

Lake Pepin Ice Measurements

Frequently Asked Questions

Q: Why do we record ice thickness measurements?

A: We record ice measurements on Lake Pepin as a partnering effort with the navigation industry. They can use the data to help determine when they might be able to get tows upstream into Red Wing and St. Paul.

Q: Why Lake Pepin?

A: Most of the main channel opens up, or melts before Lake Pepin because it is narrow and the water flow keeps it open. Lake Pepin is much wider and has slower current than most of the main channel areas, so it's usually the last obstacle preventing northbound tows from getting up to Red Wing and St. Paul.

Q: When and how often are the measurements taken?

A: Much depends on weather conditions from year to year, but the measurements usually start in mid-February and are taken every week or every other week until it is clear that the ice is no longer a barrier to commercial navigation.

Q: How and where are the measurements taken?

A: Originally measurements were taken at one-mile intervals along the main sailing line through Lake Pepin from Mile 765 to Mile 786. In 2009 it was decided to take measurements closer to the actual route traveled by tow boats that navigate the lake still in one-mile intervals. A Global Positioning System (GPS) location is documented at each of the measurement points to insure that measurements are repeated at the same locations. A two-person crew travels to each location using an airboat. Once at the location, they use an ice auger to drill through the ice and record the measurement with a tape measure.

Q: What kind of data is recorded?

A: The crew records the thickness for blue ice and white ice. Blue ice, sometimes called black ice is clear and solid. White ice or snow ice has air bubbles. Together they equal the total ice thickness.

Q: Does the ice need to be completely gone before tows can navigate the area?

A: No. Individual towing companies will determine how much ice they will break through, but it is not uncommon to see them break through 12-15 inches of solid blue ice. In 2004, a tow broke through a seven-mile stretch with blue ice 17-19 inches thick (REGGIE G. with 12 barges loaded with fertilizer).

Q: What is the average ice thickness on Lake Pepin when measurements begin in mid-February?

A: The average ice thickness on Lake Pepin for the first ice survey which is the second week in February for all locations from 1998 through 2019 is 16 inches, but this can be misleading. It's more important to look at the thickest measurements and then how far that thickness is maintained. The Corps office in Fountain City, WI, began keeping records of ice thickness in 1998. From 1998 to 2019, measurements have been as much as 32 inches. Over that time the thickest spot on average has been at Mile 769, about 4 miles south of Lake City, MN.

Q: How early in the season does navigation usually begin in the St. Paul District?

A: The St. Paul District considers the day the first commercial tow locks upstream through Lock & Dam 2 as the official start of the navigation season for the District. That day varies, but the average for the last ten years (2010-2019) has been 25 March. The earliest date was 4 March (1984, 2000 and 2001) and the latest date was 24 April (2019). The historic record first tow through L/D 2 to St. Paul through the decades is as follows: 30's = 12 April, 40's = 30 March, 50's = 1 April, 60's = 20 March, 70's = 16 March, 80's = 4 March, 90's = 16 March, 00's = 21 March, 10's = 9 March.