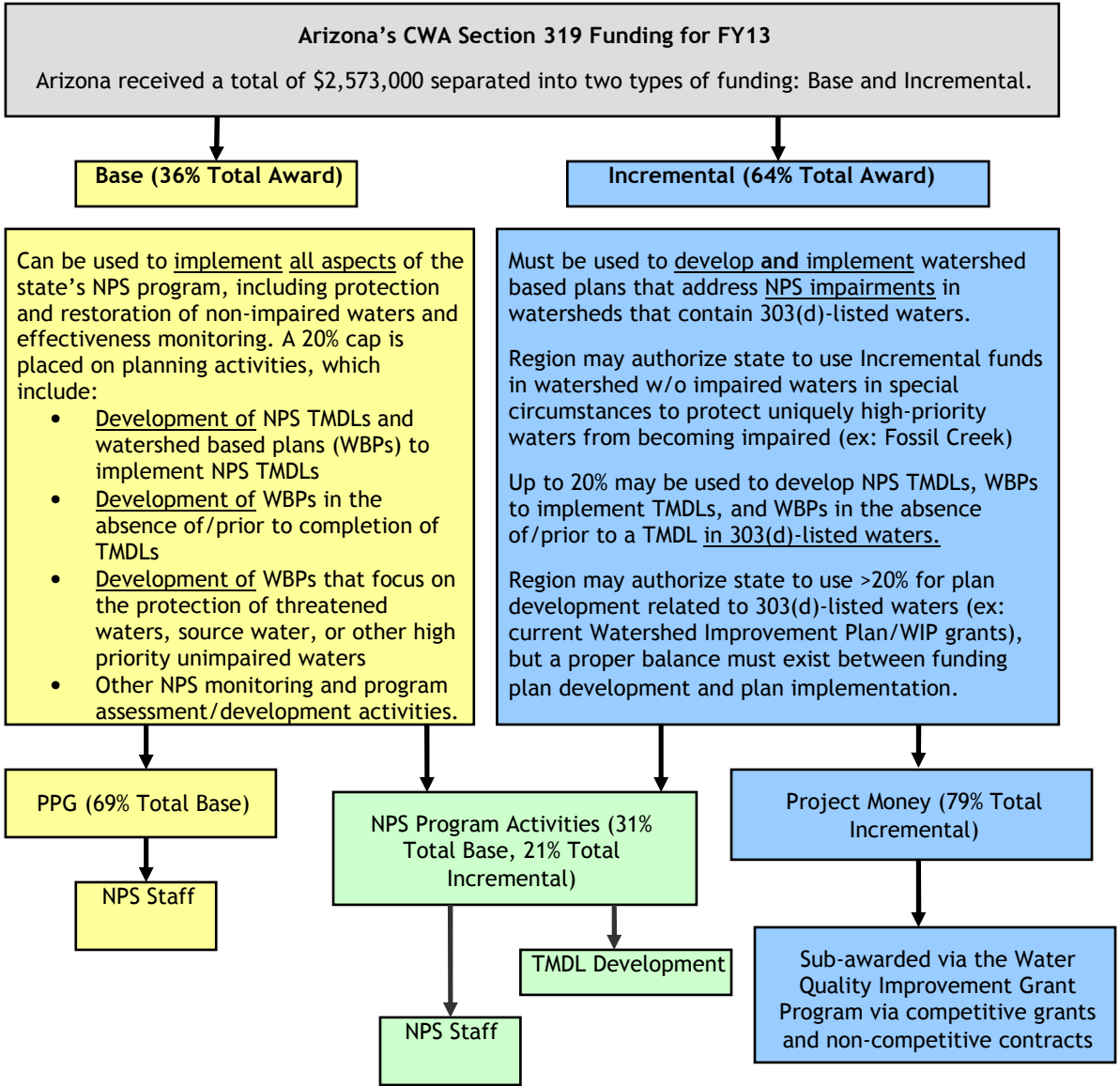


Figure 2: ADEQ's Use of Base and Incremental Funding to Support Nonpoint Source Activities.

Nonpoint Source Program Goals

ADEQ's NPS Program operates primarily under the direction of the NPS Management Plan. The current State Management Plan identifies nonpoint source goals and strategies for 2010-2014, and identifies four broad goals (identified below).

Goals Identified in the 2010-2014 Arizona Nonpoint Source Five-Year Management Plan

1. Prevent and reduce nonpoint source pollution discharges to protect surface or groundwater resources.
2. Coordinate efforts of various programs within ADEQ and with other agencies and partners to reduce nonpoint source pollution impacts to surface and groundwater.
3. Identify and mitigate impairments to surface water or groundwater quality.
4. Evaluate and improve the effectiveness of the nonpoint source pollution program and communicate success.

The state's progress in meeting these goals and the specific objectives, strategies, and milestones defined therein is detailed in Section III: Nonpoint Source Strategic Plan and in Appendix A: Strategic Planning Table Update.

Determining Nonpoint Source Priorities

The Impaired Waters Strategy

Arizona's NPS Program has promoted and facilitated statewide efforts to manage the impact that nonpoint source pollution has on our surface and groundwater. ADEQ continues to focus efforts on restoring waters that have been listed as impaired on the Arizona Integrated 305(b) Assessment and 303(d) Listing Report, as well as protecting waters that are attaining their designated uses. In order to identify the highest priority NPS activities for a given year, ADEQ considers each water quality impairment that is influenced by nonpoint source pollution and the different factors that influence the ability to mitigate the impairment (pollutant of concern, land ownership, potential local watershed partners/local interest in the impairment). One tool for assessing this information is the Impaired Waters Table. An abridged version of this table is included in Appendix B of this document, titled "The Impaired Waters Table Update." Detailed information Arizona's impaired water bodies can be found [on the ADEQ website](#).

Measure W Watersheds

EPA's "Measure W" is another tool utilized by the state when determining nonpoint source priorities. "Measure W" (also known as the Watershed Improvement Measure (WIM) and SP-12) is a key performance measure in [EPA's Strategic Plan](#). The measure tracks watersheds where water quality conditions have improved by utilizing a watershed approach. One of the primary purposes of this measure is to model and demonstrate the effectiveness of the watershed approach. EPA Region 9 and our state water quality agency partners agreed to track the following watersheds for a five year period (FY08-FY12) for purposes of reporting on this measure and documenting environmental results, and to better focus our water quality restoration activities by identifying needs, sharing information, providing assistance and learning more about the related challenges.

- Alum Gulch
- Turkey Creek
- Tonto Creek
- Pinto Creek
- Boulder Creek

During FY13, ADEQ drafted success stories documenting water quality improvements in Alum Gulch, Turkey Creek (submitted to EPA for comment), and Pinto Creek Measure W Watersheds. A success story for an additional watershed, the Verde River, was also drafted. These drafts will be revised based on EPA comment and finalized in FY14. ADEQ is currently coordinating

with EPA and other partners to initiate project implementation in the fifth water, Boulder Creek, during FY14.

Targeted Watersheds

Beginning in FY09 and continuing through FY13 and future fiscal years, the NPS Program has focused Water Quality Improvement Grant (WQIG) funding and technical support resources into formally identified Targeted Watersheds (Appendix B). Targeted watersheds are identified using the Impaired Waters Strategy, and influenced by their potential to satisfy EPA's "Measure W". Key criteria for Targeted Watersheds include the presence of a NPS-related impairment as well as local stakeholder interest and ability to effectively address that impairment. As of the close of FY12, ADEQ has seven Target Watersheds, listed below. For ease of reference, watersheds have been grouped into three sets based on the grant cycle/fiscal year in which they were initially identified as "Targets". All Target Watersheds were given priority for funding during grant cycle 13. The progress that has been achieved to date in each of the Targeted Watersheds will be detailed throughout this report.

Cycle 11 Competitive Targeted Watersheds (State FY 09-10)

Granite Creek (WQIG #11-T01)
Oak Creek (WQIG #11-T02)
San Francisco/Blue Rivers (WQIG #11-T03)

Cycle 12 Competitive Targeted Watersheds (State FY 10-11)

Little Colorado River Headwaters (WQIG #12-002)
San Pedro River (WQIG #12-003)
Tonto/Christopher Creeks (WQIG #12-007)

Non-Competitive Targeted Watersheds (State FY11)

Boulder Creek/Hillside Mine

Completed Watershed Implementation Plans (WIPs) for the following watersheds can be found [on the ADEQ website](#):

- ⇒ Granite Creek
- ⇒ Oak Creek
- ⇒ San Francisco/Blue Rivers
- ⇒ San Pedro River

A fourth WIP addressing a portion of the San Pedro River watershed is in final review and approval stages, and will be available online in the fall of 2013. These WIPs focus on sub-watersheds that directly impact impairments. They were created by local watershed groups and stakeholders with assistance from ADEQ and the University of Arizona to identify implementation projects and education and outreach activities necessary to improve water quality and attain standards. These plans will help ADEQ prioritize grant-funded activities in these watersheds in the years to come. In addition, a BMP evaluation and recommendation document for the Coyote Creek subwatershed of the Little Colorado River Headwaters has also been completed and can be found on the ADEQ website. The WQIG will utilize these plans to determine future funding priorities in these watersheds.

Process Improvement: TMDL and Grant Unit Kaizen/ Future State Mapping

In March of 2013, TMDL and Grants Unit staff hosted a two-part process improvement event called a “[kaizen](#)” to review and streamline the steps for identifying and mitigating water quality impairments. External stakeholders participated with staff in mapping out the steps involved in the current state of TMDL and WIP development, and identifying ways in which the processes could be combined and adapted in a proposed future state. Participants are listed in Table 4.

Name	Affiliation
Linda Taunt	Deputy Director, ADEQ Water Quality Division
Mary Jo Caldwell	Facilitator, AZ Government Transformation Office
Debra Daniel	Manager, ADEQ Surface Water Section
Jason Sutter	Supervisor, ADEQ TMDL & Assessment Unit
Krista Osterberg	Supervisor, ADEQ Grants & Outreach Unit
Samuel “Jake” Breedlove	ADEQ Grants & Outreach Unit
Jade Dickens	ADEQ TMDL & Assessment Unit
Susan Fitch	ADEQ TMDL & Assessment Unit
Doug McCarty	ADEQ TMDL & Assessment Unit
Kyle Palmer	ADEQ TMDL & Assessment Unit
Jan Holder	External stakeholder, Upper Gila Watershed Partnership
Ned Hall	External stakeholder, Freeport McMoRan Inc.

Table 4: Kaizen Participants

In the current state, TMDL development typically precedes WIP development and implementation activities. This results in significant lag time between identification of an impairment and creation of a watershed improvement plan. In addition, stakeholders have limited involvement in the TMDL process, and often are unfamiliar with the data leading to the impairment listing and the recommendations made within the TMDL report. This has resulted in WIPs taking longer than anticipated to develop, due to the need for extensive outreach and education to the public.

Outcomes of the kaizen included identifying four potential alternatives that could be pursued to achieve water quality standards in an impaired water.

1. **Water Quality Improvement Plan (WQIP)** - A combined TMDL/watershed planning approach to improving water quality in an impaired watershed where non-point sources exist
2. **TMDL Lite**- A focused TMDL will be developed where sources are known but not well characterized from a water quality standpoint. Implementation planning will be in process or already completed by an external entity. The TMDL will be used to support management and implementation activities. 319 project funding will not be used for developing or carrying out the implementation plan
3. **Straight to Implementation (STI)**- This approach will be used when the only sources of pollution can be addressed via permit conditions or when no regulated sources are identified and implementation needs are known. In areas where the sources are more diffuse this approach can be used if an implementation plan exists
4. **Delist**- Develop data set and report to support removing the water from the impaired water list. This approach would be used in instances where impairment decisions were made in error or conditions in the watershed have changed.

A flow chart depicting when each of these alternatives would be pursued can be seen in Figure 3.

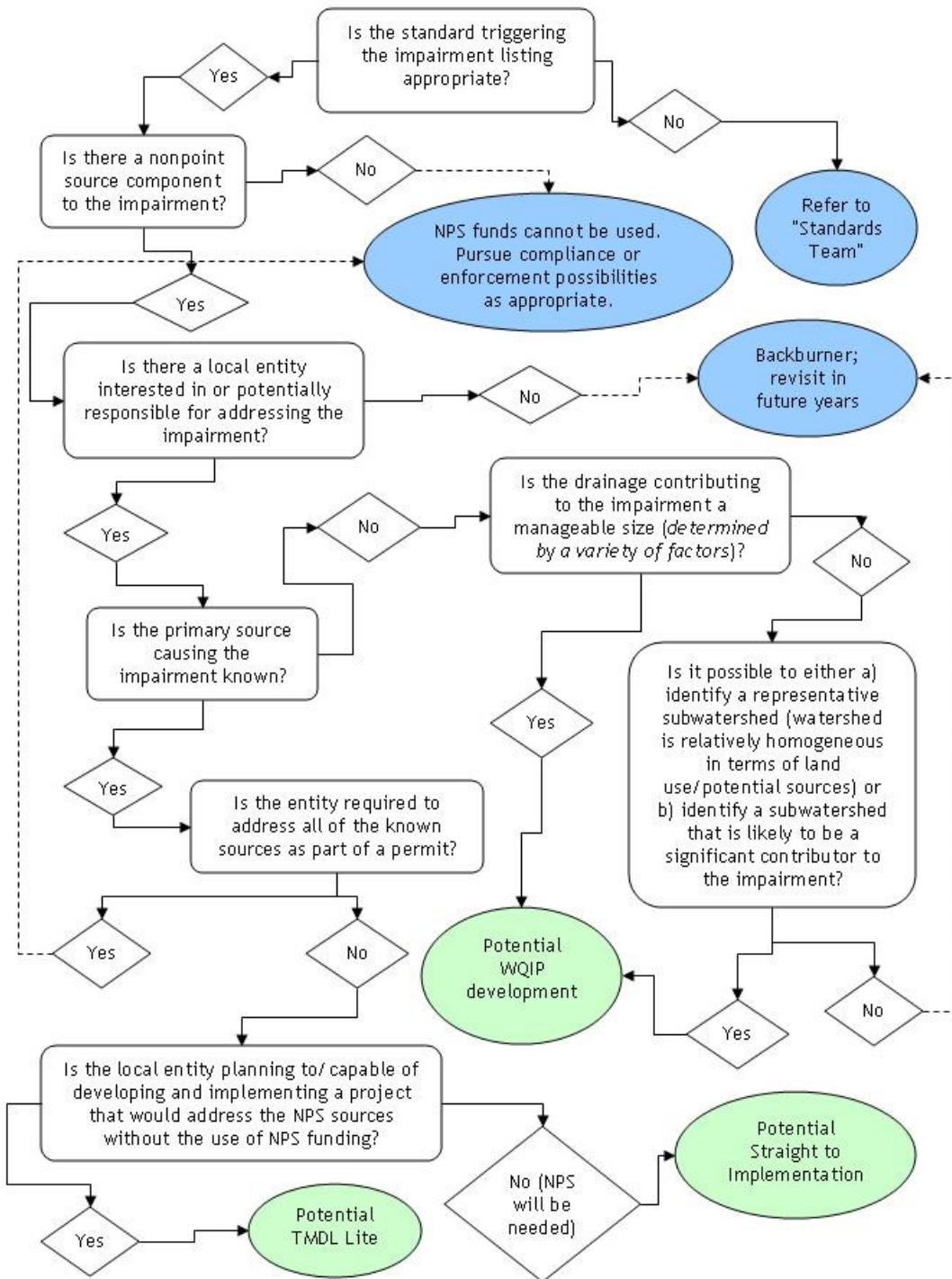


Figure 3: Flow chart for determining how to best move an impaired water body toward being delisted.

Partnerships and Support

Since Arizona has a large amount of publicly owned lands, partnerships with federal, state and tribal land and resource management agencies are key elements in the program's success. Arizona achieves these partnerships through a variety of formal and informal agreements, cooperative projects, sharing and combining of funds, and meetings to share information and ideas. Through these partnerships, Arizona works with a variety of entities to incorporate other appropriate water quality controls and further the goals of the Nonpoint Source Program.

NPS Program staff work closely with stakeholders in Targeted Watersheds to develop community-led, watershed-based planning efforts. These local planning efforts assist the department in developing WIPs and other programs and outreach activities appropriate to the specific area and current issues. A list of Arizona Watershed Partnerships can be found [on ADEQ's website](#). Within these watershed partnership structures, ADEQ and its partners are able to more easily identify, assess, and help implement voluntary efforts to control nonpoint source pollution.

In FY13, ADEQ finalized updates to an existing partnership agreement with the Bureau of Land Management (BLM) to maximize the potential for collaboration in future years. In addition, the ADEQ/US Forest Service Memorandum of Understanding (MOU) was extended for a period of one year. This MOU will be revisited after ADEQ drafts updates to the current NPS 5 year plan. NPS staff also continued to work closely with the Arizona Department of Emergency Management (ADEM) to oversee efforts to mitigate the devastating effects of the Wallow Fire, and provided recommendations for priority watersheds to the Natural Resource Conservation Service (NRCS) for the National Water Quality Initiative (NWQI). In addition, ADEQ remained active in the NRCS State Technical Committee and Arizona's Coordinated Resource Management efforts, ensuring that nonpoint source concerns remain a focus for both groups.

ADEQ has continued to work extensively throughout FY13 to coordinate with partners and develop a scope of work and funding plan for an implementation project in the Boulder Creek Targeted Watershed. Boulder Creek from Wilder Creek to the confluence of Butte Creek was identified as a non-competitive Targeted Watershed during FY10. This reach of Boulder Creek is currently impaired due to elevated levels of arsenic, copper, and zinc. The [TMDL](#) for this reach identifies three mine tailings piles (referred to as the upper, middle and lower piles) as the primary sources contributing to these impairments, as well as an adit discharge located at the middle pile site. As of the writing of this report, ADEQ is working with EPA Region 9, Arizona State Lands Department (ASLD), the Arizona Department of Administration (ADOA), and Freeport McMoRan Inc. (FMI) to finalize agreements for a jointly funded road and lower pile cap construction project. All construction at the lower pile is anticipated to be completed by 6/30/15. BLM (based on EPA's commitment to activities at the lower pile) is in the planning phase of remediating the uppermost pile. Stabilization of both the lower pile and the upper pile are key steps toward the restoration of Boulder Creek for zinc and copper. In order to address arsenic levels, the adit at the middle pile must be treated as well. ADEQ is currently working with the middle pile land owner to address this issue.

Measures of Success

State Nonpoint Source programs are required to measure and document successes in improving water quality. ADEQ determines the success of NPS projects using a combination of load reduction modeling and post-implementation monitoring. Each project funded by the WQIG program to implement on-the-ground water quality improvements must describe a process for evaluating the effectiveness of the implementation efforts over time. Monitoring can include photographic tracking of project progress, vegetative transect data, and/or actual water quality monitoring data.

Collecting water quality data to quantify the actual load reductions associated with a specific project can be challenging. It can take many years before decreased pollutant loading can

translate into measurable improvements in the impacted water body. ADEQ worked throughout FY13 to identify ways in which effectiveness monitoring activities could be enhanced, and will commit more resources toward effectiveness monitoring in FY14 and beyond. In addition, ADEQ continues to utilize the Automated Geospatial Watershed Assessment (AGWA) Tool to estimate pollutant load reductions from projects that did not conduct pre- and post-implementation water quality monitoring. AGWA uses widely available standardized spatial datasets to develop input parameter files for two watershed runoff and erosion models: KINEROS2 and SWAT. ADEQ chose to utilize AGWA beginning in FY11 primarily because it can be calibrated to reflect characteristics unique to arid areas. This is a capability that is not well supported by common GRTS load reduction tools such as the EPA Region 5 and STEP-L models. ADEQ anticipates that the use of AGWA will result in realistic, scientifically defensible load reduction estimates when “real-world” data is not readily available for completed projects.

Load reduction results for nitrogen, phosphorus and sediment, whether directly measured or modeled, are reported to EPA via the Grant Reporting and Tracking System (GRTS) database. GRTS enables EPA and states to demonstrate the accomplishments achieved with the use of 319(h) funding. The data entered into GRTS is used by the EPA to respond to inquiries received from Congressional committees, the White House, and various constituent groups.

Arizona’s FY13 load reductions were determined based on a combination of AGWA estimates and grantee-provided data. Please note that load reduction estimates are expressed in GRTS in terms of the new load reductions that were achieved in a given year. A BMP or project can then be anticipated to, maintained correctly, yield those same load reductions each year for the life of the BMP.

All new load reductions taking place between October 1, 2011 - September 30, 2012 were reported to EPA during state FY13, and are listed in Table 5 below.

EPA Grant Number	Appropriation Year	Project Number	Project Title	GRTS Link	FY 12 Load Reductions		
					N	P	Sedimentation-Siltation
					LBS/YR	LBS/YR	TONS/YR
96973406	2006	17	Tonto Rim Christian Camp Water Quality Improvement Project	VIEW	296	50	0
96973406	2006	18	Sustainable Design for the Southwest Family Services Center Pervious Concrete Demonstration to Mitigate Stormwater Pollution	VIEW	28	5	1
96973406 Total					324	54	1
96998407	2007	17	Sediment Reduction from Runoff Using Best Management Practices	VIEW	404	196	98
96998407	2007	18	Wenima Wildlife Area Stream Restoration	VIEW			97
96998407 Total					404	196	195
97959609	2009	05	E. Coli Reduction on the San Francisco River through Alternative Livestock Watering on Kaler Ranch, Phase II	VIEW			78
97959609	2009	21	DEMA Wallow Fire Mitigation Funding	VIEW	2,106	1,215	527
97959609 Total					2,106	1,215	605
98961308	2008	07	Middle Fossil Creek Water Quality Improvement Project	VIEW	157	3	0
98961308 Total					157	3	0
Total Load Reductions Reported for 10/1/11 - 9/30/12					2,991	1,468	800

Table 5: Load Reduction Estimates Reported to EPA in State FY13 for N (Nitrogen), P (Phosphorus) and Sediment

NPS staff worked throughout FY13 to develop a plan for effectiveness monitoring that will allow improved ability to track and report the success of the NPS program and the agency's activities to improve water quality. Staff has created a Master Target List (MTL) of waters that will be monitored for improvements through FY18. Water quality improvements will be documented as success stories for both EPA and to agency management to demonstrate achievements toward meeting the Water Quality Division's performance measure to show improved water quality in 50% of monitored waters over 5 years. More information about the performance measure can be found in the [ADEQ FY2014-2018 Strategic Plan](#). Increased effectiveness monitoring will improve ADEQ's ability to quantify actual load reductions from projects, versus relying on modeled estimates.

Information compiled from effectiveness monitoring efforts will also be incorporated into an updated BMP manual. The updated BMP manual will help future grantees and ADEQ choose the most effective BMPs to improve water quality.

III. Nonpoint Source Strategic Plan

The foundation of the 5-year Nonpoint Source Management Plan and subsequently this Annual Report is the strategic plan described in this section and detailed in Appendix A. It contains specific goals, objectives, and strategies that ADEQ will implement to strengthen its Nonpoint Source Program.

The strategic plan describes how resources will be allocated to achieve the mission of Arizona's Nonpoint Source Program, which is to:

Achieve and maintain water quality standards through the reduction of nonpoint source pollutant contributions to Arizona's surface and groundwater.

The components of ADEQ's strategic plan:

- **Goals** - Goals are like Generals. They look at the big picture. Goals show us what the world will look like after we achieve our objectives - the desired outcomes. Goals are broad and inclusive, yet attainable and realistic.
- **Objectives** - Objectives are like Sergeants, taking directions from the Generals (goals). They describe the broad changes needed to achieve a goal.
- **Strategies** - Strategies are the foot soldiers. Strategies are specific actions needed to accomplish an objective.
- **Milestones** - Milestones are steps, stages, or phases of implementing the strategy. They allow us to determine progress in accomplishing the strategies. They may include tactics - the tools that must be developed.
- **Responsible Parties** - These are the major players who are committed to implementing the strategy.
- **Measures of Success** - Indicators of success must be chosen for each strategy. These need to be quantifiable and directed at achieving the objective or goal.

Strategic planning starts with the end in mind by establishing broad goals and objectives. Four broad goals were established for this nonpoint source strategic plan:

- Goal #1:** Prevent and reduce nonpoint source pollution discharges to protect surface or groundwater resources.
- Goal #2:** Coordinate efforts of various programs within ADEQ and with other agencies and partners to reduce nonpoint source pollution impacts to surface and groundwater.
- Goal #3:** Identify and mitigate impairments to surface water or groundwater quality.
- Goal #4:** Evaluate and improve the effectiveness of the nonpoint source pollution program and communicate success.

Objectives and strategies are then selected to achieve each goal. Definable milestones, responsible parties, and measures of success are then developed for each strategy to direct implementation of the plan and to evaluate success. Measures of success will be monitored and results analyzed to document whether and how well desired outcomes were achieved. Analyses provide the information needed to direct strategic plan changes. Milestone percent completion estimates are based on the completion of the Milestones over the course of the five-year NPS period. Milestones for which work is consistent and ongoing over the five-year period are generally ascribed a completion percentage of 20% per year. Annual reports to EPA will use these milestones and measures of success to report on progress.

Appendix A: Arizona Nonpoint Source Strategic Plan (FY 2010 - FY 2014)

Note: "n/a" in the "Percent Completion" field indicates that the milestone is 100% complete and updates are not applicable.

Goal 1: Prevent and reduce nonpoint source pollution discharges to protect surface or groundwater resources.								
Objective 1.A	Invest in Water Quality Improvement and Education Grants (319(h) Grants) that are likely to provide long-term load reductions and changes in behavior and to achieve watershed-wide improvements in water quality.							
Strategy 1.A.1	Grant proposals must demonstrate: <ul style="list-style-type: none"> ▶ How grant implementation will improve water quality on a watershed-scale basis ▶ That grantee has sufficient resources, technical skills, and commitments to implement and maintain the grant beyond the grant implementation cycle ▶ That grantee has sufficient resources, technical skills, and commitments to implement and maintain the grant beyond the grant implementation. 							
Success Indicators	1) Documented long-term grant project success after implementation of this objective 2) More grant proposals fulfill this objective							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) The grant manual revised to clarify grant requirements	The Grants & Outreach (G&O) Unit revised and finalized grant documents for WQIG Cycle 14, which will be released early FY14. Similar to Cycle 13, Cycle 14 documents will focus on the implementation of Watershed Improvement Plans (WIPs).	▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
2) Grant process revised	For WQIG Cycle 14, all application forms were converted to a PDF Fillable Form format. Converting the forms to pdf will allow all applicants access to a universal format as well as allow ADEQ to capture information in a more efficient manner. Also, both a mandatory pre-proposal (submitted electronically via the PDF form) and applicant presentations have been implemented. These will help to ensure we are receiving applications of the highest quality as well as give applicants the ability to present their projects to the review panel and respond directly to requests for clarification. This will decrease the amount of time from submittal of applications to awarding of grants.	▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
3) Technical assistance and training for grantees to improve grant proposals	Grant and TMDL staff reviewed and provided technical recommendations and feedback for all Cycle 13 grant proposals. Projects that were not awarded funding were provided with specific ideas for strengthening their proposals if they were eligible for NPS funding.	▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
Objective 1.B	Encourage management practices that mitigate nonpoint source pollutant loadings.							
Strategy 1.B.1	Develop a "BMP toolbox" of watershed remediation methods applicable to Arizona's hydrologic and geologic conditions and provide hands-on educational opportunities for target audiences in implementing these practices. Next 5-year focus: homeowner storm water management, recreation, grazing, septic systems, and shallow lake management.							
Success Indicators	1) Use of website and tools documented 2) Demonstration sites visited 3) New improvement projects associated with website use and demonstration site visits							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) BMP toolbox available on website with user-friendly tools	This milestone has been completed. ADEQ contracted with the Arizona Nonpoint Source Education for Municipal Officials (NEMO) program in FY09 to develop a web-accessible BMP manual. This manual was completed during FY11, and can be found online at http://nemo.snr.arizona.edu/nemo/index_old.php?page=bmpmanual .	▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	25	75	n/a	n/a	n/a	100

Strategy 1.B.2	<p>Complete state-wide watershed-based plans for use by local watershed partners that:</p> <ul style="list-style-type: none"> ▶ Characterize the watershed ▶ Identify pollutants of concern ▶ Determine high-risk sub-watersheds for specific pollutants groups ▶ Include EPA's nine key elements for a watershed plan 							
Success Indicators	<p>1) Pollutant loading reductions in watershed because Information in plans used to:</p> <ol style="list-style-type: none"> a) Initiate new water quality improvement projects b) Institute new land management decisions c) Implement new BMP's 							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Plans completed for the last four watersheds: Colorado-Grand Canyon, Colorado-Lower Gila, San Juan (part of the Little Colorado), and the San Pedro.	Final plans for each of Arizona's ten 8-digit watersheds are available on the AZ NEMO Web site at the following location: http://nemo.srn.arizona.edu/nemo/index_old.php?page=characterization	<ul style="list-style-type: none"> ▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ▶ Watershed Partners 	100	n/a	n/a	n/a	n/a	100
2) Education and training about these watershed-based plans for government leaders, resource managers, and other watershed partners	The ADEQ website was updated in FY13 to provide direct access to these plans and to better explain the role they play ADEQ's Nonpoint Source Program and how they should be used by the public. The content of these plans will be shared and utilized as applicable at the smaller watershed scale. <u>Additional formal workshops focusing on the NEMO WBP's will not be conducted as they do not directly pertain to ADEQ and EPAs updated watershed planning priorities. As such, this milestone as written is considered to be largely complete.</u> The original modeling for portions of watersheds identified as high priority for future planning efforts will be revisited during FY14; these updates will be shared with local stakeholders.	<ul style="list-style-type: none"> ▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) 	0	0	20	60	n/a	80
3) Interactive Mapping Service available on line so interested watershed partners can work with GIS covers used to develop these plans	The IMS is accessible on the AZ NEMO Web site (www.arizonanemo.org). While GIS layers were updated and will continue to be updated by NEMO as new versions become available, this milestone is considered complete for the purposes of this report.	<ul style="list-style-type: none"> ▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) 	90	0	10	n/a	n/a	100
Objective 1.C	Encourage the use of legal authorities to reduce nonpoint source contributions to surface or groundwater, rather than relying on voluntary actions.							
Strategy 1.C.1	<p>Educate watershed partners about potential legal authorities to control nonpoint source loadings to surface or groundwater. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> ▶ Existing state and federal regulations (aquifer protection (A.A.C. R18-9), nitrogen management areas (A.A.C. R18-9), pesticide use and disposal (A.A.C. R18-6), hazardous waste use and disposal practices (A.A.C. R18-8), underground storage tanks (A.A.C R18-12), solid waste disposal regulations (A.A.C R18-13) ▶ Federal or state land use or permit restrictions (e.g., grazing permits, off-road vehicle use areas, road closures, MS4 permits) ▶ Local planning and zoning restrictions - existing and potential ordinances 							
Success Indicators	1) Watershed partners use legal authorities to reduce pollutants of concern							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Education materials and training opportunities for watershed partners (e.g., authorities, process, where best used, and contact for info).	G&O staff continued to compile resources to aid in future web site updates to include relevant links and contact information for legal authorities that may be utilized to address nonpoint source concerns. Surface Water staff led and/or participated in meetings on the applicability of MSGP's, CGP's, and PGP's to a variety of municipal, federal, state, and special interest groups with a combined total of over 500 attendees.	<ul style="list-style-type: none"> ▶ Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ▶ Aquifer Protection Permit Program ▶ Hazardous Waste Program ▶ Solid Waste Program ▶ Underground Storage Tanks Program ▶ Pesticide Program (Arizona Department of Agriculture) ▶ AZPDES Permits, including Storm Water Management 	0	20	40	20		80

Strategy 1.C.2	Identify methods for using land use management and written agreements to assure long-term load reductions for water quality improvement grants (319(h) Grants). For example, use of conservation easements, deed restrictions, Memorandums of Understanding.							
Success Indicators	1) Land management restrictions are used to assure load reductions. 2) Grant project evaluations show that written agreements incorporated into grant process have assured project effectiveness well beyond the two year grant period.							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Education materials and training for watershed partners.	G&O staff assisted in the coordination and presentations for first annual Ranch Conservation Improvement Techniques Conference held in St. David, AZ. This conference focused on increased land use management to improve water quality. Workshops were also provided in the Benson, AZ area to inform landowners of the benefits of rangeland restoration and its impacts on water quality In addition, TMDL staff instructed a Master Watershed Steward class on CWA topics.	► Grants and Outreach, including 319 grants (e.g., NEMO and Master Watershed Stewards)	5	0	45	25		75
2) Water Quality Improvement Grant agreement procedures modified to incorporate written agreements that better assure long-term load reductions.	Progress was made on this task during FY13 by requiring grantees to identify the expected service life of BMPs and provide information about and commitment for the long-term maintenance of projects. These BMP service life estimates were based on information provided by EPA and NRCS. Additional resources for determining expected life and maintenance of BMPs will be researched and incorporated into agreements in FY14.	► Grants and Outreach, including 319 grants (e.g., NEMO and Master Watershed Stewards)	0	0	20	60		80

Goal 2: Coordinate efforts of various programs within ADEQ and with agencies and partners to reduce nonpoint source pollution impacts to surface and groundwater.								
Objective 2.A		Encourage public involvement and locally-driven efforts.						
Strategy 2.A.1		Empower watershed partners to develop and implement watershed improvement and education projects by providing technical assistance, education, and training.						
Success Indicators		1) Increased knowledge results in more effective project implementation, higher load reductions, and more commitment to continue water quality improvements. 2) Grant proposals submitted by watershed partners require less revision and less direct assistance from ADEQ staff to develop or implement. 3) Monitoring data collected by watershed partners meet Credible Data requirements and can be used by ADEQ for assessments. 4) Modeling, mapping, and GIS analyses available at website are used by local watershed partners to support water quality improvement project development.						
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Target education grants to provide needed technical assistance, education, and training for watershed partners.	G&O staff continued to support education-based contracts and grant agreements during FY12. This included: • One Watershed-scale Education and Training Grant (#12-002 - Coyote Creek) to provide education and training regarding past BMP effectiveness and future BMP needs for controlling sediment loads to the LCR to local ranchers. • Three contracts with the University of Arizona (EV11-0009, EV11-0010, EV11-0011) to fund AZ NEMO Program, Master Watershed Steward (MWS) Program, and Dr. Channah Rock to provide technical support and training services to ADEQ-identified targeted watersheds. This work will continue under one combined NEMO ISA through FY14, providing continued support to existing Targeted Watersheds as well as new priorities. • One additional contract (EV11-0008) with the U of A to fund Project WET Water Festivals, providing statewide youth education regarding water and water quality (project ended 12/12).	► ADEQ Nonpoint Source Programs ► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20	80	
2) Provide education and training opportunities on water quality topics of concern as requested by watershed partners, such as: sampling, credible data requirements, data tracking, field survey methods to identify pollutant sources and remediation projects, GIS mapping and modeling capabilities, grant writing.	G&O and TMDL staff worked closely with watershed stakeholders throughout FY13 to provide watershed-specific education and training. Efforts were focused on Targeted Watersheds. ADEQ activities included assisting with BMP selection and review, data interpretation and analysis, and social survey methods. In addition, the U of A NEMO program continues to work with targeted groups on GIS mapping, field survey methods, load reduction modeling, data tracking techniques, sampling plan development and data interpretation methods.	► ADEQ Nonpoint Source Programs ► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20	80	
Objective 2.B		Encourage land and resource management agencies and tribal authorities to identify and mitigate nonpoint source pollution impacts in Arizona.						
Strategy 2.B.1		Strengthen working relationships with other agencies and tribes to encourage development of effective water quality improvement projects and avoid projects or practices that would contribute to impairment of surface or groundwater quality.						
Success Indicators		1) New strategies identified and implemented resulting in reduced pollutant loadings. 2) Funds from multiple funding sources used to implement priority water quality improvement projects. 3) More tribal representation in planning and watershed partner meetings. 4) Tribal 319(h) grant proposals reflect a watershed approach to identify priority projects						
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Memorandums of Understanding with other agencies and tribes updated to better support this 5-year strategic plan.	Updates to the ADEQ/BLM nonpoint source MOU were finalized in early FY13. The ADEQ/USFS MOU, last updated in 2008, was set to expire in February 2013. An administrative extension was granted to continue the MOU in its current state until February 2014; USFS and ADEQ staff will work toward revising the document as necessary during FY14 so that it reflects the goals and objectives of ADEQ's FY15 5-year NPS plan update. ADEQ also began discussions with NRCS during FY13 regarding an MOU detailing each agency's role in the USDA National Water Quality Initiative (NWQI). This MOU will be pursued during FY14 in accordance with recommendations for state/NRCS NWQI agreements from EPA Headquarters.	► ADEQ Nonpoint Source Programs ► Federal and state agencies who have signed MOUs with ADEQ ► ADEQ and EPA tribal liaisons ► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	10	5	20	30	65	

Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
2) ADEQ participation in coordinated resource planning efforts of federal and state agencies (e.g., planning, federal action reviews).	The WQD provided comments on approximately 89 environmental reviews received from various federal, state, and local agencies. The Hillside Mine project continues to move forward, with an ISA to transfer ADEQ nonpoint source funding to ADOA for project management set to be initiated July 2013. Contracting and construction will take place in FY14, with continued participation from ADEQ staff. Coordination efforts continued in FY 14 with the USFS. The Big Bug TMDL Lite project was a direct result of coordinated planning. The USFS began planning activities within the Pinto Creek Watershed to address sources identified during the TMDL project.	►ADEQ Nonpoint Source Programs ►ADEQ WQD Director's Office ►Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
3) Coordinate with other agencies to leverage funding opportunities, especially for priority projects within impaired watersheds (Objective 3.B.1).	G&O and TMDL staff coordinated with NRCS in FY13 to identify new potential priority watersheds for the USDA NWQI. These replaced less-desireable watersheds chosen by NRCS in FY12 due to time constraints. The NWQI mandates that states prioritize 5% of their available EQIP funded (managed and awarded by NRCS) toward impaired watersheds. In addition, representatives from the USFS, BLM, EPA, AZG&F, ADEM, ASLD, ADOA and ADOT continued to actively participated in planning and implementing WQIG-funded projects during FY13. The TMDL group continues to coordinate annually with USFS to determine where mutual priorities exist across the state.	►Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
4) Tribal participation in watershed planning, educational opportunities, and priority water quality.	Representatives of the Hopi Nation attended the Improving Riparian Areas on Private and Tribal Lands workshop in Cottonwood, AZ where Grant staff provided information about the WQIG program and its potential for funding projects. In addition, Yavapai Tribe representatives attended Granite Creek WIC meetings throughout FY13. Restricting WQIG funding to waters that are identified as impaired has limited the potential for funding on tribal lands; however, ADEQ continues to seek partnership opportunities on lands upstream of impairment listings.	►ADEQ and EPA tribal liaisons ►Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	0	20	20		60

Goal 3: Identify and eliminate impairments to surface water or groundwater water quality.								
Objective 3.A	Assess water quality of surface waters and groundwater.							
Strategy 3.A.1	Perform state-wide surface and groundwater quality monitoring according to ADEQ's Monitoring Strategy (revised 2007) and analyze data to fulfill requirements of the Clean Water Act and state water statutes.							
Success Indicators	1) ADEQ continues to submit superior quality assessment and impaired waters identification reports that are approved by EPA. 2) Groundwater basin reports complete at least one report per year.							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) State-wide surface water monitoring is completed in a two three year cycle.	25 randomly selected sites were sampled as part of a statewide assessment in FY2013. An additional 25 sites will be sampled in FY14. Note: a change was made in 2011 to complete surface water monitoring in a two year cycle rather than a three year cycle to minimize variables such as drought, fire, and flooding that could impact data quality. a change was made in 2011 to complete surface water monitoring in a two year cycle rather than a three year cycle due to factors such as drought that prohibit collection of water samples.	► Ambient Monitoring Program	20	20	20	20		80
2) Groundwater quality is characterized and reported for watershed partner use.	A final report for Butler Valley and Aravaipa Canyon were completed in January and April of 2013, respectively. A final report for the Upper Hasayampa is expected to be completed in early July 2013.	► Ambient Monitoring Program	0	40	30	30	n/a	100
3) ADEQ submits assessment report, assessment database, and list of impaired waters every two years to EPA.	EPA's action on the 2010 303(d) List was not completed until June 2013. As a result, the draft 2012 Assessment and 303(d) List were not moved toward the public review process as anticipated. Due to the delays in finalizing the 2010 Assessment, EPA and ADEQ agreed to combine the 2012 and 2014 Assessments. The draft 2012/14 Assessment will be updated based upon EPA's final action on the 2010 303(d) List and moved to public comment.	► Assessment Program	30	60	5	5	n/a	100
4) Impaired waters list and supporting GIS maps updated and available on internet.	The 2008 and draft 2010 assessment and impaired waters were incorporated into the AZMapper (internal) and eMap (external) GIS applications.	► Assessment Program	20	70	0	10	n/a	100
Strategy 3.A.2	In-stream water quality sampling data submitted to ADEQ to evaluate effectiveness of grants or treatment, ambient conditions, or impacts from potential pollutant sources: ► Is reliable, scientifically based, and meets credible data requirements established for listing impaired waters ► Is formatted so it can easily be loaded into ADEQ's database ► Includes supporting metadata needed to properly interpret the water quality data ► Is collected using protocols established by ADEQ, if applicable standards would require these protocols							
Success Indicators	1) Monitoring data submitted to ADEQ meets credible data requirements, contains supporting metadata, and is easily loaded into ADEQ's database.							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Current ADEQ's sampling methods and protocols are available over the internet.	ADEQ's current sampling methods and protocols are available online at: http://www.azdeq.gov/environ/water/assessment/download/sampling.pdf	► Ambient Monitoring Program ► TMDL Program	100	n/a	n/a	n/a	n/a	100
2) Components of the Sampling Analyses Plans (SAPs) and Quality Assurance Plans (QAPs) required to meet credible data requirements are either provided in the permit or submitted to ADEQ with all in-stream surface water quality data.	The Permits Unit has developed improved permit language for those AZPDES permits which require ambient surface water quality monitoring in order to ensure the data collected will meet ADEQ credible data requirements. The Permits Unit will continue to coordinate with the Ambient Monitoring and Assessment Programs to ensure appropriate guidance documents are available to permittees and referenced in the permits.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ► AZPDES Permit Programs	20	30	50	n/a	n/a	100

Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
4) Guidance documents establish credible data and submittal requirements, including supporting metadata requirements.	Some minor modifications were made in FY 13 but this project is included as part of the Data Committee TMDL GSD and will be completed in FY 14	► Assessment Program	70	0	0	5		75
Strategy 3.A.3								
Develop and implement new tools, water quality standards, and sampling methods to support water quality assessments and identification of impairments, sources, and key projects.								
Success Indicators								
1) Arizona assesses a higher percentage of perennial waters. 2) Fewer surface waters must be added by EPA to Arizona's 303(d) List of impaired waters. 3) Assessment reports are completed in a timely manner. 4) New methods provide scientifically reliable evidence of source contributions 5) New water quality improvement projects significantly reduce pollutant loading and lead to delisting of water quality impairments								
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Water quality standards developed or revised in accord with the Triennial Review Process.	The revised Surface Water Quality Standards Rules were finalized on January 31, 2009. ADEQ is in the process of identifying proposed changes for the 2012 triennial review. The initiation of the formal rule making process is on hold due to the Arizona moratorium on rule making.	► Assessment Program ► Rule Development Program ► Data Management Program	40	0	0	0		40
2) EPA's Environmental Monitoring and Assessment Program (EMAP) random monitoring approach is adapted for use in Arizona's arid environment.	50 random wadeable perennial stream sites were chosen in FY10; sampling occurred in FY12 to provide a statistically valid assessment of Arizona.	► Ambient Monitoring Program	90	0	10	n/a	n/a	100
3) Arizona's Impaired Water Identification Rule is revised to incorporate new water quality standards and better reflect EPA's impaired waters listing guidance.	Arizona's Impaired Water Identification Rule established methods and criteria for identifying impaired waters and developing a Total Maximum Daily Load analysis. This rule was adopted in 2002 and revisions began in 2010 to incorporate new procedures for identifying impaired waters based on violations of narrative water quality standards. There is no timeframe for new rules because all rule development is on hold due to the Arizona moratorium on rule making. Accordingly, progress on this task has been halted.	► Assessment Program	40	0	0	0		40
4) New components are developed for Arizona's Assessment Calculator (AZAC) to provide computer assisted data analyses for water quality assessments.	AZAC was updated to reflect water quality standards approved by EPA during the 2009 Triennial Review prior to running the 2012 Assessment data. Additional minor updates were made to the program utilizing internal staff. No external contract was sought to perform more extensive programming updates. FY13 no additional work on AZAC.	► Assessment Program	0	15	20	0		35
5) A data submittal process is established so that external data can be readily loaded into ADEQ's Water Quality Database.	G&O staff worked with the U of A NEMO program during to develop databased for all WIP grantees so that monitoring data can be easily loaded into ADEQ's database. A component of the Data Committee TMDL GSD is to expand the use of electronic data uploads which will be completed in FY 14 Database development for all current WIP grantees was completed during FY12. ADEQ and U of A.	► Assessment Program	30	0	20	10		60

Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
6) New methods developed to survey watersheds and to identify sources and key project sites that will significantly address impairments.	G&O and TMDL staff worked with all WIP grantees to updated watershed survey methods as needed. FY13 assistance focused on assisting with the development and review of social surveys for watershed stakeholders. The TMDL Unit has begun using GIS to identify target areas for additional monitoring by looking at perennial waters to see if samples have been collected near potential pollution sources (historic mines, grazing, etc.). In addition, they have also begun looking at the watershed scale at which TMDLs are completed to determine if concentrating at a smaller scale would lead to greater implementation potential. As a result of the TMDL/319 Kaizen and 319 funding constraints ADEQ initiated a combined TMDL-319 effort to implement WQ improvement project as soon as possible. We will implement a new effort to target priority watersheds by using GIS, watershed modeling and the willingness of local stakeholders to determine target watersheds.	►TMDL Program ►Grants and Outreach Program	20	20	20	10		70
7) Develop new databases to track field survey data and new methods to interpret field survey data.	ADEQ and U of A staff assisted all four WIP groups in the interpretation of field data tracked in the new databases, and the translation of this data into BMP recommendations for the WIP documents in FY13. This Task is considered complete.	►Grants and Outreach Program	20	10	50	20	n/a	100
Objective 3.B	Target resources in watersheds with impaired waters to identify sources and implement plans to reduce pollutant loadings.							
Strategy 3.B.1	Establish an intra-agency team and an external partnership for each impaired surface waters to help identify and implement new strategies to mitigate impairments.							
Success Indicators	1) New strategies are developed and implemented that result in water quality improvements.							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) High priority impaired watersheds are identified for targeting resources such as 319(h) Grant resources, educational opportunities, and potential legal authorities.	Grants & Outreach and TMDL staff continued to work with EPA Region 9, ADOA Risk Management, and ASLD to initiate an implementation plan and secure funding for projects at the Boulder Creek/Hillside Mine site. Freeport MacMoRan Bagdad agreed to provide soil cover, rock, and water toward capping the lower tailings pile. Ongoing activities at this time include scope of work and land access negotiations with ASLD and ADOA, project design development, determination of donated materials value for match purposes, planning for biological and historical surveys, and sourcing of additional construction water. TMDL and Grants staff identified new methods to target priority watersheds by using GIS, watershed modeling and the willingness of local stakeholders to determine target watersheds. This will be implemented in FY14 to identify future watershed planning priorities.	►Grants and Outreach Program ►TMDL Program ►ADEQ Permit Programs (AZPDES, APP, etc) ►Monitoring and Assessment Programs ►Federal and State Agencies with MOUs	10	15	20	20		65
2) Two types of teams are created to identify resources and potential actions for high priority watersheds: a) A multi-programmatic ADEQ team with a focus on legal authorities. b) A multi-agency team with watershed partners to identify and implement other strategies.	ADEQ's internal team, consisting of TMDL and G&O, continued to focus on project development at the Boulder Creek/Hillside Mine site. In addition to the external team consisting of EPA Region 9 Nonpoint Source and Superfund staff, ASLD, and ADOA formed during FY11, Freeport MacMoRan Bagdad was also included as an external partner (see above for additional details). No additional priority watersheds were selected for FY13. The Impaired Waters table was updated based upon the draft 2010 303d list and recent activity within the watersheds.	►Grants and Outreach Program	10	30	10	20		70

Strategy 3.B.2		Assist locally-driven efforts to develop and implement Watershed Improvement Plans (WIPs) in targeted watersheds that identify water quality improvement projects, education and training needs, and other actions needed to mitigate impairments.						
Success Indicators		1) Watershed plans fulfill EPA's nine key elements for a watershed plan.						
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Watershed Improvement Council establishment and education.	WICs have been established for all current Targeted Watersheds. ADEQ and WIC members continue to reach out to watershed stakeholders to encourage active participation and input. G&O staff will continue to meet with WICs to educate them about potential BMPs and the future for their completed Watershed Implementation Plans.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ► TMDL Program ► Assessment Program	20	20	40	10		90
2) Volunteers trained to conduct field surveys and water quality sampling.	All volunteers necessary for field surveys and water quality sampling have completed training as of the close of FY13. Future training needs will be re-assessed.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ► TMDL Program ► Ambient Monitoring Program	20	20	40	20	n/a	100
3) Methods for field surveys and sample collection are developed, approved by ADEQ staff, and implemented.	Updates to field survey and sample collection methods for the San Pedro watershed were reviewed as needed by G&O, TMDL, and contracted U of A staff during FY13. G&O staff began reviewing survey methods utilized by completed WIPs in order to develop templates for more streamlined surveys for future planning projects. This work will continue into FY14.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ► TMDL Program ► Assessment Program	20	20	40	10		90
4) Field surveys, sample collections, and other information are analyzed to identify key project sites.	Analysis of field survey and sampling data for the San Pedro WIP continued during FY13. G&O and TMDL staff reviewed the final the Granite Creek and Oak Creek WIPs and made suggestions regarding data interpretation and BMP selection. Staff reviewed all completed WIPs in late FY13 to identify high-priority projects for Cycle 14.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards) ► TMDL Program	20	20	20	20		80
5) Project sites are prioritized and best options for mitigating pollutant loading identified.	Staff reviewed and approved final recommendations for project prioritization for the Oak Creek and Granite Creek WIPs. Final recommendations for the San Pedro WIP document are being reviewed concurrent with the development of this report, and are expected to be finalized Fall 2013. In addition, G&O staff reviewed BMP recommendations and requested associated revisions for the Coyote Creek BMP analysis being conducted under WQIG# 12-002. The Coyote Creek BMP analysis and future recommendations will be completed during FY14.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	0	20	40	20		80
6) Planning documents are finalized.	Oak Creek WIP - Finalized September 2012, Granite Creek WIP - Finalized December 2012, San Francisco River WIP - Finalized June 2012, San Pedro River WIP- Under final review	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	0	20	40	30		90
7) 319(h) Grant fund used to implement plans, as appropriate.	A grant was awarded in each of the watershed where a WIP has been finalized in the FY13 grant cycle. The grants were for specific projects identified in the WIP documents to reduce pollutant loading.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	0	20	30		70
Strategy 3.B.3		Develop and implement TMDLs to identify source contributions and load reductions needed to meet standards.						
Success Indicators		1) EPA approves ADEQ's TMDLs.						
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Scientifically-based TMDLs are developed according to the TMDL schedule.	Four TMDLs were completed and submitted to EPA for approval in FY13.	► Federal and State Agencies with MOUs ► ADEQ Permit Programs (AZPDES, APP, etc) ► Monitoring & Assessment Programs ► TMDL Program ► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	0	40	20	20		80

Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
3) Public involvement in TMDL Implementation Plan (TIP) development and implementation.	Generalized TMDL Implementation plans were included with the Gila River SSC, San Pedro E. coli and LCR E. coli and SSC TMDLs. Although the TIPs contained no specific projects we have continued to pursue opportunities to develop more specific implementation plans with local stakeholders. We have been in contact with the new watershed group that was formed in the lower San Pedro and have had discussions with the upper Gila Watershed group about building upon the sediment control structure project they have been working on. The upper Gila and Silver Creek (major tributary to the LCR) watersheds are being considered for pilot projects to test our new Water Quality Improvement Plan development. This combined TMDL/Implementation approach was a major recommendation that came from our Kaizen event held in April.	►TMDL Program	0	10	40	30		80
4) Nonpoint Source Grant funds used to implement TIP as appropriate.	TMDL and Grants staff continued to work throughout FY13 toward implementation of the Boulder Creek TIP at the Hillside mine, as described throughout this report. WQIG funds will be expended on this project in FY14.	►Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	0	0	30	30		60

Goal 4: Evaluate and improve the effectiveness of the Nonpoint Source Program and communicate success.

Objective 4.A	Evaluate ADEQ's Water Quality Improvement Grants (319 Grants) and TMDLs to determine their effectiveness at creating long-term reductions in pollutant loadings.							
Strategy 4.A.1	Evaluate past grant projects and TMDLs to determine conditions that lead to project success or reasons why pollutant loads have not diminished sufficiently to allow the pollutant of concern to be delisted.							
Success Indicators	1) Grant evaluations lead to adjustments in grant funding decisions. 2) TMDL evaluations result in adjustments to TMDLs. 3) Water quality improvements are documented.							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) ADEQ staff will evaluate effectiveness of education and on-the-ground improvement projects several years after the final project closeout.	A framework for evaluating closed projects was developed during FY09. Staffing shortages have continued to limit site visits beyond those conducted for active and recently closed out projects during FY13. During FY13, G&O staff revisited the FY09 framework. Work was done to update project lists and create an Access database that will allow project information to be easily cross-referenced with other information including current impairments, TMDL development and effectiveness monitoring, and existing sampling locations. From this, a Master Target List (MTL) of waters that have had WQIG and/or TMDL-related improvement activities was created. Waters on the MTL will be prioritized for effectiveness monitoring efforts over the next five years to help meet ADEQ's Water Quality Division performance measure. In addition, a portion of the funding for WQIG #13-001 will support the continued evaluation of past BMPs in the LCR Headwaters watershed. This evaluation began under WQIG #12-002, and will inform future funding decisions and BMP recommendations.	► Grants and Outreach Program	10	0	10	20		40
2) TMDL effectiveness is determined five years after completing the TMDL based on samples collected during critical conditions when past exceedances had occurred.	TMDL Effectiveness Monitoring (EM) continued on the Tonto and Christopher Creek and Turkey Creek TMDLs. Additional samples were collected along the Verde River in conjunction with the ambient monitoring program. The Wallow Fire delayed additional sampling along Nutrioso Creek and LCR. TMDL EM efforts in FY13 were similar in scope and extent as previous efforts in FY12. FY13 efforts focused on the Tonto and Christopher Creek and Turkey Creek projects. Data analysis on the Tonto TMDL project is on going. Staff will be reassigned in FY14 to continue EM on priority projects which will include Boulder and Pinto Creeks as remedial projects are completed.	► TMDL Program	20	20	20	20		80
3) All grant projects have a monitoring component that measures water quality improvements and/or determines long-term behavioral changes.	All applications received during FY13 were required to provide plans for long-term maintenance and monitoring. G&O staff will work with grantees to appropriately modify and implement these plans as the projects progress. G&O and TMDL staff continued to work with grantees throughout FY13 to adapt existing monitoring plans and provide monitoring resources, including training and equipment.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
4) Submit load reduction reports for nutrients and sediment reductions to EPA using their Grant Reporting and Tracking System.	Load reduction estimates were entered into GRTS for eight projects during FY13. The load reductions associated with these projects totaled 2,991 lbs/yr of nitrogen, 1,468 lbs/year of phosphorus, and 800 tons/year of sediment.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80

Objective 4.B	Communicate Nonpoint Source Program successes and lessons learned.							
Strategy 4.B.1	Document “success stories” or “lessons learned.”							
Success Indicators	1) Stories increased public awareness of these programs. 2) Grant proposal methods reflect past successes and lessons learned.							
Milestones	Progress Summary	Responsible Parties	Percent Completion per FY					Overall Percent Completion
			FY10	FY11	FY12	FY13	FY14	
1) Grantees provide information and graphics in their final reports for these stories.	All final reports submitted to ADEQ during FY13 were in accordance with the final report format revised in FY09. This format follows the EPA 319(h) Success Story format to allow for smooth transition between final reports and success story submissions.	► Grants and Outreach Program and grantees (e.g., NEMO, Master Watershed Stewards)	20	20	20	20		80
2) Grant and TMDL effectiveness documented and communicated to the public.	Success stories were drafted for Alum Gulch, Pinto Creek and Turkey Creek. Future success stories will be developed from the “Master Target List” that the TMDL and WQIG programs developed to track the 2014-2018 ADEQ Strategic Plan WQD performance measure of “improving water quality on 50% of the monitoring streams over five years”. Project summaries will be developed to provide updated real-time project information to stakeholders. This was recommended during the TMDL/319 Kaizen event.	► TMDL Program	20	20	20	20		80

Appendix B: Impaired Waters Table Update

ADEQ has a comprehensive strategy for improving water quality on Arizona’s impaired waters that will lead to these waters meeting standards. The TMDL and WQIG programs bring together the resources needed to move the surface water through a series of steps or levels until the impairment has been mitigated and the stream or lake is meeting standards for the pollutants of concern. The Impaired Waters Table is tool utilized to track surface waters based on Management Strategy and Priority Level.

The following table is a slightly abridged version of the tool utilized by ADEQ. This table has been updated based on Arizona’s Draft 2010 Integrated 305(b) Assessment and 303(d) Listing Report. It is primarily organized based on ADEQ’s Prioritization Level. Waters are prioritized in one of the following ways:

High priority for attaining standards
Potential for improvement in the near future (color coded green)
Explore opportunities (color coded yellow)
Potential de-list (color coded pink)
Not an implementation priority/primarily point source in nature (color coded white)

In the far left column, the table notes the Management Strategy that applies to each surface water. Since the Management Strategy informs ADEQ’s prioritization scheme, there is some overlap in the six Prioritization Levels and the six Management Strategies. **Please note that the Management Strategies were updated in FY13 based on the process improvement activities described in (chapter 1?), and will differ slightly from those described in the FY12 NPS Annual Report.** The six Management Strategies (Level A through F) are:

- **Level A - Requires further investigation.** Most impaired waters start in Level A. The TMDL Program will develop further monitoring data to determine the extent of impairment (e.g., seasonality, area), likely sources, and develop a Total Maximum Daily Load (TMDL) that indicates the load and waste load reductions needed for the surface water to meet standards. (Ditch this one completely?)
- **Level B - Develop a plan or other strategy that identifies and prioritizes effective water quality improvement projects.** This step is key to diminishing the pollutant sources and impacts. Potential plans or strategies may include developing an full or abbreviated TMDL, a cooperative Water Quality Improvement Plan (WQIP) that lays out an implementation plan for addressing the impairment, pursuing compliance action, or going straight to project implementation. WQIPs, TMDLs or other formal strategies developed must include EPA’s nine key elements of a watershed plan. These plans include a load or waste load reduction estimation, although not at the level of sophistication of a TMDL.
- **Level C - Implement the plan or other strategy.** Surface waters move to Level C when a WIP, TIP, WQIP, or other strategy is being implemented. Implementation may take years and require multiple phases.
- **Level D - Re-evaluate impairment due to watershed improvements, new standards, or natural conditions.** The impairment decision will be re-evaluated when water quality improvements are implemented, when relevant water quality standards change, or when preliminary data indicates that pollutants are solely due to natural conditions. New data are collected during this stage during critical conditions (conditions when exceedances have occurred in the past).
- **Level E - Request removal from Arizona’s impaired water list.** If the data evaluation indicates that the surface water is no longer impaired by the pollutant(s) of concern,

the surface water moves to this level for a short time. This level reflects the reality that surface waters must be officially removed from the impaired waters list, and this may take time.

- **Level F - Assign to EPA because ADEQ lacks jurisdiction (e.g. pollutant source are entirely in Mexico).** When all pollutant sources are outside of Arizona, particularly in Mexico, EPA will be notified and will be expected to take the lead in implementing pollutant mitigation actions. The spreadsheet shown in this appendix is a tool to coordinate efforts between several of ADEQ's programs and help focus efforts and funding opportunities with other federal, state, and local agencies. Improving water quality on *all* surface waters listed as impaired is a high priority for ADEQ, so the level does not infer a priority.

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments			
Alum Gulch and tributaries	D Note: Cross-program coordination required (NPS/ Compliance)	Cross-program coordination required (NPS/Compliance)	Potential Measure W/SP-12	SC	Humboldt Canyon (Headwaters to Alum Gulch)	Cadmium (1996)	4a	TMDL completed in 2003	TMDL sources identified: Remediate mining sources. USFS has remediated Worlds Fair Mine and Humboldt Canyon Mine. Remaining sources are Humboldt Canyon and January adits (point sources), and are a low priority for USFS at this time. Tiny subdrainage of Sonoita Creek 15050301-02			
						Copper (1996)						
						Zinc (1996)						
						Low pH (1996)						
					Alum Gulch (Headwaters to Tributary at 312820 / 1104351);	Cadmium (1996)						
						Copper (1996)						
						Zinc (1996)						
					Alum Gulch (Tributary at 312820 / 1104351 to Tributary at 312917 / 1104425)	Low pH (1996)						
						Cadmium (1996)						
					Alum Gulch (Tributary at 312917 / 1104425 to Sonoita Creek)	Copper (1996)						
						Zinc (1996)						
						Low pH (1996)						
Boulder Creek	C Note: Cross-program coordination required (NPS/ Compliance)	High NPS focus for attaining standards	ADEQ NPS Funding Target AND Potential Measure W/SP12	BW	Boulder Creek (Wilder Creek - Butte Creek)	Arsenic	4a	Completed TMDL in 2004 Completed TIP in 2005	TMDL identified sources: Hillside Mine upper, middle and lower tailing piles; adit at middle pile. ADEQ coordinating with ASLD, EPA, ADOA and Freeport McMoRan to address lower tailings pile. Construction expected in Spring 2014. BLM currently developing plan to address upper pile. Middle pile, under private ownership, also has an adit discharge (owner has been contacted by Compliance staff).			
						Copper						
						Zinc						
					Boulder Creek (Butte Creek - Copper Creek)	Arsenic				4a	Completed TMDL in 2004 Completed TIP in 2005	See comment above [Boulder Creek (from Wilder Creek to Butte Creek)]. This reach is below Hillside mine; implementation activities at Hillside should reduce loadings to this reach.
						Copper						
						Zinc						
Granite Creek/Watson Lake	B/C	High NPS focus for attaining standards	ADEQ NPS Funding Target	VR	Granite Creek (Headwaters to Willow Creek)	DO (2004 - EPA)	5	TMDLs to be completed in FY14	WIP to identify and prioritize sources and implement appropriate BMPs finalized in FY13. Future updates to compare projected load reductions with TMDL-identified reductions necessary to meet standards. DO listing on Granite may come off in the 2012 assessment. Stormwater inputs are a major concern; NPS staff will coordinate with Stormwater Permit and WQD Compliance staff as appropriate to ensure known issues are addressed. WQIGs: 1. Retention basin improvement and street sewer education program (2007) 2. Granite Creek channel re-contouring in Watson Woods. 3. Granite Creek riparian improvement in Watson Woods (Watson Woods is just above Watson Lake) 4. Granite Creek Watershed Improvement Plan (2009) 5. Granite Creek Watershed Stormwater Demonstration Project (2013)			
						E. coli (2010)						
					Watson Lake	Nitrogen						
						Low DO						
						High pH (EPA 2004)						
Lakeside Lake	D Note: Cross-program coordination required (NPS/ Compliance)	Cross-program coordination required (NPS/Compliance)	Potential Measure W/SP-12	SC	Lakeside Lake	Ammonia	4a	TMDL completed in 2005	TMDL identified: Further treatment of effluent (tertiary or constructed wetland); provide more well water (not effluent); reduce storm water entering lake, dredge lake to remove nutrients in sediment; upgrade aeration system in lake; use alum to remove phosphorus from water column; use algaecides; and drop lake level in spring to minimize algae growth. New permit indicates that city will not be discharging effluent to the lake. WQIGs: Treating lake with Alum to remove phosphorus			
						Low DO						
						High pH						
						Chlorophyll-a						
						Nitrogen						
						Phosphorus						
Little Colorado River	D	High NPS focus for attaining standards	ADEQ NPS Funding Target	LC	Little Colorado River (West Fork Little Colorado River to Water Canyon)	Turbidity	4a	TMDL, including TIP completed in 2002. Need to reevaluate using SSC standards, so will sample for SSC and turbidity in 2009- sampling continues	Proposed: Identify and prioritize sources and implement appropriate BMPs. Implementation plan has been developed for the Coyote Creek subwatershed as part of grant #3 listed below. WQIGs: 1. Coyote Creek sediment reduction (1998) 2. Big Ditch project (2000) 3. Coyote Creek Targeted Watershed Improvement Grant (2010) 4. Big Ditch Extension Project Phase II (2013)			
					Little Colorado River (Water Canyon to Nutrioso Creek)	Turbidity						
					Little Colorado River (Nutrioso Creek to Carnero Creek)	Turbidity						
					Little Colorado River (Coyote Creek to Lyman Lake)	Turbidity						

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
Oak Creek and Spring Creek	B/C	High NPS focus for attaining standards	ADEQ NPS Funding Target	VR	Oak Creek (Dry Creek to Spring Creek);	<i>E. coli</i> (2006)	4a	TMDL completed 2011	WIP to identify and prioritize sources and implement appropriate BMPs finalized in FY13. Future updates to compare projected load reductions with TMDL-identified reductions necessary to meet standards. WQIGs: 1.Sediment traps - Guardian Project 2000. 2. 10 Septic systems 2000-2002 3. Don't trash Slide Rock 4. Sediment catchments 2000-02 5. Slide Rock education and outreach (1997) 6. DNA Genotyping (1999) 7. Septic systems (1998) 8. Outfall pipe (2000) 9. Septic survey (2001) 10. Trailhead toilets and riparian improvements (2002) 11. Red Rock State Park constructed wetland (2006) 12. Oak Creek WQIG (toilets and campground improvements) (2006) 13. Oak Creek Watershed Improvement Plan (2010)
					Oak Creek (West Fork Oak Creek to Tributary at 345709 / 1114513);	<i>E. coli</i> (2006)			
					Oak Creek (Tributary at 345709 / 1114513 to Slide Rock State Park);	<i>E. coli</i> (1994)			
					Oak Creek (Slide Rock State Park to Dry Creek);	<i>E. coli</i> (2006)			
					Oak Creek (Headwaters to West Fork Oak Creek);	<i>E. coli</i> (2006)			
					Spring Creek (Coffee Creek to Oak Creek)	<i>E. coli</i> (2006)			
Pinto Creek	A	High NPS focus for attaining standards	Potential Measure W/SP-12	SR	Pinto Creek (Headwaters to Tributary at 331927 / 1105456)	Copper (1990)	4a	Phase 1 completed in 2001. Phase II under development. TMDL waiting for a site-specific copper standard. Selenium TMDL not yet completed.	TMDL indicated sources: 1. Mining, especially at Gibson Mine. 2. Survey area to identify other abandoned mining operations and prioritize for remediation. WQIG: 1. Gibson Mine remediation (2006) 2. NPS Reduction of Copper to Pinto Creek (2010). ADEQ is attempting to set a site specific copper standard – UPDATE?
					Pinto Creek (Tributary at 331927 / 1105456 to West Fork Pinto Creek)				
					Gibson Mine Tributary (Headwaters to Pinto Creek)				
					Pinto Creek (West Fork Pinto Creek to Roosevelt Lake)	Copper (1990) Selenium (2004)	4a (*also 5)		
San Francisco River and Blue River	C	High NPS focus for attaining standards	ADEQ NPS Funding Target	UG	Blue River (Strayhorse Creek to San Francisco River);	<i>E. coli</i> (2006)	5	Locally-driven WIP determined to be a more effective route to implementation.	Small scale riparian improvements, fencing, and alternative water sources for cattle have been funded piecemeal throughout the watershed. Developing a WIP to identify and prioritize sources and implement appropriate BMPs. WQIGs: 1. Martinez Ranch riparian improve and grazing BMPs 2. Kaler Ranch erosion control Phase I (2006) 3. Cole Creek and White Mule Creek sediment reduction (2004) 4. San Francisco/Blue River Targeted Watershed Improvement Plan (2009) 5. Kaler Ranch erosion control Phase II (2010) 6. Clifton Restroom Project (2013)
					San Francisco River (Blue River to Limestone Gulch);	<i>E. coli</i> (2006)	5		
					San Francisco River (Limestone Gulch to Gila River)	<i>E. coli</i> (2010)	5		
San Pedro River	C	High NPS focus for attaining standards	ADEQ NPS Funding Target	SP	San Pedro River (Babocomari Creek to Dragoon Wash)	<i>E. coli</i> (2004)	5	Initiated in 2006. TMDL currently on hold due to WQIG/WIP development.	Developing of WIP to identify and prioritize sources and implement appropriate BMPs wrapping up end of FY13. Drainage includes NWQI Target Watershed(s). WQIGs: 1. San Pedro urban sediment reduction (Sierra Vista, 1995) 2. San Pedro sediment reduction (1997) 3. Borderlands upland improvements (2002) 4. Fort Huachuca road closure & crossing improve (2002) 5. San Pedro Watershed Improvement Plan (2010)
Tonto Creek and Christopher Creek	B	High NPS focus for attaining standards	ADEQ NPS Funding Target AND Potential Measure W/SP12	SR	Tonto Creek (Headwaters to Tributary at 341810 / 1110414)	<i>E. coli</i> (1998) Low DO (EPA 2004) Nitrogen (1998)	4a	TMDLs for nitrogen and <i>E. coli</i> were completed in 2005	TMDL identified sources: Inadequate septic tanks and recreational sources. County and local communities must make a long-term, large-scale plan for addressing septic concerns in order to focus implementation efforts toward a specific goal. WQIGs: 1. Gila County septic system upgrades (2006) 2. R-Bar-C Boy Scout septic improvements (2007) 3. Tonto Baptist Camp septic upgrade (2008) 4. Tonto Watershed Improvement Grant (2010) (CANCELLED - lack of organization at the local level)
					Tonto Creek (Tributary at 34180 / 1110414 to Haigler Creek)	<i>E. coli</i> (1998) Low DO (EPA 2004) Nitrogen (1998)	4a		
					Christopher Creek (Headwaters to Tonto Creek)	<i>E. coli</i> (2004)	4a		
							Phosphorus (2006)	5	TMDL not yet scheduled
Turkey Creek	D Note: Cross-program coordination required (NPS/ Compliance)	Not an implementation priority/primarily point sources.	Potential Measure W/SP-12	MG	Turkey Creek (Tributary at 341928/1122128 to Poland Creek)	Copper (1992) Lead (2004)	4a	TMDL completed in 2008. ADEQ is doing effectiveness monitoring.	Completed: US Forest Service has remediated tailings at Golden Belt and Golden Turkey mine sites. Doing effectiveness monitoring. MSGP may address sources from Blue Bell mine.

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
Alvord Park Lake	A	Potential for improvement in the near future/some activity	N/A	MG	Alvord Lake	Ammonia (2004)	5	TMDL to be completed in FY13	Proposed: Identify and prioritize sources and implement appropriate BMPs. Known source from a landscaping/garden business; explore opportunities for NPS funding. In general for urban lakes: impairments are due to in-lake issues, so WQIG eligible projects are limited.
Gila River	A/B	Potential for improvement in the near future/some activity	N/A	UG	Gila River (Apache Creek to Skully Creek)	<i>E. coli</i> (dissolved) (2010)	4a	TMDL not yet initiated.	Proposed: Identify and prioritize sources and implement appropriate BMPs.
					Gila River (Skully Creek to San Francisco River)	Selenium (2004) <i>E. coli</i> (2010)	4a	Selenium delisted in 2010 based on recent data collection. <i>E. coli</i> TMDL not yet initiated.	Proposed: Identify and prioritize sources and implement appropriate BMPs. Selenium from ag return flows is a point source, but these flows are exempt from permit requirements.
					Gila River (New Mexico border to Bitter Creek)	<i>E. coli</i> (draft 2006)	5	<i>E. coli</i> TMDL completed in 2012. Sediment TMDL to be completed FY13.	Proposed: Identify and prioritize sources and implement appropriate BMPs. Explore possibility of working closely with NMED to identify and fund projects in New Mexico. WQIG: 1. Duncan Valley canal replacement (2007) , 2. Gila Watershed Stewards Ph. I (2008) , 3. Gila Watershed Stewards Ph. II (2010)
						Suspended sediment concentration (2006)	5		
Gila River (Bonita Creek to Yuma Wash)	<i>E. coli</i> (2004)	5	<i>E. coli</i> TMDL completed in 2012. Sediment TMDL to be completed FY13.	Proposed: Identify and prioritize sources and implement appropriate BMPs. Selenium from ag return flows is a point source, but these flows are exempt from permit requirements. WQIGs: Gila River clean up (2006)					
	Suspended sediment concentration (2004 by EPA)								
	Lead (total) (2010)								
Little Colorado River	A	Potential for improvement in the near future/some activity	N/A	LC	Little Colorado River (Silver Creek to Carr Wash)	<i>E. coli</i> (2004)	5	TMDLs to be completed in FY13	Proposed: Identify and prioritize sources and implement appropriate BMPs. WQIGs: Silver Creek sediment reduction (1994)
						Sediment (EPA 2004)			
Nogales and East Nogales Wash	F Note: Cross-program coordination required (NPS/ Compliance)	Potential for improvement in the near future/some activity	N/A	SC	Nogales Wash (Mexico border to Potrero Creek)	<i>E. coli</i> (1988)	5	Loss of resources has delayed the development of this TMDL. EPA contracted with Tetra Tech in FY12 to compile a data summary and determine potential level of NPS contributions to <i>E. coli</i> impairment.	Infrastructure (point source) upgrades must be accomplished to properly address primary sources.
						Ammonia (2004)			
						Chlorine (1988)			
						Copper (2004)			
Nutrioso Creek (from Nelson Reservoir to Little Colorado River)	D	Potential for improvement in the near future/some activity	N/A	LC	Nutrioso Creek (Nelson Reservoir to Picnic Creek)	Turbidity (1992)	4a	Completed TMDL in 2000 and TIP in 2002 Delisted upper portion (headwaters to Nelson Reservoir).	Proposed: Identify, prioritize, and implement sediment sources and implement appropriate BMPs WQIGs: 1. EC Bar Ranch grazing projects (pasture and riparian improvements, alternative water (2000-2007), fencing, etc) 2. Rogers Ranch improvements (riparian and upland improvements, alternative water, fencing (2000)) , 3. Murray-Saffel Canyon sediment controls (2001) 4. Greenwood sediment reduction (2003)
					Nutrioso Creek (Picnic Creek to Little Colorado River)	Turbidity (1992)			
Pena Blanca Lake	D	Potential for improvement in the near future/some activity	Potential Measure W/SP-12	SC	Pena Blanca Lake	Mercury in fish	4a	TMDL completed in 1999, included TIP.	TMDL identified: Remove tailings at St Patrick Mine Ball Mill site and reduce sediment to lake. USFS has completed the remediation of ST Patrick mine. USFS dredged lake in 2009 to remove mercury recycling in lake sediments. Lake has been refilled and restocked, but it will take more monitoring over several years to determine new fish tissue levels.
Portrero Creek (Interstate 19 to Santa Cruz River)	F Note: Cross-program coordination required (NPS/ Compliance)	Potential for improvement in the near future/some activity	N/A	SC	Portrero Creek (Interstate 19 to Santa Cruz River)	Chlorine (2010)	5	EPA contracted with Tetra Tech in FY12 to compile a data summary and determine potential level of NPS contributions to <i>E. coli</i> impairment.	
						Low DO (2010)			
						<i>E. coli</i> (2010)			

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
Rainbow Lake	C	Potential for improvement in the near future/some activity	N/A	LC	Rainbow Lake	Narrative nutrient (weeds) (1992) High pH (1992) Low DO	4a	Completed TMDL and TIP in 2000	Proposed: Identify and prioritize sources not identified in the TMDL and prioritize implementation. ADEQ conducted preliminary monitoring to determine if dredging would be effective. WQIG funds can't be used for in-lake treatments until all watershed contributions are addressed. Stormwater runoff contributions are still a concern. Watershed group has focused its efforts on herbicide application for the past few years, and is currently pursuing grass-eating carp as an in-lake treatment. Completed: Sewering the area WQIGs: Rainbow Lake Water Quality Improvement Project (2008) –installing buffer strips around lake.
San Pedro River (from Aravaipa Creek to Gila River)	A/B	Potential for improvement in the near future/some activity	EQIP Priority Watershed	SP	San Pedro River (Aravaipa Creek to Gila River)	E. coli (2004) Selenium (2004)	5	TMDL to be completed in FY13 (In AAR as of 5/13; UPDATE). Selenium impairment dropped in 2010 due to a change in the application of the standard.	Proposed: Identify and prioritize sources and implement appropriate BMPs. WIP being developed for the middle San Pedro (2010 Targeted Watershed) will likely be able to be used as a guide for identifying sources in this reach. ASARCO land swap taking place to mitigate loss of other riparian corridors may help. - UPDATE WQIGs: 1. Aravaipa Canyon riparian restoration (2000) 2. San Pedro riparian improvements (2000) 3. Wildlife habitat restoration (2003) 4. San Pedro cleanup trash (near St David) (2003) 5. 3 Links Farm riparian restoration (2005) 6. S.P Initiative identified sediment controls in The Narrows (2000) 7. Manzanita Erosion control (2006)
San Pedro River	A	Potential for improvement in the near future/some activity	N/A	SP	San Pedro River (Mexico border to Charleston)	E. coli (2010) Copper (dissolved) (2010)	5	TMDL not yet scheduled	Drainage includes NWQI Target Watershed(s).
Luna Lake	B	Talk about opportunities	N/A	UG	Luna Lake	High pH (1998) Low DO (1998) Narrative nutrients (1998) Ammonia	4a	TMDL completed in 2000, including TIP	Eliminate nutrient discharges from Alpine Sanitary District (potentially coordinate with WIFA). Explore opportunities for grazing BMPs. TMDL identified: Upgrade septic systems, grazing BMPs, urban BMPs, filter strips, riparian improvements, weed harvesting, dredging, and raise lake levels (reducing water diversions). WQIG: Luna Lake septic system upgrades (2001)
Santa Cruz River	A	Talk about opportunities	N/A	SC	Santa Cruz River (Josephine Canyon to Tubac Bridge)	Ammonia (2010) E. coli (2010)	5	TMDL not yet initiated.	Roger Road/Ina Road Treatment plant should address impairment The Nogales International Wastewater Treatment Plant has been upgraded and fully operational since 2009. The facility is now capable of meeting all effluent discharge permit limits. Effectiveness of chlorine removal by the new treatment plant will be determined in 2012 assessment. Roger Road/Ina Road Treatment plant should address impairment Roger Road/Ina Road Treatment plant should address impairment Roger Road/Ina Road Treatment plant should address impairment
					Santa Cruz River (Canada del Oro to HUC 15050303 Boundary)	Ammonia	4b		
					Santa Cruz River (Nogales WWTP to Josephine Canyon)	Chlorine	4b		
					Santa Cruz River (HUC 150303 Boundary to Baum)	Copper (dissolved) Lead (dissolved)	4b		
					Santa Cruz River (Roger road WWTP Outfall to Intermittent Reach)	Ammonia	4b		
Cave Creek (from headwaters to South Fork of Cave Creek)	D	Delist/Potential Delist	N/A	UG	Cave Creek (Headwaters to South Fork Cave Creek)	Selenium (2004)	5	Initiated in 2006. New monitoring shows no exceedances.	More monitoring needed.
Crescent Lake	A	Delist/Potential Delist	N/A	SR	Crescent Lake	High pH (2002 - EPA)	5	TMDL de-prioritized based on potential de-list.	More monitoring needed. Proposed: Identify and prioritize sources and implement appropriate BMPs. Possible de-list.
Rose Canyon Lake	A	Delist/Potential Delist	N/A	SC	Rose Canyon Lake	Low pH (2004 by EPA)	5	May be natural low pH values (occurring 4 meters deep in this 7 acre lake.) Likely de-list.	Proposed: Identify, prioritize and implement appropriate nutrient BMPs.
Agua Fria River	A	Not Categorized	N/A	MG	Agua Fria River (Sycamore Creek to Big Bug Creek)	E. coli (2010)	5	TMDL not yet initiated.	

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
Alamo Lake	A	Not Categorized	N/A	BW	Alamo Lake	Mercury in fish (2002 by EPA) (ADEQ had it listed prior 2002)	5	TMDL to be completed in FY13	Proposed: Identify, prioritize, and remediate mining sites in drainage, especially adjacent to streams and washes.
Alamo Lake	A	Not Categorized	N/A	BW	Alamo Lake	Ammonia (2004) pH (1996) DO (2006)	5	No plans to initiate TMDLs at this time.	Proposed: Identify and prioritize nutrient sources and implement appropriate BMPs.
Apache Lake and Canyon Lake and Salt River below Saguaro Lake	A	Not Categorized	N/A	SR	Apache Lake Canyon Lake Salt River (Stewart Mountain Dam to Verde River)	Dissolved oxygen (2006) Dissolved oxygen (2004) Dissolved oxygen (2004)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Impairments may be addressed by narrative nutrient standard. WQIGs: Trees for the Rim (after wildfire)
Arivaca Lake	C	Not Categorized	N/A	SC	Arivaca Lake	Mercury in fish (1992)	4a	TMDL completed in 1999, included TIP.	TMDL sources identified: Manage lake to reduce production of methylmercury. Possibly dredge lake sediments
Arnett Creek	A	Not Categorized	N/A	MG	Arnett Creek (Headwaters to Queen Creek)	Copper (dissolved) (2010)	5	TMDL not scheduled	
Bill Williams River	A	Not Categorized	N/A	BW	Bill Williams River (Alamo Lake to Castaneda Wash)	Ammonia (2006) High pH (2006)	5	TMDL to be completed in FY13 (combined with Alamo Lake TMDL)	Proposed: Identify and prioritize nutrient sources and implement appropriate BMPs.
Black Canyon Lake	A	Not Categorized	N/A	LC	Black Canyon Lake	Ammonia (2010)	5	TMDL not scheduled	
Boulder Creek	A	Not Categorized	N/A	BW	Boulder Creek (Tributary at 344114/1131800 to Wilder Creek)	Beryllium (dissolved) (2010)	5	TMDL not scheduled	
Chaparral Lake	A	Not Categorized	N/A	MG	Chaparral Park Lake	DO (2004) <i>E. coli</i> (2004)	5	TMDL to be completed in FY13	Proposed: Identify and prioritize sources and implement appropriate BMPs.
Colorado River	A	Not Categorized	N/A	CL	Colorado River (Bill Williams River to Osborne Wash)	Selenium (total) (2010)	5	TMDL not yet scheduled	
Colorado River	A	Not Categorized	N/A	CL	Colorado River (from Hoover Dam to Lake Mohave)	Selenium (total) (2004)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Identify source loads contributed from other states. Selenium from ag return flows is a point source, but these flows are exempt from permit requirements.
Colorado River	A	Not Categorized	N/A	CL	Colorado River (Imperial Dam to Gila River)	Selenium (total) (2010)	5	TMDL not scheduled	
Colorado River	A	Not Categorized	N/A	CG	Colorado River (Lake Powell to Paria River)	Selenium (total) (2006)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Identify source loads contributed from other states (how remediate these?). Selenium from ag return flows is a point source, but these flows are exempt from permit requirements.
Colorado River	A	Not Categorized	N/A	CL	Colorado River (Main Canal to Mexico border)	Selenium (total) (2006) Low DO (2006)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Identify source loads contributed from other states. Selenium from ag return flows is a point source, but these flows are exempt from permit requirements.
Colorado River	A	Not Categorized	N/A	CG	Colorado River (from Parshant Canyon to Diamond Creek)	Selenium (2004) Suspended sediment concentration (2004)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Identify source loads contributed from other states (how remediate these?). WQIGs: 1. Kaibab Moccasin Wash range and crop BMPs (1997) 2. Fredonia (Pratt Tank) riparian improvement 3. Milkweed riparian restoration (Hualapai) (2000) 4. Mohawk Canyon (Hualapai) 2000 5. Red Springs fencing (Hualapai) 1998 6. Bank stabilization at Spencer Beach (2007) 7. Road Stabilization at Diamond Creek (2008)
Coors Lake	A	Not Categorized	N/A	BW	Coors Lake	Mercury in fish (EPA listed in 2004)	5	TMDL not yet scheduled	Proposed: Identify and prioritize mercury sources and implement appropriate remediation.
Cortez Park Lake	A	Not Categorized	N/A	MG	Cortez Park Lake	DO (2004) High pH (2004)	5	Data collection complete TMDL development ongoing	Proposed: Identify and prioritize sources and implement appropriate BMPs.

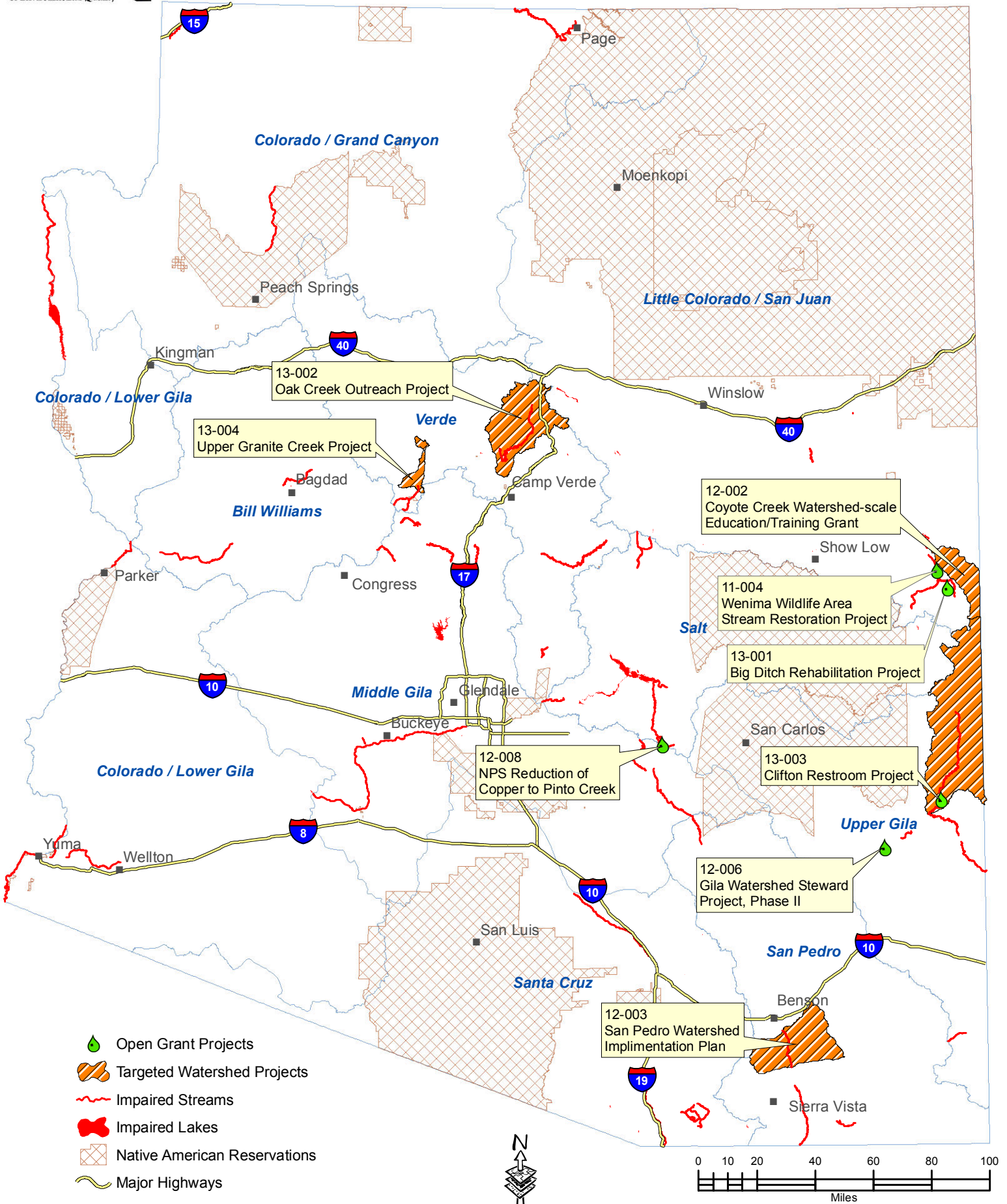
Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
East Verde River	A	Not Categorized	N/A	VR	East Verde River (From American Gulch to Verde River)	Arsenic (2006) Boron (2006)	5	Initiated in 2007; to be completed FY14	Proposed: Identify and prioritize sources and implement appropriate BMPs. Recent data shows no exceedances.
East Verde River	A	Not Categorized	N/A	VR	East Verde River (Ellison Creek to American Gulch)	Selenium (2004)	5	TMDL in progress; to be completed FY14	Proposed: Identify and prioritize sources and implement appropriate BMPs.
French Gulch	B	Not an implementation priority/primarily point sources.	N/A	MG	French Gulch (Headwaters to Hassayampa River)	Copper (1994) Zinc (1994) Cadmium (1994)	4a	Completed in 2004	Identified in TMDL: Remediate mining issues at Zonia Mine Identify, prioritize, and implement appropriate BMPs at other mines.
Gila River	A	Not Categorized	N/A	MG	Gila River (Centennial Wash - Gillespie Dam)	Selenium (total) (2004) Boron (total) (1992)	5	TMDL in progress; to be completed FY15	Proposed: Identify and prioritize sources and implement appropriate BMPs. Selenium from ag return flows is a point source, but these flows are exempt from permit requirements.
Gila River	A	Not Categorized	N/A	CL	Gila River (Coyote Wash to Fortuna Wash)	Selenium (2004) Boron (total) (2004 relist)	5	TMDL in progress; to be completed FY15	Proposed: Identify and prioritize sources and implement appropriate BMPs. Selenium from ag return flows is a point source, but these flows are exempt from permit requirements.
Gila River	A	Not Categorized	N/A	MG	Gila River (San Pedro River to Mineral Creek)	SSC (2006)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. WQIGs: Trees for the Rim (after wildfire)
Harshaw Creek	B	Not Categorized	N/A	SC	Unnamed Trib to Harshaw Creek (Headwaters to Harshaw Creek) Harshaw Creek (Headwaters to Sonoita Creek)	Cadmium Low pH Cadmium Low pH	4a	TMDL completed in 2003	TMDL sources identified: Remediate mining area by: removing or filling over mining residue; redirecting runoff away from mining deposits; removing mine wastes in the stream bed or combine with neutralizing materials; and constructing wetlands to treat mine discharges.
Hassayampa River and tributaries	B	Not Categorized	N/A	MG	Hassayampa River (Headwaters to Copper Creek) Cash Mine Creek (Headwaters to Hassayampa River) Unnamed Tributary to Cash Mine Creek (Headwaters to Cash Mine Creek)	Cadmium (1992) Copper (1992) Zinc (1992) Low pH (2006) Cadmium (1992) Copper (1992) Zinc (1992) Cadmium (1992) Copper (1992) Zinc (1992)	4a	TMDL Completed in 2002	Identified in TMDL and Proposed: Remediate abandoned or inactive mine sites (McCleure Mine) contributing pollutants, including tailings and adits at these sites.
Lake Mary	A	Not Categorized	N/A	LC	Upper Lake Mary	Mercury in fish (2002 by EPA)		TMDL completed 2011. TIP under development.	Proposed: Identify and prioritize mercury sources and implement appropriate remediation.
Lake Mohave	A	Not Categorized	N/A	CL	Lake Mohave	Selenium (total) (2010)	5	TMDL not yet scheduled	
Lake Powell	A	Not Categorized	N/A	CG	Lake Powell	Mercury in fish (2010 by EPA)	5	TMDL not yet scheduled	
Long Lake (lower)	B	Not Categorized	N/A	LC	Long Lake (Lower)	Mercury in fish (2004 by EPA)	4a	TMDL completed 2012; TIP in progress	Proposed: Identify and prioritize mercury sources and implement appropriate remediation.
Lyman Lake/Reservoir	A	Not Categorized	N/A	LC	Lyman Lake	Mercury in fish (2004 by EPA)	5	TMDL to be completed in FY13	Proposed: Identify and prioritize mercury sources and implement appropriate BMPs.
Mineral Creek	C	Not an implementation priority/primarily point sources.	N/A	MG	Mineral Creek (Devil's Canyon to Gila River)	Selenium (2004) Copper (1992) Low DO (2006)	5	Consent decree requires mine to meet all surface water standards; therefore, TMDL has not been initiated.	ASARCO is looking at ways to mitigate selenium contamination and low dissolved oxygen occurring in mining tunnel constructed to direct surface water around mining operation. ASARCO has mitigated manganese and the majority of copper pollutants. WQIG - Gibson Mine Mineral Creek - far upstream; not likely to impact this reach.
Mule Gulch and tributaries, including Brewery Gulch	A	Not Categorized	N/A	SP	Brewery Gulch (Headwaters to Mule Gulch) Mule Gulch (Headwaters to above Lavender Pit) Mule Gulch (Above Lavender Pit to Bisbee WWTP discharge) Mule Gulch (Bisbee WWTP discharge to Highway 80 bridge)	Copper (dissolved) (2004) Copper (dissolved) (1990) Copper (dissolved) (1990) Low pH (EPA 2004) Cadmium (dissolved) (1990)	5	Developing site specific standards (for Cu and Zn?)	Proposed: Identify and prioritize sources and implement appropriate BMPs. Completed: FMI has re-routed stormwater and seeps to minimize impacts to Mule Gulch ADEQ is working on a site-specific copper standard

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
						Copper (total and dissolved) (1990) Low pH (1990) Zinc (dissolved) (1990)			
Paria River	A	Not Categorized	N/A	CG	Colorado River (Lake Powell to Paria River)	Suspended sediment concentration (2004) <i>E. coli</i> (2006)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Identify source loads contributed from other states (how remediate these?) Exceedances possibly primarily due to natural conditions (sandstone)
Parker Canyon Lake	A	Not Categorized	N/A	SC	Parker Canyon Lake	Mercury in fish (2004 by EPA)	5	TMDL to be completed in FY13	Proposed: Identify and prioritize sources and implement appropriate BMPs.
Peck's Lake	B	Not Categorized	N/A	VR	Peck's Lake	High pH (1998) Low DO (1998)	4a	TMDL Completed in 2001, including TIP	TMDL sources identified: Improve riparian conditions to remove sediments that might add more nutrient loads. Lake is on private (Freeport) land; ADEQ has no current samples.
Pintail Lake	A	Not an implementation priority/primarily point sources.	N/A	LC	Pintail Lake	Ammonia (2010)	5	TMDL not yet scheduled	EDW
Puerco River	A	Not an implementation priority/primarily point sources.	N/A	LC	Puerco River (Dead Wash to Ninemile Wash)	Copper (dissolved) (2010)	5	TMDL not yet scheduled	EDW
Queen Creek and tributaries	A	Not Categorized	N/A	MG	Queen Creek (from headwaters to Superior WWTP) Queen Creek (Superior WWTP to Potts Canyon) Queen Creek (Potts Canyon to Whitlow Canyon) Tributary to Queen Creek (Headwaters to Queen Creek) Unnamed tributary to Queen Creek (Headwaters to Queen Creek) Unnamed tributary to Queen Creek (Headwaters to Queen Creek)	Copper (dissolved) (2002) Lead (total) (2010) Copper (dissolved) (2004) Copper (dissolved) (2010) Copper (dissolved) (2010) Copper (dissolved) (2010)	5	Model is being update to include recent data collected, site specific standard will likely no be developed	Proposed: Identify and prioritize sources and implement appropriate BMPs.
Salt River	A	Not Categorized	N/A	SR	Salt River (Pinal Creek to Roosevelt Lake)	Suspended sediment (2006) <i>E. coli</i> (2010) Nitrogen (2010) Phosphorus (2010)	5	TMDL to be initiated in 2015	Proposed: Identify and prioritize sources and implement appropriate BMPs. WQIG: Trees for the rim (wildfire)
Soldiers Lake and Soldiers Lake Annex	B	Not Categorized	N/A	LC	Soldier Annex Lake	Mercury in fish (2004 by EPA)	4a	TMDL completed 2011	Proposed: Identify and prioritize mercury sources and implement appropriate remediation.
Sonoita Creek	A	Not an implementation priority/primarily point sources.	N/A	SC	Sonoita Creek (1600 feet below Patagonia WWTP discharge to Patagonia Lake)	Zinc (2004) Low DO (2006)	5	ADEQ to extend EDW, which would eliminate the DO impairment	Proposed: Identify and prioritize sources and implement appropriate BMPs. WQIGs: 1. Audubon septic system improvements (2002) 2. Cattle enclosure at Audubon research (2002) 3. C6 Ranch grazing BMPs (on Red Rock Canyon) (2002) 4. Red Rock grazing improvements (2006)
Stoneman Lake	D	Not Categorized	N/A	VR	Stoneman Lake	Low DO (1998) Narrative Nutrients (1998) High pH (1998)	4a	TMDL Completed in 2001, including TIP	TMDL sources identified: Septics. Increase water sources for lake. Lake is ephemeral; low/fluctuating water levels make it difficult to meet standards. WQIGs: Replace septic systems, create grey water use systems, and construct sediment catchments.
Telephone Lake	B	Not an implementation priority/primarily point sources.	N/A	LC	Telephone Lake	Ammonia (2010)	5	TMDL not yet scheduled	Show Low WWTP Lagoons; point source, not an implementation priority
Three R Canyon and tributaries (Cox Canyon)	B	Not Categorized	N/A	SC	Unnamed Tributary to Cox Gulch (Headwaters to Cox Gulch); Cox Gulch (Headwaters to Three R Canyon) Three R Canyon (Headwaters to Tributary at 312819 / 1104556)	Cadmium (1994) Copper (1994) Zinc (1994) Low pH (1994) Cadmium (1994) Zinc (1994) Low pH (1994) Cadmium (1994) Zinc (1994) Copper (1994)	4a	TMDL completed in 2003	TMDL sources identified: Remediate mining area by: removing or filling over mining residue; redirecting runoff away from mining deposits; removing mine wastes in the stream bed or combine with neutralizing materials; and constructing wetlands to treat mine discharges.

Surface Water	Management Strategy	Internal Prioritization	Targeted Status	Watershed	Assessment Unit	Pollutants (First Listed)	Assessment Category	TMDL Development	Previous Projects and Other Comments
					Unnamed Tributary to Three R Canyon (Headwaters to Three R Canyon)	Low pH (1994) Cadmium (1994) Zinc (1994) Copper (1994) Low pH (1994)			
					Three R Canyon (Tributary at 312835 / 1104619 to Tributary at 312827 / 1104712);	Cadmium (1994) Zinc (1994) Copper (1994) Low pH (1994)			
					Three R Canyon (Tributary at 312827 / 1104712 to Sonoita Creek)	Cadmium (1994) Zinc (1994) Copper (1994) Low pH (1994)			
Tonto Creek	A	Not Categorized	N/A	SR	15060105-013B	Mercury in fish (2010 by EPA)	5	TMDL not yet scheduled	Note: 10560105-013B is also listed as Category 4a previously in this table
					15060105-011				
					15060105-009				
					15060105-008				
					15060105-006				
					15060105-004				
Verde River	A	Not Categorized	N/A	VR	Verde River (Bartlett Dam to Camp Creek)	Arsenic (total) (2010)	5	TMDL not yet scheduled	
Virgin River	A	Not Categorized	N/A	CG	Colorado River (Lake Powell to Paria River)	Selenium (2004) Suspended sediment concentration (2004); <i>E. coli</i> (2010)	5	Loss of resources has delayed the development of this TMDL	Proposed: Identify and prioritize sources and implement appropriate BMPs. Identify source loads contributed from other states (how remediate these?). ADEQ has very little data on this reach.

WATER QUALITY IMPROVEMENT GRANT PROJECTS

(Open Project as of June 2013)



This map is for general reference only and may not be all inclusive. More detailed information and specific locations can be obtained by contacting the Arizona Department of Environmental Quality.

ADEQ Plan # EQP-13-02

Closed on or before 6/30/13

Total Award	Title	Project End	2006		2007		2008		2009		2010		2011		2012		2013		Total Assigned	Unassigned
			NPS 17		C9-969984-07-0		C9-989613-08-0		C9-979596-09-0		C9-989613-10-0		C9-989613-11-0		C9-989613-12-0		C9-989613-13-0			
			NPS 18		NPS 19		NPS 20		NPS 21		NPS 22		NPS 23		NPS 24					
			Base	Inc.	Base	Inc.	Base	Inc.	Base	Inc.	Base	Inc.	Base	Inc.	Base	Inc.	Program	Watershed Projects		
\$ 74,145.00	Wenima Wildlife Area Stream Restoration	6/30/2013	\$ 24,000.00		\$ 500.00		\$ 14,900.00		\$ 10,723.19		\$ 24,021.81							\$ 74,145.00	\$ -	
\$ 211,825.00	Middle Fossil Creek Water Quality Improvement Project	9/30/2012	\$ 25,999.83	\$ 12,276.59	\$ 30,000.00	\$ 6,403.01	\$ 117,145.57		\$ 5,896.93									\$ 197,721.93	\$ 14,103.07	
\$ 37,452.85	Sediment Reduction from Runoff Using Best Management Practices	12/31/2012			\$ 10,000.00		\$ 1,783.80		\$ 25,668.29									\$ 37,452.09	\$ 0.76	
\$ 520,500.24	Granite Creek - Watson Lake Watershed Improvement Plan (EV09-0035)	12/31/2012	\$ 78,363.99		\$ 109,262.82		\$ 72,751.98		\$ 24.42		\$ 117,490.21							\$ 377,893.42	\$ 142,606.82	
\$ 290,894.18	San Francisco - Blue River Watershed Improvement Plan Grant (EV09-0035)	6/30/2012	\$ 109,159.64		\$ 42,873.98	\$ 29,978.60	\$ 17,367.09	\$ 91,514.87										\$ 290,894.18	\$ -	
\$ 536,545.36	Oak Creek Targeted Watershed Improvement Plan (EV09-0035)	09/30/2012	\$ 32,144.65		\$ 139,990.71		\$ 130,000.00		\$ 43,600.10		\$ 6.46							\$ 345,741.92	\$ 190,803.44	
\$ 494,087.60	Coyote Creek Watershed-scale Education and Training Grant	12/31/2014	\$ 26,855.35		\$ 83,823.77		\$ 1,795.21		\$ 45,151.48	\$ 200,000.01	\$ 136,461.78							\$ 494,087.60	\$ -	
\$ 265,551.00	San Pedro River Watershed Implementation Plan	6/30/2013				\$ 15,482.26		\$ 39,291.43		\$ 210,777.31								\$ 265,551.00	\$ -	
\$ 163,396.20	Community Stewardship Model for Green Streets	10/31/2012		\$ 5,355.36		\$ 139,083.50		\$ 18,956.66										\$ 163,395.52	\$ 0.68	
\$ 44,200.00	The Upper Gila Watershed Steward Project	6/30/2013			\$ 9,132.37				\$ 31,587.23		\$ 3,480.40							\$ 44,200.00	\$ -	
\$ 701,470.00	NPS Reduction of Copper to Pinto Creek	6/30/2013				\$ 38,138.20		\$ 279,826.54		\$ 383,505.26								\$ 701,470.00	\$ -	
\$ 29,261.87	Arizona Water Festivals - Building on an Effective Education Model	12/31/2012				\$ 23,398.16		\$ 5,863.71										\$ 29,261.87	\$ -	
\$ 334,183.00	Arizona Nemo Nonpoint Source Education for Municipal Officials	6/30/2014	\$ 30,979.24		\$ 50,000.00		\$ 103,102.81	\$ 8,809.32		\$ 141,291.63								\$ 334,183.00	\$ -	
\$ 210,588.00	Arizona Master Watershed Stewards (MWS) Educational Outreach and Technical Support Program Continuation (2010-2012)	6/30/2014	\$ 24,000.00		\$ 15,141.48		\$ 57,976.57			\$ 113,469.95								\$ 210,588.00	\$ -	
\$ 59,482.00	Arizona NEMO - Training and Analytical Support Program 2010-2012	12/31/2012	\$ 12,776.37			\$ 24,398.97	\$ 14,566.62	\$ 7,727.25										\$ 59,469.21	\$ 12.79	
\$ 250,000.00	DEMA Wallow Fire Mitigation Funding	8/31/2013						\$ 250,000.00										\$ 250,000.00	\$ -	
\$ 387,800.00	Big Ditch Rehabilitation Project	4/30/2015										\$ 387,800.00						\$ 387,800.00	\$ -	
\$ 253,326.00	Oak Creek Restroom Facility and Outreach	4/30/2014						\$ 12,698.82		\$ 78,263.10		\$ 162,364.08						\$ 253,326.00	\$ -	
\$ 128,906.00	Clifton Restroom Facility	4/30/2014										\$ 128,906.00						\$ 128,906.00	\$ -	
\$ 455,895.00	Prescott Creeks Stormwater Project												\$ 455,895.00					\$ 455,895.00	\$ -	
				\$ 17,631.95	\$ 490,725.13	\$ 198,863.27	\$ 594,842.46	\$ 669,537.72	\$ 222,369.14	\$ 724,796.90	\$ 683,971.02	\$ 387,800.00	\$ 291,270.08	\$ -	\$ 455,895.00	\$ -	\$ -	\$ 3,876,054.74	\$ -	
	Total Closed and Open			\$ 804,731.00	\$ 804,730.00	\$ 792,900.00	\$ 792,900.00	\$ 792,811.39	\$ 620,535.92	\$ 724,796.90	\$ 683,971.02	\$ 387,800.00	\$ 291,270.08	\$ -	\$ 455,895.00					
	Unallocated			\$ -	\$ -	\$ -	\$ -	\$ 88.61	\$ 172,364.08	\$ 68,103.10	\$ 108,928.98	\$ 301,200.00	\$ 397,729.92	\$ -	\$ 870,734.00			\$ 1,024,500.00		

Total Un-allocated Funding	\$ 2,943,648.69
Pending Projects	
Hillside Mine	\$ 1,350,000.00
WQIG Cycle 14	\$ 1,200,000.00
Remainder	\$ 393,648.69

Appendix E: FY13 Water Quality Improvement Grant Awards and Press Releases

In October 2012, the Water Quality Improvement Grant (WQIG) program released a Request for Grant Applications (RFGA) announcing the availability of \$1.6 million in Clean Water Act Section 319(h) funding for nonpoint source pollution reduction projects within the state of Arizona. Projects were limited to two categories:

1. Watershed Improvement Plan (WIP) Implementation

Watershed Improvement Plans (WIPs) have been developed under previous grants with ADEQ. These improvement plans have investigated and identified the BMPs that have the highest success potential for reducing pollutant loading in their impaired watersheds.

2. Watershed-scale NPS Management

Watershed-scale Nonpoint Source (WNPS) Management projects must be able to demonstrate a high likelihood of reducing nonpoint source pollution in a watershed with an impairment or demonstrated nonpoint source water quality issue. These projects are appropriate for situations where the applicant is proposing to utilize a watershed-based approach to identify critical pollutant loading sites where BMP implementation is needed. To be considered for WNPS funding, the application must demonstrate that a nonpoint source water quality issue has been documented in the area of concern, and that the pollutant(s) and probable source(s) as well as applicable BMPs have been identified. Applications for WNPS projects must include criteria that will be used to determine where applicable BMPs will be implemented and how they will be designed for maximum effectiveness. Due to the complexity associated with accurately identifying all of the relevant pollutant sources, WNPS projects are likely to be most effective when restricted to a 10-or 12-digit Hydrologic Unit Code (HUC) area with relatively homogeneous land use.

Four projects were selected for award in WQIG Cycle 13:

ID #	Project Summary	County	Award Amount
13-01	Big Ditch Piping Project - This project will build upon a previous grant project to complete the installation of an additional 6,000' of piping to reduce sediment in the Little Colorado River, and will expand upon previous sediment control analysis and recommendations in the watershed. This project will directly address portions of the Big Ditch that have been documented as over-topping and contributing sediment directly to the LCR. Sediment load reduction estimates have not yet been calculated for this project, but additional sediment control projects throughout the watershed are necessary to fully impact the sediment impairment in the LCR.	Apache	\$387,800.00
13-02	Oak Creek - Installation of a restroom facility at Midgley Bridge, as well as the installation of 15 pet waste stations throughout Oak Creek Canyon trails and the development of outreach activities such as a Creek Ambassador program to implement outreach at high recreation areas. While restrooms and dog waste station BMPs have been predicted to be capable of reducing as much as 80% of the E. coli loads in this particular reach of Oak Creek, further data regarding the public's actual use level is needed and will be collected to measure the effectiveness of this project.	Coconino/ Yavapai	\$253,326.00

ID#	Project Summary	County	Award Amount
13-03	Clifton Restroom Facility - Installation of a restroom facility at a high recreation area north of the town of Clifton to be fully maintained by the Town of Clifton. Load reductions for this project have been estimated at $\sim 1.38 \times 10^{12}$ CFU/year. A TMDL for this project area has not been completed, but additional projects to address human, cattle, and wildlife impacts to water quality have been outlined in the WIP as necessary for achieving water quality standards.	Greenlee	\$128,906.00
13-04	Upper Granite Creek - Development of green infrastructure projects at the Whipple St. Basin and at the Prescott Community Center. The objective of this project is to demonstrate the utility and effectiveness of green infrastructure BMPs to municipal and residential stakeholders, encouraging an increase in their use throughout the watershed. A TMDL is currently in process in this project area.	Yavapai	\$455,895.00
			\$1,225,927.00

Press releases describing each awarded project follow: