

# Public Safety Around Dams – An Emerging Crisis

**3:15-3:45 PM**

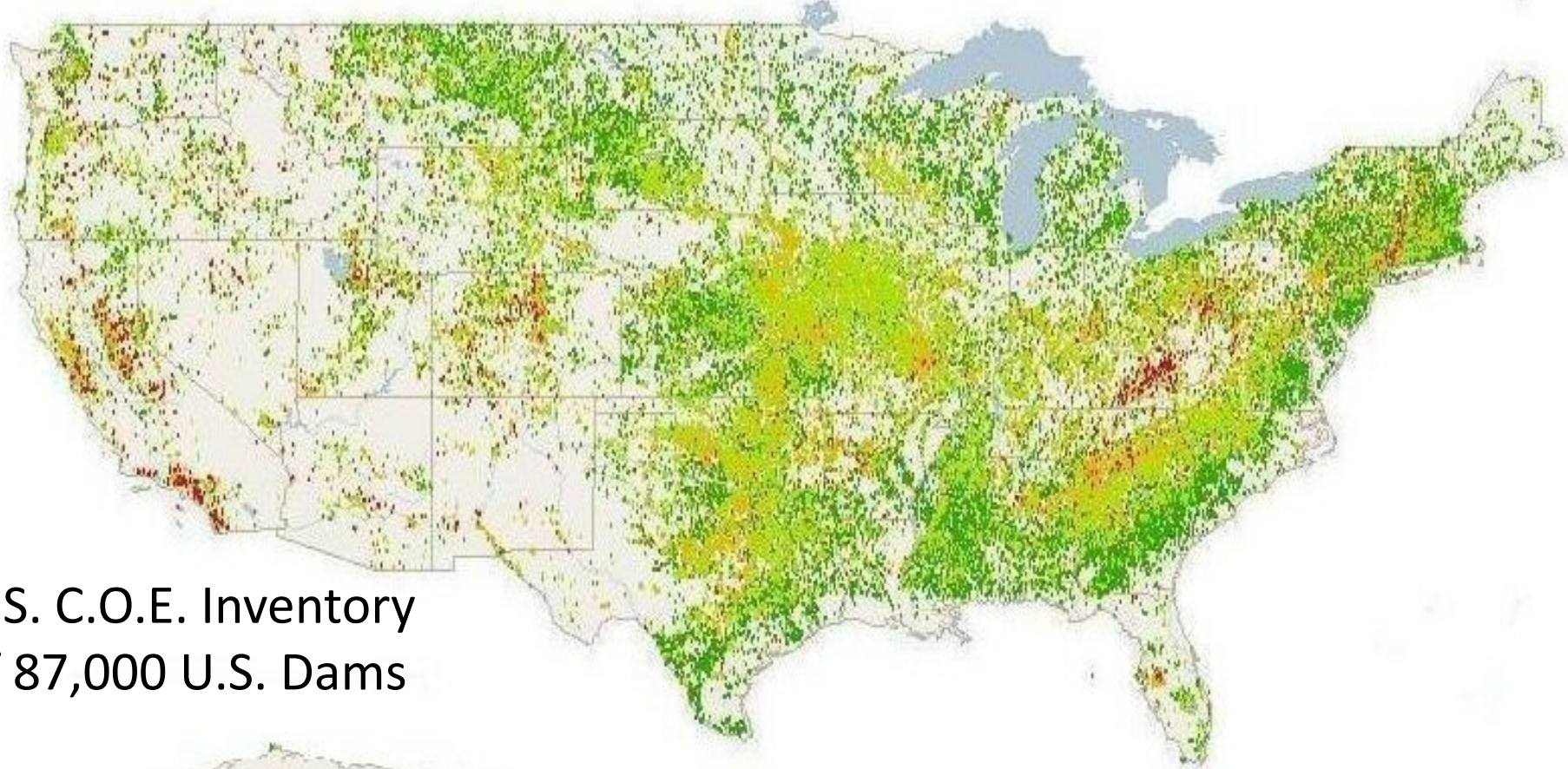


# Dams are ~~Becoming~~ Public Destinations

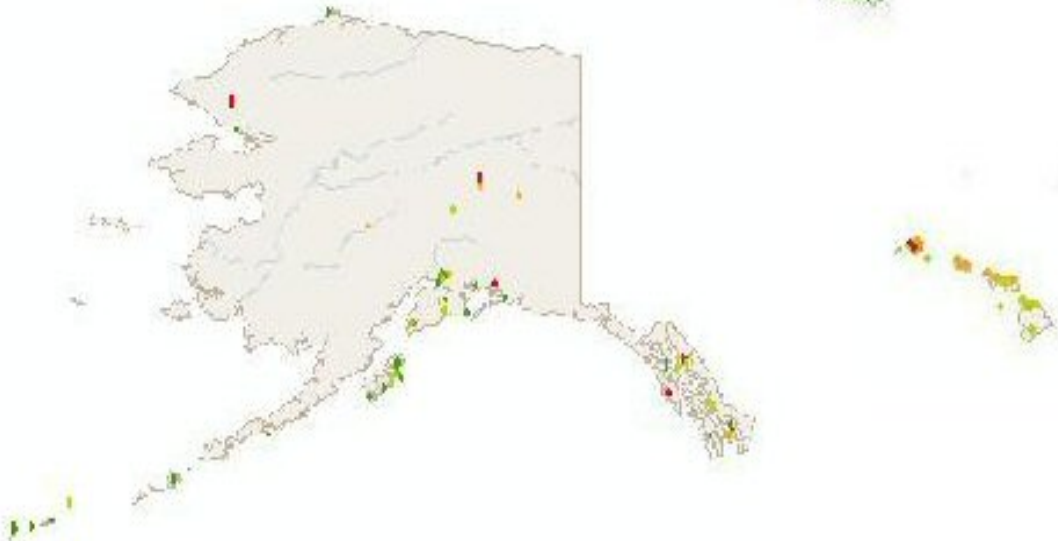


- Interesting feature to explore
- Surge in water sport demand (Jet ski, kayak, canoe, ..)
- Interest in “Extreme Sports”
- Recreational vehicles improve access
- Perceived right of public to access site
- Best location for fishing
- Great photo opportunity

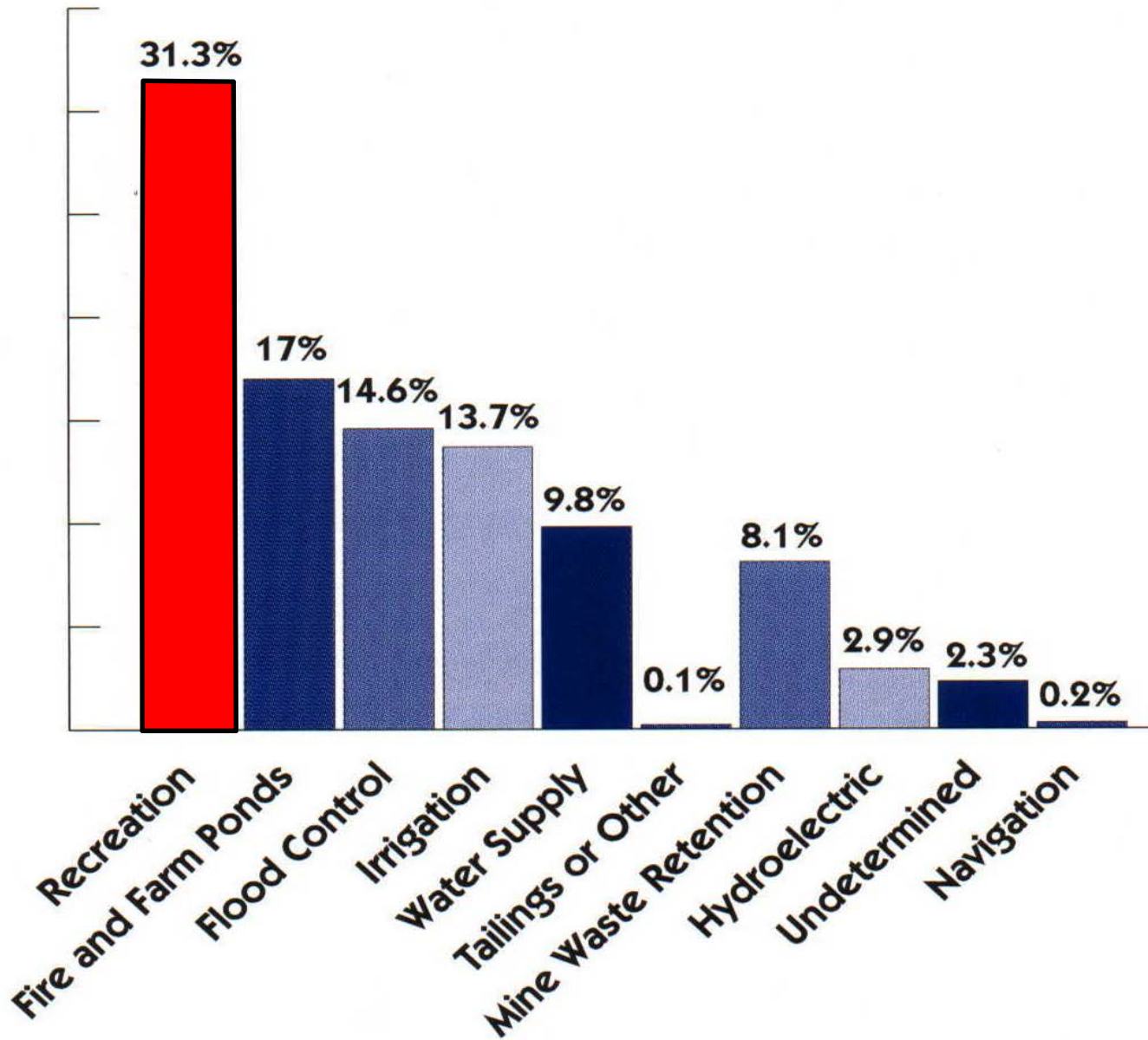




U.S. C.O.E. Inventory  
of 87,000 U.S. Dams



## Primary Purposes for Dams in the U.S. (some dams have multiple purposes)



**1989**

The dam owner should have a documented managed system for public safety at a level of detail that is appropriate for the associated public safety risks.

Beaverdam Reservoir

Image U.S. Geological Survey

Waxpool

1988

Imagery Date: 3/15/1989 lat 39.015554° lon -77.537312° elev 2

2017

# UPDATE: Man's body found in water day after boat capsizes on Beaverdam Creek Reservoir





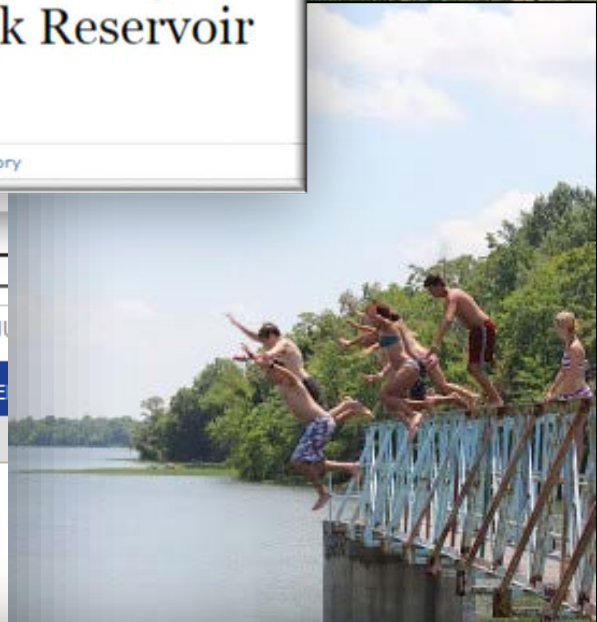
125

Sunday, Nov. 27, 2011 by John Geddie and Matt Vecchio | 33 comments | Email this story

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## Heat Relief: I Cool Off At B

## Mother, 2 children drown in reservoir

**By The Associated Press**  
 LEESBURG—A mother and her two children drowned at Beaverdam Reservoir, and investigators are trying to determine why the three were in the water.

The Loudoun County Sheriff's Office identified the victims as Lorena Lima, 28; Ashley Hernandez, 8; and Oscar Lima, 6, all of Manassas.

The three were last seen about 3 p.m. Saturday on the bank of the reservoir in an area where swimming is not allowed, said sheriff's spokesman Ed Pifer.

"We don't know if they were swimming or fell in," he said.

Interviews with witnesses indicated that people nearby became aware of the incident when they heard screams.

**'We don't know if they were swimming or fell in.'**

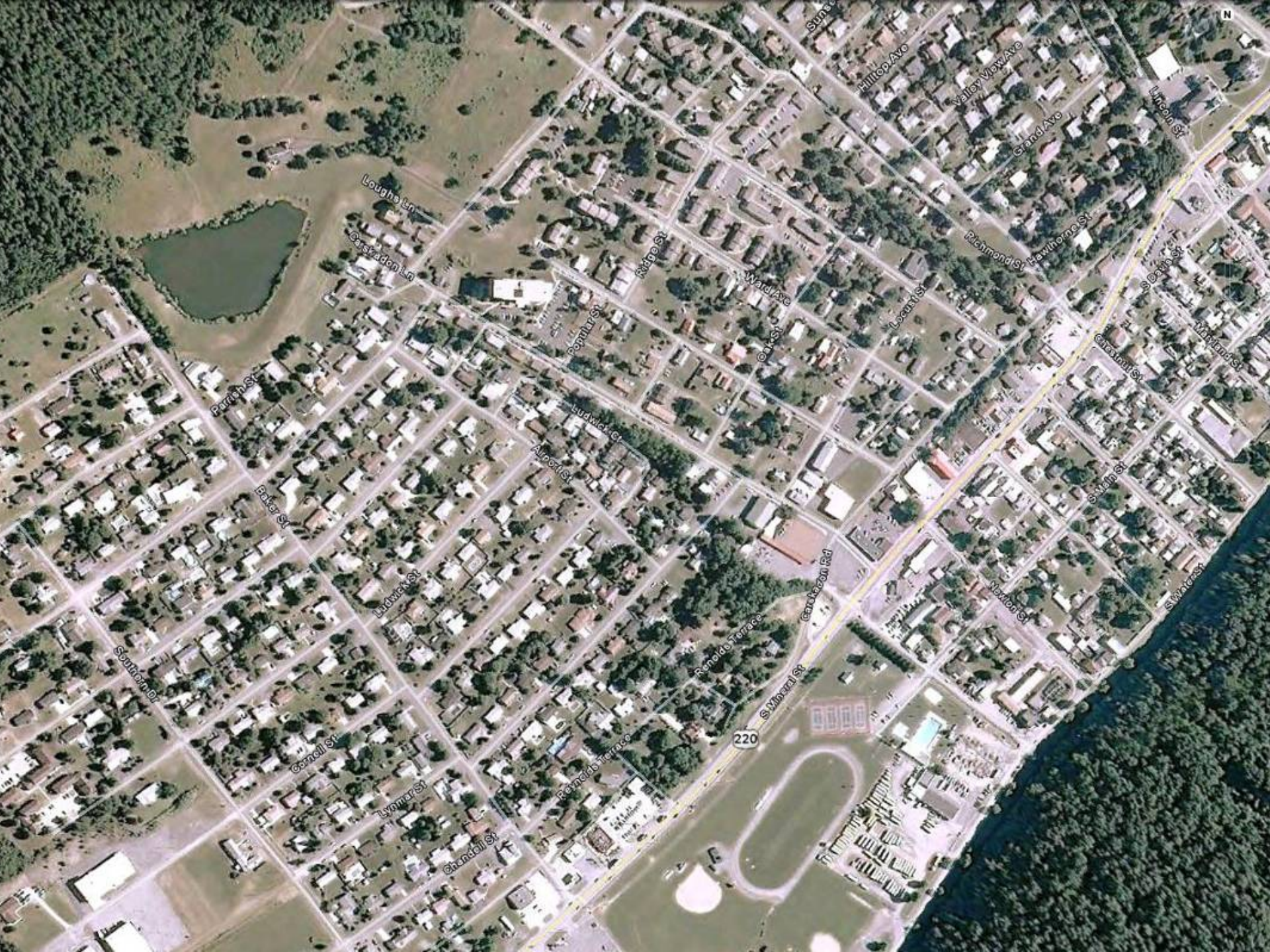
— Ed Pifer  
 Loudoun County sheriff's spokesman

while awaiting rescue personnel.  
 Lorena Lima was pronounced dead at Loudoun Hospital Center in Leesburg. The children were transferred by helicopter to Children's Hospital in the District of Columbia, where they were pronounced dead on arrival.  
 A soccer game was going on nearby, and the woman's husband





New Creek Site 1, WV, 1957



N

Sun St

Phillip Ave

Valley View Ave

Grand Ave

Lincoln St

Lough Ln

Castaden Ln

Kate St

Ward Ave

Richmond St

Hawthorne St

Parish St

Poplar St

Locust St

Grand Ave

Windsor St

Baker St

Albert St

Wilm St

St Johns St

Sutherland Dr

Ludlow Ct

Reynolds Terrace

Norfolk St

St Johns St

Cornal St

Reynolds Terrace

220

Chardon Rd

Lynnner St

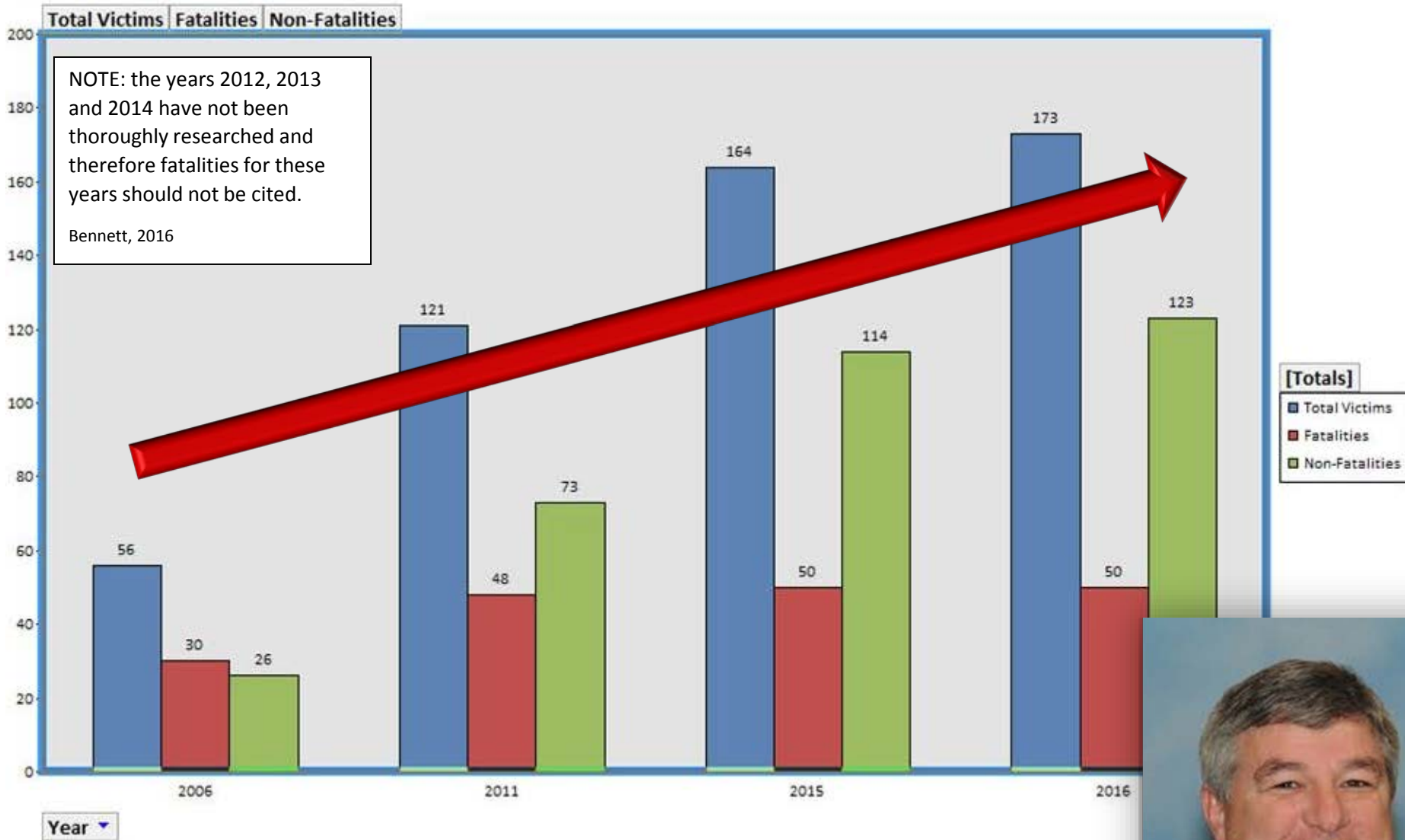
Chendell St

Windsor St

St Johns St

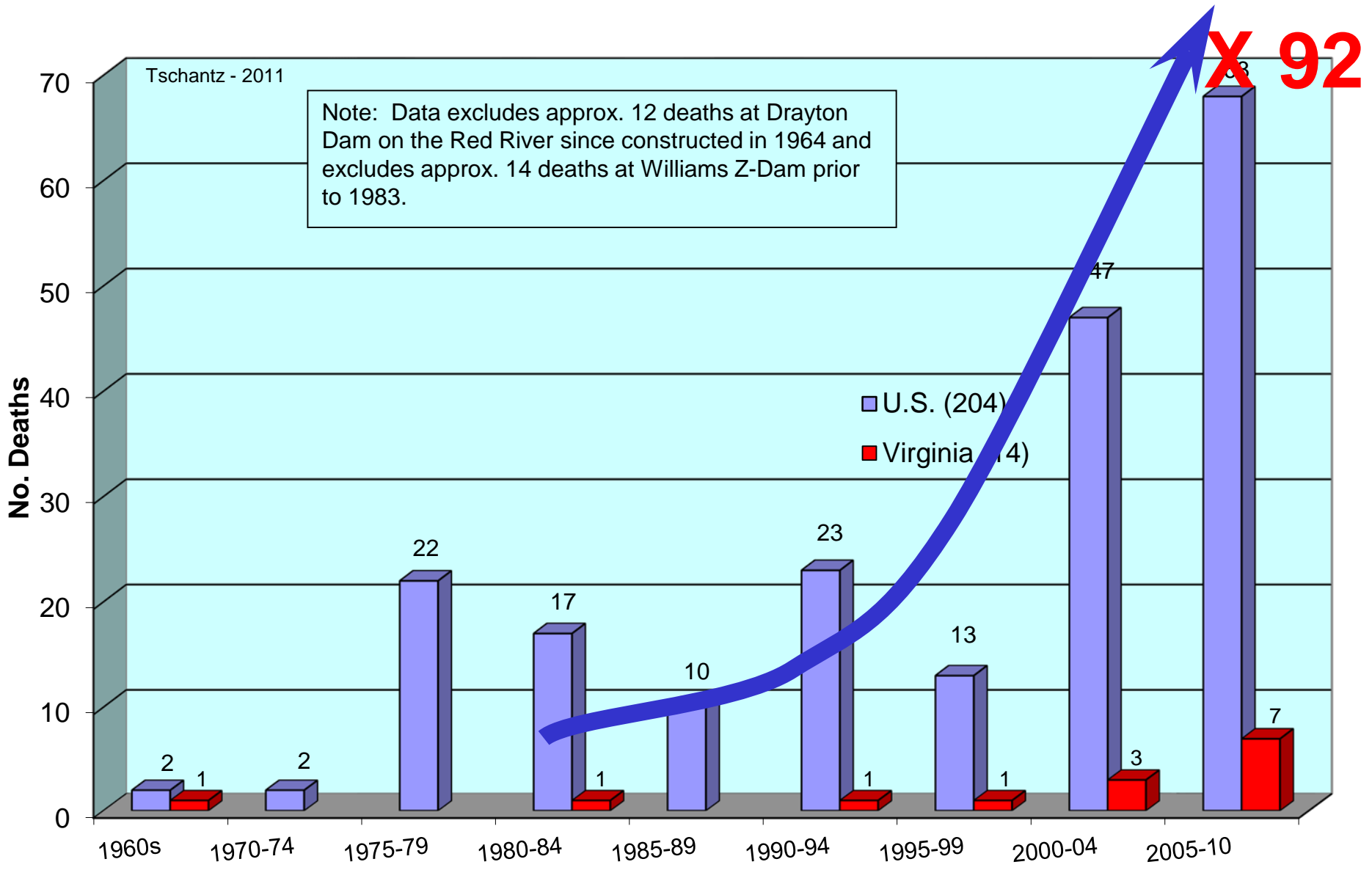
St Johns St





## United States Incidents at Dams



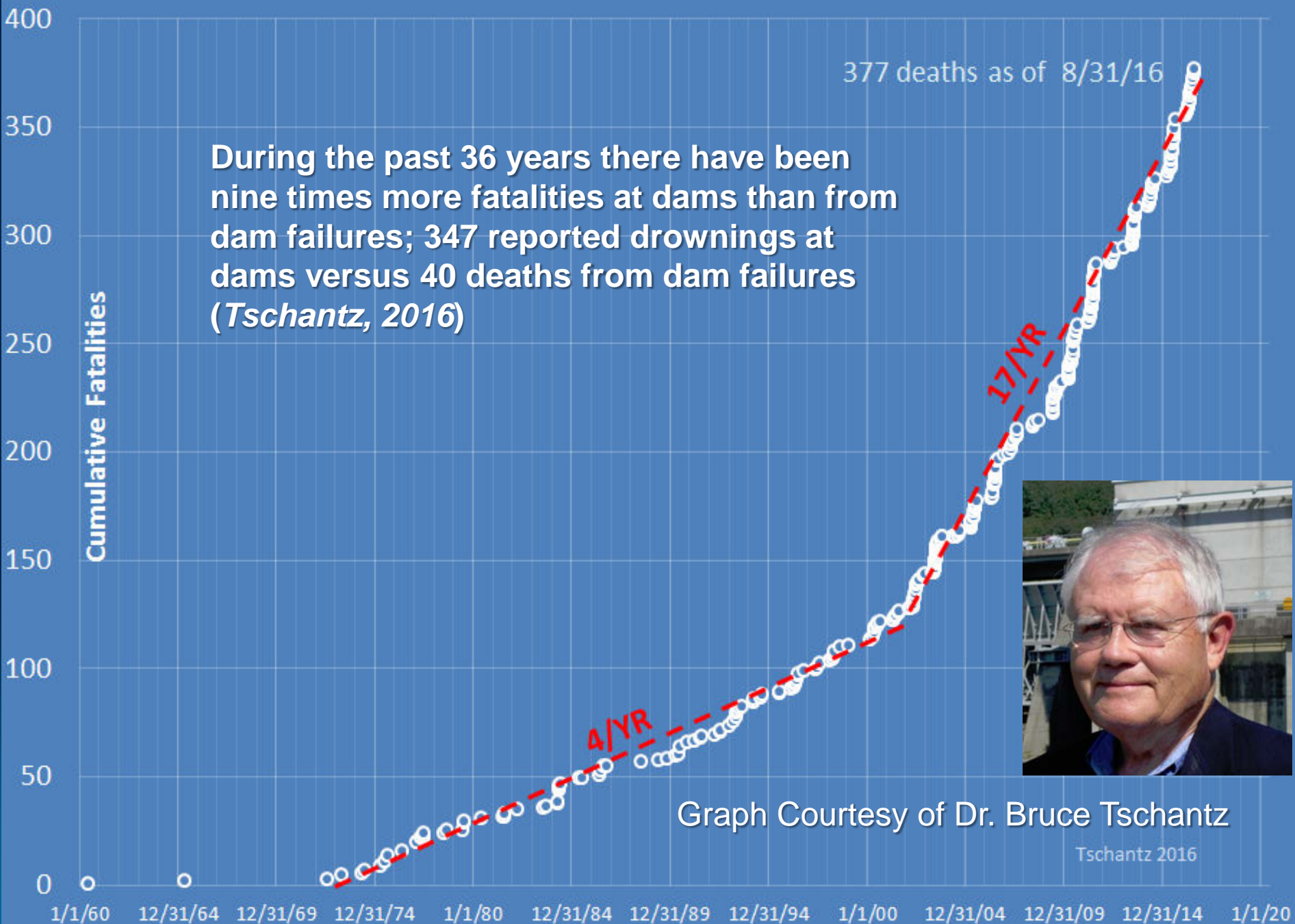


**X 92**

# Hazard #1 – Hydraulic Roller



# CUMULATIVE U.S. LOW HEAD DAM FATALITIES 1960-AUGUST 2016



Chicago Tribune  
**Professional Record**

== 1



# Chicago Tribune

Aug. 31, 2006

***“South Island Dam claimed 42 lives on the Kankakee River. That makes it as infamous as Midtown Dam on the Red River in Fargo, N.D. where 19 drowned and Glen D. Palmer Dam on the Fox River where at least 18 have died since 1960, including three in May”***

# Wilmington Dam's Danger Focus Of Lawsuit Against City

By RYAN DENHAM • JUL 31, 2017

PROGRAM  
GLT's Sound Ideas



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*Former GLT staff member Liz Larson.*

CREDIT WGLT

Larson's death is the 42nd at the Wilmington dam, said Katherine Cardenas, a Chicago attorney who represents a family that lost two Joliet children in the dam on Memorial Day 2016.

In that incident, 12-year-old Eder Arroyo got into trouble in the water and his sister, Abigail, 13, tried to save him, Cardenas said. They both drowned. [Their family sued the city](#)—seeking more than \$1 million in damages—over [known danger at the dam](#) and its alleged failure

to prevent the children's deaths. That case is due back in court in late August.

# Iowa funds to fix dangerous dams withheld

## Small-scale dams blamed for almost 100 deaths



Written by  
**PERRY BEEMAN**

FILED UNDER

News

Lake Delhi



Dozens of dangerous small-scale dams blamed for nearly 100 deaths on Iowa rivers over the years have been targeted for removal or safety upgrades, but the governor and lawmakers have balked at providing money for the work.

There are 246 so-called low-head dams on Iowa's major rivers, and they've been blamed for 97 deaths, Iowa Department of Natural Resources records show. Swimmers, boaters and anglers can get caught in the churning water below the dams and are sometimes unable to escape.

Eighteen of those deaths occurred since 1998, including one in which a stalled boat went over the Center Street Dam in downtown Des Moines in 2010. DNR records show that dam has claimed 15 lives, the most of any in Iowa.

Since 2008, the state had spent from \$200,000 to \$1.8 million a year replacing or lowering such dams. But this year, no money was budgeted.

### Iowa looks to remove dangerous low-head dams

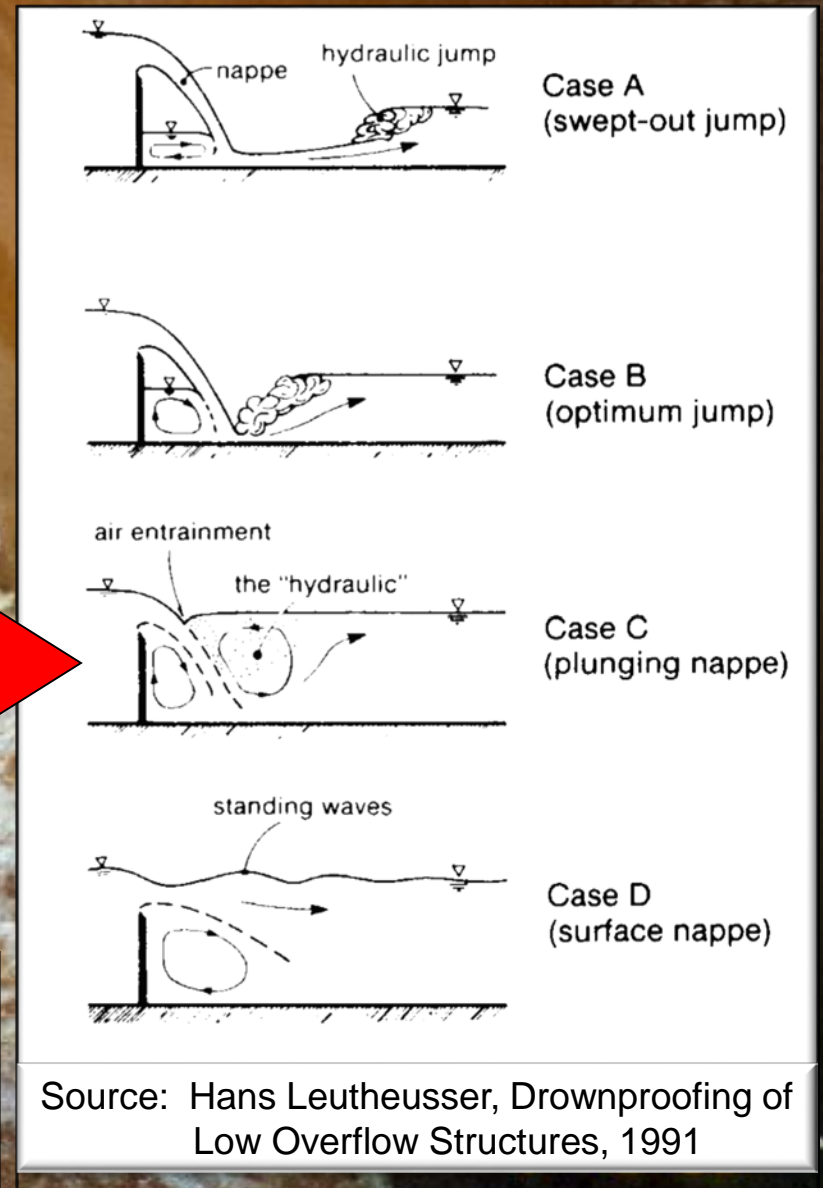
Iowa has nearly 250 small dams, known as low-heads, many of them damaged. Some aren't much more than piles of rocks. The churning water below them has caused nearly 100 deaths, but the Iowa Department of Natural Resources has had trouble getting appropriations to remove or remodel the dams.

KEY: □ Low-head dams on major rivers  
● Projects already funded    ■ Funding still in the works





# Hydraulic Roller



Highland Dam, WV, Feb. 27, 2000  
Father, daughter & friend drowned  
when canoe was carried to the dam  
by the hydraulic roller

# Hartland Dam, West Fork River Clarksburg, WV

## Excerpt from a special fishing issue of a recent tourist publication encouraging public visitation to low-head dam:

*“One 16-mile section of the river offers particularly good fishing opportunities because of four small dams ..... These dams now provide excellent fishing opportunities above and below each structure. ... Tailwater areas below each dam provide a combination of both deep and shallow areas that support most species of fish. The dams also act as barriers to up-stream fish movements so fish tend to concentrate below them. Higher oxygen levels and attractive currents also enhance an angler’s chance of catching fish in the tailwaters....*

*Finding these dams can be difficult even for local anglers. A description of the dam and a landmark will help you locate them. ... The following descriptions of the dams begin with lowermost one and proceed upstream.....*

*Highland Dam is located ..... The tailwater here is the largest and easiest of all to fish and the safest for an angler with small children.....*

*If you cannot fish this prime stretch of the river, look for a small dam on a river near your home for similar fine fishing opportunities [Jernejcic , 1995].*

Jernejcic, F., (1995), *Best of the West Fork*, Wonderful West Virginia. March 1995, 2-4.

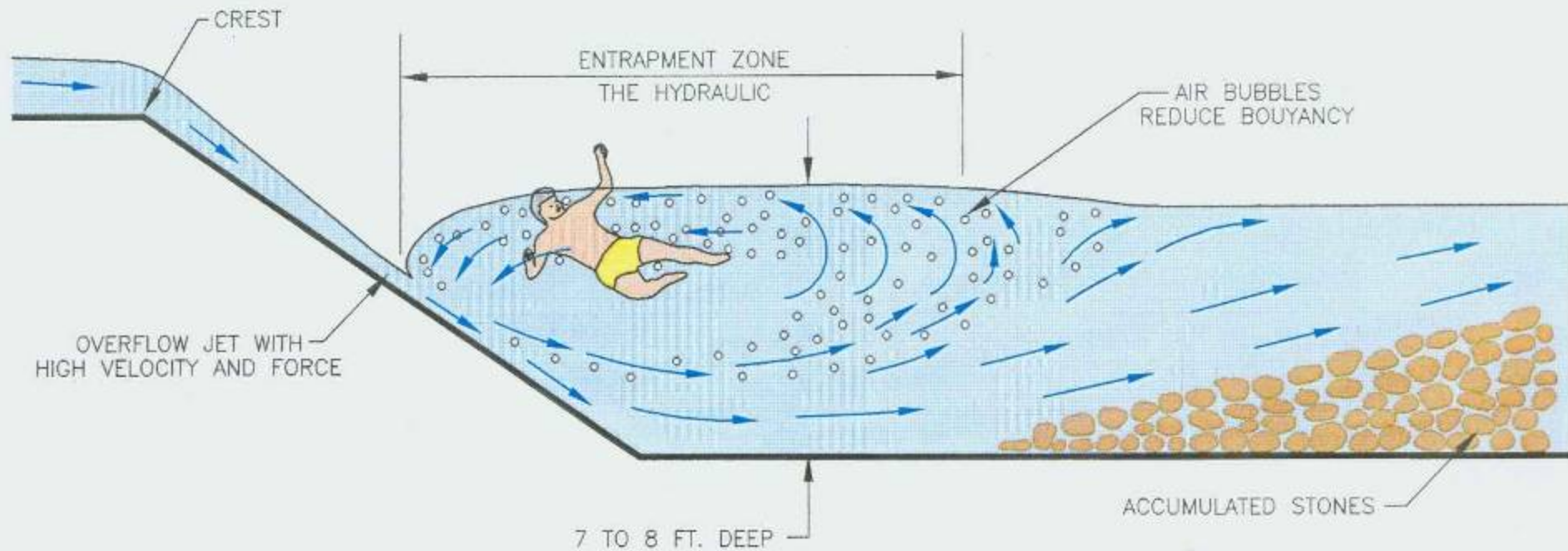




Mehoopany Creek Whitewater Incident, May 18, 2014



# Kayaking



- (1) Overflow jet produces large submerging force on victim.
- (2) Air bubbles reduce buoyancy of victim.
- (3) Reverse flow in upstream direction carries debris and victims back into overflow jet.
- (4) Water too deep for standing.

Figure 1  
GCS at Salt River,  
Tempe, Arizona



Video Illustration of Air Bubbles Reducing Buoyancy

“In 1980, Ohio DNR Officials were dismayed to learn that in two years nine firefighters and police officers in that state lost their lives in fast-water-rescue attempts”

(K. Elverum, 2003).



A PSD Diver died during this training exercise



# Former rescue squad captain indicted in coworker's drowning

[Rescue worker Vicky Ryan, 46](#), died later that night at Riverview Regional Medical Center. Three other rescue squad workers were injured. Ryan's husband was also a member of the rescue squad.

The former captain of the Etowah County Rescue Squad was arrested on an indictment related to the drowning of squad member Vicky Ryan during a rescue attempt, a press release from the Etowah County Sheriff's Office says.

49-year-old Michael Erin Bettis of Gadsden is charged with one count of criminally negligent homicide.

The release reads in part: "The indictment stems from an incident, that occurred April 25, 2015, where a rescue squad member died after a boat she was in capsized. The victim was part of an apparent recovery attempt on Big Wills Creek, near Brooke Avenue."

According to Sheriff Todd Entrekin, the indictment came down recently from the Etowah County Grand Jury.

Bettis is reportedly being held on \$2,500 bond.

announced this afternoon.

Bettis was booked into the





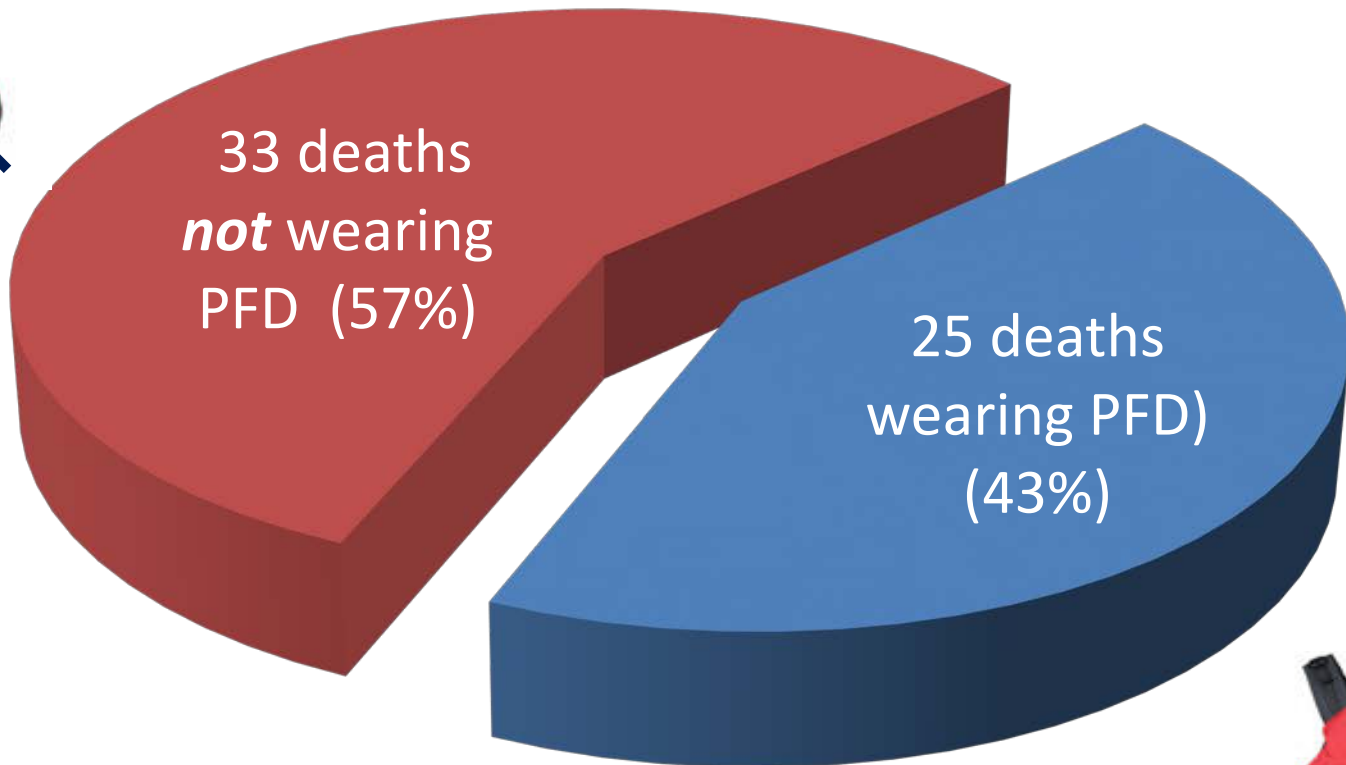
Two kayakers were in the water near a low dam about 11:07 a.m. When one was swept out of his kayak. The other called for help.

The person was presumed drowned and responders continued their search. The Etowah County rescue squad was conducting dragging operations late Saturday afternoon when one of its flat-bottom boats got too close to the dam and the turbulent water swamped it, throwing the squad members into the water.

A second squad boat moved in to try to get the members and it, too, capsized. ***“we had nine people in the water,”*** maltbie said. **Four went to local hospitals,** he said, and where ryan later died.

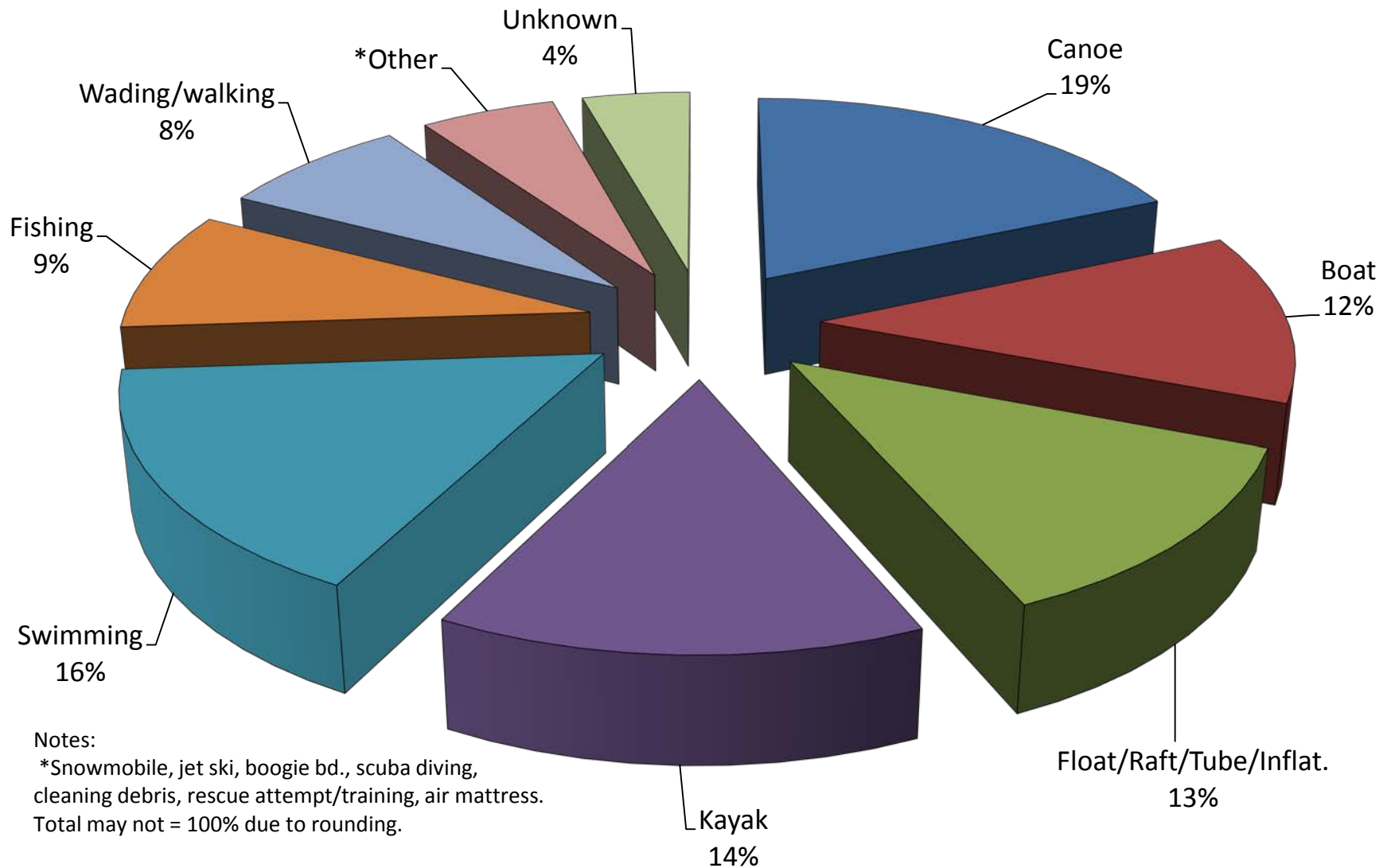
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# Does wearing a PFD really matter if going over dam?

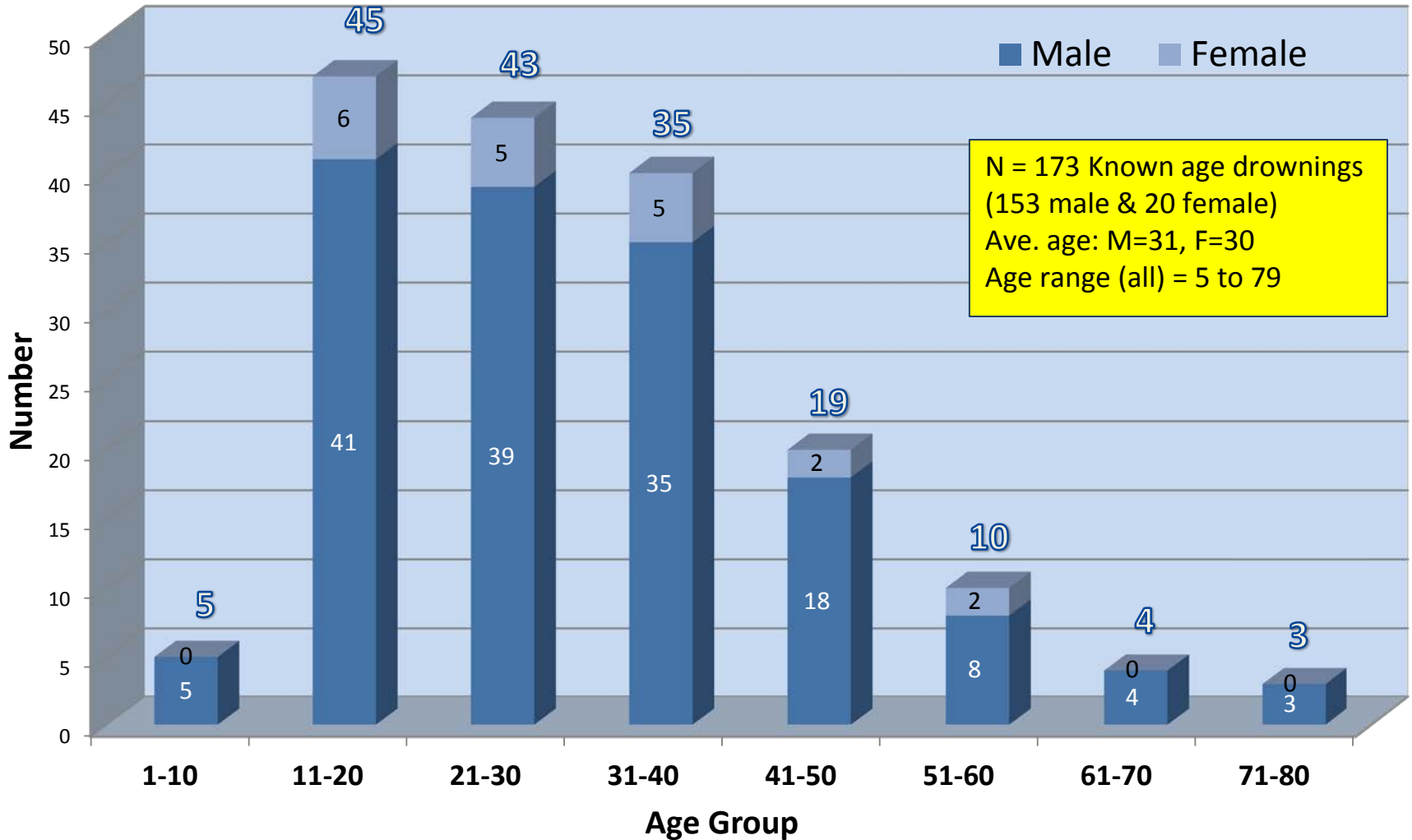


Known information for fatalities through August 2013

# Known drowning activities: 264 of 276 fatalities (1960s - August 2013)



## Known Drowning Victim Age Groups by Gender at Low-head Dams in U.S. (1960s - July 2011)



Slide courtesy of Dr. Bruce Tschantz, University of Tennessee

# Not Just at Low Head Dams ....

## Trio survive spillway capsizes at Fort Loudoun Dam

By Don Jacobs

Wednesday, June 12, 2013

Three people — including a 5-year-old boy — escaped serious injury when the boat they were fishing in was pulled into the spillway of Fort Loudoun Dam.

“We’ve had that happen before and I’ve never seen anyone survive that,” said Tennessee Wildlife Resources Agency Sgt. Roy Smith.

“When I got the call, I assumed it was a recovery operation.”

But when Smith arrived at the dam, he saw three people standing along the bank, two with minor scrapes and bruises.

Other people fishing near the dam in boats saw the 9:02 p.m. Tuesday incident and helped the three victims from the turbulent water that was forcing them under, Smith said.

Dustin Hooper, 38, of Madisonville was fishing from a 17-foot aluminum boat at the dam, according to the TWRA. Brandy Runyon, 36, and 5-year-old Bralynn Runyon, also of Madisonville accompanied Hooper.

“As the individuals were fishing the turbulence below the dam began to pull the vessel

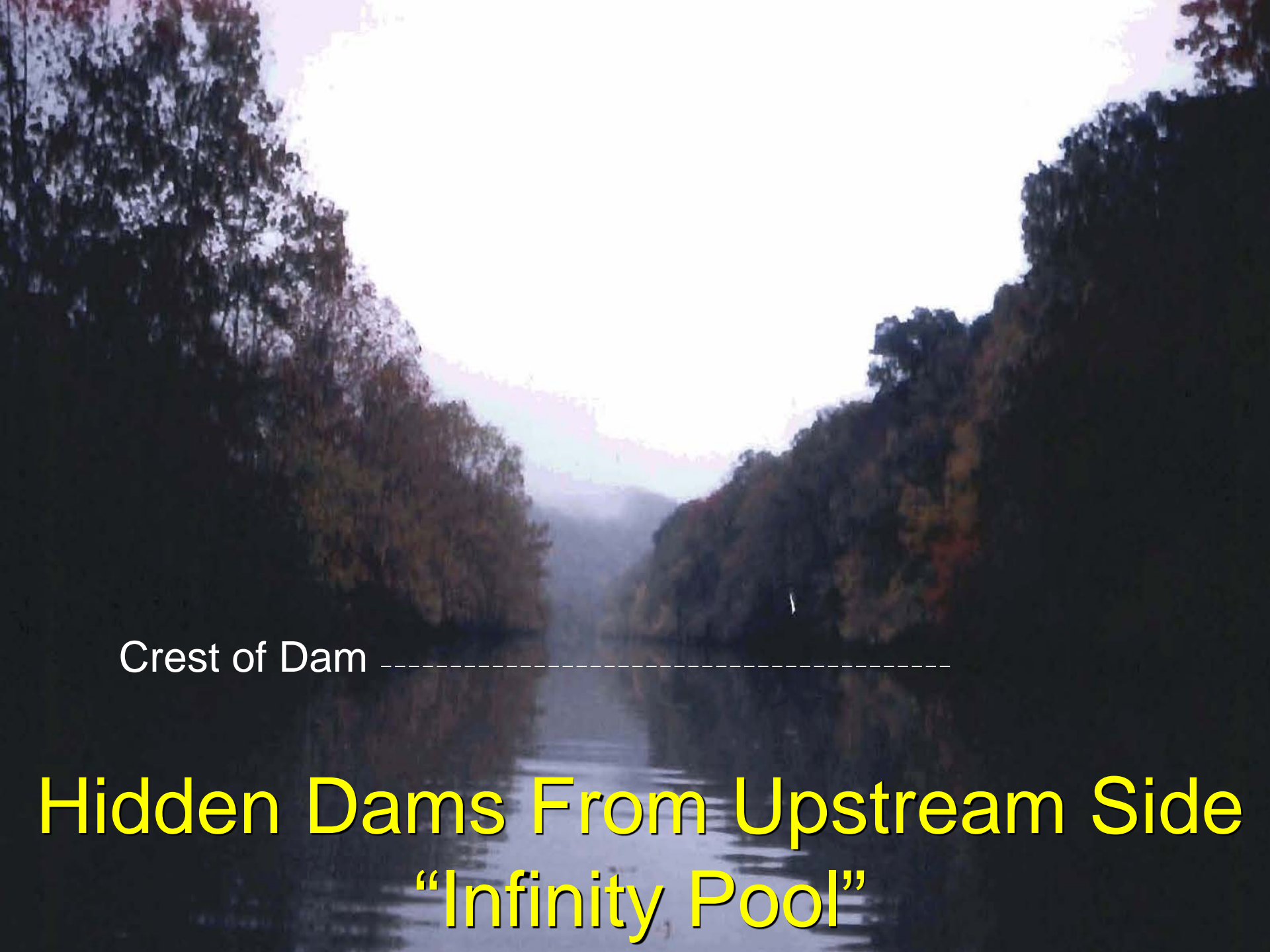
# Hazard #2 – Hidden Dams



June 10, 2001  
White River, Indianapolis,  
9-month old baby & 4  
adults rescued (no PFDs)



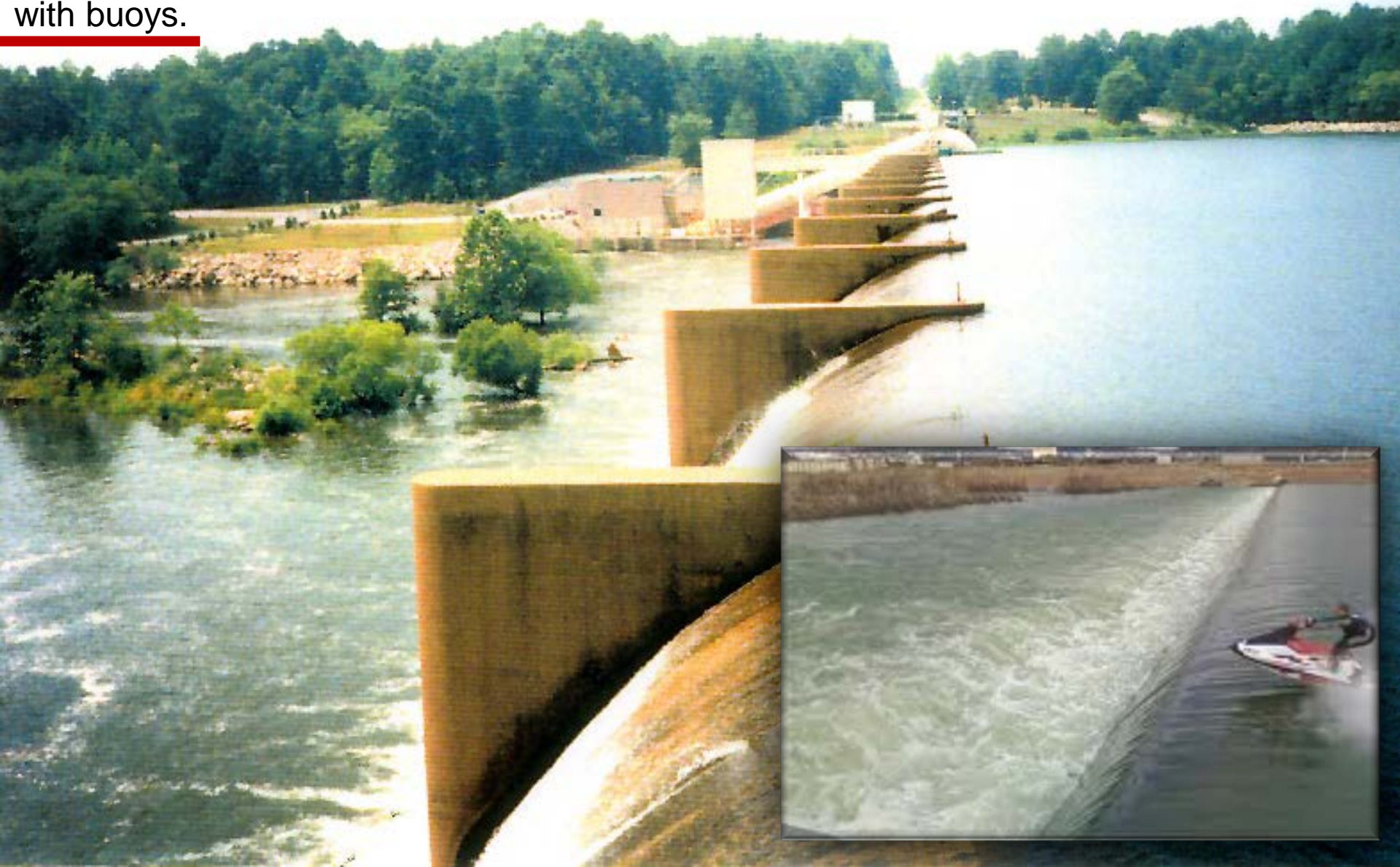


A scenic view of a river flowing through a forested valley. The river is calm, reflecting the surrounding trees and the sky. The forest is dense and appears to be in autumn, with some trees showing yellow and orange foliage. In the distance, a dam crest is visible, marked by a dashed line. The sky is bright and clear.

Crest of Dam -----

**Hidden Dams From Upstream Side**  
**“Infinity Pool”**

On June 17, 2004, 43-year-old Mark Loverdian ran his jet-ski over the 50-foot-high Brasfield Dam at the spillway where "Lake" Chesdin empties into the Appomattox River. His body was recovered hours later, around midnight. He was found to have died of blunt-force trauma. It is not known why he went over the dam, which was clearly marked with buoys.



# Hazard #3 – Strainers



# Approximate Body Location



# Strainers



Lake Wanahoo Spillway











# Concern arises over design of spillway following drowning

*Body of Bayden Martinez found Wednesday near Lake Wanahoo*

UPDATED 6:28 AM CDT Jun 14, 2012

Autopsy results show 11-year-old Bayden Martinez of Wahoo drowned, Saunders County Attorney Scott Tingelhoff said Monday.

The autopsy, performed in Douglas County, confirmed preliminary findings in the death of the boy who went fishing June 12 along Sand Creek below Lake Wanahoo on the north edge of Wahoo.

Searchers found his body Wednesday morning near the top of a spillway of the dam that forms the 662-acre reservoir.

Authorities said Martinez got trapped in a 12-inch drainage tube and could not overcome the force of the water.

State and local officials are investigating whether the spillway area should be closed to the public. Warning signs and barricades have been posted.

"His body was discovered in the spillway. It appeared he got his leg trapped in a 12-inch drainage tube and the force of that water did not allow him to free his leg," said Saunders County Sheriff Kevin Stukenholtz. "Every indication that we have at this point in the investigation leads us to believe he drowned."



# Lake Wanahoo drowning lawsuit settled for \$300,000

By ALGIS J. LAUKAITIS / Lincoln Journal Star May 6, 2014 (0)

His parents, Raul Ernesto Martinez and Danelle June Rush, sued Olsson Associates, **the engineering firm that designed the dam and spillway**, and **the Lower Platte North Natural Resources District**, which built the dam and 662-acre reservoir.

The settlement was approved March 26 in Saunders County Court, which ruled the NRD is responsible for \$200,000 and Olsson Associates for \$100,000, said Lincoln attorney Elizabeth Govaerts, who represented the parents.

The parents initially filed a \$1 million tort claim against the NRD, alleging the district was negligent by failing to take responsible precautions to prevent people from falling into or entering the spillway, which they characterized as an "attractive nuisance."



Diver Trapped While Clearing Obstruction at Riser

# Hazard #4 – Boats Going Over Spillways



January 21, 2013  
Barren Fork River Dam  
McMinnville Tennessee



# Family of five rescued from Goose Creek Reservoir Dam

Tuesday, Apr. 11, 2017 by Times-Mirror Staff



A family of five was rescued from their boat near the Goose Creek Reservoir Dam Monday afternoon, according to Loudoun County Fire and Rescue.

According to reports, at approximately 5:30 p.m. the Loudoun County Emergency Communications Center received a call from an individual stating he and his family were stranded in a boat on top of the Goose Creek Reservoir Dam.

The man said the motor on the small fishing boat had failed leaving them to drift and ultimately stop atop of the 20-foot dam. A portion of the boat was hanging over the edge of the dam, which is located just upstream from the Luck Stone Quarry off of Belmont Ridge Road.

Fire and Rescue units from Ashburn, Lansdowne and Leesburg were dispatched along with rescue boats from Leesburg, Cascades and Lucketts. When the first unit arrived they found a small boat teetering precariously on the edge of the dam.

The boat was occupied with two adults and three small children.

Courtesy Photo/Loudoun County Fire and Rescue



FISHERMEN RESCUED

11:04 70°



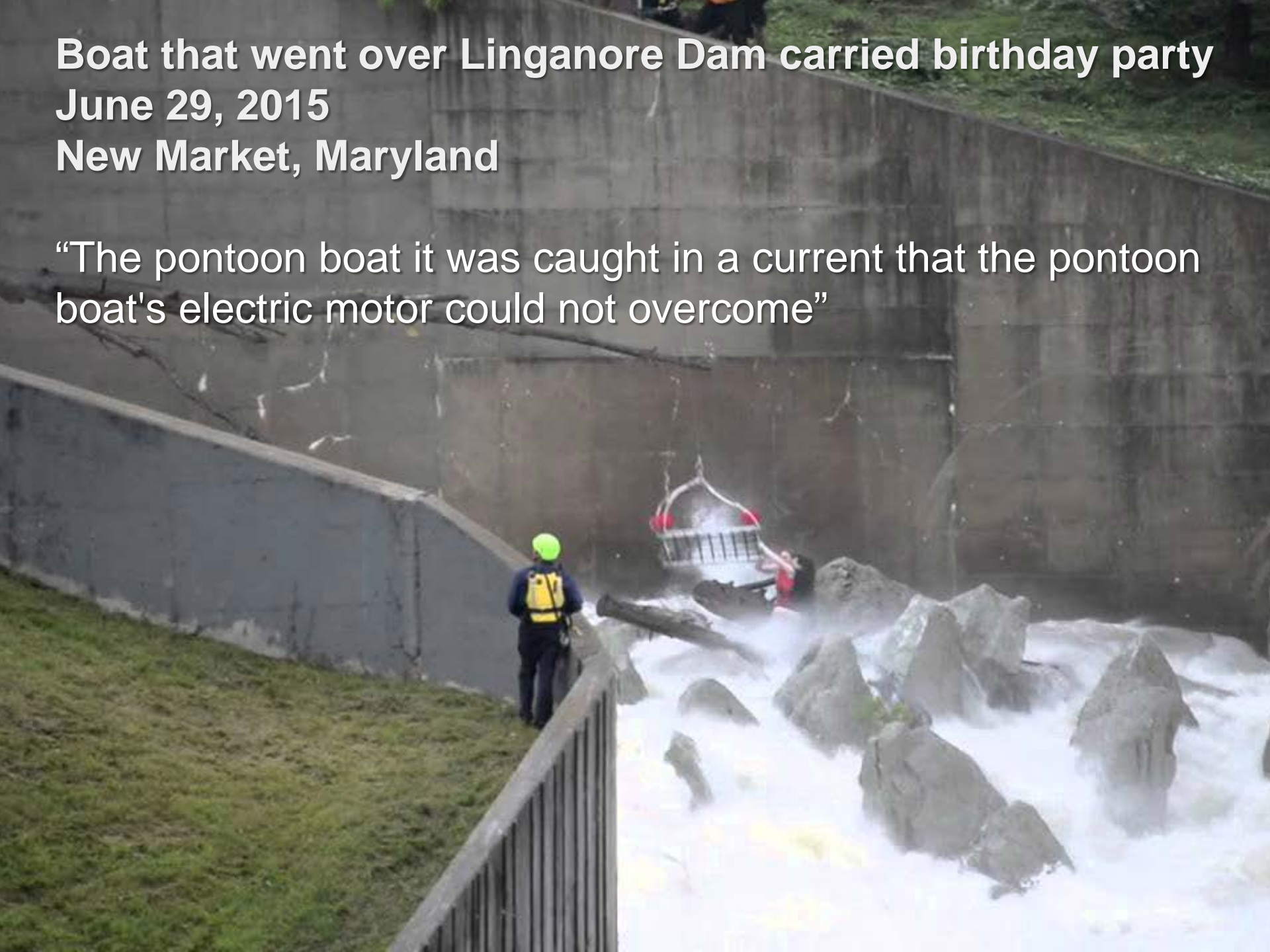
NBCWASHINGTON.COM





**Boat that went over Linganore Dam carried birthday party  
June 29, 2015  
New Market, Maryland**

“The pontoon boat it was caught in a current that the pontoon boat's electric motor could not overcome”







Frederick News Post/Sam Yu

# LAKE LINGANORE, MARYLAND

Boaters rescued after vessel went over dam spillway

# Accident turns to tragedy

## Boat malfunction tr

By NICK REISMAN, reisman@p

The men, along with three of their colleagues, had been traveling down the river to assess the archaeological significance of areas scheduled to be dredged as part of the ongoing removal of PCB-tainted sediment.

Their colleagues were safely on the eastern bank, but Kutys and Harbison were in the flat-bottomed boat when, apparently, it malfunctioned.

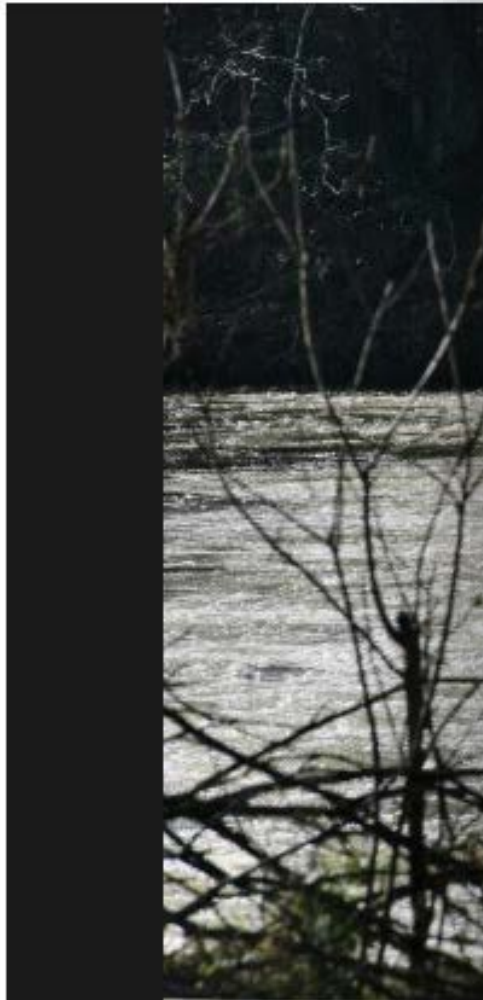
Pulled by the current, the boat slipped over the nearby Thompson Island Dam and overturned, pitching both men into the 38-degree water.

Kutys managed to swim downstream to Thompson Island and call for help. Harbison wasn't as lucky.

The Lambertville, N.J. man was pronounced dead later that night at Glens Falls Hospital.

Both men were reportedly wearing life jackets, officials said.

Harbison was an employee of URS Corp., a California-based engineering company and a subcontractor for General Electric Co. He was hired to assess archaeological sites.



# Hazard #5 – Playing In Spillways

THE PATRIOT-NEWS WEDNESDAY, JULY 20, 2005 B3

## ADAMS COUNTY

### Friends drown at Conewago Creek dam

From staff reports

**EAST BERLIN** • The bodies of David Miller, 18, of East Berlin, and Justin Miller, 20, of Abbotstown, were recovered Monday from the Conewago Creek at the East Berlin Dam. The two were best friends, but not related, East Berlin Police Chief Mike Grimm said.

They were pronounced dead at the scene by Adams County Coroner Pat Felix.

The men drowned Sunday as they were trying to ride boogie boards off the dam's spillway, officials said.

David Miller got caught in the backwash of the dam and Justin Miller went to help him. Both were overcome by the current, police said.





Press Esc to exit full screen mode.











# team SICK



Southern Illinois Canoe & Kayak

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# Team SICK:



## Southern Illinois Canoe & Kayak

### Little Grassy Creek— Carbondale, IL

**Gage:** Located on south side of dam. Visible by looking over the edge of the parking lot. The better measure, however, is to look at the creek from the road. If it looks like there is enough water, there is.

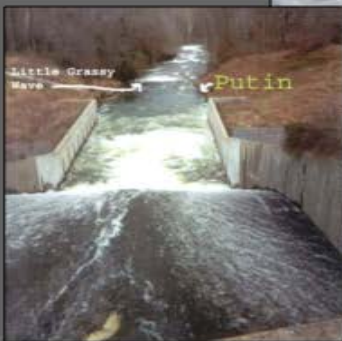
If it looks menacing, count on a monster hole at the bottom. Guestimate by <http://radar.weather.gov/> for the NOAA Paducah, KY radar.

**AW Link:** [http://www.americanwhitewater.org/content/River\\_detail\\_id\\_3888](http://www.americanwhitewater.org/content/River_detail_id_3888)

**Little Grassy Lake Facts:** 1200 acres—Reservoir: Built in 1940



Kenny V.



Butch



Kenney V. surfing it up

This is "The" play spot for Southern Illinois.

[Return to Complete Trip List](#)



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>NWRI - Little Grassy Creek Downstream of dam at Little Grassy Lake (0.2 mile)

## Little Grassy Creek - Downstream of dam at Little Grassy Lake (0.2 mile)

[Comment/Warn](#) [Report Level/Upload Photos](#)

[RiverMain](#) [Flow Info](#) [Rapids \(6\)](#) [Comments \(0\)](#) [Map](#) [Directions](#) [Weather](#) [News \(0\) & Accidents](#) [Books \(0\)](#) [Photos \(18\)](#) [Credits & Network](#) [Gear, Guides and Services \(0\)](#)

### Little Grassy Creek, Disclaimer

#### Downstream of dam at Little Grassy Lake (0.2 mile)

Class II-III+(IV)  
0.2 Miles

*Kenny at Table Rock Hole*  
*Photo of Kenny VanStone by Jeremy*  
*Webber*



#### River Description

This is "the" playspot for Southern Illinois.

Low Flows (3-6 inches): Class II

Medium Flows (6-12 in): Class II+

High Flows (1 foot and up): Class II+ with arguable class III or IV hole at the bottom.

Little Grassy generally runs from December through Mid-Spring following a good rain event. The water spills over the dam on Little Grassy Lake and flows across 100 yards of bedrock. In that stretch are two holes. The top hole, even at high flows, is relatively mild. The bottom hole has a large undercut boulder situated just downstream. Most of the flow goes river-right of the boulder so there is not much water pushing into the undercut. However, it is something to be aware of.

At medium flows, this hole is at its best. The water covers the undercut and the hole grows wider and steeper. It is still too shallow for vertical moves but it allows for all day spins. At high flows, this hole is river wide and is quite retentive. If you are playing the top hole and are blown downstream, punch the lower hole river-right. If you do not hit this at the correct speed or angle you may be in for a long surf! There are exit points to the left and right, but the trough is deep and it will take some effort to get out. Very few have had the nerve to play this hole intentionally at high flows. There are no eddys below the top hole at high flows. So, if you don't feel like you want to try the bottom hole, don't try the top hole. If you wash out of the top hole in mid-stream, you will have no choice but to try the bottom.

**StreamTeam Status:** Not Verified

**Last Updated:** 2005-10-11 11:42:48

#### Editors

STREAM TEAM EDITOR

**Steve Krake**

Carbondale, IL

Little Grassy Dam, Crab Orchard NWR, Illinois  
Site of at least one drowning ...



# Butte Dam, Nebraska – Site of two separate fatalities in 1980s

Woman jumped spillway fence and rode tube down concrete spillway chute and became trapped in hydraulic roller in stilling basin and drowned.



Concrete slabs were placed over the spillway chute to prevent this from happening again

Photos courtesy of Tim Gokie

## Butte Dam, Nebraska – Site of two separate fatalities

Young man ran down dry spillway chute and jumped into stilling basin with a tube and became trapped in hydraulic roller in stilling basin and drowned.



Outlet of spillway chute with  
concrete cover

Photos courtesy of Tim Gokie

# Extreme Sports - Dam Dropping

By [J.M. Stewart](#)

Let me introduce you to the new "sport" of dam dropping.

Now the very name is enough to put a normal, sane, feet-on-the-ground sort of person (such as I am) immediately on the alert.

The procedure is described as a "form of river surfing, more commonly know as river sledging" and it involves going "over an 8 metre drop down the dam retaining wall, descending powerful rapids and surfing the standing waves" ... on a plastic or foam sledge.

Yep ... You hurl yourself off the spill wall of a dam on a bit of plastic.





# Hazard #6 – Sudden Reservoir Release



# Ontario Power Generation charged in dam drowning deaths

Ontario Power Generation Inc. (OPG) and two of its employees have been charged with criminal negligence causing death in connection with an incident in Eastern Ontario two years ago that killed a mother and her son.

July 9, 2004 by: David Helwig



A judge dismissed charges against Ontario Power Generation on Tuesday in the deaths of a child and his mother who were swept over a cliff when a torrent of water was released from a provincial dam in 2002.

But two of the Crown corporation's employees will still be tried for criminal negligence causing death. Initially, the company and the two employees were each charged with two counts of criminal negligence causing death.

The dam is located on the Madawaska River near Calabogie Lake, about 100 kilometres west of Ottawa.

Justice Paul Belanger of the Ontario Court of Justice ruled Tuesday that there was insufficient evidence to continue with the prosecution against the Crown corporation in the deaths of 32-year-old Cynthia Marie Cadieux and her seven-year-old son, Aaron. The two victims were from Renfrew, Ont.

Two Ontario Power





# **\$1.8 Million Settlement Reached In Deaths Of Two Men, Says NY and PA Accident Lawyer**

Incident: Sept. 28, 2010

## **Brookfield Renewable Energy**

The lawsuit says the pair died as "a result of a drowning after a massive quantity of water was negligently, carelessly and/or intentionally released, without proper advance warning, into the Oswego River by the owners and/or operators of the power plant facility generally referred to as the "Varick Development of the Oswego River Project."



# Search on for toddler's body after day at the river turns tragic



By Carmen Rodgers  
Email the author

Published 6:42 pm Sa

**August 19,  
2017**

## Fisherman drowns on Chattahoochee River during upstream water release

**August 4, 2017**

From Staff Reports Aug 4, 2017 (0)



Travis Jones, Chief of Tallassee Fire Department, is seen at his command post as recovery efforts continue. A month-old boy was swept from his mother's hands in the Tallapoosa River quickly began to rise Saturday at the boat ramp behind AES.



A Gwinnett County Fire and Emergency Services swiftwater rescue unit is seen in this file photo. Gwinnett County and Johns Creek swiftwater rescue teams worked together to recover the body of a man who drowned while fishing on the Chattahoochee River at Medlock Bridge Park near Duluth on Friday. (File Photo)

[Buy Now](#)

# Hazard #7 – Jumping From Structures



Hearthstone Lake, August County, VA



Man drowns after jumping off tower at Nuuanu Reservoir



# Police: young man dies after jumping 50 feet into Nuuanu Reservoir

Posted: Oct 02, 2011 9:06 PM EDT

Updated: Oct 03, 2011 5:56 PM EDT

By Minna Sugimoto - [bio](#) | [email](#)

NUUANU (HawaiiNewsNow) - A man in his 20s died Sunday when he reportedly jumped 50 feet into a reservoir located in a restricted area in Nuuanu.

Police say the victim was among nearly a dozen young people who went onto the property without permission.

Emergency crews were called to Nuuanu Reservoir #4 for a swimmer in distress at about 11:30 AM. They quickly learned that a 23-year-old man had failed to surface after making the 50-foot jump from the tower to the pool below.

Fire officials say the victim was submerged in about 25 feet of water.

"We deployed our rescue divers," Capt. Rick Karasaki, Honolulu Fire Department, said. "About 45 minutes after the initial call, we were able to retrieve this body."

There is video posted on youtube.com showing the stunt being performed at that same reservoir. One angle shows how far down the water is.

We don't know if the young man involved in Sunday's incident was inspired by the online images. What we do know is that the Honolulu Board of Water Supply property is off limits to the public.

"There is fencing around the reservoir, as well as around the tower that controls the depth of the reservoir, as well as a lot of 'No Trespassing' signs," Kurt Tsue, Honolulu Board of Water Supply, said.

To get to the tower, you would have to walk across a bridge that is sealed off by a locked gate with a sign on it that says, "Danger. Keep off."

"We are currently investigating what happened, but we really don't have too much detail at this point," Tsue said.



Capt. Rick Karasaki



Home ▶ News

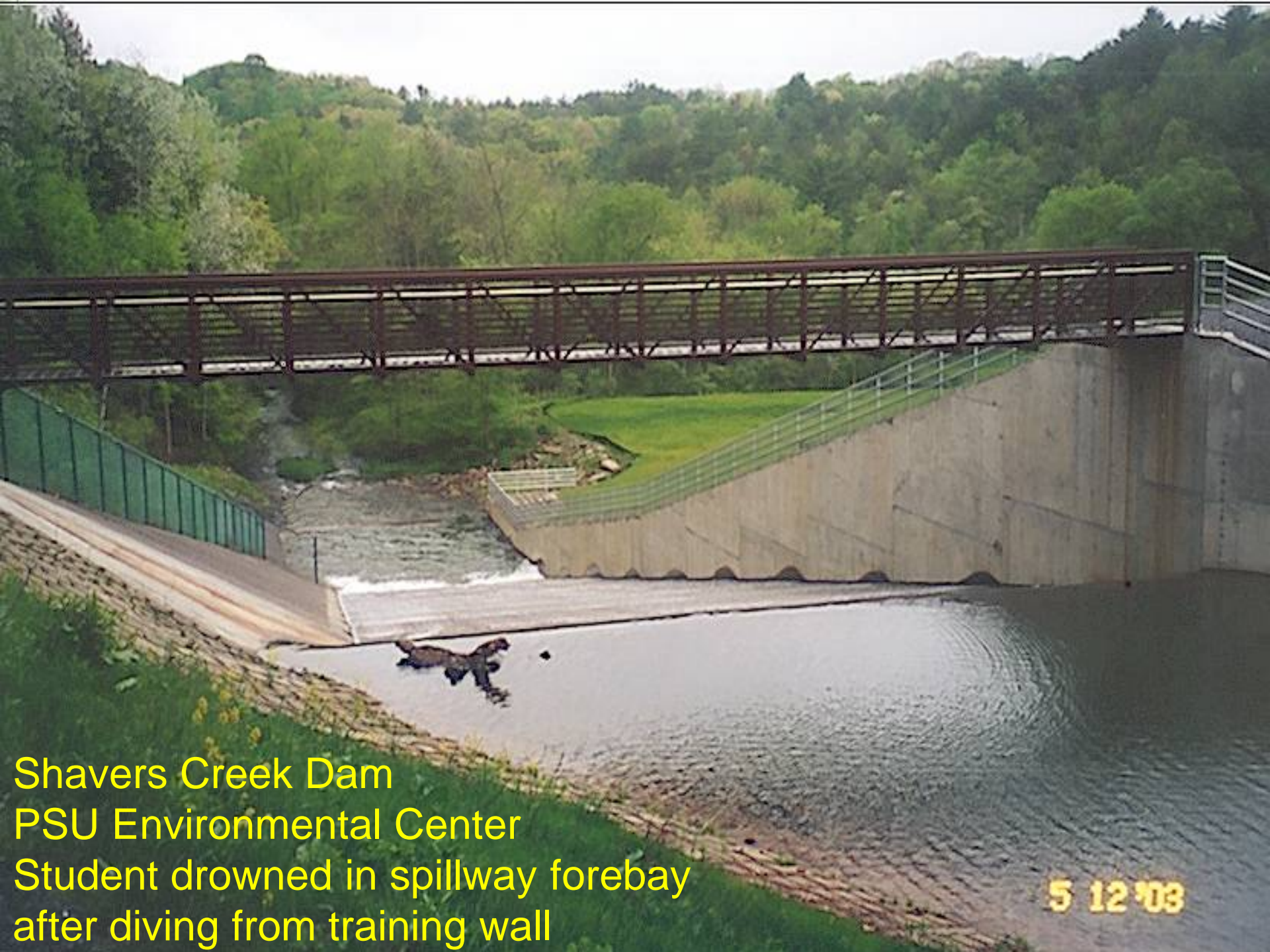
## Heat Relief: Despite Rules, Teens Cool Off At Beaverdam Reservoir











Shavers Creek Dam  
PSU Environmental Center  
Student drowned in spillway forebay  
after diving from training wall

5 12 '03

# Hazard #8 – Climbing In Hazardous Areas















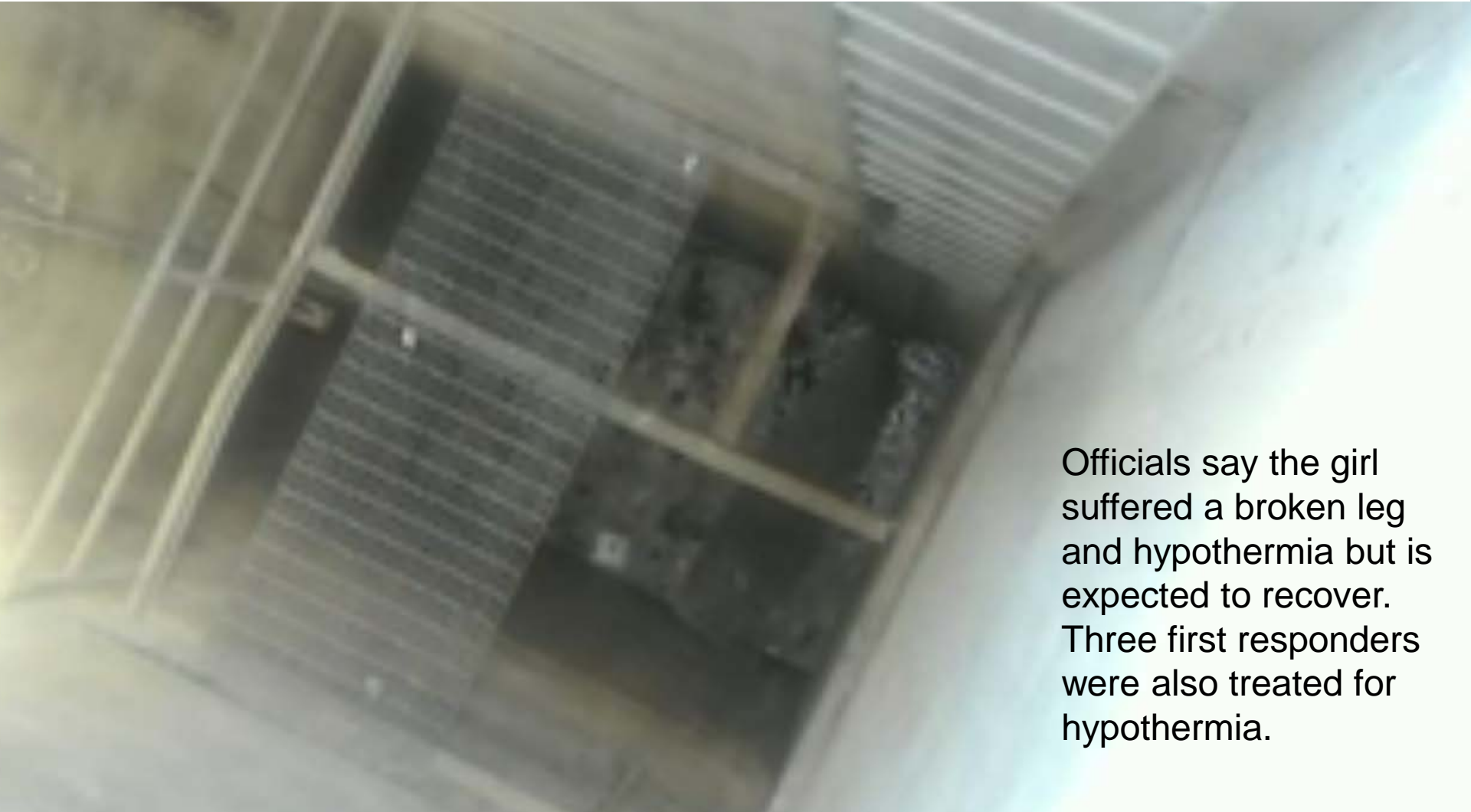
## Retired Marine dies attempting to rescue teens in Medina River, Texas (June 6, 2016)

Authorities say a teen girl **who was walking across the dam** of the Medina River fell into the water at the Bandera City Park. A teenage boy went in after her. Rodney Buentello, who was at the park with his family, jumped in to help the teens. Buentello was able to save them, but he was pulled under the dam and crews were not able to reach him.



# Rescue at Dam Leads to Safety Measures

POSTED 5:15 PM, JULY 11, 2016, BY [SUZANNE GOLDKLANG](#), UPDATED AT 06:18PM, JULY 11, 2016



Officials say the girl suffered a broken leg and hypothermia but is expected to recover. Three first responders were also treated for hypothermia.

## Teen Rescued After Falling 100 Feet Into Well

# Hazard #9 – Islands and Stranding



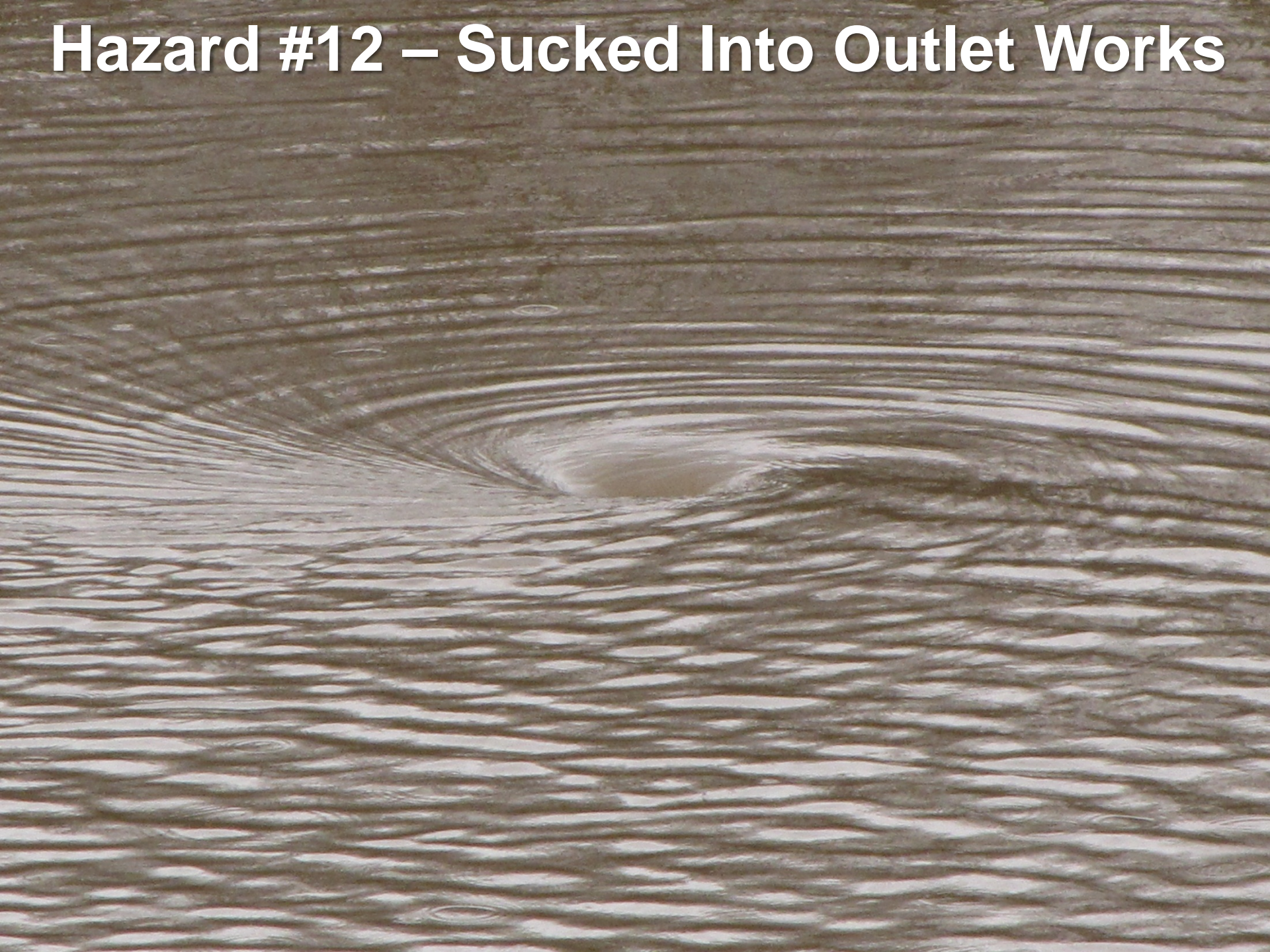
# Hazard #10 – Slippery Surfaces



# Hazard #11 – Sliding Into Reservoir



# Hazard #12 – Sucked Into Outlet Works



# Hazard #13 – Hazardous Open Structures





# Hazard #14 – Confined Spaces



**DANGER**  
DO NOT ENTER  
CONFINED SPACE  
PERMIT REQUIRED

**CAUTION**  
MANHOLE  
LOAD LIMIT  
500  
LBS

■ ACCIDENTAL DEATHS

# Fumes fatal to two Army Corps workers

## Collegians told not to enter shaft at Carbon lake, official says

Associated Press

LEHIGHTON — Two collegians working for the U.S. Army Corps of Engineers for the summer died after apparently being overcome by gas inside a shaft an official said they were told not to enter.

Robert J. Schlappe, 21, of Franklin Twp., and Brandon V. Izzo, 20, of Jim Thorpe died yesterday after apparently being overcome by fumes in a 30-foot shaft at Beltville Lake.

Corps of Engineers spokesman Roy Pirritano said the men, who were part of a team doing a safety inspection of the 200-plus acre lake in Franklin and Towamensing townships, were told to pump water from the shaft but not enter it.

"They were specifically told not to go down the manhole,"

Pirritano said.

He said they were discovered just after 10 a.m. when a supervisor at the Corps of Engineers lake discovered an uncovered manhole and a truck parked nearby.

Firefighters wearing air tanks retrieved the men from the shaft but they died after arriving at local hospitals.

"You couldn't breathe in the shaft without an air tank on. It would have consumed you," said Dan Oswald Jr., one of the firefighters who entered the shaft.

Pirritano said the shaft had

told The Morning Call of Allentown she doubted her son would climb into a manhole without taking precautions.

"Robbie was an intelligent boy," she said. "I'm just angry and upset at the Army Corps' carelessness."

It was Schlappe's third year of working for the Corps of Engineers. It was Izzo's second day

on the job.

Schlappe, a 1990 graduate of Lehigh High School, recently completed his junior year at Penn State.

Izzo, a 1992 graduate of Jim Thorpe Area High School, had just completed his sophomore year at Lehigh Carbon Community College.

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## Corps Made Fatal Errors Rule-breaking Admitted In Student Deaths At Dam

September 08, 1994 | by TRACY JORDAN, The Morning Call

The U.S. Army Corps of Engineers said yesterday it violated its own regulations and Occupational Safety and Health Administration standards when it instructed two untrained college students working at Beltville dam to enter the manhole in which they died.

The bodies of Robert J. Schlappe, 21, of Franklin Township and Brandon V. Izzo, 20, of Jim Thorpe were removed from the 30-foot-deep manhole in Franklin Township May 24. They were overcome by carbon monoxide.



# Hazard #15 – Swift Currents



Slide from Dr. Bruce Tschantz  
Little River, Tennessee

# Hazard #16 – Thin Ice

POLICE BRIEFS

Tweet 0

Tuesday January 4, 2011

## W.Va. angler drowns while ice fishing

by The Associated Press  
The Associated Press

DORCAS, W.Va. (AP) - The Division of Natural Resources says an ice fisherman has died after



## Local News

January 3, 2011

## Keyser area man drowns while ice fishing in Grant County

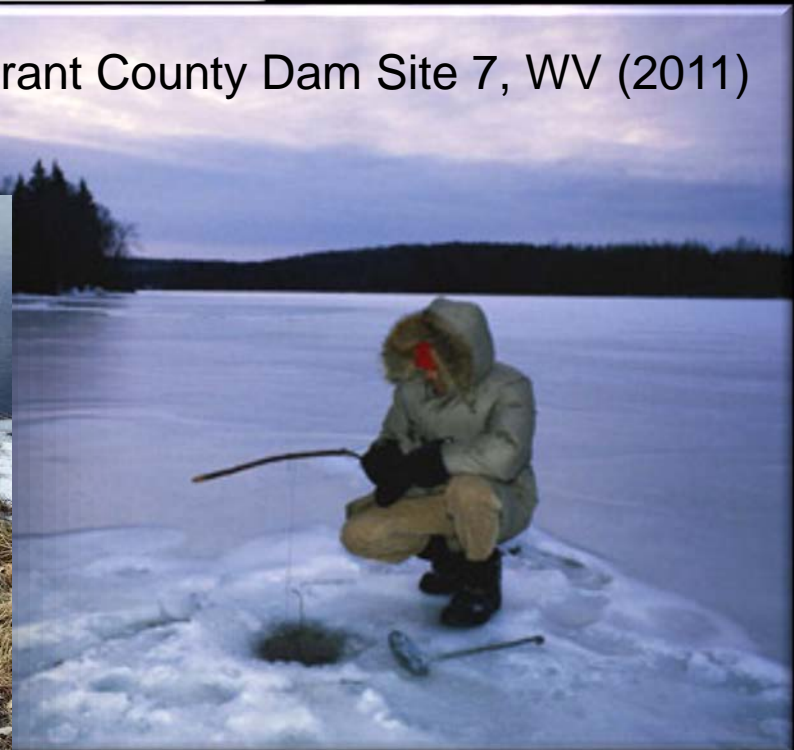
Police say he fell through the ice and first responders were not able to get to him in time

From Staff Reports  
Cumberland Times-News

— PETERSBURG, W.Va. — A Keyser area man drowns while ice fishing in Grant County, according to Hoy Murphey, a spokesman for the Division of Natural Resources.

...d Kimble of Keyser was fishing on Sunday with his

Grant County Dam Site 7, WV (2011)



# Hazard #17 – No Escape from Reservoir



# Hazard #18

## Obstacles Within the Reservoir



# Basic Legal Premises

## ***NEGLIGENCE:***

- The failure to exercise reasonable care to avoid failure of the dam under the particular circumstances causing the failure
- For high-hazard dams, a higher *Standard of Care* is expected of the dam owner

# Basic Legal Premises

## ***NEGLIGENCE:***

Negligence can exist in any of the following aspects of a dam project:

- 💧 - Design
- 💧 - Operation
- 💧 - **Inspection**
- 💧 - Dam repairs and alterations
- 💧 - Construction
- 💧 - Maintenance
- 💧 - Regulation



# Basic Legal Premises

## II. THEORIES OF LEGAL LIABILITY

### A. NEGLIGENCE

#### I. General Standard of Care

Negligence is the most commonly utilized cause of action both in general tort litigation and in dam failure cases. Negligence is defined in terms of the failure to exercise the standard of care of a reasonable person under similar circumstances. This standard in turn is based upon the reasonable foreseeability of the risk. Charvoz v. Bonneville Irr. Dist., 235 P.2d 780, 783 (Utah

“If it happened before, it is foreseeable.”

“The best test of foreseeable is hindsight”

*Professor Dennis Binder,*

# Basic Legal Premises

## ***LIABILITY AND PUBLIC SAFETY:***

1. There is a failure to **warn or guard the public against injury** from a dangerous condition that was known or should have been known
2. There is a failure to properly construct or maintain in good repair any structure; or **failure to properly control potentially hazardous recreational activities**
3. Gross negligence of an employee
4. The owner must **identify** any unreasonably dangerous condition and **warn** potential victims of the existence of the condition within a reasonable period
5. The owner does not have to insure against possibility of injury, but must **act reasonably to prevent possibility of injury**

# Basic Legal Premises

## ***DAM OWNER RESPONSIBILITIES:***

- Make and keep premises safe
- Avoid conduct or conditions that could injure any person, **even trespassers**
- Correct existing dangerous conditions and post warnings

# Public Safety & Liability

- Post warning of known hazards
- Protect children from dangers
- “Legal duty of responsible care”
  - **Foreseeability (risk of occurrence)**
  - **Magnitude of harm**
  - **Preventability (availability of alternatives)**
  - **Control (who had control over situation)**





# Public Safety Around Dams – An Emerging Crisis

**3:15-3:45 PM**

