Today's Challenges and Opportunities
Abundant Clean Water

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Quick Facts

World Water Resources
About 99 percent of Earth's water is contained in oceans and ice, leaving less than 1 percent available as freshwater for people, plants, and animals (Gleick 1996).

Worldwide, about 1.1 billion people are deprived of access to enough clean water to meet minimum levels of health, income, and freedom from drudgery (WWAP 2007).

Twenty percent of the world's freshwater fish are endangered or extinct, largely due to water pollution (Revenga and others 2000).

Riparian and lacustrine ecosystems (areas next to rivers, streams, and lakes) have much higher species richness than terrestrial ecosystems worldwide (Naiman and Decamps 1997).

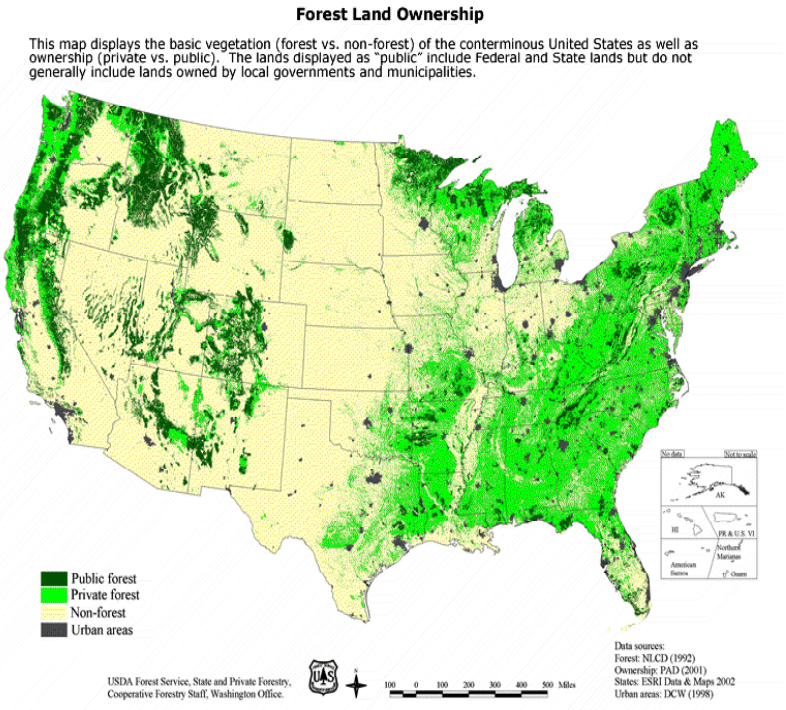
About 80 percent of wildlife species use streamwater during some part of their lifecycle (Naiman and Bailey 1998).

Waters of the United States
Almost two-thirds of the freshwater resources in the United States originate on forested lands (the green areas at right; Stein and others 2005).

Some 180 million people in over 68,000 communities rely on forested lands to capture and filter their drinking water (Stein and others 2005).

An estimated 75 percent of our Nation's outdoor recreation takes place within one-half mile of streams or other waters.

Excessive sediment is the leading source of impairment to the Nation's surface waters (EPA 2002).



The United States uses 408 billion gallons of water per day, as follows (Hutson and others 2000):

- Thermoelectric power……48%
- Irrigation……..34%
- Public supply…….....11%
- Industry……..... 5%
- Domestic self-supply…...<1%
- Livestock…….....<1%
- Aquaculture…….....<1%
- Mining…….....<1%

Water and the Forest Service

A principle purpose of the National Forest System is to secure "favorable conditions of water flows" (Organic Administration Act, 1897).

National forests and grasslands are the largest single source of water in the continental United States, contributing nearly 20 percent of the Nation's water supply (USDA Forest Service 2000).

In the West, national forests and grasslands provide over 50 percent of the water supply (USDA Forest Service 2000).

The national forests provide habitat for over 165 threatened and endangered aquatic and amphibian species (USDA Forest Service 2007).

About 15 million people fish each year on national forest land, which has over 220,000 miles of streams and rivers and more than 2.3 million acres of lakes, ponds, and reservoirs (USDA Forest Service 2007).

More than 3,400 communities get most of their water from supplies originating on national forest land, including Atlanta, Denver, Portland, San Francisco, and Washington, DC (USDA Forest Service 2000).

The estimated value of water flowing from national forest land is $7.2 billion per year from both instream and offstream uses (Brown 2004).

The National Forest System supports about 200 hydroelectric projects, providing enough energy to supply about 18.5 million average homes (USDA Forest Service 2000).

References

Brown, T.C. 2004. The marginal economic value of streamflow from national forests. Disc. Pap. DP-04-1, RMRS-4851. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station.

EPA (Environmental Protection Agency). 2002. National water quality inventory: 2000 report. EPS-841-R-02-001. Office of Water, Washington, DC. http://www.epa.gov/305b/2000report/

Gleick, P.H. 1996. Water resources. In: Encyclopedia of climate and weather. Vol. 2. Schneider, S.H. (ed.). New York, NY: Oxford University Press, New York: 817–823.

Hutson, S.S.; N.L. Barber; J.F. Kenny; K.S. Linsey; D.S. Lumia; M.A. Maupin. 2000. Estimated use of water in the United States in 2000. U.S. Geological Survey Circ. 1268. http://pubs.usgs.gov/circ/2004/circ1268/

Naiman, R.J. and H. Decamps. 1997. The Ecology of Interfaces: Riparian Zones. Annual Review of Ecology and Systematics 28:621-658.

Naiman R.J. and R.E. Bailey (editors). 1998. River Ecology and Management: Lessons from the Pacific Northwest Ecoregion. Springer, 705 p.

Revenga, C.; J. Brunner; N. Henninger; R. Payne; K. Kassem. 2000. Pilot analysis of global ecosystems: Freshwater systems. Washington, DC: World Resources Institute. http://www.wri.org/biodiv/pubs_description.cfm?pid=3056#pdf_files

Stein, S.M.; R.E. McRoberts; R.J. Alig; M.D. Nelson; D.M. Theobald; M. Eley; M. Dechter; M. Carr. 2005. Forests on the edge: Housing development on America's private forests. Gen. Tech. Rep. PNW-GTR-636. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. http://www.fs.fed.us/pnw/pubs/pnw_gtr636.pdf

USDA Forest Service. 2000. Water and the Forest Service. FS-660. Washington, DC. http://www.fs.fed.us/pub/water/water.pdf

USDA Forest Service. 2007. 2007 Stakeholders' Report – Fisheries and Aquatic Ecology Program. Washington, DC. (In press)

WWAP (World Water Development Programme). 2007. Meeting basic needs. New York, NY: United Nations Educational, Scientific and Cultural Organization. http://www.unesco.org/water/wwap/facts_figures/basic_needs.shtml