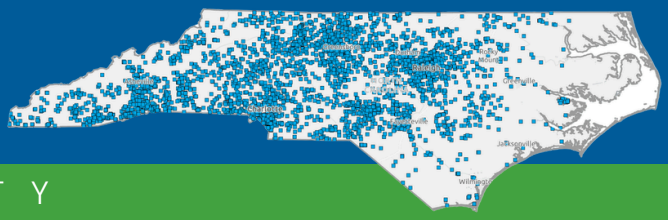
North Carolina



STATE DAM SAFETY PERFORMANCE REPORT - 2026

Dams are a critical part of the U.S. infrastructure, and all Americans enjoy the valuable benefits they provide, including flood risk reduction, water supply, hydropower, irrigation, and recreation. Yet, dams are often innately hazardous structures. Failure or mis-operation can result in the release of the reservoir contents (e.g., water, mine waste, agricultural refuse), causing negative impacts both upstream and downstream, even at locations remote from the dam. Negative impacts of primary concern are the loss of human life and economic loss, including property damage, lifeline disruption, and environmental damage. Dams are aging and deteriorating, while downstream populations are increasing. This demands greater attention to and investment in measures that reduce risks to public safety and economic assets.

State dam safety programs regulate 71% of the more than 92,000 dams listed in the National Inventory of Dams (NID). Federal agencies own and/or regulate about 6%. Some dams go unregulated, which, in most instances, is a safety concern. This is due to exceptions in specific state laws that exempt dams because of their purpose or size.

State and federal dam safety agencies provide data routinely to the NID. The NID is publicly accessible at https://nid.sec.usace.army.mil/.

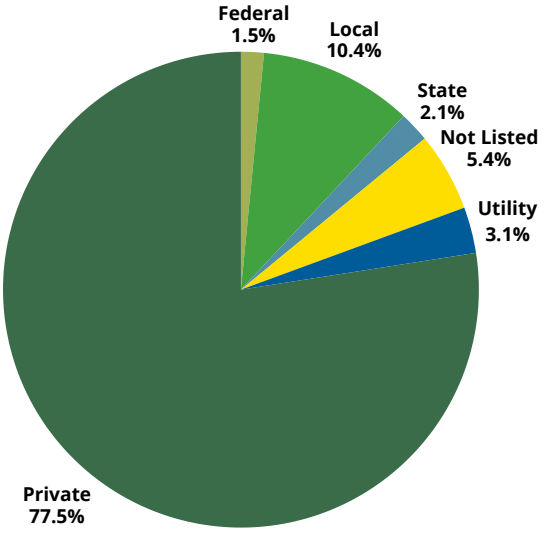
Data provided by states as of 2025

North Carolina Statistics	
Total Dams in NID	3,680
Total State-Regulated Dams in the NID	3,801
Number of Staff Managing Dam Safety	28.74 FTE
State Budget Dedicated to Dam Safety	$2,697,716

What Do States Do to Manage Dam Safety?

State dam safety programs inspect existing dams, oversee remediation of deficient dams, and work with local officials and dam owners on emergency preparedness. State dam safety officials are experts dedicated to ensuring the safety and security of our nation's dams. However, many state programs lack adequate budgets, staff and authority to ensure public safety.

North Carolina Ownership



Unlike most U.S. infrastructure, the majority of dams in the National Inventory of Dams (NID) are privately owned. Ownership percentages are based on the latest NID dataset for the state.

Are States Comparing Well to National Benchmarks?

The National Dam Safety Program, in cooperation with ASDSO, developed a guideline called the Model State Dam Safety Program (Model Program) to assist states in initiating or improving their state dam safety programs. In 2023, the guidance document was modernized to recognize new concepts that have been generally accepted across the industry. The model outlines the key components of an effective dam safety program and guides the development of more effective and sustainable state programs to reduce the risks created by dams. Topics include legislative authorities, state oversight of dam construction/modification/removal, state implementation of the following programs: inspection/risk assessment/ enforcement, emergency planning/ incident response, program administration/training, and communication/coordination/outreach.

The table here presents the state's response to a series of questions on the elements of each chapter and an overall weighted percentage for the program. The six areas are weighted by importance for the overall percentage. The table also shows how the state's responses compare to the national averages. Higher percentages indicate greater alignment of the state program with the Model Program and lower percentages can be indicative of needed improvement in some areas.

Weighted Percentage Detail	National Average	NC
LEGISLATIVE AUTHORITIES	79%	94%
INSPECTION/RISK ASSESSMENT/ENFORCEMENT	66%	95%
EMERGENCY PLANNING/INCIDENT RESPONSE	90%	100%
CONSTRUCTION/MODIFICATION/REMOVAL	98%	100%
PROGRAM ADMIN AND TRAINING	75%	75%
COMMUNICATIONS	74%	80%
WEIGHTED %	**81%**	**93%**

OUTREACH TO DAM OWNERS, LOCAL OFFICIALS AND THE PUBLIC

How Does North Carolina Increase Public and Owner Education

Increasing the awareness of the risks related to dams, and effective methods for living safely with dams is an important goal. For instance:

- Dam owners and operators need to be aware of their state's dam safety laws/regulations, the associated responsibilities and liabilities, and the proper operation, maintenance, and inspection of their dams.
- Local emergency management officials, first responders, and people who live and work in areas upstream and downstream of dams need to understand the risk and plans for response in an emergency.

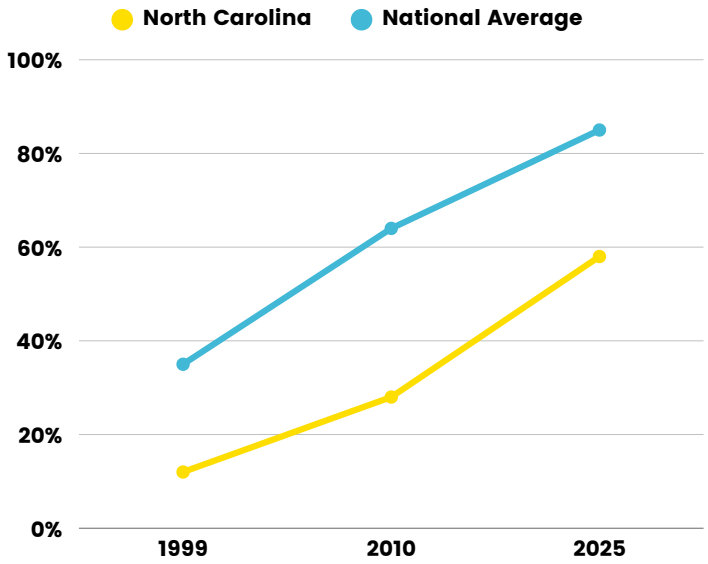
North Carolina responds to these needs through owner workshops, direct meetings and phone conferences with dam owners and their consultants.

North Carolina does have a loan/grant program for dam rehabilitation.

Emergency Action Planning

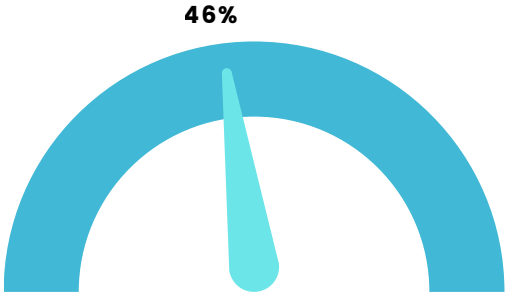
An Emergency Action Plan (EAP) identifies potential emergency conditions at a dam and specifies preplanned actions to be followed to help prevent loss of life and minimize property damage. Dam owners work with state and local officials to prepare and update EAPs to help mitigate losses resulting from dam failures. The EAP specifies actions the dam owner should take to moderate or alleviate the problems at the dam. It contains procedures and information such as flood inundation maps to assist emergency management officials with early-warning notification and evacuation plans.

State Regulated High Hazard Potential Dams with an EAP



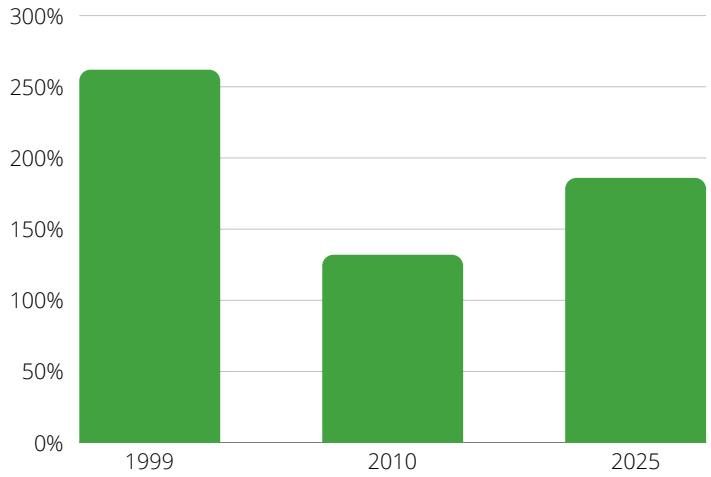
Safety Inspections

Dam inspections are a critical function of an effective dam safety program and are necessary to identify problems and confirm that dams are safe. According to guidance, high hazard potential dams should be inspected annually. North Carolina's laws/regulations require inspections every 2 years. North Carolina inspects about 46% of its HHP dam inventory in a one year period, but meets its own state policies.



North Carolina Inspection Percentage Compared to Model Program

Percentage of State Regulated High Hazard Potential Dam Inspections Completed - Based On State Regulations



* Inspection percentages may vary above and below 100% for any given year based on a state's inspection frequency and scheduling.

Identifying Safety Issues at Dams

Hazard Potential Classification & Condition Assessment

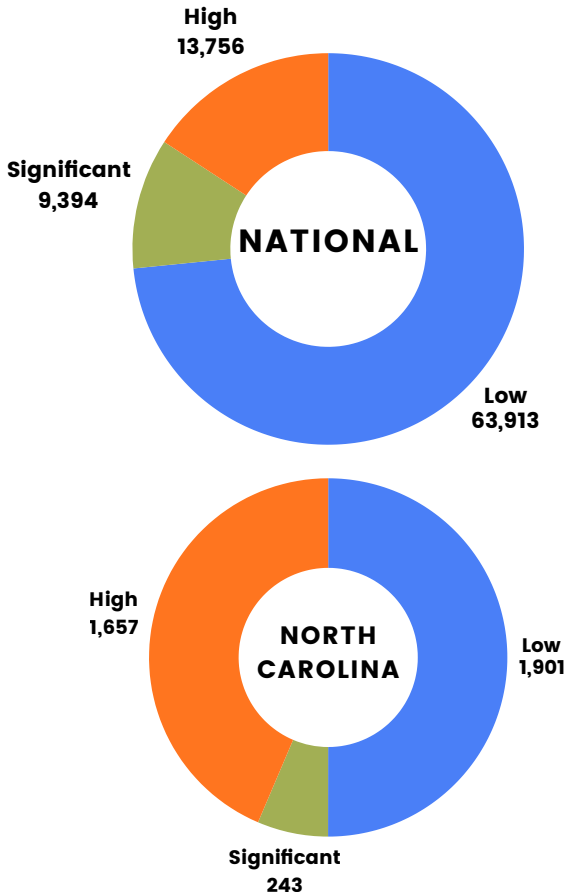
Regulators classify dams by their hazard potential rating. Each state has a hazard potential classification system that generally follows this nationally accepted guide:

High Hazard Potential - Typically defined as a dam whose failure or mis-operation will cause loss of human life and significant property destruction.

Significant Hazard Potential - Typically defined as a dam whose failure or mis-operation will cause significant property destruction and no probable loss of human life.

Low Hazard Potential - Typically defined as a dam whose failure or mis-operation will cause minimal property destruction and no probable loss of human life.

Hazard Potential Classifications for State-Regulated Dams



Additionally, regulators identify safety issues by evaluating a dam's condition and assigning it a rating based on nationally accepted guidance.

Satisfactory - No existing or potential dam safety deficiencies are recognized.

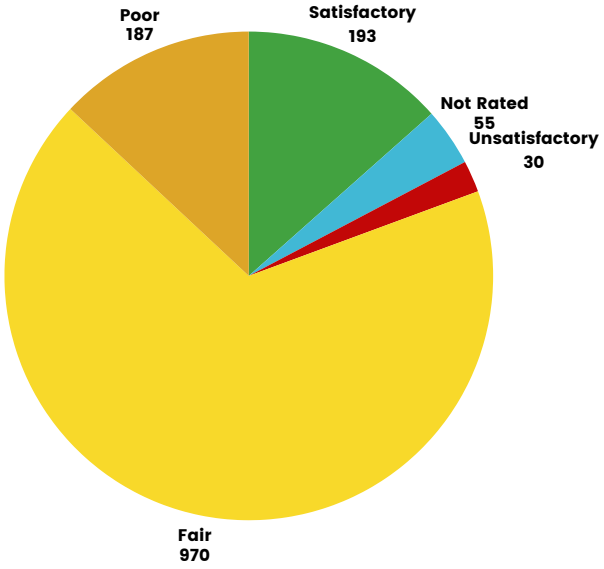
Fair - No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency.

Poor - A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary. Poor may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Further investigations and studies are necessary.

Unsatisfactory - A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.

Not rated - The dam has not been inspected or has been inspected but, for unknown reasons, has not been rated.

North Carolina Condition Ratings for State-Regulated High Hazard Potential Dams*



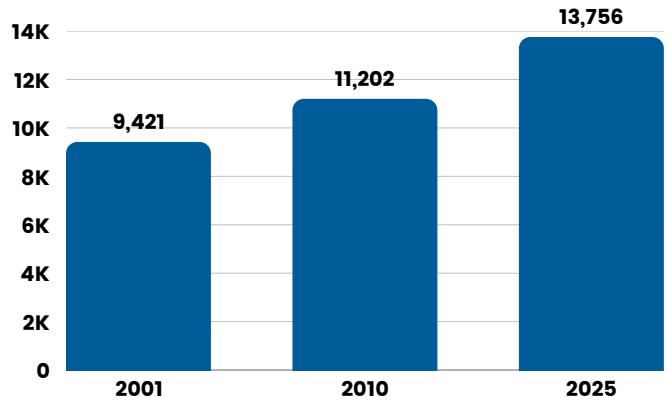
- The state provided the number of dams categorized by hazard potential classification for their state program. These figures may differ from those in the NID due to variations in state regulations, as some states may regulate more or fewer dams than listed in the NID. The national totals are derived from the NID. Similarly, the State Condition Ratings are also sourced from the NID.

Hazard Potential Classification & Condition Assessment

If a dam cannot meet its designated hazard potential classification requirements or its condition rating is fair, poor or unsatisfactory, then further investigation, rehabilitation or removal is required. States may incorporate additional or alternative factors and criteria tailored to their specific needs when making decisions.

More dams are becoming classified as high hazard potential across the U.S. Why do the numbers increase? As more development occurs downstream of dams and more people move into potential flood inundation zones, many dams are forced to be reclassified to a higher hazard potential requiring more frequent inspections and stricter maintenance requirements.

National Total of High Hazard Potential Dams

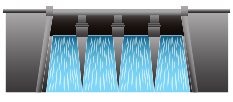


The Need for Dam Rehabilitation

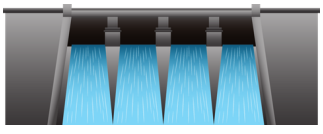
With advances in scientific knowledge, dam safety standards, and best practices, the nation's dams are subject to stricter dam safety criteria as compared to when they were initially designed and constructed. The average age of our nation's dams is 61 years, and many dams may not be able to safely operate during extreme storms and earthquakes. As of 2025, seven out of 10 dams in the U.S. are over 50 years old. Moreover, continued development (e.g., increased population and changing land use) in areas downstream of dams previously determined to be low hazard potential means that these same dams are now deemed to be high hazard potential. This results in the need for dams to be rehabilitated to meet higher, more stringent safety standards–or to be removed entirely–to safeguard life and property.

While dams may have been built with the best engineering and construction standards of the time, in many cases the standards used were less stringent than what would be used today, and these dams may pose an unacceptable risk to the public. These situations demand greater attention to and investments in measures that reduce risks to public safety and economic assets. Dams are aging and will continue to need rehabilitation and repair.

How Many North Carolina High Hazard Potential Dams are in Need of Repair to Improve Public Safety?



72%
2020



87%
2025

Dams are aging and will continue to need rehabilitation and repair.

Percentages are based on condition ratings that are below satisfactory.

NORTH CAROLINA COST OF REHAB: $9.4 BILLION

Staffing

Staffing requirements for a dam safety program depend in part on the scope of the state's statutory authority and responsibilities. Typical factors affecting these needs include the following:

- Number, hazard potential classification, location, and condition of dams subject to state jurisdiction.
- Type of inspection program: owner-responsible, state-responsible, or a hybrid.
- Geography and topography of the state.
- Skills and experience of existing staff.
- Overall organization structure of the state agency.

The Model Program provides information useful for determining staffing needs. Each state dam safety program must assess its particular needs based on its own set of legislative, organizational, geographic, and political constraints. This chart compares the current staff versus a calculation of ideal staffing levels using the Model Program calculation tool.

Strong state and federal dam safety programs, along with responsible dam owners, are essential to maintaining dam safety across the U.S.

States should:

- Ensure that dams meet safety standards.
- Ensure that dam safety programs work toward meeting nationally accepted guidance detailed in the Model State Dam Safety Program guidelines.
- Provide sufficient resources, staffing and regulatory authorities to state dam safety programs.
- Close the gap on the number of dams exempted from safety regulation.
- Educate dam owners and encourage them to use experienced professional engineers. Collaborate with dam owners to create, update, and exercise emergency action plans.
- Implement innovative grant or loan programs to shore up deficient dams.
- Work toward better communications and data sharing to reduce the consequences from failure.

The Federal Government should:

- Ensure that dams owned or regulated by federal agencies meet safety standards.
- Fully support and fund the National Dam Safety Program to provide grant support to states.
- Fully support and fund other federal loan and grants programs to provide funds to dam owners for rehabilitation or removal.
- Fully support and fund the National Inventory of Dams to provide public awareness of dams.

Association of State Dam Safety Officials
239 S. Limestone St., Lexington, KY 40508
859-550-2788
info@damsafety.org
DamSafety.Org