

Portage Prepares

Helping Portage County Citizens prepare for emergencies and disasters.

www.co.portage.oh.us/portageprep/

Ohio Department of
 Natural Resources
 Division of Soil and
 Water Resources,
 Dam Safety
 Engineering Program
 24-Hour Emergency
 Line: (614) 799-9538



Office of Homeland
 Security & Emergency
 Management
 330-297-3607

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2013

Dams bring water, power, flood control, recreation, economic possibilities and many other advantages to people. But people must understand that safe operation and maintenance is key to sustaining these advantages and avoiding potential disaster

From 1998 to 2008, the recorded number of deficient dams (those with structural or hydraulic deficiencies leaving them susceptible to failure) rose by 137%—from 1,818 to 4,308. While federally owned dams are in good condition, and there have been modest gains in repair, the number of dams identified as unsafe is increasing at a faster rate than those being repaired.

ASDSO endorses passage of H.R. 1770 and S.732 to create a federally administered dam rehabilitation funding program. This federally Sponsored program would provide funds to

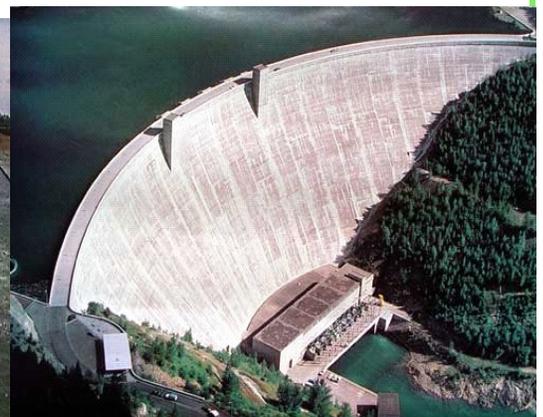
be cost-shared at 65 percent federal to 35 percent state/local for non-federal publicly owned dams. The legislation would provide funds to states based on the number of high hazard dams in each of the participating states.

The number of high-hazard potential dams (dams whose failure would cause loss of human life) is increasing dramatically. Since 1998, the number of high-hazard-potential dams has increased from 9,281 to more than 11,300 in 2012.

The purpose of a dam is to impound (store) water, wastewater or liquid borne materials for any of several reasons, eg. Flood

control, human water supply, irrigation, livestock water supply, energy generations, containment of mine tailing recreation or pollution control. Many dams fulfill a combination of the above functions.

Manmade dams may be classified according to the type of construction material used, the methods used in construction, the slope or cross-section of the dam, the way the dam resist the forces of the water pressure behind it, the means used for controlling see page and occasional, according to the purpose of the dam.





Emergency preparedness is lacking. Only 55 percent of non-federally owned dams considered high hazard in the U.S. have emergency action plans. That means that most dam owners and local authorities are not prepared for a sudden dam failure and the ensuing downstream consequences

Dam failures are most likely to happen for one of five reasons:

- Overtopping caused by water spilling over the top of a dam
- Structural failure of materials used in dam construction
- Cracking caused by movements like the natural settling of a dam
- Inadequate maintenance and upkeep
- Piping—when seepage through a dam is not properly filtered and soil particles continue to progress and form sink holes in the dam

Driving every other issue and all activities within the dam safety community is the risk of dam failure. Although the majority of dams in the U.S. have responsible owners and are properly maintained, still many dams fail every year. From 2005 to 2009, the States reported 132 dam failures. A life was recently lost in New Hampshire as a result of a dam failure. In 2006, seven people were killed in Hawaii when a deficient dam broke. Dam and downstream repair costs resulting from failures in 23 states reporting in one recent year totaled \$54.3 million.

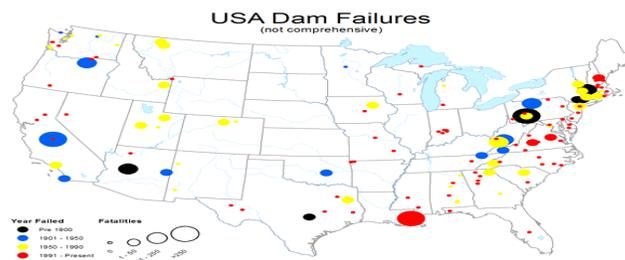
Historically, dams that failed had some deficiency, as

characterized above, which caused the failure. These dams are typically termed "unsafe." Currently, there are about 4,400 "unsafe" dams in the U.S. There are unsafe dams in almost every state. (A majority of states and federal agencies define an "unsafe" dam as one that has been found to have hydraulic or structural deficiencies that leave it more susceptible to failure.)

Dams must be maintained to keep them safe. Occasional upgrade or rehabilitation is necessary due to deterioration, changing technical standards and improved techniques, better understanding of the

area's precipitation conditions and increases in downstream populations and changing land use. When a dam's hazard classification is changed to reflect an increased hazard potential, the dam may need to be upgraded to meet an increased need for safety. The age of a dam is not necessarily a direct indicator of its condition. Age is indirectly an indicator in that old dams were not built to the standards of today. Some older dams are considered in poor condition for this reason alone; others may have been inadequately maintained as well

The map below is based on a (non-comprehensive) list of dam and levee failures compiled by ASDSO. The map demonstrates that dam failures are not particularly common but they do continue to occur. Locations are approximate. The large red dot on the Gulf Coast represents the New Orleans levee failures resulting from Hurricane Katrina. A few other levee failures are included such as all of those indicated in Northern California. If levee failures from the 1993 floods were included, more failures would be indicated in the center of the map.



Portage Prepares is a county education program for preparing Portage County communities to meet the challenges of emergencies and/or disasters in order to be safe and reduce injury. Portage Prepares is a program of the Portage County Office of Homeland Security and Emergency Management and its Advisory Committee under the guidance of the Portage County Board of Commissioners. For additional information on emergency preparedness, go to www.co.portage.oh.us/portageprep/.