

Verde Watershed

Watershed Description

This watershed is defined by the Verde River drainage that flows into the Salt River, including Big Chino Wash and its tributaries. This 6,624 square mile watershed has an approximate population of 153,000 people (2000 census), but is growing rapidly. Although this is only 3% of the state population, several communities are located in this watershed: Payson, Sedona, Cottonwood, Verde Valley, Prescott, and the southern outskirts of Flagstaff. Land ownership is 65% federal, 23% private, 10% state, and 2% tribal. Primary land uses are open range grazing, irrigated agriculture, recreation, forestry, and some mining.

Elevations range from more than 12,000 feet (above sea level) in the San Francisco Mountains to about 1,600 feet as the Verde River flows into the Salt River. The watershed is split between warmwater communities below 5,000 feet and coldwater communities above 5,000 feet where perennial waters exist.

Water Resources

The Verde Watershed receives slightly more precipitation than most watersheds in this state, with some areas receiving about 20 inches of rain and 3 inches of snow. Therefore, the Verde River and many of its tributaries are perennial waters.

An estimate of surface water resources in the Verde Watershed is provided in the following table. Waters on Tribal lands are not assessed by ADEQ; therefore, those statistics are shown separately.

Estimated Surface Water Resources in the Verde Watershed

	Perennial	Intermittent	Ephemeral
Stream miles	450	2,115	5,990
	Perennial	Non-perennial	
Lake acres	4,603	3,636	

Additional Surface Water Resources located on Tribal Land - Not Assessed

	Perennial	Intermittent	Ephemeral
Stream miles	15	5	230
	Perennial	Non-perennial	
Lake acres	6	0	

Ambient monitoring focuses on perennial waters; however, special investigations may identify water quality problems on intermittent and even ephemeral waters. Estimated miles and acres are based on USGS digitized hydrology at 1:100,000 and have been rounded to the nearest 5 miles or 5 acres.

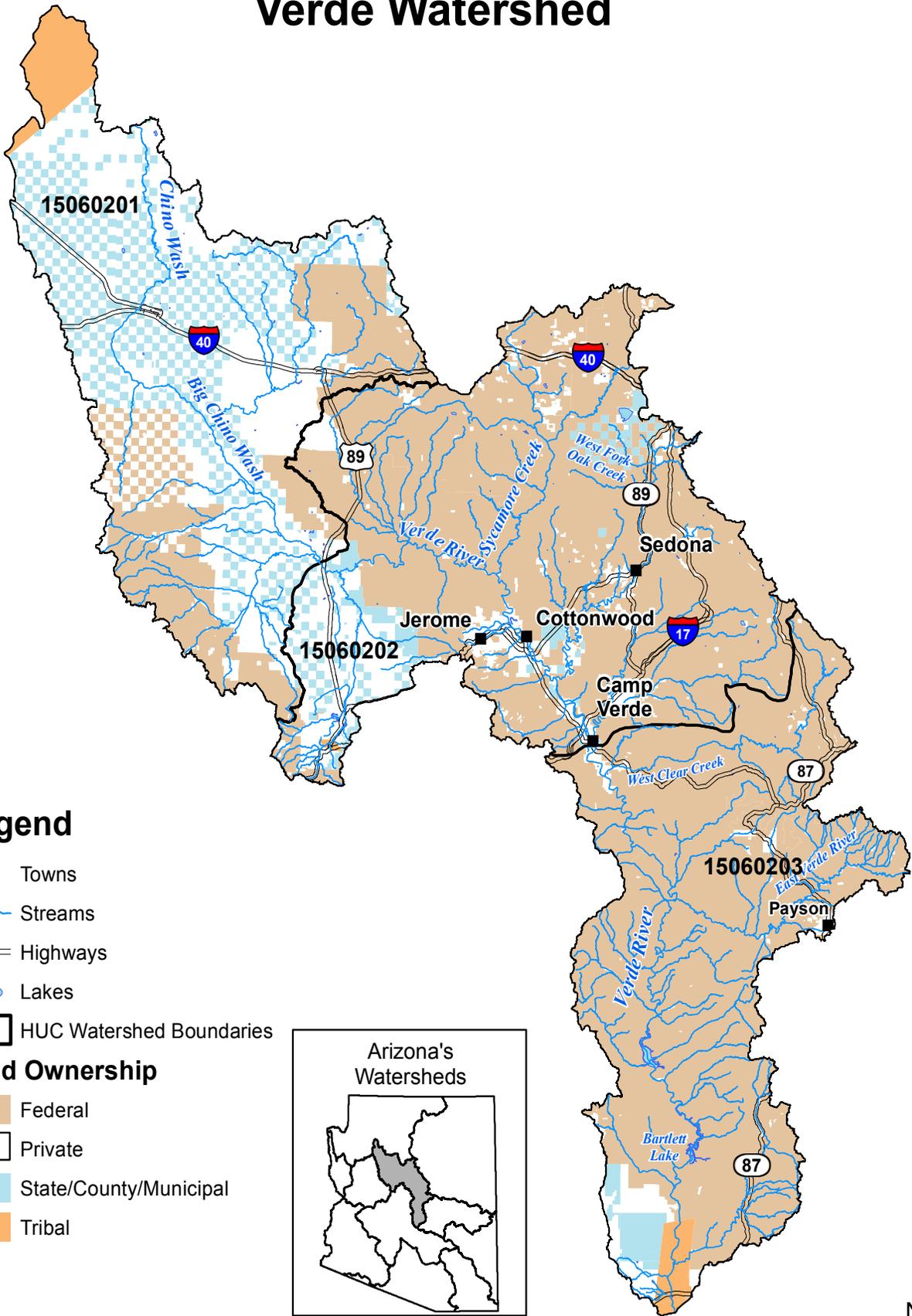
Assessments

The Verde Watershed can be separated into the following drainage areas (subwatersheds):

- 15060201 Big Chino Wash Drainage Area
- 15060202 Upper Verde River Drainage Area
- 15060203 Lower Verde River Drainage Area

These drainage areas and the surface waters assessed as “attaining” or “impaired” are illustrated on the following watershed map. Methods used to complete these assessments are described in the “Surface Water Assessment Methods and Technical Support” document.

Verde Watershed

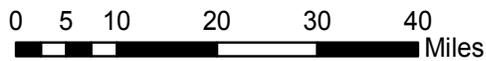
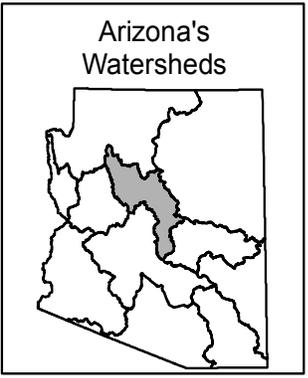


Legend

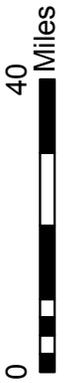
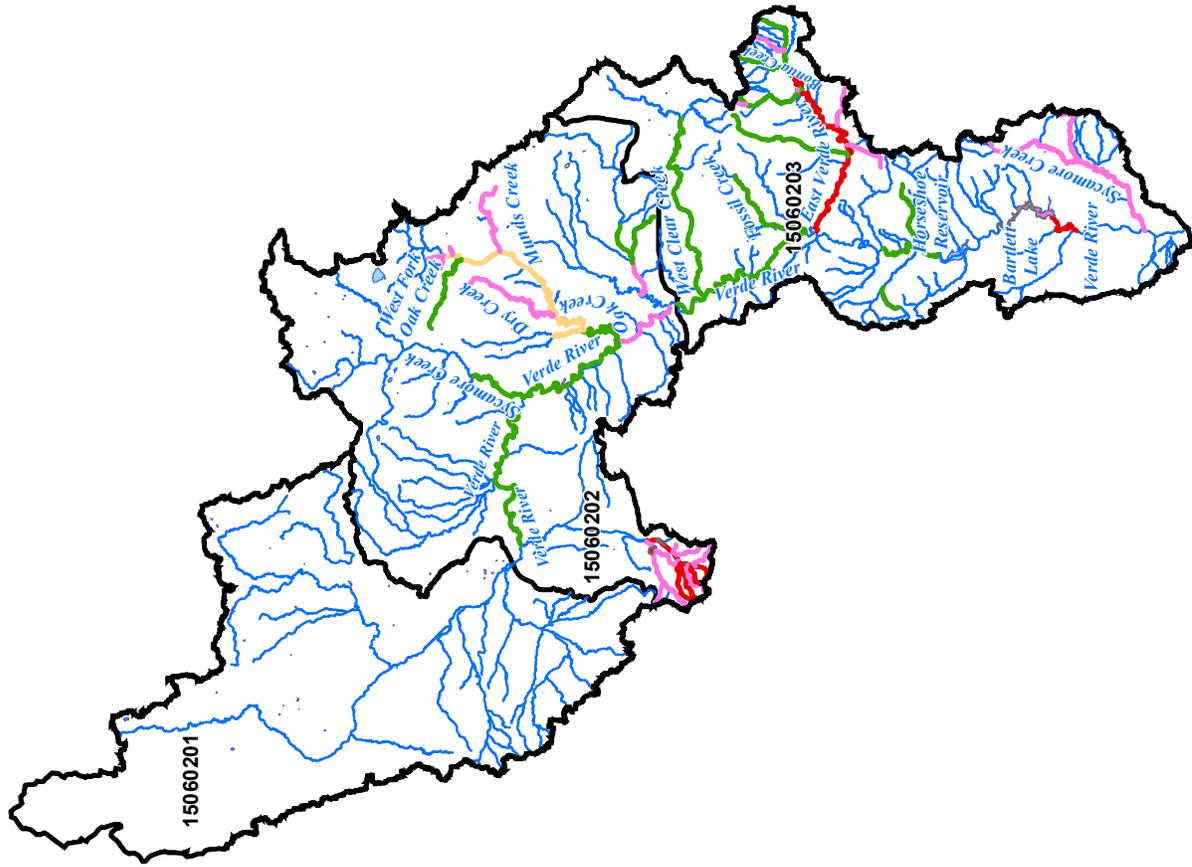
- Towns
- ~ Streams
- == Highways
- ☪ Lakes
- ▭ HUC Watershed Boundaries

Land Ownership

- Federal
- Private
- State/County/Municipal
- Tribal

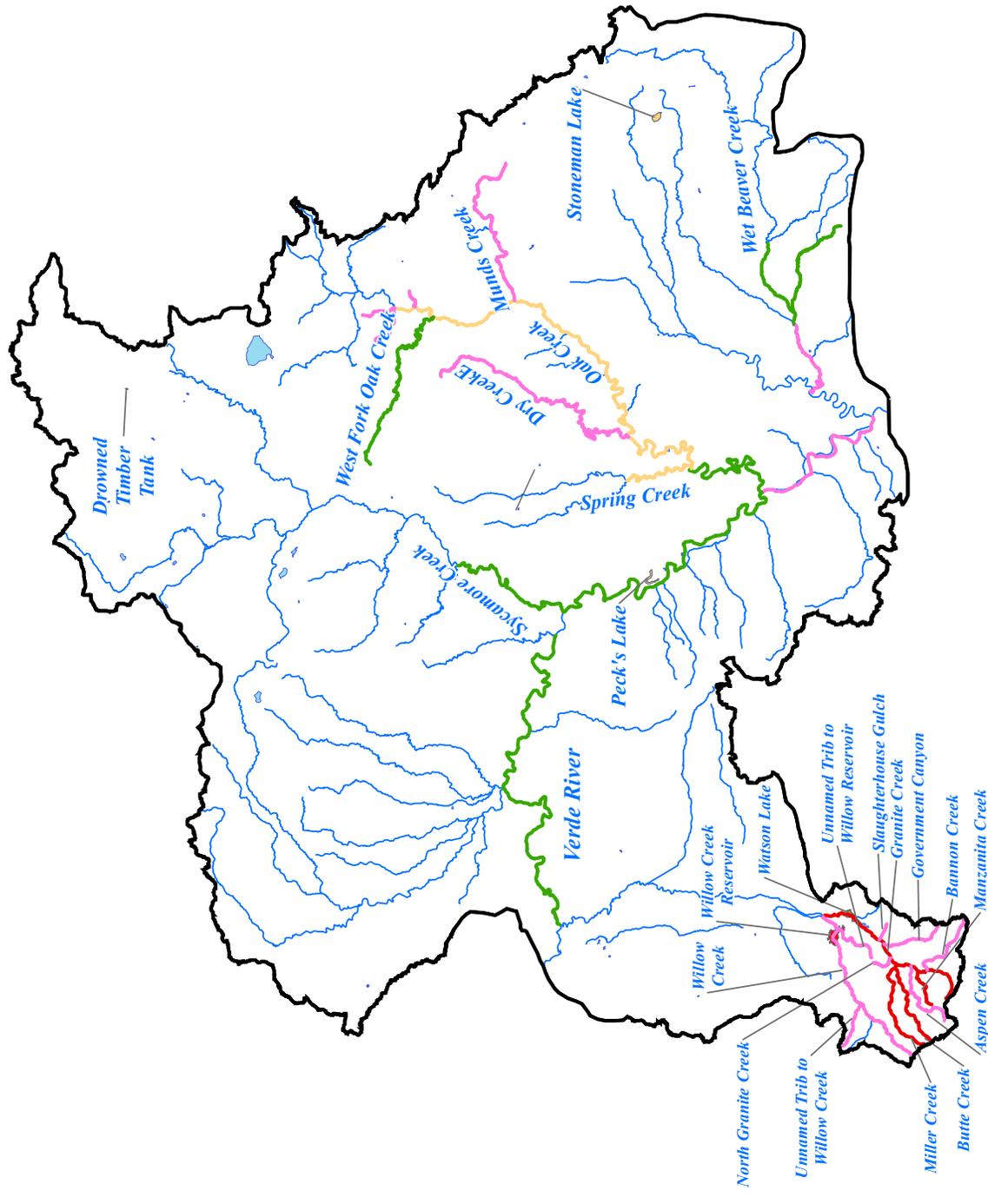


Verde Watershed 2012/2014 Assessment for Streams and Lakes

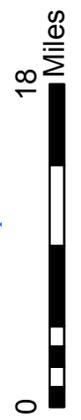


<p>Legend</p> <p>Assessed Lakes - 2012 ADEQ and EPA Listings</p> <ul style="list-style-type: none"> Attaining Inconclusive Not Attaining EPA Impaired Impaired <p>HUC Watershed Boundaries</p> <p>Assessed Streams - 2012 ADEQ and EPA Listings</p> <ul style="list-style-type: none"> Attaining Inconclusive Not Attaining EPA Impaired Impaired <p>Lakes</p> <p>Streams</p>		<p>See Individual HUC Printouts for Waters not Labeled</p> <p>N</p>
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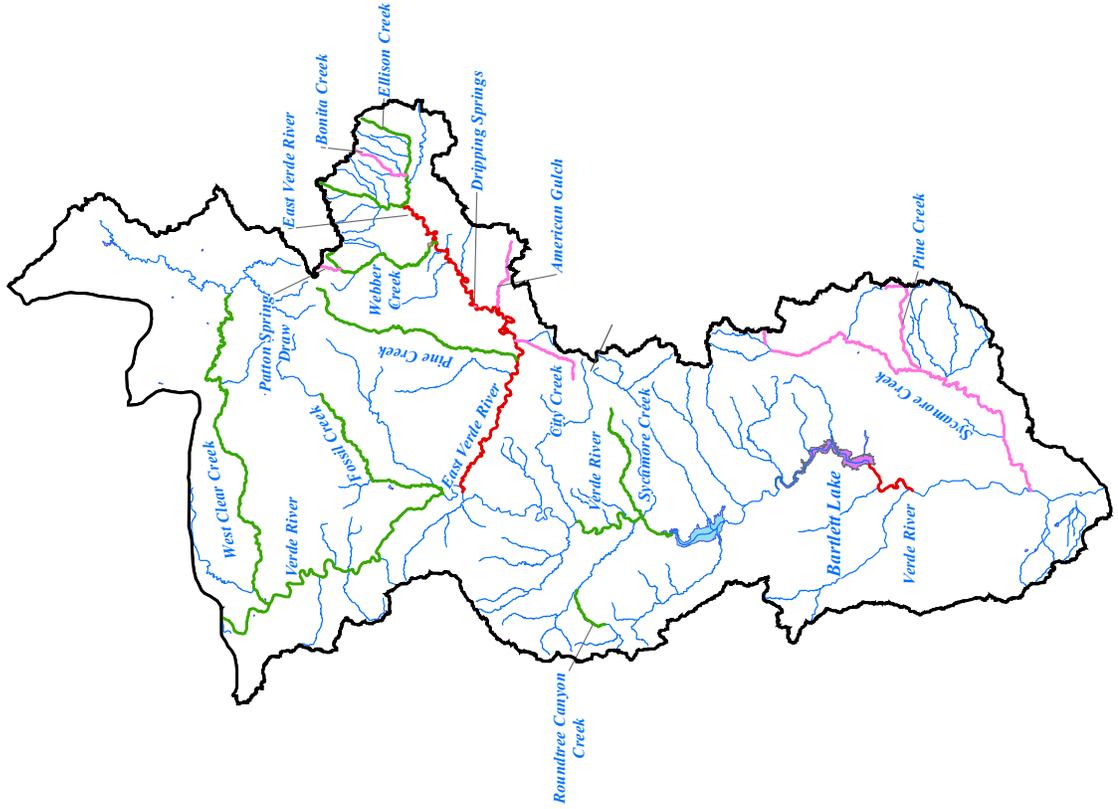
Verde Watershed HUC 15060202 2012/2014 Assessment for Streams and Lakes



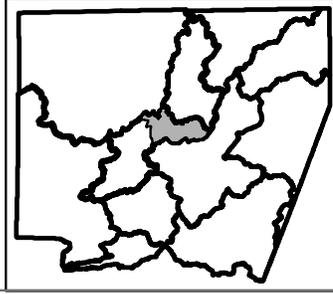
Legend	
Assessed Streams - 2012	
ADEQ and EPA Listings	
Attaining	█
Inconclusive	█
Not Attaining	█
EPA Impaired	█
Impaired	█
HUC Watershed Boundaries	
Lakes	█
Streams	~
Assessed Lakes - 2012	
ADEQ and EPA Listings	
Attaining	█
Inconclusive	█
Not Attaining	█
EPA Impaired	█
Impaired	█



Verde Watershed HUC 15060203 2012/2014 Assessment for Streams and Lakes



Legend	Assessed Streams - 2012	Assessed Lakes - 2012
	ADEQ and EPA Listings	ADEQ and EPA Listings
	Attaining (Green line)	Attaining (Green box)
	Inconclusive (Purple line)	Inconclusive (Purple box)
	Not Attaining (Orange line)	Not Attaining (Orange box)
	EPA Impaired (Yellow line)	EPA Impaired (Yellow box)
	Impaired (Red line)	Impaired (Red box)
	HUC Watershed Boundaries (Black outline)	
	Lakes (Blue shape)	
	Streams (Blue line)	



0 24 Miles

American Gulch

Headwaters - No. Gila Co. WWTP
15060203-448A
2.6 Miles

Category 3
Inconclusive

FC - Inconclusive • FBC - Inconclusive • AGI - Inconclusive
AGL - Inconclusive • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	12/8/2009	3629 cfu/100 mL	FBC is inconclusive with 1 exceedance in the last three years of the assessment (7/08-6/11), 2 samples total.

Monitoring Summary

Sampling period: 12/8/2009 - 3/30/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ONE QUARTER MILE BELOW WWTP	VRAMG003.62	108582	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1-2) Arsenic, boron, manganese, selenium	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> samples due to exceedance. All core parameters need both sample number and seasonal distribution coverage.

PBC - Inconclusive • A&Wedw - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	576 cfu/100 mL, SSM	3/29/2011	4611 cfu/100 mL	PBC is inconclusive with 1 exceedance in last three years of assessment period, 1 sample total.

Monitoring Summary
 Sampling period: 3/29/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE FOREST SERVICE ROAD # 67	VRAMG000.76	108723	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Arsenic, boron, manganese, selenium	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> samples due to exceedance. All core parameters need sample number and seasonal distribution.

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	1/6/2008	387 cfu/100 mL	FBC is inconclusive with 1 exceedance within the last three years of the assessment period (7/08-6/11), 9 samples total. Exceedance (12/8/09) occurred during a storm event.
		12/8/2009	2419 cfu/100 mL	
Nitrogen	3 mg/L, SSM	1/27/2008	12.3 mg/L	A&Wc and FBC are attaining with 1 SSM exceedance in 11 samples (binomial).
Phosphorus	1 mg/L, SSM	1/27/2008	2.9 mg/L	A&Wc and FBC are attaining with 1 SSM exceedance in 11 samples (binomial).
SSC	25 mg/L	2/14/2009	61.4 mg/L	A&Wc is inconclusive with 0 median exceedance in 1 sample. Not enough samples to calculate a median.

Monitoring Summary
 Sampling period: 12/12/2007 - 5/13/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
COPPER BASIN ROAD AT FS BOUNDARY	VRASP005.07	106183	ADEQ	TMDL
ABOVE PARK AVENUE	VRASP000.37	107545	ADEQ	TMDL
BELOW HASSYAMPA VILLAGE LANE BY GOLF COURSE	VRASP001.61	107546	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1-2) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(15) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-14) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	SSC, <i>E. coli</i>
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> and SSC samples to determine assessment status. All core parameters need seasonal distribution and many need sample number coverage as well. Ongoing water quality improvements being implemented through a 319(h) grant to Prescott Creek-Preservation Association.

BANNON CREEK

Headwaters - Granite Creek
15060202-774
6.2 Miles

Category 3
Inconclusive

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Dissolved oxygen	7.0 mg/L	12/12/2007	6.24 mg/L	A&Wc is inconclusive with 1 exceedance in 5 samples (binomial).

Monitoring Summary

Sampling period: 12/12/2007 - 5/13/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE GRANITE CREEK AND ROAD CROSSING	VRBAN000.06	106186	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1-2) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(5) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-6) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Cadmium (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
Low	Collect more dissolved oxygen samples to determine attainment status. All core parameters need seasonal distribution and several need sample number coverage as well.

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
AGI - Inconclusive • AGL - Inconclusive
A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	10 ug/L	12/1/2006	19 ug/L	DWS is inconclusive with 5 exceedances in 6 samples (binomial, a minimum of 20 samples is required to determine impairment).
		7/13/2007	18.1 ug/L	
		9/18/2007	21 ug/L	
		11/6/2008	13 ug/L	
		3/19/2009	10.5 ug/L	
Dissolved oxygen	6.0 mg/L	9/18/2007	5.36 mg/L	A&Ww is inconclusive with 2 exceedances in 5 samples (binomial).
		11/6/2008	5.51 mg/L	

Monitoring Summary
Sampling period: 12/1/2006 - 3/19/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
RIVERINE ZONE	VRBAR-C	100011	ADEQ	CLP
MID LAKE	VRBAR-B	100010	ADEQ	CLP
AT DAM	VRBAR-A	100009	ADEQ, AGFD	CLP
BACK OF THE LAKE	VRBAR-C1	105899	ADEQ	CLP

Metal Samples	Nutrients & Related Samples	Other Samples
(12-15) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(3-15) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-15) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, arsenic
Missing Core Parameters	None
Missing Seasonal Distribution	<i>E. coli</i>
Lab Detection Limits Not Low Enough	Lead (dissolved), nickel (dissolved), selenium, thallium, mercury (dissolved)

Priority	Monitoring Recommendations
Medium	Collect more arsenic and dissolved oxygen samples to determine assessment status. Good core parameter coverage – just need seasonal distribution on <i>E. coli</i> to complete.

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Dissolved oxygen	7.0 mg/L	10/9/2007	6.52 mg/L	A&Wc is inconclusive with 1 exceedance in 2 samples (binomial).
<i>E. coli</i>	235 cfu/100 mL, SSM	6/13/2008	250 cfu/100 mL	FBC is attaining with no exceedances in the last 3 years of monitoring.
SSC	25 mg/L	10/9/2007	952.5 mg/L	A&Wc is inconclusive with 1 exceedance in 3 samples. Not enough samples to calculate median.

Monitoring Summary

Sampling period: 10/9/2007 - 11/13/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
UPSTREAM OF FULLER CREEK	VRBON002.71	106922	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
None	(2) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-3) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, SSC
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Dissolved oxygen, SSC

Priority	Monitoring Recommendations
Medium	Collect dissolved oxygen and SSC samples to investigate exceedances. All core parameters in need of sample number and seasonal distribution coverage.

Add *E. coli* to the 303(d) list

FC - Inconclusive • FBC - Impaired • A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 ml, SSM	1/7/2008	631 cfu/100 mL	FBC is impaired with 2 exceedances in the last 3 years of monitoring. Although they were both stormwater exceedances, the exceedance rate was greater than 10% (3 exceedances in 10 samples). 1 geomean exceedance (1/08).
		1/27/2008	260 cfu/100 mL	
		12/18/2008	326 cfu/100 mL	
		12/8/2009	2419 cfu/100 mL	

Monitoring Summary
 Sampling period: 8/6/2007 - 5/13/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE MILLER CREEK	VRBTT000.06	107550	ADEQ	TMDL
AT HEAD WATERS	VRBTT005.70	106189	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(12) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-10) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
High	Collect more <i>E. coli</i> samples to support TMDL development. Most core parameters need seasonal distribution and/or sample number coverage. Dissolved copper, cadmium, and mercury need lower detection limits.

Impairment Discussion
<p>Impairments based on flood related <i>E. coli</i> exceedances are only considered when ten or more samples have been collected, and there is a greater than 10% exceedance rate.</p> <p>Ongoing water quality improvements being implemented through a 319(h) grant to Prescott Creeks Preservation Association.</p>

CITY CREEK

Headwaters - East Verde River
15060203-036
6.7 Miles

Category 3
Inconclusive

Verde

FC - Inconclusive • FBC - Inconclusive • AGL - Inconclusive
A&Ww - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 3/30/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE FOREST SERVICE ROAD # 406	VRCIT000.37	108726	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Arsenic, boron, manganese, selenium	None	(1) Dissolved oxygen, pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , copper, lead, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , copper, lead, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

D RIPPING SPRINGS

Springs Headwater - East Verde River
15060203-524
0.03 Miles

Category 3
Inconclusive

PBC - Inconclusive • AGL - Inconclusive

Use Support

No Exceedances

Monitoring Summary

Sampling period: 3/29/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
JUST ABOVE CONFLUENCE WITH EAST VERDE RIVER	VRDRP000.01	108743	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Arsenic, boron, manganese, selenium	None	(1) Dissolved oxygen, pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	pH, <i>E. coli</i> , copper, lead
Missing Seasonal Distribution	pH, <i>E. coli</i> , copper, lead
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

DRY CREEK

Headwaters - Oak Creek
15060202-021
22.7 Miles

Category 3
Inconclusive

FC - Inconclusive • FBC - Inconclusive • A&Ww - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
SSC	80 mg/L	1/6/2008	400 mg/L	A&Ww is attaining. This exceedance occurred during a storm event and was excluded from assessment.

Monitoring Summary

Sampling period: 1/6/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT YAVAPAI CO. STAGE LOGGER	VRDRY007.02	101877	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	None	(1) <i>E. coli</i> , pH, SSC

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	All core parameters need sample number and seasonal distribution coverage.

EAST VERDE RIVER

American Gulch - Verde River
15060203-022C
25.8 Miles

Category 5

Impaired

IMPAIRMENT**Arsenic(2006/8)**

DWS - Impaired • FC - Attaining • FBC - Impaired
AGI - Attaining • AGL - Attaining • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	10 ug/L (DWS) & 30 ug/L (FBC)	12/22/2009	41.3 ug/L	DWS remains impaired with 11 exceedances in 17 samples, and FBC remains impaired with 4 exceedances in 17 samples (binomial).
		5/4/2010	14.2 ug/L	
		5/26/2010	26.3 ug/L	
		6/29/2010	22.9 ug/L	
		7/27/2010	17.7 ug/L	
		8/31/2010	12.9 ug/L	
		9/28/2010	58.4 ug/L	
		10/26/2010	42.1 ug/L	
		11/30/2010	37.7 ug/L	
		12/28/2010	20.7 ug/L	
		3/31/2011	23.2 ug/L	
Dissolved oxygen	6.0 mg/L	6/30/2011	5.3 mg/L	A&Ww is attaining. Low dissolved oxygen due to groundwater upwelling.
Zinc	2100 ug/L (DWS) 5106 ug/L (FBC)	8/31/2010	6281 ug/L	DWS and FBC are attaining with 1 exceedance in 16 samples (binomial).
Biocriteria	IBI ≥ 50 attaining IBI 40 - 49 inconclusive IBI ≤ 39 violating	6/24/2008	IBI 46	A&Ww is inconclusive.

Monitoring Summary

Sampling period: 8/14/2007 - 6/30/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW CRACKER JACK	VREVR023.59	105441	ADEQ	Ambient
NEAR CHILDS, AZ USGS 09507980	VREVR002.62	100739	ADEQ	TMDL
BELOW CONFLUENCE WITH AMERICAN GULCH	VREVR023.23	108724	ADEQ	TMDL
BELOW BABY DOLL RANCH, NEAR PAYSON, AZ	VREVR016.28	100473	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(16-20) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(3-16) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-21) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, biocriteria

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Biocriteria
Missing Core Parameters	None
Missing Seasonal Distribution	<i>E. coli</i>
Lab Detection Limits Not Low Enough	Lead (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
High	Collect more arsenic samples to support TMDL development. Collect an additional macroinvertebrate sample to verify the bioassessment result.

Impairment Discussion
There were no boron exceedances in 17 aggregated samples. Boron is delisted based on the following reasons: new data from critical sites indicated that the reach was no longer impaired for boron (0 exceedances in 12 critical samples, binomial), and the standard for DWS designated use has been increased from 630 ug/L to 1400 ug/L, and reassessment of the original data with the new standard does not indicate impairment. It should also be noted that original data used for listing came from an outside agency and did not meet our surface water sampling criteria.

EAST VERDE RIVER

Ellison Creek - American Gulch
15060203-022B
20.3 Miles

Category 5

Impaired

Selenium (2004)

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
AGI - Inconclusive • AGL - Inconclusive • A&Ww - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	12/8/2009	816 cfu/100 mL	FBC is inconclusive with 1 non storm related exceedance (12/8/09) in 6 samples.
		6/29/2011	345 cfu/100 mL	

Monitoring Summary

Sampling period: 12/7/2009 - 6/29/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW HIGHWAY 87 BRIDGE, NEAR PAYSON	VREVR034.80	100474	ADEQ	TMDL
EAST VERDE RIVER - BELOW ELLISON CREEK	VREVR044.96	108562	ADEQ	TMDL
ABOVE CONFLUENCE WITH AMERICAN GULCH	VREVR027.67	108722	ADEQ	TMDL
EAST VERDE RIVER - BELOW ELLISON CREEK	VREVR044.96	100548	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(3-5) Arsenic, boron, manganese, selenium	None	(6) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved), nitrate, chromium, lead, copper, lead, <i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), cadmium (dissolved), copper (dissolved), nitrate, fluoride, chromium, lead, manganese, copper, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
High	Collect more selenium in support of TMDL development and more <i>E. coli</i> due to exceedance. Many core parameters need sample number and/or seasonal distribution coverage.

Impairment Discussion
This reach was originally listed for selenium in 2004 with the last known exceedance occurring in January 2001. All 5 selenium samples collected in this assessment period were below the chronic criterion. TMDL sampling is ongoing.

EAST VERDE RIVER

Headwaters - Ellison Creek
15060203-022A
8.1 Miles

Category 2

Attaining some uses

DWS - Attaining • FC - Attaining • FBC - Attaining
AGI - Attaining • AGL - Attaining • A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 ml, SSM	8/14/2007	600 cfu/100 mL	FBC is attaining with no exceedances in the last three years of the assessment period(7/08-6/11), 6 samples total.
Biocriteria	IBI ≥ 52 attaining IBI 46 - 51 inconclusive IBI ≤ 45 violating	6/24/2008	IBI 51	A&Wc is inconclusive.

Monitoring Summary

Sampling period: 8/14/2007 - 06/29/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW WASHINGTON PARK	VREVR051.15	100546	ADEQ	Ambient, TMDL
ABOVE 2ND CROSSING	VREVR045.50	100786	ADEQ	Ambient, TMDL
ABOVE WILLOW SPRING CANYON	VREVR046.18	108842	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(8-11) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(2-8) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(7-11) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, biocriteria

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), lead (dissolved), selenium, mercury (dissolved)

Priority	Monitoring Recommendations
Medium	Collect an additional macroinvertebrate sample to verify the bioassessment result. Collect more <i>E. coli</i> samples to ascertain attainment status. Good core parameter coverage.

ELLISON CREEK
 Headwaters - East Verde River
 15060203-459
 10.8 Miles

Category 2
 Attaining some uses

FC - Attaining • FBC - Inconclusive • AGL - Attaining
 A&Wc - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	6/15/2011	272 cfu/100 mL	FBC is inconclusive with 1 exceedance in the last 3 years of monitoring.

Monitoring Summary
 Sampling period: 5/13/2009 - 6/15/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE EAST VERDE RIVER	VRELL000.18	100543	ADEQ	TMDL
AT HEADWATERS	VRELL009.02	100542	ADEQ	TMDL, Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4-6) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(4) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(5-6) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
Low	Collect more <i>E. coli</i> samples due to exceedance. Good core parameters coverage.

F FOSSIL CREEK
 Headwaters - Verde River
 15060203-024
 19.9 Miles
 Outstanding Arizona Water

Category 1
 Attaining all uses

Verde

FC - Attaining • FBC - Attaining • AGL - Attaining
 A&Ww - Attaining

No Exceedances

Monitoring Summary
 Sampling period: 8/30/2007 - 6/14/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
EAST OF MUD SEEP	VRFOS011.88	105624	ADEQ	Ambient
AT FOSSIL SPRINGS HEADWATER	VRFOS014.33	106422	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(8-9) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(6-7) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(5-9) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	Good core parameter coverage with low number of samples. Need lower detection limit for dissolved mercury and selenium.

GOLDWATER LAKE (UPPER)

15060202-0575
20.6 Acres

Category 3
Inconclusive

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
A&Wc - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 9/8/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
DAM SITE	VRGWU-A	108862	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Arsenic, beryllium, cadmium, chromium, copper, lead, manganese, zinc	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1) Dissolved oxygen, pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrate, lead, fluoride, arsenic, chromium, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrate, lead, fluoride, arsenic, chromium, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need seasonal distribution and many need sample number coverage as well.

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	1/7/2008	866 cfu/100 mL	FBC is attaining. No exceedances in last three years of assessment period (7/08 - 6/11).
		1/27/2008	238 cfu/100 mL	

Monitoring Summary
 Sampling period: 1/7/2008 - 12/18/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
VETERANS HOSPITAL	VRGOC000.60	107563	ADEQ	TMDL
BELOW EAST PINE RIDGE DRIVE	VRGOC003.03	107562	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Mercury	(3) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-3) Dissolved oxygen, <i>E. coli</i> , pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	All core parameters need seasonal and many need sample number coverage as well.

Granite Creek

Headwaters to Yavapai Reservation @ 34° 33' 06.382" / 112° 27' 44.2"
 15060202-059A
 6 Miles

Category 5
 Impaired

E. coli (2010) and low dissolved oxygen (EPA 2004)

FC - Inconclusive • FBC - Impaired • AGI - Inconclusive
 AGL - Inconclusive • A&Wc - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Dissolved oxygen	7.0 mg/L	12/12/2007	6.15 mg/L	A&Wc remains impaired with 3 exceedances in 11 samples (binomial).
		4/3/2008	6.04 mg/L	
		7/31/2010	4.52 mg/L	
<i>E. coli</i>	235 cfu/100 mL, SSM	1/28/2008	1553 cfu/100 mL	FBC remains impaired with new exceedances in this assessment period.
		12/18/2008	488 cfu/100 mL	
		12/8/2009	1300 cfu/100 mL	
Nitrogen	3 mg/L, SSM	12/12/2007	10.7 mg/L	A&Wc and FBC are inconclusive with 1 annual mean exceedance.
		1/27/2008	4.14 mg/L	
	1 mg/L, Annual mean	2008	1.41 mg/L	
Phosphorus	1 mg/L, SSM	1/27/2008	3.7 mg/L	A&Wc and FBC are inconclusive with 1 annual mean exceedance.
	0.1 mg/L, Annual mean	2008	0.47 mg/L	

Monitoring Summary

Sampling period: 1/10/2007 - 4/21/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE BANNON CREEK	VRGRA032.67	104926	ADEQ	TMDL
ABOVE PONDEROSA ROAD	VRGRA034.39	107502	ADEQ	TMDL
AT USGS GAGE 09503300	VRGRA023.85	104925	ADEQ	TMDL
AT LEROUX STREET	VRGRA031.19	107504	ADEQ	TMDL

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE MANZANITA CREEK	VRGRA031.98	107503	ADEQ	TMDL
UPSTREAM OF WHITE SPAR CAMPGROUNDS	VRGRA033.51	106185	ADEQ	Ambient
AT GRANITE PARK	VRGRA029.97	106184	ADEQ	TMDL, Ambient
AT PRESCOTT, AZ USGS 09502960	VRGRA029.64	101580	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(2-6) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(21) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(15-21) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, nitrogen, phosphorus
Missing Core Parameters	None
Missing Seasonal Distribution	Zinc (dissolved), cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), lead (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
High	Collect more <i>E. coli</i> samples to support TMDL under development. Collect more SSC, dissolved mercury, total nitrogen, and total phosphorus samples due to exceedances. Several core parameters need seasonal distribution. Ongoing water quality improvements being implemented through a 319(h) grant to Prescott Creeks Preservation Association.

Granite Creek

Yavapai Reservation @ 34° 33' 55.558" / 112° 26' 31.627" to Watson Lake
 15060202-059B
 2.5 Miles

Category 5
 Impaired

IMPACTMENT STATUS

E. coli (2010)

FC - Inconclusive • FBC - Impaired • AGI - Inconclusive
 AGL - Inconclusive • A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	1/7/2008	2419 cfu/100 mL	FBC remains impaired with new exceedances in this assessment period.
		1/27/2008	547 cfu/100 mL	
		1/28/2008	1986 cfu/100 mL	
		12/18/2008	1300 cfu/100 mL	
		12/8/2009	2419 cfu/100 mL	
		1/25/2010	261 cfu/100 mL	
Mercury ^d	0.01 ug/L	12/8/2009	0.2 ug/L	A&Wc is attaining with 0 exceedance in 1 sample.
Nitrogen	3 mg/L, SSM	1/25/2010	3.03 mg/L	A&Wc and FBC are inconclusive with 1 exceedance.
Phosphorus	1 mg/L, SSM	1/11/2008	1.04 mg/L	A&Wc and FBC are inconclusive with 1 exceedance.
SSC	25 mg/L	12/18/2008	34.6 mg/L	A&Wc is inconclusive with 0 median exceedances in 3 samples. Not enough data to calculate median.

Monitoring Summary

Sampling period: 1/10/2007 - 4/21/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
MID WATSON WOODS	VRGRA027.35	107522	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(2-9) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(16) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(9-18) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved mercury, nitrogen, phosphorus, dissolved mercury, SSC
Missing Core Parameters	None
Missing Seasonal Distribution	Zinc (dissolved), cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), lead (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
High	Collect more <i>E. coli</i> samples to support TMDL under development. Collect more SSC, dissolved mercury, samples due to exceedances. Several core parameters need seasonal distribution. Ongoing water quality improvements being implemented through a 319(h) grant to Prescott Creeks Preservation Association.

MANZANITA CREEK

Headwater - Granite Creek
15060202-772
2.8 Miles

Category 5
Impaired

IMPACTMENT

Add E. coli to the 303(d) list

FC - Inconclusive • FBC - Impaired • A&Wc - Inconclusive

STATUS

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 ml, SSM	1/6/2008	344 cfu/100 mL	FBC is impaired with 2 exceedances in the last 3 years of monitoring. Although both exceedances were storm-related, the exceedance rate was greater than 10% (4 exceedances in 10 samples).
		1/27/2008	1300 cfu/100 mL	
		12/18/2008	397 cfu/100 mL	
		12/8/2009	2419 cfu/100 mL	

Monitoring Summary

Sampling period: 12/12/2007 - 5/13/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE GRANITE CREEK	VRMAN000.01	107548	ADEQ	TMDL
ABOVE TIMBER RIDGE ROAD	VRMAN002.15	107547	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	(12) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-12) Dissolved oxygen, <i>E. coli</i> , pH, SSC

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
High	Collect more <i>E. coli</i> samples in support of TMDL development. All core parameters need seasonal distribution and several need sample number coverage as well.

Impairment Discussion
Impairments based on flood related <i>E. coli</i> exceedances are only considered when ten or more samples have been collected, and there is a greater than 10% exceedance rate. Ongoing water quality improvements being implemented through a 319(h) grant to Prescott Creeks Preservation Association.

MILLER CREEK
 Headwaters - Granite Creek
 15060202-767
 7.2 Miles

Category 5
 Impaired

E. coli (2010)
 IMPAIRMENT
 STATUS

FC - Inconclusive • FBC - Impaired • A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	1/7/2008	2419 cfu/100 mL	FBC remains impaired with 2 single sample exceedances in the last three years of the assessment period (7/08-6/11), 11 samples total. 1 geomean exceedance (1/08 - inconclusive for geomean exceedance).
		1/27/2008	313 cfu/100 mL	
		1/28/2008	2419 cfu/100 mL	
		12/28/2008	479 cfu/100 mL	
		12/8/2009	2419 cfu/100 mL	
Nitrogen	1 mg/L, Annual mean	2008	1.3 mg/L	A&Wc and FBC are inconclusive with 1 annual mean exceedance.
Phosphorus	0.1 mg/L, Annual mean	2008	0.22 mg/L	A&Wc and FBC are inconclusive with 1 annual mean exceedance.
SSC	25 mg/L	2/14/2009	283 mg/L	A&Wc is inconclusive with 0 median exceedances in 2 samples. Not enough data to calculate median.

Monitoring Summary
 Sampling period: 12/12/2007 - 5/13/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT THUMB BUTTE PARK	VRMIL003.64	107523	ADEQ	TMDL
ABOVE BUTTE CREEK AND GRANITE PARK	VRMIL000.32	107525	ADEQ	TMDL
AT OREGON AVENUE	VRMIL001.71	107524	ADEQ	TMDL
ON THUMB BUTTE ROAD ABOVE DEARING ROAD CROSSING	VRMIL006.07	106188	ADEQ	Ambient
DOWNSTREAM OF BUTTE CREEK AT GRAINTE PARK	VRMIL000.22	106187	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(2-3) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(20) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-18) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Nitrogen, phosphorus, SSC
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
High	Collect more <i>E. coli</i> to support TMDL development and total nitrogen, total phosphorus, and SSC samples due to exceedances. All core parameters need seasonal distribution coverage.

Impairment Discussion
Remains impaired for <i>E. coli</i> with 2 exceedances in last three years of this assessment period (7/08-6/11). Ongoing water quality improvements being implemented through a 319(h) grant to Prescott Creeks Preservation Association.

MUNDS CREEK
 Headwaters - Oak Creek
 15060202-415
 17.0 Miles

Category 3
 Inconclusive

FC - Inconclusive • PBC - Inconclusive
 A&Ww - Inconclusive

No Exceedances

Monitoring Summary
 Sampling period: 1/10/2008 - 2/13/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
SITE C	VRMUN006.31	107243	Pinewood Sanitary District	Permittee Ambient
SITE D	VRMUN006.17	107262	Pinewood Sanitary District	Permittee Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
None	(5) Nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus	None

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	All core parameters need seasonal distribution and many need sample number coverage as well.

NORTH GRANITE CREEK

Headwaters - Granite Creek
15060202-757
1.6 Miles

Category 3
Inconclusive

Verde

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Dissolved oxygen	7.0 mg/L	7/31/2010	4.53 mg/L	A&Wc is inconclusive with 1 exceedance in 1 sample (binomial).
<i>E. coli</i>	235 cfu/100 mL, SSM	7/31/2010	2419 cfu/100 mL	FBC is inconclusive with 1 exceedance in 3 samples.

Monitoring Summary

Sampling period: 1/25/2010 - 7/31/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT 6TH AND NAVAJO	VRNGC000.14	107622	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	(3) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-3) Dissolved oxygen, <i>E. coli</i> , pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, <i>E. coli</i>
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Medium	Collect dissolved oxygen and <i>E. coli</i> samples to ascertain assessment status. Most core parameters need sample number and seasonal distribution coverage.

OAK CREEK
 Dry Creek - Spring Creek
 15060202-017
 10.0 Miles
 Outstanding Arizona Water

Category 4A
 Not Attaining

IMPACTMENT STATUS

E. coli (2006)

DWS - Inconclusive • FC - Attaining • FBC - Not attaining
 AGI - Attaining • AGL - Attaining • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	10 ug/L	7/20/2010	19 ug/L	DWS is inconclusive with 4 exceedances in 4 samples (binomial).
		11/16/2010	15 ug/L	
		3/24/2011	12 ug/L	
		4/27/2011	16 ug/L	
E. coli	235 cfu/100 mL, SSM	8/15/2006	387 cfu/100 mL	FBC remains not attaining with 13 exceedances in 52 samples. 3 geometric mean exceedances (7-9/2008).
		7/24/2007	1413 cfu/100 mL	
		8/7/2007	1203 cfu/100 mL	
		9/2/2007	687 cfu/100 mL	
		9/25/2007	326 cfu/100 mL	
		1/6/2008	921 cfu/100 mL	
		5/13/2008	307 cfu/100 mL	
		7/15/2008	1120 cfu/100 mL	
		8/5/2008	816 cfu/100 mL	
		8/12/2008	387 cfu/100 mL	
		8/19/2008	980 cfu/100 mL	
		8/26/2008	687 cfu/100 mL	
		9/2/2008	2419 cfu/100 mL	
SSC	80 mg/L	1/6/2008	340 mg/L	A&Ww is inconclusive with 0 median exceedances in 1 sample (not enough samples to calculate a median).

Monitoring Summary

Sampling period: 7/11/2006 - 4/27/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT MORMON CROSSING	VROAK013.95	101880	ADEQ	TMDL
ABOVE PAGE SPRINGS HATCHERY	VROAK017.30	101811	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(5) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-51) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Arsenic, SSC
Missing Core Parameters	Nitrate
Missing Seasonal Distribution	Nitrate
Lab Detection Limits Not Low Enough	Mercury (dissolved)

Priority	Monitoring Recommendations
High	Collect arsenic and sediment samples due to exceedances. Collect at least 3 nitrate samples over 3 seasons of year to complete core parameter coverage. Continue effectiveness monitoring for <i>E. coli</i> .

Impairment Discussion
Oak Creek <i>E. coli</i> TMDL approved by EPA in late 2010. Ongoing water quality improvements being implemented through a 319(h) grant to Oak Creek Watershed Council.



AK CREEK
 Headwaters - West Fork Oak Creek
 15060202-019
 7.4 Miles
 Outstanding Arizona Water

Category 4A
 Not attaining

IMPACTMENT STATUS

E. coli (2006)

DWS - Attaining • FC - Attaining • FBC - Not attaining
 AGI - Attaining • AGL - Attaining • A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Dissolved oxygen	7.0 mg/L	4/24/2008	6.22 mg/L	A&Wc is inconclusive with 1 exceedance in 9 samples (binomial).
E. coli	235 cfu/100 ml, SSM	1/6/2008	345 cfu/100 mL	FBC remains not attaining. During the last three years of monitoring (7/08-6/11), 0 exceedance in 2 samples.
Nitrogen	2.5 mg/L, SSM	11/1/2007	4.21 mg/L	A&Wc and FBC are inconclusive with 1 exceedance in 5 samples (binomial).
Phosphorus	1 mg/L, SSM	11/1/2007	4.59 mg/L	A&Wc and FBC are inconclusive with 1 exceedance in 5 samples (binomial).
SSC	25 mg/L	1/6/2008	40 mg/L	A&Wc is attaining with no median exceedances in 5 samples.

Monitoring Summary

Sampling period: 8/13/2007 - 6/16/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW PINE FLATS SUB-DIVISION	VROAK048.92	101864	ADEQ	Ambient
AT PINE FLATS CROSSING	VROAK049.20	106502	ADEQ	TMDL
BELOW STERLING SPRINGS FISH HATCHERY	VROAK050.55	101882	ADEQ	TMDL
AT CAVE SPRINGS CAMPGROUND NEAR SEDONA	VROAK048.36	104020	ADEQ	Ambient
AT BROPHY RETREAT	VROAK049.31	106503	ADEQ	TMDL
AT COCONINO CO. STAGE LOGGER	VROAK050.30	101863	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1-5) Antimony, arsenic, beryllium, cadmium, copper, lead, mercury	(8-13) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(5-16) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, phosphorus
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), lead (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
High	Collect more dissolved oxygen and phosphorus samples to ascertain A&W attainment status. Good core parameter coverage with few samples.

Impairment Discussion
Oak Creek <i>E. coli</i> TMDL approved by EPA in late 2010. Ongoing water quality improvements being implemented through a 319(h) grant to Oak Creek Watershed Council.

OAK CREEK
 Slide Rock boundary - Dry Creek
 15060202-018C
 20 Miles
 Outstanding Arizona Water

Category 4A
 Not attaining

E. coli (2006)
 IMPAIRMENT STATUS

DWS - Inconclusive • FC - Attaining • FBC - Not attaining
 AGI - Attaining • AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Cadmium ^d	3.7 ug/L ^{chronic} @ 187 mg/L hardness	8/3/2006	5.1 ug/L	A&Ww chronic is attaining. Unstable flow conditions around the time of this sampling event. Note: DWS is inconclusive with 1 exceedance in 9 samples (binomial).
Dissolved oxygen	6.0 mg/L	7/19/2010	4.68 mg/L	A&Ww is attaining with 1 exceedance in 10 samples (binomial).
<i>E. coli</i>	235 cfu/100 mL, SSM	8/8/2006	411 cfu/100 mL	FBC remains not attaining with 10 SSM exceedances in 60 samples and 1 geo-mean exceedance (8/2008).
		7/24/2007	308 cfu/100 mL	
		7/31/2007	488 cfu/100 mL	
		9/2/2007	2419 cfu/100 mL	
		9/25/2007	579 cfu/100 mL	
		1/6/2008	1986 cfu/100 mL	
		7/15/2008	240 cfu/100 mL	
		8/19/2008	649 cfu/100 mL	
		8/26/2008	2419 cfu/100 mL	
		9/2/2008	488 cfu/100 mL	
		12/18/2008	276 cfu/100 mL	

Monitoring Summary

Sampling period: 7/11/2006 - 4/25/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT RED ROCK CROSSING	VROAK031.38	100926	ADEQ, AGFD	Ambient
AT GRASSHOPPER POINT	VROAK031.52	101874	ADEQ, AGFD, Friends of the Forest	TMDL, Volunteer
BELOW MANZANITA CAMPGROUND	VROAK042.78	101871	ADEQ	TMDL, Ambient
AT SHANGRI LA LANE	VROAK038.78	105369	AGFD	Ambient
AT GRASSHOPPER POINT	VROAK038.67	101876	ADEQ, Friends of the Forest	TMDL, Volunteer
BELOW BEE CANYON NEAR INDIAN GARDENS	VROAK040.78	105919	ADEQ	TMDL
ABOVE MUNDS CANYON	VROAK040.62	105920	ADEQ	TMDL
BELOW HIGHWAY 179 BRIDGE	VROAK035.79	100460	ADEQ	TMDL
BELOW ENCINOSO PICNIC AREA	VROAK041.69	101872	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(4-11) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(10-11) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(5-104) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Cadmium (dissolved)
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Copper (dissolved), lead (dissolved), selenium, mercury (dissolved)

Priority	Monitoring Recommendations
High	Collect more cadmium due to the exceedance. Good core parameter coverage.

Impairment Discussion
Oak Creek <i>E. coli</i> TMDL approved by EPA in late 2010. Ongoing water quality improvements being implemented through a 319(h) grant to Oak Creek Watershed Council.

OAK CREEK
 Spring Creek - Verde River
 15060202-016
 12.7 Miles
 Outstanding Arizona Water

Category 2
 Attaining some uses

DWS - Inconclusive • FC - Attaining • FBC - Attaining
 AGI - Attaining • AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	10 ug/L	8/28/2007	21 ug/L	DWS is inconclusive with 2 exceedances in 4 samples (binomial).
		4/28/2008	17 ug/L	
<i>E. coli</i>	235 cfu/100 mL, SSM	1/7/2008	408 cfu/100 mL	FBC is attaining with 0 exceedance in last three years of assessment period (7/08-6/11). Exceedance reported occurred with flood event in progress.
SSC	80 mg/L	8/28/2007	98 mg/L	A&Ww is attaining with 0 median exceedances in 4 samples.
		1/7/2008	99 mg/L	

Monitoring Summary
 Sampling period: 6/21/2007 - 4/28/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BY ANDERSON STREET	VROAK002.96	105439	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(2-3) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-5) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Arsenic
Missing Core Parameters	Nitrate
Missing Seasonal Distribution	Nitrate
Lab Detection Limits Not Low Enough	Mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	Collect more arsenic due to exceedances. Collect at least 3 nitrate samples over 3 seasons of year to complete core parameter coverage.

OAK CREEK

West Fork Oak Creek - Unnamed Trib at 345709 / 1114513
 15060202-018A
 5.0 Miles
 Outstanding Arizona Water

Category 4A
 Not attaining

IMPACTMENT STATUS

E. coli (2006)

DWS - Attaining • FC - Attaining • FBC - Not attaining
 AGI - Attaining • AGL - Attaining • A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Cadmium ^d	0.341 ug/L ^{chronic} @ 160 mg/L hardness	7/19/2010	1.8 ug/L	A&Wc is inconclusive with 1 exceedance in 4 samples.
Selenium	2 ug/L	7/19/2010	2.6 ug/L	A&Wc is inconclusive with 1 exceedance in 4 samples.

Monitoring Summary

Sampling period: 8/3/2006 - 5/17/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT SLIDE ROCK CAMP-GROUND	VROAK045.64	105370	ADEQ	Ambient
AT BANJO BILL CAMP-GROUND	VROAK044.98	101867	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(4-5) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(6) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(4-6) Dissolved oxygen, E. coli, pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Cadmium (dissolved), selenium
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved), selenium, zinc (dissolved)

Priority	Monitoring Recommendations
Medium	Collect more selenium and dissolved cadmium samples to ascertain A&W attainment. Good core parameter coverage with small number of samples.

Impairment Discussion
Oak Creek <i>E. coli</i> TMDL approved by EPA in late 2010. Ongoing water quality improvements being implemented through a 319(h) grant to Oak Creek Watershed Council. No <i>E. coli</i> exceedances in 4 samples during the last 3 years of monitoring.

OAK CREEK

Tributary at 345709 / 1114513 - Slide Rock SP
 15060202-018B
 1.5 Miles
 Outstanding Arizona Water

Category 4A
 Not attaining

IMPACTMENT

***E. coli* (2006)**
 DWS - Inconclusive • FC - Inconclusive • FBC - Not attaining
 AGI - Inconclusive • AGL - Inconclusive
 A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	7/10/2006	275 cfu/100 mL	FBC remains not attaining with 23 SSM exceedances in 77 samples. No geometric mean exceedances.
		7/18/2006	3628 cfu/100 mL	
		7/25/2006	3628 cfu/100 mL	
		7/31/2006	3628 cfu/100 mL	
		8/8/2006	3628 cfu/100 mL	
		8/14/2006	1046 cfu/100 mL	
		8/21/2006	272 cfu/100 mL	
		8/28/2006	687 cfu/100 mL	
		9/4/2006	1300 cfu/100 mL	
		10/3/2006	579 cfu/100 mL	
		5/28/2007	261 cfu/100 mL	
		6/5/2007	261 cfu/100 mL	
		6/11/2007	2419 cfu/100 mL	
		6/26/2007	816 cfu/100 mL	
		7/2/2007	345 cfu/100 mL	
		7/9/2007	980 cfu/100 mL	
		7/16/2007	2419 cfu/100 mL	
		7/23/2007	325 cfu/100 mL	
		7/30/2007	2419 cfu/100 mL	
		8/6/2007	2419 cfu/100 mL	
9/3/2007	648 cfu/100 mL			
9/23/2007	307 cfu/100 mL			
1/6/2008	435 cfu/100 mL			

Monitoring Summary

Sampling period: 7/2/2006 - 6/16/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
SRSP AT HIGHWAY BRIDGE	VROAK043.73	100609	SRSP	Ambient
SRSP FOOT BRIDGE	VROAK043.79	102692	ADEQ	TMDL
SRSP LARGE POOL	VROAK043.81	102693	SRSP	Ambient
SRSP MIDSLIDE	VROAK043.83	102694	SRSP	Ambient
SRSP UPSTREAM	VROAK043.88	102695	SRSP	Ambient
ABOVE SLIDE ROCK STATE PARK	VROAK044.04	101868	Friends of the Forest	Volunteer

Metal Samples	Nutrients & Related Samples	Other Samples
None	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-297) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids,

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved), fluoride, arsenic, chromium, lead, boron, manganese, copper, lead, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), cadmium (dissolved), copper (dissolved), fluoride, arsenic, chromium, lead, boron, manganese, copper, lead, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
High	All core parameters except <i>E. coli</i> , pH and DO need sample number and seasonal coverage.

Impairment Discussion
Oak Creek <i>E. coli</i> TMDL approved by EPA in late 2010. Ongoing water quality improvements being implemented through a 319(h) grant to Oak Creek Watershed Council.

PATTON SPRING DRAW

Headwaters - Webber Creek
15060203-506
2.2 Miles

Category 3
Inconclusive

PBC - Inconclusive • AGL - Inconclusive
A&Wc - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 5/11/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
NORTH OF RIM ROAD WEST OF BAKER BUTTE	VRPSD001.63	107224	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Arsenic, boron, selenium	None	(1) pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , copper, lead, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , copper, lead, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

Low dissolved oxygen and high pH (1998)

A&Wc - Not Attaining • AGI - Inconclusive

AGL - Inconclusive • FBC - Inconclusive • FC - Inconclusive

No Exceedances

Monitoring Summary
Sampling period: no current data

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
Mid Lake	VRPEC-A	100063	ADEQ	Clean Lakes Program

Metals Samples	Nutrients & Related Samples	Other Samples
None	None	None

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	N/A
Missing Core Parameters	All
Missing Seasonal Distribution	All
Lab Detection Limits Not Low Enough	N/A

Priority	Monitoring Recommendations
Medium	Collect seasonally distributed core parameters for all designated uses. Collect samples during critical conditions to determine the effectiveness of watershed improvements to reduce nutrient loadings.

Impairment Discussion
There were not enough data to assess this lake. It remains not-attaining for low dissolved oxygen and pH. Nutrient TMDL completed in 2002.

PINE CREEK (PIE)
 Headwaters - Unnamed tributary
 15060203-049A
 8.5 Miles

Category 1
 Attaining all uses

DWS - Attaining • FC - Attaining • FBC - Attaining
 AGI - Attaining • AGL - Attaining • A&Wc - Attaining

No Exceedances

Monitoring Summary
 Sampling period: 5/11/2009 - 6/14/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
NEAR HEADWATERS	VRPIE016.49	100621	ADEQ	TMDL, Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4-5) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(4) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(4-5) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
Low	Good core parameter coverage with small number of samples.

PINE CREEK (PIE)

Unnamed Trib at 342151 / 1112646 - East Verde River
15060203-049B
11.9 Miles

Category 2
Attaining some uses

Verde

DWS - Inconclusive • FC - Attaining • FBC - Inconclusive
AGI - Attaining • AGL - Attaining • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	10 ug/L	8/15/2007	13 ug/L	DWS is inconclusive with 1 exceedance in 7 samples (binomial).
Dissolved oxygen	6.0 mg/L	8/15/2007	4.14 mg/L	A&Ww is inconclusive with 1 exceedance in 7 samples (binomial).
<i>E. coli</i>	235 cfu/100 mL, SSM	7/30/2010	238 cfu/100 mL	FBC is inconclusive with only 1 exceedance in 6 samples in last three years of assessment period.

Monitoring Summary

Sampling period: 8/15/2007 - 6/23/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE EAST VERDE RIVER	VRPIE000.29	100620	ADEQ	Ambient
AT TONTO NATURAL BRIDGE	VRPIE008.19	108362	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4-7) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc, mercury	(1-7) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-7) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, arsenic, <i>E. coli</i>
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Lead (dissolved), selenium, mercury (dissolved)

Priority	Monitoring Recommendations
Medium	Collect more arsenic, <i>E. coli</i> and dissolved oxygen samples due to exceedances. Good core parameter coverage with small number of samples.

PINE CREEK (PIN)

Headwaters - East Verde River
15060203-048
10.0 Miles

Category 3

Inconclusive

Verde

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
AGI - Inconclusive • AGL - Inconclusive
A&Ww - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 4/7/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
UPSTREAM OF SR 87 NEAR SUNFLOWER	VRPIN001.31	106984	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrate, lead, fluoride, arsenic, chromium, boron, manganese, copper, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrate, lead, fluoride, arsenic, chromium, boron, manganese, copper, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Copper (dissolved), mercury (dissolved)

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

ROUNDTREE CANYON CREEK

Headwaters - Tangle Creek
15060203-853
10.7 Miles

Category 2
Attaining some uses

FC - Attaining • FBC - Attaining • AGL - Attaining
A&Ww - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 8/13/2007 - 4/30/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
3 MILES ABOVE TANGLE CREEK	VRR0U002.93	100631	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(1-4) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-4) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	Nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	Nitrogen and phosphorus need seasonal distribution coverage.

SLAUGHTERHOUSE GULCH

Headwaters - Granite Creek
15060202-777
1.2 Miles

Category 3
Inconclusive

FC - Inconclusive • FBC - Inconclusive • A&Ww - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	1/7/2008	1733 cfu/100 mL	FBC is attaining. No exceedances in the last three years of the assessment period (7/08-6/11). Note: This exceedance was storm-related.

Monitoring Summary

Sampling period: 1/7/2008 - 2/7/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT MOUNTAIN HOLLOW DRIVE	VRSHG000.77	107564	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	(2) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2) Dissolved oxygen, <i>E. coli</i> , pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> samples to verify attainment status. All core parameters need seasonal distribution and sample number coverage.

SPRING CREEK (SPN)

Coffee Creek - Oak Creek
15060202-022
6.4 Miles

Category 4A

Not attaining

IMPAIRMENT STATUS

E. coli (2006)

FC - Attaining • FBC - Not attaining • AGI - Attaining
AGL - Attaining • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 ml, SSM	8/22/2006	1413 cfu/100 mL	FBC remains not attaining. No new data since last assessment.
		5/27/2007	770 cfu/100 mL	
		7/24/2007	1986 cfu/100 mL	
		8/7/2007	387 cfu/100 mL	
		8/14/2007	340 cfu/mL	

Monitoring Summary

Sampling period: 7/11/2006 - 6/16/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE WILLOW POINT ROAD	VRSPN002.09	101879	Friends of the Forest	Volunteer
ABOVE DIVERSION DAM	VRSPN000.78	100195	ADEQ	SEM

Metal Samples	Nutrients & Related Samples	Other Samples
(4-7) Antimony, arsenic, beryllium, cadmium, copper, lead, mercury	(2-4) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-30) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	Nitrogen, phosphorus
Missing Seasonal Distribution	Nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Copper (dissolved), lead (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
High	Collect at least 3 each nitrogen and phosphorus to represent 3 seasons of year and complete core parameter coverage.

Impairment Discussion
Oak Creek <i>E. coli</i> TMDL, expanded to include this reach, was approved by EPA in late 2010. Ongoing water quality improvements being implemented through a 319(h) grant to Oak Creek Watershed Council.

STERLING CANYON

Headwaters - Oak Creek
15060202-424
3.0 Miles

Category 3
Inconclusive

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
SSC	25 mg/L	1/6/2008	41 mg/L	A&Wc is attaining. This exceedance occurred during a storm event and was excluded from assessment.

Monitoring Summary

Sampling period: 1/6/2008 - 4/24/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE STERLING SPRING HATCHERY	VRSTC000.10	101923	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-2) Dissolved oxygen, <i>E. coli</i> , pH, SSC

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	All core parameters need sample number and seasonal distribution coverage.

High pH and low dissolved oxygen (1998)

FC - Not attaining • FBC - Not attaining • AGI - Not attaining
AGL - Not attaining • A&Wc - Not attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
pH	9.0 SU	4/16/2008	9.2 SU	AGI, AGL, A&Wc, and FBC remain not attaining with 1 exceedance in 1 sample.

Monitoring Summary
Sampling period: 4/16/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT DAM	VRSTN-A	100086	ADEQ	CLP

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	pH
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, lead
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved)

Priority	Monitoring Recommendations
High	Not enough data to assess – all core parameters need sample number and seasonal coverage.

Impairment Discussion

Remains not attaining for high pH and low DO (1998). TMDL completed in 2001.

SYCAMORE CREEK (SYH)

Headwaters - Verde River
15060203-055
13.1 Miles

Category 2

Attaining some uses

Verde

FC - Attaining • FBC - Inconclusive • AGL - Attaining
A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	30 ug/L	8/13/2007	43 ug/L	FBC is inconclusive with 1 exceedance in 4 samples (binomial).
Dissolved oxygen	6.0 mg/L	8/13/2007	5.58 mg/L	A&Ww is inconclusive with 1 exceedance in 4 samples (binomial).

Monitoring Summary

Sampling period: 8/13/2007 - 5/16/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE SHEEPS BRIDGE	VRSYH000.25	100656	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(1-4) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-4) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen, arsenic
Missing Core Parameters	None
Missing Seasonal Distribution	Nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Lead (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	Collect more arsenic and dissolved oxygen samples due to exceedances. Nitrogen and phosphorus need seasonal distribution coverage.

SYCAMORE CREEK (SYM)

Headwaters - Verde River
15060203-002
34.6 Miles

Category 3

Inconclusive

FC - Inconclusive • FBC - Inconclusive • AGI - Inconclusive
AGL - Inconclusive • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Dissolved oxygen	6.0 mg/L	6/4/2008	4.31 mg/L	A&Ww is inconclusive with 1 exceedance in 2 samples (binomial).

Monitoring Summary

Sampling period: 6/4/2008 - 3/14/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT ROUND VALLEY UP-STREAM OF BRIDGE	VRSYM022.45	106402	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1-2) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-2) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Dissolved oxygen
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper
Lab Detection Limits Not Low Enough	Mercury (dissolved)

Priority	Monitoring Recommendations
Low	Collect more dissolved oxygen samples to determine assessment status. All core parameters need sample number and seasonal distribution coverage.

SYCAMORE CREEK (SYW)

Cedar Creek - Verde River
15060202-026
11.7 Miles

Category 2

Attaining some uses

FC - Attaining • FBC - Inconclusive • AGI - Attaining
AGL - Attaining • A&Ww - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 8/15/2007 - 11/4/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT MOUTH	VRSYW000.77	100198	ADEQ	Ambient
BELOW SUMMERS SPRING	VRSYW001.72	100199	ADEQ	Ambient
AT MOUTH USGS	VRSYW000.05	101558	USGS	USGS Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(2-4) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-5) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	<i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Dissolved oxygen, <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Lead (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	Collect at least 3 dissolved oxygen, nitrogen, phosphorus, and <i>E. coli</i> samples over 3 seasons of year to complete core parameter coverage.

UNNAMED TRIB (UPM) TO PUMPHOUSE WASH

Headwaters - Pumphouse Wash
15060202-463
2.4 Miles

Category 3
Inconclusive

PBC - Inconclusive • A&We - Inconclusive

Use Support

No Exceedances

Monitoring Summary

Sampling period: 1/6/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW HIGHWAY 89	VRUPM000.01	106383	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	None	(1) <i>E. coli</i> , pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

UNNAMED TRIB TO SYCAMORE CR E. FORK
 Headwaters - Sycamore Creek East Fork
 15060203-262
 1.3 Miles

Category 3
 Inconclusive

Verde

PBC - Inconclusive • A&We - Inconclusive

Use Support

No Exceedances

Monitoring Summary
 Sampling period: 6/4/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE FR 25 CROSSING	VRUES000.33	106803	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Mercury	None	(1) Dissolved oxygen, pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

UNNAMED TRIB TO WILLOW CREEK
 Headwaters - Willow Creek
 15060202-756
 8.2 Miles

Category 3
 Inconclusive

FC - Inconclusive • FBC - Inconclusive • A&Wc - Inconclusive

Use Support

No Exceedances

Monitoring Summary
 Sampling period: 1/26/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE RIFLE RANGE	VRUWC000.71	107602	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Lead	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1) <i>E. coli</i>

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i>
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

UNNAMED TRIB TO WILLOW RESERVOIR

Headwaters to Willow Creek
15060202-758
3.8 Miles

Category 3
Inconclusive

FBC - Inconclusive • A&We - Inconclusive

Use Support

No Exceedances

Monitoring Summary

Sampling period: 1/27/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW PRESCOTT LAKES GOLF COURSE	VRUWR000.47	107603	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	None

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved)
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

UNNAMED TRIB (UOA) TO OAK CREEK
 Headwaters - Oak Creek
 15060202-938
 1.2 Miles

Category 3
 Inconclusive

PBC - Inconclusive • A&We - Inconclusive
 Use Support

No Exceedances

Monitoring Summary
 Sampling period: 1/6/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW PINE FLATS	VRUOA000.04	106382	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
None	None	(1) <i>E. coli</i> , pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

VERDE RIVER

Unnamed Trib (065) - Railroad Draw
15060202-037
10.7 Miles

Category 2
Attaining some uses

Verde

FC - Attaining • FBC - Attaining • AGI - Inconclusive
AGL - Inconclusive • A&Ww - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 12/2/2006 - 9/16/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW PERKINSVILLE BRIDGE	VRVER164.63	100487	Sierra Club	Volunteer

Metal Samples	Nutrients & Related Samples	Other Samples
(5-9) Arsenic, mercury	(9) Nitrogen, phosphorus, total Kjeldahl nitrogen	(9-11) <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Most core parameters need seasonal distribution and/or sample number coverage. Originally listed under the turbidity standard (since repealed) and then SSC but with no evidence of continuing solids problems, this reach has been delisted.

VERDE RIVER

15060203 boundary - West Clear Creek
 15060203-027
 6.4 Miles

Category 2

Attaining some uses

FC - Attaining • FBC - Inconclusive • AGI - Inconclusive
 AGL - Inconclusive • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	30 ug/L	8/28/2007	33 ug/L	FBC is attaining with 1 exceedance in 13 samples (binomial).
<i>E. coli</i>	235 cfu/100 mL	8/16/2008	3630 cfu/100 mL	FBC is inconclusive with 1 exceedance in 11 sample.
pH	9.0 SU	2/17/2007	9.4 SU	AGI, AGL, A&Ww, and FBC are attaining with 1 exceedance in 13 samples (binomial).

Monitoring Summary

Sampling period: 12/2/2006 - 8/16/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
WHITE BRIDGE	VRVER112.98	106101	Sierra Club	Volunteer
ABOVE WEST CLEAR CREEK USGS 09505570	VRVER107.53	100750	ADEQ	Ambient
0.25 MILE BELOW STATION 095055.50	VRVER112.88	104139	USGS	USGS
ABOVE DAMND S FINAL WASTE NEAR CAMP VERDE, AZ.	VRVER108.95	104120	USGS	USGS

Metal Samples	Nutrients & Related Samples	Other Samples
(3-13) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(2-12) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(4-15) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	None
Missing Seasonal Distribution	Zinc (dissolved), cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	Mercury (dissolved), nickel (dissolved), selenium

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> samples due to exceedances. A number of core parameters need seasonal distribution.

Arsenic (2010)

IMPACT

STATUS

DWS - Impaired • FC - Attaining • FBC - Attaining
 AGI - Attaining • AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	10 ug/L	8/22/2006	11 ug/L	DWS remains impaired with 23 exceedances in 31 samples. No new data in this assessment period.
		1/16/2007	14 ug/L	
		2/7/2007	14.5 ug/L	
		2/13/2007	13 ug/L	
		3/14/2007	13.1 ug/L	
		4/17/2007	12 ug/L	
		5/10/2007	11.3 ug/L	
		5/14/2007	12 ug/L	
		6/11/2007	14 ug/L	
		7/16/2007	15 ug/L	
		7/24/2007	14.2 ug/L	
		8/13/2007	15 ug/L	
		9/10/2007	16 ug/L	
		10/15/2007	16 ug/L	
		11/12/2007	19 ug/L	
		12/11/2007	14 ug/L	
		1/14/2008	11 ug/L	
		9/15/2008	11 ug/L	
		9/25/2008	11 ug/L	
		10/13/2008	11 ug/L	
11/10/2008	11 ug/L			
12/8/2008	12 ug/L			
12/18/2008	11.9 ug/L			

Monitoring Summary

Sampling period: 7/11/2006 - 12/18/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW BARTLETT LAKE	VRVER024.22	103133	SRP	Ambient
BELOW BARTLETT DAM USGS 09510000	VRVER022.53	100741	USGS	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(21-40) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(10-40) Nitrate, nitrite, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-40) Dissolved oxygen, <i>E. coli</i> , naphthalene, pH, SSC, total dissolved solids, styrene, , tetrachloroethylene, toluene, trichlorobenzene, trichloroethane 111, trichloroethane 112, trichloroethylene, trihalomethanes, vinylchloride, xylene, tetrachloroethane

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Arsenic
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Beryllium, dibromochloropropane, lead (dissolved), nitrate, selenium, tetrachloroethylene, thallium, hexachlorobutadiene, tetrachloroethane

Priority	Monitoring Recommendations
High	Collect more arsenic samples in support of TMDL development. Good core parameter coverage.

Impairment Discussion
Remains impaired for arsenic (2010).

FC - Attaining • FBC - Attaining • AGI - Inconclusive
 AGL - Inconclusive • A&Ww - Inconclusive

No Exceedances

Monitoring Summary
 Sampling period: 12/2/2006 - 9/16/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT BULL BASIN CANYON USGS	VRVER177.42	101566	Sierra Club	Volunteer
BELOW GRANITE CREEK USGS	VRVER187.15	101556	Sierra Club	Volunteer

Metal Samples	Nutrients & Related Samples	Other Samples
(6-10) Arsenic, mercury	(10) Nitrogen, phosphorus, total Kjeldahl nitrogen	(10-12) <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Most core parameters need seasonal distribution and/or sample number coverage.

VERDE RIVER

Hell Canyon - Unnamed Trib (065)
15060202-038
6.0 Miles

Category 1

Attaining all uses

Verde

FC - Attaining • FBC - Attaining • AGI - Attaining
AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
pH	6.5 SU	11/16/2010	6.28 SU	AGL, FBC, & AGI are attaining with 1 exceedance in 20 samples (binomial).
SSC	80 mg/L	8/14/2007	117 mg/L	A&Ww is attaining with 0 median exceedances in 4 samples.

Monitoring Summary

Sampling period: 12/2/2006 - 4/26/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT US MINE 2, USGS	VRVER169.04	101570	Sierra Club	Volunteer
ABOVE PERKINSVILLE BRIDGE	VRVER165.07	100672	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(8-17) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(7-15) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(5-20) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Selenium, mercury (dissolved)

Priority	Monitoring Recommendations
Low	Good core parameter coverage though possibly more sampling than warranted by overall water quality situation.

FC - Inconclusive • FBC - Inconclusive • AGI - Inconclusive
AGL - Inconclusive • A&Ww - Inconclusive

No Exceedances

Monitoring Summary
Sampling period: 6/21/2007 - 6/21/2007

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE BEAVER CREEK NEAR CAMP VERDE, AZ.	VRVER115.33	104144	USGS	USGS
ABOVE I-17 BRIDGE, CAMP VERDE, AZ	VRVER117.07	100484	USGS	USGS
BELOW HEAD OF EUREKA DITCH NEAR CAMP VERDE, AZ.	VRVER121.99	104119	USGS	USGS
BELOW OK DITCH TURN OUT NEAR CORNVILLE, AZ.	VRVER124.79	104160	USGS	USGS

Metal Samples	Nutrients & Related Samples	Other Samples
None	None	(3-4) Dissolved oxygen, pH

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, lead, nitrogen, phosphorus
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, lead, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	All core parameters need seasonal distribution and most need sample number coverage as well.

FC - Attaining • FBC - Attaining • AGI - Attaining
AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Mercury ^d	0.010 ug/L	2/27/2008	0.011 ug/L	A&Ww chronic is attaining. This exceedance occurred during a storm event and does not represent chronic conditions.
SSC	80 mg/L	8/10/2006	91 mg/L	A&Ww is attaining with no median exceedances in 14 samples. One single sample exceedance (8/14/2007) occurred during a storm event.
		8/14/2007	119 mg/L	
		8/23/2007	137 mg/L	

Monitoring Summary

Sampling period: 8/10/2006 - 12/3/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
NEAR CLARKDALE, AZ USGS 09504000	VRVER150.65	100738	USGS	Ambient
AT TUZIGOOT BRIDGE USGS	VRVER139.99	101546	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(10-31) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(4-29) Ammonia, nitrite/nitrate, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(4-32) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	SSC does not appear to be a problem here and was delisted in 2010 from original impairment status under the old turbidity standard. With no other exceedances, large number of samples seems out of proportion to overall water quality situation.

FC - Attaining • FBC - Attaining • AGI - Attaining
AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	9/26/2007	530 cfu/100 mL	FBC is attaining. No exceedances in last three years of assessment period (7/08-6/11), 10 samples total.
SSC	80 mg/L	9/27/2006	81 mg/L	A&Ww is attaining with no median exceedances in 10 samples.
		3/28/2007	99 mg/L	
		9/26/2007	282 mg/L	

Monitoring Summary

Sampling period: 9/27/2006 - 11/26/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW TANGLE CREEK USGS 09508500	VRVER053.21	100740	USGS	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(10) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(10) Nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(10) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Collect more <i>E. coli</i> to ascertain assessment status. Good core parameter coverage with relatively low number of samples.

FC - Attaining • FBC - Inconclusive • AGI - Inconclusive
 AGL - Inconclusive • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
pH	9.0 SU	2/17/2007	9.5 SU	AGI, AGL, A&Ww, and FBC are attaining with 1 exceedance in 10 samples (binomial).

Monitoring Summary
 Sampling period: 12/2/2006 - 8/16/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BEASLEY FLAT	VRVER103.19	106122	Sierra Club	Volunteer
AT BEASLEY FLAT	VRVER103.73	100677	USGS	Ambient
NEAR CAMP VERDE, AZ USGS 09506000	VRVER099.45	100766	USGS	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(5-9) Arsenic, mercury	(8-9) Nitrogen, phosphorus, total Kjeldahl nitrogen	(2-10) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, cadmium (dissolved), copper (dissolved), boron, manganese, copper, lead
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Several core parameters need both sample number and seasonal distribution coverage.

FC - Attaining • FBC - Inconclusive • AGI - Attaining
 AGL - Attaining • A&Ww - Inconclusive

No Exceedances

Monitoring Summary
 Sampling period: 7/11/2006 - 12/8/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE HORSESHOE RESERVOIR	VRVER054.62	103408	SRP	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(21-30) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(24-30) Nitrate, nitrite, phosphorus	(1-30) Naphthalene, pH, total dissolved solids, styrene, tetrachloroethane, tetrachloroethylene, toluene, trichlorobenzene, trichloroethane 111, trichloroethane 112, trichloroethylene, trihalomethanes, vinylchloride, xylene

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , nitrogen
Lab Detection Limits Not Low Enough	Nitrate, selenium

Priority	Monitoring Recommendations
Low	Completing A&W and FBC core parameter coverage will move reach to attaining all uses status.

FC - Attaining • FBC - Attaining • AGI - Attaining
 AGL - Attaining • A&Ww - Attaining

No Exceedances

Monitoring Summary
 Sampling period: 7/20/2010 - 4/25/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW FOREST SERVICE ROAD 618	VRWLK000.99	108382	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(4) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(4) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Mercury (dissolved)

Priority	Monitoring Recommendations
Low	Good core parameter coverage with small number of samples.

Nitrogen, low dissolved oxygen, and high pH (EPA 2004)

FC - Inconclusive • FBC - Impaired • AGI - Impaired
AGL - Impaired • A&Ww - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
pH	9.0 SU	8/8/2007	9.2 SU	AGI, AGL, A&Ww, and FBC remain impaired with 4 exceedances in 12 samples.
		7/22/2009	9.8 SU	
		6/25/2010	9.4 SU	
		6/16/2011	9.5 SU	

Monitoring Summary
Sampling period: 1/10/2007 - 6/16/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
MID LAKE	VRWAT-B	101354	ADEQ	CLP
AT DAM	VRWAT-A	101353	AGFD	CLP
SOUTH END	VRWAT-SO	102564	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1-14) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(1-21) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphate, phosphorus, total Kjeldahl nitrogen	(10-26) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	pH
Missing Core Parameters	None
Missing Seasonal Distribution	Zinc (dissolved), boron
Lab Detection Limits Not Low Enough	Cadmium (dissolved), lead (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
High	Collect more pH, nitrogen, and dissolved oxygen samples to support TMDL development. Collect boron and dissolved zinc to represent 3 seasons to complete core parameter coverage.

Impairment Discussion
Remains impaired for nitrogen, dissolved oxygen, and pH (EPA, 2004).

WEBBER CREEK

Headwaters - East Verde River
15060203-058
14.3 Miles

Category 2
Attaining some uses

FC - Attaining • FBC - Inconclusive • AGL - Attaining
A&Wc - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	7/20/2010	313 cfu/100 mL	FBC is inconclusive with 1 exceedance in 4 samples in last three years of assessment period. Single exceedance occurred during flood event.

Monitoring Summary

Sampling period: 5/12/2009 - 6/22/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW GERONIMO BOY SCOUT CAMP	VRWEB009.13	100690	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(3-5) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(4) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(4-5) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved)

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> samples to investigate exceedance. Good core parameter coverage.

PBC - Inconclusive • AGL - Inconclusive

No Exceedances

Monitoring Summary
 Sampling period: 3/28/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE CONFLUENCE WITH WEBBER CREEK	VRWES000.03	108742	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(1) Arsenic, boron, manganese, selenium	None	(1) Dissolved oxygen, pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	pH, <i>E. coli</i> , copper, lead
Missing Seasonal Distribution	pH, <i>E. coli</i> , copper, lead
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Low	Not enough data to assess. All core parameters need sample number and seasonal distribution coverage.

WEST CLEAR CREEK

Headwaters - Meadow Canyon
15060203-026A
13.1 Miles

Category 2
Attaining some uses

FC - Attaining • FBC - Inconclusive • AGL - Attaining
A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
SSC	25 mg/L	8/31/2007	41 mg/L	A&Wc is inconclusive. Not enough samples to calculate a median.

Monitoring Summary

Sampling period: 8/31/2007 - 7/9/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT MAXWELL TRAIL	VRWCL036.37	100205	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(3) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-4) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	SSC
Missing Core Parameters	<i>E. coli</i>
Missing Seasonal Distribution	Copper (dissolved), <i>E. coli</i>
Lab Detection Limits Not Low Enough	Cadmium (dissolved), nickel (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
Medium	Collect more SSC samples to investigate exceedance. Good core parameter coverage with small number of samples.

WEST CLEAR CREEK

Meadow Canyon - Verde River
15060203-026B
23.5 Miles

Category 2

Attaining some uses

Verde

FC - Attaining • FBC - Attaining • AGI - Attaining
AGL - Attaining • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Biocriteria	IBI ≥ 50 attaining IBI 40 - 49 inconclusive IBI ≤ 39 violating	4/29/2008	IBI 48	A&Ww is inconclusive.

Monitoring Summary

Sampling period: 7/6/2006 - 6/9/2011

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT CAMPGROUND	VRWCL005.10	100689	ADEQ	Ambient
NEAR CAMP VERDE, AZ USGS 0950580	VRWCL010.66	100749	ADEQ, USGS	USGS, Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4-8) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(1-15) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrite/nitrate, nitrogen, phosphate, phosphorus, total Kjeldahl nitrogen	(3-20) Dissolved oxygen, <i>E. coli</i> , pH, SSC, simazine, total dissolved solids, biocriteria

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Biocriteria
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Mercury (dissolved), nickel (dissolved), nitrate (dissolved), nitrite (dissolved), selenium, dipthalate

Priority	Monitoring Recommendations
Medium	Collect more biocriteria to determine A&WW attainment status. Good core parameter coverage with relatively low number of samples.

WEST FORK OAK CREEK

Headwaters - Oak Creek
 15060202-020
 15.8 Miles
 Outstanding Arizona Water

Category 2

Attaining some uses

FC - Attaining • FBC - Attaining • AGL - Attaining
 A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
SSC	25 mg/L	1/6/2008	133 mg/L	A&Wc is attaining with 0 median exceedances in 4 samples.

Monitoring Summary

Sampling period: 8/13/2007 - 6/16/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE FOURTH TRAIL CROSSING	VRWOK000.82	100693	ADEQ	Ambient
AT MOUTH	VRWOK000.10	101865	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc	(3-5) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(5-8) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	Nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), lead (dissolved)

Priority	Monitoring Recommendations
Low	Collect nitrogen and phosphorus samples to reflect 3 seasons of year to complete core parameter coverage.

WET BEAVER CREEK

Long Canyon - Rarick
15060202-004
6.5 Miles

Category 2

Attaining some uses

Verde

FC - Attaining • FBC - Inconclusive • AGI - Attaining
AGL - Attaining • A&Ww - Inconclusive

No Exceedances

Monitoring Summary

Sampling period: 8/29/2007 - 11/6/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT CAMPGROUNDS	VRWBV009.31	100684	USGS	USGS
UPSTREAM OF USGS GAGE NEAR RIMROCK	VRWBV012.56	102468	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(2-3) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(3-5) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	Copper (dissolved), <i>E. coli</i>
Lab Detection Limits Not Low Enough	Lead (dissolved), nickel (dissolved), mercury (dissolved), selenium

Priority	Monitoring Recommendations
Low	Collect dissolved copper and <i>E. coli</i> samples to represent 3 seasons of year to complete core parameter coverage.

WET BEAVER CREEK

Rarick - Dry Beaver Creek
15060202-003
6.6 Miles

Category 3
Inconclusive

FC - Inconclusive • FBC - Inconclusive • AGI - Inconclusive
AGL - Inconclusive • A&Ww - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Arsenic	30 ug/L	8/28/2007	49 ug/L	FBC is inconclusive with 2 exceedances in 4 samples (binomial).
		11/6/2007	32 ug/L	
<i>E. coli</i>	235 cfu/100 mL, SSM	8/28/2007	480 cfu/100 mL	FBC is inconclusive with 1 exceedance in 2 samples.
pH	6.5 SU	8/28/2007	6.05 SU	A&Ww, AGL, and FBC are inconclusive. Only one exceedance in the assessment period.
Biocriteria	IBI ≥ 50 attaining IBI 40-49 inconclusive IBI ≤ 39 violating	4/28/2008	IBI 45	A&Ww is inconclusive.
SSC	80 mg/L	8/28/2007	106 mg/L	A&Ww is attaining with no median exceedances.

Monitoring Summary

Sampling period: 8/28/2007 - 4/28/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW MONTEZUMA ROAD	VRWBV002.97	105440	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, zinc, selenium	(2-3) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-4) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, biocriteria

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Arsenic, <i>E. coli</i> , biocriteria
Missing Core Parameters	<i>E. coli</i>
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, lead, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Mercury (dissolved), nickel (dissolved), selenium

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> , arsenic, pH, and biocriteria samples to determine attainment status. All core parameters need seasonal coverage.

FC - Inconclusive • FBC - Inconclusive • AGL - Inconclusive
 A&Wc - Inconclusive

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
<i>E. coli</i>	235 cfu/100 mL, SSM	1/27/2008	308 cfu/100 mL	FBC is inconclusive with 1 exceedance in last three years of assessment period (7/08-6/11), 7 samples total.
		12/18/2008	365 cfu/100 mL	
SSC	25 mg/L	12/18/2008	268 mg/L	A&Wc is attaining. This exceedance occurred within 48 hours of a local storm event.

Monitoring Summary
 Sampling period: 12/12/2007 - 1/26/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT PLEASANT VALLEY ABOVE JACK DRIVE	VRWIL004.32	107543	ADEQ	TMDL
AT WILDWOOD BELOW RIFLE RANGE	VRWIL007.25	107544	ADEQ	TMDL

Metal Samples	Nutrients & Related Samples	Other Samples
(4) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(8) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-8) Dissolved oxygen, <i>E. coli</i> , pH, SSC

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	<i>E. coli</i>
Missing Core Parameters	None
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , copper, lead
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), pH

Priority	Monitoring Recommendations
Medium	Collect more <i>E. coli</i> samples to determine assessment status. All core parameters need seasonal distribution coverage.

WILLOW CREEK RESERVOIR

15060202-1660
294 Acres

Category 5
Impaired

IMPACT STATUS

Add Ammonia to the 303(d) list

FC - Inconclusive • FBC - Inconclusive • AGI - Inconclusive
AGL - Inconclusive • A&Ww - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Ammonia	0.35 mg/L ^{chronic} @ pH > 9.0 and T = 19.4 °C	7/23/2009	1.04 mg/L	A&Ww is impaired with 2 exceedances in 3 samples.
	0.36 mg/L ^{chronic} @ pH > 9.0 and T = 19.3 °C	6/24/2010	0.39 mg/L	
Dissolved oxygen	6.0 mg/L	8/7/2007	4.1 mg/L	A&Ww is inconclusive with 1 exceedance in 4 samples (binomial).
pH	9.0 SU	8/7/2007	10 SU	AGI, AGL, A&Ww, and FBC are inconclusive with 3 exceedances in 4 samples (binomial).
		7/23/2009	10 SU	
		6/24/2010	9.9 SU	

Monitoring Summary

Sampling period: 8/7/2007 - 6/24/2010

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
AT DAM	VRWIC-A	101922	ADEQ	TMDL
AT MID LAKE	VRWIC-NLS	105804	ADEQ	CLP

Metal Samples	Nutrients & Related Samples	Other Samples
(1-3) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(1-4) Ammonia, nitrate, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-4) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	pH, dissolved oxygen
Missing Core Parameters	<i>E. coli</i> , boron
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , boron, manganese, copper, lead, nitrogen, phosphorus
Lab Detection Limits Not Low Enough	Lead (dissolved), selenium

Priority	Monitoring Recommendations
High	Collect more ammonia samples to support TMDL development. Collect more dissolved oxygen and pH samples due to exceedances. All core parameters need seasonal coverage, <i>E. coli</i> and boron need sample number coverage as well.

Impairment Discussion
Add ammonia to the 303(d) list.