
ENVIRONMENTAL Fact Sheet



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The New Hampshire Protected Instream Flow Program Lamprey and Souhegan River Pilot Projects

Why does New Hampshire need stream flow protection?

The purpose of the Instream Flow Program is to ensure that rivers continue to flow in spite of the uses and stresses that people put on them. Under natural conditions, rivers flow freely with source waters coming from precipitation via lakes, ponds, wetlands, small streams and groundwater. River levels vary greatly through the seasons, and native plants and animals have adapted to low summer flows, as well as to the typical spring floods. But the rivers remain hydrologically connected to water storage areas, such as wetlands, so that some flow is maintained even during the hot summer months.

Under human influences, however, river dynamics can change drastically. People frequently withdraw large amounts of water for drinking and irrigation directly from rivers, as well as from the sources that supply the rivers, particularly lakes and groundwater. Many rivers have dams that restrict the amount and timing of water flowing downstream. In addition, the loss of wetlands to land development reduces the amount of water that would normally augment rivers during dry periods.

What is the Instream Flow Program?

The New Hampshire legislature created the Instream Flow Program in 1990. Two rivers, the Lamprey and Souhegan, were selected as the subjects of in-depth pilot studies to determine how best to protect flows so that both human and wildlife needs can be met. The idea is to avoid situations like the one pictured here of the Ipswich River in northeast Massachusetts, where groundwater withdrawals from wells can literally suck the river dry.



Ipswich River – photo by the Charles River Watershed Assoc.

The Instream Flow Program consists of two parts. First, NHDES calculates the flow conditions in a stream that will protect aquatic life. These flows vary by season because fish and other aquatic organisms require higher flows at some points of the year, such as during spawning season, but can survive lower flows at other times of the year. Second, management plans are drafted that describe how water users will operate to maintain their water use needs along with protected flow conditions, and how dam owners will manage their dams to maintain flow downstream. NHDES adopted the Lamprey and Souhegan River Water Management Plans in August 2013 and continues to work with affected water uses and dam owners to help them comply with the plans.

What do the Instream Flow Management Plans address?

1. **Conservation** – Registered water users are required to take steps to prevent water losses and waste, such as leak detection, metering and pressure management.
2. **Reducing the impacts of withdrawals** – When flow in the river remains low over the course of several days or weeks, water users are required to reduce water withdrawals affecting the river. For example, in Durham this often means that the municipal water treatment plant withdraws water from other sources and stops withdrawing from the Lamprey River altogether. In addition, municipal water treatment plants would issue limits on lawn watering and other water use restrictions within the municipality.
3. **Prescribing a relief pulse of water** – During extended low flow periods that reach critical levels, a relief pulse of water may be released from one or more dams. This pulse of water mimics the amount of water that the river would see during a typical two-day rainstorm and reduces the stressful conditions experienced by aquatic life during low flows. For example, in the Lamprey River a two-day relief pulse of water can be released from Pawtuckaway Lake and Mendums Pond when low flow in the Lamprey River persists. This pulse will lower pond and lake levels minutely, but will have a large positive impact on river ecology.

Testing a Relief Pulse

During September 2012, NHDES conducted a test relief pulse of water in the Lamprey River. Water was released from Pawtuckaway Lake for 43 hours in an amount calculated to lower the lake level by 0.6 inches, but which increased flow in the Lamprey River by 12-15 cubic feet per second. This amount of water can save the lives of fish and other river life during extreme low flow periods.

What is next for the Instream Flow Program?

The Commissioner adopted the Water Management Plans for the Lamprey and Souhegan Rivers on August 30, 2013. The next steps include:

1. Continued water quality and quantity **investigations** for Pawtuckaway Lake to determine the effects of management changes to the winter lake level as part of a Partnership Agreement between NHDES and Pawtuckaway Lake Improvement Association.
2. Implementation of water management plan components for the Lamprey Designated River.
3. Finalization of dam management agreements to implement the Souhegan Designated River water management plan.
4. After a 2-year period of implementation, the New Hampshire **Legislature will review the Lamprey and Souhegan pilot projects** in 2015 to determine future actions pertaining to protected instream flow for the state's designated rivers.

Key Facts

- The goal of the Instream Flow Program is to balance human and wildlife needs in rivers and lakes.
- Protected instream flows implement Surface Water Quality requirements for flow.
- Currently, the Instream Flow Program only applies to the Lamprey and Souhegan Rivers.

For More Information

To learn more about the Instream Flow Protection Program, please see <http://des.nh.gov/organization/divisions/water/wmb/rivers/instream/>, or contact Wayne Ives at (603) 271-3548 or wayne.ives@des.nh.gov.

Souhegan River Instream Flow Water Management Plan link -

http://des.nh.gov/organization/divisions/water/wmb/rivers/instream/souhegan/water_management_plan.htm#task12

Lamprey River Instream Flow Water Management Plan link –

<http://des.nh.gov/organization/divisions/water/wmb/rivers/instream/lamprey/water-management-plan.htm#task12>