



SOURCE WATER PROTECTION

Findings and Recommendations

WHAT'S ON TAP?

Grading Drinking Water in U.S. Cities

June 2003

SOURCE WATER PROTECTION

City	Rating
Albuquerque	Poor
Atlanta	Poor
Baltimore	Fair
Boston	Good
Chicago	Fair
Denver	Good
Detroit	Poor
Fresno	Failing
Houston	Poor
Los Angeles (imported)	Poor
Los Angeles (local)	Fair
Manchester	Good
New Orleans	Poor
Newark	Fair
Philadelphia	Poor
Phoenix	Poor
San Diego (imported)	Poor
San Diego (local)	Fair
San Francisco	Good
Seattle	Excellent
Washington, D.C.	Fair

Source water—the bodies of water from which a city draws its drinking water—varies in origin. Most cities get their water primarily from aboveground supplies, such as lakes and rivers; a few cities like Albuquerque and Fresno get most of their water primarily from groundwater—that is, underground aquifers tapped by city wells. City source waters are most frequently contaminated by:

- ▶ municipal sewage
- ▶ polluted urban runoff from stormwater or snowmelt
- ▶ pesticides and fertilizers from agricultural fields
- ▶ animal waste from feedlots and farms
- ▶ industrial pollution from factories
- ▶ mining waste
- ▶ hazardous waste sites
- ▶ spills and leaks of petroleum products and industrial chemicals
- ▶ “natural” contamination, such as arsenic or radon that occurs in water as a result of leaching or release of the contaminant from rock

Source water protection has often been overlooked by many city water systems for years, and most cities have done little or nothing to protect source waters. Nonetheless, source water protection is key to strong drinking water protection. Typically, water experts seek what they call multiple barriers to contamination:

- ▶ strong protection against pollution of the source water
- ▶ effective drinking water treatment at the water treatment plant
- ▶ effective and safe management of the distribution system

FINDINGS

Some cities like Seattle, Boston, San Francisco, and Denver have at least some well-protected watersheds. Some cities have site-specific burdens. For example, Fresno relies upon wells, many of which have become seriously contaminated by agricultural and industrial pollution, including nitrates; Houston also relies on wells that are vulnerable to naturally occurring radioactive radon and arsenic in the region. Philadelphia’s river sources are vulnerable to pollution from farms, sewage, urban

runoff, industry, and spills; Denver, to debris and sediment resulting from erosion after wildfires; and Manchester, to MTBE, a gasoline additive, present in the city's main water source apparently as a result of recreational boating or other gasoline use in its main watershed. The Colorado River, which serves as a major source of drinking water for Los Angeles, San Diego, Phoenix, and many other cities and towns, is contaminated by the rocket fuel perchlorate from a Kerr-McGee site in Henderson, Nevada, and by other contaminants from other pollution sources including agriculture, urban and suburban runoff, and industry.

While most cities reviewed need stronger source water protection, some cities, including Albuquerque, Atlanta, Detroit, Fresno, Houston, Los Angeles, Manchester, Newark, Philadelphia, Phoenix, and San Diego, have serious and immediate needs for better source water protection. The antidote lies with elected officials (generally state or other officials with authority to control polluters outside of the city's limits), who control the funds and write the laws that can protect source water.

Cities can't always choose where they get their water from, but they can work with state and federal officials to improve protections. The result may be a wide spectrum of efforts to protect water sources. Seattle, for example, has implemented very extensive source water protection programs that include banning agricultural, industrial, and recreational activities in and residential use of watersheds. Other cities, such as Manchester and Boston, have made great strides in land acquisition and watershed management programs.

SUMMARIES OF SOURCE WATER PROTECTION GRADES FOR 2001

Albuquerque: Poor

City groundwater is becoming seriously depleted and contaminated with pollutants from septic tanks, abandoned wells, toxic chemical and waste spills and leaks, and waste disposal sites, including Superfund sites, among other sources.

Atlanta: Poor

The city's water supply is threatened by polluted runoff as well as by 1,400 identified potential point source polluters, *i.e.* polluters potentially discharging from a specific location such as a factory or treatment plant or a handler of hazardous chemicals or petroleum.

Baltimore: Fair

In addition to conventional pollution sources—including point sources, as well as agricultural runoff containing nitrogen, pesticide, and sediment—Baltimore's water supply is vulnerable to atmospheric deposition of nitrogen and phosphorous.

Boston: Good

Boston has made major efforts to protect its watersheds. Substantial parts of the city's watersheds are, however, threatened by development, and there is some current risk of contamination from agriculture, septic systems, recreation, and runoff from local development.

Chicago: Fair

Even though the health of Lake Michigan has improved, it is still vulnerable to discharge from factories and runoff from urban and suburban areas.

Denver: Good

While Denver received a good score, the city water supply remains vulnerable to debris from wildfires as well as to sediment from floods.

Detroit: Poor

The Detroit River and Lake Huron are particularly vulnerable to runoff from suburban and urban areas, combined sewer overflow (including sewage, agricultural pollution, spills, and leaks of hazardous chemicals and petroleum), and point source pollution from industry, such as the automobile and petrochemical industries.

Fresno: Failing

The city supply is Fresno Sole Source, a large, unconfined groundwater aquifer. In this city, groundwater contamination is a serious problem, as it is highly susceptible to contamination from agriculture, urban, and suburban runoff, and percolation (gradual recharge of groundwater by contaminated surface water) when dissolved contaminants from these sources seeps into the groundwater.

Houston: Poor

The San Jacinto and Trinity Rivers are threatened by pathogen and pesticide pollution, among other conventional contaminants, from point source polluters and from urban and suburban runoff.

Los Angeles: Poor for imported water; Fair for local water

Approximately 41 percent of Los Angeles water comes from the Los Angeles Aqueduct, which uses largely undeveloped watersheds in the eastern Sierra (which are threatened). Around 47 percent of Los Angeles water comes from the Sacramento-San Joaquin Delta, which is severely threatened, and from the Colorado River, which is contaminated by runoff and by point sources (such as the Kerr-McGee plant in Nevada, which has contaminated the river and Los Angeles water with perchlorate). About 12 percent of Los Angeles water comes from wells in the San Fernando Basin, which is vulnerable to surface contamination. Finally, Los Angeles holds its water in four reservoirs that are uncovered, posing another threat.

Manchester: Good

Lake Massabesic, the city's primary watershed, hosts a significant amount of boating activity—and thus gasoline (read: MTBE) contamination. While the lake is otherwise fairly well protected, spills, leaks, and runoff of oil, gasoline, and other chemicals from recreational activity and upstream uses pose contamination problems.

New Orleans: Poor

The city's source water, the Mississippi River, is vulnerable to innumerable sources of industrial and agricultural pollution.

Newark: Fair

The Passaic River, the city's source, was given a national rating of 6—the worst possible rating—from the IWI, the EPA's Index of Watershed Indicators, as a result of hazardous waste facilities and manufacturing, especially in downstream areas. While the upstream areas of Newark's Pequannock and Wanaque watersheds, which feed into the Passaic, are largely forested and fairly well protected, there are some potential pollution sources as well as significant development pressure.

Philadelphia: Poor

The city's water sources are threatened by contamination from conventional point sources (such as treated and untreated sewage, spills, acid mine drainage, and agricultural, urban, and suburban runoff); furthermore, the city does not control its watersheds, and the state does not adequately regulate pollution of these waters.

Phoenix: Poor

Phoenix obtains most of its source water for drinking water (90 percent) from the Salt, Verde, and Colorado Rivers, which are very vulnerable to serious depletion and to contamination and have significant industrial and other point source polluters, urban and suburban runoff, and agricultural pollutants. The remaining source water for Phoenix's drinking water comes from deep groundwater wells, which are declining in quality and quantity.

San Diego: Poor for Imported Water; Fair for Local Water

About two-thirds of San Diego water is imported water from the Colorado River system; it travels largely unprotected through farms, towns, and mining sites and is therefore quite vulnerable to contamination. Another portion of imported water comes from the Sacramento-San Joaquin Delta in northern California, which is a threatened supply. Finally up to 20 percent of the water is local, captured in reservoirs and is relatively well protected, though urban and suburban sprawl and runoff pose potential threats.

San Francisco: Good

Eighty-five percent of the city's water comes from the Hetch Hetchy watershed near Yosemite National Park and is therefore very well protected. The remaining water provided by the Alameda and Peninsula watersheds is also fairly well protected. Nonetheless, it remains vulnerable to contamination.

Seattle: Excellent

The city's two sources of drinking water, the Cedar River and the South Fork of the Tolt River, are not likely to become polluted, and the water utility has undertaken extensive source water protection efforts.

Washington, D.C.: Fair

The Potomac River, the city's source, is vulnerable to many point pollution sources; it recently has been listed as one of the most threatened rivers in the nation.

RECOMMENDATIONS

In order to ensure the safety of drinking water sources, NRDC urges utilities to be at the forefront of protection efforts. The argument that source water protection is beyond a utility's control is simply not valid; water utilities can aggressively pursue polluters of their water supply through both political and legal means. For example, utilities can urge state or federal lawmakers to craft legislation to acquire interests in land. Manchester has made great strides in source water protection through land acquisition. The city's waters were ranked a 6 by EPA's Index of Watershed Indicators (IWI), the lowest possible score. But the city purchased much land surrounding source waters and adopted a watershed management program; for this reason, NRDC ranked the city's threat to source water as Fair. Utilities can also push for improved controls on pollution from a variety of sources: concentrated animal feeding operations and other agricultural sources, stormwater runoff from cities and suburbs, combined sewers and sanitary sewer overflows, and chemical contamination from industry.

In sum, water utilities and their consumers have a very strong common interest in source water protection. By publicly identifying threats to source water and by working with the public and elected officials to address these threats, water utilities will not only help their own customers but will also make a major contribution to public health and environmental protection.

NRDC recommends that utilities work with state and federal legislators to:

- ▶ craft legislation and appropriate funding for land acquisition and conservation easements
- ▶ push for improved controls on pollution from a variety of sources:
 - ▶ concentrated animal feeding operations and other agricultural sources
 - ▶ pesticide pollution from chemicals that are highly soluble and cause widespread pollution (such as atrazine and other triazines)
 - ▶ stormwater runoff from cities and suburbs
 - ▶ combined sewer and sanitary sewer overflows
 - ▶ chemical contamination from industry

HOW CITIZENS CAN HELP

An informed, activated public is a utility's strongest ally in the effort to improve pollution prevention and source water control. To get involved:

- ▶ Attend meetings of your local water supplier. Check the right-to-know report or call and ask for dates, times, and locations.
- ▶ Learn more from these groups:
 - ▶ Clean Water Action, www.cleanwater.org
 - ▶ Campaign for Safe and Affordable Drinking Water, www.safe-drinking-water.org

- ▶ NRDC, www.nrdc.org
- ▶ Clean Water Network, www.cwn.org.
- ▶ Reduce the amount of water you use.
 - ▶ Plant drought-resistant plants or “xeriscape” (use plants that need little or no watering).
 - ▶ Use low-flow showerheads and shorten your shower time.
 - ▶ Don’t spray down your driveway to clean it.
 - ▶ Minimize the number of times (and how long) you water your lawn.
 - ▶ Consider installing low-flush toilets.
- ▶ Avoid using pesticides in the home or yard, or storing pesticides in the home. Consumer pesticide use in the home leads to runoff into water resources.
- ▶ Buy organic foods, if possible. Purchasing organically grown food helps prevent the drinking water source contamination from pesticide and herbicide runoff that results from conventional agricultural practices.