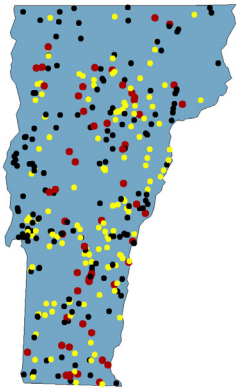
Dam Safety Performance Report
VERMONT



"High-hazard potential dam" is typically defined as a dam whose failure or mis-operation will cause loss of human life and significant property destruction.

"Significant-hazard potential dam" is typically defined as a dam whose failure or mis-operation will cause significant property destruction.

"Low-hazard potential dam" is typically defined as a dam whose failure or mis-operation will cause minimal property destruction.

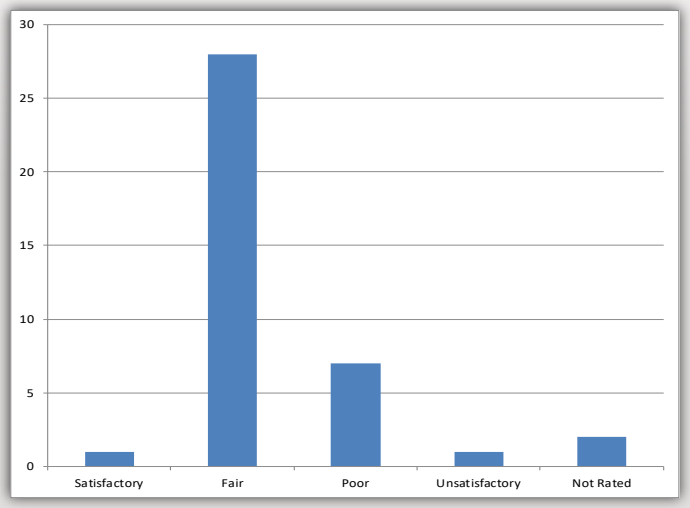
State NID Statistics

368	NID Dams
61	NID High Hazard Potential Dams
413	State-Regulated Dams
41	State-Regulated High Hazard Potential Dams

Dams are a critical part of our nation's infrastructure and all Americans enjoy the valuable benefits they provide, including flood protection, water supply, hydropower, irrigation and recreation. Our dams are aging and deteriorating, while downstream populations are increasing. Thousands of U.S. dams have the potential to fail with tragic consequences, and Americans need to understand the risks associated with potential incidents and failures. This demands greater attention to and investment in measures that reduce risks to public safety and economic assets.

State dam safety programs regulate 70% of the 91,468 dams listed in the National Inventory of Dams (NID). 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, all members of the Association of State Dam Safety Officials (ASDSO), 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.

2018 Condition Rating of State-Regulated High Hazard Potential Dams.



National Inventory of Dams Condition Ratings

Since 2009, the NID has collected condition data on state-regulated high hazard potential dams. For the 2018 NID update, 85% of state-regulated high hazard potential dams were rated. Although a voluntary submission, most states participate and the number of not rated dams continues to decrease.

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.

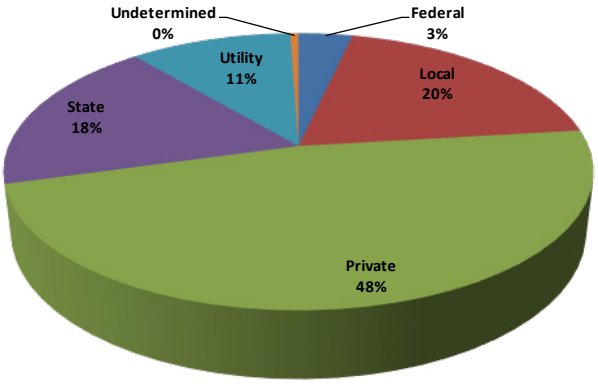
Poor – A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary. Poor may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Further investigations and studies are necessary.

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 whatever reason, has not been rated.

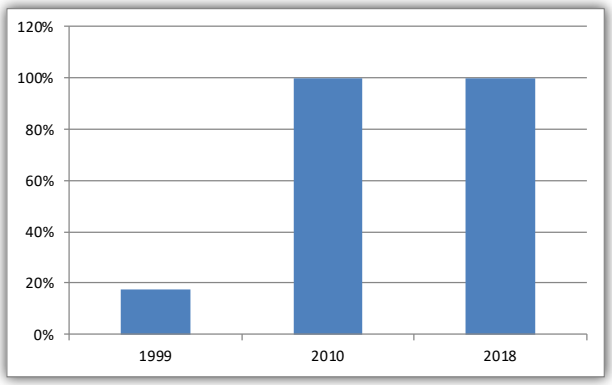
High Hazard Potential Dams Remediated – In calendar year 2018, one state-regulated high hazard potential dam was remediated (that is construction was completed) in the calendar year because of hydraulic/structural deficiencies.

Dam Ownership



Unlike most components of U.S. infrastructure, the majority of dams listed in the National Inventory of Dams are privately owned. (Dam Ownership percentages are based on the 2018 NID dataset for the state for total NID-sized dams.)

Percentage of State-Regulated High Hazard Potential Dam Inspections Completed



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

Are States Comparing Well to the National Benchmark?

The National Dam Safety Program, in cooperation with ASDSO, developed a benchmark called the Model State Dam Safety Program to assist state officials in initiating or improving their state programs. The model outlines the key components of an effective dam safety program and provides guidance on the development of more effective and sustainable state programs to reduce the risks created by unsafe dams. It contains chapters on Legislative Authorities, Permitting, Inspection, Enforcement, Emergency Action Planning and Response, Education and Training, and Public Relations.

The tables here present the state's response to a series of yes/no questions on the authorities for each chapter and an overall weighted percentage for the program. The tables also show how the state's weighted averages compare to the national averages over time. Higher percentages indicate greater alignment of the state program with the model and lower percentages can be indicative of needed improvement in authority. The areas are weighted by importance (listed in order with weightings indicated in parentheses) for the overall percentage. Areas of concern where additional state authorities may be needed are highlighted.

Overall Weighted Percentage

1989	1998	2010	2018	
29%	47%	69%	89%	**Vermont**
59%	66%	77%	79%	**National Average**

2018 State Weighted Percentage

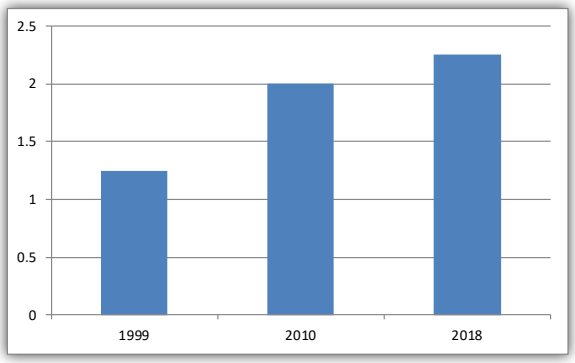
Legislation (5)	**91%**
Inspection (4)	**93%**
Enforcement (4)	**100%**
EAP & Response (4)	**89%**
Permitting (3)	**89%**
Education & Training (3)	**89%**
Public Relations (1)	**25%**
Weighted Percentage	**89%**

Estimated Breakdown of Dams per Congressional District

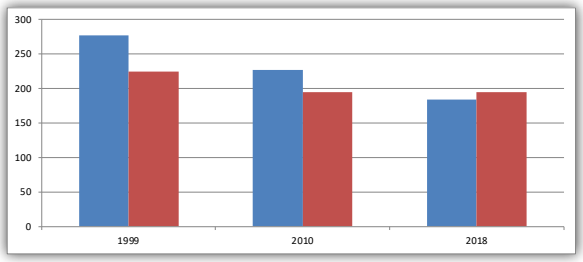
Vermont has one Congressional District accounting for 368 dams.

State Staffing for Dam Safety

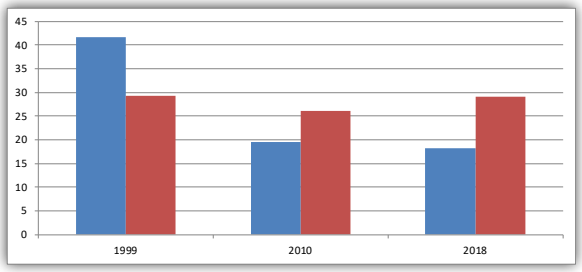
Total Staff (FTE)



State-Regulated Dams per FTE (blue) and National Average (red)

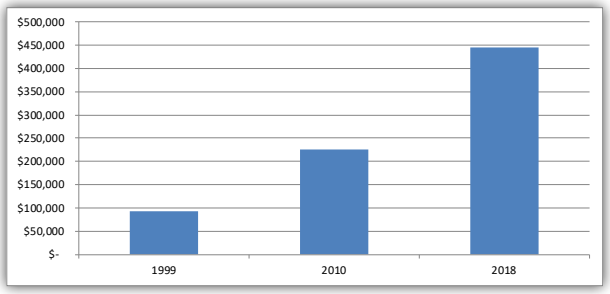


State-Regulated High Hazard Potential Dams per FTE (blue) and National Average (red)

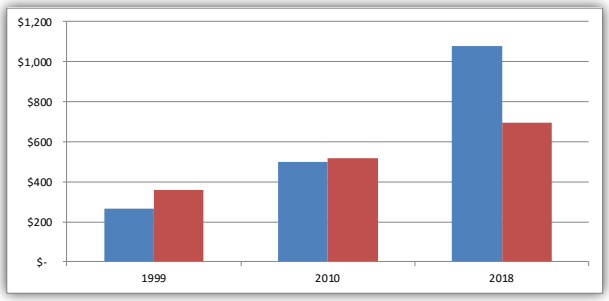


State Budgeting for Dam Safety

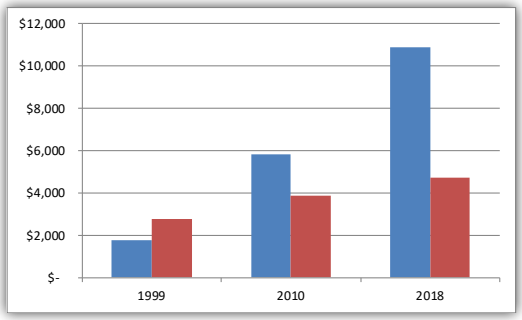
Dam Safety State Budget



Dam Safety State Budget per Regulated Dam (blue) and National Average (red)



Dam Safety State Budget per Regulated High Hazard Potential Dam (blue) and National Average (red)

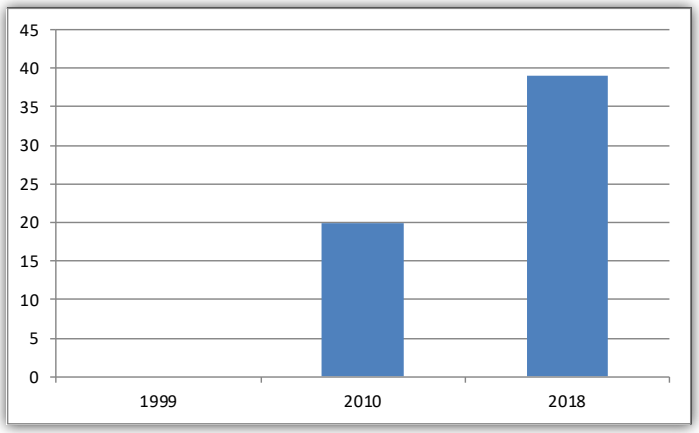


Adequate staffing is important to program performance. State numbers significantly above the Regulated Dams per FTE and Regulated High Hazard Potential Dams per FTE national averages can be indicators of the need for additional staff resources.

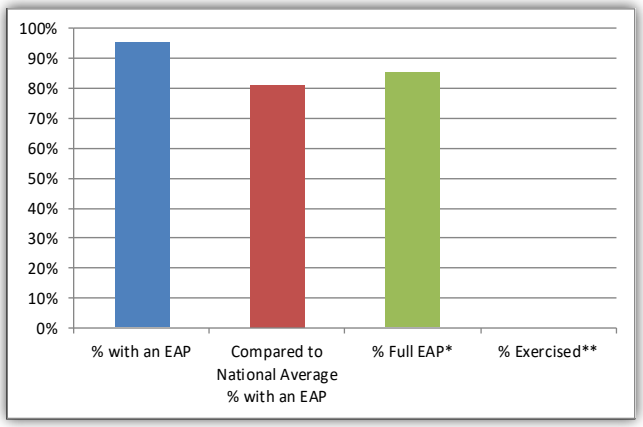
Emergency Action Planning

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 failure inundation maps to assist emergency management officials with early-warning notification and evacuation plans.

Number of State-Regulated High Hazard Potential Dams with an EAP.



2018 Emergency Action Plan Data for State-Regulated High Hazard Potential Dams.



* The % Full EAP bar represents the percentage of high hazard potential dams with an EAP that contain all the elements from FEMA-64, *Federal Guidelines for Dam Safety: Emergency Action Planning*. The elements include a notification flowchart, inundation maps, and sections on emergency detection, responsibilities and preparedness.

** The % Exercised bar indicates the percentage of high hazard potential dams with EAPs that were exercised in the past five years. After an EAP has been developed, it must be exercised so it does not become outdated and ineffective.

Outreach to Dam Owners, Local Officials and the Public

Increasing the awareness of the risks related to dams, and effective methods for living safely with dams is an important goal of state dam safety programs, ASDSO and the National Dam Safety Program. Dam owners and operators need to be aware of their state's dam safety laws and regulations, the associated responsibilities and liabilities, and the proper operation, maintenance and inspection of their dams. In addition, local emergency management officials, first responders, and people who live and work in areas downstream of dams need to understand the risk and plans for response in an emergency situation. State programs respond to these needs through direct meetings and workshops with dam owners, workshops with local officials, and publications and outreach to the public.

Association of State Dam Safety Officials

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