

► **Mobilization of aluminum**

Aluminum is often released from soil to soil water, vegetation, lakes, and streams in forested regions with high acid deposition, low stores of available calcium, and high soil acidity. High concentrations of aluminum can be toxic to plants, fish, and other organisms. Concentrations of aluminum in streams at the HBEF are often above levels considered toxic to fish and much greater than concentrations observed in forested watersheds receiving low levels of acid deposition.

► **Accumulation of sulfur and nitrogen**

Acid deposition results in the accumulation of sulfur and nitrogen in forest soils. As sulfate is released from the soil, it acidifies nearby streams and lakes. The recovery of surface waters in response to emission controls has therefore been delayed and will not be complete until the sulfate left by a long legacy of acid deposition is released from the soil.

Similarly, nitrogen has accumulated in soil beyond the amount needed by the forest and appears now to be leaching into surface waters in many parts of the Northeast. This process also acidifies lakes and streams. Forests typically require more nitrogen for growth than is available in the soil. However, several recent studies suggest that in some areas, nitrogen levels are above what forests can use and retain.

FIGURE 8:

Acid deposition has altered the calcium cycle in watersheds in the Northeast that are similar to the HBEF. ▼

