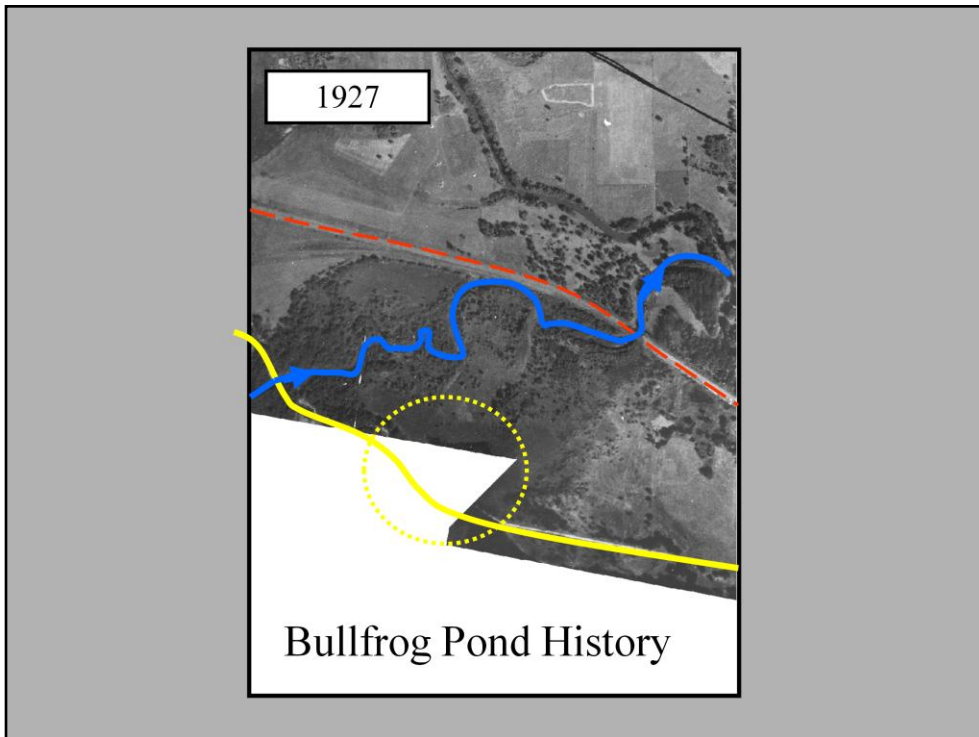
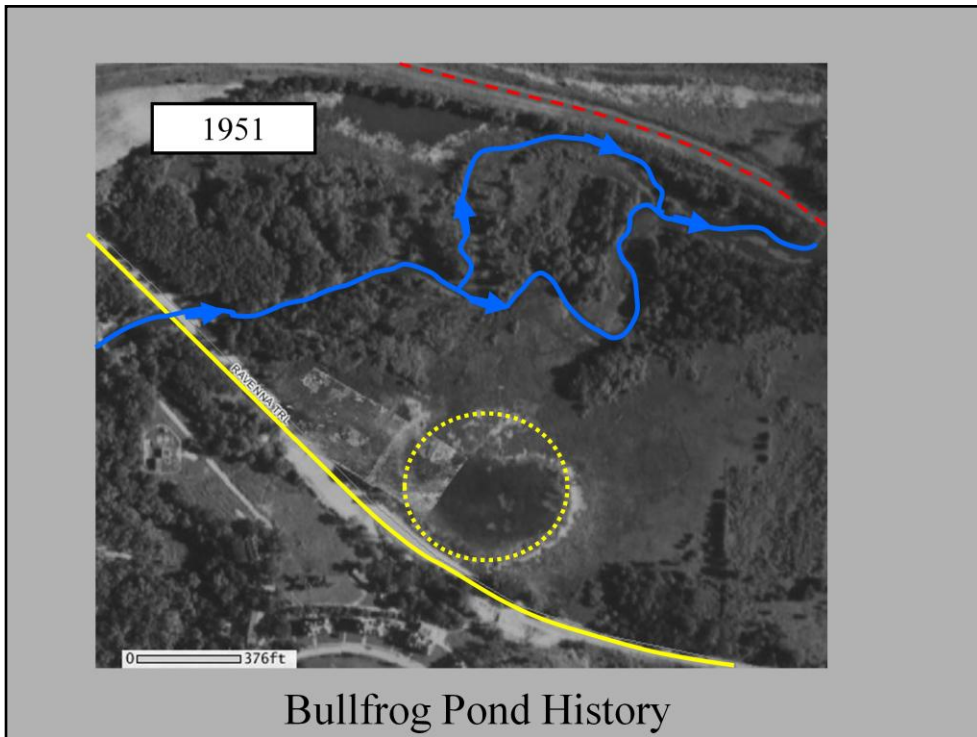


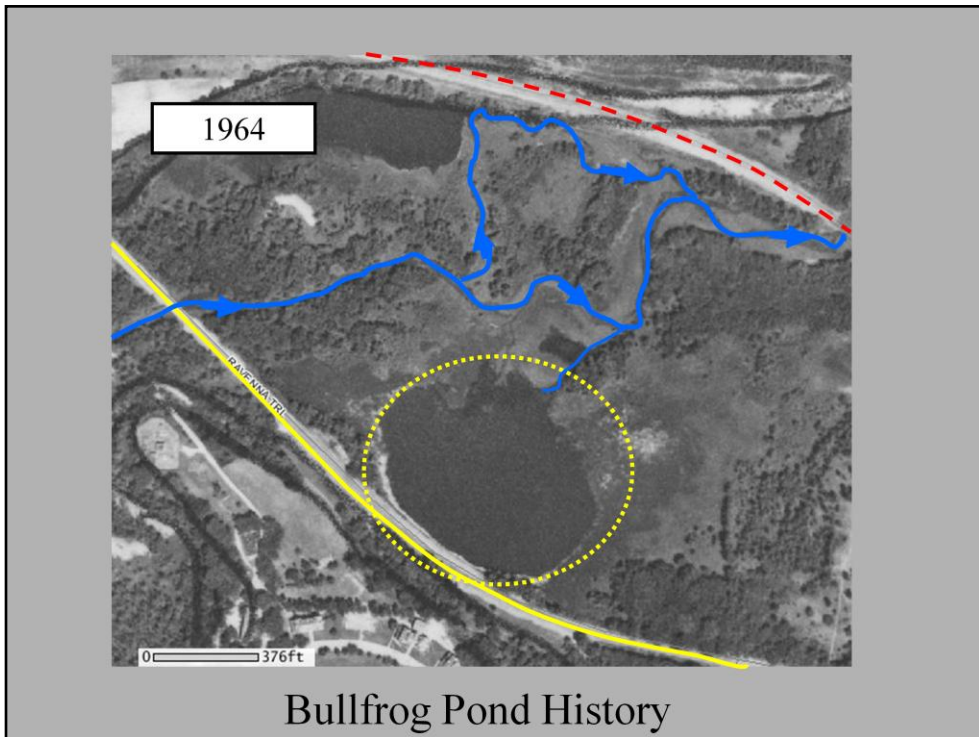
1895 – Vermillion River mainstem (blue) lies north of the pond. Railroad is shown in red; Ravenna Trail in yellow; Bullfrog Pond is within dashed yellow circle.



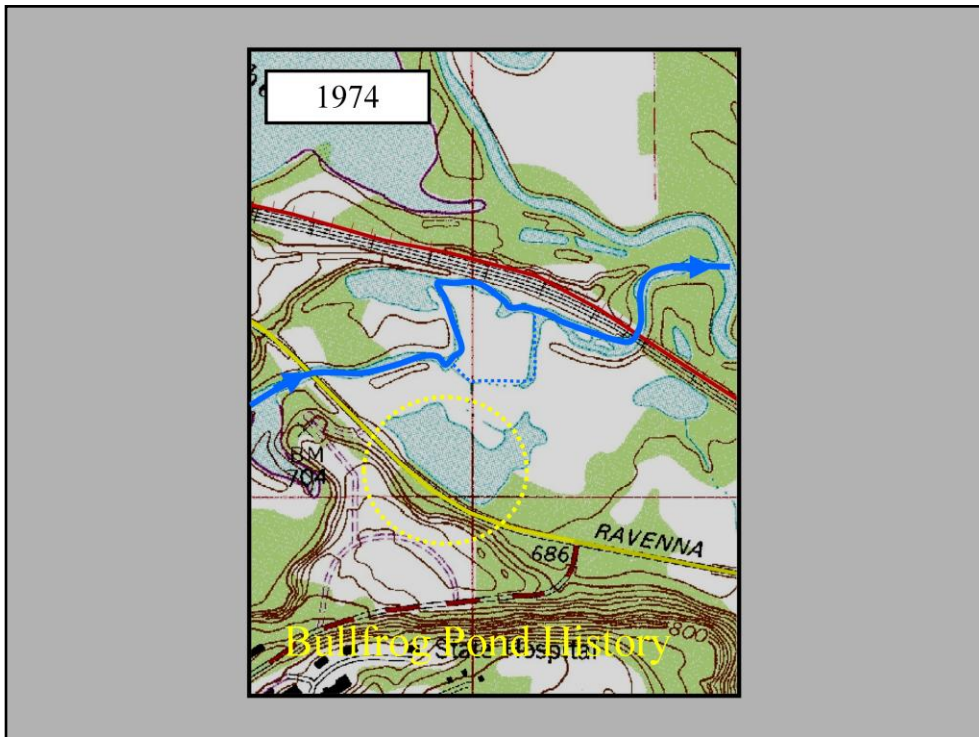
1927 – Not a complete aerial photo, but river still lies to the north.



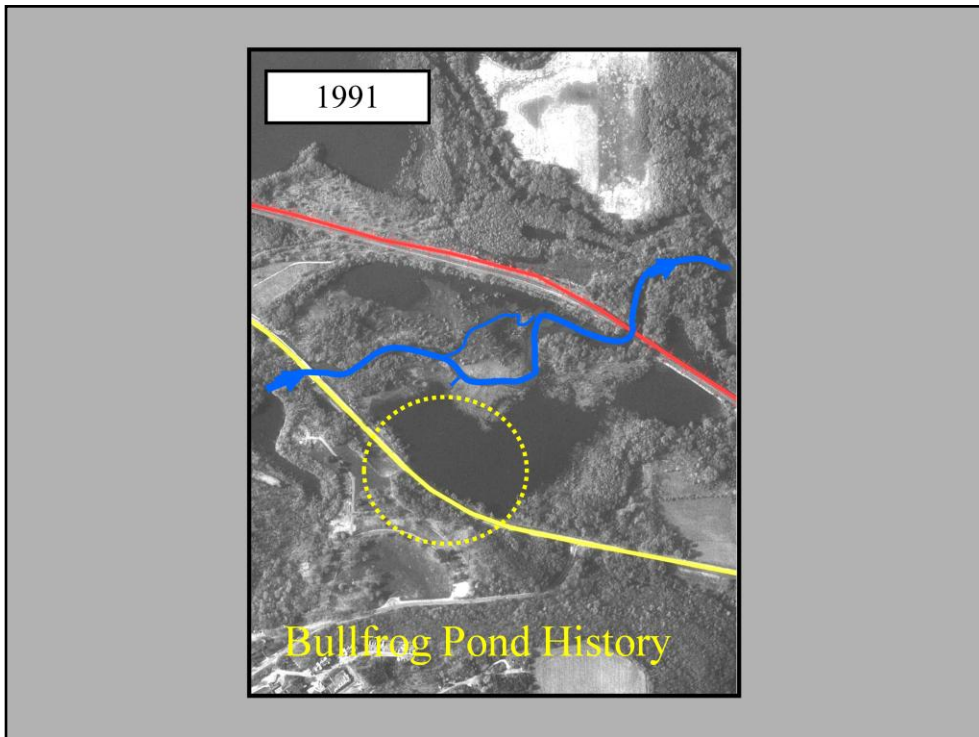
1951 – River splits with some water beginning to flow in a new southeasterly route before rejoining the northern channel just upstream from railroad tracks. Bullfrog Pond does not appear to be connected with distinct channels, although this is likely a year of low water.



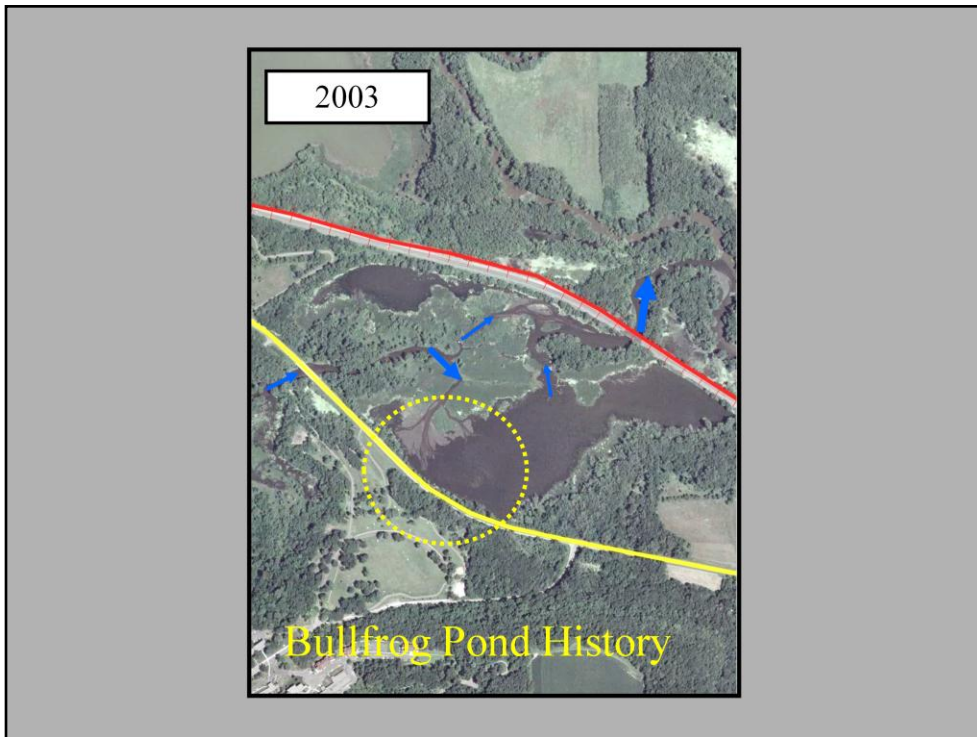
1964 – River still splits and now appears to be connected to the Pond with distinct channels.



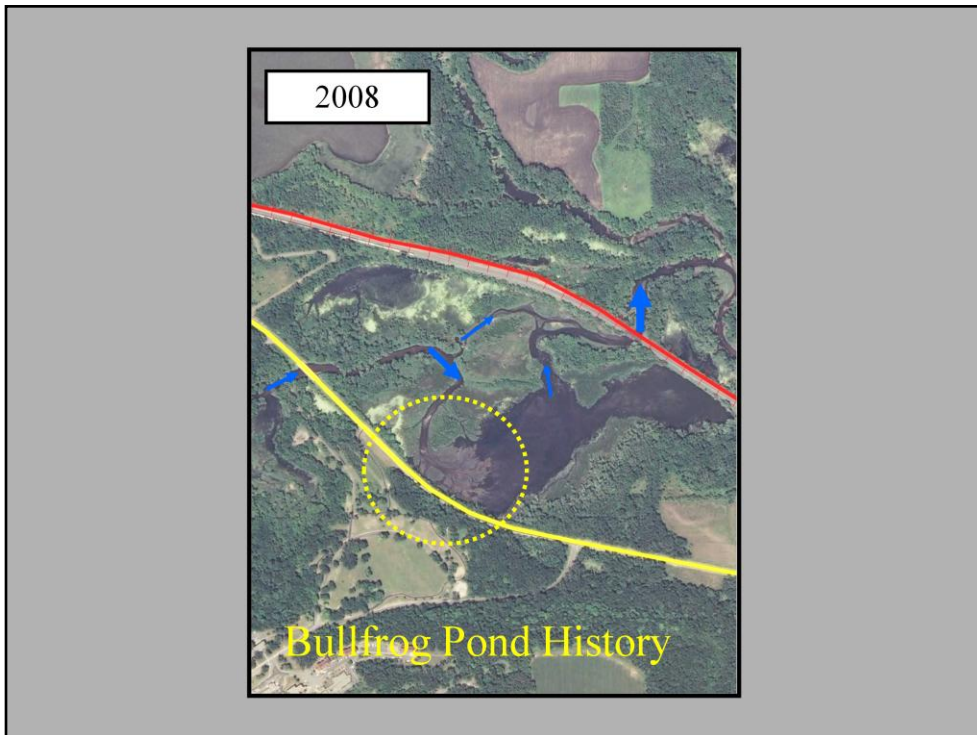
1974 – USGS quad map. Light blue color indicates open water.



1991 – Main channel of the River has shifted to the south, closer to the Pond; some connections into the Pond are evident.



2003 – Now majority of River flows into Pond. Large, shallow delta in NW corner of pond makes canoeing difficult. (See notes for next slide.)



2008 – Same conditions as 2003 with perhaps even more river flow going through pond. Very little flow bypasses pond to the north.

The water is being diverted through Bull Frog Pond because the channels to the north have filled with sediment making them higher and therefore making it easier for the water and sediment to flow through the pond. This is very typical of delta areas where there is still some room for channels to move around. Being constrained by the highway and the railroad, the River must work within the area of the Pond. Additionally, it appears that water levels are higher and there is a greater amount of open water (as opposed to vegetated wetland) than before the lock and dam was constructed.

This delta attracts large numbers of waterfowl and shorebirds and illustrates some of the dynamics of a river system. Due to the highway, railroad, dikes, lock and dam, and other infrastructure constraints, it is unlikely that Mississippi or Vermillion Rivers flows will ever scour a new pond in this area. In the future, Bull Frog Pond will continue to fill with sediment.