Chipuxet: Drawn Down & Stressed

The Chipuxet River in South Kingstown is in crisis. The river is "stressed" in its streamflow. This means that its low flows are getting lower and becoming more frequent. Research from URI has shown that water supply and irrigation demands are sufficient to dry up the Chipuxet River at times.

Chipuxet River Resource

The Chipuxet River watershed collects precipitation from 36.9 square miles, stores the water in sand below the surface, and feeds the river. It lies within the Pawcatuck River Basin (watershed) in Exeter, North Kingstown, and South Kingstown. The Chipuxet River flows approximately 13 miles, paralleling the Amtrak train line through Slocum, crossing Rt. 138 near Plains Road/ Rt. 110, passing through the Great Swamp, which is an officially designated National Natural Landmark, before entering Worden Pond in South Kingstown. The flow out of Worden Pond is named the Pawcatuck River.

The Chipuxet River is fed by groundwater and is therefore considered a "gaining" stream. This means that under natural conditions streamflow is replenished from water seeping out of the ground storage of precipitation. Rain and melted snow collect between grains of sand and gravel deposited into the ancient Chipuxet River valley by glacial melt-water more than 10,000 years ago, and that source has kept the river flowing ever since .

We need to steward the Chipuxet Aquifer

The cause of "stress" for the Chipuxet occurs in late summer when more water is being pumped out of the Chipuxet Aquifer than stored groundwater is able to replenish.

The Chipuxet Aquifer provides drinking water for the University of Rhode Island (URI) estimated at 12,000 people as well as the Kingston Water District (KWD), with a few more than1,000 accounts. The peak demands on the Chipuxet aquifer fluctuate with the primary users: its largest user URI peaks in fall and spring, while another peak occurs in the summer due to increased water withdrawal by the Kingston Water District. KWD supplies the residential, commercial, industrial, and agricultural water to local users. From 1960 to 2000, demand from KWD increased 940% while population increased 134% in the same period. Private residential wells use groundwater, and turf farms also pump water from the Chipuxet aquifer during the growing season from April through late October.

As of 2001 the average annual withdrawal from the aquifer is increasing from 1.1 million gallons per day. Sewage from water supplied by URI and KWD goes to the Atlantic, constituting an out-of-basin transfer of water from the Chipuxet Aquifer amounting to 1.317 mgd, according to the numbers presented in the Water Allocation Program Advisory Committee Out-of-Basin Transfer Subcommittee's extensive 2004 report.

We have an opportunity to share and manage the water better

Multiple studies have found that the Chipuxet does in fact show signs of being stressed and has been dry for periods in August and early September. The U. S. Geological Survey maintains a real-time flow gauge on the Chipuxet, and their data shows a trend towards lower low flows. A trend toward lower precipitation and higher demands portends ecological disaster for the river and depletion of private wells in shallower deposits of the Chipuxet aquifer.

What you can do

As an informed citizen, you keep abreast of proposed developments, population trends, and water protection issues. In addition to participating in municipal decision-making on projects that affect water consumption, you can practice efficient use of water in your home. Use pans of soapy and hot water for washing and rinsing dishes. Turn off faucet while brushing teeth or shaving. Measure rain and sprinkling for your lawn to total one inch per week. Consider purchasing a rain barrel. Convert to water efficient plumbing and appliances.