

Flood Warning System for the Ohio and Lower Muskingum Rivers

Early settlers in the state of Ohio traveled on the Ohio River which borders the eastern and southern portion of the state. Many of the oldest cities and villages in Ohio are located along the Ohio and Muskingum rivers, and as a result, are prone to flooding.

The Ohio Silver Jackets team helped local community leaders secure funding for a state-of-the-art flood warning system that will provide citizens additional time and more accurate data to prepare for and mitigate the effects of flooding.

Project Benefits

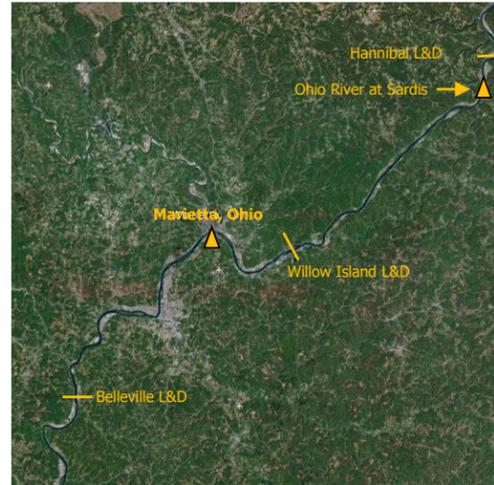
- Advanced flood warning, resulting in increased safety and reduced damages.
- Provides emergency management officials with an estimate of areas that may be in danger of inundation and when flooding will occur.
- Emergency management officials can react accordingly to help mitigate flood damages. These tools can be used to develop emergency action plans to better prepare communities for future flood events.
- These sets of tools provide a visual prediction that is easily and quickly understood by all users; not just those trained in flood emergency response.
- Flood Inundation Maps developed for a flood warning system help to translate a hydrograph into operational maps that communicate risk and consequences.

City of Marietta
Estimated Inundation from 100-year flood



This project will provide advanced flood warning for the City of Marietta and nine other communities along the Muskingum River. This photograph shows the estimated area inundated by a 1 percent annual chance flood event in Marietta. There are 116 repetitive loss structures in Marietta responsible for 281 flood insurance claims that total more than \$7.5 million. There have been 10 presidential disaster declarations for flooding in Marietta.

City of Marietta
Ohio River at Sardis, Locks and Dams



Two stream gauges will be installed as part of this project. A stream gauge will be installed at the U.S. Army Corps of Engineers Old Lock 15 Site, located approximately 2.7 miles downstream from the existing Hannibal Lock and Dam.

Another gauge will be installed on the Muskingum River at Beverly.

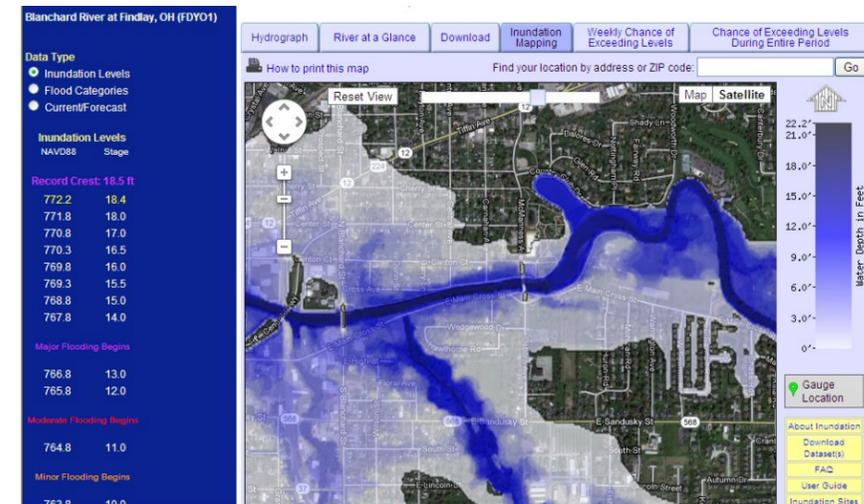
Acoustic Doppler Velocity Meter and NWS Advanced hydrologic Prediction Service



Most U.S. Geological Survey stream gauges operate by measuring the elevation of the water in the river or stream and converting the water elevation (stage) to a stream flow (discharge) by using a curve that relates the elevation to a set of actual discharge measurements. Due to the flow characteristics of the Ohio River at lower flows, the Old Lock 15 site will be equipped with an acoustic Doppler velocity meter.

Ohio Silver Jackets Project Partners:

- U.S. Corps of Engineers
- U.S. Geological Survey
- National Weather Service
- U.S. Dept. of Housing and Urban Development
- The Ohio River Basin Alliance
- Ohio Department of Natural Resources
- Ohio Emergency Management Agency
- City of Marietta



A library of flood-inundation boundaries will be developed for a pre-selection set of flood stages, and mapped using orthophotographs. This library will be used in combination with NWS predicted flood stages to help visualize areas expected to flood well in advance of occurrence of the peak flood stage. The NWS Advanced Hydrologic Prediction Service web-based application will be used to disseminate the information to emergency managers and the public.