



ANNUAL REPORT 2013-14



Association of State Dam
Safety Officials, Inc.

July 2013 through June 2014

THE 2013-14 ANNUAL REPORT FOR THE ASSOCIATION OF STATE DAM SAFETY OFFICIALS, INC.

It is my honor to present to you the Fiscal Year 2014 Annual Report for the Association of State Dam Safety Officials. The report represents work accomplished by the association from July 1, 2013 to June 30, 2014. The report is laid out in the framework of the current Strategic Plan being implemented by the association.

In reading this report, one quickly realizes how many different tasks ASDSO undertakes and accomplishes each year. Those accomplishments would not be possible without the tremendous support of our many volunteers, donors, and the ASDSO staff. I wish that I could thank each of you personally for your dedication to this great organization; instead, I will have to settle for expressing my thanks here, to all of you for all you do for this association. While serving as president, I witnessed firsthand the sacrifices and contributions of so many. Whether you served on a committee, helped with a workshop, provided a monetary contribution, or participated in any number of other ways, your contribution towards this association makes the association a success. The dedication of so many to promote dam safety and educate dam owners and the public is amazing. The association is making a difference in dam safety thanks to each of you.



Like the presidents before me, I saw the association face challenges and achieve many goals. One of the greatest challenges and accomplishments this year was the effort put forth in purchasing an office building. Another challenge that was overcome was the passage of the Water Resources Reform and Development Act. The passage of this important legislation provided for the reauthorization of the National Dam Safety Program and the creation of a national levee initiative. There remains plenty of work to be accomplished as a result of this legislation; however, passage of any legislation in the current political climate can only be viewed as a major success. Speaking of legislation, I would be remiss if I did not mention the efforts underway to seek passage of dam safety legislation for Alabama. Alabama is the only state without dam safety legislation.

Two of the greatest assets of this association are the relationships and our focus. The association continues to foster relationships with our federal dam safety partners and the many other associations involved with dam safety, levee safety, and flooding. The association continues to focus on the goals of the strategic plan, such as fostering and growing these relationships. At the same time, we never forget the past and continue to work to learn from it. The decade dam failure series is a valuable tool to help us all learn from the past. This year marked the 125th anniversary of the worst dam failure in the United States, the South Fork Dam near Johnstown, PA. This anniversary presented a great opportunity to spread the word about the need for dam safety and creating a world where all dams are safe.

In closing, I want to once again say thank you to everyone who is a part of this association. This report is a reflection of you and your efforts and it is impressive. I can hardly wait to see what is accomplished this coming year. I know it will be another great year.

Sincerely,

Tom Woosley, P.E.
President

ON THE COVER

2013 National Rehabilitation Project of the Year: Wolf Creek Dam impounds Lake Cumberland, in south central Kentucky. As a result of flaws in the original 1930s design assumptions and construction approaches, and the inherently erodible nature of its karstic foundation, Wolf Creek Dam has seen five separate phases of foundation grouting since the late 1960s. Remedial work undertaken since 2007—involving modern methods of drilling and grouting and a longer, deeper concrete cutoff wall than one previously constructed at the site—is hoped to be the final solution.

TOC

	<u>Page</u>
ASDSO Board of Directors	4
State Representatives 2013-14	5
Goal 1: Improve state dam safety programs	8
Goal 2: Increase awareness of dam safety and its benefits to all stakeholders.....	18
Goal 3: Increase the technical expertise of dam safety professionals and owners/operators.....	28
Goal 4: Develop and implement financial instruments to improve dam safety programs.....	37
Goal 5: Promote and facilitate a consistent approach to dam safety regulation and technical criteria in all states and federal agencies.....	39
Goal 6: Support levee safety activities consistent with dam safety principles and interests.	41
Recognition.....	43
Transitions	51
Financial Report.....	53
Appendices.....	56
Appendix 1.....	57
Appendix 2.....	61
Appendix 3.....	63

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GOAL 1: IMPROVE STATE DAM SAFETY PROGRAMS.

PROJECTS:

Support and Coordinate State Representation to Committees and National Advisory Boards.

Collect State Performance Data and Measure Progress.

Partner with States to Identify the Condition of Dams.

Improve State Enforcement Capabilities.

Provide Tools and Best Practices to the State Dam Safety Programs.

Offer a Peer Review Program to the States.

STATE REPRESENTATION ON COMMITTEES AND NATIONAL ADVISORY BOARDS

State dam safety officials continue to sit on several national advisory boards and task forces including the National Dam Safety Review Board and the DHS Infrastructure Protection Dams Sector Government Coordinating Council.

ASDSO continues to support five State representatives who serve on FEMA's National Dam Safety Review Board. The five state representatives serving on the Review Board in FY14 were:

- Byron Lane (Michigan)
- Michael Johnson (Arizona)
- David Gutierrez (California)
- Jim Gallagher (New Hampshire)
- Brian Long (West Virginia)

Many ASDSO volunteers also serve on the following National Dam Safety Review Board Work Groups (See Appendix 2 for a roster):

- Research Work Group
- Training Work Group
- National Inventory of Dams Work Group
- Emergency Action Planning Task Group
- Communication and Outreach Work Group

Several ASDSO state representatives sit on the Dams Government Coordinating Council (DGCC) and workgroups including the following:

- John Moyle (New Jersey); John Kale (alternate)
- Steve McEvoy (North Carolina); Mel Nevils (alternate)
- Jason Campbell (Illinois)
- Keith Banachowski (Ohio); Rodney Tornes (alternate)
- David Gutierrez (California); Randy Fessler (alternate)
- Robert Martinez (Nevada)
- Roger Adams (Pennsylvania); Tom Bold (alternate)
- Jim Gallagher (New Hampshire)

TRACKING STATE DAM SAFETY PROGRAM IMPROVEMENTS AND DAM DATA

ASDSO continued to collect data from the states in 2013-14. In conjunction with the US Army Corps of Engineers Topographic Engineering Center, which houses the National Inventory of Dams, state performance data was tracked during FY14 for the 2013 calendar year. This data was analyzed by ASDSO and trend reports were generated. Each state received a "report card" or "dashboard" analysis of their program performance; comparing the state to nationally agreed-upon measures such as number of inspections, number of emergency action plans on file and budgets for dam safety.

Additionally, each state was asked to self-report how well their state's laws, regulations and policies compare to the Model State Dam Safety Program (the "Model"). 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 minimize 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.

SUMMARY OF NATIONAL STATE PROGRAM PERFORMANCE DATA ANALYSIS

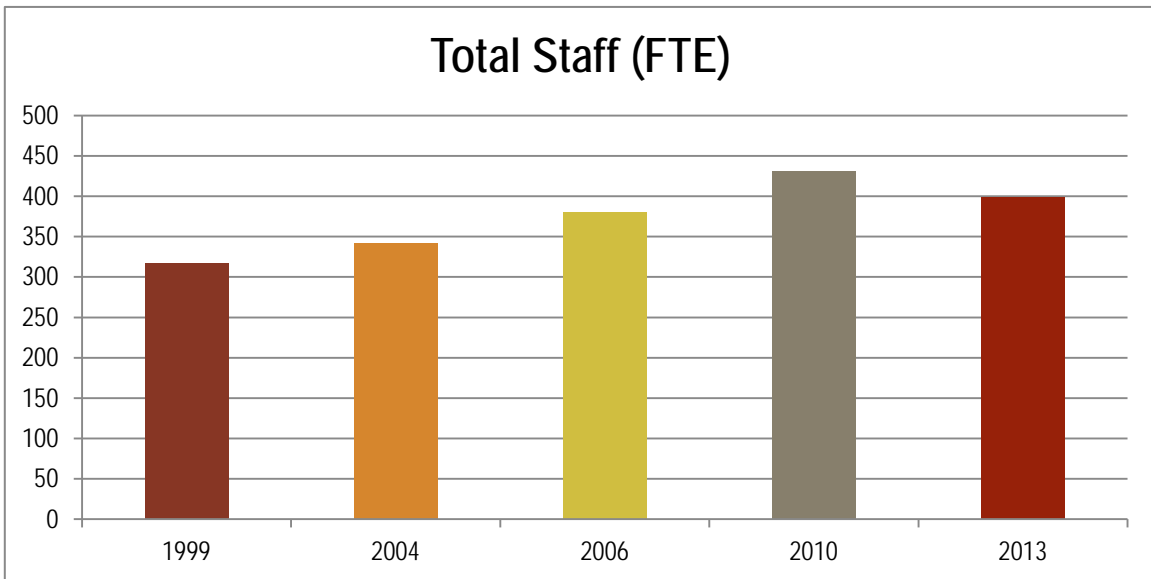
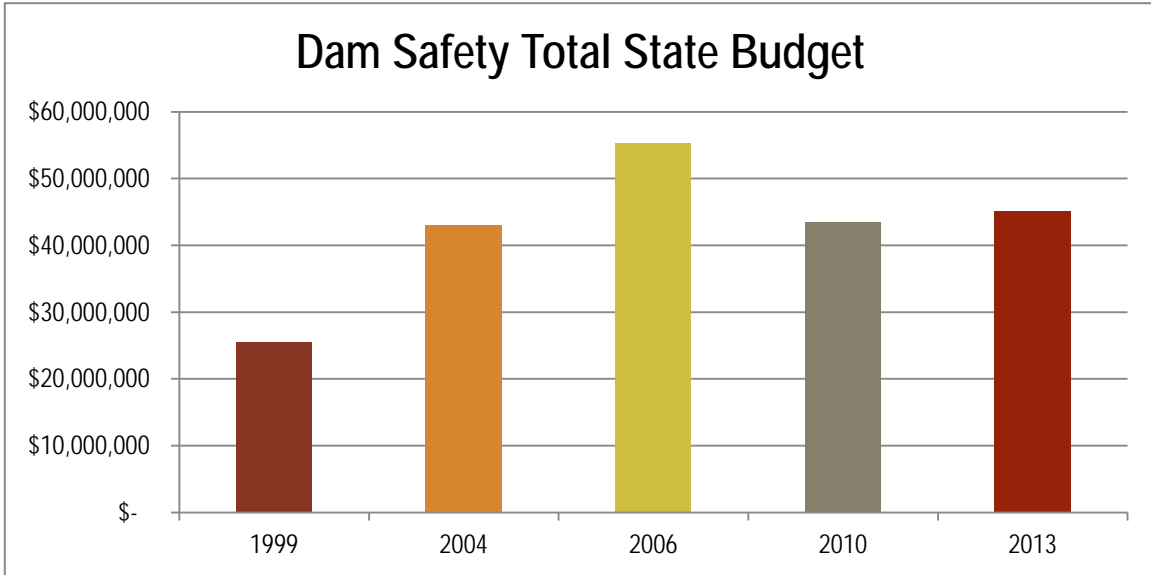
Authorities

State Authorities	State Compliance		
	1989	1998	2014
Legislation (5)	64%	73%	86%
Inspection (4)	54%	68%	76%
Enforcement (4)	66%	79%	92%
EAP & Response (4)	51%	62%	74%
Permitting (3)	58%	67%	75%
Education & Training (3)		59%	74%
Public Relations (1)		13%	30%
Weighted Percentage	59%	66%	78%

This table presents the weighted average of state responses over time to a series of yes/no questions on the authorities for each chapter in the Model. The areas are listed and weighted by importance (weights indicated in parentheses). Higher percentages indicate greater alignment of the state programs with the model.

State Program Resources

The next two charts show the collective change in data from 1999 to 2013 for state budgets dedicated to dam safety and total staff focused on dam safety.

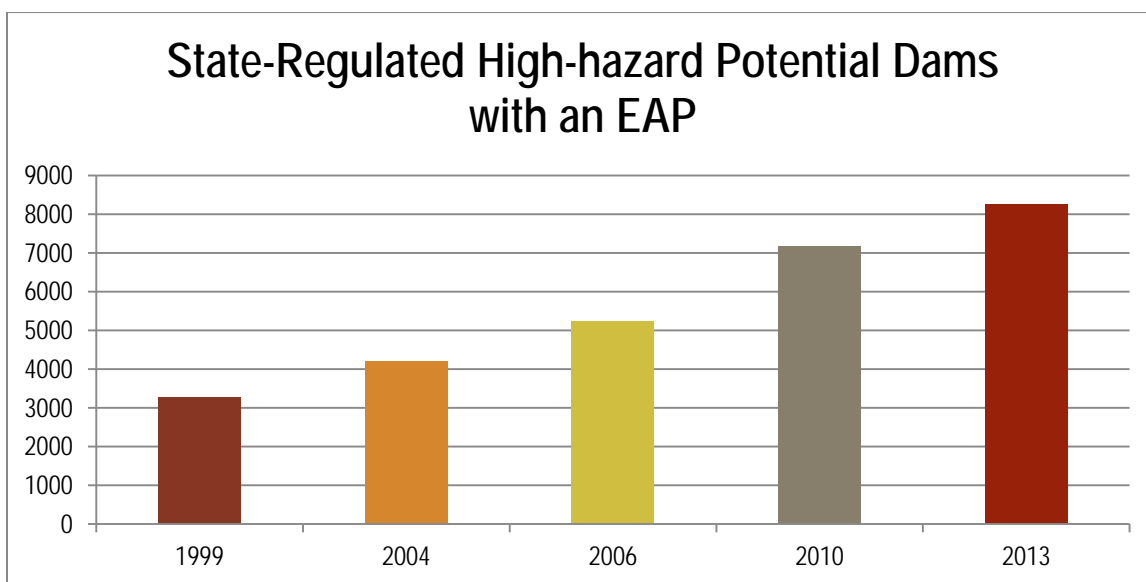


Emergency Action Plans (EAPs) for High-hazard Potential Dams

Nationally the percentage of high-hazard potential dams with an EAP has increased from 35% to 71% for the period 1999 to 2013.

Nearly every state has shown improvement in the number of EAPs for high-hazard potential dams with no state showing a significant decrease. Many states had increases of several hundred to several thousand percent.

Nationally for the period 1999 to 2013 the average of individual state increases in EAPs was 559%, and up from last year by 25%. Hawaii continues to lead the other states with the greatest state increase of 5600% going from 2 EAPs in 1999 to 114 in 2013. In just the last six reporting years (2008-2013) the average of state increases was 71%, up from last year by 8%.



In 2013, twenty-three states reported percentages of high-hazard potential dams with an EAP at 90% or greater, up from just ten in 1999.

There are ten states reporting less than 50% of high-hazard potential dams with an EAP. This has remained the same over the past few years.

Inspections of High-hazard Potential Dams

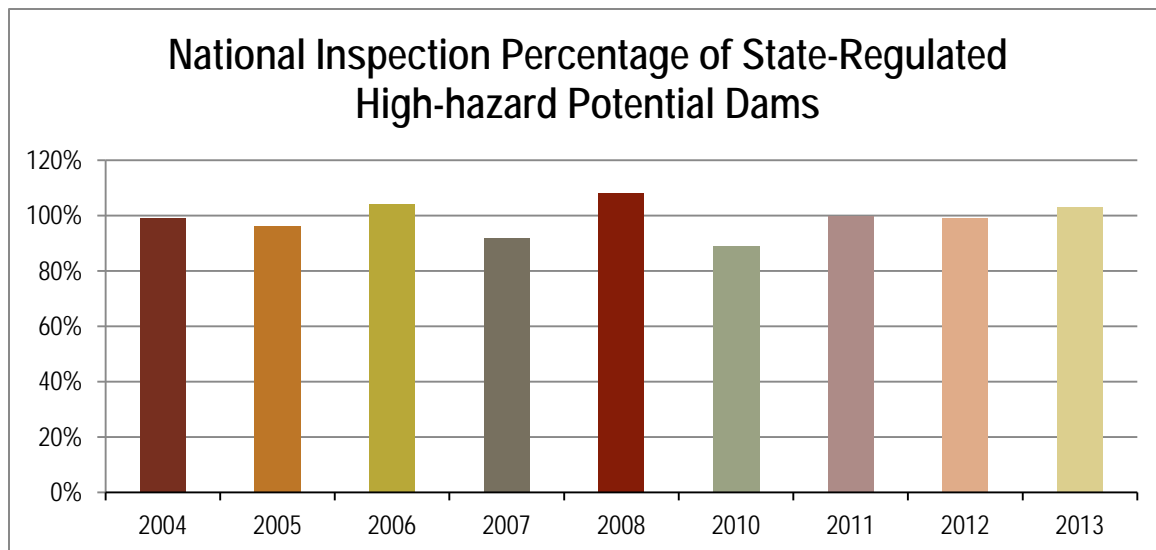
The chart on the next page shows the percentage of inspections completed for high-hazard potential dams based on the inspection frequency and schedule due for a particular state. Inspection percentages may vary above and below 100% for any given year based on a state's inspection frequency and scheduling (i.e., a state with an inspection frequency of every two years might inspect more than half of the dams in the first year, or greater than 100%, in order to take advantage of their close proximity).

The national average for the inspection of high-hazard potential dams has remained relatively steady over the reporting period of 1998 to 2012.

In comparing 2013 to 1998, 39 states reported inspection activity for high-hazard potential dams equal to or greater than 100% of the 1998 activity. This is up from last year by 4 states. Four additional states are at 75% or greater

(percentages in the range of 75% and above would likely represent no significant decrease in inspection activity due to scheduling fluctuations).

Improving the number/percentage of inspections shows that States are continuing to put a higher emphasis on this function. Inspections identify issues at dams and begins the likelihood that these issues will be fixed.



IDENTIFYING THE CONDITION OF DAMS

Identification/Remediation of Deficient High-hazard Potential Dams

National Reporting of Condition of State-Regulated Dams

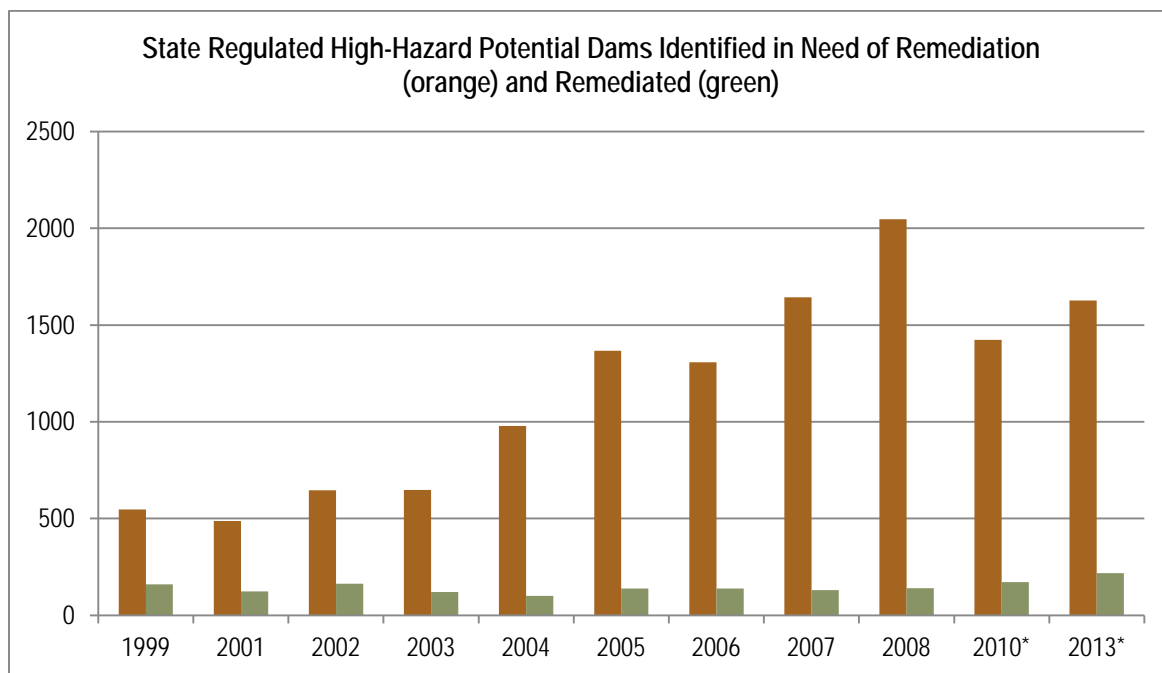
In 2009 the National Inventory of Dams (NID) began collecting condition rating data on high-hazard potential dams. Dams are rated as Satisfactory, Fair, Poor, Unsatisfactory or Not Rated. Dams with Poor or Unsatisfactory ratings are considered in need of remediation. As states enter the condition rating information from periodic inspection information, a clearer picture of state and national dam safety remediation needs will emerge.

Increased inspection efforts by the state programs have resulted in the significant increase in the number of identified deficient high-hazard potential dams.

Actual remediations (shown in the green bars on the chart on page 14) still lags significantly behind. There remains a great need for increased enforcement efforts by states and for new rehabilitation and repair funding sources.

There was no significant NID data collection in 2013-14, so these national numbers remain the same as 2012-13. Efforts in FY14 focused on communication with those states that are having a difficult time getting the condition data collected and sent to the NID. It was concluded that most of these states are in the process of developing plans for how to get more condition assessments completed and into the NID when the next data call takes place. ASDSO staff was able to put the few that needed assistance in touch with other states who could provide guidance.

Another FY14 goal was to develop and provide a set of talking points that states could use when and if they were contacted by the media to discuss their condition assessment data. This project was completed.



*2010 & 2013 data from NID condition assessment with only 66% (2010) & 76% (2013) of State Regulated HHP dams being reported. Prior years' data was anecdotal totals reported by each state to ASDSO. The condition assessment field, instituted by the NID in 2009, will provide more accurate information on remediation needs than the anecdotal totals as the states report condition assessments for all HHP dams in coming years.

IMPROVE STATE ENFORCEMENT CAPABILITIES

In order to help those states with low enforcement capabilities, ASDSO set out to talk with states with high enforcement scores to see if they are doing effective enforcement and determine successful strategies. In particular, the task was to find measures that can be implemented with minimal expense in low-performing states. In FY14, a questionnaire was sent to all states on best practices in enforcement. Analysis was performed and the following short issue brief was written and provided to the states.

Report on State Dam Safety Enforcement ASDSO 2-12-14

The 2012-2016 ASDSO Strategic Plan seeks to provide assistance to state dam safety programs on compliance and enforcement as a way to work toward the vision of a future where all dams are safe. Under Goal 1, Improve State Dam Safety Programs is activity 1.2.2., which focuses on Improving State Enforcement Capabilities; the activity is to: Provide best practices from other states focusing on enforcement programs. This brief focuses on the following project under this activity:

Talk with states with high enforcement scores to see if they are doing effective enforcement and determine successful strategies. Particularly find measures that can be implemented with minimal expense (if possible).

As part of this project, ASDSO identified six states with high percentage scores for enforcement compared to the model program, combined with a low number of reported deficient dams, and asked those states "...if (your state) is doing effective enforcement to get dams repaired and if there is anything that you are doing that you think would be beneficial to other states that may be struggling with this."

In general the replies indicated that there are no easy-to-implement measures that make for an effective enforcement program. All of the replies reflected that effective enforcement requires an investment of time and resources; however, the states did provide some guidelines for success as described below.

State Successful Enforcement Practices

It is important to prioritize enforcement actions and "choose your battles." The dam must present a significant threat to public safety or measurable environmental degradation. Having support from local officials is advisable. Public awareness of the potential threat and the resultant public pressure on the owner can also be important.

Some states provide a limited amount of technical assistance to help owners resolve their dam-related O&M issues themselves or with a lesser outlay of funds. They find that this outlay of resources on their part proves to be more cost-effective to all involved.

Some states enter into consent agreements with dam owners and the courts in the beginning of the enforcement process. The dam owner can then be found in contempt of court if the deadlines are not met.

State Budget for Enforcement (we asked follow-up questions of the states on how they budget for enforcement activities)

Some states have a specific budget for legal and engineering support for enforcement actions; however, most of the states responding do not have a specific budget for enforcement.

Most States do not budget staff time for enforcement action (in the same way you would budget for an equipment purchase); they indicated that they use staff time as needed and it takes away from other dam safety tasks. At least one state indicated that enforcement activities have suffered in recent years due to a lack of staff time.

State budgeting for legal assistance varies. Some states pay for legal support as they use it, for some it is included in their administrative overhead, and a few have legal support dedicated to the dam safety program. At least one state indicated difficulty with enforcement actions due to a lack of funds to pay for legal support.

Other State Observations (compliance but not necessarily enforcement related)

It is important to engage the dam owner early on in the process to seek a resolution before enforcement becomes necessary.

Some states have evolved their enforcement process to include notices of deficiencies or other intermediate steps as a way to achieve compliance short of enforcement. Enforcement takes a commitment that often takes away from performing other dam safety program tasks.

Some states with a high percentage of compliant dams attribute it in part to the fact that the state laws exempt a significant number or portion of dams. Some of the exemptions include smaller dams with private owners with fewer resources to make needed upgrades. This means that the dams that they chose for enforcement are larger dams with owners that have resources to upgrade the dam.

States with a High Percentage of Deficient Dams

ASDSO next contacted states with a high number of deficient high-hazard potential dams (based on Poor and Unsatisfactory ratings in the NID Condition Assessment field) and asked them if they attribute the number of deficient dams to a need for more effective enforcement and if there is any assistance that ASDSO could provide (short of additional staff and/or resources).

State Responses

Based on the responses received, a lack of effective enforcement does contribute to the lack of repair/upgrade of deficient dams.

The lack of effective enforcement was attributed to insufficient staff resources, lack of support from the state attorney general and weak statutes.

General observation – States do not necessarily equate a dam rated as Poor to be in need of enforcement. In other words, not all deficiencies are equal. As stated above, some with more minor repair issues would not really be good candidates for enforcement but states may want to use some of the intermediate steps described above.

Conclusions & Recommendation

There is no low-hanging fruit for effective enforcement; it requires good statutes and sufficient engineering and legal staff support. ASDSO can assist states by providing information on effective enforcement practices and advocacy for increased budgets and tighter statutes. This project should be revisited periodically to determine if any states need assistance in this area.

PROVIDE TOOLS AND BEST PRACTICES TO STATES

ASDSO continued in FY14 to provide better communication and guidance tools to the state dam safety officials. These included the following:

- Monthly State E-News
- Introduction of a "Town Hall Meeting" style event via web-conferencing.
- New Website feature with state-by-state technical criteria and best practices.

THE ASDSO PEER REVIEW PROGRAM

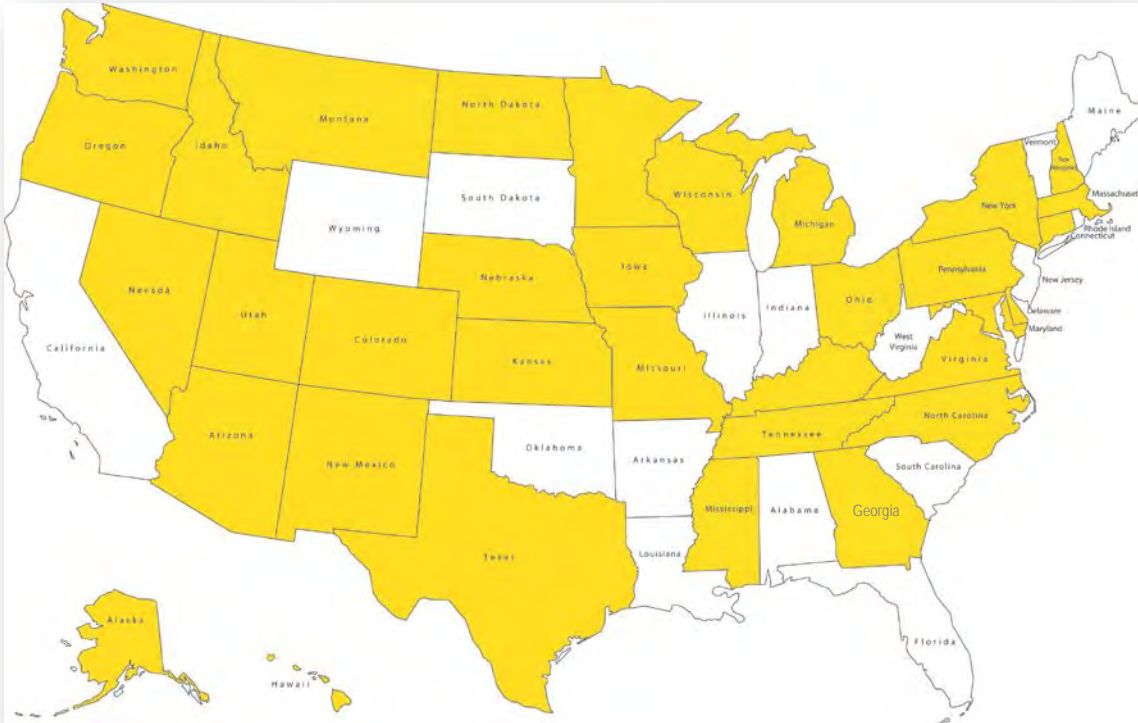
Since 1990, ASDSO has performed over 44 Peer Reviews, for 30 states, many of the largest federal dam safety programs and several private sector utility companies. The objective of the Peer Review Program is to provide professional guidance to dam safety programs to improve management.

In FY14, Nevada's dam safety program participated in the program. For the third year, the US Bureau of Reclamation also utilized the program to enhance its annual review processes. ASDSO will be working with the Tennessee Valley Authority in 2014-15 to perform an independent review for its dam safety program.

The Peer Review Committee is focusing its actions on promoting the program to dam owners regulated by the Federal Energy Regulatory Commission, as it begins a new effort to require these owners to create written *Owners' Dam Safety Programs* and have the Programs routinely reviewed by an independent expert.

Thanks go to the Peer Review Committee for overseeing this important project. (For a complete list of all committee members go to Appendix 2.)

STATES IN YELLOW HAVE HAD ASDSO PEER REVIEWS PERFORMED.



GOAL 2: INCREASE AWARENESS OF DAM SAFETY AND ITS BENEFITS TO ALL STAKEHOLDERS.

PROJECTS:

Improve Membership Recruitment and Services.

Maintain Contacts/Coordination with Key Stakeholders.

Coordinate with FEMA's National Dam Safety Program.

Partner with the Department of Homeland Security to Carry Out the Dams Sector Specific Plan for Dam Security and Resiliency.

Implement a Timely and Targeted Communications Plan.

Advocate for Strong Federal & State Dam Safety Programs.

Conduct Non-State Peer Review Program.

Promote Responsible Dam Ownership.

ASDSO MEMBERSHIP

The 2013-14 membership campaign has concluded with the following results:

	<u>FY14 (Final)</u>
Full Voting	49
State Associates/Government	1,042
Affiliate	
Company	197
Company Employee	925
Individual	567
Student	35
Honorary	23
Senior	106
Sustaining	<u>28</u>
Total	2972

** Five of the Sustaining Members are states: California, New Hampshire, New Jersey, Ohio, and Pennsylvania.

Focus on New Members

The Membership Committee works on ways to recruit members, monitors services to members, and makes new and younger members feel welcome. For the third year, the New Member Dine-Around was held at Dam Safety 2013.

COORDINATING WITH KEY STAKEHOLDERS: WORKING WITH OUR FEDERAL PARTNERS

Federal agency representatives make up about 20% of the ASDSO membership. About 14% of dams in the USA are owned or regulated by federal agencies. Each federal agency that plays a role in dam safety has a unique relationship with ASDSO. ASDSO serves as a communication vehicle for these agencies and as a portal for communication to state dam safety agencies.

There is a long-standing relationship with FEMA's National Dam Safety Program and a relatively newer one with the Office of Infrastructure Protection, Dams and Water Infrastructure Section. Both programs are under the umbrella of the Department of Homeland Security (DHS).

All federal agencies graciously offer their expertise as subject matter experts or committee volunteers on an as-needed basis.

ASDSO also maintains formal memoranda of agreement or partnering agreements with the USDA Natural Resources Conservation Service (NRCS) and the US Army Corps of Engineers.

In FY14, the NRCS funded training courses that ASDSO provides, bringing state conservation engineers and state dam safety engineers together to work more closely and learn from each other. ASDSO communicates regularly with the Corps of Engineers—typically at the headquarters level—on issues that affect state dam safety programs or national dam or levee safety policy.

OUR PARTNERSHIPS:

The member agencies of the Interagency Committee on Dam Safety (ICODS):

- DHS, Federal Emergency Management Agency, National Dam Safety Program
- DHS, Office of Infrastructure Protection, Dams Sector
- USDA Natural Resource Conservation Service
- US Army Corps of Engineers
- Federal Energy Regulatory Commission
- Department of the Interior (Bureau of Reclamation, Fish and Wildlife Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, Office of Surface Mining)
- Department of Labor, Mine Safety and Health Administration
- International Boundary and Water Commission
- Department of Energy
- Tennessee Valley Authority

ASCE Government Relations

ASCE Environment and Water Resources Institute

ASCE Geo-Institute

Association of State Floodplain Managers

Canadian Dam Association

Interstate Council on Water Policy

National Association of Flood and Stormwater Management Agencies

National Emergency Management Association

National Hydrologic Warning Council

National Watershed Coalition

Ohio Dam Safety Association

The Infrastructure Security Partnership

U.S. Society on Dams

COORDINATING WITH KEY STAKEHOLDERS: PARTNERING WITH OTHER ASSOCIATIONS - HIGHLIGHTS

The Interstate Council on Water Policy (ICWP)

ASDSO was asked and agreed to join with a number of other organizations in urging Congress to continue and provide adequate funding for the National Streamflow Information Program administered by the U.S. Geological Survey. The Interstate Council on Water Policy has spearheaded this effort for several years, educating lawmakers on the need for and multiple uses of streamgage information, especially in light of current experiences with extreme storms and droughts.

The US Society on Dams (USSD)

ASDSO and USSD continue to work jointly on projects and share information routinely. The following projects are underway:

- Explore improvement opportunities in the area of on-site dam operator training.
- Coordinate on student/kids website pages and public outreach.
- Collaborate to find research opportunities for improved dam engineering.

As is custom, ASDSO president Tom Woosley spoke on behalf of ASDSO at the USSD Annual Conference in 2014 in San Francisco.

American Society of Civil Engineers (ASCE)

Coordination between ASDSO and ASCE remains a key goal for both organizations—from working on legislative affairs in Washington, DC to developing the dams section of the ASCE Infrastructure Report Card to exchanging information and talents with the ASCE Institutes.

In March 2014, ASDSO and ASCE members touted the importance of the National Dam Safety Program and a new Levee Safety Program, and the need for a national dam rehabilitation financing program at ASCE's Policy Week in DC. ASCE Government Relations director Brian Pallasch and his staff organized Capitol Hill visits by over 200 ASCE and ASDSO members to talk about dam safety and infrastructure improvement needs. ASDSO members visited lawmakers to push for stronger dam and levee safety programs at the federal level.

National Watershed Coalition

The partnership between ASDSO and the NWC goes back to the establishment of this group out of the National Association of Conservation Districts. NWC keeps ASDSO informed on its push to get full funding for the Small Watershed Program. ASDSO, in turn, provides letters of support and additional testimony when required.

The Levee Coalition

A stronger, more formal partnership was forged with several like-minded organizations to work on improving levee safety in the U.S. Several meetings were held during the fiscal year to launch the Levee Coalition, made up of ASDSO, the US Society on Dams, ASCE, the National Association of Flood and Stormwater Management Agencies, and the Deep Foundations Institute.

Silver Jackets

ASDSO had an opportunity in August 2013 to make a presentation as part of the 2013 Flood Risk Management - Silver Jackets Webinar Week. Participants in the workshop included federal, state and local officials working in flood risk management. ASDSO provided the following description for the 60-minute workshop presentation.

ASDSO believes that everyone has a role to play in making sure that dams are safe and this session will help to explain those roles and explore potential areas of coordination with other areas of flood risk management. The session will include a presentation on dams, how state dam safety programs work, and how state programs can coordinate with other flood risk management areas. A second presentation will highlight some outreach efforts by state dam safety programs including efforts in Indiana to train real estate agents, in Ohio to hold meetings with dam owners and local planning and emergency management officials, and several other public outreach examples. The third presentation will describe areas where the dam safety community sees a need for further coordination and assistance from the flood risk management community such as development of emergency action plans.

IMPLEMENTING THE COMMUNICATIONS PLAN

Our relatively new Communications Committee oversaw several projects to more effectively coordinate ASDSO's communication with the media and the general public about dam safety.

Decade Anniversary Dam Failure Press Releases – the Communications Committee worked with the Dam Failures and Incidents Committee to release information stories about historic dam failures.

Media Training in Providence – PCG PR provided media training to subject matter experts at the annual conference in Providence.

Other Opportunities for Media Exposure – When the Great Flood of 2013 happened in Colorado, ASDSO was ready to answer media inquiries with a written Rapid Response Plan coverage and trained subject matter experts in place. The press was also invited to the 2013 Providence Conference Field Trip, which highlighted the site of an historic dam failure in Norwich, CT.

Social Media – ASDSO started its own YouTube® channel this year and expanded communications through Facebook® to younger members.

National Dam Safety Awareness Day— National Dam Safety Awareness Day was established by FEMA in 1999 to commemorate the devastation that occurred on May 31, 1889, when the South Fork Dam near Johnstown, Pennsylvania failed. This



SPEAKERS AT THE AWARENESS DAY EVENT IN JOHNSTOWN INCLUDED FEMA UNDER-SECRETARY DAVID MILLER; BRUCE TSCHANTZ, THE ORIGINAL DIRECTOR OF FEMA'S DAM SAFETY PROGRAM; DOUG BELLOMO OF FEMA; AND ASDSO PRESIDENT TOM WOOSLEY.

tragic event resulted in the deaths of 2,209 people and left thousands homeless. The Johnstown disaster remains the worst dam failure in U.S. history. This year marked the 125th anniversary. ASDSO and FEMA teamed up to hold an event in Johnstown, PA, which was live-streamed on the internet.

PUBLIC & MEDIA INTEREST: DAM SAFETY IN NATIONAL NEWS STORIES

The following is a summary of FY14 media inquiries and news stories citing ASDSO:

July 2013

- TV Tokyo – US infrastructure in need of repair
- Florida Times-Union – GA dam safety

August 2013

- Northwest Arkansas News – Public safety at low-head dams
- Durango Herald – Colorado dam safety
 - Story pick-up: Claims Journal

September 2013

- American Progress/Think Progress – Funding for Colorado dam repairs
- Denver Post – Dam safety in Colorado
- Norwich, CT Bulletin – Spaulding Pond dam failure/Dam Safety '13
- All Alabama – Shelby County, AL dam failure; AL dam safety

October 2013

- Earth Track, Cambridge, MA – Liability for dam accidents

November 2013

- WDRB News, Louisville, KY – EAPs in Kentucky & Indiana
 - Picked up by Business First of Louisville (blog)
- Altoona, PA Mirror – U.S. dam safety, current & historic, including Teton Dam failure (Teton remembrances provided by Neil Parrett)
- Wall Street Journal – U.S. dam safety, dam rehabilitation, extreme storms
- Roanoke, VA Times – VA dam regulations
 - Series of three stories in the Roanoke Times

January 2014

- Fiscal Times – U.S. infrastructure report card/dams & levees
- WFMY News 2 - Greensboro, NC – NC dam safety

March 2014

- Charlotte Observer – NC coal ash dams
- 31 news outlets picked up ASDSO press release on Big Bay dam failure
- Engineering News-Record – Oxford study on large dams (referred to USSD)

April 2014

- ASDSO press release on Alabama dam safety bill covered by AP & picked up by 30 news outlets, including Washington Times, Atlanta Journal-Constitution, Houston Chronicle, Claims Journal and USA Today.
- WKSU News, Kent State University - Dam removal
- Yakima, WA Herald-Republic – Wanapum Dam repair work

May 2014

- National Dam Safety Awareness Day (NDSAD) media advisory picked up by 265 news outlets
- Army News Service and DVIDS (Defense Video & Imagery Distribution System) posted articles on USACE Galveston District recognition of NDSAD.
- ASDSO President Tom Woosley op-ed on NDSAD published in May 30 Pittsburgh Post-Gazette
- KATU-TV, Oregon - Deficient dams
- Troy, AL University Public Radio – Interview with ASDSO President Tom Woosley on dam safety in U.S., AL, GA, FL
- AL.com blog – Lack of dam safety program in Alabama
- Fox 8 News, Johnstown - Interview with ASDSO President Tom Woosley on National Dam Safety Awareness Day and dam safety in U.S.
- Snapshot , UT – Hatchtown dam failure
- LA Times – National Dam Safety Awareness Day/Johnstown Flood/US dam safety/California dam safety

June 2014

- Sourceable – U.S. dam safety overview
 - Picked up by Homeland Security Newswire.
- AL.com article and guest editorial – Need for EAPs & state program in Alabama
- Georgia Engineer – NDSAD/Johnstown anniversary
- WaterWorld – Pickup of ASDSO press release on Swift, Lower Two Medicine dam failures
- WDRB – Kentucky dam safety enforcement
- International Water Power and Dam Construction - ASDSO editorial on Alabama legislative efforts
- Wall Street Journal - Effects of droughts on dams

STATE-SPECIFIC AND NATIONAL PRESS RELEASES ON ASDSO INITIATIVES AND DAM SAFETY ISSUES

ASDSO Press Releases

6/4/2014 - June 8 Marks 50th Anniversary of Swift Dam and Lower Two Medicine Dam Failures

5/27/2014 - 125th Anniversary of Dam Failure in Johnstown Highlights Importance of Emergency Preparedness

5/22/2014 - Dam Safety Officials Applaud Congressional Passage of Water Infrastructure Bill

5/22/2014 - Dam Safety Officials to Host Event Honoring 125th Anniversary of Dam Failure in Johnstown

5/19/2014 - Dam Safety Officials Commemorate 100th Anniversary of Utah Dam Failure



5/14/2014 - Damage from Dam Failures Demonstrates Need for a State Dam Safety Program in Alabama

5/9/2014 - May 16 Marks 140th Anniversary of Mill River Dam Failure

4/15/2014 - Dam Safety Leaders Discuss Need for State Dam Safety Program in Alabama

4/8/2014 - Dam Safety Leaders Applaud Alabama Bill to Create State Dam Safety Program

3/5/2014 - 10th Anniversary of Mississippi Dam Failure Highlights Importance of Emergency Action Plans

12/6/2013 - 50th Anniversary of Baldwin Hills Dam Failure Reminds Us to Be Prepared

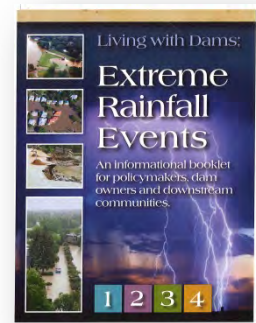
9/16/2013 - Rocky Mountain Flooding Highlights Need for Strong Dam Safety Programs

8/9/2013 - ASDSO Awards Dam Safety Scholarships

New Booklet in the *Living Near Dams* Series

Bridging the gap between public awareness/education, owner outreach and legislative advocacy, a new booklet development project was launched in FY14 to focus on extreme rainfall events and their effect on dams and public safety. It will be the second in a series of outreach booklets called "Living Near Dams."

The Dam Owner Outreach Committee is tasked with developing this booklet and will see a finished product in 2015.



ADVOCATE FOR STRONG FEDERAL & STATE DAM SAFETY PROGRAMS

FEDERAL FOCUS

Reauthorization of the National Dam Safety Program Act

The National Dam Safety Program Act of 2006 (NDSPA), which was last reauthorized on December 8, 2006 and signed into law by the President on December 22, 2006, expired in 2011. This modest yet vital program (app. \$13 million) enables the states to improve their dam safety programs, which translates into reduced risks to life and property. In FY14, despite the expiration of the law, FEMA chose to continue some of the programs including the important state assistance grants and training for dam safety officials.



ASDSO leaders worked hard in FY14 to get the law reauthorized. In May 2014, the National Dam Safety Program and a new levee safety initiative were signed into law as part of the Water Resources Reform and Development Act.

STATE FOCUS

State-Specific ASCE Infrastructure Report Cards

ASDSO provided review and input to state-specific report cards for several states including Arkansas, Georgia, Illinois, New York and Pennsylvania. ASDSO staff and several states also worked with ASCE to begin development of a grading criteria guideline for the Dams Section of the state-specific report cards.

Starting a Dam Safety Program in Alabama

Alabama is the only state in the country without a state dam safety program. ASDSO has engaged with partners over the years to bring a regulatory program to the state. As part of the most recent effort, on March 18, 2014 retiring Alabama State Representative Mary Sue McClurkin introduced House Bill 610 to establish a state dam safety program. Unfortunately the legislative session expired without HB610 even receiving a committee hearing. ASDSO and ASCE held an information/advocacy session on dam safety and HB610 on April 16 in Montgomery as part of the ASDSO Southeast Region Conference. The session was attended by many dam safety stakeholders. ASDSO continued to working with ASCE, ACEC and other stakeholders to promote dam safety and look to find a sponsor for legislation in the 2015 session.

CONDUCT NON-STATE PEER REVIEWS



ASDSO Provides Independent Review of Bureau of Reclamation, Dam Safety

For the fourth year, ASDSO was pleased to provide an independent review team to offer recommendations to the Bureau of Reclamation Dam Safety Program. The review was completed between January and March 2014.

At the end of the fiscal year, Reclamation asked ASDSO to perform independent reviews of the other five Bureaus under the Department of Interior umbrella; the Tennessee Valley Authority also requested a review. Both will begin in late 2014-early 2015.

The Peer Review Committee spent time developing and executing a promotion plan focusing on the FERC licensees. The goal is to offer peer reviews to these dam owners as they face new FERC requirements for independent audits of their dam safety programs.

PROMOTING RESPONSIBLE DAM OWNERSHIP

Dam Owner Education Program

It is essential that dam owners, especially those owning small, non-federal or non-federally regulated dams, are educated about their responsibilities as dam owners. ASDSO is proud of its programs aimed at providing information and facilitating communication between dam owners and state regulators.

One way that ASDSO reaches out to owners is through its workshop program. In FY14, ASDSO continued to increase the number of dam owners trained throughout the U.S.

Workshops held in FY14:

South Dakota – April 9, 2014

Arkansas – April 21, 2014

Wisconsin – May 13, 2014

Wisconsin – May 14, 2014 and May 15, 2014

Minnesota – June 4, 2014

Indiana – June 17, 2014

The ASDSO Owner Outreach Committee created and oversees the three one-day workshops available. The first is an overview course. The second focuses on dam engineering for non-engineers. The third course is on operation and maintenance.

Over 300 owners were trained as part of ASDSO's Owner Outreach Program in FY14.

GOAL 3: INCREASE THE TECHNICAL EXPERTISE OF DAM SAFETY PROFESSIONALS AND OWNERS/OPERATORS.

PROJECTS:

Hold an Annual National Conference and Regional Conferences.

Provide a Technical Training Program and coordinate the ASDSO Program of Study with the FEMA National Dam Safety Program and DHS Dams Sector Training Programs.

Manage an Information Resources Center.

Provide the Journal of Dam Safety.

Distribute a Monthly Electronic Newsletter.

Provide and Promote Technical Research.

Promotion of Dam Engineering as a Profession: Outreach to Students.

HOLD AN ANNUAL NATIONAL CONFERENCE AND REGIONAL CONFERENCES.

Dam Safety '13 – Providence, Rhode Island

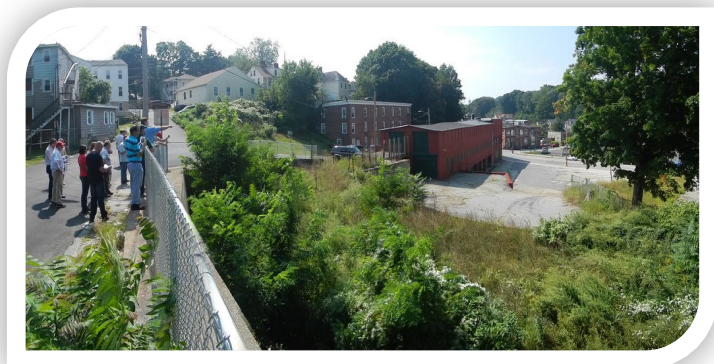
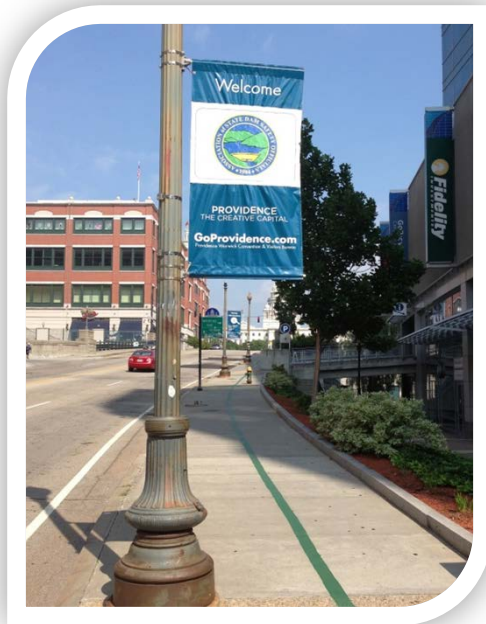
ASDSO's 30th annual national conference was held in Providence, Rhode Island. Over 800 attendees and guests took advantage of a multitude of educational and networking opportunities, including these special highlights:

The presentation of the first Danny K. McCook Award to long-time ASDSO member and geotechnical expert, James R. Talbot.

Lightning talks presented by several of the poster forum participants

A Soapbox Session on Hazard Classification Review for Existing Dams

Flood survivor Tom Moody's remarkable first-hand account of the 1963 Spaulding Pond Dam failure. Mr. Moody read excerpts from his recently published book, "A Swift and Deadly Maelstrom: The Great Norwich Flood of 1963," which described his family's attempted escape, tragic loss, and eventual rescue during the event. The conference also featured a field trip to the site in Connecticut. Pictured here is Tom Moody pointing to the "tree of life," to which his family clung during the flooding.



Regional Conferences

The 2014 Southeast Regional Conference

The Southeast Regional Conference was held on April 14-16, 2014 in Montgomery, AL. All 180 attendees and 38 exhibitors took part in two full days of technical presentations and networking events. A good deal of discussion was focused on proposed dam safety legislation in Alabama. This topic attracted some press attention and a large number of local attendees.

Thanks go to the planning committee members: Lyle Bentley (TN), Brian Long (WV), Natalie Rogers (MS), Marilyn Thomas (KY), and Tom Woosley, (GA).

ASDSO'S TRAINING PROGRAMS

Technical Education Programs

ASDSO continued using its Program of Study for Dam Safety as a roadmap for training, and completed eight classroom courses and ten webinars in FY14.

The classroom courses presented are identified as core courses in the Program of Study, meaning the topics are essential in providing an engineer with a well-rounded knowledge of dams. Core courses are slated to be offered on a regular biennial rotation in the coming years.

FY14 Classroom Training in Review

Four classroom-based technical seminars were held across the U.S. during FY14. Two of the courses – Seepage for Earthen Dams, and Stability Analysis of Embankment Dams – were offered for the first time after a year-long RFP and content development project.

-Inspection and Assessment of Dams, presented by Gannett Fleming, Inc. and Performance Plus; March 4-6, 2014 in Little Rock, AR. 56 attendees.

-Seepage for Earthen Dams, presented by URS Corp; April 1-2, 2014 in Denver, CO. 71 attendees.

-HEC-RAS, presented by A.C. Miller Associates and Gannett Fleming, Inc.; May 6-8, 2014 in Manchester, NY. 36 attendees.

-Stability Analysis of Embankment Dams, presented by URS Corp; June 3-5, 2014 in Cincinnati, OH. 51 attendees.

FY14 Web-Based Training in Review

In FY14 the Training Committee sponsored eleven webinars, one each month except for September. A total of 1258 people participated in either the live broadcasts or the archived (on-demand) versions of these 2-hour courses:

-Terminal Structures and Energy Dissipation at Outlet Works and Spillways, by Warren Frizell. July 9, 2013 (106 registrants + 258 audits)

-Hydraulic Design of Labyrinth Weirs by Blake Tullis and Brian Crookston. August 20, 2013 (86 registrants + 208 audits)

-Stability Evaluations of Concrete Dams by Guy Lund and Robert Kline, October 8 (118 registrants + 216 audits)

-Identifying Hazards and Improving Public Safety at Low Head Dams by Bruce Tschantz and Paul Schweiger, November 12, 2013 (66 registrants + 160 audits)

-Internal Drainage Systems for Embankment Dams by James Talbot, December 10, 2013 (190 registrants + 392 audits)

- Introduction to Armoring Embankment Dams and Earth Cut Spillways with ACBs by Paul Schweiger and Chris Thornton, January 14, 2014 (124 registrants + 270 audits)

-How to Communicate Effectively in Any Situation by Leonard Greenberger, February 11, 2014 (61 registrants + 148 audits)

-Quality Assurance & Field Inspection for Dam Construction Projects by Joe Freeland, March 11, 2014 (119 registrants + 239 audits)

-Intro to Potential Failure Modes Analysis by Doug Boyer and Pat Regan, April 8, 2014 (143 registrants + 270 audits)

-Development of Operations and Maintenance Manuals for Dams by Stephen Jamieson, May 13, 2014 (68 registrants + 80 audits)

-Applications of PFMA in Dam Safety by Doug Boyer and Pat Regan, June 10, 2014 (93 registrants + 169 audits)

The Interactive Training Calendar

A directory of engineering and dam safety-related training opportunities is available on ASDSO's website. The user-friendly directory is searchable by date, sponsoring organization, and topic. Currently, the listings include conferences, seminars and workshops in the U.S. and abroad, as well as a number of distance learning opportunities.

Self-Paced Training

All ASDSO webinars are available on-demand, either on the web in archived format, or as a CD available in the bookstore. 162 webinar CDs were sold in the ASDSO bookstore in FY14. A future goal is to work with the National Dam Safety Program leadership to update the Training Aids for Dam Safety (TADS) so that they can be utilized as self-paced training courses on-line.

ASDSO TECHNICAL JOURNAL AND E-NEWS

One of the most popular member benefits continues to be the technical journal, *The Journal of Dam Safety*, provided quarterly to members. And ASDSO continued its monthly electronic news delivery service in FY14. This is a timely and efficient way to get information out to members. E-News copies are posted on the website.

UPCOMING TRAINING

July 8, 2014 Webinar: Energy Dissipation on Stepped RCC Spillways

August 12, 2014 Webinar: Seepage Monitoring and Analysis of Embankment Dams

September 21-25, 2014 Dam Safety '14 ASDSO Annual National Conference, San Diego, CA

October 14, 2014 Webinar: Foundation Preparation During Dam Construction

November 5-7, 2014 Technical Seminar: Inspection and Assessment of Dams, Austin, TX

November 12, 2014 Webinar: Rehabilitation of Concrete Dams

December 9, 2014 Webinar: Earthquake Hazards and Ground Motions

January 13, 2015 Webinar: Preparing Public Safety Plans for Dam Sites

February 4-5, 2015 Technical Seminar: Interactive Preparedness: Emergency Action Planning for Dam and Levee Safety, Phoenix, AZ

February 10, 2015 Webinar: Intro to Hydrologic Modeling Using Geospatial Information

March 3-5, 2015 Technical Seminar: Dam Failures and Lessons Learned, New Orleans, LA

March 10, 2015 Webinar: Designing Slope Protection for Dams

March 31-April 2, 2015 Technical Seminar: HEC-HMS, Seattle, WA

April 14, 2015 Webinar: Intro to Earthquake Engineering for Dams

May 5-6, 2015 Technical Seminar: Plans & Specs Review/Construction Inspections for Dams, Levees, and Ancillary Structures, Denver, CO

MANAGING THE INFORMATION RESOURCE CENTER

Resources/Library

ASDSO continues to expand and update its collection of technical resources, which includes:

- A lending library for members
- An online bibliography of dam safety publications of ASDSO, federal agencies, and various publishers
- The latest dam safety news
- State dam safety program statistics
- A "Resources by Topic" pages section, based on the ASDSO technical training program
- Subject-specific surveys in the "Members Only" section of the website
- ASDSO's Dam Failure and Incidents Committee archive of materials related to specific dam failures

The On-Line Bookstore

Many individual papers and articles have been added to ASDSO's on-line bookstore, available through the Publications and Resources section of the ASDSO website. Also available are materials from new webinars and technical seminars listed above.

The Dam Failure & Incident Database

ASDSO has partnered with DHS Infrastructure Protection in the development of the Significant Incident Report (SIR) database. The web-based SIR database will provide information to dam regulators, owners and others in the dam safety community on dam incidents and failures. Information collected includes basic information on the dam, the cause of the incident/failure, and consequences of the failure. This fiscal year, ASDSO collected and entered into the database incident data from multiple sources including the states, dam owners and news reports. ASDSO and DHS are working together to implement minor improvements to the SIR database and web-based tool to improve and to facilitate a broader user outreach in Fiscal Year 2014.

The State Dam Safety Program Performance Data Collection and Analysis Program

ASDSO, in partnership with the U.S. Army Corps of Engineers, collects and analyzes state program performance data so that states can see how they compare to other states and to the Model State Dam Safety Program. ASDSO uses the data to provide reports to state and federal lawmakers and others. ASDSO and the U.S. Army Corps of Engineers conducted the performance data call in February 2014. As in previous years, ASDSO developed national and individual state performance data reports for use by ASDSO, the states and the National Dam Safety Program to promote dam safety.

ASDSO Technical Committees

ASDSO has two standing committees that are considered more technically focused than the other committees. One focuses on design and construction issues: it is the Dam Design and Construction Technical Issues Committee. During the year, new co-chairs Jeremy Franz and Joe Monroe developed a revised charter for the committee, which formerly focused only on outlet works issues. A project began to take shape to write an issue brief on the need for a guideline for state regulators on how to review engineering specs.

The second committee, the Dam Failures and Incidents Committee, assists the States (in partnership with other stakeholders) to improve the current practice of investigating dam failures. The initial objectives of the committee were to review recent dam failures investigations, examine investigation practices of other industries, identify needs of the

States, consider stakeholders, explore legal issues/funding, and to develop alternatives and recommendations to the ASDSO Board of Directors for improvement of the practice of dam failure investigations. In FY14, the committee spent considerable time and expertise in researching information on historic dam failures. This information went into each Decade Dam Failure press release that was sent out to the media in FY14.

The committee also makes recommendations for improving lessons learned from dam failures. To that end, the committee assisted Gannett Fleming on a new project funded by the National Dam Safety Program to construct a dam failures lessons learned website.

The committee continued to identify and purchase many papers, case histories, photographs and videos for future research needs. Several lessons learned papers were completed on significant historic dam failures. A track for the 2014 annual conference on historic dam failures lessons learned was developed.

The Web Site

The website acts as a one-stop-shop for information on ASDSO and on dam safety. Members can access downloadable technical materials, perform literature searches through ASDSO's online bibliography of dam safety publications, and look up other members by name or by state. The public can learn basic information about dams and dam safety and everyone can access the various agencies and partners which deal with dam safety.

PROMOTION OF DAM ENGINEERING AS A PROFESSION: OUTREACH TO STUDENTS



STUDENTS FROM WESTERN NEW ENGLAND UNIVERSITY VISITED THE 2013 ANNUAL CONFERENCE. PICTURED WITH ASDSO DIRECTOR LORI SPRAGENS (THIRD FROM RIGHT) AND STUDENT OUTREACH CO-CHAIR VINOOTH MUTHIA (SECOND FROM RIGHT).

The Committee on Educational Outreach

During the past year, the CEO, co-chaired by Peter Nicholson, University of Hawaii, and Vinoth Muthia, O'Brien & Gere, worked on the following initiatives:

- Distribution of a flyer outlining ASDSO's student outreach projects and ASDSO opportunities and resources for students and faculty.
- Continuous updating of ASDSO's Facebook page with news for students and faculty.
- Hosting of the student lounge at Dam Safety '13 in Providence.
- Review of 14 paper submissions for the fifth annual student paper competition and selection of three finalists
- Distribution of email and print announcements about the ASDSO scholarship and the 2014 student paper competition to university department heads and deans of engineering, civil engineering professors, ASCE chapter advisors, various Facebook and LinkedIn groups.
- Maintenance of an extensive email list of more than 900 university contacts.
- Updates of Speakers Bureau Powerpoints® and continued recruitment of Speakers Bureau volunteers.
- Demonstration of a dam model at the University of Kentucky's Engineering Day.
- Student Job Opportunities - The CEO continues to encourage members to post student job openings on ASDSO's website, free of charge, and offers a resume posting service for students and recent graduates.

Students at Dam Safety 2013

2013 Student Paper Competition Winners

Natalie A. Youngblood, PhD candidate, Colorado State University: *Results of Full-Scale Wave Overtopping Simulation on Levee Slopes with Vegetative and Manufactured Protective Cover*. [Co-authors: Christopher Thornton, PhD, Director; Steven Hughes, PhD, Senior Research Scientist; and Bryan Scholl, Research Associate, CSU Department of Civil and Environmental Engineering; and Jeffrey Beasley, PhD, School of Plant, Environmental and Soil Sciences, Louisiana State University]

Lourdes Polanco, PhD candidate, Utah State University: *The Effects of Geometry in Levee Underseepage Reliability* [Co-author: John D. Rice, Assistant Professor, USU Department of Civil and Environmental Engineering]

Ebrahim Ahmadisharaf, PhD candidate, and Nowfel Mahmud Bhuyian, MS student, Tennessee Technological University: *Impact of Spatial Resolution on Downstream Flood Hazard Due to Dam Break Events Using Probabilistic Flood Modeling*. [Co-author: Alfred Kalyanapu, Assistant Professor, TTU Civil and Environmental Engineering Department]

In 2014, ASDSO received 16 entries from 13 universities for its fifth annual student paper competition. Universities represented in the 2014 student paper competition: Tennessee Technological University, Virginia Polytechnic Institute and State University, University of Colorado-Boulder, University of Wisconsin-Madison, University of California, Berkeley, University of Illinois at Urbana Champaign, University of Colorado-Denver, Indiana University, North Carolina State University, University of Massachusetts-Amherst, Mississippi State University, Clemson University, Oregon State University

The Committee on Education Outreach selected the following finalists, who presented their papers at Dam Safety 2014:

Daniel R. VandenBerge, P.E., Ph.D. Candidate; and Thomas L. Brandon, Ph.D., Associate Professor, Virginia Tech: *Multi-stage rapid drawdown analysis using the finite element method*.

Beena Ajmera, E.I.T, NSF Graduate Research Fellow and Charles E. Via Doctoral Fellow; and Thomas Brandon, Ph.D., Associate Professor, Virginia Polytechnic Institute and State University; and Binod Tiwari, Ph.D., Associate Professor, California State University, Fullerton: *Effect of Mineralogy on the Post-Earthquake Shear Strength of Clay-Like Materials*

Laura E. Ferre, Graduate Student; and Deborah S.K. Thomas, Associate Professor, University of Colorado Denver; and Bill McCormick, P.E., P.G., Chief of Dam Safety, CO Division of Water Resources: *Potentials for use of Social Vulnerability Assessments to Aide Decision Making for the Colorado Dam Safety Branch*

Additionally, the following students were invited to present a poster:

Charles W. Chang; Andrew Schreiber; and Jesse T. Holzer, pH Global LLC and University of Wisconsin-Madison: *An Online Algorithm of Erosion Detection Using Aquifer Storage Properties*

Farzam Safarzadeh-Maleki, Ph.D. Candidate; and Abdoul A. Khan, Associate Professor, Clemson University: *The Analysis of Sediment Migration in Dam Failure/Removal Cases – Numerical Approach*

Undergraduate Scholarships

ASDSO awarded the 2013-14 Memorial Undergraduate Scholarship to Lacey Albers, a senior civil engineering major at Southern Illinois University - Edwardsville, and engineering intern at the U.S. Army Corps of Engineer St. Louis office, where she tracks levee inspections and works on dam safety projects. She has also worked for the Defense Information Systems Agency. She is a member of Chi Epsilon, Society of Women Engineers and the American Society of Civil Engineers. In her free time, Lacey enjoys playing softball, volleyball, boating, and competing in intramural activities and sports leagues. (Lacey is pictured with 2012-2013 ASDSO President Jason Campbell (L) and Scholarship Committee Chairman John Moyle.



As the fiscal year drew to a close, the Scholarship Committee and the Board of Directors awarded two winners for the 2014-15 scholarship:

Jamie Bond - Jamie is a senior at the Oregon Institute of Technology, majoring in civil engineering. She is a member of the American Society of Civil Engineers, where she participated in the steel bridge competition as the team co-captain, and worked on increasing membership for her school's student chapter of the Institute of Transportation Engineers. She currently works for the U.S. Army Corps of Engineer's Walla Walla District, where she assists with levee inspections.

Emily Keck - Emily is a senior at Rowan University, majoring in civil and environmental engineering. She is a member of several organizations, including the American Society of Engineers, Engineers without Borders, and The Society of Women Engineers. She has been involved in several extracurricular activities, including repairing homes with the Appalachia Service Project. Emily recently worked for the New Jersey Department of Environmental Protection's Bureau of Dam Safety and Flood Control, where she reviewed engineering reports and plans and assisted with safety inspections.

Each will receive a \$5,000 scholarship for the 2014-2015 academic year.

ASDSO is proud to recognize these fine scholars, who personify the profession's commitment to the health, safety, and welfare of the public.

GOAL 4: DEVELOP AND IMPLEMENT FINANCIAL INSTRUMENTS TO IMPROVE DAM SAFETY PROGRAMS.

PROJECTS:

Research the Concept of Creating Funding Mechanisms to Support Dam Rehabilitation for Public and Private Dam Owners.



RESEARCH THE CONCEPT OF CREATING FUNDING MECHANISMS TO SUPPORT DAM REHABILITATION FOR PUBLIC AND PRIVATE DAM OWNERS.

ASDSO's leaders acknowledge that this project will require a substantial amount of research and planning. It is anticipated that the first step will be to organize and conduct a facilitated summit where a diverse group of experts would come together to discuss how funding could be generated; how feasible it would be to try to create a foundation or a fundraising program through ASDSO.

In FY14, this project did not receive the time and resources it needed to move forward. The Board of Directors chose to create a standing committee to focus on this issue in the future.

**GOAL 5: PROMOTE AND FACILITATE A CONSISTENT
APPROACH TO DAM SAFETY REGULATION AND
TECHNICAL CRITERIA IN ALL STATES
AND FEDERAL AGENCIES.**

PROJECTS:

Collect State Data on Technical Criteria Used and Provide Best Practices to States.

*Research How States Review Engineering Plans and Look at the
Feasibility of Creating Guidelines.*



COLLECT STATE DATA ON TECHNICAL CRITERIA AND PROVIDE BEST PRACTICES TO STATES

ASDSO project manager Mark Ogden continued to compile all the survey data that ASDSO has on state technical criteria and determine the best way to summarize it and make it available to the states to assist them with understanding best practices. Although the Strategic Plan calls for these criteria to be housed in a searchable database, it was concluded that the best way to make this data available was to simply post all of the criteria on the ASDSO website. This project began in FY14.

RESEARCH HOW STATES REVIEW ENGINEERING PLANS AND LOOK AT THE FEASIBILITY OF CREATING GUIDELINES

The ASDSO Advisory Committee created a task group in 2012 to research how states are reviewing engineering design and to see if there is a need for guidelines to assist state reviewers. Led by Greg Paxson (Schnabel Engineering), this group began to write an issue brief on the topic in FY13. In FY14, work continued on this issue brief.

GOAL 6: SUPPORT LEVEE SAFETY ACTIVITIES CONSISTENT WITH DAM SAFETY PRINCIPLES AND INTERESTS.

PROJECTS:

Partner with Like-Minded Organizations to Improve Levee Safety.

Coordinate Levee Safety Track at the Annual Conference.

Partner with the US Army Corps to Update the National Levee Inventory.



PARTNER WITH LIKE-MINDED ORGANIZATIONS TO IMPROVE LEVEE SAFETY

Steve Verigin (GEI) began organizing a summit meeting with organizational leaders from the American Society of Civil Engineers, the National Association of Flood and Stormwater Management Agencies and the U.S. Society on Dams. The goal was to create a unified approach and agreement on what national policy should look like. The meeting was held in August 2013 and the groups agreed to continue working together with a primary focus on life safety of existing infrastructure. The coalition took on the initial tasks of advocating to congressional committees in support of levee safety in the Water Resources Development Act and supporting the Midwest Levee and Rivers Technical Exchange, held in St. Louis in October 2014. In early 2014 the group supported the request of the Deep Foundations Institute to join the coalition. Near the end of the Fiscal Year, the new levee safety initiative was included with the passage of the Water Resources Reform and Development Act. The coalition began to discuss ways that it could support the federal administrative leadership at the US Army Corps of Engineers and the Federal Emergency Management Agency as they start to implement the initiative.

COORDINATE LEVEE SAFETY TRACK AT THE ANNUAL CONFERENCE

Continuing the practice of the past several years, the Dam Safety '13 agenda included a track on levee safety policy as well as several levee safety technical presentations within the general technical program. The levee safety policy sessions highlighted the activities of the National Committee on Levee Safety, U.S. Army Corps of Engineers Levee Safety Program, the National Levee Database, and the International Levee Handbook. Planning for Dam Safety '14 included sessions on both levee safety new policies and guidelines and technical issues.

PARTNER WITH THE US ARMY CORPS TO UPDATE THE NATIONAL LEVEE INVENTORY.

ASDSO continued to be a member of the Steering Committee for National Levee Database; however, there were minimal activities by the committee in FY14.

RECOGNITION



2013 AWARDS/RECOGNITION

Each year ASDSO recognizes outstanding contributions to dam safety on national and regional levels. The following award winners were honored at ASDSO's 2013 Awards Banquet, held at Dam Safety '13 in Providence, Rhode Island:

2013 REGIONAL AWARDS OF MERIT

Northeast Region: Borough of High Bridge, New Jersey

The Borough of High Bridge (pop. 3,467) expended \$6.5 million over a period of 10 years to acquire Lake Solitude and surrounding property and rehabilitate the lake's high-hazard dam. Lake Solitude Dam is an earthfill embankment dam built in 1909. It is eligible for the National Register of Historic Places as part of a potential historic district. The dam construction methodology was innovative for its time; the work of a master engineer, Frank S. Tainter. The dam deteriorated since the time it was built. The dam's previous owner had been notified by the NJ DEP that the dam's poor condition posed significant risks to life and property in the downstream community. The previous owner proposed to remove the dam, but failed to take timely action. Through considerable effort, the Borough acquired the facility at a cost of \$2.9 million, assisted by a \$900,000 grant from the state Green Acres Program and a matching loan from the NJ Environmental Infrastructure Trust. After evaluating the options of breaching versus rehabilitation, the Borough elected to rehabilitate the facility with assistance from the NJ DEP in the form of a low interest loan. Kyle Conti Construction, LLC, completed the dam restoration in 2012, based on design documents by French & Parrello Associates, PA, with construction phase engineering services by Hatch Mott MacDonald.



(FROM L TO R) JOHN MOYLE (NEW JERSEY), MARK DESIRE (BOROUGH OF HIGH BRIDGE), CARL MONTANA (FRENCH & PARELLO), LEO COAKLEY (HATCH MOTT MACDONALD)

Southeast Region: James MacLellan, P.E., Mississippi Department of Environmental Quality

James MacLellan is the Division Director of the Drillers Licensing and Dam Safety Division and ASDSO State Representative for Mississippi. He has served on the ASDSO board as secretary and representative of the Southeast Region. He has worked for the Mississippi Department of Environmental Quality since 1992 and in the dam safety field since 2006. He became director of the Mississippi Dam Safety



(FROM L TO R) DUSTY MYERS (MISSISSIPPI), JAMES MACLELLAN (MISSISSIPPI), BRIAN LONG (WEST VIRGINIA), TOM WOOSLEY (GEORGIA), BO BOLOURCHI (LOUISIANA)

Program in 2009. Under his watch, the percentage of high-hazard potential dams with Emergency Action Plans increased from 34% to 77%, and the number of high-hazard potential dams inspected each year doubled. He also standardized the program's design review, and improved the division's emergency response capabilities to effectively manage events such as the Percy Quinn dam incident of 2012. He is the author of the *Field Manual for Erosion and Sediment Control on Construction Sites in Mississippi*, and developed and taught the short course, *Basic Erosion and Sediment Control for Inspectors* across the state. Mr. MacLellan received a BS degree in civil engineering from Mississippi State University in 1992 and is a registered Professional Engineer in Mississippi.

Midwest Region: Indiana Department of Natural Resources (IDNR)

More than 10 years ago, the IDNR began an initiative to lead dam owners in the state by example, and so began to rehabilitate state-owned high-hazard dams and to develop Incident and Emergency Action Plans (IEAPs) for each dam. There are no state laws or regulations requiring IEAPs for dams in Indiana. Nevertheless, IDNR set an example for other dam owners by preparing IEAPs for each of the 19 state-owned high-hazard dams, and then working with other public-sector dam owners on the creation of inundation maps and IEAPs. IDNR has also completed construction improvements for about 40 state-owned dams. This state agency has made an outstanding contribution to dam safety by ensuring that its own dams comply with the same regulations and criteria that it requests of other dam owners. Through IDNR's example, other dam owners are more likely to see the need to upgrade their dams and have emergency action plans available for protection of all citizens living in or visiting areas potentially impacted by high-hazard potential dams. Kenneth Smith, Assistant Director of the Indiana Division of Water, accepted the award representing the State's Dam Safety regulatory program; along with Dale Gick, Director of the Division of Engineering, representing the design and construction administration program for projects at the Department's property holding divisions.



(FROM L TO R) JASON CAMPBELL (ILLINOIS), KEN SMITH (INDIANA DNR), DALE GICK (IDNR), JIM PAWLOSKI (MICHIGAN)

West Region: Stormwater Pond Safety Program, Austin, Texas

The City of Austin owns, maintains, and operates over 800 water quality and detention ponds built as a result of residential and commercial developments. Over the past ten years, Austin's Stormwater Pond Safety Program (SPSP) has made great strides in developing a protocol for the inspection, maintenance, and modernization of the municipality's dam inventory of over 250 dams, 114 of which are classified as high-hazard potential.



(FROM L TO R) WARREN SAMUELSON (TEXAS), EDUARDO ACOSTA (CITY OF AUSTIN), DAVE MARBLE (UTAH)

The City addresses dam safety in its development regulations. All dams must be certified according to the rules of the Texas Commission of Environmental Quality. SPSP actively seeks opportunities to collaborate with work groups throughout the city, coordinating with the Planning and Development Review Department to identify dams before they are incorporated into the City's inventory and to educate subdivision inspections about potential deficiencies of structures. SPSP also works closely with the City's Flood Early Warning System to monitor dams during significant rainfall events.

Dam modernization is one of the main activities undertaken by the SPSP, with high-hazard dams ranked according to downstream risks. Six modernization projects have been completed to date, with the upgraded dams able to safely pass 75% of the PMF. Two additional dams are in the design phase.

SPSP has also created a rigorous dam inspection protocol and is working toward creating EAPs for its high-hazard dams. SPSP's inspection protocol specifies engineer-performed examinations for potential structural problems; a schedule of detailed inspection reports; and regular review of hazard potential classifications. SPSP personnel have created EAPs for 22 state-regulated dams in Austin, with four new EAPs being added every year. The West Region is pleased to honor the SPSP for its consistently proactive efforts to ensure the safety of the citizens of Austin.

2013 NATIONAL AWARDS

National Rehabilitation Project of the Year: Wolf Creek Dam - US Army Corps of Engineers – Nashville District

Wolf Creek Dam was designed and is operated by the USACE-Nashville District. Located on the Cumberland River in south-central Kentucky, the dam impounds Lake Cumberland, the largest reservoir east of the Mississippi River and the ninth largest in the U.S. The combination earthfill embankment and concrete gravity dam was built on alluvial soils overlying a karst limestone foundation in the 1940s, prior to modern design and construction methods. Significant piping became evident during the 1960s, prompting an emergency grouting program, followed in the 1970s by installation of the first cutoff wall ever installed by USACE. This wall worked well for the features it intercepted, but was not sufficiently deep or wide; subsequently, it became apparent that a new cutoff wall was needed.



(FROM L TO R) LYNDON BEDFORD (SOLETANCHE BACHY), BOB DALTON (VASCONCELLES), MIKE ZOCCOLA (USACE), JIMMY WADDLE (USACE), FABIO SANTILLAN (TREVICOS)

In 2007 the dam was given a Dam Safety Action Classification "I" – Urgent and Compelling (DSAC I) rating which is the highest category of risk. In 2008, construction of a state-of-the-art barrier wall began. The project involved development of ground-breaking methods for construction and quality control verification of seepage barrier walls deep beneath active high head dams. The combination of total depth (up to 275 ft), depth into limestone (up to 100 ft), and hardness of the limestone (average strength around 14,000 psi with a maximum of 35,700 psi) was unprecedented for barrier walls of this type. Concerns for dam safety and risks associated with such work inside an active high head dam put safety at the forefront of all decision-making. The Corps and its contractor teams constantly monitored and reacted to

the dam's response to construction activities; this required a robust QA/QC program and substantial upgrades to the existing instrumentation on the project. In March 2013, nine months ahead of schedule, the wall was successfully completed as part of a \$594 million seepage rehabilitation project.

Integral to the success of the project was an aggressive public outreach program that utilized news articles, websites, and public meetings to keep the public informed of the dam's condition and of progress of the foundation repairs throughout construction.

National Award of Merit: ASDSO Dam Owner Outreach Committee

ASDSO has a strong commitment to assisting dam owners. To this end, members of ASDSO's Dam Owner Outreach Committee, chaired by George Mills, have worked tirelessly on a number of projects, including:

The *Living with Dams: Know Your Risks* booklet. Prepared with the financial support from FEMA, this booklet provides practical guidance for the public, especially those living near dams, by answering the following questions: (1) Why should I care about the safety of dams? (2) What are the potential risks associated with dams? (3) Could I be affected by a dam failure? What area may be inundated by floodwater in case of a dam failure? (4) If my property is mapped in a dambreak inundation area, what should I do next?



(FROM L TO R) JOHN MOYLE, KEN SMITH, GEORGE MILLS, RICHARD DEBOLD, DENNIS DICKEY, JASON CAMPBELL

A comprehensive and freely available *Responsible Dam Ownership* section of the ASDSO website, which provides information and tools for owners' dam safety programs. The pages provide information on a wide range of topics including owner liability, how to select an engineer, fact sheets on operation and maintenance topics, guidance on EAPs including examples, and information on how to acquire funding for dam rehabilitation projects.

A series of flyers describing various aspects of dam ownership; and,

A series of computer animations illustrating various dam safety concepts; and

An active and affordable 3-Course Dam Owner Education Workshop Program comprised of: *Fundamentals of Dam Ownership*, *Dam Engineering 101*, and *Operation & Maintenance*. Over the past year, more than 750 dam owners in 18 states have attended one or more of these workshops (including the workshop held September 10 in conjunction with this conference). Additionally, the first webinar for dam owners was held this past summer.

Members of the current Dam Owner Outreach Committee include George Mills, Chair, Ohio; Richard DeBold, New Hampshire; Dennis Dickey, Pennsylvania; John Moyle, New Jersey; Raul Silva, Massachusetts; Kenneth Smith, Indiana; Jason Campbell, Illinois; and Michele Lemieux, Montana.

The Danny K. McCook Award: Jim Talbot

At the suggestion of the ASDSO Advisory Committee, the ASDSO Board authorized the creation of the Danny McCook Medal to honor the memory of our friend and colleague, who we lost suddenly this year. The Danny McCook medal will be awarded by ASDSO to honor outstanding contributions to research and/or practice in geotechnical engineering for dams.

Danny McCook was a geotechnical engineer who made major contributions to dam safety in the United States. After a long and distinguished 40+ year career with the Natural Resources Conservation Service (formerly the Soil Conservation Service), Danny continued to consult in the dam safety arena up until his untimely passing. He was a life-long student of geotechnical engineering as it applies to dam safety, and he was always willing to share his knowledge and experience through papers, presentations, short courses, webinars, telephone calls, and face-to-face conversations. Danny and his contributions will be sorely missed by ASDSO and the rest of the dam safety community. We will sorely miss his fellowship and comradery, and, to borrow from his obituary, we will miss the opportunity to share a good beer and swap stories, some based in fact, with our friend.



At the ASDSO National Conference Banquet on September 11, 2013, the first Danny McCook Medal was awarded to Jim Talbot, Danny's good friend and colleague. Jim has also had a distinguished career as a geotechnical engineer supporting dam safety and dam engineering and design. During his 40+ year career with the Natural Resources Conservation Service (formerly the Soil Conservation Service), Jim was a key player in the development of many of the dam design standards and guidelines developed by that agency, and he played a key role in the application of those guidelines and standards to the design and construction of many NRCS (SCS) dams across the country.

In the 1980s Jim was a member, along with the late James Sherard, of a team that completed the landmark research that is the foundation of modern filter criteria for dam design. Based on that work and other work in his career, he is recognized as a leading expert on seepage and filter design for dams.

Since retiring from the NRCS, Jim has been sought after as a senior technical advisory on many dam safety projects. He has been a frequent speaker at technical conferences, including those of ASDSO, and he was a member of the team that wrote the recent landmark filter manual published by FEMA.

Danny's widow Penny McCook traveled to the ASDSO conference in Providence, RI, to personally present the award to Jim. Jim did not know in advance that he was receiving the award. To assure that Jim was in attendance at the banquet, ASDSO asked him to attend and say a few words during the award presentation about his relationship with Danny. At the conference before the banquet, Jim told several attendees that he was honored to be a part of the award presentation, and that it was a great honor for someone to receive an award named for Danny. He is, indeed, correct: there is no one more deserving of that honor than Jim Talbot.

The Joe Ellam President's Award: Mark Ogden

Outgoing ASDSO President Jason Campbell tapped ASDSO Project Manager Mark Ogden as recipient of the President's Award, named in honor of ASDSO's first president, Joe Ellam of Pennsylvania. This award is traditionally bestowed upon an individual who has worked tirelessly for the advancement of dam safety and who has supported ASDSO and its president.



In addition to having served as Ohio State Representative to ASDSO and as an ASDSO board member, Mr. Ogden served a term as ASDSO president. Upon retiring from the state, where he was employed as Dam Safety Program Administrator, Mark took on his current position as ASDSO Project Manager. In this position, he works closely with all of the states in data gathering and analysis and state legislative issues. He is the ASDSO point of contact for the Levee Safety Committee. He is the co-point of contact for the Security Committee, Dam Failures and Incidents Committee and Communications Committee. Perhaps Mr. Ogden's most important contribution is his willingness to assist others; he has been and continues to be an outstanding colleague, mentor, and friend.

2013-2014 Senior Undergraduate Scholarship: Lacey Albers, Southern Illinois University

Lacey Albers is a senior at Southern Illinois University - Edwardsville, majoring in civil engineering. She currently works as an engineering intern at the U.S. Army Corps of Engineer St. Louis office, where she tracks levee inspections and works on dam safety projects. She has also worked for the Defense Information Systems Agency. She is a member of Chi Epsilon, Society of Women Engineers and the American Society of Civil Engineers. In her free time, Lacey enjoys playing softball, volleyball, boating, and competing in intramural activities and sports leagues.



(FROM L TO R) JASON CAMPBELL, LACEY ALBERS, JOHN MOYLE

2013 Student Paper Competition

Lourdes Polanco, PhD Candidate,
Utah State University: *The Effects of
Geometry in Levee Underseepage
Reliability*. Co-author: John Rice

Natalie Youngblood, PhD Candidate,
Colorado State University: *Results of
Full-Scale Wave Overtopping
Simulation on Levee Slopes with
Vegetative and Manufactured Protective
Cover*. Co-authors: Chris Thornton,
Steven Hughes, Bryan Scholl, Jeffrey
Beasley



(FROM L TO R) PETER NICHOLSON (COMMITTEE CO-CHAIR), NATALIE YOUNGBLOOD, LOURDES POLANCO, VINOTH MUTHIA (COMMITTEE CO-CHAIR), TOM WOOSELY, NOWFEL MAHMUD BHUYIAN, EBRAHIM AHMADISHARAF

Ebrahim Ahmadisharaf and Nowfel Mahmud Bhuyian, PhD Candidates, Tennessee Technological University: *Impact of Spatial Resolution on Downstream Flood Hazard due to Dam Break Events Using Probabilistic Flood Modeling*. Co-author: Alfred Kalyanapu

TRANSITIONS



Board of Directors

During the annual conference in September, the state voting members elected new officers and new regional representatives to sit on the Board of Directors. The 2013-14 officers include the following:

- President: Tom Woosley, Georgia
- President-Elect: Michael Johnson, Arizona
- Treasurer: James Pawloski, Michigan
- Secretary: Dusty Myers, Mississippi

These officers, along with immediate past president Jason Campbell (Illinois) and executive director Lori Spragens made up the Executive Committee in 2013-14.

Board members elected in 2013 included the following:

- Dusty Myers (Mississippi), serving second term through 2015, representing the Southeast Region.
- Steve McEvoy (North Carolina), elected for a first term through 2015, representing the Southeast Region.
- Paul Simon (Missouri), elected for a first term through 2015, representing the Midwest Region.
- Michael Johnson (Arizona), elected for a second term through 2015, representing the West Region.
- David Marble (Utah), elected for a second term through 2015, representing the West Region

These elected officials join the following members and the officers to complete the Board of Directors for 2013-14:

- Jim Pawloski (Michigan), representing the Midwest Region.
- Jim Gallagher (New Hampshire), representing the Northeast Region
- John Moyle (New Jersey), representing the Northeast Region
- Hal Van Aller (Maryland), representing the Northeast Region
- Jon Garton (Iowa), representing the Midwest Region

The Advisory Committee chairman attends all board meetings. The current chair is Terry Arnold (MWH). Chair-Elect Eric Ditchey also attended many board meetings for the AdCom. Leaving the Board after many years of service are the following:

- Brian R. Long, West Virginia
- Zahir "Bo" Bolourchi, Louisiana

State Representatives

- Gustavo Ordonez was named state representative for Washington.
- Arijeet Sengupta was named state representative for Florida.
- Ryan Brooks was named state representative for Arkansas.

Thanks go to the outgoing state representatives for these states:

- Richard Musgrove – Florida
- Nancy Gambill - Arkansas

ASDSO lost a long-time supporter and state representative from Washington this past year. Jerald LaVassar passed away after a long battle with cancer. He will be missed.

FINANCIAL REPORT



The Finance Committee continued to oversee ASDSO's investment program. At the end of FY14, ASDSO held approximately \$724,000 in various investment accounts. The committee also oversees the annual Fundraising Program. FY14 was another year where our donors provided a boost of funding to allow ASDSO to carry out many additional programs, such as the scholarship program and other student outreach efforts and the online resource center.

See Appendix 2 for a list of 2013-14 Patron Donors and Sustaining Members. Thanks to everyone who pushed ASDSO closer to its goals.

FY2014 Action Plan

There were 168 projects in the FY2014 Action Plan. All but twenty were completed or underway at the end of the fiscal year.

Budgeting and Income

<u>FY14 Revenues Summary</u>	<u>Budget</u>	<u>Actual</u>
Dues	\$307,683	\$310,800
Patron Program	\$33,000	\$35,991
Annual Conference (Providence, RI)	\$605,900	\$610,350
Seminar and Workshop Fees	\$352,250	\$379,489
All Other Income	\$210,500	\$240,114
Contracts/Grants (DHS, FEMA, NRCS, Reclamation)	\$547,623	\$330,651
Totals	\$2,056,956	\$1,907,395
<u>FY14 Expenditures Summary</u>	<u>Budget</u>	<u>Actual</u>
Salaries, Fringes, Taxes	\$461,066	\$478,081
Meetings and Committee Expenses	\$116,449	\$106,634
Annual Conference	\$406,607	\$404,662
Seminars and Workshops (ASDSO costs)	\$379,300	\$343,277
Journal and E-News	\$90,000	\$70,276
Direct Operating Costs and Consultant Support	\$338,218	\$337,180
Contracts/Grants (DHS, FEMA, NRCS USBR.)	\$334,659	\$211,002
Totals	\$2,126,299	\$1,951,112
Final excess revenues over expenditures	(\$69,343)	(\$43,717)

Some funds were also taken from Reserves to pay for the last year of the communications implementation plan and a portion of the new McCook Medal = \$62,334.

At the end of the fiscal year, ASDSO purchased office property in Lexington, KY. The new address is: 239 South Limestone, Lexington, KY 40508.

ASDSO's Fundraising Campaign generated nearly \$36,000 in donations and \$76,000 through sustaining memberships. That's \$16,000 more than the previous year.

ASDSO entered into grants and contracts totaling over \$330,000 in FY14.

During FY14, ASDSO signed or carried out project contracts with the following:

- DHS, FEMA (National Dam Safety Program projects): Closed out and completed projects agreed to in the FY12 grant totaling \$300,000. Funds were devoted to supporting the ASDSO Training Courses and distribution of the *Living With Dams: Know Your Risks* booklet.
- DHS, Office of Infrastructure Protection (Dams Sector). ASDSO completed projects in FY14 under a cooperative agreement that was signed in FY13 for approximately \$420,000. The contract objectives included dam security workshops, support for ASDSO security committee, support for the Sixth Annual National Dam Security Forums, the collection of metrics to analyze state participation in dam security programs, delivery of the classroom seminar on security, and maintenance of the webpage on security at the ASDSO website.
- USDA, Natural Resources Conservation Service. ASDSO signed a contract in Federal FY14 totaling \$99,000 to support ASDSO's training programs.
- US Bureau of Reclamation. ASDSO continued supporting Reclamation's independent review of its dam safety program through an agreement totaling approximately \$72,000.
- State-sponsored dam owner workshops and technical seminars. Many states signed agreements with ASDSO to support state-specific workshops and seminars. States included Pennsylvania, Arkansas, Florida, South Dakota, Wisconsin, and Minnesota.

APPENDICES

APPENDIX 1: ASDSO COMMITTEE ROSTERS AND ADVISORS TO OUTSIDE ORGANIZATIONAL TASK GROUPS

APPENDIX 2: 2013-14 PATRON PROGRAM

APPENDIX 3: FOUNDERS' CIRCLE MEMBERS



APPENDIX 1

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2013-14 PATRON PROGRAM

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