

Ripple Effect #44

THE 100-YEAR FLOOD...SO SOON?!

The “100-year flood” is a term we may have heard quite often living in the Red River Basin. The United States Geological Survey (USGS) has developed the following information to help explain what the term 100-year flood really means.

The term "100-year flood" is misleading because it leads people to believe that it happens only once every 100 years. The truth is that an uncommonly big flood can happen any year. The term "100-year flood" is really a statistical designation; there is a 1-in-100 chance that a flood of a certain size will happen during any year. Perhaps a better term would be the "1-in-100 chance flood."

The actual number of years between floods of any given size varies a lot. Big floods happen irregularly because the climate naturally varies over many years. We sometimes get big floods in successive or nearly successive years with several very wet years in a row.

Two 100-year floods could occur a year apart or even a month apart—it all depends on how much rain falls or how quickly the snow melts. A "20-year flood" has a one in 20 (or 5%) chance of occurring in a particular year so it would be a less destructive flood than a 100-year flood, while a "500-year flood" has a one in 500 (0.2%) chance of occurring, so it would be much more catastrophic than a 100-year flood.

Scientists collect data and study past floods to get a minimum of 10 years of information about the river; a longer record provides a better estimate of the "1-in-100 chance flood." Scientists use statistics and observe how frequently different sizes of floods occurred, and the average number of years between them, to determine the probability that a flood of any given size will be equaled or exceeded during any year.

Since the 100-year flood level is statistically computed using past, existing data, as more data comes in, the level of the 100-year flood will change (especially if a huge flood hits in the current year). As more data are collected, or when a river basin is altered in a way that affects the flow of water in the river, scientists re-evaluate the frequency of flooding.

Next time you think about “the 100-year flood,” think of it as having a jar of 99 white marbles and one black marble in a jar. You close your eyes and pull a marble out of the jar and you pick the black one. Put the marble back in the jar and next year you pull out one more and it’s black again. Your one percent chance of getting that marble happened two years in a row—just like the 100-year flood has been known to do!

Until the next Ripple Effect,

The Red River Basin Commission (RRBC)

The RRBC is a grassroots organization that is a chartered not-for-profit corporation under the provisions of Manitoba, North Dakota, Minnesota, and South Dakota law. Our offices in Moorhead, MN and Winnipeg, MB can be reached at 218-291-0422 and 204-982-7254, or you can check out our website at www.redriverbasincommission.org.

