



Nonpoint Source Pollution: FY2020 Annual Report for Arizona

*Water Quality Division
September 8, 2020 FINAL*

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Appendix A: Projects Awarded in FY20

1 Introduction

1.1 Arizona Nonpoint Source Annual Report

The Arizona Nonpoint Source (NPS) Annual Report for state fiscal year 2020 (FY20) summarizes Arizona Department of Environmental Quality (ADEQ) NPS Program activities that occurred between July 1, 2019 and June 30, 2020. The state's FY20 PPG Work Plan Output Report, submitted to EPA in August 2020, also documents FY20 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 See https://static.azdeq.gov/wqd/swqip/az_nps_fy20-24.pdf

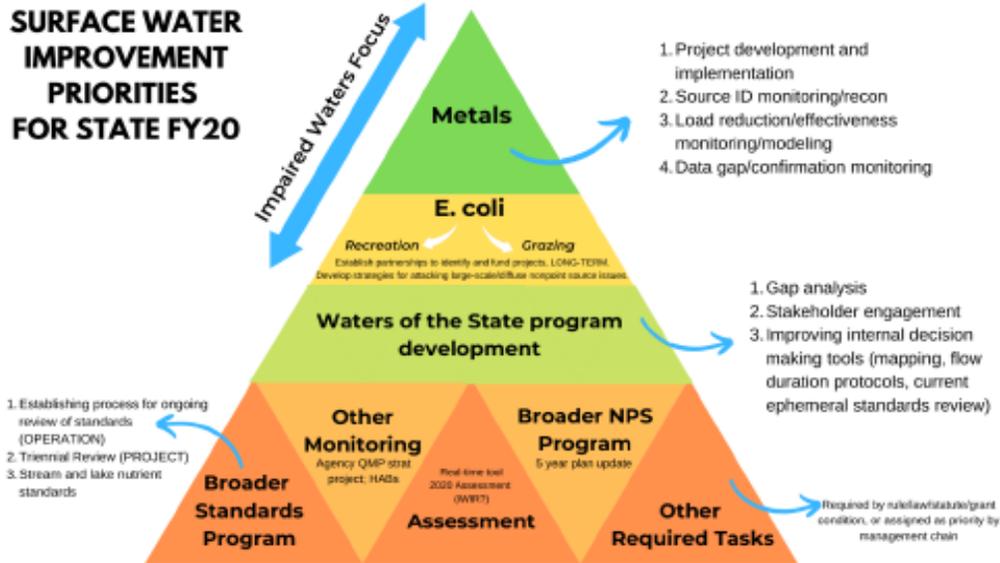


Figure 1: FY20-24 NPS 5-Year Implementation Priority Plan

The NPS-funded activities of each fiscal year within the five-year planning horizon must move ADEQ closer toward achieving these goals. The Strategic Plan Update Table details FY20 strides towards meeting these goals, and indicates whether they are on track for completion.

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 FY2020 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:

- on track (■),
- at risk of falling off track (■), or
- off track (■)

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 92% of the milestones established and measured in the first year of the five-year plan during state FY20. 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.

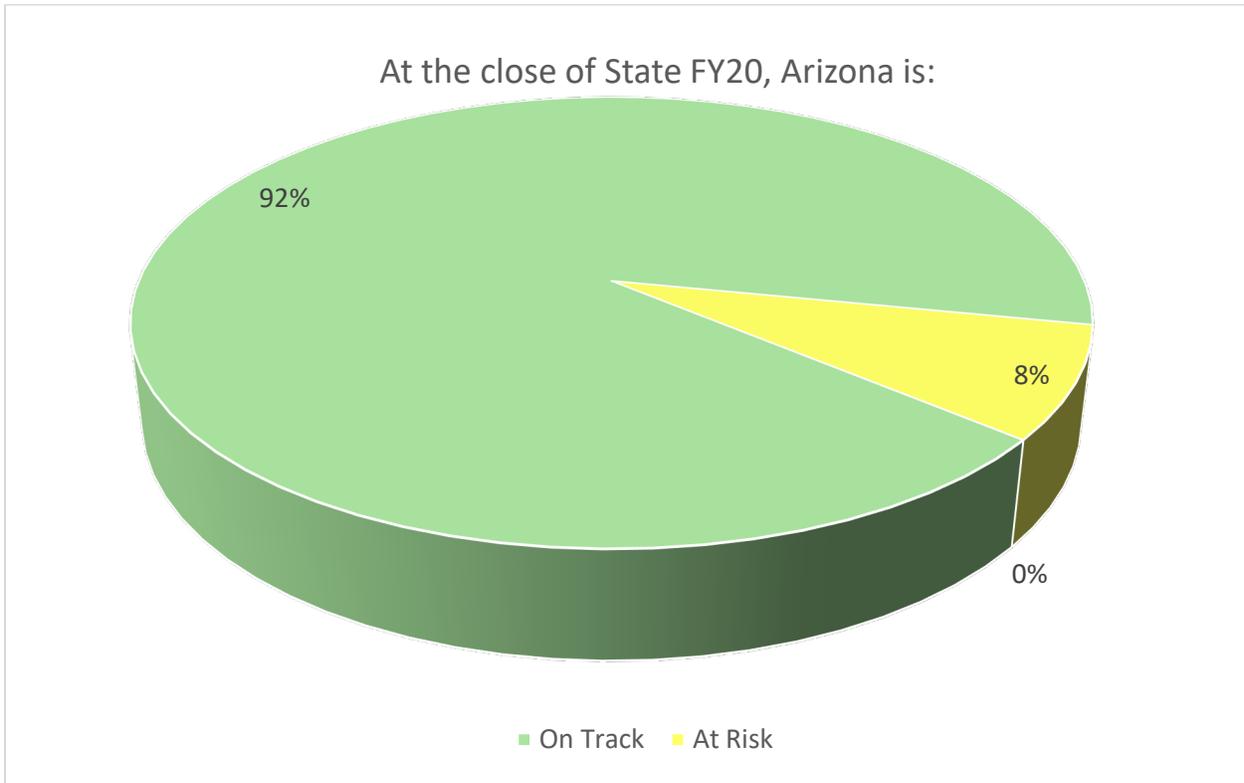


Figure 2: ADEQ Progress

1.3 FY20 Highlights

1.3.1 Three Agencies Protecting Oak Creek Watershed

- Achieved project implementation through frequent and continuous communication between *Coconino National Forest*, *ADEQ staff*, and *Arizona Department of Transportation – Flagstaff office*.
- Project is improving watershed conditions, wildlife habitat, and water quality in the watershed through nine activities, including closing unauthorized roadside parking pull-outs in locations along State Route 89A in Oak Creek Canyon
- Because of pull out closures, ADEQ with the cooperation of the *Department of Transportation* and the *Coconino National Forest* created Instagram and Facebook ads to inform of tourists of parking restrictions and where tourists can safely park to enjoy the scenery.



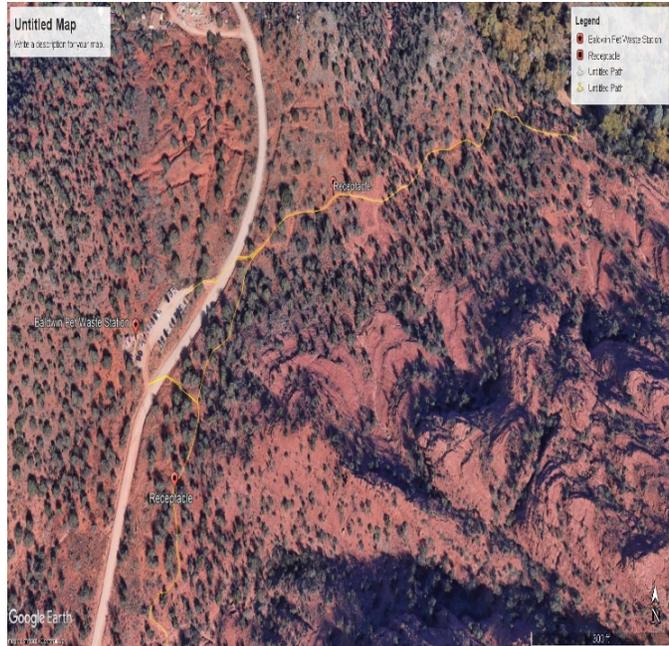
ADOT pullout barrier and rock gabions along Oak Creek near Sedona.

1.3.2 Oak Creek Council Pet Waste Station Installation

- ADEQ collaborated with the nonprofit, Oak Creek Watershed Council (OCWC) to install pet waste stations in key locations in the watershed to keep dog waste from entering the Oak Creek.
- Some of the trailheads will receive a second pet waste station that will be positioned about 350 ft down the trail to promote increased compliance by dog owners. OCWC staff will make belt transect surveys to determine the density of pet waste along the trail at these sites and comparable control sites. Data will be compared to measure the effectiveness of two stations at promoting compliance while reducing E. coli contributions to the creek.



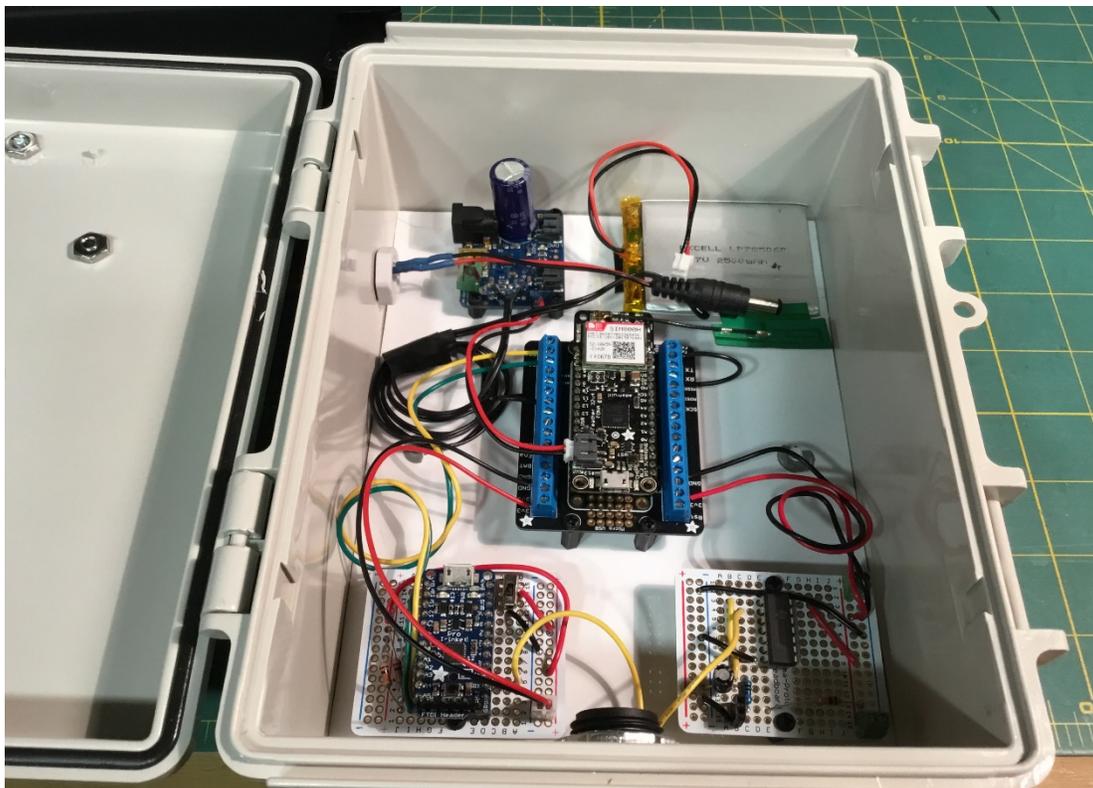
Project location belt transects overview near Oak Creek



Aerial overview of project area and pet waste station example

1.3.3 Technical Solutions to Collecting Water Quality Data

- During FY-20, ten REMs were formally deployed at Alum Gulch, Bisbee, Davidson Canyon, Horseshoe Draw, 3R Canyon, Naco East, Naco West, Greenbush Draw, and Spring Creek, and Tucson (experimental). Of these ten, seven are current operational:
 - Naco East was stolen after being damaged by cattle, repaired, and relocated
 - Naco West has been retired given cessation of binational SSOs
 - Horseshoe Draw was damaged by humidity
 - Greenbush Draw was retired given loss of 2G cellular coverage at monitoring site
- ADEQ staff tested a REM he created in his backyard. ADEQ staff traveled to remote locations for REM installation.
- Data collected from these devices allow hydrologists to make decisions on the health of Arizona's waters.



Technology developed in house to facilitate rapid response to rainfall-runoff events using cellular telemetry



Ultrasonic REM that will communicate water levels and Spring Creek using the Iridium satellite network.

Five Year Plan Updates FY2020

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)	Completed
	Comments	
	All FY 20 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)	Completed
	Comments	
	Completed.	
1.1.3 STRATEGY: Conduct Probabilistic Survey and evaluate trends since last probabilistic survey		
Milestones:		
	1. Complete probabilistic fish report (FY20)	At risk
	Comments	
	Because of issues entering values into ADEQ's water quality database, we were unable to adequately review and process the data. At this time, we are working with staff and our laboratory to find a solution. The report will be completed by conclusion of FY21 per the new PPG Workplan.	
	2. Select waterbody type for probabilistic study (FY21)	N/A
	Comments	
	3. Complete probabilistic survey on selected waterbody type (FY22)	N/A
	Comments	

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)		Ongoing
Comments		
<p>During FY-20, ten REMs were formally deployed at Alum Gulch, Bisbee, Davidson Canyon, Horseshoe Draw, 3R Canyon, Naco East, Naco West, Greenbush Draw, and Spring Creek, and Tucson (experimental). Of these ten, seven are current operational:</p> <ul style="list-style-type: none"> • Naco East was stolen after being damaged by cattle, repaired, and relocated • Naco West has been retired given cessation of binational SSOs • Horseshoe Draw was damaged by humidity- a remediation is in development: https://youtu.be/HIQyTJN8VPs?t=963 • Greenbush Draw was retired given loss of 2G cellular coverage at monitoring site- we are now testing 4G/LTE modems offered by Particle IO to address cellular providers migration away from 2G. https://www.youtube.com/watch?v=Rw-608Mu9xk <p>ADEQ continues developing this technology by publishing code, tutorials, and lessons learned for use by the broader community in support of feedback for continuous improvement. A full playlist is available here: https://www.youtube.com/playlist?list=PLqJ5k4cakypy-Dn6dGV_dvC4Hwxp8Z3wN</p>		

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2. Perform dry soil metal characterization using X-ray Fluorescence (XRF) tool at 5 sites to aid in mine site prioritization (Annually)	Ongoing
Comments	
Three XRF surveys were completed at the Gibson mine in FY20 to identify hotspots and determine background concentrations on-site and within the Gibson Mine tributary. Additionally, a limited survey was completed in the area around the Lead Queen Mine. ADEQ is exploring a project with ASU to use XRF and water column data to predict water quality from soil data.	
3. Expand use of field leach method to quantify potential runoff from 5 mine sites to aid in site prioritization (Annually)	On hold
Comments	
The field leach method was not used this fiscal year as the focus was on implementing projects at high priority sites. The use of this tool may also be expanded as part of the potential ASU project.	
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	
A UAV survey was completed at the Gibson Mine to show current conditions, changes in drainage patterns and to support XRF surveys. Additional missions were flown at the Lead Queen Mine, Exposed Reef Mine and McKinley Mill. All of these are KOUI sites, the UAV missions support site assessments, remedial investigations and effectiveness monitoring. UAVs were flown in grazed watersheds to support grant project planning, documentation of as-builts, and BMP monitoring (evaluation and environmental response).	
5. Develop partnership and deploy a lake monitoring buoy to collect data that may help predict conditions resulting in Harmful Algal Blooms (HABs) (FY21)	N/A
Comments	
6. Reevaluate priorities for equipment needs on an annual basis, redeploy as necessary, and report in annual NPS report (Annually)	Ongoing
Comments	

<p>Priorities continue to be assessed within the Surface Water Quality Improvement Value Stream. The team has identified more REMs that can be deployed to better harness the power of technology and streamline field work.</p>	
<p>1.1.5 STRATEGY: Conduct source identification monitoring to identify and quantify pollutant sources contributing to impaired/not-attaining waters</p>	
<p>Milestones:</p>	
<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, • Babocamari River, •Walnut Gulch (FY20). Five waterbodies (Lynx Creek, Copper Creek, Babocamari River, Davidson Canyon, Walnut Gulch) (FY21) • Four waterbodies (TBD) (FY22)¹ • Four waterbodies (TBD) (FY23) • Three waterbodies (TBD) (FY24)</p>	<p>On track</p>
<p>Comments</p>	

	<p>Babocomari / Upper San Pedro River Watershed:</p> <p>Within the Babocomari, established and monitored 16 new monitoring sites (network and non-network) to help understand and verify suspected sources of E.coli impairing the watershed. An additional 13 sites were established and monitored within the hosting Upper San Pedro River Basin for comparison with all results logged into the WQDB database. A list of existing and new monitored sites and analysis of the data collected may be reviewed via these cued unlisted links:</p> <p>https://youtu.be/d2oA1Wu8ZRY?t=296 https://youtu.be/d2oA1Wu8ZRY?t=618 https://youtu.be/d2oA1Wu8ZRY?t=1370</p> <p>Based on the latest monitoring data collected for new sites on the Babocomari, the associated water body is provisionally listed as impaired for E.coli. For Babocomari / Upper San Pedro River Watershed:</p> <p>Within the Babocomari, established and monitored 16 new monitoring sites (network and non-network) to help understand and verify suspected sources of E.coli impairing the watershed. An additional 13 sites were established and monitored within the hosting Upper San Pedro River Basin for comparison with all results logged into the WQDB database. A list of existing and new monitored sites and analysis of the data collected may be reviewed via these cued unlisted links:</p> <p>https://youtu.be/d2oA1Wu8ZRY?t=296 https://youtu.be/d2oA1Wu8ZRY?t=618 https://youtu.be/d2oA1Wu8ZRY?t=1370</p> <p>Based on the latest monitoring data collected for new sites on the Babocomari, the associated water body is provisionally listed as impaired for E.coli.</p>
	Comments
	<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. Storm Water samples have been collected along Lynx Creek throughout FY20 for the purpose of identifying and quantifying the pollution of nearby abandoned mine sites. In May, a Stream Ecosystem Monitoring was performed at multiple locations along Lynx Creek. The data will be summarized in FY21 to establish a pre-remediation baseline.</p>
	Comments

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<p>3R Canyon: Monitoring at 3R Canyon continues. The 3R mine site is an agency priority due to its KOUI (Known Ongoing Unauthorized Impacts) listing. This waterbody is impaired for Copper, Zinc, Cadmium, and pH.</p>	
Comments	
<p>Davidson Canyon: ADEQ is currently re-visiting its monitoring efforts in Davidson Canyon. Any changes will be communicated to EPA.</p>	
Comments	
<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 either, but that Copper Creek is included in their 5-year plan but they have not prioritized it yet. I was told the 5-year plan gets reviewed annually. I'm waiting to hear back for more info since I had follow up questions.. 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>	
Comments	
<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>	On hold
<p>2. Complete data collection according to annual FY sampling plan (FY20-24)</p>	Ongoing
Comments	
<p>On track with sampling in FY20.</p>	
<p>3. Analyze data and update priority project rankings based upon results (Annually)</p>	Ongoing
Comments	

<p>ADEQ continues to improve on data analyses to reflect on sampling conducted. Data analyses have been drafted for Pinto Creek (Gibson Mine site/KOUI), Copper Creek, Alum Gulch, and Mule Gulch sites. Currently, priority sites are agency KOUI sites (abandoned mines contributing metals impairments) and Oak Creek (impaired for E.coli).</p> <p>Babocomari: seven new priority projects were identified based on monitoring data and local stakeholder feedback. The projects were prioritized as summarized in this cued link: https://youtu.be/d2oA1Wu8ZRY?t=1239 .</p> <p>Respective details have been shared and elevated with partnering organizations such as the Sentinel Landscape Restoration Partnership, the Bureau of Land Management, and the National Forest Service. The seventh project has already been addressed by the National Forest Service independent of 319 resources.</p> <p>For the Babocomari, seven new priority projects were identified based on monitoring data and local stakeholder feedback. The projects were prioritized as summarized in this cued link: https://youtu.be/d2oA1Wu8ZRY?t=1239 .</p> <p>Respective details have been shared and elevated with partnering organizations such as the Sentinel Landscape Restoration Partnership, the Bureau of Land Management, and the National Forest Service. The seventh project has already been addressed by the National Forest Service independent of 319 resources.</p> <p>Three FY20 priority metal impairments (Boulder, Copper and Pinto will remain priorities for FY21, see #3 below. Alum and Mule prioritization will be dependent upon data analysis to determine current conditions compare to preimplemetation. Additional data collection confirmed that Lynx Creek also has elevated metal concentrations but current staffing levels will likely resutl in this waterbody remaining a lower priority for data collection until other projects are completed. As implementation projects are completed at several sites that impact the Hassaymapa River, it will be prioritized in FY21 for effectiveness monitoring</p>	
<p><i>Note:¹ TBD waterbodies will be identified through the NPS Annual Reports submitted to EPA.</i></p>	
<p>1.1.6 STRATEGY: Conduct effectiveness monitoring in waters where water quality improvement/protection efforts have been implemented.</p>	
<p>Milestones:</p>	
<p>1. Collect water quality data to determine if projects implemented were effective at improving water quality including NRCS NWQI projects as appropriate (Annually)</p>	<p>Ongoing</p>
<p>Comments</p>	

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	The Arizona NRCS has not identified NWQI watersheds as of FY20. ADEQ is engaging local NRCS staff to identify watersheds as part of USDA's July 10 Bulletin.	
	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) Boulder Creek: The completion of the remedail actions at the Hillside Mine has resulted in a reduction in metal loading to Boulder Creek of over 98% for arsenic, zinc and iron, immediately from the middle tailings pile adit. The reductions have been so great that the last two FY20 sampling events showed no exceedances of surface water quality standards- first time ever that this has happened within Boulder Creek. There are also fish present in Boulder Creek below the adit discharge point- also a first. Pinto Creek: A data summary of pre and post implementaiton data show that copper concentrations have been reduced by 85% in the upper Pinto Creek watershed. This is a cumulative result that captures the projects implemented at the Gibson Mine plus 3 other project implemented by the USFS in 2017. Additional remediation at the Gibson Mine will further reduce copper concentrations.	Ongoing
	Comments	
	Effectiveness monitoring is currently being conducted for the Hillside Mine remediation project (Boulder Creek), which was de-listed as a KOU1 in June 2020. Effectiveness monitoring is also occurring in Mule Gulch and Alum Gulch to determine the effectiveness of past remediation. ADEQ is engaging BLM on Copper Creek but this is not a prioritized site. Additionally, sampling and XRF studies are being conducted at Pinto Creek.	
	4. Seven waterbodies (Hassayampa River, Boulder Creek, 3R Canyon, Pinto Creek, French Gulch, Oak Creek, Big Bug Creek) (FY21)	N/A
	Comments	
	5. Six waterbodies (TBD) (FY22)	N/A
	Comments	

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6. Six waterbodies (TBD) (FY23)	N/A
Comments	
7. Three waterbodies (TBD) (FY24)	N/A
Comments	
8. Use effectiveness monitoring data to delist waters as applicable (FY22, 24)	N/A
Comments	
9. Develop at least 1 NPS success story and submit to EPA via GRTS per waterbody below:	At risk
<ul style="list-style-type: none"> • Boulder Creek (FY20) (annually by July 1st) 	
Comments	
<p>Boulder Creek success story was not drafted in FY20. However, sampling data confirm that projects have been successful in reducing metal concentrations in Boulder Creek. Success story will be drafted in FY21 Q1. 15 samples from mining impacted/related sites in 5 project areas were collected in FY20. Results will not be received until Feb 2021.</p>	
<ul style="list-style-type: none"> • Oak Creek (FY23) 	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)	On track
	Comments	
	Ten samples from mining impacted/related sites in 5 project areas were collected in FY20. Results will not be received until Feb 2021	
	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:	
	Comments
<p>1. Train at least 10 volunteer groups to assist in fulfilling sampling plan goals (Annually)</p>	Comments
<ul style="list-style-type: none"> In FY 20 Arizona Water Watch has trained 19 volunteer groups. These groups include: Greenbrush Grunts, Slide Rock State Park, Friends of the Forest, Oak Creek Watershed Council, Friends of the Tonto, Butte Creek Restoration Council, Friends of The Santa Cruz River, National Park Service Tumacacori, Gila Watershed Partnership, AZ Water Dogs, Verde OAW Sierra Club, Sierra Club San Pedro, Sierra Club Spring Creek, Sierra Club Lower Verde, Trout Unlimited, Verde River Institute, Grand Canyon University, Hassayampa Nature Preserve and Tonto National Forest. Develop volunteer data portal for individual volunteer groups to enter and retrieve their water quality data (FY20). Eighteen volunteer data portals have been created and prepopulated with site id's and locational data. An open data page has been created for volunteers to retrieve their water quality data: https://arizona-water-watch-open-data-adeq.hub.arcgis.com/ 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 	Comments
<p>2. Develop or update volunteer visual aids including Sample and Analysis Plan, video lessons, handbook, and reference guides (FY20)</p>	Comments
<p>3. Direct volunteer groups to focus on agency high priority water data needs (Annually)</p>	Comments

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<p>Four volunteer groups (Trout Unlimited, OAW Verde Sierra Club, AZ Water Dogs, and Tonto National Forest) are helping collect quarterly water quality data at data gap sites for the statewide assessment. One volunteer group is helping with a flow study on the Hassayampa River with monthly flow observations submitted via the AWW app for three locations. Oak Creek Watershed Council is collecting trash and E. coli data in the priority watershed of Oak Creek Canyon. The Greenbrush Grunts are collecting storm samples on the Babocamari and Greenbrush draw to help gather needed data.</p>	
<p>1.1.8 STRATEGY: Complete and submit the 305(b)/303(d) integrated report on a biannual schedule.</p>	
<p>Milestones:</p>	
<p>Use a real-time assessment tool to guide data collection to minimize data gaps and determine the current status of monitored waters (Weekly)</p>	<p>Ongoing</p>
<p>Enhance real-time assessment tool to an enterprise, ADEQ IT-supported tool (FY21)</p>	<p>On track</p>
<p>2020 CWA 303(d) List and supporting 305(b) report (FY20)</p>	<p>Complete</p>
<p>Comments</p>	
<p>Submitted 305 (b) to EPA Spring FY20 and awaiting review.</p>	
<p>2022 CWA 303(d) List and supporting 305(b) report (FY22)</p>	<p>N/A</p>
<p>Comments</p>	
<p> </p>	
<p>2024 CWA 303(d) List and supporting 305(b) report (FY24)</p>	<p>N/A</p>

	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
	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)	N/A
Comments	
ADEQ's current inventory of metal impaired waters with projects being implemented include: Hassayampa River, Pinto Creek, Alum Gulch, Big Bug Creek, 3R Canyon, Humboldt Canyon. (All currently prioritized agency KOUI sites)	
2. Prioritize stream reaches and mine sites, using ADEQ's surface water improvement priorities strategy for FY20 ³ (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	
3. Rank impaired stream reaches and mine sites for project implementation based on ADEQ's surface water improvement priorities strategy (FY21)	N/A
Comments	
ADEQ's priorities strategy is currently in development, however, the biggest agency priorities are WOTUS, KOUI sites, and impaired waters. Therefore, the 9 KOUI sites mentioned above are being prioritized and ranked according to how quickly projects can break ground. (See "KOUI Buckets" Google sheet shared with EPA for more information).	

4. Update prioritization list (Annually)	Ongoing
Comments	
See update above.	
<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	
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.	
3. Use priority ranking to pursue additional internal (non-319) and external funding sources for high priority projects (Annually)	Ongoing
Comments	

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	ADEQ continues to regularly assess its funding sources and has created metrics to measure how quickly they are being spent. ADEQ anticipates to spend NPS grants first, then pursue WQARF and PPG funds.	
	4. Pursue the establishment of state funding source to address inactive mine sites (FY24)	N/A
	Comments	
2.1.3 STRATEGY: Direct fund projects on high priority waters		
Milestones:		
	1. Develop and implement standard work to secure internal approval for direct funded 319 projects (FY20)	Completed
	Comments	
	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.	
	2. Develop a process to determine when surface water discharges from abandoned mines are impacting unregulated private drinking water wells (FY20)	At risk
	Comments	
	ADEQ, ADHS and Yavapai County Health have been exploring the development of a project in and around the community of Walker, located in the Bradshaw Mountains along Lynx Creek. A Health Consultation was completed in 2007 that indicated 10 out of 30 wells sampled were a health concern however, there is little information about any follow up actions taken. The proposed project would follow up on the Consultation and determine if there is a link between legacy mine sites and poor drinking water quality. COVID-19 slowed the progress of this study and the scope is beyond the authority and expertise of the value stream. Discussions will all parties and ADEQ management will continue in FY 21 to determine the direction of this project.	

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	3. Establish a process for ensuring that all 319 direct-funded projects meet EPA's 9 key elements for watershed-based plans (FY21)	N/A
Comments		
	4. Use prioritized sources to compete for internal funding sources (319, WQARF, PPG) (Annually)	Ongoing
Comments		
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		
	5. Continue to maximize internal match for 319 project funds to minimize grantee match requirements (Annually)	Ongoing
Comments		
We are currently seeking match from several sources not just grantees, we are matching from our state fund WQARF on 319 projects, Personnel match for employees who are doing on the ground work for these projects, Citizen Scientists volunteering to sample for our impaired waters and grantees that who also have match for inkind on most projects.		
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)	On track
Comments		

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	<p>The adit plug at the Lead Queen mine was installed in Aug 2019 and effectively ceased the discharge. Water quality has improved below the discharge point. Engineering plans are still being developed for 3R Mine and Poland Mine, both are expected to be finalized in FY21 Q1 with implementation beginning in FY21 Q2. Project proposals and Scope of Works are developed for Storm Cloud Mine and McKinley Mill, with ground-breaking anticipated for Sept/Oct 2020.</p>	
	2. Implement projects at Gibson Mine, Cash Mine, Senator Mine, McCleur Mine, Zonia Mine (FY21)	On track
	Comments	
	<p>On- track- Several XRF surveys of the Gibson Mine and surrounding streams were completed in FY20. The data are being analyzed to determine where “hotspots” exist on site and if stream sediment below the mine is contributing to water quality issue. The results will guide future remedial plan development in FY21. In addition, we should be finalizing access agreements shortly at both. Senator and Zonia are both under Compliance and Enforcement, and have responsible parties involved. ADEQ is working on obtaining land access agreements from private landowners for McCleur Mine, which will allow ADEQ to investigate the extent of impairments and begin Source ID monitoring.</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	
2.1.5 STRATEGY: Measure the effectiveness of mine remediation projects		
Milestones:		
	1. Conduct effectiveness monitoring (Annually)	Ongoing
	Comments	
	Effectiveness monitoring conducted near the Lead Queen, Hillside Mine (Boulder Creek) and Gibson Mine (Pinto Creek) have all shown improvements in surface water quality. The last 2 Boulder Creek sampling events showed no exceedances of surface water quality standards within Boulder Creek- this the first time that has occurred. Reductions in dissolved arsenic (79%), zinc (72%) and iron (94%) have been measured. Data analysis has shown an 80% decrease in copper loading from the Gibson mine, a 96% reduction from the Blue Gate Mine and an overall reduction of 85% in Pinto Creek at the old Highway 60 Bridge. This site represents water quality in the upper watershed above the Carlota and Pinto Valley Mine and measures the cumulative improvements from the remedial projects at the Gibson Mine and 3 mines that USFS remediated.	
	2. Calculate actual versus estimated load reductions for each project implemented (As necessary for projects implemented in 2.1.4)	On track
	Comments	
	Concentrations below the Lead Queen adit have decreased by 98%, on average, for copper, zinc and lead. pH within the drainage is now greater than 7 SU compared to 3.6 SU before implementation.	
	3. Delist waters that are now meeting standards (FY22 and FY24)	N/A
	Comments	

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	4. Reevaluate implemented BMPs where expected load reductions are not realized (Annually)	Ongoing
	Comments	
2.2 OBJECTIVE: Work with internal and external partners to develop and implement strategies for addressing impairments influenced by <u>recreation-related</u> 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)	N/A
	Comments	
	Prioritize stream reaches and land uses, using ADEQ's surface water quality improvement priorities strategy (FY21) ⁶	N/A
	Comments	

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Rank impaired stream reaches and land uses for project implementation based on ADEQ's surface water quality improvement priorities strategy (FY21)	N/A
Comments	
Update prioritization list (Annually)	Ongoing
Comments	
Priority areas for FY20 are Oak Creek and San Pedro/Babocomari watersheds.	
<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	

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	<p>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.</p>	
	<p>3. Test targeted social media outreach during high use recreation time in Oak Creek (Memorial Day weekend) (FY20)</p>	<p>On track</p>
	<p>Comments</p>	
	<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. 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>	
	<p>4. Evaluate success and adjust social media communications plan based on Oak Creek pilot results (FY21)</p>	<p>N/A</p>
	<p>Comments</p>	
	<p>5. Implement targeted ads – continue to use based upon FY21 engagement results (FY22)</p>	<p>N/A</p>
	<p>Comments</p>	
	<p>6. Implement targeted ads- explore use on other high-risk recreation sites (FY23)</p>	<p>N/A</p>

	Comments	
	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 mangers on recreational management in high priority watersheds (FY20)	On track
	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>	
<p>Collect pre and post-holiday E. coli samples during the high use recreational season (May-September) to quantify recreational impacts (FY20-21)</p>	<p>Ongoing</p>
<p>Comments</p>	
<p>Oak Creek Watershed Council and Arizona State Parks continue to take water quality samples at Oak Creek. There were 2 samples that exceeded during holiday weekends out of 28 samples collected by Oak Creek Watershed Council. During Fourth of July 2020, there was an E.coli exceedance of 501.2 MPN (Arizona's state standard is 235 MPN.)</p>	
<p>Identify sustainable funding ideas/toolbox for external education programs (FY21)</p>	<p>N/A</p>
<p>Comments</p>	
<p>Implement trash clean ups (Annually)</p>	<p>Ongoing</p>
<p>Comments</p>	

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<p>In FY20, ADEQ along with State Parks and volunteer groups, collected a total of 2,600 pounds of trash. A total of 349 volunteers within 3 different volunteer groups volunteered for a total of 163 hours. Clean up areas included Oak Creek Canyon, Stoneman Lake, Mesquite Wash, and the Salt River, covering 253.15 acres in AZ. There were 173 education contacts made while picking up trash. Trash was 3x higher than a pre-holiday weekend for both Memorial Day and Fourth of July.</p>	
<p>2.2.4 STRATEGY: Implement projects to decrease E.coli loading in highly recreated waters (e.g. Oak Creek)</p>	
<p>Milestones:</p>	
<p>Review and prioritize highly recreated E. coli impaired waters (FY20) (see also Strategy 2.2.1)</p>	<p>Completed</p>
<p>Comments</p>	
<p>ADEQ has prioritized Oak Creek watershed to implement projects that mitigate E.coli exceedances. So far in FY20, ADEQ has invested \$550,000 in the area through NPS grants through 5 projects.</p>	
<p>Analyze GIS system tools for high priority nonpoint source areas (FY20)</p>	<p>Completed</p>
<p>Comments</p>	
<p>ADEQ has identified areas within Oak Creek to target for projects, including Slide Rock State Park and Highway 89A.</p>	
<p>Implement 2 high priority projects (FY21)</p>	<p>N/A</p>
<p>Comments</p>	
<p> </p>	
<p>Implement 2 high priority projects (FY22)</p>	<p>N/A</p>

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	Comments	
	Implement 2 high priority projects (FY23)	N/A
	Comments	
	Implement 2 high priority projects (FY24)	N/A
	Comments	
	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	

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	As mentioned in 2.2.4, monitoring continues through Arizona State Parks and Oak Creek Watershed Council. After several projects are completed this fall, ADEQ will monitor for effectiveness.	
	Calculate actual versus estimated load reductions for each project implemented (As necessary for projects implemented in 2.2.4)	Ongoing
	Comments	
	Delist waters that are now meeting standards due to nonpoint source program activities (FY22 and FY24)	N/A
	Comments	
	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:		

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<p>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)</p>	<p>Completed</p>
<p>Comments</p>	
<p>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. In further detail: ADEQ analyzed results from a microbial source tracking DNA study that was led by the University of Arizona with support from ADEQ. For the 127 samples collected in support of the project, 78% of the stormwater samples had concentrations of E.coli that were over four times the standard for full body contact. This suggests that tempering stormwater contributions is important in moving the needle on water quality. The study also demonstrated that for the associated stormwater samples, 61% showed markers for bovine at an order of magnitude higher than markers for human, whereas only 28% had human markers were higher than bovine. This suggests that on a basinwide scale, agriculture realizes a more significant footprint relative to other sources within our control Research published by ARS that alerted us to the fact that E.coli likes to hang out in freshwater bottom sediments and bank soils, and that it’s the resuspension of sediment rather than runoff from surrounding lands that can create elevated E.coli concentrations in water. We concluded that Assuming samples were not collected during a first flush event, monitoring may be more indicative of the quality of sediments, which can impact water quality during resuspension. This was shared and confirmed with the author of the publication during an ARS meeting last year. In response, ADEQ determined that soil conservation via range restoration is critical – a point that was shared with the San Pedro and Hereford NRCDs. The ranchers agreed, and this gave us an opportunity to move away from discussions about E.coli and focus on something we could agree on, specifically soil conservation. Further details are summarized here: https://youtu.be/d2oA1Wu8ZRY?t=242 .</p>	
<p>2.Develop and document strategy for addressing E. coli impairments in the Babocamari River Watershed (FY20-21)</p>	<p>Ongoing</p>
<p>Comments</p>	

<p>Based on our CSM, ADEQ determined that in order to fix the impairment, we first need to improve cattle distribution relative to upstream tributaries, by creating opportunities for grazing outside of impacted channels. Then, we should focus on slowing stormwater flows with rockwork and native materials by stabilizing head cuts and pursuing rangeland restoration, first by focusing higher up in the watershed, and then working our way down towards our impaired reaches. Reflecting the ADEQ’s Strategic Plan, the plan for the San Pedro is summarized here: https://youtu.be/d2oA1Wu8ZRY?t=1736 :</p> <ol style="list-style-type: none"> 1. ENVIRONMENT: In order to realize immediate water quality improvements, encourage redistribution of grazing activities away from Arizona points of concentration for stormwater (e.g. washes, rivers) to yield highest ROI in competitive funding landscape. 2. COMMUNITY/ECONOMY: Where redistribution impacts rancher operations, support rangeland restoration and off-site water supplies so that ranchers have sustainable alternatives. <p>For headcut relief, we determined that an effective means for relieving pressure is to (1) restore stormwater flows to their historical valley bottom, and (2) spread flows concentrating on roads to surrounding grasslands. Further details are summarized here: https://youtu.be/d2oA1Wu8ZRY?t=1079</p>	
<p>3. Coordinate with the NRCS State Office to identify new NWQI Watersheds (FY20)</p>	Completed
Comments	
<p>ADEQ has met and shared details regarding its monitoring and strategies with NRCS colleagues to include highlighting needs within the Babocomari subwatershed. ADEQ has highlighted that based on FY20 sampling, the Babocomari River is now provisionally listed as impaired for E.coli. Respective projects have been elevated in stakeholder forums attended by NRCS including the Sentinel Landscape Restoration Partnership, and both San Pedro and Hereford NRCD monthly meetings.</p>	
<p>4. Develop and implement sample plans within new NWQI watersheds (FY22-24)</p>	N/A
Comments	
<p>5. Determine next priority grazing impacted watershed to adapt Babocamari River strategy to (FY24)</p>	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)	N/A
Comments	
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)	N/A
Comments	
3. Implement 2 high priority projects based on developed strategy and landowner commitment (FY22)	N/A
Comments	
4. Implement 2 high priority projects (FY23)	N/A

	Comments	
	5. Implement 2 high priority projects (FY24)	N/A
	Comments	
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)	Ongoing
	Comments	
	Most of FY20 was spent identifying and engaging stakeholders in the Babocomari/San Pedro watersheds. Once projects are implemented in the next few years, ADEQ will conduct effectiveness monitoring. In addition, our efforts continue on establishing baseline conditions and recommendations as was done via the Chase Emmerson study we worked on with Stream Dynamics, and through our basinwide monitoring already summarized in the NPS report.	
	2. Develop sediment vs E. coli rating curves using data collected from Walnut Gulch experimentation watershed (FY21)	N/A
	Comments	
	3. Calculate actual versus estimated load reductions for each project implemented (As necessary for projects implemented in 2.1.3)	Ongoing

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Comments		
4. Delist waters that are now meeting standards (FY22 and FY24)		N/A
Comments		
5. Reevaluate impaired waters where expected load reductions are not realized (Annually)		Ongoing
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 <u>septic-related</u> 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)		N/A
Comments		

Update ADEQ septic density map with input from local entities to prioritize areas for additional investigation (FY21)	N/A
Comments	
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)	N/A

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Comments	
Implement 2 high priority projects (FY23)	N/A
Comments	
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	

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<p>ADEQ holds ongoing meetings with ADHS and Yavapai County Health to discuss potential impacts to human health and the environment from legacy mine sites in the Bradshaw Mountains. As previously discussed (2.1.3) we are working on a potential surface/drinking water impact project but we also have coordinated on outreach efforts on specific sites and projects. We have also discussed expanded data collection and sharing efforts related to water quality, GIS and UAV. ADEQ also meets regularly with USFS personnel (individual forests and regional) to discuss NPS issues and projects that involve USFS land or staff- both mining and E. coli related. This has resulted in the USFS and ADEQ entering into formal agreements that allow ADEQ to perform work on USFS utilizing federal funds, see discussion in 2.1.2. ADEQ additionally engages with USFS and Arizona State Parks to implement projects in Oak Creek, as well as USDA NRCS for projects along the San Pedro.</p>	
<p>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)</p>	N/A
Comments	
<p>3. Develop a strategy to coordinate with other entities to develop possible collaboration and leveraging opportunities (FY22)</p>	N/A
Comments	
<p>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)</p>	N/A
Comments	
<p>2.5.2 STRATEGY: Secure or leverage funds from alternative (non-319) state, federal, and/or local sources to implement priority projects.</p>	
<p>Milestones:</p>	

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1. Develop a strategy to coordinate resources with other local, regional, state and federal entities via ADEQ project technical leads (FY20-21).	Ongoing
Comments	
As mentioned in other updates, ADEQ regularly coordinates internally and externally to implement projects. ADEQ utilizes standard work to coordinate with ADEQ's Community Liaisons to built local connections in the Bradshaws for abandoned mines and the Patagonia mountains for KOUI sites; ADEQ engages with Yavapai County Health Department with regards to its work in the Bradshaws on abandoned mines; ADEQ will also be engaging the Arizona Mining Association to built resources to remediate abandoned mines.	
2. Identify alternative NPS-related local, regional, state and/or federal resources identified NPS Programs/Projects and update NPS "funding toolbox" (Annually)	On track
Comments	
We have obtained two other funding sources, USFS and Arizona State Parks to add to existing 319 for projects in Oak Creek Canyon to help on impaired waters for E.coli and Remediation for the 3R mine	
3. Apply for or leverage at least \$500,000 of non 319 funds to implement high priority projects (Annually)	On track
Comments	
ADEQ did use \$500k for high priority projects such as mining, but have not applied for any outside of the NPS grants in FY20.	
2.5.3 STRATEGY: Implement priority projects via alternative or split funding sources	
Milestones	
Milestones:	
1. Implement ADOT pull out reduction project (ADOT/319 Funds) (FY20)	On track
Comments	

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	<p>ADOT continues to construct closures of 27 car pullouts alongside Highway 89A, the major road alongside Oak Creek Canyon. As of 7/30/20, 25 of the 27 pullouts have been closed and project is anticipated to be completed by end of August.</p>	
	<p>2. Implement 3R Mine remedial action using 319 and USFS funds (FY21)</p>	<p>N/A</p>
	<p>Comments</p>	
	<p></p>	
	<p>3. Complete site assessment (PPG) and remedial actions (319) at McKinley Mill and Storm Cloud Mine (FY21)</p>	<p>N/A</p>
	<p>Comments</p>	
	<p></p>	
	<p>4. Implement Poland Mine remedial project on private (319) and USFS (USFS) land (FY21)</p>	<p>N/A</p>
	<p>Comments</p>	
	<p></p>	
	<p>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)</p>	<p>On track</p>
	<p>Comments</p>	
	<p>Over 63 opportunities have been identified and passed onto our partners and team leads. We are currently not tracking outside our agency of opportunities applied for and received. We are only tracking those that are received and being used in conjunction with our 319 projects/funds.</p>	

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	Actively administer, encourage and track volunteer opportunities at all priority project locations (Annually)	Ongoing
Comments		
A volunteer trash clean up component was added to Arizona Water Watch to address one of the E. coli sources in Oak Creek Canyon. A partnership was created with Keep Arizona Beautiful and a grant was awarded to fund the equipment for the program (trash bags, pickers, buckets, gloves, etc.). Arizona Water Watch leverages volunteers to help with storm sampling data gap needs around Arizona.		
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.		
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		

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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
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Comments

2. Evaluate current or create new "implementation procedures" documents for unused narrative standards in WQS rules (FY24)	N/A
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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
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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)	Ongoing
Comments	
DEQ is undergoing an extensive stakeholder outreach effort in response to the Navigable Waters Protection Rule (i.e. WOTUS). These stakeholder efforts are documented online here: https://azdeq.gov/wotus . Right now, ADEQ is working on developing the appropriate tools to determine a water's status under the new definition of WOTUS, prior to developing a state program. The program outline is on hold until early to mid September due to the extensive stakeholder and scientific analysis.	
2. Finalize program outline with stakeholder input (FY21)	N/A
Comments	
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)	N/A
Comments	

Appendix A: Projects Awarded in FY2020

Watershed	WQIG#	Project Title	Grantee	NPS Funded Amount	Project Start Date
San Pedro	PO 0000166061	Babocomari Chase/Emmerson Assessment and Report	Stream Dynamics	9,702.32	January 2020
Verde	EV20-0038	Pet Waste Station Implementation	Oak Creek Watershed Council	138,363.00	August 2020
Verde	EV20-0017	High Impact Recreation Area Clean Up and Water Quality Sampling	Oak Creek Watershed Council	100,000.00	March 2020
Verde	ASPB ISA No: 20-055	Slide Rock Barrier Fence	Arizona State Park	42,000.00	(Signed June 2, 2020. Start date: September 2020)
Verde	EV20-0019/ISASA19-0007570-I	Roadside Pull-out Closures	ADOT	130,000.00	December 2019
Verde	EV20-0016	Social Trail Rehabilitation	National Forest Foundation	80,000.00	September 2020
Verde	EV20-0039	Social Trail Rehabilitation Engineering	Natural Channel Design	22,972.00	May 2020
Bradshaw	Tetra Tech Contract	McKinley Mill/Stormcloud Poland Walker Tunnel	Tetra Tech	65,902.05	NPS 26 2019
Bradshaw	Tetra Tech Contract	Poland Walker Tunnel	Tetra Tech	23,012.17	NPS28 2019
Bradshaw	Tetra Tech Contract	3 R Mine	Tetra Tech	470,000	FY20 NPS29
Bradshaw	Tetra Tech Contract	McKinley Mill/Storm Cloud/PWT	Tetra Tech	752,613.77	FY20 NPS 29
Bradshaw	Tetra Tech Contract	Gibson 3R Mine McKinley /Mill/Storm Cloud	Tetra Tech	70,000 146,920 405,930.74	FY20 NPS 30

TOTAL Awarded in FY20: \$2,480,388.05 | Mine projects: \$1,934,378.73 | Non-mining projects: \$546,009.32