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# Nonfederal Levee Safety: Primer, Status, and Considerations

This In Focus discusses nonfederal levees, the evolution of federal efforts to enhance nonfederal levee safety since 2007, and related policy considerations.

## Nonfederal Levees and Risk

Levees (i.e., engineered earthen embankments) and floodwalls (i.e., metal or concrete flood control structures) are built to reduce flood losses. Herein, these structures are collectively referred to as *levees*. Levees currently operated and maintained by nonfederal entities may have been constructed by federal agencies (e.g., U.S. Army Corps of Engineers [USACE]); with federal government assistance; or by state, local, or private entities. There may be as many as 100,000 miles of nonfederal levees in the United States.

While levees are built to reduce risk, they also can pose risks. *Residual risk* remains after a levee is constructed. For example, floods more intense than the flood that a levee was designed to manage can overtop the levee, or poorly designed, constructed, or maintained levees can fail in other ways. Risk associated with levees is a function of the *hazard* (e.g., level and duration of floodwaters), the levee's *performance*, and the potential *consequences* (i.e., what assets and populations may be exposed to loss, damage, and disruption). **Figure 1** illustrates the components of levee risk and some levee performance concerns. Levee safety concerns increase when development behind a levee increases.

Nonfederal or private entities that operate levees are responsible for levee maintenance and safety. While a state may choose to regulate levees, only a few states currently operate programs to oversee design, construction, and maintenance of nonfederal levees. There is no federal authority to regulate nonfederal levee safety, although some federal programs may shape how nonfederal levees are constructed and maintained.

## Federal Flood Insurance and Levees

Since its establishment in 1968, the National Flood Insurance Program (NFIP) has indirectly encouraged levee

construction, operation, and maintenance by eliminating flood insurance purchase requirements and reducing premiums for structures that are mapped as removed from the 100-year floodplain due to a levee. The Federal Emergency Management Agency (FEMA) is responsible for accrediting levees to appear on NFIP Flood Insurance Rate Maps (FIRMs). To be accredited and appear on a FIRM, the levee owner must obtain a certification consisting of documentation, signed and sealed by a registered professional engineer, that the levee meets the NFIP requirements at 44 C.F.R. §65.10.

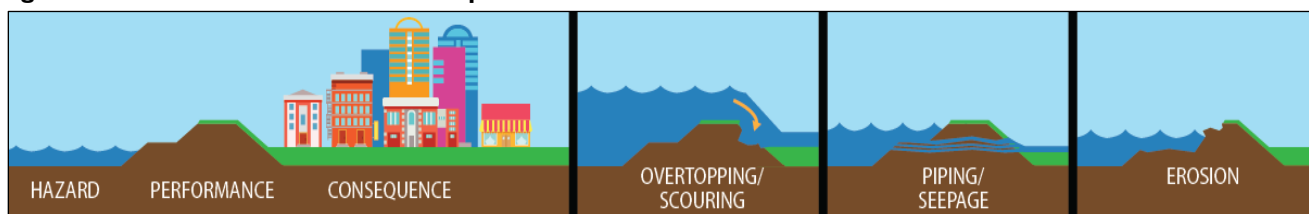
## USACE Repairs and Inspections

USACE operates a repair program—the P.L. 84-99 Rehabilitation Program—for nonfederal flood control works. If a nonfederal levee owner participating in the program has maintained a levee in good condition, as inspected and assessed by USACE, USACE can repair damage to that levee from certain floods or other natural events. USACE regularly inspects 1,600 nonfederal levee systems (consisting of 13,000 miles of levees) that participate in the program.

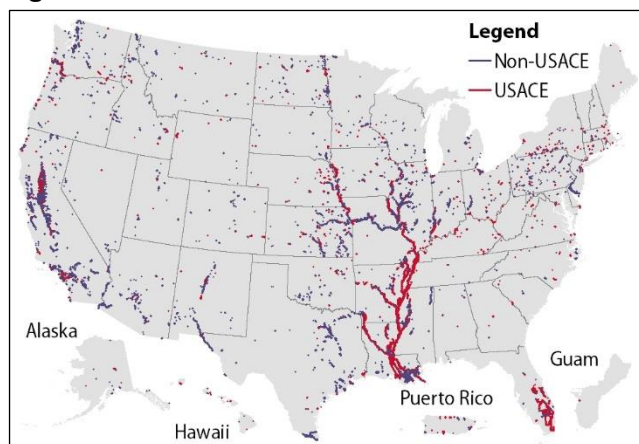
## National Levee Safety Program

Prior to 2007, there was no federal authority to inventory levees or promote state and tribal levee safety programs. Beyond federal requirements to appear on an NFIP map and to participate in the P.L. 84-99 Rehabilitation Program, there also was no broadly applicable national standard or requirement for nonfederal levee construction or maintenance. In 2007 and 2014, Congress authorized the National Levee Safety Program (NLSP; 33 U.S.C. Chapter 46), consisting of multiple program elements, including the creation of a levee inventory, development of voluntary safety guidelines, and the promotion of state and tribal levee safety programs. Congress charged USACE with developing the inventory—the National Levee Database (NLD). The NLD currently captures almost 25,000 miles of levees and is the most complete dataset on the nation's levees, although it is not comprehensive. Many NLSP actions beyond the NLD have remained largely unfunded.

**Figure 1. Illustration of Levee Risk Components and Levee Performance Concerns**



Source: CRS, adapted from Zina Deretsky, National Science Foundation, and USACE, *Risk Assessment for Flood Risk Management Studies*, 2017.

**Figure 2. Levees in the National Levee Database**

**Source:** CRS using National Levee Database, 2023.

**Notes:** Levees in red are USACE-owned or in the P.L. 84-99 Rehabilitation Program; other levees are in purple.

While most states and tribes have not materially advanced their levee safety programs or levee construction and maintenance oversight since 2007, some states have advanced and contributed to NLD efforts, such as California, Illinois, Ohio, Pennsylvania, and Texas. In 2022, pursuant to the NLSP, USACE and FEMA kicked off a multiyear effort to develop voluntary national levee safety guidelines and to provide tools for states and tribes to establish and implement their own levee safety programs.

### Other Nonfederal Levee Activities

Congressional direction in 2012 and 2014 led to efforts by FEMA and USACE to better coordinate their data sharing on levees and levee inspections to assist with FEMA levee accreditation. Congressional direction also led to FEMA altering how levees appear on FIRMs. Levees are shown on FIRMs, but legislation to require that the maps identify residual risk behind levees has not been enacted.

In a 2018 report on levee safety, USACE estimated the cost to address safety issues for federally constructed levees and levees in the P.L. 84-99 Rehabilitation Program at between \$6.5 billion and \$38 billion (2018 dollars). As described in CRS Report R47286, *Flooding: Selected Federal Assistance and Programs to Reduce Risk*, nonfederal levee-related improvements may be pursued under various federal assistance programs. These opportunities have expanded in recent years due to new programs (e.g., FEMA’s Building Resilient Infrastructure and Communities program [BRIC]) and existing programs receiving additional funding through infrastructure and disaster supplemental appropriations legislation. In its first two years (FY2020-FY2021), BRIC funded seven levee projects.

### Policy Considerations and Other Developments

Entities currently investing in new levees and levee improvements are confronted in the near term with certain data limitations. While some historic precipitation data has been updated in recent years, efforts are ongoing to update

methodologies for determining probable maximum floods and approaches for considering changing climate conditions over the functional life of a levee system. Among the levee safety policy questions raised is how levee investments should proceed in light of data limitations. Other policy questions include how to integrate new levees and the rehabilitation of existing levees into more comprehensive water and flood-risk management systems that work compatibly with natural features and floodplain functions. There also is the question of the efficacy of nonfederal efforts to manage land use and residual risk behind levees and federal efforts to encourage such management.

Levee safety stakeholders are watching whether new programs will support nonfederal levee safety investments. For example, the Safeguarding Tomorrow Through Ongoing Risk Mitigation Act of 2020 (P.L. 116-284) authorized FEMA to enter into agreements with eligible entities to establish revolving loan funds for hazard mitigation. USACE’s Corps Water Infrastructure Financing Program also has been authorized to provide loans for flood control projects, which could include levees. However, current congressional appropriations limits on the program’s implementation restrict lending to nonfederal dam safety-related projects (see CRS Insight IN12021, *Corps Water Infrastructure Financing Program (CWIFP)*).

USACE also may complete a P.L. 84-99 Rehabilitation Program rulemaking in 2023. Among other actions, the November 2022 proposed rule (87 *Federal Register* 68386) would change the cost sharing for some of the program’s repairs from between 80% and 100% federal to 65% federal.

Congress may conduct oversight of NLSP implementation, how nonfederal levee safety is being addressed through new and existing federal assistance programs, and how agencies are implementing long-standing programs. While nonfederal levee data are provided voluntarily to the NLD, NLD data may be used by federal agencies for statutory or regulatory purposes. For example, the new pricing methodology introduced by the NFIP, known as Risk Rating 2.0, relies on the NLD to determine the level of risk reduction that a levee provides. See CRS Insight IN11777, *National Flood Insurance Program Risk Rating 2.0: Frequently Asked Questions*. Data from the NLD is used in the calculation of flood insurance premiums for individual structures behind levees. However, only 20% of levees in the NLD have enough information to fulfill all key data needs for NFIP pricing, adding to congressional concern about changes in premiums under Risk Rating 2.0. Several Louisiana parishes are suing FEMA over concerns that Risk Rating 2.0 does not properly account for flood control measures such as levees.

**Nicole T. Carter**, Specialist in Natural Resources Policy  
**Diane P. Horn**, Specialist in Flood Insurance and Emergency Management

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