Situation
An ice jam has formed on the South Branch Piscataquog River at Goffstown-New Boston town line. As reported by town officials and observed by NHGS flood hazards personnel on February 6, 2019, the toe of the jam is located approximately 1,100 feet downstream of the Goffstown-New Boston town line, while the head is located near the Howe Bridge Road crossing in New Boston. This creates a total ice jam length of about 4,900 feet. Conditions upstream of the ice jam head remain open with flowing water for upstream to New Boston, with minimal ice observed within the primary river channel. According to town officials, the ice jam began to form in late-January, with ice blocks, as of February 6, extending onto the floodplain adjacent to the river. Concern exists with regard to potential flood impacts adjacent to Route 13 near the Goffstown-New Boston town line, if jam or river conditions change.

Location overview
The ice jam is located on the South Branch Piscataquog River, within the towns of Goffstown and New Boston. The length of the ice jam is identified through the bold, blue line in the map on the following page.

History
Based on historical flood information reported by the towns, this is not the first ice jam that has occurred in this area. In the Cold Regions Research and Engineering Laboratory (CRREL) ice jam database, two ice jams that led to flooding of infrastructure in New Boston were recorded on February 12, 1970 and in 1900. Between 1900 and the present, a total of 19 ice jams were recorded in Goffstown. Though the locations have varied each year, ice jams have occurred on the South Branch Piscataquog River in 2017 and 2018, at points on the river between the center of New Boston and Goffstown. As seen in the map below, the South Branch Piscataquog River splits into two paths within a broader, low floodplain area at the site of the current jam. NHGS currently does not have information regarding the long-term frequency of occurrences at this particular site, other than to note that it has been reported that this is not the first time this site has been impacted.

Why is this happening?
Ice jams are created through the combination of two components: (1) weather impacts upon river temperature profiles; and (2) river form that can enhance ice jam formation.
The weeks in January preceding initial formation of this jam were very cold (temperatures below freezing), and continual subfreezing temperatures caused a thick layer of ice to form on the river’s surface upstream. On January 24, temperatures rose into the 50s, accompanied by 1.42 inches of rain, as recorded at Concord. Those weather conditions coincide with the time that town officials reported that the jam began to form. This would result from ice cover upstream that broke into large blocks that then began to flow downstream. As seen in the high resolution elevation data in the map below, the location of the current jam occurs where the river flows out from a confined valley, with steeper slope into more level terrain and onto a wider floodplain area. Given the site topography, large volumes of ice flowing down from upstream would settle in this area and become deposited onto the adjacent floodplain. This process would lead to the current site situation. It is unknown if any features in the river channel assisted in formation.

Contact Information
For questions about this summary, contact Shane Csiki, Flood Hazards Program Administrator, New Hampshire Geological Survey at (603) 271-2876, or Shane.Csiki@des.nh.gov.

Next Update
An update of this summary will be planned when conditions change, or if additional information becomes available regarding the ice jam.