

General

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**U.S. Environmental Protection Agency**

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[EPA Home](#) > [Water](#) > [Clean Water Through Conservation](#) > Chapter 1

- Laws & Regulations
- Funding & Grants
- Publications
- What You Can Do
- Training
- Education Resources
- Databases & Software

**How We Use Water In These United States**

Water use is usually defined and measured in terms of withdrawal or consumption that which is taken and that which is used up. Withdrawal refers to water extracted from surface or ground water sources, with consumption being that part of a withdrawal that is ultimately used and removed from the immediate water environment whether by evaporation, transpiration, incorporation into crops or a product, or other consumption. Conversely, return flow is the portion of a withdrawal that is actually not consumed, but is instead returned to a surface or ground water source from a point of use and becomes available for further use.

Water use can also be divided into offstream and instream uses. Offstream water use (see Table 1 below) involves the withdrawal or diversion of water from a surface or ground water source for

- Domestic and residential uses
- Industrial uses
- Agricultural uses
- Energy development uses

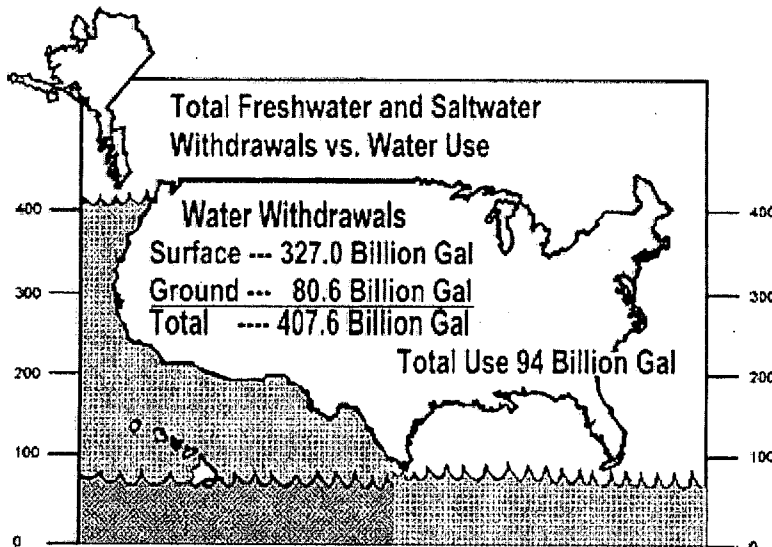


Table 1. Total daily offstream water use in the United States (Solley et al., 1993)

Instream water uses are those which do not require a diversion or withdrawal from the surface or ground water sources, such as:

- Water quality and habitat improvement

- Recreation
- Navigation
- Fish propagation
- Hydroelectric power production

## National Trends in Water Use

National patterns of water use indicate that the largest demand for water withdrawals (fresh and saline) is for thermoelectric generation (47 percent), followed by irrigation (34 percent), public supply (9 percent), industrial (6 percent), mining (1 percent), livestock (1 percent), domestic (1 percent), and commercial uses (1 percent) (Solley et al., 1993). While thermoelectric generation represents the largest demand for fresh and saline withdrawals, irrigation represents the largest demand for freshwater withdrawal alone (see Figure 1 at right). Activities that reduce the need to withdraw surface and ground water will lead to many of the beneficial effects of conserving water.

## National Consumption Patterns

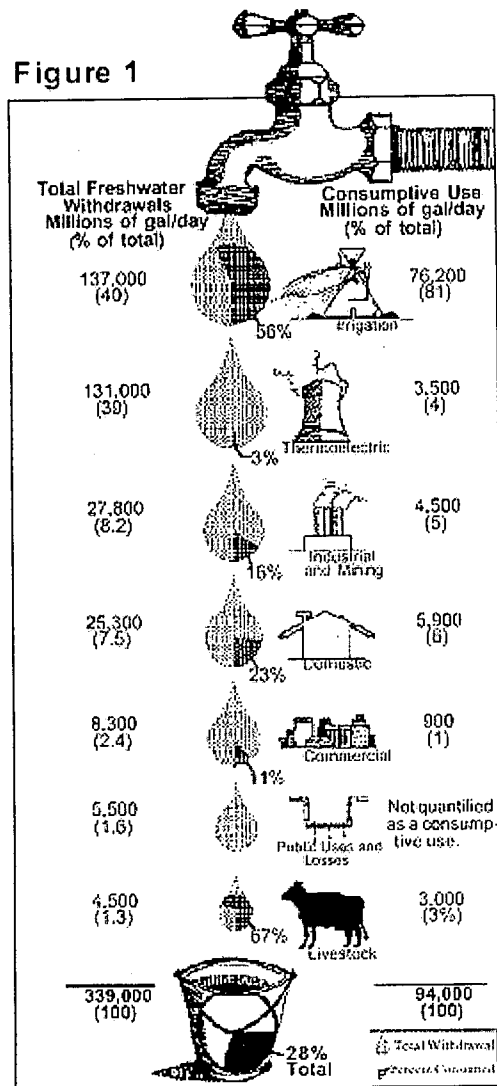
Water consumption varies by water use category, with irrigation consuming the highest percent (81 percent) and commercial the lowest (1 percent) (see Figure 1 above). The difference between the volume of water withdrawn and that consumed is the return flow. As more good-quality water is available in return flows, more water is available for other beneficial uses.

Some categories of water use, such as irrigation and livestock watering, consume a high percentage of water that is withdrawn from surface and ground water sources. Thus, less water is available for return flows from these high-consumption activities. Other categories of use like thermoelectric power consume only a small fraction of the water they withdraw.

## Categories of Water Use

With several different ways to categorize water use in the United States, this

Figure 1



Comparison of freshwater consumptive use in the United States for 1990, by category (Solley et al., 1993).