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Arizona's 2004 Nonpoint Source Annual Report

Nonpoint Source Program
July 1, 2003 - June 30, 2004

Prepared by the
Arizona Department of Environmental Quality
Hydrologic Support & Assessment Section





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Arizona's FY 04 Nonpoint Source Annual Report Introduction

Purpose

This report is an overview of the Arizona Department of Environmental Quality (ADEQ) Nonpoint Source Program's activities for fiscal year 2004 (July 1, 2003 - June 30, 2004). A majority of the work performed by ADEQ's Nonpoint Source Program is funded by Clean Water Act Section 319(h) grants, 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 report reductions in nonpoint source pollutant loadings and improvements in water quality resulting from program implementation.

Format

The report is divided seven sections to meet all elements of EPA's annual reporting requirements.

Section I – Measuring Success

Provides a brief summary of progress in meeting approved milestones and the short- and long-term goals and objectives identified in *Arizona's 5-Year Nonpoint Source Management Plan*. The information is provided in a matrix format to display the status of approved milestones for the current fiscal year. The following information is provided for each milestone:

- a. Applicable project or program
- b. Scheduled project completion date
- c. Percent completed

Satisfies elements #1 & #2 of EPA's annual reporting requirements.

Section II – Federal Support

A discussion of the extent to which Federal agencies, lands and activities within the State are supporting the State in meeting approved milestones.

Satisfies element #3 of EPA's annual reporting requirements.

Section III – Water Quality Improvements & Load Reductions

A summary of the available information on the amount of improvement in water quality (including aquatic habitat quality) and the extent of reductions in nonpoint source loadings achieved as a result of nonpoint source program implementation. Where information is not yet available, surrogate measures of environmental progress (such as environmental indicators) are used and progress is reported in terms of the degree or percentage of completion of the project.

Satisfies elements #4, #5, & #6 of EPA's annual reporting requirements.

Section IV – Future Plans

Provides a listing of further actions necessary to achieve the goals of the Clean Water Act, including any recommendations for future state or national programs to control nonpoint source pollution.

Section V – Successful Implementation Projects

Brief case studies of particularly successful nonpoint source control efforts.

Section VI – Public Awareness

Provides information on increases in public awareness of nonpoint source pollution and public involvement in addressing it.

Section VII – Project Highlights

Information on products produced or deliverables met by Arizona's Nonpoint Source Program (e.g., outreach materials or BMP documents). Web site references are provided.

Sections IV – VII provide supplemental information as a means of assessing progress to date and improving the program in the future.

Satisfies EPA's recommendations on supplemental elements #1 - #4.

Program Information

Arizona's Nonpoint Source Program gathers information, monitors and focuses on the following land use activities that can negatively impact surface and ground water within the State:

- ◆ Agriculture;
- ◆ Forestry;
- ◆ Urban runoff;
- ◆ Hydromodification;
- ◆ Onsite/septic waste treatment systems;
- ◆ Mining; and
- ◆ Recreation.

ADEQ's Nonpoint Source Program operates under the guidance of Arizona's 5-Year Nonpoint Source Management Plan updated and revised during fiscal year 2004. The new State Management Plan was released in November 2003.

Arizona's Nonpoint Source State Management Program integrates the state's Clean Waters Act and Safe Drinking Water Act programs with voluntary incentives. ADEQ uses a combination of tools including: surface and ground water monitoring, watershed inventories, watershed characterizations, Total Maximum Daily Load (TMDL) studies, TMDL implementation and source water assessment plans, watershed-based plans, and water quality improvement projects to protect the state's water resources from nonpoint source pollution. Staff works closely with stakeholders to develop community-

led, watershed-based planning efforts. These local planning efforts assist the department in developing programs and outreach activities appropriate to the specific area and the issues. Since Arizona has a large amount of publicly owned lands, partnerships with federal, state and tribal land and resource management agencies are a key element in the program's success.

Important Note

In April, after the departure of the Grants and Outreach Unit Supervisor, the Hydrologic Support and Assessment Section consolidated the Grants and Outreach Unit with the Watershed Management Unit to better coordinate activities and save resources. The newly formed Unit is now called the Watershed, Assessment, and Grants Unit which consists of nine staff members. The new unit handles several Nonpoint Source Program activities. The new group is responsible for the following programs and activities:

- ◆ Water Quality Improvement Grant Program
 - Project Management and
 - Program Administration;
- ◆ Education & Outreach;
- ◆ Data Acquisition & Database Development;
- ◆ Integrated Report (water quality assessment);
- ◆ Stormwater Phase II Assistance Program;
- ◆ 208 Regional Planning;
- ◆ TMDL Implementation Plan Development;
- ◆ TMDL Stakeholder Involvement;
- ◆ Watershed-based Plan Development;
- ◆ Watershed Partnerships;
- ◆ Nonpoint Education for Municipal Officials (NEMO);
- ◆ Master Watershed Steward Program; and
- ◆ Impaired Water Identification Rule (revising in 2004-2005)

ADEQ was successful in meeting the goals identified in *Arizona's 5-Year Nonpoint Source Management Plan*. Throughout this annual report, ADEQ provides a summary of progress in meeting approved milestones and the short- and long-term goals, extent to which Federal agencies are supporting the State, water quality improvements and load reductions, and other supplemental information as a means of assessing progress to date and improving the program in the future



Arizona's FY 04 Nonpoint Source Annual Report Section I – Measuring Success

Arizona's Nonpoint Source Program is a dynamic and adaptive program intended to facilitate and promote statewide efforts to manage nonpoint source pollution. As stated in Arizona's 5-year Nonpoint Source Management Plan, ADEQ continues to focus efforts on restoring waters that have been listed as impaired as well as to protect waters that are currently not impaired, it is critical that ADEQ monitor both: 1) the progress being made towards achieving and maintaining water quality standards; and 2) the implementation of programs and projects to assure that they are successful. ADEQ uses several sets of measures to fully determine the success in implementing the Nonpoint Source Program. These include measures that indicate progress towards achieving and maintaining beneficial uses of water; towards other long-term goals of the Program (i.e. achieving load reductions, or implementing particular watershed projects); and towards shorter-term goals and objectives that are designed to lead to the achievement of longer-term goals.

Milestones have been placed on both the long-term goals and short-term objectives which outline the State's implementation strategy for the restoration and protection of beneficial uses impaired due to nonpoint point source pollution. The long-term goals listed below are desired end points based on a ten to fifteen year time frame. The short-term objectives or milestones listed below will be implemented and revised as necessary over the next five years such that beneficial uses of the state's waters (to the extent practicable) are fully restored or maintained. Many of the milestones are taken from ADEQ's EPA approved workplan. The tasks and deliverables scheduled as part of the workplan are designed to attain our long-term goal of implementing a dynamic and effective Nonpoint Source Program designed to achieve and maintain beneficial uses of water. The status of these priority program elements are as follows:

Goal: Support ground and surface water quality monitoring that provides data for assessments, identification of impaired waters, TMDLs, and effectiveness of remediation and protection strategies.

Milestone & Progress Summary	Project or Program	Completion Date	%Complete
<p>Perform surface and ground water quality monitoring throughout the state.</p> <p>Progress Summary – Surface water - Completed FY 04 sampling plans on time. Groundwater basin monitoring - Big Sandy was completed, Bill Williams is about ½ complete – both will provide important insights for the Bill Williams TMDL project.</p>	Surface Water Monitoring & Standards and Groundwater Monitoring Units	Yearly	100%
<p>Determine water quality improvements and BMP effectiveness through project monitoring and oversight.</p> <p>Progress Summary – Staff continues to provide oversight on 319(h) funded implementation projects and input and track water quality improvements in GRTS. Please refer to GRTS for updated information on BMP effectiveness. See attachment #1 for improvements to water quality. 100% of ADEQ's 319 projects are performing effectiveness monitoring, however, only ~20% are performing water quality monitoring. ADEQ needs to improve their understanding of the modeling approaches used to estimate load reductions to better provide and determine BMP effectiveness and water quality improvements. Currently, ADEQ is doing the best they can with available resources.</p>	Watershed, Assessment, & Grants	On-going	65%
<p>Develop narrative implementation procedures and utilize narrative standards, as well as numeric water quality standards, to assess Arizona's waters.</p>	Surface Water Monitoring & Standards	June 2006	60%

<p>Progress Summary – Three contracts were awarded in January, 2003, to develop implementation procedures for three narrative standards: toxics, nutrients and bottom deposits, and the antidegradation policy. ADEQ has conducted significant stakeholder outreach on antidegradation and the toxics implementation procedures. The antidegradation should be finalized by year end. Toxics fell a bit behind schedule due to intense stakeholder issues surrounding WET testing and stormwater. The narrative nutrient implementation procedure is on track for finalization in December. The narrative bottom deposits implementation procedure was not worked on this year due to competing priorities and staffing issues. It has been moved to FY 05 and is on track for finalization by December, 2004. Initial lake classification system is also being developed.</p>			
<p>Develop, initiate, and support a Volunteer Monitoring Program.</p> <p>Progress Summary – ADEQ along with Gateway Community College conducted 5-6 sampling courses throughout the state. Three were in conjunction with the Master Watershed Stewardship Program through the University of Arizona while others were for volunteer groups seeking skills and support. ADEQ hopes to expand the Volunteer Monitoring Program in FY 05.</p>	Hydrologic Support & Assessment	Program developed = May 2006 Support = On-going	75% 100%

Goal: Identify and quantify water quality problems in Arizona.			
Milestone	Project or Program	Completion Date	%Complete
Support watershed rotation based monitoring program to provide water quality data on long-term stations and watershed characterization sites within the 10 surface watersheds.	Surface Water Monitoring & Standards	Yearly	100%

<p>Progress Summary – Monitoring and characterization in 2 watersheds was completed in FY 04.</p>			
<p>Complete Arizona's Integrated 305(b) Water Quality Assessment and 303(d) Listing Report due April 1, 2004, 2006, and 2008.</p> <p>Progress Summary – Comments from the public and EPA resulted in the need to issue a second draft in late FY 04 which delayed its submittal to EPA until late August. As a result of both the 2002 and 2004 assessments, staff began stakeholder effort to explore revisions to the Impaired Water Identification rule in June, 2004. Key issues include: possible revision or replacement of binomial approach; how to assess chronics; bacteria exceedances and whether the Planning List should be in rule.</p>	<p>Watershed, Assessment, & Grants</p>	<p>April 1, 2004 April 1, 2006 April 1, 2008</p>	<p>100% 5% 0%</p>
<p>Complete 205(j) Report in 2005 and 2007.</p> <p>Progress Summary – Not applicable for FY 2004.</p>	<p>Watershed, Assessment, & Grants</p>	<p>April 1, 2005 April 1, 2007</p>	<p>10% 0%</p>
<p>Complete watershed characterizations for at least three watersheds in Arizona (Bill Williams, Upper Gila, and Verde) by January 2004.</p> <p>Progress Summary – Watershed characterizations have been completed and are online for the Bill Williams, Upper Gila, and Verde River Watersheds. The characterization reports have been presented to the watershed groups in each of the three priority watersheds, and input from the groups have resulted in improvements in the scope of the text. In addition, numerical modeling of watershed response to land use change has been included within Watershed Assessment Reports for each of the three watersheds. Subwatershed areas have been ranked based on</p>	<p>Watershed, Assessment, & Grants</p>	<p>October 2004</p>	<p>100%</p>

<p>susceptibility to nonpoint source pollutant contribution to water quality degradation, and stakeholders have been identified for these priority subwatersheds. View on-line at www.snr.arizona.edu/nemo/index.php?page=characterization.</p>			
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Goal: Develop TMDLs for 303(d) listed waterbodies.			
Milestone & Progress Summary	Project or Program	Completion Date	%Complete
<p>Develop TMDLs.</p> <p>Progress Summary – Received approval of 2 TMDL projects (Boulder Creek (one segment for 3 metals) and Tonto Creek (2 segments for E coli)). Completed 3 delist reports (Granite Basin (low DO, high pH), Sonoita Creek (DO) and Paria River (Se)). Three TMDLs are nearing completion (Lakeside Lake (phase II as aeration system is not achieving performance necessary), Turkey Creek, and French Gulch) – anticipate completion before December 04.</p>	TMDL	Yearly	100%
<p>Hold public meetings to involve local and affected stakeholders.</p> <p>Progress Summary – Stakeholder meetings were held throughout the year for Pinto Creek, Stoneman Lake, Turkey Creek, French Gulch, Tonto-Christopher Creeks, and Lakeside Lake. All meetings were a great success with large public turnout and positive feedback.</p>	Watershed, Assessment, & Grants and TMDL	Yearly	100%
<p>Receive and evaluate comments.</p> <p>Progress Summary – Received and evaluated comments for Boulder Creek and Tonto Creek TMDLs.</p>	TMDL	Yearly	100%

Goal: Develop and Implement Water Quality Improvement Plans			
Milestone & Progress Summary	Project or Program	Completion Date	%Complete
<p>Write TMDL implementation plans.</p> <p>Progress Summary Draft implementation plans were developed for Boulder Creek (view online at www.azdeq.gov/enviro/water/assessment/status.html) and Stoneman Lake. Boulder Creek will be finalized in FY05. ADEQ is working with Stoneman Lake stakeholders to determine the best courses of action. After a conclusive decision among stakeholders is made, ADEQ will resume drafting and finalizing the implementation plan. ADEQ is developing an initial lake classification system which will establish endpoints for lakes, including Stoneman. Due to resource restraints, ADEQ is slightly behind on finalizing a couple of TMDL implementation plans.</p>	Watershed, Assessment, & Grants	Yearly	75%
<p>Write and develop watershed-based plans for all ten Arizona watersheds.</p> <p>Progress Summary – Through NEMO, 3 watershed-based plans will be developed in FY05. ADEQ is working with watershed partnerships around the state to develop watershed-based plans for their watershed or add additional information to their current plans in order to meet the 9-element requirement.</p>	Watershed, Assessment, & Grants	On-going	30%
<p>Hold public meetings with stakeholders.</p> <p>Progress Summary – During each TMDL public meeting, implementation plans are discussed and various implementation workgroups are being formed. These public meetings are proving to be highly successful and beneficial.</p>	Watershed, Assessment, & Grants	Yearly	100%
<p>Receive and evaluate comments.</p>	Watershed, Assessment, &	On-going	N/A

<p>Progress Summary – Boulder Creek was sent out for public review and comment in September 2004. In FY 04, no formal comments were received or evaluated, however, ADEQ met with stakeholder groups and welcomed any comments or suggestions provided for the development of an implementation plan.</p>	Grants		
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Goal: Focus Section 319 incremental grant funds and non-federal matching resources on priority watersheds with impaired waters.			
Milestone	Project or Program	Completion Date	%Complete
<p>Coordinate and conduct annual meetings to set internal goals for priority funding.</p> <p>Progress Summary – Due to the change in supervisory roles, it was imperative that the unit meet continuously throughout the year to coordinate and set internal goals. It was determined that the following types of projects will score higher (i.e. priority funding): projects which include activities identified in a watershed-based plan or TMDL implementation plan; projects proposed to improve impaired or not attaining waters; or projects proposed with estimated load reductions (projected quantitative measures of success). This new priority focus will be incorporated into the <i>2004-2007 Water Quality Improvement Grant Manual</i> and will be implemented beginning in FY05.</p> <p>The unit has also been in close contact with the EPA Project Officer to obtain feedback and recommendations on goals for the upcoming year.</p>	Watershed, Assessment, & Grants	Yearly	100%
<p>Conduct statewide grant workshops annually.</p> <p>Progress Summary –</p>	Watershed, Assessment, & Grants	Yearly	100%

Nine grant workshops were held around the state. Approximately 55 people attended.			
<p>Award Section 319(h) grant money each year to implement water quality improvement projects on impaired waterbodies.</p> <p>Progress Summary – ADEQ received 23 grant applications and awarded 15 projects in January, 2004; a 15% increase in grant applications received and a 50% increase in grant projects awarded compared to the previous fiscal year. Attachment #2 lists the projects awarded in FY 04.</p>	Watershed, Assessment, & Grants	Yearly	100%

Goal: Effectively and efficiently use financial resources and leverage funds with other programs to target nonpoint source pollution priority issues and areas.			
Milestone	Project or Program	Completion Date	%Complete
<p>Use the Grants Reporting Tracking System (GRTS) to track grant funding and effectiveness.</p> <p>Progress Summary – All projects awarded in FY 04 were added to the GRTS tracking system in order to track funding. ADEQ continues to learn more about entering data for project effectiveness and will increase their efforts in FY 05.</p>	Watershed, Assessment, & Grants	On-going	80%
<p>Coordinate with other funding programs (i.e. Arizona Water Protection Fund, Water Infrastructure Finance Authority, Environmental Quality Incentives Program) to leverage money to target nonpoint source pollution management in priority areas.</p> <p>Progress Summary – Throughout the year discussion have been held regarding leveraging money to target nonpoint source pollution management in priority areas. Ten projects (67%) were funded in partnership with other funding (or kind services)</p>	Watershed, Assessment, & Grants	On-going	50%

<p>sources (i.e. U.S. Forest Service, National Fish and Wildlife Foundation NRCS EQIP funds, Arizona Water Protection Fund, Heritage Fund, Water Infrastructure Finance Authority of Arizona, Arizona Department of Transportation, U.S. Fish and Wildlife Partners Grant, State Parks, State Land Trust, County, and other local groups.)</p> <p>Discussions with NRCS, Southwest Strategy, and EPA continue as we are trying to create a pilot watershed project and target multiple funding sources toward managing nonpoint source pollution in an Arizona watershed.</p>			
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Goal: Work with and provide technical support to Arizona watershed partnerships.			
Milestone	Project or Program	Completion Date	%Complete
<p>Actively involve the community, including watershed partnerships, with the development of watershed-based plans and TMDL implementation plans.</p> <p>Progress Summary – Throughout FY 04, we've adopted the philosophy that water quality improvement plans, whether watershed-based plans or TMDL implementation plans, must involve the community to be successful. Therefore, ADEQ looks to these different interested parties to develop plans with the end goal of having these same people apply for grant funding and implement water quality improvement projects.</p>	Watershed, Assessment, & Grants	On-going	100%
<p>Provide support to community watershed partnerships.</p> <p>Progress Summary – Whenever a partnership needs ADEQ's technical assistance or support, we make it a top priority to meet</p>	Watershed, Assessment, & Grants	On-going	100%

<p>their needs. During the year we attended numerous meetings to discuss watershed-based plans, impaired waters, TMDL studies, implementation plans, and the grant program. With the help of our strong partner, the University of Arizona through the Master Watershed Steward and NEMO programs, we've been able to assist many more watershed groups. The coordinators for both of these programs have been a huge help to us and the watershed partnerships statewide. They've provided education, maps, technical assistance, review and comment, etc. For example, NEMO generated GIS maps based on land ownership and plant species, resulting in a numerical estimation of salt cedar by land ownership to help the Gila Watershed Partnership with a riparian vegetation and salt cedar invasion project. Their advocacy has benefited ADEQ tremendously.</p>			
<p>Assist with the development and implementation of the Master Watershed Stewardship Program.</p> <p>Progress Summary – The Master Watershed Stewardship Program is up and running. See <i>Section VI - Public Awareness</i>, for more detailed information on the program.</p>	<p>Watershed, Assessment, & Grants</p>	<p>On-going</p>	<p>100%</p>

<p>Goal: Provide statewide nonpoint source pollution education and outreach.</p>			
<p>Milestone</p>	<p>Project or Program</p>	<p>Completion Date</p>	<p>%Complete</p>
<p>Plan, develop and implement a strategy to conduct education/outreach efforts to increase public awareness of nonpoint source pollution impacts to surface and groundwater resources.</p> <p>Progress Summary – In September 2003, ADEQ developed a Nonpoint Source Education & Outreach Program Plan. This plan is being implemented statewide. Several times throughout the</p>	<p>Watershed, Assessment, & Grants</p>	<p>Plan Completion = September 2003</p> <p>Strategy Implemented = On-going</p>	<p>100%</p> <p>100% for FY 04</p>

<p>year, the Watershed, Assessment, & Grants Unit has conducted education/outreach efforts to increase the public's awareness of nonpoint source pollution impacts to surface and groundwater resources. Examples include, Envirothon, Verde River Days, and Tres Rios to name a few of the big events. Staff has also visited a couple of schools throughout the year and presented about water quality and nonpoint source pollution impacts. Many presentations have been developed on fire devastation, basic hydrology, and nonpoint source pollution. See <i>Section VI - Public Awareness</i>, for more information.</p>			
<p>Update web site information to reflect current activities.</p> <p>Progress Summary – All web site information is up to date and reflects the current activities for the Hydrologic Support & Assessment. Please visit ADEQ's Water Quality Division's homepage at www.azdeq.gov/environ/water/index.html for information on watershed management, monitoring, and assessment (click topic on left hand panel). Web site information will be continuously updated.</p>	<p>Hydrologic Support & Assessment</p>	<p>July 2004</p>	<p>100%</p>

<p>Goal: Develop, implement, and evaluate nonpoint source pollution management measures and other pollution prevention strategies to minimize degradation and protect surface water and groundwater quality.</p>			
<p>Milestone</p>	<p>Project or Program</p>	<p>Completion Date</p>	<p>%Complete</p>
<p>Develop BMP guidance documents for nonpoint source pollution categories, including sediment, mining, and nutrients.</p> <p>Progress Summary – Through our partnership with NEMO, we will develop BMP guidance documents for managing sediment, metals, and nutrients. These BMP guidance documents are currently</p>	<p>Watershed, Assessment, & Grants</p>	<p>October 2008</p>	<p>35%</p>

<p>being drafted (see <i>Section VII - Project Highlights</i>, for more detail). Check the NEMO web site at www.snr.arizona.edu/nemo/index.php?page=bmpmanual for updates.</p>			
<p>Research and identify ways to quantify load reductions as required in EPA's 2003 Nonpoint Source Program Guidance.</p> <p>Progress Summary – ADEQ continues to research and identify ways to quantify load reductions. One staff member attended training on modeling load reductions and staff have spent numerous hours meeting with EPA and Tetra Tech to identify ways to estimate load reductions. Tetra Tech provided ADEQ with an Implementation Appendix that is helpful in determining whether a certain management measure will result in a low, medium, or high load reduction and the estimated time for the load reduction to occur (immediate, months up to 2 years, or >2 years). The Implementation Appendix is a manual of conservation practices to reduce pollution loads generated from nonpoint sources.</p> <p>In addition, for the upcoming FY 05 grant cycle, ADEQ is requesting that applicants provide an estimated load reduction for reporting in GRTS. Priority will be given to projects in which a load reduction estimate (quantitative measure of success) is provided.</p>	<p>Watershed, Assessment, & Grants Unit</p>	<p>June 2006</p>	<p>30%</p>
<p>Document BMP effectiveness from water quality improvement projects in GRTS and guidance documents.</p> <p>Progress Summary – Staff continues to provide oversight on 319(h) funded implementation projects and input and track water quality improvements and BMP effectiveness in GRTS. Please refer to GRTS for updated information on BMP</p>	<p>Watershed, Assessment, & Grants Unit</p>	<p>On-going</p>	<p>75%</p>

effectiveness. See attachment #1 for improvements to water quality			
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Goal: Maintain and expand partnerships and cooperative opportunities with stakeholders, other agencies, organizations, and citizens.			
Milestone	Project or Program	Completion Date	%Complete
<p>Coordinate with federal land management agencies on water quality and watershed improvements as needed.</p> <p>Progress Summary – Staff continues to work with various federal land managers to address nonpoint source pollutant impacts to water quality. Coordination with state and federal land managers was up-held through a variety of organizations and annual meetings: various watershed partnerships, Southwest Strategy, and annual meetings with the Forest Service. See <i>Section II - Federal Support</i>, for more information on coordination, meeting highlights, etc.</p>	Hydrologic Support and Assessment Section	On-going	90%
<p>Oversee, and update as needed, all Memorandum of Understandings (MOUs) so that state, federal, tribes, and local resource management agencies have identified responsibilities in carrying out portions of Arizona's Nonpoint Source State Management Plan.</p> <p>Progress Summary – MOUs are updated as needed. The current MOUs are working well in carrying out portions of Arizona's Nonpoint Source Management Plan. Interagency coordination is a continual struggle but NEMO, attending watershed partnership meetings, and holding public meetings improves our ability to coordinate and plan.</p>	Hydrologic Support & Assessment Section	When needed	100%
<p>Coordinate meetings and updates with other state, federal, tribal, and local partners in the state (i.e. Arizona Department of Water Resources, Arizona</p>	Hydrologic Support & Assessment Section	Yearly	90%

<p>Game and Fish Department, Bureau of Reclamation).</p> <p>Progress Summary – Staff continues to work with various watershed partnerships and state and federal land managers to address nonpoint source pollutant impacts to water quality. Coordination with state and federal land managers was up-held through a variety of organizations and annual meetings: various watershed partnerships, Southwest Strategy, an annual meeting with the U.S. Forest Service, and various other meetings (i.e. TMDL meetings) with federal, state, and local partners. Always room for improving coordination.</p>			
<p>Provide leadership, technical assistance, expertise and support to outside planning and governmental entities to support watershed planning and 208 regional water quality management planning.</p> <p>Progress Summary – Great job this year providing leadership, technical assistance, expertise and support to planning and governmental entities in support of watershed planning. ADEQ has been working with the designated planning agencies for ways to restructure 208 through development of a revised Continuing Planning Process (CPP). The designated planning agencies and ADEQ are sharing responsibility for writing sections of the plan. ADEQ is moving forward with the hiring of an intern to begin creation of a statewide GIS cover of CWA 208 service and planning areas.</p>	Watershed, Assessment, & Grants	Yearly	100%

Goal: Complete Nonpoint Source Annual Report			
Milestone	Project or Program	Completion Date	%Complete
Write and develop a Nonpoint Source Annual Report summarizing the goals and accomplishments yearly.	Watershed, Assessment, & Grants	September 30 each year	100%

<p>Progress Summary – A Nonpoint Source Annual Report was developed to summarize the goals and accomplishments of the Nonpoint Source Program from July 1, 2003 – June 30, 2004 (FY 04).</p>			
<p>Use annual reports to gauge progress on five year Plan.</p> <p>Progress Summary – The Nonpoint Source Annual Report provides the status of accomplishing both the short-term and long-term milestones identified in the Nonpoint Source Management Plan.</p> <p>The tasks and deliverables scheduled as part of the workplan are designed to attain our long-term goal of implementing a dynamic and effective Nonpoint Source Program designed to achieve and maintain beneficial uses of water.</p>	Hydrologic Support & Assessment Section	Yearly	100%

Goal: Review and assess the goals and objectives of the Nonpoint Source Management Plan and revise the Plan as appropriate			
Milestone	Project or Program	Completion Date	%Complete
<p>Amend Nonpoint Source Management Plan as necessary.</p> <p>Progress Summary – The Nonpoint Source Management Plan will be amended as necessary. The Unit has been in constant contact with the EPA Project Officer to obtain feedback and recommendations on goals for the upcoming year. No changes to the plan are needed at this time.</p>	Hydrologic Support & Assessment Section	On-going	100%



Arizona's FY 04 Nonpoint Source Annual Report Section II – Federal Support

ADEQ continues working with state and federal land managers to address nonpoint source pollution impacts on water quality. Many activities throughout the year demonstrate ADEQ's commitment to working with federal land managers to improve water quality in the State.

Arizona achieves federal support through partnerships and stakeholder efforts implemented 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 is able to work with federal agencies to incorporate other appropriate water quality controls and further the goals of the Nonpoint Source Program. Another way ADEQ works and partners with Federal agencies is through community-led watershed groups. Attachment #3 provides a list of Arizona Watershed Partnerships. Within the group structure of these watershed partnerships, ADEQ and its federal partners are able to more easily identify, assess, and help implement voluntary efforts to control nonpoint source pollution.

Pilot Watershed Project

Throughout the year, discussions have been held regarding leveraging money to target nonpoint source pollution management in priority watersheds. The Natural Resource Conservation Service (NRCS), Southwest Strategy, EPA, and ADEQ have been discussing the possibility of creating a pilot watershed project to target multiple funding sources toward managing nonpoint source pollution in an Arizona watershed. A final decision has not been made as to the exact location for the pilot project but the most likely candidate watersheds currently include the San Pedro and the Santa Cruz watersheds. Discussions will continue throughout FY 05 in hopes that project implementation will begin in FY 05.

319 Project Support

Three projects awarded during the last grant cycle were leveraged with federal money and/or federal support. The Cottonwood Creek project administered by the Coronado Resource Conservation and Development (RC&D) is partnering with the U.S. Department of Agriculture Forest Service (Forest Service) and is utilizing NRCS Environmental Quality Incentive Program funds to implement their project. A project awarded to the Gila Watershed Partnership, Point of Pines, is leveraged with Forest Service funding and U.S. Fish and Wildlife Partners grant funds. Lastly, federal money from the Forest Service and National Fish and Wildlife Foundation is being used to implement M Diamond Management L.L.C.'s West Clear Creek Tributary Watersheds project.

Significant Meetings

The Forest Service's Arizona On-Scene Coordinator (Haz Mat) met with the Hydrologic Support and Assessment Section staff to discuss Forest Service remedial activities currently underway and those planned for Arizona. The discussion focused on remedial activities planned for areas near listed waterbodies. We discussed ways to stay in better communication and ways to support each other's projects.

In addition, the On-Scene Coordinator and other Forest Service staff coordinated with numerous divisions within ADEQ to support TMDL-related remedial activities on the Hassayampa River (McCleur Tailings Piles), Alum Gulch (World's Fair Mine), and Turkey Creek (Golden Belt and Golden Turkey mines). Forest Service staff from the various National Forests have provided background information, site access, maps, assistance with site selection, water quality data, comments on draft reports, etc. for numerous TMDL projects, including Oak Creek (Slide Rock), Tonto and Christopher Creeks, Pinto Creek, the Lake Mary TMDLs, and Nutrioso Creek.

TMDLs & TMDL Implementation

Hassayampa River

EPA and Forest Service conducted a Joint Time-Critical Removal Action in January/February 2004 at the McCleur tailings site which is situated on Forest Service property. In the TMDLs for Cadmium, Copper, and Zinc in the Hassayampa River (approved by EPA in November 2002), the McCleur tailing site was identified as one of a number of pollution sources in the Maple Gulch drainage. Tailings and waste rock were excavated from the banks of the stream in effort to return the channel to its original form. The tailings and waste rock were treated with amended biosolids to reduce the toxicity, mobility, and overall bioavailability of heavy metals. The site was revegetated with native plants and grasses (U.S. EPA Region 9, "Draft Workplan for Joint Time-Critical Removal Action – McCleur Tailings Site", September, 29, 2003).

Alum Gulch

In November 2003, the Forest Service invited ADEQ to attend a site tour of the Alum Gulch watershed, hosted by the USGS, and open discussion regarding remediation efforts within the Alum Gulch watershed. Possible remediation alternatives for the World's Fair Mine, which is situated on Forest Service property, and the project's timeline were discussed.

Boulder Creek

The Bureau of Land Management (BLM) has \$500,000 set aside from the Department of Interior's Central Hazardous Materials fund to cleanup the upper tailings pile at the Hillside Mine. BLM's commitment to clean up their portion of Hillside Mine site is a key component to an integrated cleanup effort for improving water quality in Boulder Creek. ADEQ is working with the Arizona State Land Department and a private entity (KFX, Inc.) to cleanup the other two tailings piles on site.

Turkey Creek

The Forest Service has been very helpful with the Turkey Creek TMDL and implementation. By participating, presenting, and initiating interest in the TMDL study, the Forest Service has been an active partner. In addition, the Forest Service has developed an Environmental Engineering Cost Analysis (EECA) related to restoring the three mine sites at Turkey Creek. The EECA will be extremely helpful as the TMDL implementation plan is developed by ADEQ and the Turkey Creek implementation workgroup. The Forest Service is committed to restoring their sites and improving water quality in Turkey Creek. Shared aerial coverage and implementation design (engineered drawings). ADEQ Turkey Creek contractor evaluated the effectiveness of the proposed implementation design as one of the TMDL modeled scenarios.

French Gulch

The Bureau of Land Management (BLM) made an informative presentation at the French Gulch public meeting regarding the different levels of mining allowed on BLM lands. They also reviewed all permitted activities in the French Gulch watershed for the French Gulch TMDL investigation.

Stoneman Lake

Discussions with the Forest Service continue for the implementation decisions which must be made to improve water quality and quantity in Stoneman Lake. The Forest Service has been helpful in providing information and access to the site. ADEQ is working closely with the Forest Service to address many of the issues at Stoneman Lake.

EPA Hardrock Mining Contractor Support

In cooperation with ADEQ, the Forest Service's Southwest Regional Office submitted three Hardrock Mining Contractor Support grant applications to EPA Region 9 in effort to obtain a one-time grant of \$60,000 for remedial activities. Each of the applications were for waterbodies on or near listed segments. Proposals were submitted in support of Alum Gulch, Turkey Creek, and Tonto-Christopher Creeks. ADEQ also submitted two proposals, one for Three-R Canyon, adjacent to Alum Gulch and Harshaw Creek, and one for Boulder Creek. Despite our efforts and collaboration, Arizona did not receive the grant.

Water Quality Monitoring

For a number of years, ADEQ has entered a joint funding agreement with the U.S. Geological Survey to operate the Cooperative Fixed Station Network monitoring program (USGS co-op program). The USGS conducts water quality monitoring at sixteen USGS co-op program sites located on Arizona's larger rivers. USGS maintains gage stations on these rivers which are of a size and annual flow that precludes ADEQ staff from the ability to monitor. The USGS collects water quality data quarterly at sites located on the Colorado River, Salt River, Gila River, Bill Williams River, and the Verde River. USGS has assisted greatly with the Alamo Lake TMDL by collecting data and refurbishing gage stations for more accurate data collection. In addition, the Groundwater Monitoring Unit occasionally conducts groundwater basin studies in

collaboration with USGS. The U.S. Fish and Wildlife Service and the Forest Service also monitor and collect water quality data in streams and lakes throughout Arizona.

Memorandums of Understanding

ADEQ has entered into several Memorandums of Understanding (MOUs) with federal partners in the State to respond to mutual water quality objectives. MOUs help identify responsibilities and activities to be performed by each agency and foster a collaborative effort in meeting natural resource and public health goals to sustain healthy conditions in Arizona's watersheds.

Wildfire Devastation

ADEQ is working towards better collaborative solutions with the Forest Service, BLM and other agencies to address forest management activities that can prevent wildfire devastation. The Forest Service has had to adjust some of their forest management priorities to dedicate time to wildfire prevention and management.



Arizona's FY 04 Nonpoint Source Annual Report Section III - Water Quality Improvement & Load Reductions

As Arizona continues to focus efforts on restoring and protecting waters, it is critical that ADEQ monitor both: 1) the progress being made towards achieving and maintaining water quality standards; and 2) the implementation of programs and projects to assure that they are successful. ADEQ uses several sets of measures to fully determine the success in implementing the Nonpoint Source Program. These include measures that indicate progress towards achieving and maintaining beneficial uses of water; towards other long-term goals of the Program (i.e. achieving load reductions, or implementing particular watershed projects); and towards shorter-term goals and objectives that are designed to lead to the achievement of longer-term goals.

ADEQ uses several approaches, such as ambient water quality monitoring, biological and physical assessment, implementation monitoring, model projections, and photographic evidence to measure ADEQ's effectiveness in restoring and protecting water quality. These environmental indicators help ADEQ to address the public's concerns about water quality in Arizona and what progress ADEQ is making toward its water quality goals.

Water quality monitoring is also an essential tool to enable ADEQ to identify nonpoint source pollution problems, develop effective watershed-based plans, evaluate the effectiveness of actions taken, and meet Section 319 reporting requirements. Monitoring strategies are designed to focus on whether loading reductions are being achieved over time and substantial process is being made towards attaining or maintaining water quality standards. Arizona's surface water quality standards establish the benchmarks for ambient water quality to be achieved for Arizona's streams and lakes.

Water Quality Improvement

Ambient water quality and biological and physical assessment data are compiled in *Arizona's Integrated 305(b) Assessment and 303(d) Listing Report* to measure the status of water quality in Arizona. ADEQ uses the Integrated Report for overall program status and trends and to compare the quality of Arizona's surface waters to water quality standards. This report assesses all surface waters where monitoring has been conducted, reports on the quality of ground water, and lists any impaired surface waters. This water quality assessment report is another means by which ADEQ can determine the effectiveness of management measures implemented to control nonpoint source pollution. Please refer to Attachment #1, *Draft 2002 and 2004 State Clean Water Progress Reporting Matrix*, for a glimpse into the improvement in water quality over the last two years.

Note that there are many factors that might affect results. For example, completion of a TMDL on a waterbody usually allows ADEQ to remove that waterbody from the 303(d) List to the Category 4 “not attaining” list. However, further monitoring during the course of the TMDL may reveal impairment based on additional parameters. The waterbody must then remain on the 303(d) for the new parameters, giving the appearance that no progress has been made, when in fact, some water quality problems have been addressed. These types of variables often skew the results of effectiveness measures and make it difficult to measure water quality improvement by comparing assessments from one year to the next.

TMDLs

The Total Maximum Daily Load (TMDL) Program is designed to help an impaired stream or lake meet its water quality standards and support its designated uses, such as protection of aquatic life, drinking water, and fish consumption. Section 303(d) of the Clean Water Act established authority for the TMDL Program and guides states on how to develop these plans for waters that do not meet water quality standards.

ADEQ received approval of two TMDL projects (Boulder Creek (one segment for three metals) and Tonto Creek (two segments for *E. coli*)) and completed three delist reports (Granite Basin (low DO, high pH), Sonoita Creek (DO) and Paria River (Se)). Three TMDLs are nearing completion (Lakeside Lake (phase II as aeration system is not achieving performance necessary), Turkey Creek, and French Gulch). ADEQ anticipates completion before December 2004.

Watershed-based Plans & TMDL Implementation Plans

Water quality improvement plans are vital components to ensure Arizona’s lakes, rivers, and streams achieve applicable water quality standards. ADEQ is available to provide technical assistance to watershed partnerships and other stakeholder groups in the development of watershed-based plans or other water resource management documents. For each TMDL, the department is required to establish a TMDL implementation plan that explains how the allocations and any reductions in existing pollutant loadings will be achieved (Arizona Revised Statute '49-234G).

Watershed-based plans are holistic documents that are designed to protect and restore a watershed. These plans provide a careful analysis of the sources of water quality problems, their relative contributions to the problems, and alternatives to solve those problems. Furthermore, watershed-based plans will deliver proactive measures to protect waterbodies. . In watersheds where a TMDL has been developed and approved or is in process of being developed, watershed-based plans must be designed to achieve the load reductions called for in the TMDL. Several watershed partnerships in Arizona have watershed plans. Throughout FY 05, ADEQ will work with these groups to develop watershed-based plans with EPA’s 9 required elements. Many of the current plans out there have some or all of these elements already included; ADEQ needs to inventory and help these groups supplement their plans in order to receive priority funding for 319 funds. Three large scale watershed-based plans are being developed through Arizona’s NEMO project (Verde, Bill Williams, and Upper Gila) and ADEQ.

Developing implementation plans is an integral piece of the TMDL process. The achievement of water quality standards in most surface waters will occur due to voluntary efforts such as voluntary cleanup actions, voluntary implementation of best management practices, volunteer monitoring, and education. Stakeholders are encouraged to participate throughout the process and identify actions that they will take to ensure that this plan is implemented. Draft implementation plans were developed for Boulder Creek (view online at www.azdeq.gov/envIRON/water/assessment/status.html) and Stoneman Lake. Boulder Creek will be finalized in FY 05. ADEQ is working with Stoneman Lake stakeholders to determine the best courses of action. After a conclusive decision among stakeholders is made, ADEQ will resume drafting and finalizing the implementation plan. ADEQ has developed an initial new lake classification system which will establish endpoints for lakes, including Stoneman.

Watershed Partnerships and Other Active Stakeholder Groups

Watershed partnerships and other active stakeholder groups contribute to the progress of the Nonpoint Source Program. Attachment #3 provides a list of Arizona Watershed Partnerships. Other active stakeholder groups include Boulder Creek stakeholders (BLM, Arizona State Land Department, and KFX, Inc.), Turkey Creek workgroup (USFS and local community members), French Gulch workgroup (Zonia Mine and local community members), Lakeside Lake workgroup (Pima County and local community members), Stoneman Lake stakeholders (USFS, Arizona Department of Water Resources, residents, Salt River Project), and Southwest Strategy (Forest Service, NRCS, EPA, Bureau of Indian Affairs, BLM, USGS, U.S. Fish and Wildlife Service).

Water Quality Improvement Projects

Grant funds available through Section 319 of the Water Quality Act are a critical element to improving and protecting water quality in watersheds throughout the state. During the last grant cycle, thirteen of the fifteen projects (86%) awarded were for implementation in watersheds with impaired waters. ADEQ's Water Quality Improvement Grant Program allocates money to interested parties throughout Arizona. ADEQ uses these federal funds to implement on-the-ground water quality improvement projects to control nonpoint source pollution. Most of the projects funded are being implemented to manage sediment and improve water quality downstream.

319 Project Monitoring

Each project funded by the Water Quality Improvement Grant Program to implement an on-the-ground water quality improvement project must describe how the monitoring component will be used to evaluate the effectiveness of the implementation efforts over time. Monitoring can include photographic points and/or actual water quality monitoring. Information on reductions in nonpoint source pollutant loads are tracked and reported in EPA's Grants Reporting and Tracking System (GRTS). Please refer to the GRTS database for more detailed information. See *Section V - Successful Implementation Projects*, for examples of actual load reductions due to project implementation. ADEQ will be updating the GRTS database to include load reduction numbers as information

becomes available. More detailed information will then be provided through the Grants Reporting and Tracking System.

Implementation & Effectiveness Monitoring

Implementation monitoring is used to determine whether water quality improvement activities are carried out as planned and how effective the activities have been. ADEQ's TMDL Unit performed effectiveness monitoring on two creeks, Oak Creek and Nutrioso Creek, in FY 04. ADEQ's FY 05 Nonpoint Source Annual Report will provide results on the effectiveness monitoring at both sites. Monitoring can also be used to help project managers determine whether BMPs are implemented as specified in a watershed plan, environmental assessment, or contract, and how successful the BMPs were for a given set of project goals.

For example, several projects have been implemented to improve water quality in Nutrioso Creek, a waterbody impaired for turbidity. ADEQ has provided over \$500,000 to Mr. James W. Crosswhite, owner and manager of the EC Bar Ranch in Nutrioso, Arizona to carry out several recommendations presented in the Nutrioso Creek TMDL implementation plan. After three years of successful implementation, ADEQ has dedicated resources to evaluate the effectiveness of the projects and has conducted monitoring throughout FY 04. ADEQ is hopeful that monitoring results will conclude that the projects implemented on Nutrioso Creek have been successful and the waterbody is meeting water quality standards.

Load Reductions

ADEQ understands the importance of quantifying load reductions on a watershed, waterbody, and project level; however quantifiable proof of nonpoint source load reduction estimates are difficult to obtain. Per Arizona Statute, ADEQ will review the status of each navigable water where a TMDL study has been performed, at least once every five years to determine if compliance with applicable surface water quality standards has been achieved. Therefore, ADEQ is required to revisit each waterbody where a TMDL study has been conducted to perform further monitoring and determine whether or not the waterbody has improved. Currently, ADEQ is doing their first couple of effectiveness monitoring projects. To date, the load reductions achieved on a watershed or waterbody scale have not been calculated. As stated in the above paragraph, ADEQ's FY 05 Nonpoint Source Annual Report will provide results on the effectiveness monitoring and reductions in pollutant loading from nonpoint source in impaired waters and priority watersheds.

At a project level, ADEQ is required to enter estimated load reductions for all 319 funded projects in EPA's Grant Reporting and Tracking System (GRTS) database. There are many challenges to this requirement as nonpoint source load reductions are difficult to quantify, recognizing the natural variability and the difficulty in precisely predicting the performance of management measures over time. For the casual user or someone who does not work on nonpoint source load reduction models or GRTS full time, it is difficult to determine which model program to use. There are so many different modeling programs and it is necessary to know what model will provide the

correct end result. Another problem is the level of technical expertise (i.e. hydrology, pollutant loading processes, limitations of environmental data) needed to run a model whether we ask that the grantee or an ADEQ project manager to provide estimates on load reduction. Nonetheless, information and load reduction data is uploaded as it is received either from grantees or project managers.

There are very few projects with load reduction information. In *Section V - Successful Implementation Projects*, there are actual load reductions documented. Obtaining more load reduction data will be one of the main focuses of FY 05 and ADEQ has a plan in place (see *Section IV - Future Plans*). Refer to the information in GRTS for more detailed information on load reductions.

Model Projections

Model projections are used for measuring load reductions in both TMDL studies and water quality improvement grant projects. One staff member attended two trainings this year to familiarize the group with modeling approaches to estimate load reductions. Even with the training, using nonpoint source load reduction models is a continuous struggle.



Arizona's FY 04 Nonpoint Source Annual Report Section IV – Future Plans

Web site Update

ADEQ will update and revise their Watershed Management web site link (www.azdeq.gov/environ/water/watershed/index.html) to include a link on Water Quality Improvement Plans. This newly developed link will provide information on both watershed-based plans and TMDL implementation plans (similar to the information provided in *Section III - Water Quality Improvement & Load Reductions*), an inventory on which plans are complete and links to the plans. The elements necessary to have an acceptable watershed-based plan per EPA's guidance will be included. Lastly, an explanation on the importance of the plans in relation to priority grant funding will be incorporated. Watershed-based plans, TMDLs, and TMDL implementation plans provide project ideas. Projects which include activities identified in a watershed-based plan or TMDL implementation plan will be given priority for ADEQ's Water Quality Improvement Grant Program.

Grant Manual

ADEQ's Water Quality Improvement Grant Manual (2002-2004) expired in FY 04, therefore ADEQ will update the grant manual in FY 05 to facilitate compliance with newly established state and federal requirements. As a state agency authorized to provide federal funds, we are required to meet certain federal requirements and assure that our grantees (subawardees) also comply with all federal requirements. In addition, ADEQ will work with the Attorney's General's Office to receive approval on the Grant Agreement (contract). Interactive electronic application forms will be developed to make applying easier and more efficient. Questions on the application will reflect information needed by ADEQ and EPA for entry into GRTS, including estimated load reductions. Ways to receive priority through the program will expand to include projects implemented to improve impaired (and not attaining) surface waters and projects that provide estimated pollutant load reductions. ADEQ's new manual will be used from September 2004 until 2007.

Grant Agreement

During the last grant cycle, the Forest Service submitted a grant proposal which was awarded funding. Unfortunately, the Forest Service has informed ADEQ that they are unable to enter into an agreement with ADEQ based on their new legal counsel's advice. In an effort to make sure the issues were resolved, ADEQ worked closely with the Arizona Attorney General's Office and the Forest Service's legal counsel as ADEQ began drafting the new *Water Quality Improvement Grant Manual 2004-2007*. A lot of time was spent as the ADEQ and the Forest Service deliberated on terms that would allow the Forest Service to enter into an agreement with ADEQ. Despite efforts made, no concurrence was reached. ADEQ and the Forest Service will continue to work on

the terms and conditions of the Grant Agreement in hopes that the Forest Service will be able to enter into an agreement with ADEQ to manage nonpoint source pollution and improve water quality in Arizona. With approximately 75% of the land in Arizona managed by the Forest Service, ADEQ is committed to developing a Grant Agreement which will work for the Forest Service.

Calculating Load reductions

For FY 05, ADEQ will request that grant applicants provide estimates of load reductions. ADEQ will be more pro-active in securing this information from our grantees. In addition, ADEQ will add a provision in which projects proposed with estimated load reductions will rank higher than projects that do have projected quantitative measures of success. If estimated load reductions are unknown, ADEQ will encourage monitoring either by the grantee or ADEQ so that we can obtain data and quantify success for GRTS reporting. Learning about the tools and models available to calculate load reductions will be one of the main focuses of FY 05. Evaluating and assessing BMP effectiveness and obtaining more load reduction data will remain top priorities.

Advanced Planning & Collaboration

ADEQ has and will continue to recommend to their federal partners in the state to include measures of effectiveness in their workplans. ADEQ feels that it would be more effective if all workplans or implementation plans included a section on how the project's effectiveness will be measured. This could include photo monitoring, field surveys, water quality sampling, and/or laboratory analysis. It would be extremely helpful to ADEQ for planning and implementation purposes if they included these effectiveness measures in their workplans.

Volunteer Monitoring

During FY 05, ADEQ plans to expand the Volunteer Monitoring Program and increase the number of volunteer groups that are trained on water quality sampling concepts and techniques. Training will be done in accordance with curriculum developed by ADEQ and GateWay Community College or other similar training courses. The goal of the ADEQ Volunteer Monitoring Program is to train and encourage the volunteer groups to collect water quality data that is credible and defensible and can be used by ADEQ for research, screening or assessment purposes. In order to use the data for these purposes, ADEQ must also ensure that the volunteer groups can produce Quality Assurance Project Plans (QAPP) and Sampling and Analysis Plans (SAP) for their sampling projects. Having the Volunteer Monitoring Program up and running will also provide grantees with the technical expertise to develop QAPPs and SAPs and collect credible and scientifically defensible data. ADEQ must also focus on keeping the QAPPs and SAPs current to reflect any changes in the group's monitoring objectives.

NEMO

Currently, a number of watershed groups outside the priority study areas are requesting NEMO's technical support, including the Northwest Arizona Watershed Council who is currently seeking funds to support mapping and numerical modeling of sediment transport in the Detrital Watershed to determine management measures to reduce

erosion and sediment load. ADEQ may consider, based on the outcome of the NEMO project (currently funded through June, 2005), funding the NEMO project to complete watershed-based plans for the other seven Arizona watersheds.



Arizona's FY 04 Nonpoint Source Annual Report Section V - Successful Implementation Projects

Ramsey Canyon (March 14, 2002 - February 28, 2004)

Objectives

This project proposed to reduce sedimentation and surface erosion to Ramsey Creek by diverting and collecting runoff. To accomplish this, the following practices were implemented:

- A downspout was removed from the Visitor's Center and water from that part of the roof was routed to additional downspouts in the vicinity.
- Rainwater runoff collection barrels were installed below active downspouts to capture and store roof runoff to disperse the water in a controlled fashion. Discharged water is used on vegetation surrounding the Visitor Center.
- The Visitor Center parking lot was re-graveled with a higher-density, coarser material to assist in retention of parking lot gravel.

Results

In October 2003, a measurement of silt was taken from the creek silt fence at 34.25 cubic feet. This measurement was taken prior to the construction of the facility parking lot. The parking lot was re-graded and an additional 4.0 cubic feet of silt was removed from the silt fence. Water bars and paving were installed and water harvesting barrels were put into place at the Visitors Center.

Precipitation was measured throughout the grant project. Rain barrel adjustments were made to maximize water flow into the barrels and prevent gravel migration in the parking lot. In November 2003, the silt fence was removed after the final 2.76 cubic feet of silt were removed.

Deposition of sediments against the silt fence will continue to be monitored regularly following precipitation events that generate runoff; the approximate volume and thickness of sediment will be noted.

An interpretive display was placed at the entrance of the Visitors Center in December 2003. It illustrates and describes the rooftop water harvesting system and ties water harvesting to water conservation, reduction of flood flows, and reduction of erosion in developed areas. An estimated 20,000 visitors will see the interpretive display and

learn about natural water collection/harvesting, filtration, and water conservation techniques.

Palo Alto – (February 14, 2002 to February 28, 2004)

Objectives

This project proposed to reduce sediment loading from gully erosion and headcutting on the floodplain of the Altar Wash on 1,370 acres of the Palo Alto Ranch. Benefits of the project include reduced erosion, sedimentation and flooding downstream of the Altar Valley. This project will enhance wildlife habitat, increase forage production for wildlife and livestock, and improve recreation and aesthetic values.

BMPs implemented in this project consisted of:

- 39,400 feet of fencing installed to facilitate rotational grazing
- 14,700 feet of water spreader dikes installed or repaired in critical areas
- Brush management
- 47 acres mulched and seeded to native grass
- 1 gabion (sediment reduction structure) installed
- 2 cattle guards installed
- Water bars installed on 7 miles of road

Results

This project is an example of what government and private landowners can do together to mitigate nonpoint source pollution. Since this project was implemented, other landowners in Santa Cruz Watershed have come forward with potential projects that could help mitigate nonpoint source pollution. Sediment retained on the watershed per year using average rainfall was calculated at 27,900 tons.

Outreach and education completed for this project include:

- Photo displays of work completed presented to the Arizona Association of Conservation District meeting;
- PowerPoint presentation for the Society for Range Management meetings;
- Fact sheet development and distribution;
- Project status reported in the Coronado Resource Conservation and Development (RC&D) Newsletter; and
- Public tour of the ranch.

Monitoring was done under the direction of NRCS and consisted of monitoring vegetative growth and rainfall across the project area. Long term monitoring is planned for the project area.

None of the Palo Alto Ranch was grazed in 2001 or 2002 (the first year of the project) and when grazing did resume, it was under a joint plan developed by the rancher, Pima NRCD, the NRCS, and Arizona State Land Department.

River front Residence Green Roof Installation - August 24, 2001 to December 31, 2003

Objectives

This project proposed to minimize the impacts of urban runoff to the Rillito River watershed by reducing runoff by 50 to 90% from a traditional roof top by transforming it to a green roof. The soil and landscaping also act as a filter strip to minimize pollution in the water that drains from the roof and prevent it from reaching the river.

Results

The green roof has been monitored since the project was completed in January 2003 to identify optimal irrigation techniques that enable desert plants and other vegetation to grow. Currently, the owners of the residence have taken over maintenance and monitoring.

The only runoff that occurred took place during the most severe storm events when the roof had recently been irrigated. This outcome supports the project's initial prediction that a green roof in a desert environment will retain a higher percentage of stormwater, primarily because storms tend to be of shorter duration and less frequent than in wetter climates. The shorter storm duration allows the soil on the roof to absorb moisture between storm events.

Due to the significant reduction in stormwater runoff, there is a reduction in the amount of pollutants that enter the watershed. These pollutants may be found in the rainwater or in particulate form from the roofing membrane itself. Research has also demonstrated that runoff moving into the watershed is less likely to carry pollutants in the water because the landscaping and soil act as a filter.

The reduction in stormwater runoff reduced the roof's contribution to sediment transport downstream and serves as a demonstration roof for other companies and the public interested in this technique.

Outreach and education consisted of an overview of the green roof in the 2003 issue of *Tucson Home* magazine. Articles about the roof are also scheduled with the Arizona Daily in the spring when the roof is "blooming" and other magazines in 2004.



Arizona's FY 04 Nonpoint Source Annual Report Section VI – Public Awareness

Several times throughout the year, the Watershed, Assessment, and Grants Unit has conducted education/outreach efforts to increase the public's awareness of nonpoint source pollution impacts to surface and groundwater resources. Below are descriptions of the events and ADEQ's role in increasing public awareness of nonpoint source pollution and public involvement in addressing it.

Water Quality Improvement Grant Workshops – June – July 2003

Nine grant workshops were held across the state. Approximately 55 people attended. During the workshops, staff covered many aspects of nonpoint source pollution, including: causes and sources of pollution, TMDL studies, watershed-based plan guidance, and recommended management measures to manage nonpoint source pollution.

Project WET (Water Education for Teachers) Water Festival – September 26, 2003

The Water Festival is an opportunity for 4th graders to learn about Arizona's water resources by participating in fun, interactive activities. Interactive activities are developed to enhance critical thinking and build an understanding and awareness of local water resources; the concept of a watershed; groundwater/aquifers; the water cycle; and the importance of water in our lives. The Water Festival is correlated to the Arizona Academic Standards. The Water Festival was held in two locations in Arizona, a rural location and an urban location. The event reached over 1,500 students.

Verde River Days - September 27, 2003

A consortium of organizations including ADEQ, U.S. Forest Service, and U.S. Fish and Wildlife Service presented and distributed literature on environmental topics. ADEQ presented an interactive "wheel of fortune" where the public received prizes for correctly answered environmental questions.

Horizon Community Learning Center (Chandler School) - January 21, 2004

ADEQ presented the groundwater flow model and watershed model (also known as the *enviroscape* nonpoint source model) to approximately thirty 4th graders at a Chandler charter school.

28th Annual Spring in the Mountains Event - March 6, 2004

The Phoenix Mountain Preserve Council requested that ADEQ present environmental topics at the South Mountain Environmental Education Center. We presented the watershed model and played an interactive game where the public spins a wheel and answers various water quality questions to win prizes.

Tres Rios Nature Festival - March 13, 2004

This festival was a family event with educational booths and activities related to groundwater hydrology and pollution sources, watershed dynamics, wildlife, river ecology, water resources, and the history of the Gila River and the Southwest Valley.

Luke Air Force Base: Luke Earth Day - April 15, 2004

ADEQ presented the groundwater flow model to approximately 850 third-graders. The goal was to educate children on causes and sources of groundwater pollution and how to determine depth to groundwater.

Governor at Safford Chamber of Commerce - May 27, 2004

Arizona Governor Janet Napolitano spoke to the residents of Graham County and then presented and signed checks for three Water Quality Improvement Grant Projects to the Gila Watershed Partnership. Visit the Arizona Office of the Governor's web site and view the photo gallery at www.governor.state.az.us/global/pg_may04.htm.

University of Arizona - Master Watershed Steward & NEMO Programs -

With the help of our strong partner, the University of Arizona through the Master Watershed Steward and NEMO programs, we've been able to provide technical assistance on water resource management and assist many more watershed groups. The coordinators for both of these programs have been a huge help to us and the watershed partnerships statewide. They've provided education, maps, technical assistance, review and comment, etc. Their advocacy has benefited ADEQ tremendously. (See the attached brochures on Master Watershed Steward and NEMO.)

Master Watershed Steward (cals.arizona.edu/watershedsteward/)

Thus far, over fifty-five Watershed Stewards have been trained in Northern and Central Arizona, along with another twenty-five trained in Southeastern Arizona. The Master Watershed Steward Program coordinators have attended the meetings of at least nine different watershed partnership meetings, presenting educational materials and assisting with a variety of partnership issues. Classes are being planned for Phoenix, Tucson, Flagstaff, Safford and Prescott. Master Watershed Stewards have conducted the following activities as part of their volunteer service commitment:

- ❖ *Conducting trash clean up on Lake Powell, Arizona.*
- ❖ *Bike path reconstruction with permeable surfaces and water harvesting landscaping in Sierra Vista, Arizona.*
- ❖ *Fish-survey work at Lee's Ferry, Arizona.*
- ❖ *Well-water testing in the Prescott and Prescott Valley areas.*
- ❖ *Wildcat dump removal in Prescott Valley and along upper Verde River.*
- ❖ *Public presentations to groups of citizens throughout Arizona.*

NEMO (www.srn.arizona.edu/nemo/)

In the past ten months of NEMO public outreach activities, NEMO has completed twenty-five outreach presentations (PowerPoint lectures fifteen to forty-five minutes in length) to eight watershed groups across the state, including each of the three priority watersheds. Working with ADEQ, NEMO provided technical outreach and support to six small municipal separate storm sewer system (small MS4s) entities by identifying urban runoff BMPs. There have been three professional conferences in which NEMO has presented and provided outreach and education to hundreds of people. NEMO has also published an article in the nationally distributed *Water and Wastewater* magazine, and Arizona NEMO's presentation on Ordinance Development as a BMP to address urban runoff has been posted to the National NEMO Network homepage.

Watershed partnerships across the state have requested NEMO support through the Univ. of Arizona Cooperative extension, resulting in requests for NEMO presentations in regions beyond the priority watersheds, including Cochise County, Maricopa County, and Pima County. NEMO has also been invited to partner with the USGS, BLM, the ARS and the NRCD, and Kartchner Caverns to form a Technical Advisory Committee to support watershed management activities in the Middle San Pedro, with a focus on land use decision support and nonpoint source pollution reduction.

Future outreach and education will be focused in the subwatershed areas which have been ranked as a high priority based susceptibility to nonpoint source pollutant contribution to water quality degradation in an effort to initiate water quality improvement projects.



Arizona's FY 04 Nonpoint Source Annual Report Section VII – Project Highlights

Arizona's 5-Year Nonpoint Source Management Plan

A huge success was the formal completion and adoption of Arizona's 5-Year Nonpoint Source Management Plan which fulfills Section 319 Clean Water Act requirements. The new State Management Plan covers EPA's nine elements and will guide and direct ADEQ's activities for the next five years (2003 - 2008). This document comprehensively describes a framework for agency coordination and cooperation and serves to implement a strategy for employing effective management measures and programs to control nonpoint source pollution statewide. Nonpoint source pollution can be better managed and controlled at both statewide and community levels through improved coordination, collaboration and combined agency and local stakeholders efforts working to implement measures outlined in the plan.

For more information visit ADEQ's web site at www.azdeq.gov/environ/water/watershed/nonpoint.html.

Arizona's Integrated 305(b) Assessment and 303(d) Listing Report

In November of 2003, ADEQ released the draft Integrated Report. Based on comments received during the public review period, ADEQ re-assessed chronic water quality standards using a new assessment method. The final draft was released for public review and comment in February 2004. The final report was submitted to EPA for approval in August 2004.

This report provides Arizona's 2004 integrated surface water quality assessment and list of impaired waters to fulfill requirements of the Clean Water Act sections 305(b) (assessments) and 303(d) (listing impaired waters). The status of surface and ground water resources in Arizona in relation to state water quality standards is described in this report.

View the final report on-line at www.azdeq.gov/environ/water/assessment/2004.html.

Teamwork

Also a huge success in FY 04 was the improved collaboration between the Watershed Management Unit and the TMDL Unit. The Watershed Management Unit handles the public participation aspects of each TMDL project, by getting involved in the early stages of a TMDL study to organize public meetings and establish contact with watershed groups and other interested parties. Public participation is an extremely important aspect throughout the TMDL study and continues through implementation plan development and implementation. The team effort between the two units has been very successful. The TMDL group is benefited in that they are able to focus their efforts

on field work, data collection, science, and development of appropriate load reductions to achieve improved water quality. With the Watershed Management Unit focusing their efforts on public participation, the public is more knowledgeable and able to provide ADEQ with valuable information to help with the study. This new role benefits the Watershed Management Unit, as they are able to learn the ins and outs of the TMDL project, build relationships with the stakeholders, and create workgroups to help accomplish their end goal of developing a TMDL Implementation Plan for each TMDL study. Several meetings in the spring have been a big success with large public turnout and positive feedback.

Surface Water Data Submittal Guidance Document

To assess the quality of surface and ground water in Arizona, ADEQ must assemble and evaluate all existing and readily available water quality related data and information. Much of the data used in the assessment is collected by other monitoring entities. To facilitate a timely and accurate assessment of the data, ADEQ needs all data being considered for the assessment to be submitted electronically and entered into ADEQ's Surface Water Quality Database for future assessments.

The Surface Water Data Submittal Guidance Document (May 2004) was written to facilitate electronic submission of these data. The goals of developing this guidance were to institute procedures that:

- Will be minimally burdensome to facilities submitting data, recognizing that this submission generally is voluntary in nature, unless required under a permit or compliance order;
- Will create minimal burden on ADEQ staff to load the monitoring site and associated water quality data;
- Will allow ADEQ to efficiently manage and use the data for required water quality assessments and modeling; and
- Will provide clear submittal methods to ensure consistency in data entry.

Although this guidance document focuses on water chemistry data, ADEQ will accept a wide variety of data, including:

- Water chemistry and physical characteristics of surface and ground water,
- Algae,
- Aquatic life tissue (e.g. fish tissue samples),
- Bioassessment and habitat, and
- Geomorphology (physical integrity)

Data submitted will be managed in ADEQ's Surface Water Quality Database and become public record. As public records, these data will be available to all interested parties in both electronic and print media.

For more information visit ADEQ's web site at www.azdeq.gov/enviro/water/assessment/submissions.html.

BMP Guidance Documents

Through our partnership with NEMO, a library of BMP guidance documents have been collected and are in the process of summary and review for applicability to the conditions of the arid southwest. BMP summaries have been incorporated into the Watershed Assessment and Management sections of the watershed-based plans for the Bill Williams, Upper Gila, and Verde River Watersheds. The final plans and applicable BMP guidance documents will be posted to the web site in mid-October, 2004. BMP guidance documents are being redrafted into consistent formats for publication on the NEMO web site and distribution. In addition, NEMO is partnering with Southern Arizona MS4 entities, the Pima Association of Governments (PAG), and the Southern Arizona Contractors Association to review existing sediment and erosion BMPs and compile Arizona-appropriate management measures for publication and distribution through PAG and NEMO.

Nonpoint source BMP categories include: livestock grazing and agriculture; abandoned mine sites; sediment / erosion due to hydromodification and construction; urban runoff; forestry practices; recreational land use; and, septic systems.

Attachment #1
Draft 2002 and 2004 State Clean Water Progress Reporting Matrix

Measurement	2002	2004
Total river/stream miles in State (305b data):	90,375	Same as 2002
Total lake acres in State (305b data):	168,600	Same as 2002
Total river/stream miles assessed (305b data):	2,547	Same as 2002
Total lake acres assessed (305b data):	84,643	Same as 2002
Total river/stream miles impaired (303d data):	340	281
Total lake acres impaired (303d data):	1594	3632
Total river/stream miles attaining all uses (305b data)	1254	
Total lake acres attaining all uses (305b data)	20275	
Total estuarine square miles attaining all uses (305b data)	N/A	
Total ocean shoreline miles attaining all uses (305b data)	N/A	
Total Great Lakes shoreline attaining all uses (305b data)	N/A	
Number of 2002 unimpaired river/stream miles on which volunteer monitoring, watershed, or similar groups are actively promoting water quality improvement (305b data):	53 stream miles	84
Number of 2002 unimpaired lake acres on which volunteer monitoring, watershed, or similar groups are actively promoting water quality improvement (305b data):	160 acres	160
Total number of NPS impairments* for which TMDLs were required in 2002 report:	272 stream mi 3519 lake acres	175 stream mi 3512 lake acres
Number of NPS impairments* from 2002 report that are no longer impaired.	0	125 stream mi 227 lake acres
Total number of point source impairments for which TMDLs were required in 2002 report:	43 stream miles 0 lake acres	15 stream mi 0 lake acres
Total number of mixed-source impairments** for which TMDLs were required in 2002:	119 stream mi 0 lake acres	91 stream mi 0 lake acres
Total number of mixed-source impairments** for which TMDLs required in 2002 have been approved or for which delisting has occurred by other approved methods:	-----	28 stream mi 0 lake acres

* NPS impairments are defined as caused by nutrients; sediments; fecal coliform/e.coli; and other pollutants on specific waterbodies as determined in best professional judgment of State.

**Caused by a combination of point and nonpoint sources.

Attachment #2
List of Water Quality Improvement Grant Projects Awarded in FY 04

Apache

6-004	EC Bar Ranch	EC Bar Ranch Turbidity Reduction Project - Phase VI	\$182,250.00
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Project will preserve, protect and enhance water quality by minimizing impacts of turbidity pollution discharged to surface and groundwater from nonpoint sources. Project area will include a 7 mile section of Nutrioso Creek including property owned by 2 private landowners and USFS. Practices are recommended in the "Nutrioso Creek TMDL - For Turbidity".

6-015	Ecosphere Environmental Services	Juan Curley Project, Navajo Nation	\$44,515.00
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The proposed project is to develop and implement a grazing management plan for a 270 acre Navajo allotment. Also proposed are streambank and gully erosion corrective actions and community outreach.

Cochise

6-001	Coronado RC&D Area, Inc.	Cottonwood Creek Restoration Through Sediment Control	\$102,900.00
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This project will control erosion on the bank and immediately adjacent to Cottonwood Creek in the Whitewater Draw Watershed. Best management practices to be implemented are: gabions for grade stabilization, fencing for livestock exclusion and water system for vegetative management.

Coconino

6-023	Oak Creek Canyon Task Force Grant Management, LLC	Oak Creek Canyon Task Force Water Quality Program	\$131,904.00
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Design and construct toilets and a wastewater treatment and disposal system at Indian Gardens Visitor Center; Design and construct sediment control structures throughout Oak Creek Canyon; develop a task force WebPage; expand the "keep Oak Creek Canon Beautiful" program.

Gila

6-013	Boy Scouts of America - Grand Canyon Council	Boy Scout Camp Geronimo On-Site Sewer Improvements	\$230,310.00
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Modifications to existing on-site septic tank treatment systems to alleviate potential ground water and surface water contamination of adjacent streams. Modifications to include septic tank replacement, addition of secondary treatment facilities, addition of subsurface disposal facilities and conversion of individual campsite pit toilets to sealed vault and haul units. Project is a continuation of improvements outlined in 2001 Grant award.

Graham

6-010	Gila Watershed Partnership	Peterson Wash Stabilization	\$115,950.00
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Rehabilitation of the Peterson Wash area on the Gila River to reduce erosion and sediment transport and protect the only route to the Safford and Graham County Landfill.

6-011 Gila Watershed San Simon Soil Restoration Project \$23,300.00
Partnership

The restoration of an area of eroded and unproductive land to decrease erosion and reduce animal impact in the riparian area.

Greenlee

6-012 Gila Watershed Point of Pines Crossing Rehabilitation Project \$22,300.00
Partnership

To rehabilitate the Point of Pines gate and surrounding fence area to reduce stream bank erosion and sediment load caused by domestic livestock, wildlife and vehicles.

Navajo

6-008 Overgaard Townsite Overgaard Townsite Water Protection Project \$123,543.00
Water District - Phase II

Install "Fast" System

Santa Cruz

6-007 Coronado RC&D, Inc. Santa Cruz River Sediment Control \$89,100.00

Install 800 feet of Kellner Jacks along south river road bank of the Santa Cruz River to protect it from erosion that deposits sediment in the river. The river bank will be revegetated with native species to provide additional protection.

Yavapai

6-002 Henry Dahlberg Ash Creek Watershed Project \$21,670.00
Foundation

Remove sedimentation caused by road and steep side drainages. Mitigate erosive effects of planned forest thinning and prescribed burns.

6-003 Arizona Game and Fish Upper Verde River Wildlife Area Turbidity \$52,000.00
Department Reduction Project

This project will institute 4 restoration measures with post-project monitoring to enhance water quality for the citizens of Arizona by reducing nonpoint pollution sources in the Verde River. These measures include; 1) fencing to exclude livestock from the riparian area, 2) road obliteration and barriers to control vehicle and OHV travel; 3) stream bank slope adjustment, and 4) revegetation of native plants and overgrazed floodplain terraces, exposed and barren stream banks and areas closed to vehicular traffic.

6-017 Arizona State Parks - Red Rock State Park Red Rock State Park Constructed Wetland and Restoration 2003-2004 \$27,500.00

The project is the conversion of a failing evapotranspiration bed (nonpoint source pollution), to a constructed wetland. The wetland will receive wastewater and other runoff and provide filtering, settling, volatilization, and evapotranspiration. The wetland will provide beneficial habitat for wildlife as well as an interpretive opportunity for the 70,000+ people who visit the park. Will also address a sloped area void of vegetation by establishing native vegetation.

6-019 M Diamond West Clear Creek Tributary Watersheds \$224,177.00
Management LLC

Collaborative project to reduce nonpoint source pollution and restore watershed by improving hydrologic function and ephemeral stream channels.

6-021 Upper Agua Fria Wildcat Dumpsite Clean-up - Phase II \$10,000.00
Watershed Partnership

To clean dumpsites on the Big Bug Creek, tributary to the Agua Fria River, between Cordes Lakes and Mayor in central Yavapai County.

Attachment #3 Arizona Watershed Partnerships

Name of Partnership	Watershed Area	Primary Objectives	When and Where Meeting	Contact
Bill Williams Watershed				
Upper Bill Williams	The Upper Bill Williams watershed area is approximately defined by the Kirkland Creek watershed, a 405 square mile drainage, which is tributary to the Santa Maria River.	Mission is to manage and protect the water resource, water quality, and water rights. Advocates local control over our water resources and land use. Objectives are: 1. Ensure that surface and ground water resources are maintained at the current balance, to support irrigation, ranching, and domestic uses, as well as maintain excellent waterfowl and wildlife habitat. 2. Disseminate information so that citizens are will informed of events and legislative activity that may impact them. 3. Cooperate with other rural watershed groups to influence favorable water legislation for rural areas.	3 rd Thursday of the month Skull Valley Community Center	Sondra Wilkening, secretary, (928) 925-6434 westwindsinc@yahoo.com Troy Suter (928) 442-3885
Colorado - Grand Canyon Watershed and Colorado - Lower Gila Watershed				
Northwest Arizona Watershed Council (also in Colorado - Lower Gila Watershed)	The area is defined by three groundwater basins: Hualapai Valley Basin and Sacramento Valley Basin in the Colorado - Grand Canyon, and the Big Sandy Basin in the Colorado - Lower Gila Watershed	Protection and preservation of water and education of the public. The council recognizes the need for more information to adequately model supply and demand equations and relate these to general plans for development. Identify and cleanup of illegal dumping and other nonpoint source pollution.	Mohave County Public Library, 3269 N. Burbank, Kingman, Az. 4 pm 3 rd Wednesday of the month	Elno Roundy (928) 757-2818 Earl Engelhardt (928) 692-1068 imspirit@kingmanaz.net
Little Colorado - San Juan Watershed				
Little Colorado River Multi Objective Management Group (LCR MOM)	This immense watershed covers nearly 27,000 square miles in northeast Arizona and northwest New Mexico.	The LCR MOM vision is to maintain and enhance the quality of life in this watershed through science and tradition based management of natural resources, in a way that ensures equity among shared interests, respects diverse cultural values, preserves environmental health of our land, while promoting appropriate economic growth and financial security of present and future generations. The focus issues include: A. Cultural resource preservation, B. Economic development and recreation, C. Education outreach, D. Erosion and sediment control, E. Flood loss reduction, F. Water quality and quantity improvement, G. Watershed management enhancement.	Every other 3 rd Wednesday, for 2 days Holbrook or Winslow	Jim Boles (928) 289-2422 Pete Shumway (928) 536-4060 pdsl@aplour.com
Show Low Creek	Show Low Creek drainage from Pinetop Springs and Thompson Springs to Fools Hollow Lake.	This grass roots group works to effect changes that will benefit the water quality and quantity. They are a member of the LCR MOM.	Meet on an as needed basis.	Tom Thomas (928) 368-8885 tthomas@ci.pinetop-lakeside.az.us
Silver Creek Advisory Commission	The Silver Creek drainage area	They are a member of the LCR MOM.	2 nd Monday of the month Holbrook	Ron Solamon (928) 536-7366 Kerry Ballard (928) 536-2539 kballard@usa.net
Upper Little Colorado River Watershed	The Little Colorado River drainage	They are a member of the LCR MOM.	3 rd Thursday of the	Bill Greenwood (928) 333-4128 (x-

Name of Partnership	Watershed Area	Primary Objectives	When and Where Meeting	Contact
Partnership	above Lyman Lake		month. Springerville	226) bjgreenwood@eagar.com
Middle Gila Watershed				
Tres Rios River Management Group Federally sponsored by the US Army Corp of Engineers and locally sponsored by the City of Phoenix.	Watershed is the Salt River and Gila River drainage delineated by approximately Southern Ave (north) Baseline Ave (south), 83 rd Ave (east), and Agua Fria River (west).	The issues identified by this group include: A. Stressors identified (inorganic and organic chemicals, pesticides, PBCs, and low dissolved oxygen; B. Flood flows; C. Agricultural storm water runoff; D. Agricultural irrigation drainage and dewatering; E. Concentrated animal feeding operation discharges; F. Wastewater treatment plant discharges; G. Landfill leachate; H. Ground water inflow; I. Sand and gravel area releases; and J. Degradation of wildlife habitat.	Steering committee meets on the third Wednesday of the month.	Alice Brawley-Chesworth (City of Phoenix) (602) 262-1828 alice.brawleychesworth@phoenix.gov
Upper Agua Fria Watershed Partnership	Aqua Fria River drainage area, excluding the Prescott AMA and the Phoenix AMA.	Water quality and water quantity issues identified by this group include: fast growth and development in the Prescott AMA; ranching/grazing issues; leaking underground storage tanks; illegal dumping along streams and in the National Monument; and water legal rights.	2 nd Tuesday of the month, meeting usually at Arcosanti	Mary Hoadley (928) 623-7135 earthhouse@aol.com
Salt Watershed				
Friends of Pinto Creek	Pinto Creek drainage, which is a tributary to the Salt River, that flows into Roosevelt Lake.	Dedicated to the preservation of Pinto Creek, Powers Gulch, and Haunted Canyon.	Meet as needed	Tom Sonandres 623 583-6764 pintocreek@asu.edu
Northern Gila County Water Planning Alliance (a.k.a. Mogollon Highlands)	Watershed is bounded by the Mogollon Rim to the north, Roosevelt Lake to the south, Sierra Ancha Mountains to the east, and Mazatzal Mountains to the west.	The Northern Gila County Water Plan Alliance formed to develop water strategies for the area around Payson, Pine and Strawberry along the Mogollon Rim. The area also is known as the Tonto Creek basin.	1 st Thursday of the month Star Valley	Ron Christensen, Chair (928) 474-2029 Lionel Martinez, Rim Trail Water Improvement District (928) 474-2029 Howard Matthews, Pine-Strawberry WID (928) 476-2142 Robert Mawson, Program Coordinator, (928) 473-2233 rmawson@cableone.net
San Pedro - Willcox Playa - Rio Yaqui				
Campomocho-Sacaton Watershed Group	Watershed is a 42,000 acre sub-watershed of the Willcox Playa including: Gillman Canyon, apache Canyon, Reservoir Canyon, Sacaton Wash, an unnamed drainage (referred to as Big Draw) and Campomocho Draw. This area falls almost entirely within the ranch boundaries of Hook Open A Ranch and Redtail Ranch.	The group's primary objective is to implement conservation practices that will improve watershed health, improve water quality, and reduce downstream flood damages. Practices are specifically aimed at reducing soil erosion and water runoff, increasing ground cover, and improving wildlife habitat to reduce negative economic impacts.	Quarterly meetings at Willcox	Donna Matthews (520) 384-2229, ext 122 donna.mathews@az.usda.gov Dan Skinner at dskinner@goldtechind.com
Upper San Pedro Partnership	1,875 square mile basin from the Mexico border north to "the Narrows." The Huachuca, Mustang, Whetstone, and Rincon Mountains form the	Purpose of the partnership is to coordinate and cooperate in the identification, prioritization and implementation of comprehensive policies and projects to assist in meeting water needs in the Sierra Vista Sub-watershed of the Upper San	2 nd Wednesday of the month Sierra Vista	George Michael, Coordinating manager (520) 378-4046 gmichael2@mindspring.com Bob Strain, Chairman Advisory

Name of Partnership	Watershed Area	Primary Objectives	When and Where Meeting	Contact
	basin's western boundary and the Mule, Dragoon, Little Dragoon, and Winchester Mountains form the eastern boundary. boundaries of Hook Open A Ranch and Redtail Ranch.	Pedro River Basin.		Council 520 459-4763
Middle - Lower San Pedro Partnership	San Pedro River drainage area, between the Narrows near Charleston, Arizona, and its confluence with the Gila River at Winkelman, Arizona.	This grass roots group works to effect changes that will benefit the water quantity and quality.	Meetings as needed	Resource Conservation and Development Agency: Sharon Reid (520) 586-3347 spvnrcd@theriver.com
Santa Cruz - Rio Magdalena - Rio Sonoyta Watershed				
Friends of the Santa Cruz River	Watershed includes the entire Santa Cruz River; however, the group generally focuses on the stretch from the international border to the Santa Cruz County - Pima County boundary.	Major issues of concern being addressed by this group include: A. Maintaining existing flow, ground water pumping, and population growth demands; B. Flood control and land uses; D. Impacts on water quality of land uses, off road vehicles, public access, illegal dumping; E. Monitoring water quality; F. Understanding economics and resource management; G. Maintaining wilderness experience, cultural and historic uses, river oasis, habitat improvements, control of exotic species, and protection of endangered species; and H. Weaknesses in international planning and cooperation.	3 rd Thursday of the month Tubac	Ben Lomeli, President (520) 281-4904
Pima Association of Governments Watershed Planning Subcommittee	Santa Cruz River watershed, focusing on the portion within Pima County.	The subcommittee provides a forum for exchanging information among stakeholders, conducting technical review of proposals and plans, and advising decision makers on matters affecting the Santa Cruz River watershed. The subcommittee coordinates with PAG's Stormwater Management Working Group and reports to PAG's broader Environmental Planning Advisory Committee.	Quarterly meetings - 3 rd Thursday of first month of quarter 177 N. Church, Tucson	Web site: http://www.pagnet.org/WQ/participation.htm e-mail: wq@pagnet.org
Upper Gila Watershed				
Gila Watershed Partnership	Gila River Watershed is about 6,000 square miles, extending from the New Mexico border to the Coolidge Dam (San Carlos Reservoir).	Objectives: A. Conservation of natural resources and enhancement of the environment, while maintaining or improving the economy. B. Increase water quality and improve water quantity. C. Increase recreational opportunities D. Collaboration among partners and neighbors in New Mexico and the San Carlos Apache Tribe within the watershed.	2 nd Tuesday of the month in Graham County General Services building in Safford.	Jan Holder (928) 348-4577 watershedholder@yahoo.com
Eagle Creek	Eagle Creek is a sub-watershed within the Upper Gila Watershed.		As needed on Saturdays	Chase Caldwell, (480) 635-1245
Verde Watershed				
North Central Arizona Regional Watershed Consortium (NCARWC)	Verde River Watershed, largely defined by Yavapai County boundaries.	Formed to accomplish cooperative regional water management, rather than continue contesting each other's water rights. Believe that a unified and knowledgeable voter base in rural Arizona may be able to effect the needed changes in Arizona water laws and statues.	Meeting times and places vary. Contact president (currently Barbara Litrell).	Barbara Litrell, President (928) 649-0135 blitrell@aol.com Bill Goss bill@billgoss.net Anita Rochelle anitar772002@yahoo.com

Name of Partnership	Watershed Area	Primary Objectives	When and Where Meeting	Contact
Northern Gila County Water Plan Alliance (See the Salt Watershed)				
Oak Creek Canyon Task Force	Oak Creek is a sub-watershed of the Verde River.	Task Force goals: A. Conserve natural resources and enhance the environment for wildlife and human uses, B. Sustain and improve recreational opportunities, C. Improve water quantity and quality, D. Reduce damage due to storms, floods, human activities, or natural disasters, E. Engage public and governmental involvement through outreach and education.	2 nd Thursday of the month Sedona	Barry Allen (623) 551-8804 nelsenallan@msn.com Morgan Stine morgan@direcway.com
Stoneman Lake Property Owners Association	This closed basin (no outflow from the lake) is a 900 acre lake drainage area, located 40 miles south of Flagstaff.	Mission is to preserve the pristine environment that is Stoneman lake and to foster harmony and cooperation among neighbors to maintain the peace and tranquility so highly valued in our community.	Meeting times and places may vary.	Chris Estes, President (480) 585-5772 cklestes@msn.com Bill McPeters, V. Pres (602) 431-1513 wedigit@juno.com
Verde Watershed Association	Verde Watershed	Goals: A. Conserve natural resources and enhance the environment B. Sustain, improve, and diversify recreational opportunities, C. Improve water quality and quantity, D. Sustain, enhance, and improve the environment for wildlife, E. Reduce damage from storms, floods, and human-made activities and/or natural disasters. F. Engage public and governmental involvement through public outreach and education.	3 rd Tuesday of the month Prescott, Cottonwood, Camp Verde (varies)	Robert Hardy (928) 634-5526