



# KNOW YOUR RISK

## LEVEE INSPECTION RESULTS GUIDE FLOOD RISK PRIORITIES

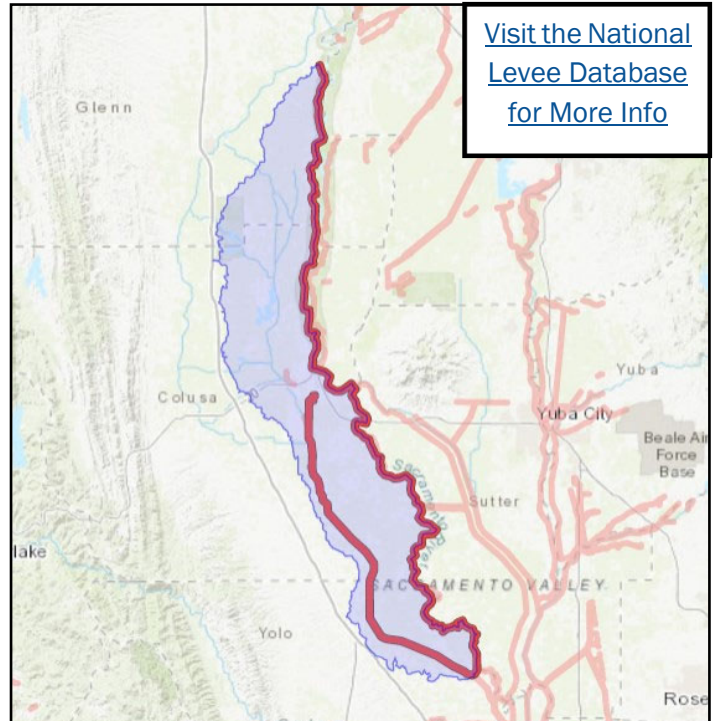
### UNDERSTANDING YOUR RISK

#### What Was Inspected?

The 120-mile-long Sacramento River West Bank levee system was inspected in December 2019 by the U.S. Army Corps of Engineers (USACE). The eastern portion extends along the west bank of the Sacramento River from Ord Bend in Glenn County to Knights Landing in Yolo County. The western portion extends along the left bank of Colusa Drain from Colusa to Knight's Landing. The city of Colusa is the most populated area behind the levee with the majority of the leveed area primarily agricultural.

#### What Did We Look For?

Anything that may negatively impact the levee integrity, inhibit operations and maintenance, or prevent emergency response personnel from conducting their operations (such as flood fighting) was noted. Flood risk and levee condition are dynamic. Levees change over time: banks erode, closures rust, animals burrow, and pipes wear out. Ongoing vigilance is needed to reduce the risk associated with flooding.



#### Levee Inspection Findings

USACE identified unacceptable items that could impact levee performance in future flood events. Although past performance is not an indicator of future performance, the levee system was able to perform as intended during past flood events. The most critical items impacting levee performance include encroachments, slope stability, erosion/bank caving, animal control, and depression/rutting related issues. The system remains eligible for federal rehabilitation assistance following flood events because the non-federal sponsor (Central Valley Flood Protection Board) and the local maintaining agencies (LMAs) who are responsible for operation and maintenance of the system have developed an improvement plan, and are making good progress in correcting unacceptable items.

#### Example Inspection Observations



*Encroachments Near the Levee:*

Unpermitted encroachments, such as the retaining wall shown above, have not been evaluated to determine the potential to negatively impact the levee.



*Animal Burrows:*

Animals burrowing into the levee slope can negatively affect the integrity of the levee. An effective animal control program can help reduce the risk associated with burrows.

## Example Inspection Observations—Continued



*Erosion of Levee Slopes:*

The earthen levee slope has eroded as a result of river flows. Bank protection, such as riprap, may be placed to protect the slope from additional erosion.



*Pipes Through the Levee:*

Every pipe that extends through the levee needs a riverside closure, such as a valve. This is to prevent possible flow of water from the riverside of the levee to the landside. Open pipes like this without closure can lead to potential flooding.

## REDUCING YOUR RISK

### Corrective Actions Underway

Seven LMAs, spanning three counties, perform operation and maintenance activities for the Sacramento River West Bank levee system. These agencies include Levee District 1 (Glenn), Levee District 2 (Glenn), CA Department of Water Resources State Maintenance Areas 1 and 12, Sacramento River West Side Levee District, Reclamation District 787, and Reclamation District 108. Together these LMAs have developed a Systemwide Improvement Framework Plan which outlines how levee repairs and improvements are being prioritized. Since the last USACE levee inspection (2010), improvements have been made in the categories of emergency flood fight supplies and equipment, flood preparedness, and emergency response training. In addition to enhanced routine maintenance, major improvement projects have been completed to remedy issues with levee slope stability, levee seepage, and levee erosion. Several through-levee pipes have been upgraded, while others have been video inspected to assess their structural integrity. Some abandoned through-levee pipes have been removed. Over the last 10 years, the LMAs have leveraged over \$40M in State and Federal grants to perform the enhanced maintenance, construct levee rehabilitation projects and improve flood emergency preparedness. The LMAs are committed to continuing to work together to maintain and improve the levee system.

### Challenges

While great progress has been made, challenges lay ahead. LMAs will need landowner support to help with levee encroachment compliance. Additional grant funding is needed to continue the progress made over the last 10-years with enhanced maintenance and levee improvements. Changes in climate will make flood frequencies and flood volumes even more unpredictable.

### What You Can Do

Understanding your risk is important. But it's also important to know that when you live behind a levee there will always be flood risk. Here are some tips to help you prepare for a potential emergency.

- Make a plan for your family
- Build an emergency supply kit
- Visit [Ready.gov](https://www.ready.gov) for more ideas and resources

For more information on the USACE Sacramento District Levee Safety Program, please visit:  
[www.spk.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program](https://www.spk.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program)