NEW HAMPSHIRE DEPARTMENT OF Environmental Services

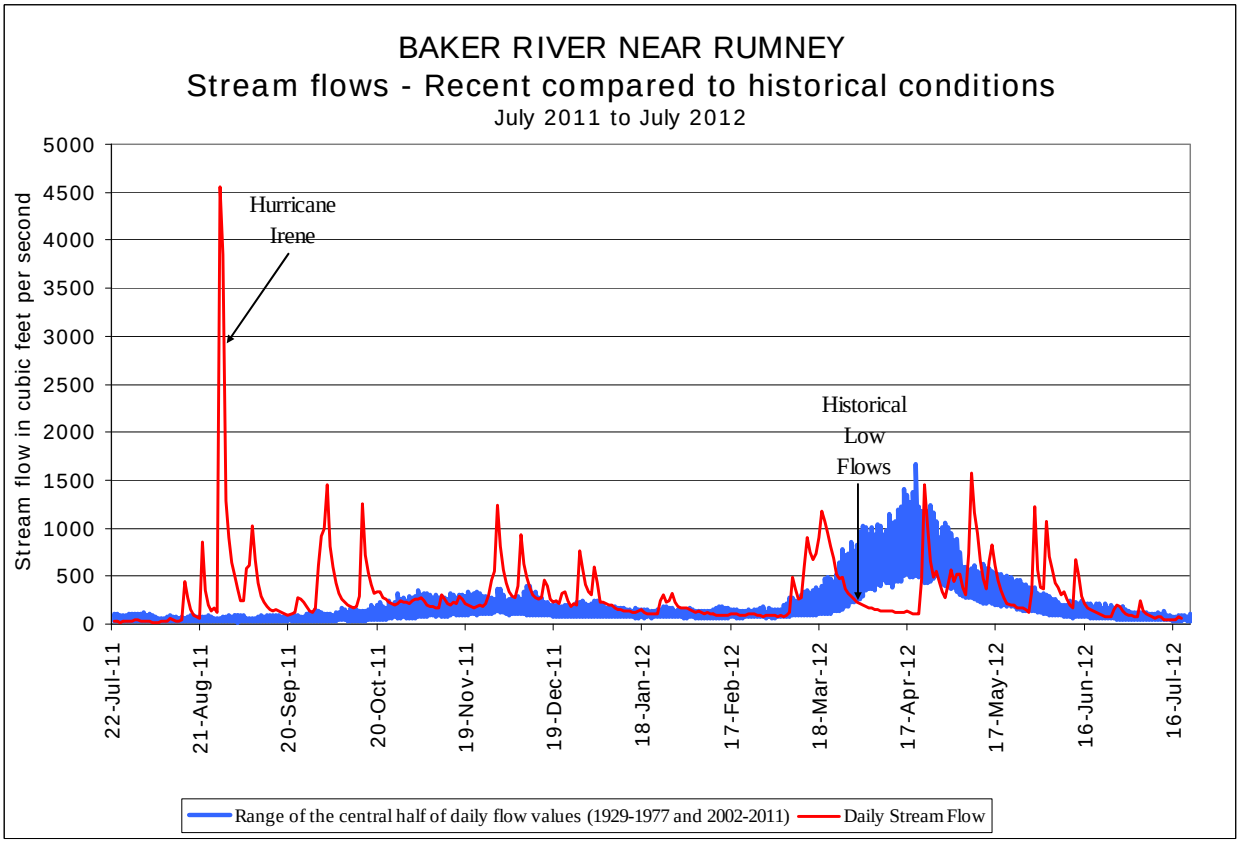
Environmental Dashboard

Trends in New Hampshire's Environment
Water Availability: Stream Flows

The volume of water transported through river systems is commonly referred to as "stream flows," and these flows can change dramatically due to a wide range of conditions. The amount of water in streams responds to rainfall and groundwater levels, and indicates whether water is plentiful or scarce. Concern is raised when flows are much higher or much lower than normal. Extended periods with either type of extreme flows, such as during floods or droughts, represent occasions in which management may be necessary. However, accurate forecasting of precipitation and conditions that define stream flows is difficult beyond a few days.

Current Condition

From mid-July 2011 to mid-July 2012, stream flows statewide exhibited both extreme high and low values.



SOURCE: US Geological Survey's National Water Inventory System

Explanation of Indicator and Trend

The chart above for the Baker River is one example of annual trend data which illustrates the extreme stream flows experienced around the state during the period mid-July 2011 to mid-July 2012. The red line indicates the actual daily stream flows, and the blue shading represents the central range of daily flows based on historical data at that station. The chart demonstrates that the heavy rains from Hurricane/Tropical Storm Irene in late-August 2011 came at a time when stream flows are typically very low, and the lack of precipitation and snow melt in March and early April 2012 had resulted in stream flows that were well below the historical norm.

There is no goal for stream flows because they are expected to vary. However, long durations at extreme ranges represent conditions in which fish, animals, plants and the state's bridge and culvert infrastructure may be unprepared to meet. Natural variability in daily and seasonal flows best support fish and plants that need either high or low flows. Frequency of extreme events is an indication of changing trends that may affect infrastructure and ecosystems.

Stream flows are variable, and this is a normal characteristic of environmental conditions. Historically, this variability tends to occur mainly within season-specific ranges. The occurrence of two extreme events taking place in the same year illustrates the increasing tendency for more extreme weather conditions.

How Does DES Address This?

Data collected from the statewide network of stream flow monitoring stations are used by a variety of DES programs and state agencies whose work is impacted or directed by rivers and their flows, especially when extreme weather events occur. Examples of affected programs within DES include, but are not limited to, the Rivers Management and Protection Program and the Dam Bureau, and outside DES, the Department of Fish and Game and the Department of Transportation.

In 2002, a broad coalition of New Hampshire business and conservation interests joined together to support enactment of legislation that created a pilot program for instream flow protection on two of the 21 Designated Rivers in New Hampshire: the Lamprey River in the Coastal watershed and the Souhegan River in the Merrimack watershed. Administrative rules adopted in 2003 describe the process for conducting a protected instream flow study and developing a water management plan to implement the study results.

For More Information, Including What You Can Do to Help

DES Instream Flow Protection Pilot Program
http://des.nh.gov/organization/divisions/water/wmb/rivers/instream/index.htm
DES Rivers Management and Protection Program
http://des.nh.gov/organization/divisions/water/wmb/rivers/index.htm
DES Water Use Registration and Reporting Program
http://des.nh.gov/organization/divisions/water/dwgb/dwspp/wurrp/index.htm
DES Dam Bureau http://des.nh.gov/organization/divisions/water/dam/index.htm
USGS Stream Gage Network for New Hampshire
http://waterdata.usgs.gov/nh/nwis/rt
USGS National Stream Gage Network
http://waterdata.usgs.gov/nwis/rt

04/05/2013