

TVA's Annual Cycle for Operating Reservoirs

At the beginning of August the Tennessee Valley Authority begins the annual drawdown of upstream reservoirs to make room for the rains and snow of winter. Some citizens have asked why TVA cannot delay the drawdown until a later date in the fall. The answer goes to the very heart of TVA's responsibility for integrated management of the river system.

All of TVA's reservoirs are part of a single system managed to fulfill separate but intertwined missions—navigation, flood control, power supply, water quality, recreation, and land use. The annual drawdown of upstream reservoirs in North Carolina, East Tennessee, and North Georgia is central to the way this system works.

It is important to understand that reservoirs in the TVA system look like natural lakes, but unlike lakes their water levels change by design, not



chance. Read on to learn why reservoir levels rise and fall, and how they affect the overall workings of the Tennessee River system.

Dams on the Tennessee River (which runs from Knoxville west through Alabama and north to Kentucky) make navigation possible. They keep water levels relatively constant to protect barge hulls from ragged shoals and shallow stretches of riverbed. Dams on upstream tributary rivers hold back heavy winter precipitation to prevent flooding.

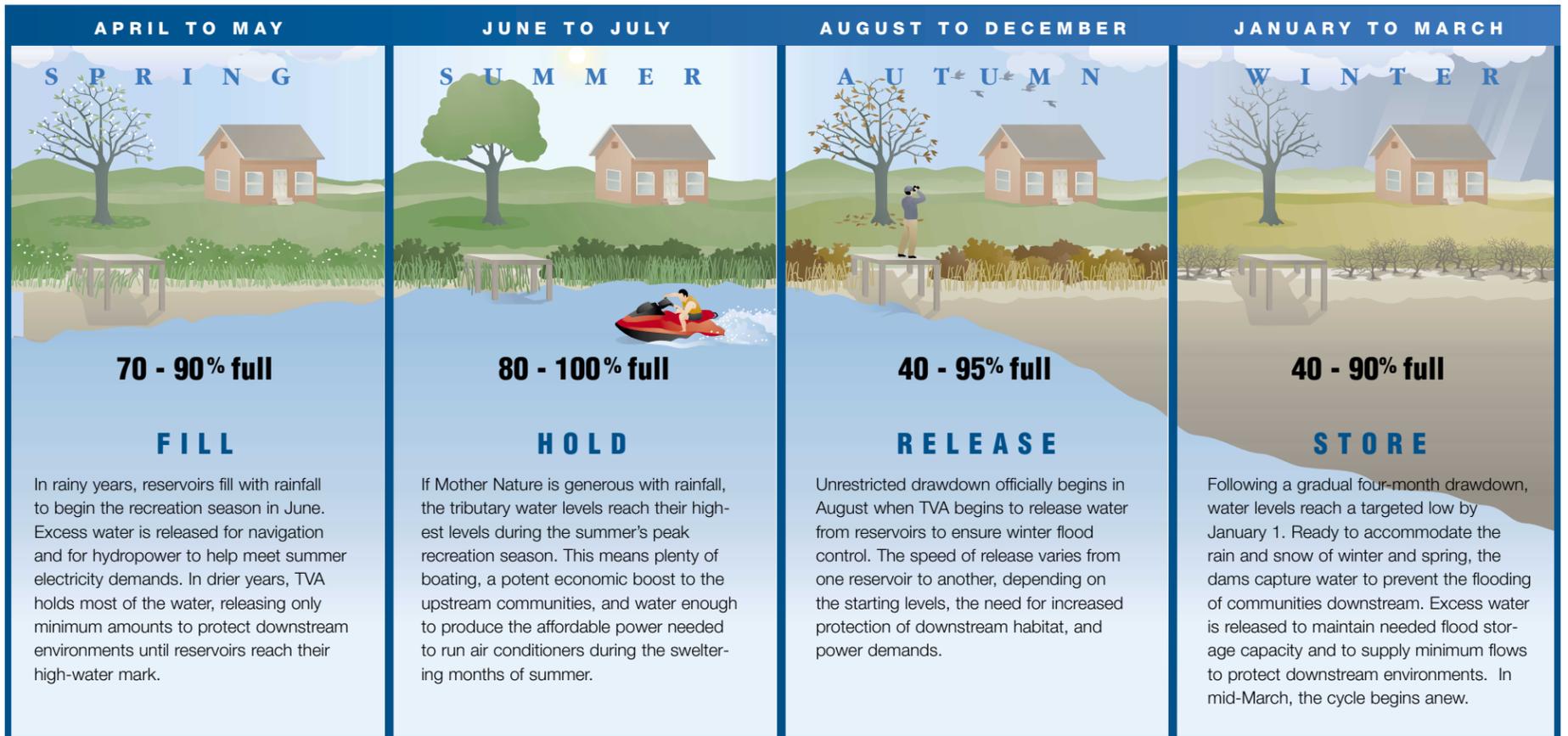
How the annual drawdown cycle works.

Water in the Tennessee River system rises and falls in an annual cycle. For the reservoirs on the Tennessee River (see illustration on front cover) this change is relatively minor. These reservoirs are designed to provide for navigation, and must have enough water for barge traffic to get through.

Reservoirs on the tributary rivers, which branch off the main channel upstream, serve a different purpose. They serve as an emergency storage

system to prevent flooding downstream. They do this by holding the enormous amounts of winter and spring precipitation that often fall in higher elevations. To make room for this water, the reservoirs are typically emptied to three-quarters of their depth by January 1st each year. That's why levels of tributary reservoirs may rise and fall from 35 to 90 feet over the course of a year.

The diagram below shows how this flood-control system works.



Balancing competing demands on the river.

In its management of the Tennessee River system, TVA carefully balances basic areas of public service—navigation, flood control, power supply, water quality, recreation, and land use—to achieve the greatest possible combination of benefits for the people of the Tennessee Valley.

In such a finely balanced system with diverse public benefits at stake, every action produces a significant reaction somewhere else. The chart below shows how the August 1 drawdown date creates the optimum balance of public benefits.

AUGUST 1

NAVIGATION

Shippers

Want shipping channels to the Gulf navigable at all times

FLOOD CONTROL

Landowners downstream from dams

Want less chance of spot flooding in abnormally wet weather, and sufficient water storage for the rainy season

POWER SUPPLY

Customers of TVA electricity

Want affordable and reliable electricity from an environmentally friendly source

Proponents of economic growth

Want electricity produced in the region at competitive prices to support industry, small business, and quality of life

WATER QUALITY

Riverside communities

Want high levels of dissolved oxygen in water that supports aquatic life and a safe, dependable source of drinking water

Who benefits from changing this date?

Who benefits from keeping this date?

LAND USE

Landowners on reservoirs

Want private docks usable later in the summer

Reservoir real-estate developers

Want shoreline property that has a steadily growing market value

RECREATION

Reservoir users

Want deeper water for boating later in the summer

Reservoir area communities

Want increased economic development and spending associated with tourism that depends on high water in the reservoirs

Marina operators

Want people to use their marinas and boat slips throughout the year

LAND USE

Landowners on the riverside

Want to prevent erosion on river banks

RECREATION

White water enthusiasts

Want more opportunities to enjoy whitewater sports on the downstream rivers

Remember that the integrated system depends on the availability of plenty of water. When rainfall is limited, the system is thrown out of balance and all public benefits are at risk.

