

# APPENDIX F

## Water Quality Improvements

Water quality improvements have resulted in pollutants no longer impairing an assessment unit. Each is a success story! Significant resources have been used to identify sources and control pollutant contributions in each case.

These water quality improvements are dependent on continued application of the improvement noted in this table. Therefore, decision makers about future activities in the watershed or additional discharges need to be aware and continue to support these improvements.

### Colorado - Lower Gila Watershed

Lake Havasu (Thompson Bay)	15030101-0590	19,780 acres
<i>E. coli</i> bacteria Delisted in 2002; first listed in 1996	<ol style="list-style-type: none"> <li>1. Improved sanitary facilities at beaches.</li> <li>2. Public education concerning marine wastewater disposal.</li> <li>3. Improvements in public wastewater treatment facilities to reduce nutrient loading.</li> <li>4. Improvement in flow into Thompson Bay under London Bridge.</li> </ol>	No remaining impairments
Painted Rock Borrow Pit	15070201-1010	185 acres
Pesticides in fish tissue Delisted in 2014; first listed in 1988	General use of the pesticide dieldrin and DDT banned	No remaining impairments

### Little Colorado Watershed

Nutrios Creek	15020001-017A	Headwaters to Nelson Reservoir	13.3 miles
Turbidity Delisted in 2006; first listed in 1992	Cattle removed from the riparian area through addition of fencing and alternative sources of water. Riparian area improvements noted. TMDL approved in 2002. No remaining impairments		

### Middle Gila Watershed

Gila River	15070101-001, 005, 007, 008, 009, 010, 014, 015	Salt River to Painted Rock Reservoir	82.5 miles
Pesticides in fish tissue Delisted in 2014; first listed in 1988	General use of the pesticide dieldrin and DDT banned		
Hassayampa River	15070101-001B	Buckeye Canal to Gila River	2.3 miles
Pesticides in fish tissue Delisted in 2014; first listed in 1998	General use of the pesticide dieldrin and DDT banned No remaining impairments		
Mineral Creek	15050100-012B	Devils Canyon to Gila River	19.6 miles
Beryllium, zinc, and low pH Delisted in 2004; first listed in 1992	Mineral Creek is diverted around a large mining operation. Monitoring surface water quality to assure this is sufficient to protect water quality in the stream. Listed in Category 5 for other pollutants		

## Middle Gila Watershed - continued

Painted Rock Reservoir	15070101-1020A	100 acres	
Pesticides in fish tissue Delisted in 2014; first listed in 1988	General use of the pesticide dieldrin and DDT banned No remaining impairments		
Salt River	15060106B-001D	23rd Avenue WWTP to Gila River	14.1 miles
Pesticides in fish tissue Delisted in 2014; first listed in 1988	General use of the pesticide dieldrin and DDT banned No remaining impairments		

## Salt Watershed

Christopher Creek Phosphorus Delisted in 2016; first listed in 2006	15060105-353	Lower Pinal Creek WTP to Salt River	6.4 miles
Through ADEQ Water Quality Improvement Grant (WQIG) funding and other projects, septic system upgrades were made throughout the impaired watershed.			
Pinal Creek	15060103-280D	Lower Pinal Creek WTP to Salt River	6.4 miles
Copper, manganese, zinc, and low pH Delisted in 2002; first listed in 1988	Ground water is pumped so that surface water flow discontinues (flow was intermittent originally in this area). The water is treated and pumped back into the stream, providing clean perennial flow. No remaining impairments		
Tonto Creek Nitrogen Delisted in 2016; first listed in 2004	15060105-013A 15060105-013B	Headwaters to 341810/1110414 341810/1110414 to Haigler Creek	8.1 miles 8.5 miles
Through ADEQ Water Quality Improvement Grant (WQIG) funding and other projects, septic system upgrades were made throughout the impaired watershed. AGFD also made several upgrades to the facility. These projects working in concert with each other were effective in reducing total nitrogen loads in Tonto Creek.			

## San Pedro Watershed

Mule Gulch	15080301-090B	Lavender Pit to former Bisbee WWTP	0.8 miles
Dissolved zinc, dissolved copper and low pH Delisted in 2014; first listed in 1998	15080301-090C	Bisbee WWTP to Highway 80 Bridge	3.8 miles
Recent water quality data has shown that the concentrations of dissolved metals have declined and pH has risen within Mule Gulch. Freeport McMoRan Corporation (FMC) has implemented several projects within the last decade that have improved conditions in Mule Gulch.			

## Santa Cruz Watershed

Santa Cruz River	15050301-009	Nogales WWTP to Josephine Canyon	9.1 miles
Total residual chlorine, ammonia, cadmium Delisted in 2016; first listed in 2010 and 2012/14	Improvements made in 2009 to the Nogales International Waste Water Treatment Plant have improved the effluent quality and the Santa Cruz River. The reach is now attaining the applicable chlorine, ammonia and cadmium water quality standards.		

## Santa Cruz Watershed- continued

<p>Santa Cruz River Ammonia Delisted in 2016; first listed in 2010</p>	<p>15050301-003B    Roger Road WWTP Outfall to Intermittant Reach    2.9 miles</p> <p>Piima County replaced the Roger Road WWTP with the Agua Nueva WRF in 2013 resulting in the reach now attaining the applicable ammonia water quality standards. No remaining impairments</p>
<p>Santa Cruz River Dissolved copper Delisted in 2016; first listed in 2010</p>	<p>15050303-005A    HUC 150303 Boundary to Baumgartner Rd    14.5 miles</p> <p>Ina Road WWTP was replaced by Tres Rios WRF in 2013. There were no copper exceedances in the post-upgrade water quality data. No remaining impairments</p>

## Verde Watershed

<p>Munds Creek <i>E. coli</i> bacteria, nitrogen and phosphorus Delisted in 2002; first listed in 1994</p>	<p>15060202-415    Headwaters to Oak Creek    17.0 miles</p> <p>Wastewater reuse applications modified to keep effluent from contaminating Munds Creek. No remaining impairments</p>
<p>Ashbrook Wash <i>E. coli</i> bacteria Delisted in 2006; first listed in 2004</p>	<p>15060203-989    Grande Wash to Verde River    2 miles</p> <p>Wastewater treatment plant no longer discharging to this wash. No remaining impairments</p>
<p>Verde River Turbidity Delisted in 2010; first listed in 1990</p>	<p>15060202-037, 025, 015, 15060203-027, 025    78.1 miles Unnamed Trib (15060202-065) - Fossil Creek</p> <p>Turbidity TMDL completed in 2002. Best management practices are implemented to minimize the impact of grazing and reduce soil erosion. No remaining impairments</p>