



Nonpoint Source Pollution: FY2021 Annual Report for Arizona

*Water Quality Division
September 28, 2021 FINAL*

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1 Introduction

1.1 Arizona Nonpoint Source Annual Report

The Arizona Nonpoint Source (NPS) Annual Report for state fiscal year 2021 (FY21) summarizes Arizona Department of Environmental Quality (ADEQ) NPS Program activities that occurred between July 1, 2020 and June 30, 2021. The state's FY21 PPG Work Plan Output Report, submitted to EPA in August 2021, also documents FY21 NPS-funded activities and is a companion document to this report.

The majority of work performed by ADEQ's NPS Program is funded by Clean Water Act Section 319(h) grant monies, awarded by the U.S. Environmental Protection Agency (EPA). Section 319(h) (11) requires states to report annually on progress in meeting the schedule of milestones contained in their Nonpoint Source Management Plans. It also requires, to the extent possible, nonpoint source pollutant loading reductions and improvements in water quality resulting from program implementation. For more information about Arizona's NPS Program's goals and structure for the FY20-24 reporting period, refer to the FY20-24 Five Year Plan.¹

The FY20-24 NPS Five Year Plan has the following goals:

1. Identify and prioritize NPS threats and impairments
2. Plan and implement actions to prevent and reduce nonpoint source pollution discharges to protect and restore water quality
3. Evaluate state programs, rules, and authorities to protect and restore water quality for effectiveness and potential need for modification.

1.2 Executive Summary

To make this report as useful as possible as an evaluation tool for EPA and a planning tool for ADEQ, each milestone in the Five Year Plan Updates FY2021 Table was evaluated based on whether it was on track for the given year and whether it was on track for the overall five-year planning period. This allows staff to identify when additional resources may be needed to keep a milestone on track over a period of several years, and plan accordingly for the following fiscal year.

Milestone updates provide status information for the given reporting year. Milestones are identified as either "not applicable" (no activity for the reporting year), "ongoing" (activity took place in the reporting year and will be completed in a later year, or the task recurs each fiscal year), or "complete" (task is fully completed for the entire five-year planning horizon).

In addition, status updates are color-coded to denote whether they are on track relative to the overall five-year planning period. Milestones are identified as either:

¹ See <http://azdeq.gov/node/315>

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- on track/ongoing (█),
- at risk of falling off track (█)
- off track (█)
- completed (█)

The yellow, or “at risk” status update indicates that while the task may currently be on track (or is not yet due to have been initiated), ADEQ is aware of issues that could threaten the ability of the project to stay on track.

ADEQ was successful in staying on track with a majority of the milestones established and measured in the first year of the five-year plan during state FY21. Only 8% of tasks were identified as at risk for falling behind schedule in coming years if additional focus and/or resources are not applied. Roughly 11% of tasks are off track, as a result of the COVID-19 pandemic, or a shift in priorities due to the federal Navigable Waters Protection Rule.

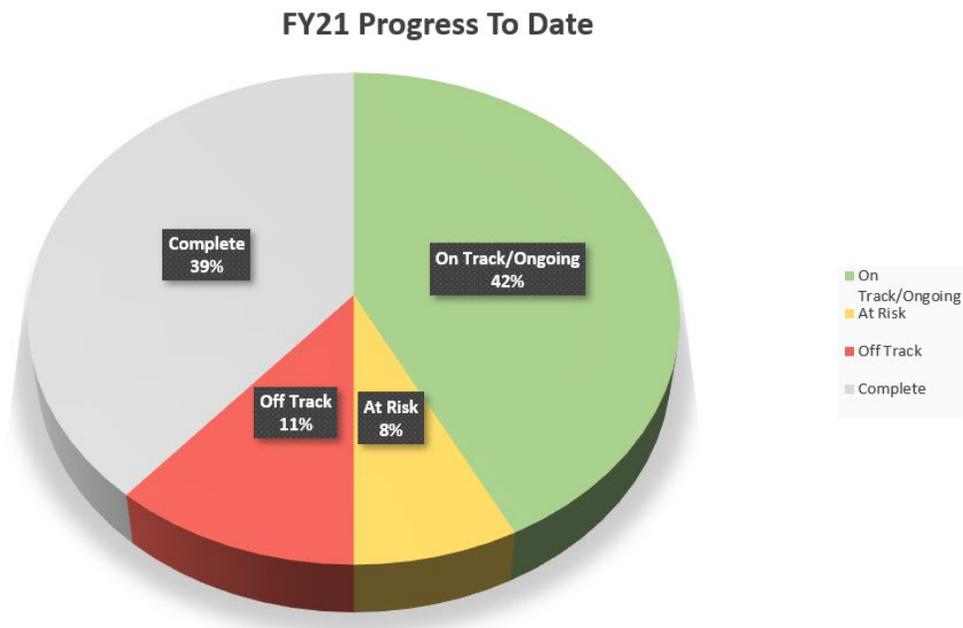


Figure 1: ADEQ Progress

1.3 FY21 Highlights

1.3.1 The Path to Protection at Oak Creek

A partnership made up of the Arizona Department of Environmental Quality (ADEQ), the U.S. Forest Service, Arizona State Parks & Trails, Arizona Department of Transportation, National Forest Foundation, Oak Creek Watershed Council and other entities is working together and engaging the public to protect and restore Oak Creek, a must-see destination in Sedona’s red rocks. Oak Creek is listed as “impaired” under the Clean Water Act for not meeting E. coli surface water quality standards, posing a risk to public health and degrading the environment. Partners have completed multiple projects to reduce E. coli sources and support healthy recreation and tourism at one of Arizona’s most popular outdoor spots and ADEQ is measuring results and recording improvements. All monthly sampling conducted in 2021 demonstrates that there have been no recorded exceedances of E. coli! Project achievements:

- Closed 27 unauthorized parking locations (Highway 89A) to improve safety and minimize social trails;
- Rehabilitated more than 140 unpermitted social trails (over three miles)
- Constructed a fence at Slide Rock State Park to manage visitation and reduce E. coli;
- Removed over 3,000 pounds of litter during clean-ups.
- Collectively, the Partnership has invested \$750,000 and in addition to contributing untold hours and related in-kind services, equipment and materials to protect this treasured area.



Figure 2: In this side-by-side, a rocky social trail leads to Oak Creek. As unestablished trails, these human-caused paths further erode creek banks, creating channels that can carry litter, sediment, and E.coli during rainstorms.

ADEQ's Oak Creek partners include:

- Arizona Department of Transportation
- Arizona State Parks & Trails
- Conservation Legacy
- Oak Creek Watershed Council
- National Forest Foundation
- Natural Channel Design
- U.S. Forest Service

E. coli contamination in Oak Creek is a dynamic and multi-faceted problem, which takes creative solutions applied at all angles. Partnerships and the hard work of volunteers, scientists, concerned citizens, and park and forest officials drive positive impacts for the environment and for those who enjoy recreating in it. The collaborative partnership to protect Oak Creek is ongoing and expanding further. Planned projects include installing pet waste stations and conducting a study with Northern Arizona University on the sources of E. coli contamination. The solutions implemented in Oak Creek will allow future generations to experience it and inspire younger stewards of the land to protect it for years to come.

Learn more about partnership efforts in Oak Creek: <https://azdeq.gov/watershed-improvement-and-protection-oak-creek>



Figure 3: Post-and-steel or guardrails were used to prevent use of unpermitted parking spots along Highway 89A. These sites were developing social trails and causing E.coli loadings in Oak Creek. (Photos courtesy of AZ Department of Transportation)

1.3.2 Remediation of 3R Mine in Patagonia Mountains

The 3R Mine is a legacy mine in the Patagonia Mountains, southern Arizona. ADEQ used autosamplers and Remote Environmental Monitors (REMs) to measure the mine's contribution of metals (copper, cadmium, zinc) into the nearby 3R Canyon impaired tributary. This monitoring helped ADEQ identify the extent of the impairment and understand the current state immediately before remediation. The mine

is on U.S. Forest Service land, and through an agreement, ADEQ and U.S. Forest Service, along with TetraTech, remediated the site. Remediation included safely closing a mine shaft, installing articulated concrete blocks along the channel to stabilize sediment, and grading and covering of wasterock and tailings. ADEQ is now conducting effectiveness monitoring to see if water quality has improved.



Figure 4: Here, articulated concrete block is lining the channel to prevent erosion and metal loadings farther downstream at 3R Mine.



Figure 5: A historic mining shaft was onsite, posing a safety hazard. A specialized foam was inserted and the shaft was capped, including a plaque to mark its historical significance.

Five Year Plan Updates FY2021

1.0 Goal: Identify and prioritize NPS threats and impairments	
1.1 OBJECTIVE: Monitor surface and groundwater quality and analyze data to fulfill state and Clean Water Act requirements.	
1.1.1 STRATEGY: Develop a comprehensive monitoring strategy that coordinates with NPS priorities	
Milestones:	
1. Complete Comprehensive Monitoring Strategy Report (FY20)	Completed
Comments	
Completed and sent to EPA on 6/30/20	
1.1.2 STRATEGY: Conduct ambient water quality monitoring to aid in assessment determinations	
Milestones:	
1. Complete sampling per annual work plan (Annually)	Ongoing
Comments	
All FY 21 Reporting milestones completed	
2. Implement a focused sampling approach to combine data gap, source identification and effectiveness monitoring activities across the value stream (FY20)	Completed

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Comments		
Completed.		
3. Close 20 data gaps annually to reduce the number of unassessed perennial waters from the previous 305(b) assessment report. (FY20-24)		Ongoing
Comments		
Completed for FY21		
1.1.3 STRATEGY: Conduct Probabilistic Survey and evaluate trends since last probabilistic survey		
Milestones:		
1. Complete probabilistic fish report (FY20)		Completed
Comments		
Completed November 2020. Report available at https://static.azdeq.gov/wqd/reports/fish.pdf .		
2. Select waterbody type for probabilistic study (FY21)		N/A
Comments		
Deferred to FY22 in the Performance Partnership Grant (PPG) workplan.		
3. Complete probabilistic survey on selected waterbody type (FY22)		N/A
Comments		

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	4. Conduct trend analysis on probabilistic survey data (FY23)	N/A
	Comments	
1.1.4 STRATEGY: Develop and implement in-field tools to increase the success of data collection efforts and identify potential sources and water quality improvements more efficiently.		
Milestones:		
	1. Continued development and deployment of at least 10 remote environmental monitoring (REM) telemetry to improve sample and data collection (Annually)	At risk
	Comments	
	<p>In FY21, ADEQ's efforts on building and deploying REMs was temporarily stalled due to the COVID-19 pandemic. Additionally, only one team member knows how to build and deploy REMs, and that team member was shifted to the higher-priority project that was making jurisdictional determinations on Arizona's waterbodies in response to the Navigable Waters Protection Rule (NWPR). In FY22, ADEQ is re-assessing and identifying future REM needs and has already begun cross-training additional team members on the technology. New REMs have been installed in Spring Creek and near the Hassayampa River to measure effectiveness of Oak Creek projects and the Storm Cloud Mine remediation, respectively. ADEQ is confident that more REMs will be installed in FY22.</p>	
	2. Perform dry soil metal characterization using X-ray Fluorescence (XRF) tool at 5 sites to aid in mine site prioritization (Annually)	Ongoing
	Comments	
	<p>In FY21, ADEQ used XRF to analyze levels of metal contamination at three additional sites - McClell Mine, Gibson Mine, and 3R Mine. ADEQ also purchased an additional XRF gun using leftover Performance Partnership Grant (PPG) funds. These tools enable project managers and hydrogeologists to identify metal "hot spots" to target for additional remediation, as well as monitor metal levels without being dependent on stormflow conditions.</p>	

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3. Expand use of field leach method to quantify potential runoff from 5 mine sites to aid in site prioritization (Annually)	At risk
Comments	
The field leach method was not used this fiscal year as the focus was on implementing projects at high priority sites.	
4. Use Unmanned Aerial Vehicles (drones) to aid in plan development and post- implementation effectiveness of both mine and grazing related projects (FY20-24)	Ongoing
Comments	
ADEQ deployed drones at several watershed improvement project sites and the 3R mine remediation site. The drone flights captured aerial imagery and allowed ADEQ to observe remediation progress.	
5. Develop partnership and deploy a lake monitoring buoy to collect data that may help predict conditions resulting in Harmful Algal Blooms (HABs) (FY21)	Ongoing
Comments	
ADEQ is pursuing an Inter-Agency Service Agreement with AZ Game and Fish Department to house and deploy the lake monitoring buoy. Potential projects are already identified, including some stocked lakes in the White Mountains. This work will continue beyond FY21.	
6. Reevaluate priorities for equipment needs on an annual basis, redeploy as necessary, and report in annual NPS report (Annually)	Ongoing
Comments	
ADEQ continues to evaluate equipment needs. ADEQ purchased an additional XRF analyzer to be used at high priority mining sites. ADEQ is also re-assessing and purchasing additional equipment to re-instate the REM program.	
1.1.5 STRATEGY: Conduct source identification monitoring to identify and quantify pollutant sources contributing to impaired/not-attaining waters	
Milestones:	

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<p>1. Determine monitoring needs to identify and quantify suspect pollutant sources to high priority waters (Annually) Six waterbodies: • Lynx Creek • Davidson Canyon • 3R Canyon • Copper Creek, • Babocomari River, •Walnut Gulch (FY20). Five waterbodies (Lynx Creek, Copper Creek, Babocomari River, Davidson Canyon, Walnut Gulch) (FY21)</p> <ul style="list-style-type: none"> • Four waterbodies (TBD) (FY22) • Four waterbodies (TBD) (FY23) • Three waterbodies (TBD) (FY24) 	<p>Completed</p>
<p>Comments</p>	
<p>Lynx: This waterbody is not prioritized, but has been identified for future watershed projects due to its proximity to Hassayampa River, where several abandoned mines exist and where ADEQ is currently focusing efforts.</p> <p>Copper Creek: This waterbody is currently not an agency priority since it is not a KOUI site. This waterbody is impaired for Copper, Cadmium, Zinc, Iron, and Selenium. ADEQ is engaging BLM staff to discuss nearby tailings piles. BLM is currently not prioritizing site. ADEQ sampled for water quality at base flow in February 2020 and found exceedences in SWQS, a data summary is currently being written. ADEQ staff have reached out to BLM since the tailing piles are located on their land. A follow up ADEQ conducted a site visit on 6/26/20 and Copper Creek was not flowing and no water samples were taken.</p> <p>Davidson Canyon: ADEQ provided EPA a data summary, which detailed monitoring results. Based on those results, ADEQ removed its sampling equipment from Davidson Canyon to be deployed elsewhere.</p> <p>Walnut Gulch: This site was going to be an additional project for ADEQ as an experimental watershed to analyze the connection between e.coli and sediment loading for use in Oak Creek and San Pedro. However, due to limited resources, ADEQ is currently putting this project on hold.</p> <p>Babocomari / Upper San Pedro River Watershed: ADEQ continues to manage a 319-grant funded watershed project that was sub-awarded to Watershed Management Group. The project, part of ADEQ's Border Team's Strategic Plan, is implementing demonstration sites for cattle best management practices and installing green infrastructure along the Sonora, Mexico portion of the San Pedro River. Additionally, ADEQ partnered with the AZ office of USDA's National Resource Conservation Services (NRCS) to begin planning for the FY22 National Water Quality Initiative (NWQI), a joint initiative between states, EPA, and NRCS to help improve watershed health. ADEQ is providing water quality data, TMDL, and watershed plans to NRCS to develop an assessment of the Babocomari sub-watershed of the San Pedro. Lastly, ADEQ is a trustee in an AZ Game and Fish Department-led project that is addressing grazing and other issues on 2 impaired reaches of the San Pedro. ADEQ and AZGFD, through an</p>	

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	Interagency Service Agreement, conducted field work in April 2021 and reported sampling results through the Water Quality Exchange database. ADEQ continues to explore additional opportunities for water quality improvements on the San Pedro.	
	2. Complete data collection according to annual FY sampling plan (FY20-24)	Ongoing
	Comments	
	Sampling for FY21 was completed according to plan. Results are submitted through the Water Quality Exchange database.	
	3. Analyze data and update priority project rankings based upon results (Annually)	Ongoing
	Comments	
	ADEQ continues to improve on its process for analyzing water quality data to determine next steps. Data has been analyzed for Pinto Creek (Gibson Mine site/KOUI) to determine impairment delistings and summaries are in progress for Alum Gulch and Mule Gulch sites to assess previous remediation effectiveness. ADEQ will be submitting data summaries by August 2021 for Mule Gulch and Alum Gulch to EPA per its Performance Partnership Grant (PPG) Work Plan. Priorities for ADEQ remain KOUI sites (Known, Ongoing, Unauthorized Impact) and Oak Creek projects.	
	1.1.6 STRATEGY: Conduct effectiveness monitoring in waters where water quality improvement/protection efforts have been implemented.	
	Milestones:	
	1. Collect water quality data to determine if projects implemented were effective at improving water quality including NRCS NWQI projects as appropriate (Annually)	Ongoing
	Comments	
	ADEQ is collecting effectiveness samples at the Storm Cloud Mine and 3R Mine sites post-remediation as well as around Oak Creek projects, including the social trail rehabilitation sites, the Slide Rock State Park barrier fence, and the ADOT parking closure sites to determine effectiveness. Sampling at the mine sites is conducted by ADEQ personnel and sampling at Oak Creek is conducted by ADEQ personnel and watershed groups like Oak Creek Watershed Council. ADEQ will continue to collect enough samples to determine effectiveness, dependent upon storm flow conditions.	

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<p>2. Determine effectiveness monitoring needs to quantify improvements to high priority waters: Five waterbodies (Alum Gulch, Boulder Creek, Mule Gulch, Pinto Creek, Copper Creek) (FY20) Seven waterbodies (Hassayampa River, Boulder Creek, 3R Canyon, Pinto Creek, French Gulch, Oak Creek, Big Bug Creek) (FY21) Six waterbodies (TBD) (FY22) Six waterbodies (TBD) (FY23) Three waterbodies (TBD) (FY24)</p>	Ongoing
Comments	
<p>ADEQ continues to sample along the Hassayampa River to determine effectiveness at the completed Storm Cloud Mine remediation, as well as 3R Canyon near the 3R Mine remediation site. ADEQ is utilizing water quality sampling and XRF soil analysis at Pinto Creek to inform the remediation design for the Gibson Mine site. ADEQ continues to sample along Oak Creek to measure the effectiveness of several FY21 projects.</p>	
<p>8. Use effectiveness monitoring data to delist waters as applicable (FY22, 24)</p>	N/A
Comments	
<p>9. Develop at least 1 NPS success story and submit to EPA via GRTS per waterbody below:</p>	Ongoing
<p>• Boulder Creek (FY20) (annually by July 1st)</p>	
Comments	
<p>ADEQ submitted a draft NPS Success Story for Boulder Creek (featuring the Hillside Mine remediation), as well as a story for Harshaw Creek (featuring the Lead Queen Mine remediation) on 6/30/21 for EPA feedback. ADEQ submitted final versions of the stories through GRTS on 8/18/21.</p>	
<p>• Oak Creek (FY23)</p>	N/A
Comments	

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	• Big Bug Creek (FY24)	N/A
	Comments	
	10. Collect Data for the evaluation of bioassessment tools for effectiveness monitoring at 20 sites on metals impaired streams (FY20-FY23)	Ongoing
	Comments	
	ADEQ continues to collect bioassessment samples at Hassayampa River to compliment water quality data and determine the extent of metal contamination in the watershed.	
	11. Evaluate Index of Biological Integrity (IBI) and results of metals bioassessment study (FY24)	N/A
	Comments	
	12. Write a report summarizing the findings of the bioassessment study (FY24)	N/A
	Comments	
1.1.7 STRATEGY: Work with external agencies and volunteer partners to collect data to fulfill monitoring goals.		

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Milestones:	
1. Train at least 10 volunteer groups to assist in fulfilling sampling plan goals (Annually)	Ongoing
Comments	
<p>A virtual training using ArcGIS Survey123 was created to replace in-person training due to the COVID-19 pandemic. The virtual training can be viewed here: https://survey123.arcgis.com/share/4dd233a32b1b4fb99d269b602ffbf0cd and included a range of topics including data entry processes, cartoon micro-video lesson sampling overviews, and comprehension questions. Volunteers were given two months to complete the training. A total of 13 volunteer groups completed and passed the virtual training: Greenbush Grunts, Sierra Clun- San Pedro, Sierra Club -Verde River, Slide Rock State Park, Butte Creek Restoration Council, Oak Creek Watershed Council, Friends of the Verde, Gila Watershed Partnership, Trout Unlimited, Friends of the Santa Cruz River, Tonto National Forest, and AZ Water Dogs.</p>	
2. Develop or update volunteer visual aids including Sample and Analysis Plan, video lessons, handbook, and reference guides (FY20)	Completed
Comments	
<p>A new Sample and Analysis Plan template has been create for volunteers to use as a reference. Microvideo lessons on Dilutions for E. coli Samples (https://www.youtube.com/watch?v=H2TiZhfv11c&feature=youtu.be) and Trash Clean Up Process (https://www.youtube.com/watch?v=BNFN2h_-r0U&feature=youtu.be) were completed. Additionally a new Arizona Water Watch Volunteer handbook is available for volunteers: https://static.azdeq.gov/wqd/azww/handbook.pdf</p>	
3. Direct volunteer groups to focus on agency high priority water data needs (Annually)	Ongoing
Comments	

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Despite the COVID-19 pandemic, Citizen Science volunteer groups remained active in FY21. AZ Water Dogs, Trout Unlimited, Tonto National Forest, and the Sierra Club-Verde have all aided ADEQ in collecting necessary water quality assessment data at sites that didn't have enough information. Oak Creek Watershed Council and Slide Rock State Park have been essential in collecting E.coli pre- and post-project and trash data along ADEQ's high priority watershed of Oak Creek. Volunteers were also harnessed to collect essential flow data to be used to determine jurisdictional waters in response to the Navigable Waters Protection Rule (NWPR) and to help establish Arizona's State Surface Water Program. Volunteer groups used the Arizona Water Watch photo application to capture flow imagery along rivers and streams across the state. AWW also expanded to include a trash clean-up application that volunteer groups are using along Oak Creek, Verde River, Salt River, and Stoneman Lake.

1.1.8 STRATEGY: Complete and submit the 305(b)/303(d) integrated report on a biannual schedule.

Milestones:

Use a real-time assessment tool to guide data collection to minimize data gaps and determine the current status of monitored waters (Weekly)	Ongoing
Enhance real-time assessment tool to an enterprise, ADEQ IT-supported tool (FY21)	Complete
Comments	
Assessment tool enhancements completed in April 2021.	
2020 CWA 303(d) List and supporting 305(b) report (FY20)	Complete
Comments	
Submitted 305 (b) to EPA Spring FY20 and awaiting review.	
2022 CWA 303(d) List and supporting 305(b) report (FY22)	N/A
Comments	

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	2024 CWA 303(d) List and supporting 305(b) report (FY24)	N/A
	Comments	
1.2 OBJECTIVE: Prioritize internal resources toward the protection of high priority waters		
1.2.1 STRATEGY: Protection of high priority waters including monitoring for antidegradation of outstanding Arizona Waters and identification of other high priority waters		
Milestones:		
	1. Update and complete antidegradation implementation procedures for water quality standards (FY23)	N/A
	Comments	
	2. Use GIS tools to identify high-quality waters for protection (FY23)	N/A
	Comments	
	3. Evaluate water quality of existing Outstanding Arizona Waters for antidegradation (FY24) ²	N/A

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Comments	
<i>Note:</i> ² Outstanding Arizona Waters are listed in the Arizona Administrative Code R18-11-112	
2.0 Goal: Plan and implement actions to prevent and reduce nonpoint source pollution discharges to protect and restore water quality	
2.1 OBJECTIVE: Work with internal and external partners to develop and implement strategies for addressing impairments influenced by <u>mining-related</u> nonpoint sources	
2.1.1 STRATEGY: Develop prioritization methodology for metals impaired stream reaches and contributing mine sites	
Milestones:	
1. Complete an inventory of potential sources on currently metal impaired waters (FY21)	Completed
Comments	
A surface-level inventory of potential sources has been identified using past TMDL and watershed plans. The potential sources are all legacy mining sites, distributed across currently prioritized waterbodies like Hassayampa River, Pinto Creek, and Humboldt Canyon/Alum Gulch. ADEQ will be developing an in-depth inventory of sources when it reviews and catalogues its current TMDLs and watershed plans. Potential sources will be prioritized as future KOUI sites.	
2. Prioritize stream reaches and mine sites, using ADEQ’s surface water improvement priorities strategy for FY20 (FY20)	Completed
Comments	
High priority sites (stream name) for FY20 included 3R mine (3R Canyon), Poland Walker Tunnel (Big Bug Creek), McKinley Mill and Storm Cloud Mine (Hassayampa River), Gibson Mine (Pinto Creek). These will continue to be priorities in FY21 as we begin to implement remedial projects	

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3. Rank impaired stream reaches and mine sites for project implementation based on ADEQ's surface water improvement priorities strategy (FY21)	Completed
Comments	
Based on ADEQ's priorities strategy, mine/KOUI sites are of highest priority. The sites are located on jurisdictional waters, making them even higher priority. ADEQ is implementing remediation at 7 mining sites: Gibson Mine, McKinley Mine, Storm Cloud Mine, Cash Mine, McClellan Mine, Eugene Mine, and Poland-Walker Tunnel. In FY21, remediation was completed at the Storm Cloud Mine and 3R Mine.	
4. Update prioritization list (Annually)	Ongoing
Comments	
No change to prioritization list in FY21.	
<i>Note: 3 See ADEQ's FY20-24 Nonpoint Source Pollution Five Year Plan, Executive Summary</i>	
2.1.2 STRATEGY: Identify and pursue additional funding sources for mine remediation projects	
Milestones:	
1. Develop standard work to establish partnerships with external entities to cooperatively implement projects (private landowners, land management agencies) (FY20)	Completed
Standard work has been developed and current partnerships include US Forest Service, BLM, private landowners, volunteer groups, State Land Department, private consultants, Arizona Mining Association, Freeport McMoRan, and EPA.	
2. Develop talking points to approach external entities for possible funding support (FY20)	Completed
Comments	

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<p>ADEQ has engaged several external entities for funding support in FY20, including: the USFS, which will result in a Participating Agreement allowing ADEQ to perform remedial work at the Poland Walker Tunnel and Eugene mine (both degrade Big Bug Creek). This agreement will be finalized in FY21 and transfer \$300,000 to ADEQ to perform the work; the Arizona Mining Association, who participated in a Kaizen event on abandoned mines in January 2020 and offered support and resources to remediate abandoned mines.</p>	
<p>3. Use priority ranking to pursue additional internal (non-319) and external funding sources for high priority projects (Annually)</p>	<p>Ongoing</p>
<p>Comments</p>	
<p>ADEQ continues to regularly assess its funding sources and has created metrics to measure how quickly they are being spent. ADEQ pursued internal (state) funding from the Water Quality Assurance Revolving Fund (WQARF) and external (federal) Performance Partnership Grant (PPG) funding for mining projects in FY21.</p>	
<p>4. Pursue the establishment of state funding source to address inactive mine sites (FY24)</p>	<p>N/A</p>
<p>Comments</p>	
<p></p>	
<p>2.1.3 STRATEGY: Direct fund projects on high priority waters</p>	
<p>Milestones:</p>	
<p>1. Develop and implement standard work to secure internal approval for direct funded 319 projects (FY20)</p>	<p>Completed</p>
<p>Comments</p>	
<p>ADEQ's Watershed Improvement Unit utilizes a standard work to develop project pitches given to the WQD Director to obtain approval on direct-funded 319 projects. In February, this standard work allowed the approval for several 319 projects to be implemented in Oak Creek, for example (pet waste stations, car pullout closures, social trail rehabilitation). As part of ADEQ's Lean culture, the standard work is regularly assessed in a Plan, Do, Check, Act cycle to update it.</p>	

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2. Develop a process to determine when surface water discharges from abandoned mines are impacting unregulated private drinking water wells (FY20)	Off track
Comments	
<p>In FY20, this project was determined to be beyond the authority and expertise of the Surface Water Quality Improvement team. Efforts are prioritized to remediate abandoned mine sites and their impacts to nearby streams and rivers.</p>	
3. Establish a process for ensuring that all 319 direct-funded projects meet EPA's 9 key elements for watershed-based plans (FY21)	Completed
Comments	
<p>All current and future 319-funded projects meet EPA's 9 key elements for watershed plans. Arizona is covered by multiple, broad-scoped 8-digit HUC watershed plans called "NEMO Plans" (online here: http://azdeg.gov/node/664). NEMO plans cover 8 of the 9 elements from EPA's Watershed Planning Handbook. The remaining element, load reduction data, is provided by a contract with the University of Arizona (Master Watershed Steward Contract). Load reductions pre- and post- projects are calculated by Professor Guertin and provided to ADEQ for implemented projects at mining sites and Oak Creek. Additional Watershed Improvement Plans (WIPs) for smaller HUCs also provide the necessary key elements for certain watersheds.</p>	
4. Use prioritized sources to compete for internal funding sources (319, WQARF, PPG) (Annually)	Ongoing
Comments	
<p>We are currently using and obtaining other funding sources to compliment the use of 319 funds. We are utilizing the State Fund WQARF in conjunction with 319 funds for mine remediation</p>	
5. Continue to maximize internal match for 319 project funds to minimize grantee match requirements (Annually)	Ongoing
Comments	
<p>In FY21, ADEQ continued to maximize internal match for 319-funded projects. ADEQ utilizes match from remaining sub-award grantees, the state-funded WQARF, personnel match, and Citizen Science/Arizona Water Watch volunteers.</p>	

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2.1.4 STRATEGY: Implement projects at high priority mine sites that are impacting human health or contributing to impairments of perennial and intermittent waters

Milestones:

1. Implement projects at Lead Queen Mine, 3R Mine, Poland Mine, Storm Cloud Mine, and McKinley Mill (FY20)

At risk

Comments

Lead Queen Mine: The adit plug was installed in August 2019 and effectively ceased the discharge. Water quality has improved below the discharge point. ADEQ will be submitting an NPS Success Story for this site.

3R Mine: Remediation was completed by ADEQ and Tetra Tech in May 2021. ADEQ partnered with US Forest Service to complete the remediation, the mine is located on USFS land. ADEQ is conducting effectiveness monitoring at this site.

Poland Mine: This site is currently being assessed, and several site visits have determined it to be very difficult to remediate due to wasterock and tailing pile slopes, proximity to homes, and a small work area. ADEQ is engaging with Freeport McMoRan, ASU, and other entities to develop a possible remedial approach.

Storm Cloud Mine: Remediation was completed in December 2020. ADEQ is conducting effectiveness monitoring. The adit continues to discharge under storm flow conditions, and ADEQ is exploring new technologies to address the adit with external contractors.

McKinley Mill Mine: Remediation will begin in FY22 (September 2021) at this site after a delay due to snow and endangered species breeding.

2. Implement projects at Gibson Mine, Cash Mine, Senator Mine, McClellan Mine, Zonia Mine (FY21)

At risk

Comments

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<p>Gibson Mine: ADEQ spent FY21 in analyzing, monitoring, and developing a remedial approach for this site near Pinto Creek. ADEQ has chosen a contractor and will proceed with remediation in FY22.</p> <p>Cash Mine: This site underwent a change in project managers in FY21, causing a slight delay. ADEQ analyzed and monitored metal concentrations and developed a Scope of Work for a remedial approach for the site. Remediation will proceed in FY22/23.</p> <p>Senator Mine: This site has been referred to the Surface Water Protection team for formal enforcement. The owners of the mine are under a consent order and ADEQ continues to work with them on addressing the contamination.</p> <p>McCleure Mine: This site underwent a change in project managers in FY21, causing a slight delay. ADEQ has collected water quality data and soil data to measure metal concentrations. ADEQ has developed and released a Scope of Work for a remediation design. Remediation will proceed in FY22/23.</p> <p>Zonia Mine: This site has been identified as a future remediation site.</p>	
3. Implement high priority projects in the Harshaw Creek watershed (FY22)	N/A
Comments	
4. Implement high priority projects in the Lynx Creek watershed (FY23)	N/A
Comments	
5. Implement 2 high priority projects (FY24)	N/A
Comments	
<p>2.1.5 STRATEGY: Measure the effectiveness of mine remediation projects</p>	

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Milestones:	
1. Conduct effectiveness monitoring (Annually)	Ongoing
Comments	
ADEQ continues to sample along the Hassayampa River to determine effectiveness at the completed Storm Cloud Mine remediation, as well as 3R Canyon near the 3R Mine remediation site. ADEQ is utilizing water quality sampling and XRF soil analysis at Pinto Creek to inform the remediation design for the Gibson Mine site. ADEQ continues to sample along Oak Creek to measure the effectiveness of several FY21 projects.	
2. Calculate actual versus estimated load reductions for each project implemented (As necessary for projects implemented in 2.1.4)	Ongoing
Comments	
Through its contract with the University of Arizona, ADEQ continues to receive load reduction calculations for projects and report them through GRTS. Load reductions were calculated for Oak Creek projects and remaining sub-award grantee projects in FY21.	
3. Delist waters that are now meeting standards (FY22 and FY24)	N/A
Comments	
4. Reevaluate implemented BMPs where expected load reductions are not realized (Annually)	Ongoing
Comments	
ADEQ continues to collect water quality samples to measure the effectiveness of projects. Once enough data and load reductions are collected to determine trends, ADEQ will reevaluate.	

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2.2 OBJECTIVE: Work with internal and external partners to develop and implement strategies for addressing impairments influenced by recreation-related nonpoint sources

2.2.1 STRATEGY: Develop prioritization methodology for E. coli impaired stream reaches and contributing land uses/sources

Milestones:

	Develop an inventory of potential sources on currently E.coli impaired waters (FY21)	Ongoing
Comments		
<p>As part of a DNA source tracking study with Northern Arizona University initiated in spring 2021, staff are have been working to develop a regional E. coli DNA reference library of mammalian sources for Oak Creek. Eleven of the 12 targeted species have been collected and DNA have been extracted, minus goat: human, dog, cattle, horse, sheep, deer, elk, raccoon, skunk, beaver, and otter). Since February 2011, staff have been collecting monthly water samples for DNA and E. coli MPN at 11 baseflow sites over the length of the creek. Six high use recreation sites are bracket sampled during holiday weekends during the summer recreation season to document the degree of human influences on water quality at these sites. Stormwater and snowmelt sampling is taking place on the mainstem of Oak Creek and its ephemeral tributaries when these types of events occur. Sampling in these ephemeral drainages is being undertaken to determine which of the subwatersheds are contributing the greatest amounts of mammalian E. coli and the relative contributions of these sources. Isolating the biggest polluting subdrainages will lead to informed decision making about where to undertake watershed improvements.</p>		
	Prioritize stream reaches and land uses, using ADEQ’s surface water quality improvement priorities strategy (FY21)	Completed
Comments		
<p>ADEQ has prioritized Oak Creek to focus watershed improvements. The creek is predominantly impacted by recreation, as well as other potential sources that will be identified through ADEQ's DNA source tracking study with Northern Arizona University.</p>		
	Rank impaired stream reaches and land uses for project implementation based on ADEQ’s surface water quality improvement priorities strategy (FY21)	At risk
Comments		
<p>This step will be completed once results are finalized from the DNA source tracking study. ADEQ will identify and rank the three highest polluting subwatersheds in Oak Creek and their sources in order to inform future targeted watershed improvement projects. The top polluting subwatersheds will be identify in FY22.</p>		

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Update prioritization list (Annually)	Ongoing
Comments	
No changes in FY21.	
<i>Note:</i> ⁶ See ADEQ's FY20-24 Nonpoint Source Pollution Five Year Plan, Executive Summary	
2.2.2 STRATEGY: Develop a recreational outreach communications plan	
Milestones:	
1. Create recreation/healthy beach habits website (FY20)	Completed
Comments	
A "Protect Our Waters" website has been created: http://www.azdeq.gov/ProtectOurWaters . The website includes resources, actionable items for the public, and press release information.	
2. Develop a social media outreach strategy for promoting safe and no/low impact recreation practices (FY20)	Completed
Comments	
ADEQ implemented a social media outreach strategy prior to Memorial Day and Fourth of July holidays for Oak Creek. Several Facebook posts received the highest reach out of ADEQ's social media presence. The paid campaigns delivered a total of 1,385,267 impressions and 3,765 clicks between 5/22 and 7/12. ADEQ is working on another phase of social media outreach as Oak Creek continues to have high visitation due to COVID-19.	
3. Test targeted social media outreach during high use recreation time in Oak Creek (Memorial Day weekend) (FY20)	Completed
Comments	

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	<p>A “POO-llution” video (http://www.azdeq.gov/ProtectOurWaters) and a static image marketing campaign ran during spring break from 3/9/20 to 3/26/20. The same video was ran for Memorial Day 2020. Mobile devices received more impressions than computers. Social media ad impressions were higher in Phoenix than when recreators were in Oak Creek Canyon. Heavy rain during spring break and recreational closures due to COVID most likely affected the outcomes and the strategy will continue in FY21.</p>	
	4. Evaluate success and adjust social media communications plan based on Oak Creek pilot results (FY21)	Completed
	Comments	
	<p>ADEQ continued to communicate the importance of healthy beach habits and leave no trace principles to the general public through its social media accounts in FY21, especially before holiday weekends. ADEQ partnered with City of Sedona in FY21 to develop a second targeted outreach campaign which will launch in Spring FY22.</p>	
	5. Implement targeted ads – continue to use based upon FY21 engagement results (FY22)	N/A
	Comments	
	6. Implement targeted ads- explore use on other high-risk recreation sites (FY23)	N/A
	Comments	

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7. Implement targeted ads (FY24)	N/A
Comments	
2.2.3 STRATEGY: Partner with external entities to assist with healthy beach habits and public education	
Milestones:	
Engage land managers on recreational management in high priority watersheds (FY20)	Completed
Comments	
<p>San Pedro: Staff from ADEQ’s Southern Regional Office attended all telephonic and in-person meetings hosted by the San Pedro and Hereford District NRCs, the Upper San Pedro Partnership, and the Sentinel Landscape Restoration Partnership during FY-20. ADEQ has taken this opportunity to share its monitoring data, solicit ideas for new projects, and register feedback from stakeholders in support of a sustainable basinwide strategy for addressing the E.coli impairment on the San Pedro as well as the provisionally listed impairment on the Babocomari. Details are summarized in these links:</p> <p>https://youtu.be/d2oA1Wu8ZRY?t=1213 https://youtu.be/d2oA1Wu8ZRY?t=1735</p> <p>Oak Creek: Additionally, ADEQ is engaging Arizona State Parks and US Forest Service to implement projects in Oak Creek. ADEQ continues to have ongoing meetings with land managers to identify hot spot areas and coordinate project implementation. Such projects include the pet waste stations, social trail rehabilitation, trash clean-ups, education and outreach, and car pullout closures (26) alongside Highway 89A.</p>	
Collect pre and post-holiday E. coli samples during the high use recreational season (May-September) to quantify recreational impacts (FY20-21)	Completed

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	Comments	
	ADEQ continues to collect pre- and post- holiday E.coli samples at Oak Creek and report results through the Water Quality Exchange database. As of February 2021, data showed no exceedances in Oak Creek. New data has been collected during monsoon storm flow conditions that may result in new exceedances and will be analyzed by ADEQ.	
	Identify sustainable funding ideas/toolbox for external education programs (FY21)	Completed
	Comments	
	ADEQ continues to utilize 319 funds to help with outreach and education in Oak Creek. Many current projects, like the pet waste stations, include an educational component that encourages the use of the pet waste stations and raises awareness of E.coli sources near the creek.	
	Implement trash clean ups (Annually)	Ongoing
	Comments	
	Over 8,000 pounds of trash was removed near waterbodies around the state in FY21. Oak Creek Watershed Council removed ~2,300 pounds of trash near and in Oak Creek. A total of 165 pounds of feces and 228 diapers were removed, directly reducing a source of E.coli from the stream. Additionally, 182 contacts were made to discuss and educate the public on positive recreational habits.	
2.2.4 STRATEGY: Implement projects to decrease E.coli loading in highly recreated waters (e.g. Oak Creek)		
Milestones:		
	Review and prioritize highly recreated E. coli impaired waters (FY20) (see also Strategy 2.2.1)	Completed
	Comments	
	ADEQ has prioritized Oak Creek watershed to implement projects that mitigation E.coli exceedances. So far in FY20, ADEQ has invested \$550,000 in the area through NPS grants through 5 projects.	

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Analyze GIS system tools for high priority nonpoint source areas (FY20)	Completed
Comments	
ADEQ has identified areas within Oak Creek to target for projects, including Slide Rock State Park and Highway 89A.	
Implement 2 high priority projects (FY21)	Completed
Comments	
ADEQ completed more than two projects along Oak Creek in FY21 - rehabilitation of over 120 social trails along Highway 89A and Slide Rock State Park; closure of 27 unpermitted parking spots along Highway 89A that caused erosion and sediment/E.coli loading into the creek; installation of a safety barrier fence along Slide Rock State Park to minimize social trails and unpaid visitation; and numerous litter clean-up events with Oak Creek Watershed Council. Highlights can be seen in this video: https://www.youtube.com/watch?v=6uAlMCT_Jzk	
Implement 2 high priority projects (FY22)	N/A
Comments	
Implement 2 high priority projects (FY23)	N/A
Comments	
Implement 2 high priority projects (FY24)	N/A
Comments	

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	Delist 5 impaired/not-attaining stream reaches (FY24)	N/A
	Comments	
2.2.5 STRATEGY: Measure the effectiveness of projects implemented on highly recreated waters		
Milestones:		
	Conduct effectiveness monitoring (Annually)	Ongoing
	Comments	
	ADEQ continues to sample along Oak Creek to measure the effectiveness of several completed FY21 projects. This sampling is done in conjunction with the DNA source tracking study. Data is submitted to the Water Quality Exchange database.	
	Calculate actual versus estimated load reductions for each project implemented (As necessary for projects implemented in 2.2.4)	Ongoing
	Comments	
	Through its contract with the University of Arizona, ADEQ continues to receive load reduction calculations for projects and report them through GRTS. Load reductions were calculated for Oak Creek projects and remaining sub-award grantee projects in FY21.	
	Delist waters that are now meeting standards due to nonpoint source program activities (FY22 and FY24)	N/A
	Comments	

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	Reevaluate impaired waters where expected load reductions are not realized (Annually)	Ongoing
	Comments	
	ADEQ will re-evaluate once projects have been implemented and enough time has passed to thoroughly analyze their impacts in Oak Creek.	
2.3 OBJECTIVE: Work with internal and external partners to develop and implement strategies for addressing impairments influenced by grazing-related nonpoint sources		
2.3.1 STRATEGY: Establish new and build upon existing relationships with land managers and owners to identify and plan implementation projects that will reduce pollutant loadings contributing to impairments related to <u>grazing</u>.		
Milestones:		
	1.Develop a conceptual site model (CSM) following ADEQ’s mitigation process for KOUI sites (Known, Ongoing, Unauthorized Impact to human health or the environment) for NPS mitigation identify opportunities where source mitigation practices dovetail with the interest of the ranching community for the satisfaction of mutual goals (FY20)	Completed
	Comments	
	ADEQ developed a Conceptual Site Model (CSM) for the Babocomari sub-watershed of the San Pedro River as part of the agency's KOUI process. A major source identified includes cattle waste. A total of 7 projects were identified (see section 1.1.5 for more) for the Babocomari. ADEQ staff attended multiple USDA NRCS meetings and connected with other outreach groups to engage stakeholders in the area, including local ranchers.	
	2.Develop and document strategy for addressing E. coli impairments in the Babocamari River Watershed (FY20-21)	Completed
	Comments	
	After engaging local stakeholders for over a year along the San Pedro and Babocomari, ADEQ is now preparing a strategy that meets EPA's 9 elements of a watershed plan for the San Pedro/Babocomari watersheds. This strategy will help influence and develop a concrete path forward for implementing projects.	

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3. Coordinate with the NRCS State Office to identify new NWQI Watersheds (FY20)	Completed
Comments	
NRCS State Office is working on identifying watersheds for the Bulletin 10 requirement. ADEQ and NRCS conducted a call on 7/29/20 to coordinate and identified the Babocomari as a priority watershed. In FY21, ADEQ continued its partnership with NRCS to share water quality data, TMDL, and watershed plans to assist NRCS develop an assessment for the Babocomari sub-watershed of the San Pedro. In August, the NRCS State Office submitted an assessment report to the National NRCS office for review and input.	
4. Develop and implement sample plans within new NWQI watersheds (FY22-24)	N/A
Comments	
5. Determine next priority grazing impacted watershed to adapt Babocomari River strategy to (FY24)	N/A
Comments	
2.3.2 STRATEGY: Determine BMPS effectiveness to ensure future implementation projects will reduce E. coli loads that are contributing to impairments of perennial and intermittent waters in <u>grazed</u> lands	
Milestones:	
1. A minimum of four 319-funded rangeland improvement projects previously implemented will be evaluated on the effectiveness of respective BMPs (FY21)	Off track
Comments	

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<p>As discussed with EPA in meetings and through updates in the Performance Partnership Grant (PPG) Work Plan, while although improvement projects have not been implemented, ADEQ continues to be engaged with the San Pedro watershed through other projects and initiatives. ADEQ continues to fund a previously awarded sub-grantee project on the Sonoran border of the river with Watershed Management Group, and is also a trustee in an AZ Game and Fish-led project that is addressing grazing and other issues on two impaired segments of the San Pedro. ADEQ continues to engage NRCS on the NWQI and assessment on the Babocomari sub-watershed. ADEQ is keeping the San Pedro as an option in the FY20-24 NPS Five Year Plan should the agency be able to contribute more resources and personnel.</p>	
<p>2. Effective BMPs will be cataloged and imported to GIS to generate a map of specific opportunities for projects (BMPs) that consider geographic and physical constraints (FY21)</p>	<p>Off track</p>
<p>Comments</p>	
<p>See update above.</p>	
<p>3. Implement 2 high priority projects based on developed strategy and landowner commitment (FY22)</p>	<p>N/A</p>
<p>Comments</p>	
<p> </p>	
<p>4. Implement 2 high priority projects (FY23)</p>	<p>N/A</p>
<p>Comments</p>	
<p> </p>	
<p>5. Implement 2 high priority projects (FY24)</p>	<p>N/A</p>
<p>Comments</p>	

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2.3.3 STRATEGY: Measure the effectiveness of implemented projects to reduce E. coli from <u>grazed</u> lands	
Milestones:	
1. Conduct effectiveness monitoring (Annually)	Off track
Comments	
See update above.	
2. Develop sediment vs E. coli rating curves using data collected from Walnut Gulch experimentation watershed (FY21)	Off track
Comments	
As communicated in PPG Work Plan updates and NPS Annual Reports, the Walnut Gulch watershed is not a priority watershed for ADEQ and was originally going to be used to help inform E.coli loading modeling. Instead of focusing on Walnut Gulch, 319 funds have been prioritized in Oak Creek, abandoned mines, and previously awarded sub-grantee watershed projects.	
3. Calculate actual versus estimated load reductions for each project implemented (As necessary for projects implemented in 2.1.3)	Ongoing
Comments	
Any E.coli load reductions for the San Pedro watershed will be coordinated through ADEQ's partnership with University of Arizona and NRCS for the Babocomari sub-watershed once projects are implemented.	
4. Delist waters that are now meeting standards (FY22 and FY24)	N/A
Comments	

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5. Reevaluate impaired waters where expected load reductions are not realized (Annually)		Off track
Comments		
Re-evaluation will occur once projects are implemented in San Pedro/Babocomari watersheds.		
2.4 OBJECTIVE: Work with internal and external partners to develop and implement strategies for addressing impairments influenced by septic-related nonpoint sources		
2.4.1 STRATEGY: Identify high priority septic areas		
Milestones:		
Develop and implement an outreach strategy to municipal and county officials in unsewered areas near E. coli impaired waters (FY21)		Off track
Comments		
As communicated in PPG Work Plan updates, ADEQ's efforts targeting septic-related nonpoint sources will commence after results have been analyzed from the DNA source tracking study in Oak Creek and septic tanks are identified as a major contributor of E.coli pollution. New target dates will be set in the new PPG Work Plan per EPA. Current 319 funds are being used in the DNA source tracking study and the next round of projects in Oak Creek, including phase 2 of the social trail rehabilitation project and the installation of pet waste stations along trails.		
Update ADEQ septic density map with input from local entities to prioritize areas for additional investigation (FY21)		Off track
Comments		
See update above.		

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Develop a risk matrix for prioritizing individual onsite systems or communities (FY22)	N/A
Comments	
2.4.2 STRATEGY: Determine potential funding options for addressing high priority septic areas	
Milestones:	
Potential funding sources for septic upgrades identified (FY23)	N/A
Comments	
2.4.3 STRATEGY: Work with partners in high priority areas to identify and implement remedies for high priority septic system related issues	
Milestones:	
Develop necessary handouts, website, and a video to help inform the public about proper septic maintenance (FY21)	Off track
Comments	
See update above.	
Implement 2 high priority projects (FY23)	N/A
Comments	

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Continue implementation of high priority projects (FY24)	N/A
Comments	
2.5 OBJECTIVE: Identify alternative funding sources to support priority restoration projects.	
2.5.1 STRATEGY: Build effective relationships to identify or develop shared water quality restoration priorities, capitalize on existing programs and leverage funding	
Milestones:	
1. ADEQ will meet with local, state and federal agencies, environmental organizations and other groups to build new effective relationships, identify or develop shared water quality improvement priorities, capitalize on existing programs and leverage funding (Annually)	Ongoing
Comments	
ADEQ continues its partnerships with US Forest Service, Arizona State Parks, external contractors, watershed groups, citizen scientists, private landowners, and NRCS to implement its watershed initiatives. ADEQ hosted its annual meeting with USFS virtually in February 2021. ADEQ's partnership with USFS, AZ State Parks, Oak Creek Watershed Council, citizen scientists, AZ Department of Transportation, and local watershed groups led to the successful implementation of E.coli-reducing projects in Oak Creek in FY21. A majority of abandoned mines are situated on USFS and private lands, thereby allowing ADEQ to collaborate with federal personnel and private landowners to complete remediation. USFS, ADOT, and AZ State Parks have all contributed resources, including funding, in these projects.	
2. Identify other groups and/or agencies and organizations doing work in NPS priority watersheds and objectives for potential coordination and leveraging and track information (FY21)	Ongoing
Comments	

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ADEQ continues to attend ACWA Watersheds Committee calls and local watershed group webinars to stay abreast of what local groups are doing in other watersheds. ADEQ further engaged USDA's NRCS to partner on the NWQI in FY21. Another new partner in FY21 includes Northern Arizona University, who is providing lab and analysis resources for the DNA source tracking study in Oak Creek.	
3. Develop a strategy to coordinate with other entities to develop possible collaboration and leveraging opportunities (FY22)	N/A
Comments	
4. Increase the number of NPS-related priority watershed projects which collaborate with other local, regional, state and federal entities, or foundations, to leverage funding for projects that will provide load reductions. (FY22-FY24)	N/A
Comments	
2.5.2 STRATEGY: Secure or leverage funds from alternative (non-319) state, federal, and/or local sources to implement priority projects.	
Milestones:	
1. Develop a strategy to coordinate resources with other local, regional, state and federal entities via ADEQ project technical leads (FY20-21).	Completed.
Comments	
ADEQ's project managers and hydrogeologists excel at identifying and engaging local, state, and federal partners on projects in Oak Creek and at abandoned mines. These partnerships often lead to additional funding and other leveraged resources like technical expertise or sampling assistance. See the update above on partners engaged in FY21.	
2. Identify alternative NPS-related local, regional, state and/or federal resources identified NPS Programs/Projects and update NPS "funding toolbox" (Annually)	Ongoing
Comments	

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<p>ADEQ has a funding toolbox, or list of identified funding avenues, for NPS projects. Additional opportunities leveraged in FY21 include state WQARF funding on mining sites, funding from the US Forest Service for mining and Oak Creek projects, and funding from AZ Department of Transportation and AZ State Parks for Oak Creek projects.</p>	
<p>3. Apply for or leverage at least \$500,000 of non 319 funds to implement high priority projects (Annually)</p>	<p>Ongoing</p>
<p>Comments</p>	
<p>ADEQ continues to search for external funding opportunities using EPA's Water Infrastructure and Resiliency Finance Center and other grant databases. ADEQ identifies grants and discerns if current or future projects will fit grant criteria and proceed with applying. In FY21, no identified grants fit ADEQ's current project inventory.</p>	
<p>2.5.3 STRATEGY: Implement priority projects via alternative or split funding sources</p>	
<p>Milestones</p>	
<p>Milestones:</p>	
<p>1. Implement ADOT pull out reduction project (ADOT/319 Funds) (FY20)</p>	<p>Completed</p>
<p>Comments</p>	
<p>ADEQ and AZ Department of Transportation completed the closure of 27 unpermitted parking spots along Highway 89A near Oak Creek in FY21.</p>	
<p>2. Implement 3R Mine remedial action using 319 and USFS funds (FY21)</p>	<p>Completed</p>
<p>Comments</p>	
<p>ADEQ and USFS, along with Tetra Tech, completed remediation of 3R Mine in May 2021.</p>	
<p>3. Complete site assessment (PPG) and remedial actions (319) at McKinley Mill and Storm Cloud Mine (FY21)</p>	<p>Completed</p>
<p>Comments</p>	

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	ADEQ completed remediation at the Storm Cloud Mine in December 2020. McKinley Mill remediation will begin in September 2021.	
	4. Implement Poland Mine remedial project on private (319) and USFS (USFS) land (FY21)	At risk
	Comments	
	Poland Mine was identified as an engineering challenge after site visits and assessments conducted in FY21. ADEQ is seeking expertise from Freeport McMoRan and ASU to determine a safe and viable remedial approach. ADEQ is continuing with remediation on a portion of the wasterock pile located on USFS land. Remediation will begin this fall 2021.	
	5. Assist project sponsors or ADEQ technical leads in obtaining funding for water quality reclamation and improvement projects from a wide range of sources including but limited to those stated in the NPS Funding Tool Kit (Annually)	Ongoing
	Comments	
	Roughly 35 external grant opportunities were identified by ADEQ in FY21. These opportunities were screened to see if their criteria fit current or future projects and were also passed along to other watershed groups and partners.	
	Actively administer, encourage and track volunteer opportunities at all priority project locations (Annually)	Ongoing
	Comments	
	Through its citizen science program, Arizona Water Watch, volunteers collected trash and water quality samples in FY21. Volunteers also assisted in collecting vital flow data to assist ADEQ in making jurisdictional determinations under the Navigable Waters Protection Rule. Data is collected through Survey123 applications.	
3.0 Goal: Evaluate state programs, rules, and authorities to protect and restore water quality for effectiveness and the potential need for modification		
3.1 OBJECTIVE: Comply with or propose to modify state statutory requirement (ARS 49-203(A)(3)) to adopt, by rule, a nonpoint source management program to address discharges to navigable waters.		

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3.1.1 STRATEGY: Engage in public outreach activities to gather input on the key benefits, features, and components for developing a rule-based NPS management program

Milestones:

1. Conduct stakeholder outreach and develop benefits, features, proofs document (FY24)

N/A

Comments

2. Evaluate stakeholder input and decide on the need for rulemaking to implement the NPS Program (FY24)

N/A

Comments

3.2 OBJECTIVE: Improve current water quality standards, assessment and listing rules to provide more effective protection for Waters of the U.S.

3.2.1 STRATEGY: Evaluate current water quality standards, assessment and listing rules to provide more effective protection for Waters of the U.S.

Milestones:

1. Conduct a Triennial Review of surface water standards to update standards criteria per EPA updated criteria recommendations (FY22)

N/A

Comments

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2.Evaluate current or create new “implementation procedures” documents for unused narrative standards in WQS rules (FY24)	N/A
Comments	
3.Evaluate and/or revise the Impaired Waters Identification Rule (IWIR) to include new standards (nutrient criteria), and revised assessment and listing criteria (FY24)	N/A
Comments	
3.3 OBJECTIVE: Improve current water quality standards, assessment and listing rules to provide more effective protection for Waters of the U.S.	
3.3.1 STRATEGY:Engage in stakeholder/customer/public outreach activities to gather input on actions necessary to close gaps resulting from the proposed WOTUS rule change	
Milestones:	
1. Develop draft Waters of Arizona program outline (FY20)	Completed
Comments	
<p>ADEQ conducted and continues to conduct an extensive stakeholder outreach effort in response to the federal Navigable Waters Protection Rule. These stakeholder efforts are documented online: https://azdeg.gov/wotus. In addition to determining jurisdiction for Arizona's waters, ADEQ is also developing a State Surface Water Protection Program for waters that are not protected under the federal rule. Legislation was passed in 2021 (HB 2691) to establish the state statute governing the program. ADEQ continues to engage stakeholders to develop the framework of the program, and the statute itself outlines the first round of protected waters.</p>	

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2. Finalize program outline with stakeholder input (FY21)	Ongoing
Comments	
ADEQ is engaging stakeholders to develop a program outline and state rule(s) framework for the State Surface Water Protection Program authorized by HB2691.	
3. Develop program (FY22)	N/A
Comments	
4. Implement program (FY23)	N/A
Comments	
3.3.2 STRATEGY: DETERMINE NPS PRIORITIES IF PROPOSED REVISED WOTUS RULE GOES INTO EFFECT IN ARIZONA	
Milestones:	
1. Revise the 5-yr NPS Plan, as needed, within 6 months of determining the final rule impacts to Arizona (FY21)	Ongoing
Comments	
ADEQ is committed to re-evaluating and revising the FY20-24 NPS Five Year Plan once rules are promulgated for the State Surface Water Protection Program. As of now, current projects are located on jurisdictional waters.	