

MEMORANDUM FOR RECORD: Fulmer Creek ice jam.

1. Jon Zufelt received an email from Jessica Breiten, Chief Planner, Herkimer-Oneida Counties Comprehensive Planning Program, Utica, New York 13501; jbreiten@ocgov.net regarding the Fulmer Creek ice jam in Mohawk between the Rt. 5s bridge and the Main Street bridge in the Village of Mohawk. Jessica felt that the rain yesterday raised the water levels and loosened some of the ice in the creek and on its banks. She reported the banks show signs of scour, are relatively bare (down to rock and soil), lack debris from branches, trees, etc, and, in some spots, shows scarring of trees caused by ice movement. Although there are some huge chunks of ice still hung-up further upstream on banks, gravel beds, etc., the ice that is jamming includes relatively small chunks except at the site of the original blockage by Rt 5, where the chunks are bigger. The upstream ice supply seems to have ended. She wondered what to do about the jam. Although everyone is concerned with the safety of workers at the site, some say continue to try to clear the channel while others say don't do anything. Some say we should hope for higher water levels which may help "float" the ice jam out. Others question whether higher water levels will just send more of the remaining ice downstream - compounding the existing jam. One thought suggested that if the jam froze and became more solid tonight, that perhaps the water would begin to flow "over" the jam and help "erode" it. She had a basic question for Jon: should a channel be dug to clear the existing ice before the temperature again warms tomorrow and it possibly rains tomorrow night?
2. Jon Zufelt's response to Jessica Breiten 03 Mar 04:
 - a. Do a good windshield survey upstream (and go quite a ways) to see what the potential of more ice coming downstream from above really is. If there is very little ice left on the banks, then you may be in good shape. If there are several other ice jams upstream then get pictures and estimates of their length along the river.
 - b. Get a good idea of the weather forecast for the next few days. Try to get someone to extrapolate, like "there is a big low pressure system moving up the Mississippi Valley and the likelihood is for warming temperatures and rain over the next week". This will give you an idea of whether the weather is going to warm or turn cold again. Based on the date, I would say that this is probably it for winter and it will continue to warm or at least stay the same as it is.
 - c. You mentioned rain. How much and when did it happen in comparison to the jam forming? Was it immediately before the jam or a couple of days? What about the temperatures leading up to the rain event.

- d. I can see from the picture of the Main St. bridge that this ice has traveled a ways (small pieces and pretty dirty water. Watch the upstream edge of the ice jam and keep track of its location. If it is receding quickly, then you have melting on your side.
- e. Take a look at the Mohawk. What are the conditions down there? Is it still ice covered? Do its levels look like they are rising as well? Also, can you tell where the "toe" or most downstream edge of the jam is? I'd like to know this just to make sure that we are modeling correctly. It looks like the big pieces started jamming right at the 5S bridge but from the picture, it almost looks like they stopped under the bridge. This could be because you have had such cold weather this winter, that the ice in that section (under the bridge which is free of snow cover) has gotten quite thick and quite strong making a likely place to jam.
- f. Now, on the what to do. This is a bit of a stretch since I'm not there and don't have all the info but here is some options.
- g. If the jam looks like it is receding (the upstream extent keeps moving downstream), the water levels are steady or going down, and there is little ice left upstream: I would let it sit and melt. That keeps people away from the danger or working near a jam that might release suddenly. If the air temperatures are supposed to be continued mild (and by this I mean an average daily temperature of 32F or higher), it will continue to melt. If it looks like the air temperatures are supposed to get cold again (less than 20F at night and not above 30F in the day) then it will probably hold as long as no more rain is expected (and with those temps, it shouldn't rain).
- h. If the jam looks like it is growing or stable but there is considerable ice left upstream or there is a high potential of another heavy rain, then you might want to try to pick away at the ice beneath the bridge. You would also want to use this method if there isn't more ice but the water levels look like they are continuing to rise. Since this area has pretty good access along the channel, the preferred method would be to use an excavator or "grade-all" type of equipment and pull the ice from the channel and place it on land. You have to be careful in this operation because the jam could fail and result in a pretty big wave of water and ice that could wash away equipment or people along the shore. I would work first at the bridge to try to remove some of that ice under the 5S bridge and then (or in tandem) picking away at the ice at the downstream end of the jam. In moving the ice out of the channel, you are making a space and the jam upstream will likely move to refill that space. Just be prepared for that movement.

3. Respectfully submitted, Jon E. Zufelt, PhD, PE

(Photos below)



