CHAPTER III
SUMMARY INFORMATION

This chapter provides a summary of assessed surface waters. Progress and comparisons with previous assessments are illustrated in the following chapter. Statewide summary statistics can provide a general sense of the status of water quality in Arizona. The statistics in this chapter exclude surface waters on tribal lands. Also, the statistics include waters that EPA listed as impaired in previous assessments.

Assessed Waters

Overall 68 (100463 acres) lakes and 367 (3956 miles) stream segments were assessed in this report. The following tables show the change in stream miles and lake acres assessed from 2002 to 2010. These tables exclude the surface waters assessed in Category 3 (all uses "inconclusive") because by default any water from which no existed would belong in this category.

TOTAL WATERS ASSESSED

Support Type	Lakes/Acres				Streams/Miles			
	2002	2004	2006/8	2010	2002	2004	2006/8	2010
Estimated Waters	289630	289630	295590	295590	90375	90375	90375	90375
Water Assessed	40948	67340	88672	86234	1671	2227	2806	2497
Percent Assessed	14%	23%	30%	29%	2.0%	2.5%	3.0%	2.8%

*Waters Assessed excludes Category 3 – all uses assessed as "inconclusive"
*Estimated lake water size increased in 2006/08 due to enlargement of reservoirs.

The Total Waters Assessed table (above) indicates that a very low percentage of the state's surface waters are assessed. This is primarily due to the fact that the majority of waters in Arizona are ephemeral (flowing in response only to precipitation events) and not easily sampled. The Total Perennial Waters Assessed table (below) adjusts for this by only looking at perennial lake acres and stream miles. Most ambient monitoring is focused on perennial waters (waters that flow year round). Monitoring ephemeral and intermittent waters is limited to special investigations, such as TMDL development.

TOTAL PERRENIAL WATERS ASSESSED

Support Type	Lakes/Acres				Streams/Miles			
	2002	2004	2006/8	2010	2002	2004	2006/8	2010
Estimated Perrenial Waters	168590	168590	174558	174558	3530	3530	3530	3530
Perrenial Water Assessed	39873	66264	87773	85192	1405	2081	2685	2025
Percent Perrenial Waters Assess	24%	39%	50%	49%	40.0%	59.0%	76.0%	57%

* Perennial Waters Assessed excludes Category 3 – all uses assessed as "inconclusive"

As shown in the Perennial Waters Assessed table (above), a steady increase in the percent of perennial surface waters occurred from 2002 to 2008. However, the percent perennial waters assessed fell from 2008 to 2010, likely due to declining monitoring resources.

Another way to look at the effort and effectiveness of monitoring programs is to look at the number of lakes and stream reaches assessed. This is particularly revealing with lakes, as their sizes vary from less than an acre to 27,000 acres. Therefore, monitoring and assessing 20 small, but significant lakes might account for fewer acres than one large reservoir but provides for a larger sampling program. This is shown when comparing 2006/8 to 2010 where the number of lakes assessed as attaining or impaired decreased by about 50% but the number of acres only decreased by approximately 2400 acres.

NUMBER OF UNITS & ACRES/MILES ASSESSED

Support Type	Lakes				Stream Reaches			
	2002	2004	2006/8	2010	2002	2004	2006/8	2010
Assessment Units Assessed	30	51	79	39	137	172	298	213
Waters Assessed - Acres/ Miles	40948	67340	88663	86234	1671	2227	2801	2497

*Excluding Category 3 – all uses assessed as "inconclusive"

Assessed Waters by Category

The table below illustrates how the 68 lakes and 367 streams reaches were assessed. The greatest number of waters were assessed as inconclusive (Category 3).

STATUS OF ASSESSED WATERS 2010

Use Support Category	# Lakes	Acres	# Reaches	Miles
Category 1 (Attaining all uses)	0	0	25	293
Category 2 (Attaining some uses)	6	23609	82	1053
Category 3 (Inconclusive)	29	14229	161	1523
Categories 4A, 4B, 4A/5 (Not attaining)	12	2732	42	309
Category 5 (Impaired)	21	59893	57	778
Total Assessed	**68**	**100463**	**367**	**3956**
Total Attaining or Impaired	39	86234	206	2433

Approximately 24% of the lake acres and 34% of the stream miles assessed are attaining all or some of their uses, as compared to 78 and 50% respectively in the 2006/8 Assessment.. Lake acres impaired increased from about 10 to 60% though less lakes were assessed. Stream impairment miles dropped from 31% to 19%..

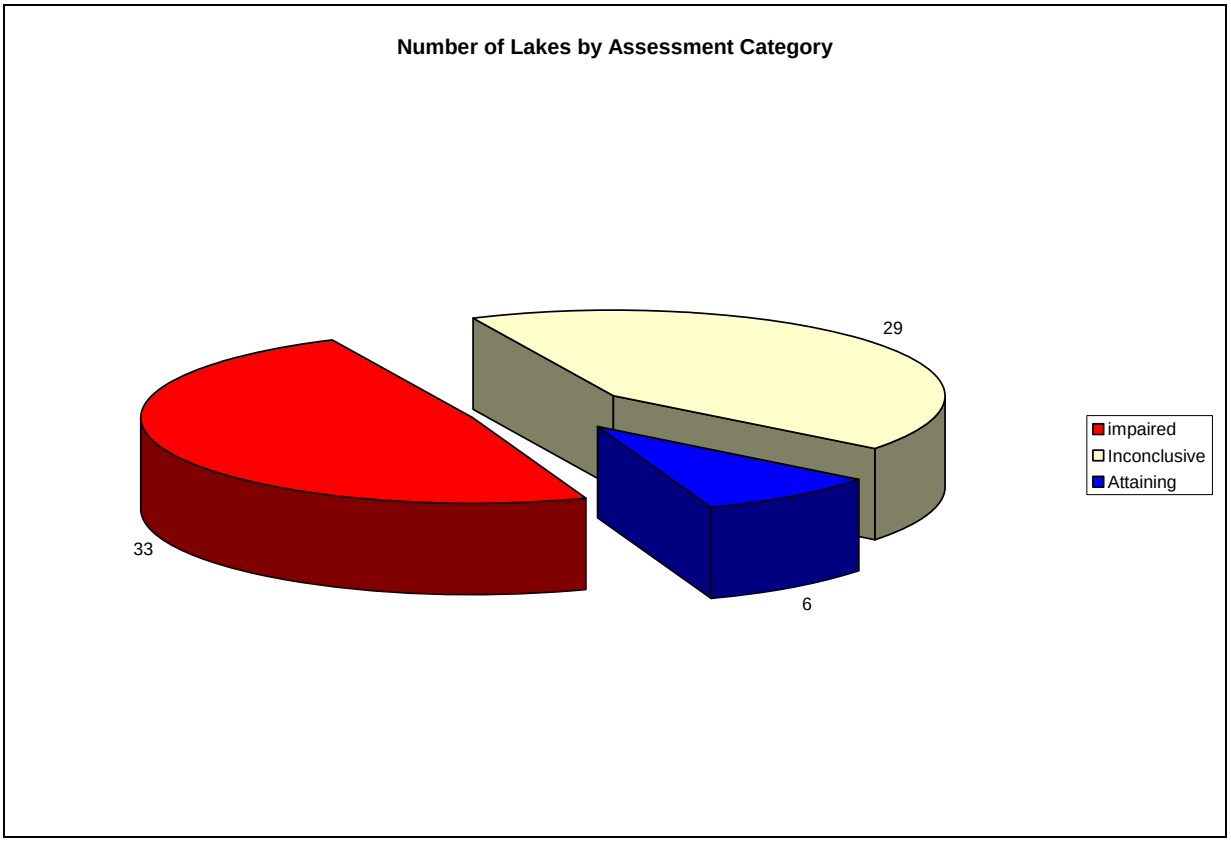
STATUS OF ASSESSED WATERS 2006-8

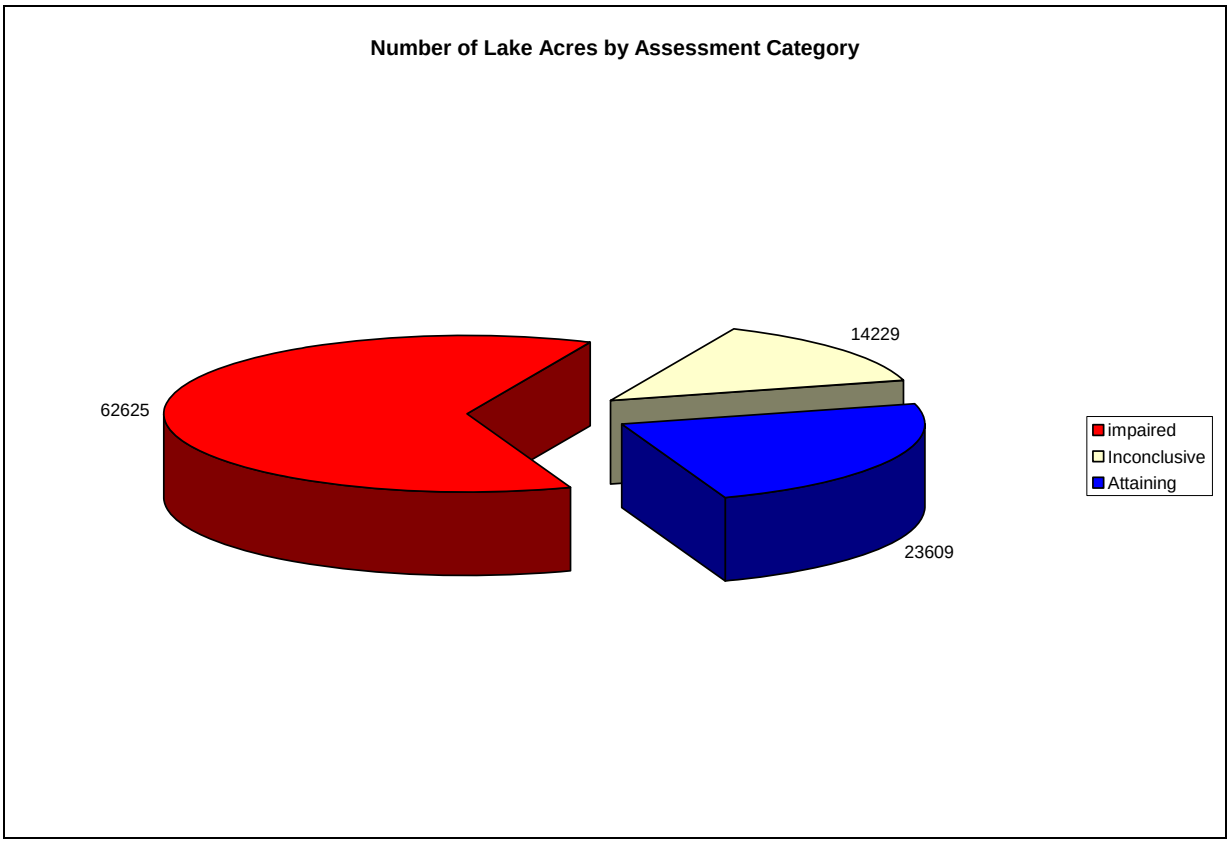
Use Support Category	Lakes	Acres	Reaches	Miles
Category 1 (Attaining all uses)	2	2975	71	1053
Category 2 (Attaining some uses)	24	76518	61	681
Category 3 (Inconclusive)	26	12986	75	629
Category 4 (Not attaining)	7	630	35	267
Category 4N (Natural Conditions)	3	40	7	55
Category 5 (Impaired)	5	2671	41	620
EPA overfile	16	5877	20	186
Total	83	101697	310	3491

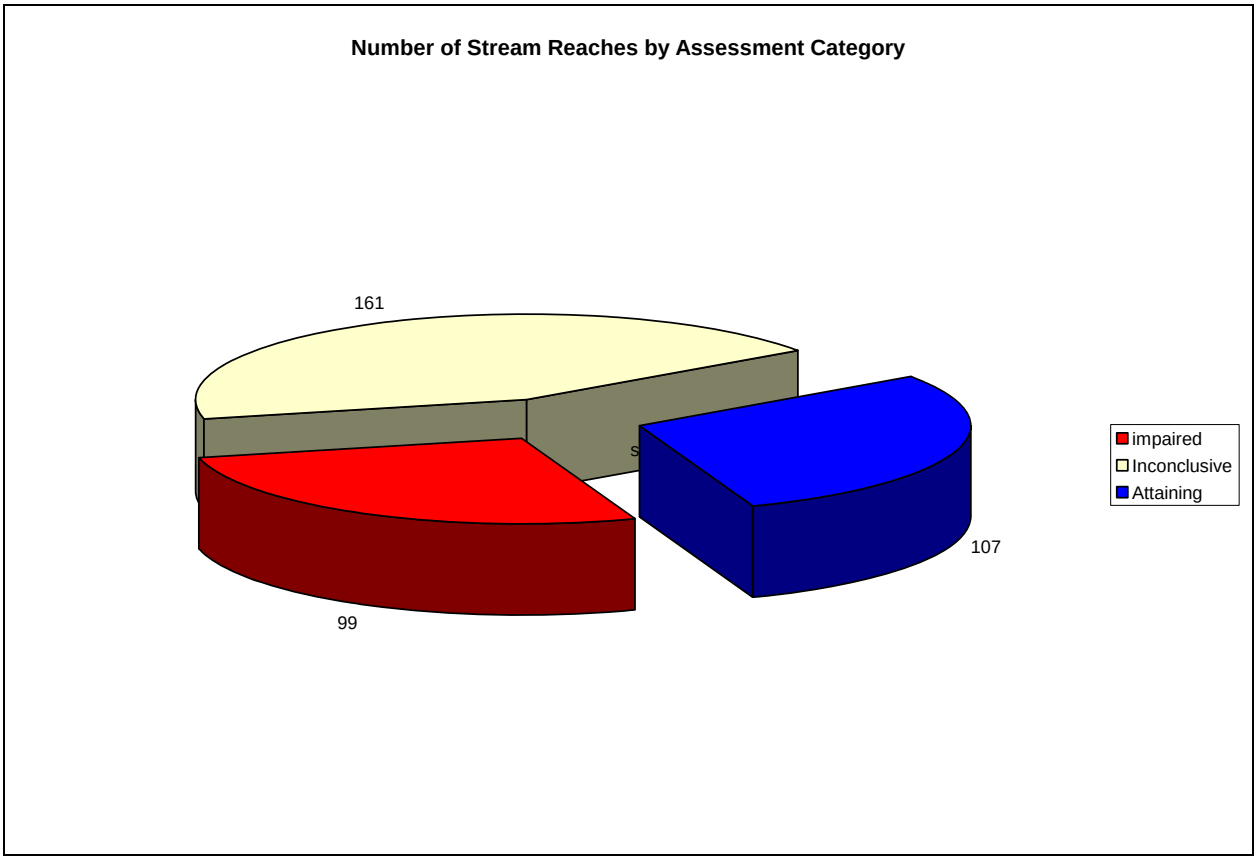
*EPA overfiling supersedes ADEQ status (only one status per unit)

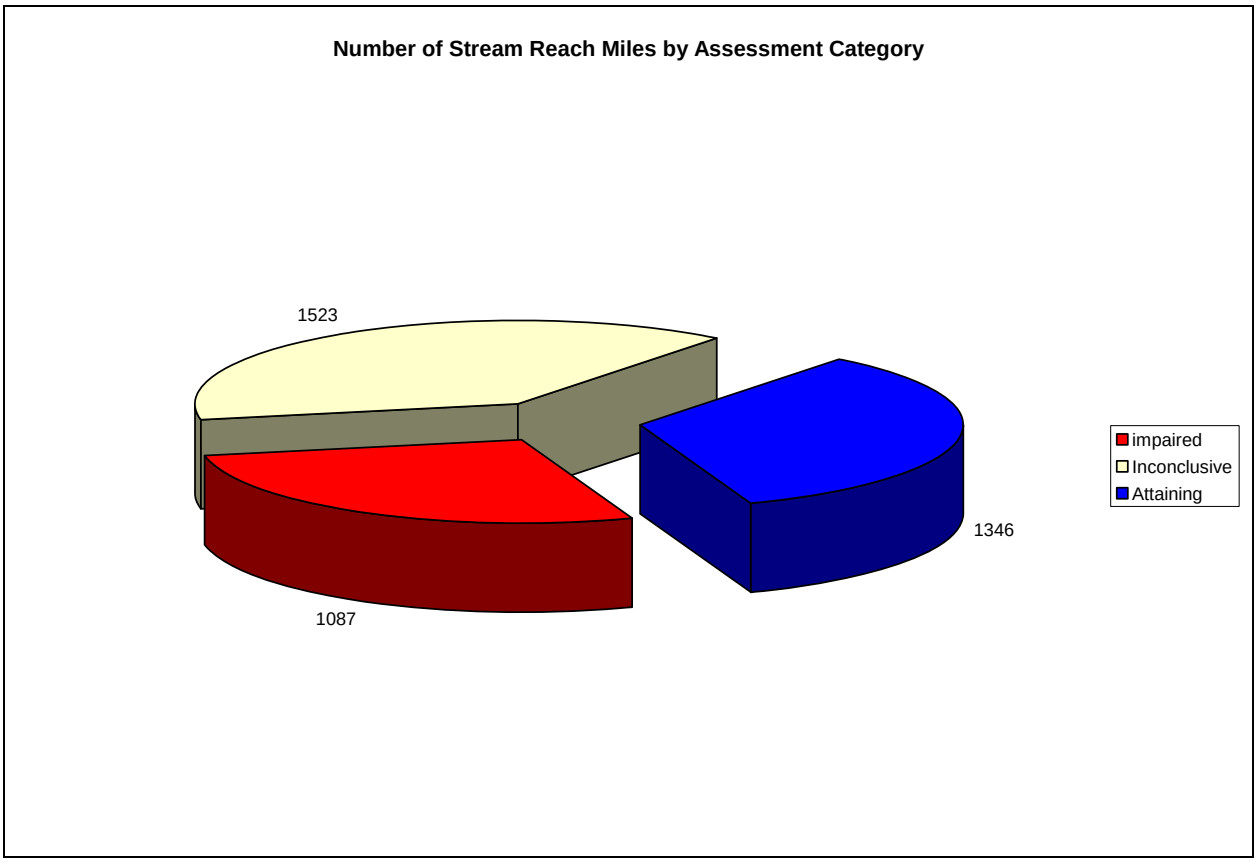
If sites had been randomly selected across the state, this could be used to infer water quality throughout Arizona. Although ADEQ did employ some probabilistic (random) sampling in recent years the majority of the data assessed was collected from sites which were not randomly selected. They were selected by different programs and entities for a variety of purposes, some with a bias towards finding pristine or impaired conditions. Therefore, inferences about water quality in general in Arizona should be limited.

The following graphs show the numbers of lakes and streams as well as the number of acres and stream miles assessed as attaining (Categories 1 & 2), inconclusive (Category 3), and impaired (Categories 4 & 5), with impaired further divided by which agency did the listing.




Number of Lake Acres by Assessment Category
14229
62625
23609
impaired
Inconclusive
Attaining


Number of Stream Reaches by Assessment Category
161
107
99
impaired
Inconclusive
Attaining



Designated Use Support

Narrative and numeric criteria were developed to protect the designated uses assigned to a surface water. Designated uses include agriculture, aquatic and wildlife, consumption, and recreation. The largest number of impairments is shown for the aquatic and wildlife designated use within both lakes and streams.

The following tables summarize the designated use support by category for lakes and streams.

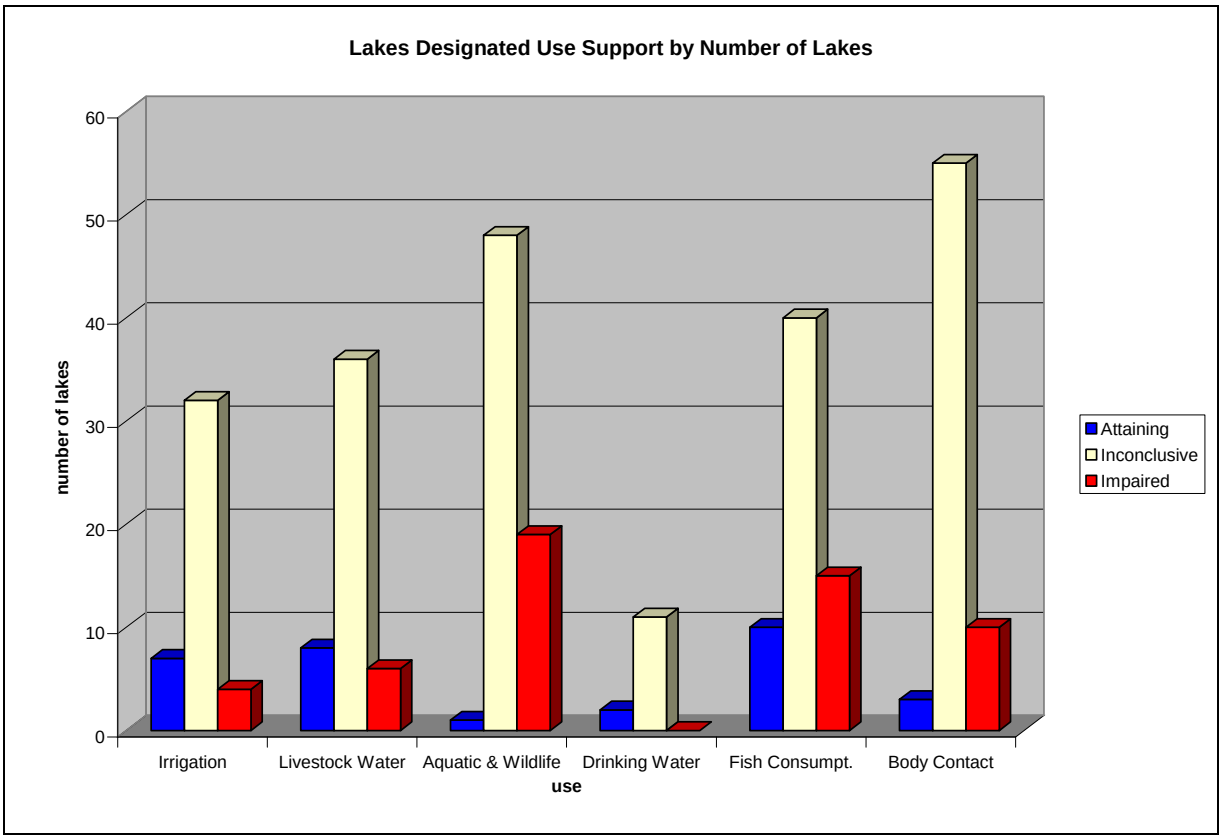
DESIGNATED USE SUPPORT 2010 (Lakes)

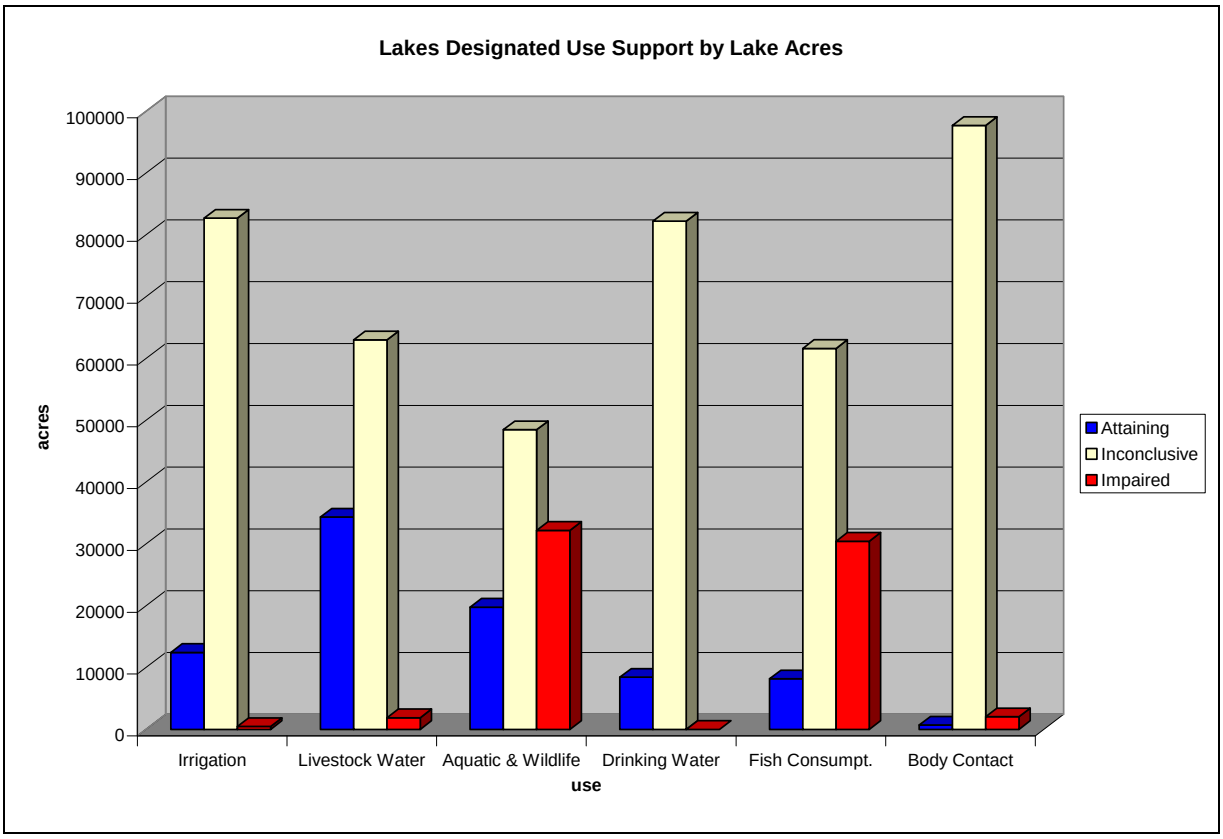
Support Type (by Units)	Attaining	Inconc.	Impaired
Agricultural Irrigation	7	32	4
Agricultural Livestock Watering	8	36	6
Aquatic & Wildlife	1	48	19
Domestic Water Source	2	11	0
Fish Consumption	10	40	15
Body Contact	3	55	10
Support Type (by Acres)	**Attaining**	**Inconc.**	**Impaired**
Agricultural Irrigation	12452	82715	474
Agricultural Livestock Watering	34354	63018	1897
Aquatic & Wildlife	19783	48488	32193
Domestic Water Source	8448	82244	0
Fish Consumption	8168	61651	30440
Body Contact	706	97711	2046

DESIGNATED USE SUPPORT 2010 (Stream Reaches)

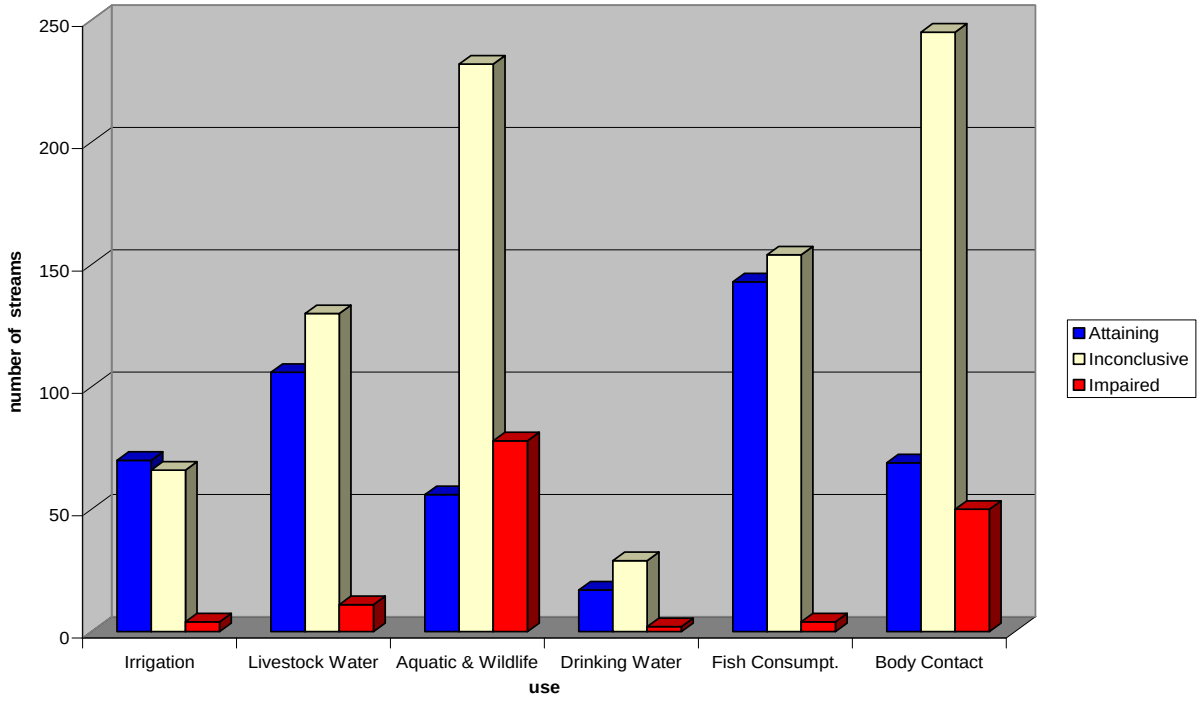
Support Type (by Units)	Attaining	Inconc.	Impaired
Agricultural Irrigation	70	66	4
Agricultural Livestock Watering	106	130	11
Aquatic & Wildlife	56	232	78
Domestic Water Source	17	29	2
Fish Consumption	143	154	4
Body Contact	69	245	50
Support Type (by Miles)	**Attaining**	**Inconc.**	**Impaired**
Agricultural Irrigation	1045	891	71
Agricultural Livestock Watering	1512	1613	87
Aquatic & Wildlife	683	2507	764
Domestic Water Source	214	424	33
Fish Consumption	1859	1664	95
Body Contact	892	2578	466

The following graphs depict the data included in the tables above

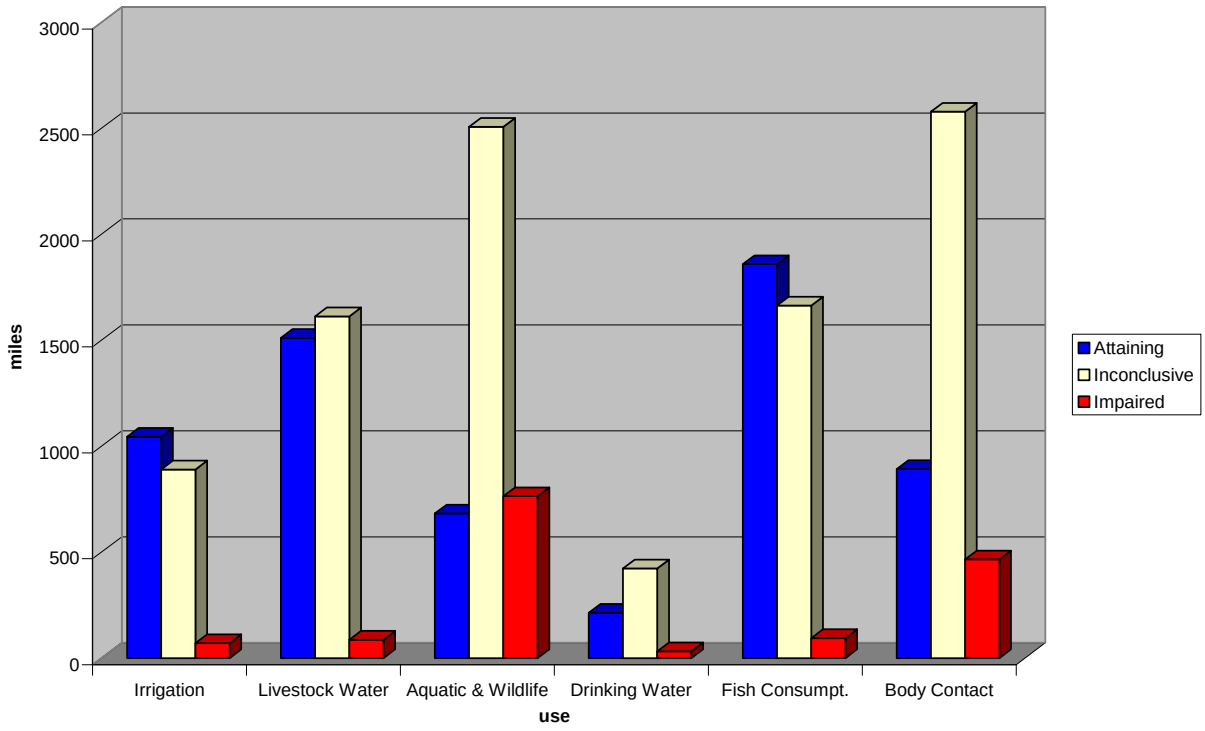

Lakes Designated Use Support by Number of Lakes
number of lakes
60
50
40
30
20
10
0
Irrigation
Livestock Water
Aquatic & Wildlife
Drinking Water
Fish Consumpt.
Body Contact
use
Attaining
Inconclusive
Impaired


Lakes Designated Use Support by Lake Acres
acres
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
Irrigation
Livestock Water
Aquatic & Wildlife
Drinking Water
Fish Consumpt.
Body Contact
use
Attaining
Inconclusive
Impaired

Streams Designated Use Support by Number of Stream Reaches



Streams Designated Use Support by Number of Stream Miles

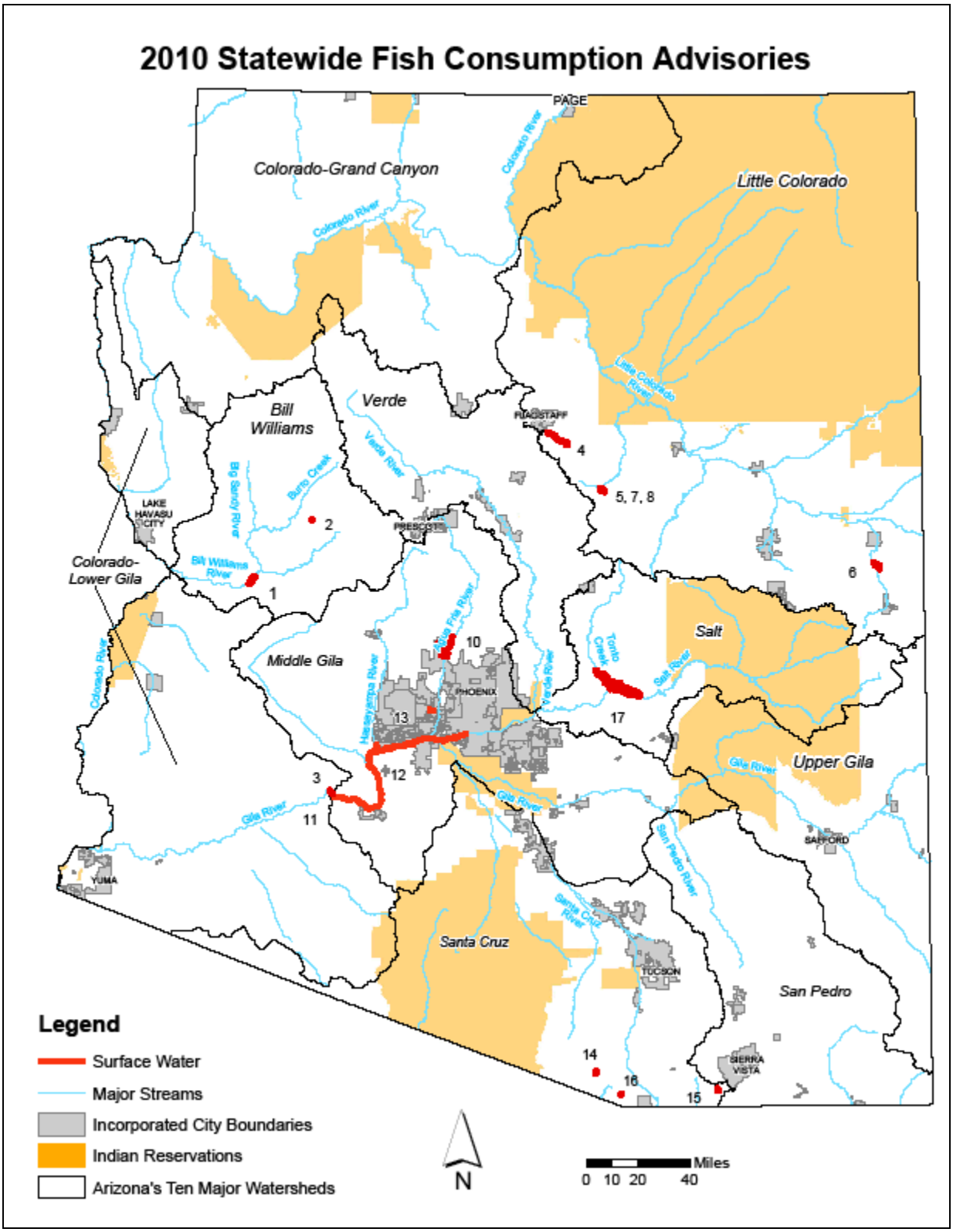


Fish Consumption Advisories

Fish consumption advisories have been issued on 14 lakes and portions of several rivers (see table and map below). The numbers in the table correspond to the labels on the map. These advisories are issued to inform the public about possible adverse health effects and they contain recommendations for how many fish meals (8-ounce portions) can safely be consumed. Advisories may be directed at a specific subset of the population because some people are at greater risk (pregnant women and children). Additional information about fish tissue screening and fish advisories can be obtained by contacting ADEQ at (602) 771-4536 or Arizona Game and Fish Department (AGFD) at (602) 789-3260. Additional information can be obtained from the ADEQ (http://www.azdeq.gov/environ/water/assessment/download/fish-0409.pdf) and AGFD (http://www.azgfd.gov/h_f/fish_consumption.shtml) websites.

Fish Consumption Advisories (2010)

SURFACE WATER (year advisory issued)	SIZE	POLLUTANT AND PROBABLE SOURCES	ADVISORY
Bill Williams Watershed			
1. Alamo Lake (2004)	1414 a	Mercury	Meal = up to 8-ounces of largemouth bass or black crappie • Children under age 6: no consumption • Women of all ages: one meal/month • Adult men: six meals/month
2. Coors Lake (2004)	229 a	Mercury	Meal = up to 8-ounces of largemouth bass or black crappie • Children under age 6: no consumption • Women of all ages: one meal/month • Adult men: six meals per month
Colorado – Lower Gila Watershed			
3. Painted Rock Borrow Pit Lake (1991)	185 a	DDT metabolites, toxaphene, and chlordane	Do not consume fish and other aquatic organisms
Little Colorado Watershed			
4. Lake Mary, Upper & Lower (2002)	1625 a	Mercury	Do not consume walleye fish and limit consumption of other fish to one 8-ounce fillet per month.
5. Long Lake (2003)	594 a	Mercury	Do not consume any fish.
6. Lyman Lake (2004)	1500 a	Mercury	• Children under age 6: no consumption • Women of childbearing age and children under age of 16: one meal/month • Women not childbearing age: Consult healthcare provider • Adult men: meals meals/month
7. Soldiers Lake (2003)	28 a	Mercury	Do not consume any fish.
8. Soldiers Annex Lake (2003)	122 a	Mercury	Do not consume any fish.
Middle Gila Watershed			
10. Lake Pleasant (2006)	8000 a	Mercury	• Children under 6: no consumption of largemouth bass • Women of all ages and children under 16: one 8 - ounce meal per month of largemouth bass • Adult men: Five 8-ounce meals per month largemouth bass
11. Painted Rocks Reservoir (1991)	100 a	DDT metabolites, toxaphene, chlordane	Do not consume fish and other aquatic organisms
12. Portions of the Gila, Salt, and Hassayampa Rivers (1991)	140 mi	DDT metabolites, toxaphene, chlordane.	Do not consume fish and other aquatic organisms
13. Dysart Drain (drains to Agua Fria River) (1995)	3 mi	DDT metabolites	Do not consume fish or other aquatic organisms.
Santa Cruz Watershed			
14. Arivaca Lake (1996)	120 a	Mercury	Do not consume fish or other aquatic organisms.
15. Parker Canyon Lake (2002)	130 a	Mercury	• Children under age of 6-: no consumption of largemouth bass, bluegill or pike • Children between ages 6 and 16: no consumption of largemouth bass, one 8-ounce meal/month of bluegill or pike • Women of all ages: one 8-ounce meal/month largemouth bass or bluegill, two 8-ounce meals/month pike • Adult men (above 15): Up to five 8-ounce meals/month.
16. Pena Blanca Lake (1995)	50 a	Mercury	Do not consume fish or other aquatic organisms.
Salt Watershed			
17. Roosevelt Lake (2006)	18345 a	Mercury	• Children under 6: no consumption of largemouth bass or channel catfish • Women of all ages and children under 16: one 8-ounce meal per month of largemouth bass or channel catfish • Pregnant women: only consume one 8-ounce largemouth bass below 13 inches in length per month • Adult men: Five 8-ounce meals per month largemouth bass or channel catfish


2010 Statewide Fish Consumption Advisories
PAGE
Colorado-Grand Canyon
Colorado River
Little Colorado
Little Colorado River
Bill Williams
Verde
Verde River
FLAGSTAFF
4
5, 7, 8
Big Sandy River
Burro Creek
LAKE HAVASU CITY
2
PRESCOTT
Bill Williams River
1
Colorado-Lower Gila
6
Salt
Middle Gila
Verde River
10
Tonto Creek
Salt River
PHOENIX
Hassayampa River
13
17
Upper Gila
Gila River
12
3
11
YUMA
SAFFORD
San Pedro River
Santa Cruz River
Santa Cruz
TUCSON
San Pedro
14
16
15
SIERRA VISTA
Legend
Surface Water
Major Streams
Incorporated City Boundaries
Indian Reservations
Arizona's Ten Major Watersheds
N
Miles
0 10 20 40

Pollutants Causing Impairments

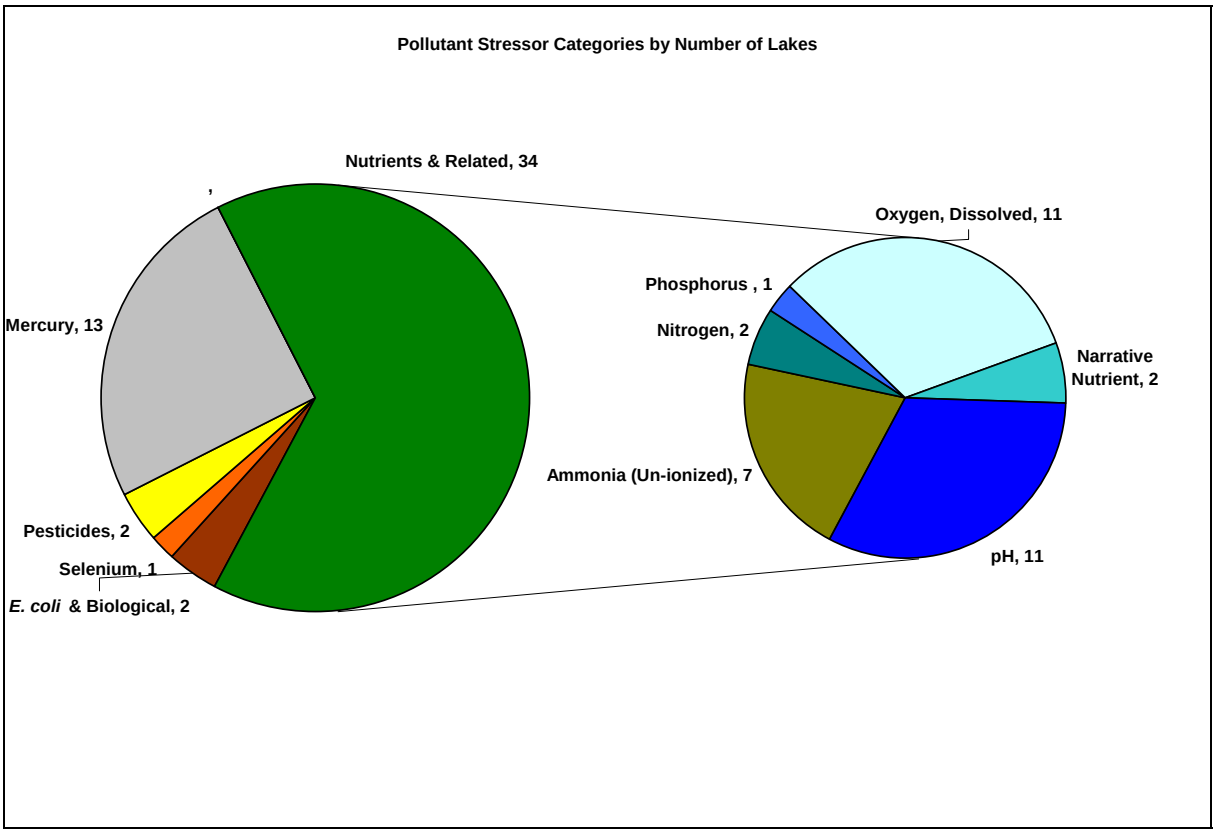
Although nutrients impair the greatest number of lakes, mercury impairs the greatest number of lake acres. Metals impair the largest number of stream reaches and stream miles followed by *E. coli*. The pollutants causing impairments are summarized in the following table.

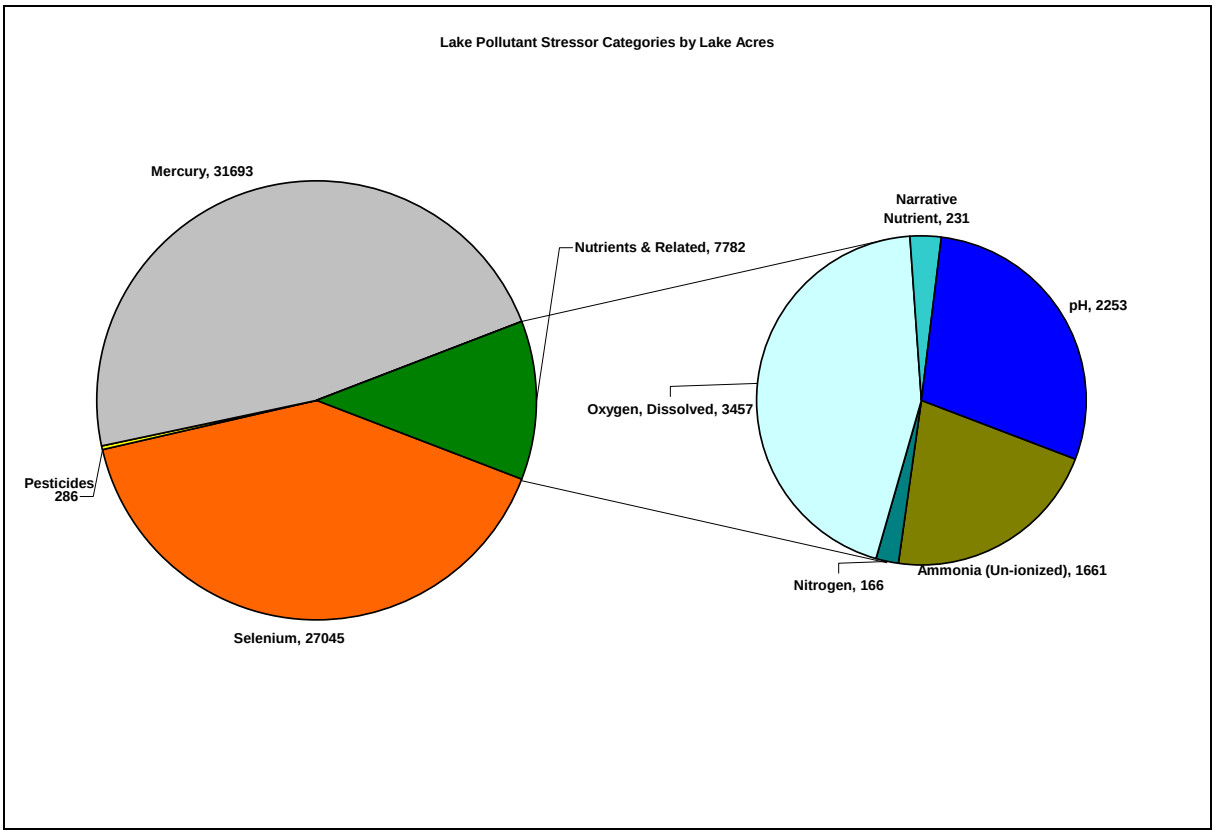
POLLUTANTS OR STRESSORS CAUSING IMPAIRMENT - 2010

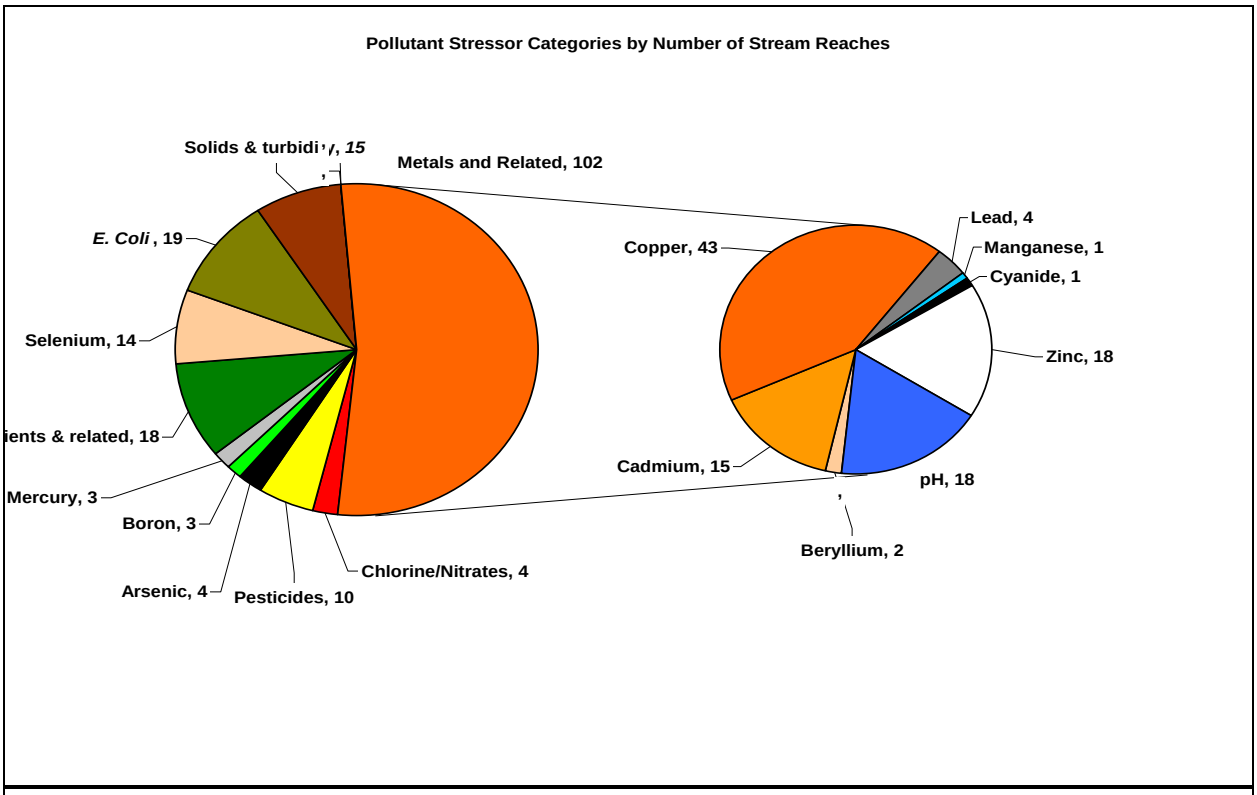
Pollutant Stressor Category	# Lakes	Acres	# Reaches	Miles
Nutrients & related (N,P,D.O.pH)	34	7783	18	204
Metals & related (excluding Hg)	0	0	102	608
Selenium	1	27045	14	270
Arsenic	0	0	4	36
Mercury	13	31693	3	46
Boron	0	0	3	59
Solids (turbidity, sedimentation)	0	0	15	196
E. coli (& biological - lakes)	2	27	19	374
Pesticide (DDT, chlordane, toxaphene)	2	286	10	105
Other (Nitrate and chlorine)	0	0	4	23

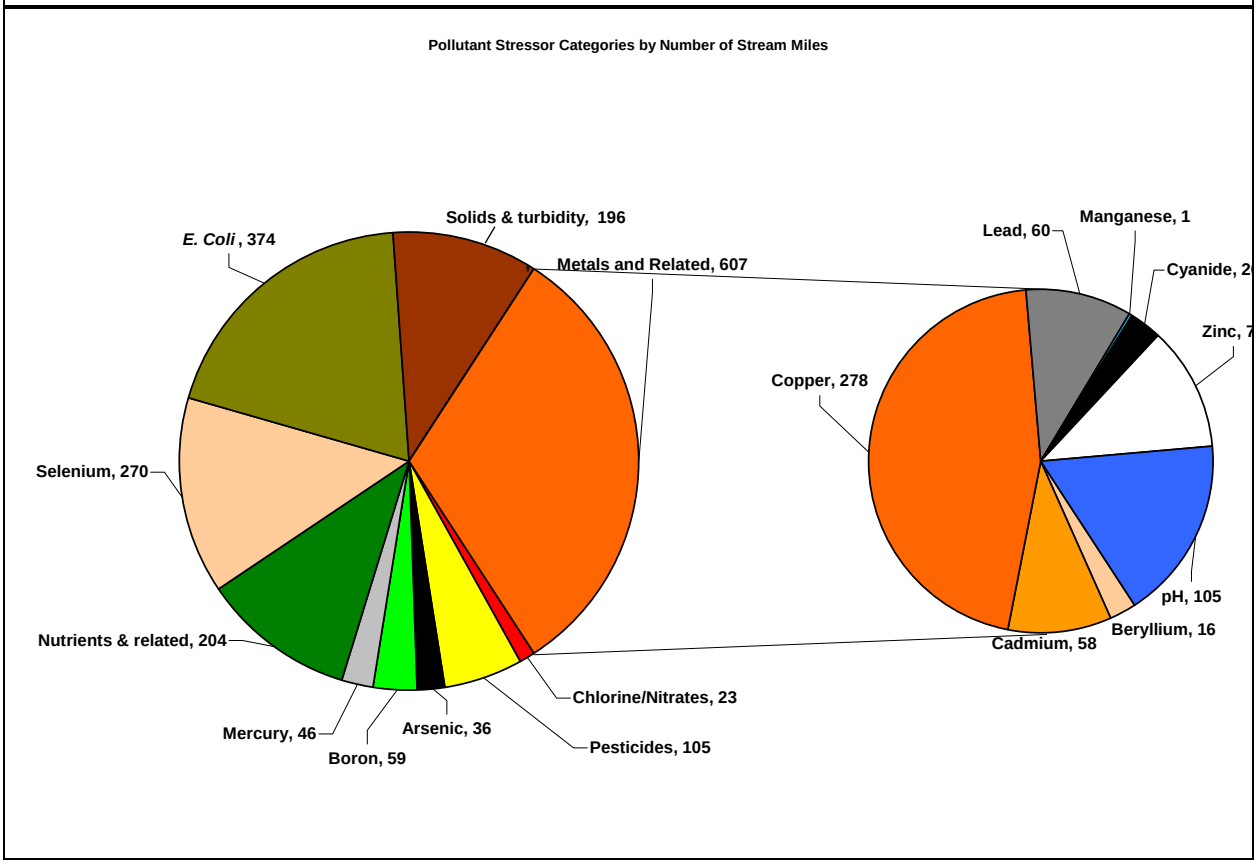
*Cannot total miles or acres because some waters are impaired by multiple stressors

The relative importance of the various stressor categories can be seen by examining the graphs below. In addition to the information provided in the table, the major categories of lake and stream impairment ('nutrients & related' and 'metals & related' respectively) are further broken down into the individual parameters that make up these groupings. Where applicable, the source of the impairment listing is also provided, with EPA listings indicated by the addition of a hatch pattern as well in the data label.


Pollutant Stressor Categories by Number of Lakes
Nutrients & Related, 34
Mercury, 13
Pesticides, 2
Selenium, 1
E. coli & Biological, 2
Oxygen, Dissolved, 11
Phosphorus , 1
Nitrogen, 2
Narrative Nutrient, 2
Ammonia (Un-ionized), 7
pH, 11


Lake Pollutant Stressor Categories by Lake Acres
Mercury, 31693
Nutrients & Related, 7782
Pesticides 286
Selenium, 27045
Narrative Nutrient, 231
pH, 2253
Oxygen, Dissolved, 3457
Nitrogen, 166
Ammonia (Un-ionized), 1661


Pollutant Stressor Categories by Number of Stream Reaches
Solids & turbidity, 15
Metals and Related, 102
E. Coli, 19
Selenium, 14
ients & related, 18
Mercury, 3
Boron, 3
Arsenic, 4
Pesticides, 10
Chlorine/Nitrates, 4
Copper, 43
Lead, 4
Manganese, 1
Cyanide, 1
Zinc, 18
Cadmium, 15
pH, 18
Beryllium, 2


Pollutant Stressor Categories by Number of Stream Miles
Solids & turbidity, 196
E. Coli, 374
Metals and Related, 607
Selenium, 270
Nutrients & related, 204
Mercury, 46
Boron, 59
Arsenic, 36
Chlorine/Nitrates, 23
Pesticides, 105
Lead, 60
Manganese, 1
Cyanide, 2
Zinc, 7
Copper, 278
pH, 105
Beryllium, 16
Cadmium, 58

CHAPTER IV
ACTION PLAN

How do we get from assessments to water quality improvements? This chapter will discuss programs involved in mitigating water pollution problems. It will also discuss water quality research, including research into new standards, monitoring, and assessment techniques.

Monitoring and assessments are part of a process to identify impaired waters and then reduce discharges of pollutants in the watershed. Surface waters in Appendix B Categories 4 and 5 are not attaining or impaired for one or more of their designated uses. Impaired waters that require a Total Maximum Daily Load Analysis (TMDL) are in Category 5. Waters that are not attaining a use and do not require a TMDL (at this time) are in Category 4. For example, once the TMDL is completed, the surface water is moved from Category 5 to Category 4A. If actions are being taken so that surface water standards will be met, ADEQ and EPA may agree to place the surface water in Category 4B. See the Assessment Methods document for further information.

It is important to recognize that all waters in Category 4 and 5, even waters that are solely impaired due to natural conditions, are protected under Arizona's Antidegradation Rule (Arizona Administrative Code R18-11-107), as a "Tier 1" water. No further degradation by that pollutant is allowed. Potential pollutant loadings must be considered by ADEQ and several federal agencies before permits or certifications are issued (e.g., NPDES/AZPDES discharge permits, grazing permits).

TMDL Analyses – Usually, if an assessment unit is identified as impaired, a TMDL must be developed. A TMDL is a written analysis that determines the maximum amount of a pollutant that a surface water can assimilate (the "load"), and still attain water quality standards during all conditions.

Sources of pollutants are identified in the initial phase of the TMDL. Pollutant loading can originate from two types of sources: point and nonpoint. Point sources are discrete conveyances of pollutants discharged directly to a surface water, such as wastewater treatment plant outfalls. Nonpoint sources are non-discrete discharges, including runoff generated by activities such as grazing, agriculture, mining and forestry.

Waste load reductions from point sources can be managed through permitting programs such as Arizona's Pollutant Discharge Elimination System. However, there are few regulatory actions available to control nonpoint pollution, so load reductions from these sources are primarily voluntary. Nonpoint source pollution may include excessive sediment caused by the denudation of grasslands, the location of roads, construction, bacteria from wildlife and/or recreation, metals from historic mining practices and road cuts through ore bodies, and pesticides from historic agricultural practices.

TMDL Schedule and Prioritization – A schedule for TMDL development is provided in Appendix C. Criteria for this ranking is established in the Impaired Waters Rule (R18-11-606) (see Assessment Methods document). In general, waters with "high priority" factors are

scheduled to be initiated within two years following EPA's approval of the 303(d) List, as these have a substantial threat to health and safety to humans, aquatic life, or wildlife. However, some "low priority" factors actually take precedence over high priority factors when completing the TMDL at this time would either not be appropriate or an effective use of resources (e.g., standard change is proposed).

The published schedule may be revised due to changes in resources to complete TMDLs or new information obtained while developing the TMDL. Such changes are formally negotiated with EPA and would be made known to the public through the TMDL status page on ADEQ's website: www.azdeq.gov/environ/water/assessment/download/status.pdf

TMDL Implementation Plans (TIPs) – After load allocations are established in the TMDL, strategies must be implemented in the watershed so that these allocations will be met in the future. Normally the TIP is included in the TMDL and it identifies generic strategies, agencies or groups who will be involved in implementation, a tentative schedule, and how effectiveness will be determined. The table in Appendix F also indicates the status of TMDL Implementation Plan development.

Landowners, governmental agencies, nonprofit organizations, and other stakeholders are actively encouraged by ADEQ to help develop these management strategies. Implementation of strategies or projects rely on the cooperation of stakeholders that live within the watershed or have management responsibilities for the lands and the surface and ground water resources within the watershed.

To reduce nonpoint source pollution, ADEQ works with federal, state, and local agencies, tribes, nonprofit organizations, the environmental community, and local citizens to develop and implement watershed management strategies. ADEQ's Nonpoint Source Program aims to address water quality issues primarily through public education and involvement – development of a commitment to watershed stewardship.

The Nonpoint Source Control Program relies on this type of cooperation, education and partnership as the primary method to reduce nonpoint source pollution and improve the state's water quality.

Watershed Partnerships

Watershed protection groups (partnerships) were first organized in Arizona by the Department of Water Resources to address water quantity issues – limited water resources, high water demands, and water rights. ADEQ is now working with these groups, along with groups established during TMDL development, to address water quality issues. Active watershed partnerships and contact information is provided in the watershed discussions in Chapter II.

Water Quality Improvement Grants – These funds (Clean Water Act Section 319(h) Funds) implement on-the-ground water quality improvement projects that address nonpoint sources of pollution. ADEQ administers these grants. Watershed Protection Funds, administered by the Arizona Department of Water Resources, also fund projects that enhance or restore

surface waters, associated riparian resources and wildlife habitat. Projects that received these funds since 2000 are described in the watershed reports in Chapter II. Projects designed to reduce loadings of pollutants causing impairment are given highest priority. As documented in the table in Appendix F, even before a TMDL can be developed, funds are often distributed to implement projects that will reduce pollutant loadings!

The Water Quality Improvement Grant Manual provides details about the grant process. A copy of the manual and other information about this program can be obtained by contacting the grant coordinator at (602) 771-4635 or toll free at (800) 234-5677 (extension 771-6535) or from the internet at www.azdeq.gov/environ/water/watershed/fin.html

Watershed Based Plans

Watershed plans are needed to properly allocate limited resources in mitigating water quality issues. Several watershed partnerships have developed such plans, identifying critical water quality problems in their areas. A good watershed plan includes the following elements:

> Critical water quality issues, probable sources of pollutants, strategies to reduce or eliminate such problems – and who will take these actions, technical and financial assistance to implement actions, a schedule (milestones), and how effectiveness will be measured.

The Nonpoint Source Education for Municipal Officials (NEMO) Project, funded by EPA, has been working with ADEQ and the local watershed groups to develop watershed based plans. Their plans go even further by adding the following elements to these watershed plans:

> Characterize the watershed,
> Prioritize sub-watersheds according to risk.

Watershed plans developed by NEMO can be downloaded from their web site at: www.srnr.arizona.edu/nemo

Master Watershed Steward Program – The mission of the Master Watershed Steward Program is to educate and train citizens across Arizona to serve as volunteers in the protection, restoration, monitoring, and conservation of their water and watersheds. This new program is a partnership of the University of Arizona Cooperative Extension and ADEQ. Classes are being taught across the state.

To become a Master Watershed Steward, participants attend the required 50 hours of course and field work and provide a minimum of 40 hours of volunteer service to their communities and watersheds. Stewards learn about:

- Watersheds and hydrology
- Local geology and soils
- Arizona climate
- Water quality and quantity issues
- Regional, state, and local water management
- Mapping and geospatial technology (GPS)

- Watershed fauna and flora
- How to work together

More information can be obtained from the Arizona Extension Service at their website: www.cals.arizona.edu/watershedsteward

Volunteer Monitoring

Volunteer monitoring groups can monitor the condition of surface and ground water. Gateway Community College in Phoenix, in cooperation with ADEQ, has developed a one-credit course on water quality sampling to train Arizona's volunteers and provide further opportunities for watershed stewards. Information about these classes can be obtained at the college website: www.gatewaycc.edu/Environment/VolunteerMonitoring.aspx

Determining Water Quality Improvements

Once a TMDL has been developed, the surface water is removed from the 303(d) list, but usually the water is still impaired and simply moves from the Category 5 to the Category 4 list of impaired waters. To determine that a water is no longer impaired by a pollutant, ADEQ must do further monitoring. These new samples need to be collected during critical conditions – those environmental factors (stream flow, season, runoff events, location, runoff events) during which an exceedances of a water quality standard or criterion is most likely based on past exceedances or modeling results. There may also be critical locations or sites where exceedances are most likely to occur. Critical conditions and locations are identified in Appendix E. This list is constantly being revised as new information is analyzed.

The number of samples required to establish that a surface water is no long impaired varies by type of pollutant, but the factors are specified in the Impaired Water Identification Rule (see 2010 Assessment Methods document). The delisting criteria vary depending on the criteria used during the listing.

This assessment showed that a number of pollutants could be removed from the impairment tables. A list of pollutants no longer impairing waters and waters that are no longer impaired is provided in Appendix D.

Potential Impacts on Permitted Discharges – Although assessments are not compliance based actions, once an assessment unit is identified as impaired, there are indirect consequences on dischargers or potential activities in the drainage area. For example, any entity seeking a permit for a new discharge or renewing an existing permitted discharge under the National (or Arizona) Pollutant Discharge Elimination System (NPDES/AZPDES) Program must demonstrate that it will not increase loadings for the parameter identified as causing the impairment. During the permit review cycle, additional monitoring may be required for the pollutant of concern. If discharge monitoring data or ambient in-stream monitoring data is available from a permitted facility, it may be used to model the discharge load during the TMDL. Such data can be used to accurately quantify the contribution from waste loads. After the TMDL is completed, ADEQ may renegotiate the permit discharge levels if the TMDL indicates that a waste load reduction is necessary. Discharge monitoring

and ambient in-stream monitoring is invaluable in developing realistic discharge limitations.

Another example is that federally approved actions, such as grazing permits, may also be restricted when a stream is listed as impaired, if those actions would contribute pollutant loadings. ADEQ actively coordinates with the U.S. Forest Service and the Bureau of Land Management to identify strategies that would minimize load reductions especially to impaired waters.