

ANNUAL REPORT 2011-12



Association of State Dam Safety Officials, Inc.

July 2011 to June 2012

The 2011-12 Annual Report for the Association of State Dam Safety Officials, Inc.

I am proud to present to you the Fiscal Year 2012 Annual Report for the Association of State Dam Safety Officials (for the period from July 2011 to June 2012). This was the last fiscal year under the 2008-12 Strategic Plan. During the year, we launched our newest strategic plan (see Appendix 5) that will guide us through the next five years. I



want to thank all of those dedicated members and friends of ASDSO who helped with the creation of this new plan.

As always, I want to echo those presidents who came before me by thanking everyone who volunteered countless hours towards carrying out ASDSO's projects this past year. I applaud everyone who has worked and continues to work hard on behalf of ASDSO and for dam safety nationwide.

I want to highlight a few of the accomplishments that are featured in this report.

- The Technical Training Committee with the great help and support of our training director, Susan Sorrell, finalized a technical training plan that will begin to be implemented in 2012.
- The on-line Resource Center now houses a fully searchable bibliographic database and "Resources by Topic" tool.
- We've worked hard to increase communication and routine interaction with the state dam safety program leaders.
- A PR firm was hired to perform a communications audit and create a strategic communications plan.
- We took a big step forward to increase public awareness of dam safety.
- Our voices were heard at the national level through our participation in reviews of several national programs, including the National Dam Safety Program.

We owe our success to all of you, our enthusiastic members and generous donors. Please continue to support ASDSO as we take on bigger and even more challenging goals.

Sincerely,

Zahir "Bo" Bolourchi, P.E. President

On the Cover

2011 National Rehabilitation Project of the Year: Big Tujunga Dam, owned by the Los Angeles County Department of Public Works; rehabilitation design by MWH Global in collaboration with the California Division of Safety of Dams.

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ASDSO Administrative Staff

Lori C. Spragens, Executive Director Susan A. Sorrell, Training Program Director Maureen C. Hogle, Meetings and Marketing Jennifer Burns, Office Administration Sarah McCubbin-Cain, Information Specialist/Librarian Brittany Lewis, Office Assistant Mark Ogden, P.E., Project Manager

June 30, 2012

ASDSO 2011-12 Incoming Board of Directors



Second Row (From L to R): Bill Bingham (AdCom Chair, Gannett Fleming), Mike Johnson (AZ), Jason Boyle (MN), President Bo Bolourchi (LA), John Falk (ID), Secretary Tom Woosley (GA), Brian Long (WV), Treasurer Jim Gallagher (NH), David Marble (UT)

First Row (From L to R): Alon Dominitz (NY), President-Elect Jason Campbell (IL), Outgoing President John Moyle (NJ), Executive Director Lori Spragens, Dusty Myers (MS), Jon Kelsch (ND)

State Representatives 2011-12

ALABAMA Leslie A. Durham, P.E. AL Department of Economic & Community Affairs Office of Water Resources 401 Adams Avenue Montgomery, AL 36104 334/242-5506 leslie.durham@adeca.alabama.gov

ALASKA Charles F. Cobb, P.E. State Dam Safety Engineer AK Department of Natural Resources Division of Mining, Land & Water 550 West 7th Avenue, Ste. 1020 Anchorage, AK 99501-3577 907/269-8636 <u>charlesc@dnr.state.ak.us</u>

ARKANSAS Alvin Simmons, Jr., P.E. Engineer Supervisor AR Natural Resources Commission 101 East Capitol, Suite 350 Little Rock, AR 72201 501/682-3981 alvin.simmons@arkansas.gov

ARIZONA Michael J. Johnson, Ph.D., P.E. Dam Safety Section Manager AZ Department of Water Resources 3550 North Central Avenue Phoenix, AZ 85012 602/771-8659 mijohnson@azwater.gov

CALIFORNIA David A. Gutierrez, P.E. Chief CA Department of Water Resources Safety of Dams 2200 X Street, Ste 200 Sacramento, CA 95818 916/227-9800 daveg@water.ca.gov

COLORADO Jeremy Franz, P.E. CO Division of Water Resources Dam Safety Division 810 9th Street, Suite 200 Greeley, CO 80631 970/352-8712 jeremy.franz@state.co.us CONNECTICUT Arthur P. Christian II, P.E. Supervising Civil Engineer CT Department of Environmental Protection Inland Water Resources 79 Elm Street Hartford, CT 06106-5127 860/424-3880 art.christian@ct.gov

DELAWARE David Twing, P.E. State Dam Safety Engineer DE Department of Natural Resources & Environmental Control 2430 Old County Rd Newark, DE 19702 302/382-2467 david.twing@state.de.us

FLORIDA Owete S. Owete, Ph.D., P.E. Program Administrator FL Department of Environmental Protection Bureau of Mine Reclamation 2600 Blair Stone Road, MS 3500 Tallahassee, FL 32399-2400 850/488-8217 owete.owete@dep.state.fl.us

GEORGIA D.Thomas Woosley, P.E. Program Manager- Permitting Compliance GA Department of Natural Resources Safe Dams Program 4244 International Pkwy. Ste. 110 Atlanta, GA 30354 404/362-2678 tom.woosley@dnr.state.ga.us

HAWAII Edwin Matsuda, P.E. Civil Engineer HI Department of Land & Natural Resources 1151 Punchbowl St., Rm 221 Honolulu, HI 96813 808/587-0268 edwin.y.matsuda@hawaii.gov

IDAHO John Falk, P.E. ID Department of Water Resources 322 East Front Street Boise, ID 83720-0098 208/287-4927 John.Falk@idwr.idaho.gov ILLINOIS Jason Campbell Permit Engineer IL Department of Natural Resources One Natural Resources Way Springfield, IL 62702-1271 217/558-4532 jason.campbell@illinois.gov

INDIANA

Kenneth E. Smith, P.E. Assistant Director IN Department of Natural Resources Division of Water 402 W. Washington St. Rm W264 Indianapolis, IN 46204 317/232-4224 kesmith@dnr.IN.gov

IOWA Lori McDaniel Supervisor IA Department of Natural Resources Water Resources Section Wallace Building, 900 E. Grand Des Moines, IA 50319 Phone: 515/281-8094 lori.mcdaniel@dnr.iowa.gov

KANSAS Kimberly A. Hunninghake, P. E. Water Structures Program Manager KS Department of Agriculture Division of Water Resources 109 SW 9th Street, 2nd Floor Topeka, KS 66612 785/296-4625 kim.feldkamp@kda.ks.gov

KENTUCKY Marilyn Thomas, P.E. Environmental Engineer Consultant KY DEP Division of Water 200 Fair Oaks Lane Fourth Floor Frankfort, KY 40601 Phone: 502-564-3410 marilync.thomas@ky.gov

LOUISIANA Zahir "Bo" Bolourchi, P. E. Director, P.W. & Water Resources Programs LA DOTD, P.O. Box 94245 Baton Rouge, LA 70804-9245 Tel. (225) 379-3009 <u>Bo.Bolourchi@la.gov</u>

MAINE

Tony Fletcher, P.E. State Dam Inspector ME Emergency Management Agency Dept. of Defense 72 State House Station Augusta. ME 04333-0072 207/624-4465 Tony.Fletcher@maine.gov

MARYLAND Harald W. Van Aller Geotechnical Engineer Dam Safety Division Maryland Dept. of the Environment 1800 Washington Blvd Baltimore, MD 21230 410/901-4042 hvanaller@mde.state.md.us

MASSACHUSETTS Michael D. Misslin Deputy Chief Engineer Engineering Division MA Department of Cons. & Recreation 251 Causeway Street, Ste. 700 Boston, MA 02114-2104 617/626-4927 Mike.Misslin@state.ma.us

MICHIGAN Byron Lane Chief, Water Mgmt Section MI Dept of Environmental Quality P.O. Box 30458 Lansing, MI 48909-7958 517/241-9862 Laneb@michigan.gov

MINNESOTA Jason Boyle, P.E. State Dam Safety Engineer MN Department of Natural Resources 500 Lafayette Road Saint Paul, MN 55155-4032 651/259-5715 Jason.Boyle@state.mn.us

MISSISSIPPI James MacLellan, P.E.

Dam Safety Engineer MS Department of Environmental Quality P.O. Box 10631 Jackson, MS 39289-0631 601/961-5061 jmaclellan@deq.state.ms.us

MISSOURI

Robert A. Clay, P.E. MO Department of Natural Resources Dam Safety Program 111 Fairgrounds Road, P.O. Box 250 Rolla, MO 65401 573/368-2175 bob.clay@dnr.mo.gov MONTANA Michele Lemieux, P.E. Section Supervisor MT Department of Natural Resources & Conservation P.O. Box 201601 Helena, MT 59620-1601 406/444-6613 mlemieux@mt.gov

NEBRASKA Patrick Diederich, P.E. Chief of Dam Safety NE Department of Natural Resources 301 Centennial Mall South Lincoln, NE 68509 402/471-1222 pdiederich@nebraska.gov

NEVADA Robert K. Martinez, P.E. Chief, Engineering & Dam Safety NV Division of Water Resources 901 S. Stewart Street, Suite 2002 Carson City, NV 89701 775/684-2844 robertm@water.nv.gov

NEW HAMPSHIRE James W. Gallagher, P.E. Chief Engineer NH Department of Environmental Services, Dam Bureau P.O. Box 95, 29 Hazen Drive Concord, NH 03302-0095 603/271-1961 jgallagher@des.state.nh.us

NEW JERSEY John H. Moyle, P.E. Manager NJ Department of Environmental Protection, Dam Safety Section P.O. Box 419 Trenton, NJ 08625 609/984-0859 John.Moyle@dep.state.nj.us

NEW MEXICO Elaine C. Pacheco NM Office of the State Engineer Dam Safety Bureau P.O. Box 25102 Santa Fe, NM 87504-5102 505/827-6111 elaine.pacheco@state.nm.us

NEW YORK Alon Dominitz Environmental Engineer NY Department of Env. Conservation Dam Safety Section 625 Broadway, 4th Floor Albany, NY 12233-3507 518/402-8130 axdomini@gw.dec.state.ny.us NORTH CAROLINA Steve McEvoy State Dam Safety Engineer Dept of Environmental & Natural Resources Division of Land Resources - Land Quality 1612 Mail Service Center Raleigh, NC 27699-1612 Phone: 919-733-4574, ext. 711 Steve.McEvoy@ncdenr.gov

NORTH DAKOTA Karen Goff, P.E. Dam Safety Engineer ND State Water Commission Dept. 770, 900 East Boulevard Bismarck, ND 58505-0850 701/328-4948 kgoff@nd.gov

OHIO Ted Lozier Administrator, Dam Safety Eng. OH Department of Natural Resources Division of Water 2045 Morse Road, Building B-2 Columbus, OH 43229-6693 614/265-6731 ted.lozier@dnr.state.oh.us

OKLAHOMA Yohanes Sugeng Dam Safety Engineer OK Water Resources Board Planning & Management Division 3800 North Classen Blvd Oklahoma City, OK 73118 405/530-8800 ypsugeng@owrb.ok.gov

OREGON Keith Mills, P.E. Dam Safety Engineer Oregon Department of Water Resources 725 Summer St. NE, Suite A Salem, OR 97301-1271 Phone: 503/986-0840 millska@wrd.state.or.us

PENNSYLVANIA Roger Adams, P.E., Chief PA Department of Environmental Protection Division of Dam Safety P.O. Box 8554 Harrisburg PA, 17105-8554 Phone: 717/772-5951 roadams@state.pa.us

PUERTO RICO Luis A. Suarez Sanchez Administrator, Dams & Reservoirs Safety Program, PR Electric Power Authority P.O. Box 364267 San Juan, PR 00936-4267 787/289-3256 I-suarez@prepa.com

RHODE ISLAND Paul Guglielmino Senior Sanitary Engineer RI Department of Environmental Management Office of Compliance & Inspection 235 Promenade Street Providence, RI 02908 401/222-1360 ext.7122 paul.guglielmino@dem.ri.gov

SOUTH CAROLINA John A. Poole Engineer Associate SC Department of Health & Environmental Control Dam Safety Section 2600 Bull Street Columbia, SC 29201 803/898-4212 pooleja@dhec.sc.gov

SOUTH DAKOTA Timothy G. Schaal Natural Resources Engineer SD Department of Environment & Natural Resources Water Rights Program 523 E. Capitol Ave., Joe Foss Bldg. Pierre, SD 57501 605/773-3352 tim.schaal@state.sd.us

TENNESSEE Lyle Bentley Chief, Dam Safety Program TN Department of Environment & Conservation 6th Floor, L & C Tower 401 Church Street Nashville, TN 37243-1539 615/532-0154 Lyle.Bentley@tn.gov

TEXAS Warren D. Samuelson, P.E. Dam Safety Program Coordinator TX Commission on Environmental Quality P.O. Box 13087 MC 174 Austin, TX 78711 512/239-5195 Warren.Samuelson@tceq.texas.gov

UTAH David Marble Assistant Engineer/Dam Safety UT Division of Water Rights 1594 West North Temple #220 Salt Lake City, UT 84116 801/538-7376 davemarble@utah.gov VERMONT Stephen Bushman Environmental Engineer IV VT Department of Environmental Conservation Dam Safety 103 S. Main Street Waterbury VT, 05671-0407 Phone: 802/241-3450 steve.bushman@state.vt.us

VIRGINIA

Robert T. Bennett P.E., R.A. Director, Division of Dam Safety and Floodplain Management Virginia Department of Conservation and Recreation 203 Governor Street, Suite 206 Office Phone (804) 786-2871 Robert.Bennett@dcr.virginia.gov

WASHINGTON

Jerald M. LaVassar Dam Safety Section WA Department of Ecology P.O. Box 47600 Olympia, WA 98504-7600 360/407-6625 jlsd461@ecy.wa.gov WEST VIRGINIA Brian R. Long Manager WV Department of Environmental Protection Division of Water & Waste Management Dam Safety Section 601 57th Street SE Charleston, WV 25304-2345 304/926-0499 ext.1005 brian.r.long@wv.gov

WISCONSIN

Meg Galloway Chief, Dams & Floodplain Section WI Department of Natural Resources GEF 2, WT/6 101 S. Webster Madison, WI 53707-7921 608/266-7014 meg.galloway@wisconsin.gov

WYOMING

John R. Barnes Surface Water Administrator WY State Engineer's Office Herschler Bldg. 4-E Cheyenne, WY 82002 307/777-6168 john.barnes@wyo.gov Goal 1: Improve the efficiency and effectiveness of state dam safety programs



PROJECTS:

Facilitate training opportunities for state engineering personnel.

Facilitate State networking, information exchange and participation in ASDSO.

Provide tools and best practices to the State dam safety programs.

Offer a peer review program to the States.

Coordinate State representation to committees and national advisory boards.

Collect State performance data and measure progress.

Each issue of the ASDSO Journal on Dam Safety includes an article coordinated by state officials in one of the four ASDSO regions. Thanks go to the following individuals for their regional contributions to the journal this past fiscal year:

Vol. 9 Issue. 3 – *Reconstructing New York City's Gilboa Dam,* Alon Dominitz, New York Dept. of Environmental Conservation.

Vol. 9 Issue. 4 – *Guidelines for Dam Breach Analysis and Hazard Classification in Colorado*, Jeremy Franz and Jason Ward, Colorado Division of Water Resources.

Vol. 10 Issue – The 2011 Mississippi River Flood: Flood Fighting from Mississippi's Perspective by James MacLellan, MS DEQ, and Dam Safety in the Northeast: Response to Hurricane Irene and Tropical Storm Lee Flood Events by Art Christian (CT), David Twing (DE), Bruce Harrington (MD), Nancy McGrath (NH), John Ritchey (NJ), Roger Adams (PA), and Donald Canestrari and Peter Connery (NY).

Vol. 10 Issue. 2 –Both articles included authors from the California Department of Water Resources. Mark Schultz was a co-author on *The Seismic* and Hydraulic Rehabilitation of Big Tujunga Dam, and Roy Kroll was a coauthor on Investigation of Tree Root Penetration into a Levee Soil-Cement-Bentonite Slurry Cutoff Wall.

Thanks go to all journal authors this year.

Training Opportunities for State Dam Safety Officials

Over 500 state engineers and inspectors participated in continuing education programs offered by ASDSO in FY12. The new webinar program made it more convenient and cost-effective for state officials to get the training they need.

State Networking, Information Exchange and Participation in ASDSO.

ASDSO continued the popular monthly electronic newsletter for state officials in FY12.

Tools and Best Practices for the States

ASDSO continued to provide state officials with the following tools and training:

- Quarterly ASDSO Journal of Dam Safety.
- Annual State-By-State Dam Safety Program Performance Reports
- Monthly state newsletter
- Website Tools: Compilation of States' Use of FEMA State Assistance Grants
- State Surveys in 2011-12: State Officials Salary Survey, ASDSO Member Survey, Soil Borings for Embankment Dams Built in Violation, State Regulation of Containment Facilities for Confined Animal Feeding Operations, State Policies on Construction of Concrete Parapet Walls on Earth Embankments
- Continuing Education Courses
- Distribution of Guidelines and Flyers in conjunction with FEMA's National Dam Safety Program and the DHS Infrastructure Protection Dams Sector
- New education tools for dam owners

The ASDSO Peer Review Program

Since 1990, ASDSO has performed over 40 Peer Reviews, including 28 states and 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 FY12, three state dam safety programs participated in the program: Georgia, Virginia and Mississippi. For the second year, the US Bureau of Reclamation also utilized the program to enhance their annual review processes.

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



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.

Tracking State Dam Safety Program Improvements and Dam Data

ASDSO continued to collect data from the states in 2011-12. In conjunction with the US Army Corps of Engineers Topographic Engineering Center, which houses the National Inventory of

Dams, performance data was tracked during FY12 for the 2010 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 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.

The following 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.

The data show that:

- State program authorities improved significantly from 1989 to 1999 and again from 1999 to 2010 in every area of the model and in the overall weighted average.
- The area of Public Relations has the lowest overall scores, with only three programs with a percentage greater than 70%. However, this is a newer area of the model and many states have shown marked improvement. In 1998, 39 states had a PR percentage of zero; yet there were only four states with a percentage of zero in 2010.

State Authorities	1989	1998	2008	2010
Legislation (5)	70%	73%	84%	85%
Inspection (4)	58%	67%	73%	74%
Enforcement (4)	54%	68%	89%	90%
EAP and Response (4)	66%	79%	69%	72%
Permitting (3)	51%	62%	73%	75%
Education and Training (3)		59%	72%	72%
Public Relations (1)		13%	29%	30%
Overall Weighted Percentage	60%	66%	75%	77%

Summary of National State Program Performance Data Analysis

Identification/Remediation of Deficient High Hazard Potential Dams

- The number of deficient HH dams reported by the states from 1999 to 2008 increased by 418%, however the number of reported remediated HH dams increased by only 24%.
- Increased inspection efforts by the state programs resulted in the significant increase in the number of identified deficient HH dams. The fact that there was not a corresponding large increase in the number of HH dams remediated shows the need for increased enforcement efforts by states and for new rehabilitation and repair funding sources.



*2010 data from NID condition assessment with only 66% 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. As of report date, the NID was being updated and the 2011 Identified in Need of Remediation date point is a repeat of 2010.

EAP Completion Percentage for State-

Emergency Action Plans for High Hazard Potential Dams

- Nationally the percentage of High Hazard Potential (HH) dams with an Emergency Action Plan (EAP) has increased from 35% to 66% for the period 1999 to 2011.
- Nearly every state has shown improvement in the number of EAPs for HH 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 2011 the states averaged an increase of 460%. In just the last six reporting years (2006-2011) the states averaged a 66% increase.
- In 2011 twenty-one states reported percentages of HH dams with an EAP at 90% or greater, up from just ten in 1999.
- There is still room for improvement with eleven states reporting less than 50% of HH dams with an EAP.

Regulated High Hazard Potential Dams



June 30, 2012





Inspections of High Hazard Potential Dams

- In comparing 2010 to 1998, 29 states reported 2010 inspection activity for HH dams equal to 100% of the 1998 level or greater with an additional eight states 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).
- In 2010 eight states reported decreases in their HH dam inspection numbers to less than 75% of their 2005 amounts. Unlike EAPs, inspection of HH dams has always been a high-priority activity for state dam safety programs. Decreases in inspection numbers have occurred as a result of decreasing program resources.
- The national percentage of scheduled inspections of HH dams completed from 2004 to 2010 was consistently in the 90% to 100% range.





Total state staffing for dam safety

• Technical staffing has remained steady with an overall increase from 2000 to 2011.





Total State Budgets for Dam Safety

 Total budgets for dam safety are fluctuating. Many state dam safety programs have experienced cuts in funding as state budgets struggle in general.



2004

2008

2011

National Reporting of Condition of State-Regulated Dams

In 2009 the National Inventory of Dams 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.

1999

\$1,000 \$-

- For the 2010 NID update 66% of state-regulated high hazard potential dams were
 rated. While the states have assessments for most, if not all, state regulated high
 hazard potential dams, reporting to the NID by some states will occur over a period of a
 few years due to the time commitment to convert state assessments into the NID
 criteria. States voluntarily submit this data and the number of dams not rated
 continues to decrease.
- Nine states have determined the condition of 100% of their dams (reported to the NID).
- Thirty states have determined the condition of more than 75% of their dams (reported to the NID).
- From 2009 to 2010 there was a 26% increase in dams with a condition rating and a 19% increase (34% to 53%) in dams with either a Satisfactory or Fair rating. The percentage

of dams with condition ratings of Poor and Unsatisfactory (those in need of remediation) also increased from 7% to 14% as more dams were rated.

Goal 2: Raise awareness of dam safety among the general public, media, state and federal governments, and other stakeholders



PROJECTS:

Track and respond to state and national media interest in dam safety.

Distribute state-specific and national press releases on ASDSO initiatives and dam safety issues.

Create press information kits and educational aids via the website and on demand.

Provide data, written reports and expert spokespeople for state and national news stories.

Provide public awareness information via the ASDSO website, social media and print materials.

Perform a communications audit.

Track and respond to state and national media interest in dam safety.

Public & Media Interest: Dam Safety in National News Stories

Matt Sledge, a reporter for *the Huffington Post* attended Dam Safety '11 in National Harbor, Maryland. He has since written several stories involving dams:

- Offshore Drilling: House Republicans Offer Old Idea as New Infrastructure Solution (9/27/11 - Notes Dam Safety '11; quotes keynote speaker Rep. Steve LaTourette)
- Shovel-Ready Projects: They Exist, and We May Need Them for a Long Time (9/30/11)
- Coal Ash Dams are a Major Hazard Coal-State Politicians Want to Ignore (12/15/11)
- Coal Ash Fight Targets Little Blue Run Slurry Pond (6/1/12)

ASDSO tracks news on a daily basis and posts news of interest in the "Latest News" page of the website. These articles are archived in ASDSO's online bibliography. In March 2012, ASDSO's response to an article on Kentucky EAP requirements was published in the Lexington Herald-Leader.

Distribute state-specific and national press releases on ASDSO initiatives and dam safety issues.

ASDSO Press Releases

6/28/12 - The National Dam Safety Program is One Step Closer to Reauthorization 5/31/12 (FEMA) - FEMA Leaders Commemorate National Dam Safety Awareness Day, Discuss Strategic Plan for Dam Safety Program 11/18/11 - ASDSO's Fourth Annual Student Paper Competition to be Held in Conjunction with Dam Safety '12 in Denver 10/3/11 - ASDSO names officers, presents awards

8/3/11 - UMKC's Alex McCaskill Wins National Dam Safety

Create press information kits and educational aids via the website and on demand.

Computer Animations

ASDSO receives many inquiries from the media and others who are looking for illustrations of dams and dam failures. Since FY10, funds have been set aside to create computer animations of certain characteristics of dams, failure modes and other issues. Two animations were added to the list in FY12.



Screen shot of the new "failure by seepage" computer animation available for anyone to download at the ASDSO website.

- An illustration of dam failure due to lack of stability/seepage
- An illustration of hazard creep

These are now available at the ASDSO website along with the other illustrations including a) failure due to piping, 2) failure due to overtopping and 3) a perfect to imperfect dam.

Funds for projects like this come directly from donations received through ASDSO's Fundraising Program.

Web Site

The website acts as a one-stop-shop for information on ASDSO and on dam safety. Members can access downloadable technical materials, and look up other members by name, by company or agency 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.

New in FY12:

-The Bibliography continues to grow. The interactive search feature was improved. Users can search a vast bibliography of information on dam safety.

-Technical Resource Center by topic. Arranged to coincide with ASDSO's Program of Study, users can see what technical areas should be studied to become well-versed in dam safety engineering or go straight to a technical area to delve deep into training opportunities, guidelines or other tools specific to that



Screen shot of the ASDSO Resources by Topic page

area (see pages 41-42 for more information).

-Interactive webpage for dam owners (see page 50 for more information).

Web Statistics:

During the reporting cycle there were over 40,000 visitors to the site from U.S. and international users. Top areas of interest remain the same as last year and include:

- The Conference and Training Center
- Latest news stories

- The Resource Center
- The Career Center
- States Pages

There is a sharp increase in members accessing members-only information on the site.

In FY12 about 67 percent of the visitors were first-time visitors.

Provide data, written reports and expert spokespeople for state and national news stories.

Between July 1, 2011 and June 30, 2012 ASDSO provided information to:

- Al Jazeera (dam removal)
- AP -national
- AP New Orleans
- Arkansas Online
- Columbia U. journalism grad student dam failures.
- Fiscal Times
- Great Plains Examiner
- Huffington Post
- International Water Power & Dam Construction
- Kiplinger rehab costs
- Lexington Herald-Leader state EAP requirements
- Lexington Herald-Leader response to story on EAP requirements
- Maine Center for Public Interest
- The National Journal related to the National Flood Insurance Program
- New York Times
- The Capitol NY dam safety
- Wall Street Journal
- Wilkman Productions St. Francis documentary

Provide public awareness information via the ASDSO website, social media and print materials.

Public Awareness

Public awareness continued to be a hot topic in FY12. FEMA continues to push for a strong public awareness element within the National Dam Safety Program—with messaging that reflects its agency-wide goals to improve flood risk management. There continued to be a constant challenge to harmonize the ASDSO public awareness message with FEMA and with that of other partners within the broader emergency and flood risk management communities. Living With Dams: Know Your Risks

ASDSO leaders spent considerable time in FY12 working to not only present messaging to the public-at-large, but

talking with, educating and preparing written communications for those working in emergency and flood risk management fields—on federal and state levels. Several issue papers were



written to explain how dams fit into broader risk management planning. These were used to educate federal and state lawmakers, as well as program leaders within, for example, the FEMA National Flood Insurance Program. An example of one of these papers is included in Appendix 1 *(NFIP issue brief).*

One of ASDSO's most talked-about products, rolled out in FY12, was the public awareness booklet entitled *Living Near Dams*. Funded through a grant with the FEMA National Dam Safety Program, this booklet was designed to go hand-in-hand with the ASCE booklet called *So You Live Near a Levee*. ASDSO distributed over 3,000 booklets in conjunction with FEMA's National Dam Safety Day, held on May 31.

A project suggested by FEMA leaders was the creation of a public awareness website, which ASDSO deeveloped and launched concurrent with the National Dam Safety Day activities. See the e-reader version of the booklet at <u>www.livingneardams.org</u>.

The plan for FY13 is to market the booklet to municipalities, realtor organizations, floodplain management organizations and emergency management organizations.

Social Media

ASDSO's Facebook page is slowly gaining "fans" with about 350 people who "like" it. Most of the focus is on posting news stories, student information and job announcements.

Perform a communications audit.

One of the recommendations from the Strategic Planning Committee was to have a communications audit performed to see how well ASDSO is creating effective messaging and getting its messages out. During the year, ASDSO hired PCG PR, a Washington, DC company with experience in assisting national non-profit organizations with the review and creation of communications plans. The audit and development of the plan will begin in FY13.

Goal 3: Facilitate Inter-Organizational, Inter-Governmental and Inter-State Cooperation



PROJECTS:

Conduct Regional Meetings for State Officials.

Coordinate with the National Dam Safety Review Board under 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.

Create partnering opportunities with other federal agencies that own, regulate or provide technical support for U.S. dams.

Monitor and provide expertise to national levee safety policies and federal flood risk management communication and coordination initiatives.

Facilitate communication with partners about ASDSO's initiatives and coordinate on projects.

Support the ASCE Report Card Initiatives at the national and local levels.

Interstate

ASDSO Regional Highlights

One goal of ASDSO is to bring state dam safety programs together through facilitation of regional activities and networking. ASDSO coordinates communication among state representatives and other members through four established regional organizations. The Northeast, Southeast and West region hold regional conferences to discuss issues of mutual concern and to provide forums for regional topics to be presented and published in proceedings. Through the regional networks, ASDSO is able to get feedback and direction on issues of national concern.

West Region

West Region Representatives to the Board:

- Arizona: Michael Johnson elected for a first term in 2011, serving through September 2013.
- Utah: Dave Marble elected for a first term in 2011, serving through September 2013.
- Idaho: John Falk serving second term through September 2012.
- North Dakota: Jon Kelsch serving second term through September 2013 (vacated term in early FY13).

The West Region held one caucus meetings in FY12 at the ASDSO 2011 Annual Conference in Washington, DC. The West Region maintains a small regional budget, held at ASDSO headquarters, which is used to operate the regional conference and assist regional representatives, if needed, to attend board meetings.

Southeast Region

Southeast Region Representatives to the Board:

- West Virginia: Brian Long -- serving second term through September 2013.
- Georgia: Tom Woosley serving second term through September 2012.
- Mississippi: Dusty Myers—elected to a first term in September 2011, serving through September 2013.

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

CEATI

Over the year, the region held two caucus meetings, one at the 2011 ASDSO Annual Conference in Washington, DC and one during the 2012 Southeast Regional Conference in Louisville. The Southeast Region maintains a small regional budget, held at ASDSO headquarters, which is used to operate the regional conference and assist regional representatives, if needed, to attend board meetings.

The two-day regional conference in Louisville, held May 7-8, was a great success, attracting 224 attendees.

Northeast Region

Northeast Region Representatives to the Board:

- New Jersey: John Moyle serving second term through September 2012.
- New Hampshire: Jim Gallagher serving out the term vacated by Cas Taherian (MD) upon retirement, through September 2012.

Interstate Council on Water Policy Interagency Flood Risk Management Committee

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

 New York: Alon Dominitz – elected to first term in September 2010, serving through September 2012.

The Northeast Region held one caucus meeting in FY12 at the ASDSO Annual Conference in Washington, DC.

Within the Northeast Region is the New Jersey/Pennsylvania Council for Safe Dams (CSD), a chapter which focuses on improving dam safety policies and laws in New Jersey and Pennsylvania. The CSD maintains a small budget, held at ASDSO headquarters, which is used to operate the Northeast regional conference and assist regional representatives, if needed, to attend board meetings, as well as finance small projects including legislative advocacy efforts.

Midwest Region

Midwest Region Representatives to the Board:

- Michigan: Jim Pawloski: elected in September 2011 to a first tem, serving through September 2013.
- Minnesota: Jason Boyle elected to second term in September 2010, serving through September 2012.

The Midwest Region held one caucus this year at the Annual Conference in Washington, DC.

Inter-Governmental

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, all under DHS. Both provide valuable funding for many of the projects that ASDSO carries out.

The Federal Energy Regulatory Commission volunteers experts routinely to provide on-site training for states. All 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 and the US Army Corps of Engineers. The NRCS currently funds 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.

Highlights of FY12 initiatives with our federal partners follow:

Assistance to the National Transportation Safety Board (NTSB)

In light of a 2011 investigation of a 2009 train derailment, the NTSB asked ASDSO to coordinate a national communication strategy along with several other organizations. Since part of the cause for the derailment was attributed to the washout of a rail line by water from an unregulated storm water retention pond, the NTSB felt it necessary to inform dam safety regulatory agencies in the states of findings. ASDSO assisted by distributing information to the membership and specifically to the state dam safety programs. The issue raised concerns among the state members about the level of expertise in dam engineering at the NTSB. ASDSO leaders used it as an opportunity to educate NTSB officials about how dams operate and how they are regulated.

Working with the Mine Safety and Health Administration



A renewed dialogue between ASDSO and the Mine Safety and Health Administration (MSHA) was launched in FY12. Meetings during the year between MSHA officials and ASDSO staff produced a plan to coordinate

on continuing education for MSHA inspectors.

NRCS Partnering

ASDSO and the NRCS work together through a memorandum of understanding, which sets forth certain goals and objectives that serve to increase communication and coordination between state dam safety offices and NRCS state conservation engineers. At last count, thirty-two states had MOUs in place at the state level, with six states still in the approval process.

The NRCS and ASDSO continued a highly successful joint project to deliver training. In FY12 two courses were developed and offered, one on emergency action planning for dam safety and the second on inspections and assessment of dams. Between July 2011 and June 2012, the EAP course was held in Portland, Oregon and Boston, Massachusetts, allowing over 67 representatives of the local, state, and federal dam safety and emergency preparedness communities to attend. The new course focused on inspection and assessments of dams and was held once in McKinney, TX. The popular course had 60 participants.

FEMA and the National Dam Safety Program



Since the early 1980s and, in particular, after the establishment and funding of the National Dam Safety Program in 1996, ASDSO and FEMA have devoted themselves to a strong partnership.

In FY12, with support from a FEMA grant, the following projects were underway or completed:

- Classroom-Based Technical Seminars and Web-Based Training
- Dam Owner Workshops
- Research Report to Assess the Use of Risk Prioritization Tools at the State Dam Safety Program Level

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 FY12 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

For more information, see the National Dam Safety Program's website at: www.fema.gov/protecting-our-communities/plan-ahead-dam-failure.

DHS and the Office of Infrastructure Protection



The Office of Infrastructure Protection (IP) within DHS serves as the sector-specific agency for the Dams Sector. Within Infrastructure Protection, the Sector Outreach and Program Division, Critical Lifelines Branch, Dams and Water Infrastructure Section maintains responsibility for the critical infrastructure protection of the

Dams Sector through ongoing coordination with the Dams Sector Coordinating Council (DSCC) and the Dams Sector Government Coordinating Council (DGCC).

The DSCC was formally launched in May 2005 and is comprised of representatives from industry, municipal and private dam ownership. The DSCC serves as a hub for communication, coordination, sector-specific expertise, and advice between the government and private owner/operators during protection, response, and recovery activities. The DGCC, formally launched in January 2005, is comprised of representatives from Federal and State agencies and serves as the counterpart and partner to the DSCC to assist in the planning, implementation, and execution of sector-wide security programs for the sector's assets. These councils provide a structure through which representatives from the government and the private sector can effectively collaborate and share approaches.

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

- John Moyle (New Jersey); John Kale (alternate)
- Steve McEvoy (North Carolina); Mel Nevils (alternate)
- Pat Diederich (Nebraska); Tim Gokie (alternate)
- 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)

In FY12, the State Dam Security Panel (SDSP) was sunsetted. The intent of the panel was to reach out to the state dam safety offices and to create and oversee plans and projects to assist the Dams Sector in delivering guidelines and tools to improve protection of the critical dams within the sector. In 2012, the ASDSO Board approved the formation of an ASDSO standing committee on security and risk mitigation for critical infrastructure dams, which will take the place of the SDSP.

Director Lori Spragens represents ASDSO on the Sector Coordinating Council (DSCC). Her alternate, Mark Ogden, supports the new committee and ASDSO through assisting in the

administration of the contractual projects sponsored by DHS. Other ASDSO members sitting on these councils are listed in Appendix 2.

ASDSO signed an agreement with DHS IP in FY09 to further assist the Dams Sector in carrying out its mission. During the reporting year (the fourth year of the five-year contract), the following projects were completed:

- Communication and outreach to state dam safety agencies was improved and expanded. States were encouraged to register for HSIN-CS and to utilize the Consequence-Based Top Screen. Information was provided to the States through the ASDSO E-News and through the DHS Open Source Digest.
- The 4th Annual National Dam Security Forum was held in conjunction with ASDSO Dam Safety '11 in Washington, DC. Planning for the 5th Annual Forum began shortly after the DC Forum and continued through the end of the reporting year.
- Improvements were made to the ASDSO security webpage.
- Dam failure and incident data was collected and archived in the Dams Significant Incident Reporting (SIR) database—part of the Dams Sector Analysis Tool (DSAT).
- 2011 State security program performance metrics were collected and reported to DHS.
- A draft model state dam security program guide was drafted and is in the review process at DHS.
- A new classroom course on calculation the consequences of dam failure was developed and piloted at the FEMA Emergency Management Institute in May 2012.
- The classroom course entitled *Dam Security 101* was refined.
- The Security Workshop for state dam safety officials was held May 8, 2012 in Louisville, KY.

To view the Dams Sector Specific Plan and NIPP go to: <u>www.dhs.gov/xlibrary/assets/nipp-ssp-dams-2010.pdf</u>

Partnering with the US Army Corps of Engineers: The National Levee Database and the Topographic Engineering Center



In this fiscal year, ASDSO continued a cooperative effort with the USACE to inform and train users on the capabilities and use of the National Levee Database (NLD) and to begin NLD data gathering. The NLD contains information relative to the status and safety of the nation's levee systems, including attributes of levees relevant to their design, construction,

operations, maintenance, repair, and inspections. ASDSO participates on the NLD Steering Committee that is tasked to assist USACE in the public roll-out of the NLD. USACE presented the public roll-out at Dam Safety '11 and ASDSO assisted in state and local official's applications for NLD accounts. All annual State dam safety program performance and dam data collection is a coordinated effort between ASDSO and the US Army Corps of Engineers' Topographic Engineering Center (TEC). From dam inventory data—which goes into the National Inventory of Dams—to state program performance data—such as changes in state budgets, number of inspections, personnel—each state provides data to be used for performance measuring on a national scale.

ASDSO and the Corps of Engineers continue to honor the joint memorandum of understanding, signed in 2003. This MOU began a joint mission to improve dam safety nationwide. The Corps and ASDSO exchange continuing education information and mutually post dam safety announcements. The ASDSO Annual Conference is often used by the Corps as a venue to transfer technology and to hold "town hall" style meetings for Corps officials.

ASDSO Provides Independent Review of Bureau of Reclamation, Dam Safety



For the second 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 2012.

Promoting the Silver Jackets Program



Mark Ogden provided a presentation on behalf of ASDSO at the August 2011 USACE Flood Risk Management and Silver Jackets Workshop in Nashville. The Silver Jackets program is a partnership of the US Army Corps of Engineers, FEMA, and state agencies that aims to provide a consistent interagency approach to reduce risks associated with flooding and other natural hazards.

The programs are developed at the state level with support from federal agencies. At a minimum, each state team includes a representative from FEMA, the Corps, the state hazard mitigation officer and the state National Flood Insurance Program coordinator. The first Silver Jackets team was established in Ohio in 2005; since then, teams have been established in Indiana, Idaho, Iowa, and New Mexico. The ultimate goal is to offer teams to each state.

For more information on the Silver Jackets Program go to: www.nfrmp.us/state/index.cfm

Inter-Organizational

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 creation of a student curriculum about dams (elementary, middle and high school levels) in conjunction with a company that creates science courses.

- Explore improvement opportunities in the area of on-site dam operator training.
- Coordinate on student/kids website pages.
- Assist with the USSD Tailings Workshop, held in August 2011. ASDSO provided state data on tailings dams regulations. Past ASDSO president Rob Martinez (NV) presented the data at the workshop.

As is custom, ASDSO president Bo Bolourchi spoke on behalf of ASDSO at the April USSD Annual Conference in New Orleans, LA.

Association of State Floodplain Managers

ASDSO has enjoyed a long-standing partnership with ASFPM on many issues related to dam safety and flood risk management. Over the past year, the two associations participated on the Intergovernmental Flood Risk Management Committee and both provided members to the National Committee on Levee Safety.

ASFPM now has a project funded by FEMA to analyze the relationship of dams to the floodplain and develop recommendations on how to begin incorporating dams into floodplain management. The final deliverable for the project will be a report to FEMA that will include recommendations on how to reduce risks associated with dams in the US. ASDSO was invited to participate, and Mark Ogden is representing ASDSO. Byron Lane (MI) is also participating.

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 2012, ASDSO and ASCE members touted the importance of the National Dam 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 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 safety programs at the federal level.

ASDSO exchanges information routinely with the Geo-Institute and the Environment and Water Resources Institute.

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. ASDSO NWC liaison Matt Scherer (Kansas) stepped down as liaison this past year. Tom Woosley (Georgia) is acting liaison until a permanent replacement can be identified. Goal 4: Provide the Professional Dam Safety Community with Forums for the Exchange of Information



PROJECTS:

Coordinate an annual national conference and regional conferences.

Provide the Journal of Dam Safety.

Distribute a monthly electronic newsletter.

Provide continuing education courses and coordinate the ASDSO Program of Study with the FEMA National Dam Safety Program and DHS Dams Sector training programs.

Maintain an interactive, web-based training calendar

Manage an information resources center.

Collection and analysis of state program performance data.

Focus on technical topics.

other nations.

Dam Safety '11 – Washington, DC

held in National Harbor, Maryland

attracted close to 1,000 attendees,

including state and federal regulators, engineering consultants, contractors and suppliers, researchers, students, and others from the US and several

ASDSO's annual national conference

Following this theme, Major General Temple urged attendees to apply their engineering expertise to leading the discussion on reinvestment and recapitalization in infrastructure, noting, "It's going to take more collaboration and communication. We must find a way to recognize our common ground and present a unified message on infrastructure issues, identifying national priorities and the highest risk projects for action first...As a nation, we are only investing about one percent of the value of our infrastructure in operations and maintenance, and even less than that in capital improvements. We have to ask ourselves if other industries invest so little in safety and reliability."

Highlights of the opening session were

keynote addresses by Ohio Congressman Steven C. LaTourette and Major General Merdith W.B. (Bo) Temple, Deputy Chief of Engineers and Deputy Commanding General, US Army Corps of Engineers. While expressing strong support for initiatives to rehabilitate the nation's aging dams, Congressman LaTourette acknowledged the difficulties of advancing legislation in the current political and economic climate.

Attending the general session were representatives of various trade organizations and media outlets, including Hydro Review Senior Editor Russell Ray, who wrote about the session in his

Please mark your calendars for these upcoming ASDSO conferences:

Dam Safety '12, September 16-20, in Denver, CO

Dam Safety '13, September 8-12, in Providence, RI

Dam Safety '14, September 20-23, in San Diego, CA

Dam Safety '15, September 13-17, in New Orleans, LA



LaTourette



Temple



blog: Dam Safety Improvements Shed Light on a Bigger Problem.

Regional Conferences

The 2012 Southeast Regional Conference was held on May 6-8 in Louisville, KY. Thirty-five exhibitors and over 200 attendees participated. General and concurrent technical sessions covered such popular topics as Case Studies in Dam Rehabilitation, Owners Issues, Instrumentation, Dam Removal, and Appurtenant Works. Thanks go to all of the conference sponsors, and to the organizing committee members; Marilyn Thomas, P.E., (KY), James MacLellan, P.E., (MS), Tom Roberts, P.E., (VA), and Tom Woosley, P.E., (GA).



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 FY12. This is a timely and efficient way to get information out to members. E-News copies are posted on the website.

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,

Associa	ation of State Dam Safety Officials			CONTACT US		
HOME ABOUT ASDS	COMMITTEES & PROJECTS	CONFERENCES & TRAINING	PUBLICATIONS & RESOURCES	PRESS ROOM & NEWS	CAREER CENTER	INFRASTRUCTURE SECURITY
GO aining Directory					Training	Directory
stance Learning	Home . Conference	es & Training = Train	ing Directory = Sea	rch All Training		
sarch All Training	Search Traini	ing Directory				
aining Materials	Search by keyword		1.0.00			
SDSO Conferences	Start Date	End Date	All Types			
SDSO Technical eminars			SEARCH			
am Owner lorkshops						
EB & Distance						

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.

Technical Education Programs

At its committee meeting in September 2011, the ASDSO Training Committee finalized what it considers to be the Program of Study for Dam Safety—a roadmap that ASDSO will use to choose classroom and web-based training topics going into the future. As part of this, the committee also identified 12 classroom courses that will be taught in a four-year rotation for the foreseeable future.

These core courses are viewed as essential in providing an engineer with a well-rounded knowledge of dams, and are slated to be offered on a regular rotation by ASDSO in the coming years. These topics were identified as top priority among the many areas of expertise listed in the Program of Study. The committee recognizes that many areas of expertise and topics are addressed by non-ASDSO sponsored training, publications or resources. Information on these outside training opportunities and resources can be found in the Training Calendar and Technical Resource sections of the ASDSO website.

The ASDSO training philosophy focuses on a three-tiered system:

- 1. Classroom Courses
- 2. Web-Based Courses
- 3. Self-Paced Study

ASDSO spent time this past year encouraging other agencies and organizations to utilize the Program of Study as they choose training topics. Focus was on:

- The National Dam Safety Program
- The DHS Dams Sector Education Program
- Other non-governmental organizations
 - o USSD
 - ASCE Continuing Education
 - o CEATI
 - National Watershed Coalition
 - \circ HydroVision
 - Canadian Dam Association
 - ASFPM & Others

Additionally ASDSO wants the Program of Study to be used by:

- students/practicing professionals who are planning their course of professional development,
- training providers who are deciding which dam safety topics to teach, and
- organizations which provide training to audiences other than dam safety, such as first responders or emergency managers.




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4. Hydraulics				5. Hydrology		
Classroom Courses	Webinars			Classroom Courses	Webinars	
HEC-RAS	Basic Hydraulics for Dams: Hyd 101 and Hyd 201	Intro to Physical Modeling of Spillways for Dams	Intro to Earth Spillway Design & Evaluation	HEC-HMS	Basic Hydrology for Dams: Hyd 101 and Hyd 201	
6. Inspections 7. Risk-Informed Decision-making						
Classroom Courses Webinars			Classroom Courses	Webinars		
Construction Inspections (combined with Plans/Specs Review)	Inspections & Assessments of Dams	Pitfalls in Quality Control testing for Earth Fill		Risk Assessment Basics for an Individual Dam	Risk Management for a Portfolio of Dams	

4. Hydraulics				5. Hydrology		
Classroom Courses	Webinars			Classroom Courses	Webinars	
HEC-RAS	Basic Hydraulics for Dams: Hyd 101 and Hyd 201 Intro to Physical Modeling of Spillways for Dams		Intro to Earth Spillway Design & Evaluation	HEC-HMS	Basic Hydrology for Dams: Hyd 101 and Hyd 201	
6. Inspections 7. R Dec				sk-Informed sion-making		
Classroom Courses Webinars			Classroom Courses	Web	Webinars	
Construction Inspections (combined with Plans/Specs Review)	Inspections & Assessments of Dams	Pitfalls in Quality Control testing for Earth Fill		Risk Assessment Basics for an Individual Dam	Risk Management for a Portfolio of Dams	





10. Structural			11. Surveillance- Monitoring- Performance		12. Miscellaneous			
Class Cou	room rses	Webinars		Classroom Courses	Webinars	Classroom Courses	Webinars	
Fundamentals of Reinforced Concrete Design for Hydraulic Structures	Conduits, Valves and Gates	Roller Compacte Concrete	Structural Condition Assessment of Dams with Nondestructive Eval Methods	Intro to Gravity Dam Design				

Classroom Training

This year, the Training Committee identified 12 core classroom topics. These topics will be rotated over a 4-year cycle, which will then be repeated. Courses will be held in various locations throughout the U.S. New topics may be introduced upon request or need.





FY12 Classroom Training in Review

Six classroom-based technical seminars were held across the U.S. during FY12, including:

Plans & Specifications Review and Construction Inspections February 7-8, 2012 – Jacksonville, FL

Interactive Preparedness: Emergency Action Planning for Dam Safety November 15-16, 2011 – Portland, OR

May 1-2, 2012 – Boston, MA

Fundamentals of Reinforced Concrete Design for Hydraulic Structures

March 6-7, 2012 – Phoenix, AZ June 25-26, 2012 – Columbus, OH

Inspections and Assessments of Dams January 17-19, 2012 – McKinney, TX

Dam Failures and Lessons Learned April 10-12, 2012 – New Brunswick, NJ

Web-Based Training

In FY12 the committee's goal was to hold webinars once a month (except for September). Attendance was good, on average, for all 2-hour courses.

FY12 Web-Based Training in Review

Roller Compacted Concrete Design and Construction of Water Control Structures.

August 9, 2011, by Randall P. Bass, P.E., Schnabel Engineering

Risk Assessment Basics for an Individual Dam. October 11, 2011, by Dr. David Bowles, P.E., RAC Engineers & Economists

Risk Management for a Portfolio of Dams

December 13, 2011, by Dr. David Bowles, P.E.

Upcoming Training

Webinars:

July 10: Introduction to Gravity Dam Design

Instructor: Robert A. Kline, Jr., P.E., Gannett Fleming, Inc.

August 14: Introduction to Physical Modeling of Spillways

Instructor: Steven L. Barfuss, P.E., Utah State University, Utah Water Research Laboratory

October 9: Introduction to Foundation Grouting for New and Existing Dams

Instructors: Dan Stare and David B. Wilson, P.E., Gannett Fleming, Inc.

November 13: Introduction to Earth Spillway Design and Evaluation

Instructor: Darrel M. Temple, P.E., D.WRE (retired USDA-ARS)

December 11: Introduction to Internal Drainage Systems for Dams

Instructor: James R. Talbot, P.E., Independent Consulting Engineer *Structural Condition Assessment of Dams with Nondestructive Evaluation Methods* January 10, 2012, by Larry D. Olson, P.E., Olson Engineering

Field Investigations for New and Existing Dams February 14, 2012, by Ray Martin, Ph.D., P.E., REM, LLC

Hydrology 201 for Dam Safety

March 13, 2012, by Dr. Arthur C. Miller, P.E., AECOM

PMP and the History of HMRs April 10, 2012, by Edward M. Tomlinson, Ph.D., Applied Weather Associates

Hydraulics 201 for Dam Safety May 15, 2012, by Dr. Arthur C. Miller, P.E., AECOM

Emergency Action Plan Basics

June 5, 2012, by John W. France, P.E., URS Corporation

Self-Paced Training

ASDSO has limited resources to create self-paced courses at this juncture but does maintain all of the webinars through the bookstore. All webinars are available on-demand. A future goal is to encourage 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.

The Information Resource Center

Resources/Library

Improvements to ASDSO's website include:

Refined Site Search Capability – Enter a term into the search box on any page of ASDSO's website. The search results are categorized as follows: Bibliography, Bookstore, Free Documents, Jobs/Internships, Training, and "Everything Else." Users may refine searches by selecting any of these categories.

Bibliography - ASDSO's online bibliography is a free access database of dam and levee safety references from ASDSO and other sources. This resource has been improved

over the past year with the



Search feature at the ASDSO website taps into wealth of information on technical topics.

addition of author affiliation as a searchable field and ASDSO's news database. It now includes more than 15,000 records. ASDSO invites additions of relevant items to this collection.

Resources by Topic – This new website section includes a Main page and 14 sub-pages on specific topics:

- Program Management
- Dam Security & Protection
- Inspections
- Surveillance & Monitoring
- Hydraulics
- Hydrology
- Geotechnical
- Seismic
- Structural

- Risk-Informed Decision Making
- Environmental
- Construction Management
- Dam Removal
- Tailings Dams
- Dam Failure Investigations
- Hazard and Size Classification
- Emergency Action Planning
- •

Each page includes a topic overview; a list of related proficiencies; relevant training courses by ASDSO and others, a list of key references, a link to the ASDSO bibliography and suggested keywords.

Library Lending – ASDSO maintains a comprehensive library of dam safety references in various formats. Members may borrow various items from the collection, which includes books, magazine and newspaper clippings, CD-ROMs, and DVDs.

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 Reporting (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 will include 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. The SIR database is nearing completion and should be available to users in Fiscal Year 2013.

The State Dam Safety Program Performance Data Collection and Analysis Program

ASDSO, in partnership with FEMA and 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. This year, ASDSO completed a FEMA-funded effort to study the performance data collection process and develop new performance data questions for Calendar Year 2010. As described earlier in this report, ASDSO also analyzed and organized several years' worth of performance data to develop performance reports for each state dam safety program. Due to delays in funding, the data call for Calendar Year 2010 was delayed to early Fiscal Year 2012.

ASDSO Technical Committees

ASDSO has two standing committees that are considered more technically focused than the other committees. One focuses on outlet works issues. This committee is working on several issue papers.

The relatively new Dam Failure Investigations Committee was formed to assist 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. The committee also makes recommendations for improving lessons learned from dam failures.

During the year, the committee met and conducted conference calls to a) write a report to the Board of Directors making recommendations on best practices for dam failure investigations, and b) write an interim guide on how to investigate failures. Near the end of the fiscal year, the Board requested that the committee update its charter and strategic plan going into FY13. Goal 5: Provide Representation of Dam Safety Interests Before State Legislatures, Congress and Executive Branches



PROJECTS

Support full appropriations of the National Dam Safety Program.

Advocate for passage of the National Dam Rehabilitation and Repair Act.

Implement a stronger states legislative advocacy program.

Maintain the ASDSO On-Line Center for Advocacy and Outreach

Support other organizations with legislative/policy issues of interest to the dam safety community: FEMA's map modernization program; the coal ash waste issue, the USGS Streamgage Program; and the Small Watershed Dam Rehabilitation Program.

Federal Advocacy

ASCE's Policy Week

ASDSO continues to coordinate with the American Society of Civil Engineers (ASCE) Government Relations Office in Washington, DC on federal advocacy efforts. Several ASDSO members participated in the March 2012 Policy Week. ASCE and ASDSO members met with staffers, Representatives and Senators from nearly every state touting the need to reauthorize the National Dam Safety Act and for creation of a national dam rehabilitation program, as well as other issues.

Reauthorization of the National Dam Safety Program Act

The National Dam Safety Program Act of 2006 (NDSPA), was reauthorized on December 8, 2006 and signed into law by the President on December 22, 2006. It is Public Law 109-460. This modest yet vital program (app. \$11 million in FY11) enables the states to improve their dam

safety programs, which translates into reduced risks to life and property.

The NDSPA provides training; technical assistance; research funding; and support to states through incentive grant awards that encourage states Thanks go to the ASCE Government Relations Office in Washington, DC, directed by Brian Pallasch and assisted by Caroline Macheska, for their support and assistance with federal issues.

to improve their programs. No funds under this act may be used to repair dams. The funds are targeted to support states and to advance the national effort to improve dam safety.

The NDSPA expired during FY12, and it was a difficult, uphill struggle to get reauthorization language finalized and introduced. ASDSO staff and leaders spent considerable time with our ASCE partners walking the halls of Congress and discussing the need for the program. On March 8, Congressman Carnahan (D-MO) introduced the bill on the House side (HR 4090). And then very late in the fiscal year, Senators Akaka (D-HI) and Boozeman (R-AR) introduced a similar bill on the Senate side (S. 3362).

Thanks go to ASDSO's partner, the ASCE Government Relations Office in Washington, DC. Directed by Brian Pallasch, the DC team leads ASDSO's "on-the-ground" efforts to advocate for federal dam safety programs.

Concurrent with the expiration of the existing act, ASDSO leaders worked with FEMA and the Office of Management and Budget to encourage the administration to maintain the program and funding despite its expiration.

The ASDSO Online Advocacy Center

The ASDSO Legislative Advocacy Center at www.damsafety.org offers status of important bills and policies, both federal and state, and tools for those interested in helping ASDSO work toward stronger state and federal programs.

Creation of a Federal Dam Rehabilitation Grant Program

The climate in Washington, DC over the past two reporting years made it difficult to move a dam rehabilitation bill forward. At the end of the fiscal year, for the second year in a row, neither the House nor the Senate had introduced a bill, although much time was spent in DC crafting bill language and answering questions by staffers. It wasn't until after the end of FY12 that a bill was introduced on the House side. Sponsored by Congressmen Carnahan and LaTourette (R-OH), HR 6254 was introduced on August 1, 2012.

Other Federal Issues

Mine Safety and Health Administration (MSHA) Dam Safety Regulations

Early in the fiscal year MSHA announced that it would not change regulations to upgrade safety standards at 2,000 plus metal/non-metal dams regulated by the federal agency. In FY11, ASDSO submitted comment to MSHA encouraging stronger safety regulations.

Coal Combustion Residual Impoundments and the EPA

Considerable time was spent the past three years assisting the US Environmental Protection Agency (EPA) officials in identifying and communicating with dam safety officials in many states where EPA inspections of CCR (coal combustion residuals) impoundments were conducted. EPA became involved in inventorying and inspecting several hundred facilities after the catastrophic failure of an impoundment in Tennessee in 2009. ASDSO coordinated communications with state officials and educated EPA officials about dams and dam safety.

In mid-July 2011, the EPA asked for public comment on H.R. 2273—the Coal Residuals Reuse and Management Act—which would amend Part D of the Solid Waste Disposal Act and address all of the data and opinion gathering that EPA did over 2010-11 to consider changing its authority over CCRs disposal. An ASDSO opinion was submitted stating, in summary, that the language in the bill seemed acceptable from a state dam safety standpoint.

Later in the fiscal year, ASDSO leaders worked with Congressional committee staffers and the Environmental Council of the States (ECOS), which has been following the CCR issue, to

comment on S. 1751, a bill that updates Title D of the Solid Waste Disposal Act. The comments were focused on an amendment that addresses the impoundment safety issue.

Stream Gage Funding

Led by the Interstate Council on Water Policy (ICWP), many organizations are pushing to increase federal spending to restore the U.S. Geological Survey's Cooperative Water Program (CWP) and National Streamflow Information Program (NSIP) to at least FY-2003 levels in the FY11 and FY12 budget cycles. ASDSO signed onto an ICWP endorsement letter urging full funding of the programs next year. During the year, the ICWP has been keeping ASDSO and others who signed onto the letter informed of the status of this appropriation.

The Small Watershed Dam Rehabilitation Program

Part of the Natural Resources Conservation Service (NRCS) Watershed Programs, the Small Watershed Dam Rehabilitation Program provides funding to the NRCS to rehabilitate high priority dams that were built by the NRCS' predecessor, the Soil Conservation Service, in the early part of the 20th century. Now these dams belong to local sponsors across the country. ASDSO continued to push for full appropriations for this program in FY12. ASDSO partners with the National Watershed Coalition to coordinate communications and alerts to legislative advocates from both organizations.

For more information on the Watershed Rehabilitation Program go to: http://www.nrcs.usda.gov/programs/WSRehab/

State Programs Advocacy

ASDSO provided direct legislative advocacy for two states and restarted a long-term effort to establish a dam safety program in Alabama, the only state without a state dam safety program.

- ASDSO and ASCE began planning for a broader effort to educate Alabama stakeholders on the need for a state dam safety regulatory program and to initiate the process for dam safety legislation. In January, Tom Woosley, Georgia state dam safety representative and ASDSO Secretary, gave a presentation on dam safety regulation to a local Alabama chapter of the ASCE.
- In December 2011, ASDSO learned that a Governor's Task Force for Local Government Mandate Review in Virginia included the 2008 dam safety regulations among a list of mandates for potential repeal. The mission of the task force is to review state mandates imposed on localities and to recommend temporary suspension or permanent repeal of such mandates as appropriate. Based on input from local government officials, the task force recommended that dam safety regulations revert to pre-2008 standards. The 2008 regulations improved public safety by increasing

safety standards for dam design, operation and emergency response. ASDSO and our members and partners sent letters to the task force urging them to reject the proposed weakening of dam safety regulations. The task force tabled discussion of the dam safety regulations until a later time.

 In May, ASDSO and ASCE sent letters to state legislators and to the Governor's office in lowa asking them to support a fund for removal of hazardous low-head dams. The fund, which could potentially provide resources for the removal of hazardous jurisdictional dams, was restored in the state budget proposal. Goal 6: Provide Quality and Effective Outreach Programs



PROJECTS

Dam Owner Education Workshops

Website Tools for Owners and Operators

Student Outreach: Scholarships; Student employment opportunities; Speakers Bureau; Paper competition and student involvement in conferences; UK E-Day

Dam Owner Education Program



States in green held dam owner workshops in FY12

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 FY12, ASDSO continued to increase the number of dam owners trained throughout the U.S.

FEMA's National Dam Safety Program provided a portion of the support for workshops.

Workshops held in FY12:

Nebraska – September 14, 2011

Arkansas—September 15, 2011

North Dakota—March 1, 2012

Pennsylvania—May 2, 2012

Indiana—June 26, 2012

Over 150 owners were trained as part of ASDSO's Owner Outreach Program in FY12.

The ASDSO Owner Outreach Committee now has 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.

Thanks go to our trainers for teaching these courses in FY12:

- Paul Schweiger
- Phil Moreschi
- Eric Ditchey
- Dean Durkee
- Carl Montana

The Dam Owner Outreach Committee was busy this year, overseeing several new owner tools and awareness programs including:

- a new owner flyer on emergency action planning
- a new pocket inspection guide, a partner project with the US. Forest Service (funded by the National Dam Safety Program)
- a new interactive webpage

The committee also guided the two new computer animations project and the public awareness booklet called, *Living Near Dams*.

At the end of the fiscal year, the committee prepared a panel session for HydroVision '12 (held in July 2012) on dam owner tools & training.



The New Dam Owner page at the ASDSO website.





Promotion of Dam Engineering as a Profession

Undergraduate Scholarship



Alexander McCaskill was selected as the recipient of a \$10,000 ASDSO senior undergraduate scholarship for the 2011-2012 school year.

Alex is a senior at the University of Missouri-Kansas City, majoring in civil engineering with a geotechnical emphasis. Alex is Vice President for the UMKC student chapter of the Missouri Society of Professional Engineers. Honor Society memberships include: Chi Epsilon, Tau Beta Pi, and Phi Kappa

Phi. Student memberships include ASDSO, ASCE, the American Institute of Steel Construction, and the Association of Engineering Geologists.

For the past year and a half, Alex has been employed by The Judy Company, Inc., a geotechnical specialty contractor, where he has experienced the practical aspects of dam safety. After graduation, he intends to pursue a graduate degree in geotechnical engineering.

In addition to a \$10,000 scholarship award, Alex received a travel stipend to attend Dam Safety '11 in National Harbor, MD and recognition at the annual ASDSO awards ceremony.

As the fiscal year drew to a close, the Scholarship Committee and the Board of Directors awarded one winner for the 2012-13 ASDSO Senior Undergraduate scholarship: Tammy Jacobson , a senior civil engineering major at Utah State University. Tammy's application was chosen from 28 submittals received from students across the country. She will receive a \$10,000 scholarship for the 2012-2013 academic year, as well as a travel stipend to attend Dam Safety '12 in Denver.

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



The Committee on Educational Outreach

During the past year, the CEO, chaired by Peter Nicholson, University of Hawaii, worked on the following initiatives:

- Creation and distribution of a flyer outlining ASDSO's student outreach projects and ASDSO opportunities and resources for students and faculty
- Improved text and graphics for the Student/Faculty pages of ASDSO's website
- Continuous updating of ASDSO's Facebook page with news for students and faculty
- Hosting of the student lounge at Dam Safety '11 in National Harbor, Maryland
- Review of 15 submissions for the fourth annual student paper competition and selection of three finalists
- Distribution of email and print announcements about the ASDSO scholarship and the 2012 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 existing Speakers Bureau powerpoints and adaptation of a powerpoint from NJ DEP for general use with elementary students
- Continued recruitment of Speakers Bureau volunteers (now more than 35 volunteers in 23 states)
- Speakers Bureau volunteers spoke at the following venues: USACE Professional Development Day in St. Louis; ASCE chapters at Colorado State, the University of Kentucky, Ohio University, Colorado School of Mines
- Construction of a dam model for Engineering Day -Jacquez Leandre and Briana Smith, both students of University of Kentucky civil engineering professor Dr. Lindsey Sebastian Bryson (shown right), built a dam model for ASDSO's use at the University of Kentucky's Engineering Day, held Feb. 25. Sarah McCubbin-Cain and Brittany Lewis represented ASDSO at E-Day, which annually attracts roughly 1,000 participants. The model, based on plans from New Jersey's dam safety program, will be housed at UK and used for additional demonstrations. Plans for the dam and an accompanying presentation are posted on the Kids Pages of the ASDSO website.
- Student Job Opportunities The CEO continues to encourage members to post student job openings on ASDSO's website, free of charge, and offers a





June 30, 2012

resume posting service for students and recent graduates. Ten resumes were posted this year.

Students at Dam Safety 2011

Winners of ASDSO's third student paper competition:

 Study of Levee Seepage and Slope Stability in Relation to Roots, by Mishelle Shriro and Diego Cobos-Roa, University of California, Berkeley. Co-authors: CEE professors Dr. Jonathan Bray, PE, and Dr. Nicholas Sitar; John Lichter, Arborist; Richard Evans, UC-Davis, and Roy Kroll, CA DWR.

This study was performed collaboratively as part of the California Levee Vegetation



Mahdi Khalilzad, John Moyle (chair, ASDSO Scholarship Committee), Mishelle Shriro, and Alex McCaskill

Research Program and was sponsored by the local, state, and federal agencies of the California Levees Roundtable. The primary funding agencies were the Sacramento Area Flood Control Agency (SAFCA) and the California Department of Water Resources (CDWR).

• *Limit States Approach for Coupled Seepage Deformation Analysis of Earth Embankments*, by Mahdi Khalilzad, PhD candidate, Dept. of Civil, Construction, and Environmental Engineering, North Carolina State University. Co-author: Professor M.A. Gabr.

This paper, based on project work related to protective earth structures, introduces into literature a new approach for defining deformation-based performance levels of protective earth structures under severe storm loading. The project is sponsored by the Department of Homeland Security Center of Excellence on Natural Disasters, Coastal Infrastructure and Emergency Management, based at the University of North Carolina at Chapel Hill.

• Micro Hydropower in the North Carolina Piedmont: A Feasibility Study on Integrating Existing Low-Head Dams into the Regional Grid, by Christopher Sandt, P.E., Research Assistant, UNC Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill. Co-author: Dr. Martin Doyle, Assoc. Professor of Geography.

Mr. Sandt received a 2010 ASCE Dames and Moore Fellowship in support of his research. A licensed



Chris Sandt and Peter Nicholson (chair, ASDSO Committee on Education Outreach)

engineer in North Carolina, he received his Master's degree in Environmental Engineering in August 2011.

In 2012, ASDSO received 14 entries from 12 universities for its fourth annual student paper competition. Universities represented in 2012 student paper competition:

- California State University, Fullerton
- University of Colorado at Boulder
- University of Colorado Denver
- University of Delaware
- University of Missouri
- Appalachian State University, Boone, NC.
- Rensselaer Polytechnic Institute, NY
- University of Puerto Rico, Mayagüez Campus
- Virginia Polytechnic Institute & State University
- Seattle University
- University of Wisconsin-Madison
- The University of Western Ontario

The Committee on Education Outreach selected the following finalists, who will present their papers at Dam Safety 2012:

- Hydrologic Routing Model Simulating Removal of Glines Canyon and Elwha Dams Kevin Cook, Kristin Pesman, Katrina Schwab, James Shannon, Justin Milne, FT seniors, CE, Seattle University. Faculty Advisor : J Wesley Lauer, PE, Ph.D
- A Comparison of Deterministic and Probabilistic Approaches for Levee Underseepage Analysis

Sittinan Benjasupattananan, PhD candidate, University of Delaware, Co-Author: Christopher L. Meehan, Asst Professor, University of Delaware

• Deformation Measurements of Earth Dams Using a Ground Based Interferometric Radar (GBIR)

Wyatt Steven Jenkins, FT Masters, CE, University of Missouri, Co-author: Brent L. Rosenblad, PhD, Associate Professor, CE, University of Missouri

ASDSO and the University of Kentucky



ASDSO continues its partnering relationship with the University of Kentucky. In the past year:

- Several UK students used ASDSO resources, including the library, for research.
- ASDSO provided resources for a UK research project on dam security:
- University of Kentucky students built a dam model for ASDSO's use at UK's annual Engineering Day.
- ASDSO staff participated in Engineering Day (pictured below).
- ASDSO staff spoke to the ASCE student chapter at UK.



Goal 7: Create a Unified Community of Dam Safety Advocates Through Membership in ASDSO



PROJECTS:

Recruit members nationwide, focus on members from engineering firms, university professors and dam owners.

Recognize individuals and entities making a difference within the dam safety community.

Create new and better ways to welcome new members and increase volunteerism.

Develop public awareness initiatives to help identify ASDSO outside the membership community.

Survey the membership for input and suggestions on improvement.

ASDSO Membership

The 2011-12 membership campaign has concluded with the following results:

	FY11 (Final)	FY12 (Final)
Full Voting	51	48
State Associates		134
Government	1185	972
Affiliate		
Company	192	179
Company Employee	954	1023
Individual	582	551
Student	21	33
Honorary	17	19
Senior	99	99
Sustaining	<u>29**</u>	<u>28**</u>
Total	3130	3,086

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



Focus on New Members

The committee works on ways to make new and younger members feel welcome. The New Member Dine-Around was very successful at Dam Safety 2011. The committee is refocusing its efforts to recruiting and retaining members. To accomplish this goal, a member information

table will be featured at Dam Safety 2012. It is designed to answer any organization or membership questions our attendees may have.

The Advisory Committee (AdCom)

The AdCom (previously known as the AMAC) is a select group of non-state members who have had outstanding careers and experience in dam safety related fields. This 30-member group provides expert advice to the ASDSO Board and continues to lead through its work on many of ASDSO's most important projects and programs.

Bill Bingham (Gannett Fleming) is serving as chair of the AdCom through September 2012. Terry Arnold (MWH America) is vice-chair.

AdCom reps chair the following committees:

- Keith Ferguson, Journal Editorial Committee
- George Mills, Owner Education Committee
- Steve Verigin, Peer Review Committee (Mr. Verigin also serves as ASDSO liaison to the National Levee Safety Committee)
- Greg Paxson, Task Force to Develop Guidance for Dam Safety Review of Engineering Designs

Not only are AdCom members serving as chairs, they serve as members on several ASDSO committees and are called upon occasionally to answer media inquiries that come into ASDSO.

Volunteerism

Volunteers dedicate their time on all ASDSO committee and task groups and make this organization grow and operate. Without the support of our volunteer members, none of our programs would exist. Thank you.

2011 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 2011 Awards Luncheon, held September 28 at Dam Safety '11 in Washington, DC:

2011 National Rehabilitation Project of the Year

Big Tujunga Dam Seismic Rehabilitation and Spillway Modification - MWH Americas, Inc.

Big Tujunga Dam, owned and operated by the Los Angeles County Department of Public Works, is a 244' high, 830' long variable radius thin arch dam in the San Gabriel Mountains.

It was built over two years, from 1930 to 1932. The reservoir impounds up to 5,750 AF, with a maximum 83-acre surface area. Over the years, several improvements to the dam's abutment and foundation have taken place. The



Awards Committee Chair John Falk (left) with MWH representative Vik Iso-Ahola.

downstream abutments were stabilized with shotcrete soon after construction and eight grouting programs between 1931 to 1968 treated fractured zones and slow abutment leakage.



In early 2005, spillway discharge undercut the left canyon rock slope and initiated a localized rockfall just downstream of the left abutment thrust block. Additionally, past hydrologic and seismic studies had concluded that spillway capacity was inadequate to pass the PMF and that the dam was unable to adequately resist seismic loading with a full reservoir. Consequently, the reservoir was restricted to 75% storage.

MWH Americas re-analyzed seismic and hydraulic issues at the dam to confirm

these deficiencies, and considered a number of alternatives. The major components of the selected alternative included:

--adding concrete on the downstream face of the thin arch dam, effectively converting it into a thick-arch dam, and

--adding a unique radial overtopping ogee crest spillway with flip bucket.

LA County Public Works chose to incorporate a complete rehabilitation of the dam into the final design, including geotechnical, structural, hydraulic, mechanical and electrical rehabilitation.

The full rehabilitation design includes state-of-the-art upgrades to the dam instrumentation and controls, new control house, installation of new valves, a combined drainage and access gallery at the new-old dam interface, and a new valve house.

Construction began in early 2008 and the last mass concrete block was completed in January 2011.

National Award of Merit

Perry Hensley, U.S. Bureau of Reclamation

The ASDSO National Award of Merit honors an individual or entity contributing to dam safety on a national level. The ASDSO Board of Directors's selection for the 2011 National Award of Merit is Perry J. Hensley, U.S. Bureau of Reclamation Senior Advisor for Design, Estimating, and Construction Oversight and Dam Safety Officer.

In this dual position, he manages a program to conduct internal quality assurance reviews of USBR's proposed major design and construction projects, serves as Responsible Official for Value



SBR Deputy Commissioner for External and Intergovernmental Affairs Kira Finkler, Perry Hensley, ASDSO 2010-11 President John Moyle (NJ)

Engineering, and advises the Commissioner on the performance of Department of Interior dam safety programs.

Mr. Hensley began his career with Reclamation as a civil engineer in 1978 in Denver, where he was a design engineer responsible for developing designs and specifications for all aspects of new embankment dam construction and dam safety modifications to existing dams. He became a Principal Designer/Team Leader in the Geotechnical Engineering and Embankment Dams Branch where he led design teams for the construction of major embankment dams and modifications to major embankment dams and related structures.

He served as a Geotechnical Engineering Design Manager, Senior Technical Specialist, Group Manager and eventually became the Chief, Geotechnical Services Division of Reclamation's Technical Service Center where he oversaw an organization of 100 engineers, geologists, geophysicists, physical scientists, technicians, and supporting staff who performed engineering and scientific services to support Reclamation's mission. Mr. Hensley is a Professional Engineer in the State of Colorado and earned BS and MS degrees from the University of Utah in 1978 and 1981.

The Joe Ellam President's Award

Dan Mahoney, Federal Energy Regulatory Commission, Washington, DC

Director of the Federal Energy Regulatory Commission Division of Dam Safety and Inspections since 2007, Dan Mahoney retired effective Oct. 1, 2011. Under Mr. Mahoney's leadership, the FERC carried out a number of initiatives to improve dam safety nationwide, including supplementing ASDSO's training program by bringing technical courses to state dam safety offices. Through this arrangement, several states have held in-house training organized and conducted by FERC experts.

A December 2008 internal Dam Safety Conference organized by Mr. Mahoney gave ASDSO representatives an opportunity to communicate challenges faced by state dam safety personnel to FERC commissioners.



President's Award Winner Dan Mahoney (left) with President Moyle.

After obtaining his BS in Civil Engineering from Virginia Tech in 1974, Dan studied Hydraulics and Hydrology and Water Resources Planning and earned an MS in Environmental Engineering from Johns Hopkins in 1980. Right after graduation he started his engineering career with the US Army Corps of Engineers, Baltimore District. For a year, Dan participated in the Corps Rotational Training Program, serving in all of the different offices involved in water resources - design, construction, operations, and an assignment at the construction office of Tioga-Hammond Dam. He took a permanent assignment in Engineering Division as a project engineer and gained experience in the planning, design and construction of projects including dams, local flood protection, coastal protection, and harbor improvement.

Dan joined FERC on Jan. 7, 1981. His first two years with FERC were in the Licensing Division doing Safety and Assessment analyses for new projects. He quickly realized that the dam safety office was "where the action is" and transferred there in September 1983. He became director of the dam safety program in 2007.

Under Dan's leadership, the FERC dam safety team has demonstrated the highest level of excellence in carrying out this national regulatory program.

Mr. Mahoney previously received ASDSO's 2009 National Award of Merit along with FERC Senior Engineering Geologist Frank Calcagno.

2011 Regional Awards of Merit

Northeast Regional Award of Merit Winner : Carl Montana, Consultant

Carl Montana has been involved in planning, design, and construction of water resource projects in New Jersey since 1963.

He serves on the executive committee of ASDSO's NJ/PA Counsel for Safe Dams and on ASDSO's affiliate advisory, scholarship, and peer review committees.

He has participated in reviews of state dam safety programs in Pennsylvania,



Northeast Regional Reps with Mr. Montana (from L to R) Alon Dominitz (NY), Jim Gallagher (NH), Carl Montana, John Moyle (NJ)

Massachusetts, Kansas, Utah, Kentucky and Mississippi; and developed and taught several ASDSO dam owner workshops.

Mr. Montana retired from French and Parrello and Associates in 2010 as senior vice president responsible for dam engineering, after previously working with Schabel Engineers (1997 - 2004) as principal and senior vice president; with Ebasco Infrastructure Services (1984 - 1997) as vice president of engineering and operations, director of engineering, and manager of the water resources program and geotechnical engineering and earth sciences group; and with the USDA Soil Conservation Service (1965 – 1984) as state design engineer, state construction engineer and state conservation engineer working primarily in the Federal PL 566 Watershed Protection and Flood Control Program in New Jersey.

As state engineer Mr. Montana was responsible for managing the Watershed Protection and Engineering programs. In addition to administrative responsibilities, he provided technical assistance on contract modifications, acceptance and rejection of work and claims negotiation and settlements. As state design engineer and state construction engineer, he was responsible for design and construction of over 10 single and multiple flood control dams and numerous flood control channels and levees.

Mr. Montana has been project manager and lead engineer for major projects throughout the US and has taught numerous courses on dam inspection and design. He was part of a team that drafted New Jersey's "Best Practices Guidelines for Dam Security" and has conducted a number of Vulnerability Assessments on High Hazard Dams using both the RAM-D and DAMSVR methodologies. He was an instructor for the DHS National Dam Security Training Workshop on DAMSVR and State Dam Anti-Terrorism Security Guidelines. He also developed the DHS
National Dam Security Training Workshop on DAMSVR and State Dam Anti-Terrorism Security Guidelines for ASDSO.

Southeast Regional Award of Merit Winner: Brian Long, West Virginia DEP

The Southeast Region honored Brian Long of the West Virginia Dam Safety Program for his many years of devotion to dam safety. Brian Long has spent over 35 years working in dam safety on a state, regional and national level. A native of Buffalo, NY, Mr. Long received a BA in Geology from Alfred University in 1971.

A Vietnam veteran, he served active duty with the US Naval Reserve from 1972 until 1974. From 1974-1977, he was employed by WV Division of Natural Resources as an inspector of coal refuse dams.



Southeast Award Winner Brian Long (center) with Southeast Reps Tom Woosley (GA) (left) and Bo Bolourchi (LA)

He departed state employment to earn an MS in Geology from West Virginia University in 1979. In 1980, he returned to the WV Department of Environmental Protection as dam safety program manager.

Together with Richard Horn, Mr. Long wrote the West Virginia Dam Safety Rule and has been pivotal in every change since its inception. He continued his interest in rules by chairing the ASDSO Constitution and Bylaws committee. He has played a vital role in ASDSO development, having served on the ASDSO Board for 15 years, and as president in 1997-1998. He is also an ASDSO representative on the National Dam Safety Review Board.

Most recently Mr. Long was instrumental in developing a revolving loan program for dam owners in West Virginia. Mr. Long and the West Virginia Dam Safety Program also hosted the Southeast Region's successful 2010 conference, which featured sessions on the timely issue of coal ash impoundments.

Midwest Regional Award of Merit Winner: George E. Mills, P. E.

Having worked in the field for the Ohio Department of Natural Resources in the Dam Safety Section for more than 28 years and as a consultant for more than 13 years, George Mills has vast experience in the design, repair, operation, and maintenance of dams. He retired from ODNR as the head of the Dam Safety and Water Engineering Section, where he supervised the issuance of construction permits and subsequent construction inspections; inspected existing structures and designed needed repairs; and served as Ohio's state representative to ASDSO.

Mr. Mills served as ASDSO President in 1995-1996, and on ASDSO's executive committee and board of directors from 1993-1997 and 1991-1997, respectively.





Midwest Reps with Mr. Mills (from L to R) Jason Boyle (MN), Mr. Mills, Jason Campbell (IL)

committees, including the Model State Dam Safety Program, Annual Conference Committee (Chair), Affiliate Members Advisory Committee, Dam Financing Solutions, Legislative Activities Committee, Dam Owner Education Program (Chair), original Strategic Planning Committee (Chair), first update of Strategic Planning, Scholarship, Web Site Development, and Peer Review Committee.

Aside from his service to ASDSO, Mr. Mills served as a Trustee in Government for the Franklin County Chapter of the Ohio Society of Professional Engineers; as a Board Member and President of the Water Management Association of Ohio; and Advisory Committee of the National Performance of Dams Program at Stanford University. He has received several awards and honors, including the Water Management of Ohio Distinguished Service Award and President's Service Award; ASDSO Membership Recruiting Award; ASDSO National Award of Merit; ASDSO Honorary Membership; and National Performance of Dams Program Outstanding Service. He has authored or co-authored eight dam safety technical papers and publications.

Mr. Mills is a graduate of Ohio State University and a registered professional engineer in Ohio.

West Regional Award of Merit Winner: Patrick J. Regan, Federal Energy Regulatory Commission

Pat Regan was raised in Sacramento, CA and attended the University of California, Davis where he graduated in 1976 with a civil engineering degree.

In 1997 he accepted a position as Engineering Manager for Duke Engineering & Services' Sacramento, CA office. In this position he had the opportunity to work on hydro projects across the US and in Europe, Turkey and Indonesia. In 2000 he joined the Federal Energy Regulatory Commission in the Portland Regional Office as Deputy Regional Engineer before advancing to the position of Regional Engineer.

His new assignment with the FERC is to further the implementation of the Potential Failure Mode Analysis procedures for



West Award Winner Pat Regan (center) with West Reps (from L to R) Mark Haynes (CO), Pat Diederich (NE), John Falk (ID), and John Kelsch (ND)

all federal licensed power generating dams/reservoirs subject to Part 12D Periodic Inspections. In the Pacific-Northwest, this procedure soon will become the FERC's dam safety standard to not just classify dams based on perceived hazard to downstream life and property, but to rank each project's potential failure modes, determine their effects on operations, and subsequently institute actions to mitigate the most likely failure sequence in order of priority.

Mr. Regan has been instrumental in helping lead efforts to evaluate dams based on this systematic team-driven diagnosis versus the traditional three-tier Hazard Classification and its corresponding Factor of Safety assignment. The Bureau of Reclamation and the Corps of Engineers are in the process of reviewing their project dams in a similar fashion, thus it is likely that the entire dam safety industry will move in that direction for evaluating the risk(s) attributed to large, high hazard dams.

Student Awards

ASDSO Senior Undergraduate Memorial Scholarship Winner: Alexander McCaskill, University of Missouri – Kansas City

Alexander McCaskill was selected as the recipient of a \$10,000 ASDSO senior undergraduate scholarship for the 2011-2012 school year. He also received an all-expensespaid trip to Dam Safety '11, where he participated in daily technical sessions and contributed his ideas during a luncheon meeting of ASDSO's Committee on Educational Outreach.



2011 Scholarship Winner Alex McCaskill with ASDSO Incoming President Bo Bolourchi

2011 Student Paper Competition

Three winning papers were selected from 15 entries for this year's competition. A \$500 prize and \$250 travel stipend were given for each paper. (see pages 53-54)

Poster Competition

Winner: Hawi No. 3 Dam - Rehabilitation or Decommission - An Innovative and Cost Effective Operational Rehabilitation for Plantation Dams, by Nasir Raza, Dean Durkee, Andrew Lynch, & Stewart Vaghti (Gannett Fleming, Inc.)

Runner-up: Gypsum - Not Just for Drywall: You Can Build a Dam With It! Or Should You Hire a Drywaller to Build Your Next Dam?, by Scott Arends and Dan Whalen (Hanson Professional Services Inc., Springfield, IL)

Goal 8: Managing the Association Effectively Through Internal Policies and Procedures



ASDSO's Fundraising Campaign generated over \$20,000 in donations and \$76,000 through sustaining memberships.

ASDSO entered into grants and federal contracts totaling over \$800,000 in FY12.

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 2011-12 officers include the following:

- President: Zahir "Bo" Bolourchi, Louisiana
- President-Elect: Jason Campbell, Illinois
- Treasurer: Jim Gallagher, New Hampshire
- Secretary: Tom Woosley, Georgia

These officers, along with immediate past president John Moyle (New Jersey) and executive director Lori Spragens made up the Executive Committee in 2011-12.

Board members elected in 2011 include the following:

- Brian Long (West Virginia), elected to a second term representing the Southeast Region.
- Dusty Myers (Mississippi), elected to a first term representing the Southeast Region.
- Jim Pawloski (Michigan), elected to a first term representing the Midwest Region.
- Michael Johnson (Arizona), elected to a first term representing the West Region.
- David Marble (Utah), elected to a first term representing the West Region.
- Jon Kelsch (North Dakota), elected to a second term representing the West Region. Subsequently stepped off the Board at the end of the fiscal year.

These elected officials join the following members and the officers to complete the Board of Directors for 2011-12:

- John Moyle (New Jersey), representing the Northeast Region
- Alon Dominitz (New York), representing the Northeast Region
- John Falk (Idaho), representing the West Region
- Jason Boyle (Minnesota), representing the Midwest Region

AdCom Chair Bill Bingham (Gannett Fleming) sits on the Board representing the AdCom. AdCom Chair-Elect Terry Arnold (MWH) also attended meetings on behalf of the AdCom.

Leaving the Board after many years of service are the following:

- David Gutierrez (California), who served on the Executive Committee and as president (2010-11).
- Pat Diederich (Nebraska), who served as secretary (2010-11).
- Mark Haynes (Colorado).

Thanks go to all of those who served on the Board of Directors this past year.

State Representatives

- Jeremy Franz was named state representative for Colorado.
- Robert Fabian retired from the State of Oklahoma. The new Oklahoma state representative is Yohanes Sugeng.
- South Carolina officials named John Poole as new state representative to ASDSO.
- Lori McDaniel became the new state representative for Iowa.
- Bob Clay was named state representative for Missouri.
- Steve Bushman now represents Vermont.
- Michele Lemieux was named the new state representative for Montana succeeding longtime

rep Laurence Siroky, who served for many years as state rep, as well as serving on the ASDSO Board.

• Karen Goff was named state representative for North Dakota last in the fiscal year.



Outgoing Board member David Gutierrez (right) with incoming president Bo Bolourchi



Outgoing Board member Pat Diederich (right) with incoming president Bo Bolourchi.



Outgoing Board member Mark Haynes (right) with incoming president Bo Bolourchi

Financial Report

The Finance Committee continued to oversee ASDSO's investment program. Investments grew slowly this past year relative to the somewhat stagnant economy. At the end of FY12, ASDSO held approximately \$793,300 in various investment accounts.

The committee also oversees the annual Fundraising Program. FY12 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 3 for a list of 2011-12 Patron Donors and Sustaining Members.

FY2012 Action Plan

There were 91 projects in the FY2012 Action Plan. All but three were completed or underway at the end of the fiscal year.

Budgeting and Income

FY12 Revenues Summary	<u>Budget</u>	<u>Actual</u>
Dues	\$317,466	\$306,222
Patron Program	\$25,000	\$20,427
Annual Conference (National Harbor)	\$685,000	\$683,826
Seminar and Workshop Fees	\$302,000	\$278,054
All Other Income	\$138,434	\$169,085
Contracts (States, DHS, FEMA, NRCS, Recl.)	\$922,786	<u>\$835,506</u>
Totals	\$2,390,686	\$2,293,120
FY12 Expenditures Summary	<u>Budget</u>	<u>Actual</u>
Salaries, Fringes, Taxes	\$541,598	\$553,426
Meetings and Committee Expenses	\$184,565	\$136,803
Annual Conference	\$605,000	\$618,265
Training & Education Program	\$120,010	\$104,408
Journal and E-News	\$90,000	\$88,407
Direct Operating Costs and		
Contract Support	\$244,887	\$281,821
Contracts (DHS, FEMA, States, Recl.)	\$610,400	<u>\$518,019</u>
Totals	\$2,396,451	\$2,301,149
Final excess revenues over expenditures	(\$5,765)	(\$8 <i>,</i> 029)

Some funds were also taken from Reserves to pay for the strategic planning expenditures, remaining costs for the computer animations (started in FY11), new association management software and website upgrades = \$51,267

During FY12, ASDSO signed or carried out project contracts with the following:

- DHS, FEMA (National Dam Safety Program projects): Entered into a \$200,000 grant utilizing Federal FY11 funds. Projects included technical seminars, support for three oneday dam owner workshops and a survey of the states on their use of risk prioritization tools. ASDSO also closed out the Federal FY10 contract totaling \$450,000 to do similar projects.
- DHS, Office of Infrastructure Protection (Dams Sector). ASDSO signed a Federal FY11 contract to continue our cooperative agreement. FY11 total: \$421,500. The contract objectives included dam security workshops, support for ASDSO security committee, support for the Fourth Annual National Dam Security Forum, the collection of metrics to analyze state participation in dam security programs, updates to the classroom seminar on security, the creation of a new course on consequence estimation, and maintenance of the webpage on security at the ASDSO website. Closed out Federal FY10 contract totaling \$410,302 to do similar projects.
- USDA, Natural Resources Conservation Service. ASDSO signed a contract in Federal FY11 totaling \$92,667 to conduct seminars in three locations. Late in the fiscal year, the Federal FY12 contract was signed to continue seminars in 2012-13 totaling \$99,000 (to be summarized in the FY13 Annual Report).
- State of Florida: \$22,500 to hold a technical seminar for state dam safety officials.
- State-sponsored dam owners workshops:

North Dakota: \$14,000 Pennsylvania: \$12,000 Alabama: \$15,000 Arkansas: \$27,000

Appendices

Appendix 1: ASDSO Issue Brief on Dams and the National Flood Insurance Program Reform Program Appendix 2: ASDSO Committee Rosters and Advisors to Outside Organizational Task Groups Appendix 3: 2011-12 Fundraising Report Appendix 4: Founders' Circle Members Appendix 5: 2012-16 Strategic Plan

Appendix 1

DAM SAFETY AND THE NATIONAL FLOOD INSURANCE PROGRAM REFORM

The Association of State Dam Safety Officials (ASDSO) supports awareness for the public concerning all flooding hazards including floods resulting from a dam failure. ASDSO also supports publishing these hazards on flood-hazard maps and other awareness tools. The latest NFIP reform proposal from the Senate, The Flood Insurance Reform and Modernization Act, particularly Section 107, moves from just the identification of dam failure inundation zones on flood hazard maps to the mandatory purchase of flood insurance for properties in these zones. The House version, H.R. 1309, The Flood Insurance Reform Act, does not include this mandatory insurance language. Although ASDSO is not opposed to mandatory flood insurance, there are several issues and complications that need to be addressed in adopting a bill that requires flood insurance related to dams. The bill also requires the purchase of flood insurance for properties behind levees, but it must be noted that there are major differences between levees and dams that would affect mandatory flood insurance. Outlined below are points to consider as legislation requiring flood insurance is pursued.

- Because each dam is so unique, it will be very difficult for a committee to develop and understand a probability of failure for each of the 84,000 dams in the United States and the risks that they pose to individual downstream properties.
- In flooding situations, levees are generally designed to withstand significantly smaller flood events than dams. Levees are typically designed to withstand floods with probabilities of 1 in 50 years, 1 in 100 years, or 1 in 500 years before the levee is overtopped and the areas behind the levee are flooded. The flooding hazard from most dams occurs only if they fail, and they are designed to safely pass flood flows of much greater magnitude without failing. Although some small dams may be designed to safely pass floods with occurrence probabilities on the order of 1 in 100 years, it is typical for larger dams to be designed to safely pass floods with occurrence probabilities of 1 in 1000 years or 1 in 10,000 years and beyond. It is unclear if this legislation will require flood insurance for all property owners downstream of dams, but many dams are designed to safely pass flood flows that are orders of magnitude greater than the 500-year-flood design for levees discussed in the proposed legislation. There are other potential failure modes for both dams and levees beyond flooding; while in most cases they are extremely difficult to accurately define, the probability of failure is extremely small and much less than 1 in 500 years.
- Much of the wording concerning dams in this legislation references "dams and other flood control structures," as if all dams are constructed for flood control. In fact, the large majority of dams do not include a flood control component. Of the 84,000 dams in the 2010 National

Inventory of Dams, about 12% are listed solely as flood control and an additional 7% include flood control as one of multiple purposes. It is much easier to see how the "residual risk" and mandatory purchase concepts for levees apply when you have a flood control dam that is redefining the 100-year flood hazard area. As mentioned above, the probability of failure for a properly designed and well maintained flood control dam is difficult to quantify, but can be on the level of 1 in 10,000 years or greater; however there is a more significant hazard for property in the incremental area between the 100-year flood hazard area with the dam and the 100-year flood hazard area without the dam. As we saw with the Missouri River flooding of 2011, when the reservoir levels exceed a certain elevation, the operator of the dam must open up the gates and release water to prevent a dam failure. When this occurs, some property in the incremental area could be flooded even though the dam has not failed. The probability of this type of flooding could be closer to the order of 1 in 500 years. Most dams provide little or no flood protection to downstream property.

- Large dams are designed to extremely high standards due to their potential for loss of life if they fail. Although the potential for property loss is important, it is the potential for loss of life that drives extremely high standards for low probabilities of failure.
- The authors of the proposed legislation should understand the concept of incremental damage which is unique to dams. Almost all dams are designed to pass a certain level of storm through a spillway structure. In some cases, after the flood level of design is exceeded, the failure of the dam will have negligible effect on a resulting flood, because the volume of the reservoir may be insignificant compared to the volume of the flood.
- The committee would need to develop standards for inundation mapping associated with dam failure. States regulate 80% of the dams in the National Inventory of Dams and require differing failure scenarios for inundation mapping; some map for a sunny-day failure, some for a failure during the Probable Maximum Flood (PMF), some for failure during the 100-year flood, some for a combination of these or others. A further challenge will be that existing inundation maps that differ from the standard scenario will need to be remapped.
- Communities protected by levees are the direct beneficiary of that particular levee. For instance the property owners within the residual risk area established by the levee have also benefited by the construction of the levee. A dam may present a flooding hazard to a community if it fails, but in many cases that community receives no benefit from the dam. It is questionable whether a property owner should be required to purchase flood insurance for a hazard that was created beyond their control and without any benefits enjoyed by the property owner.

Appendix 2

ASDSO COMMITTEES, EXECUTIVE SPONSORS, NATIONAL DAM SAFETY PROGRAM WORK GROUPS

ASDSO STANDING COMMITTEES

Advisory Committee (AdCom)

Bill Bingham, Gannett Fleming, PA, Chair Terry Arnold, MWH America, CO, Vice-Chair Scott M. Arends, Hanson Professional Services, Inc., 11 Randy Bass, Schnabel Engineering, GA Bob Bowers, O'Brien & Gere, PA Bob Dalton, Vasconcelles, IL Eric Ditchey, McCormick Taylor, NJ Dave Eichelberger, Christopher R. Burke Engineers, IN Keith Ferguson, Kleinfelder, CO Craig Findlay, Findlay Engineering, ME John France, URS Corp. CO Steve Fry, Avista Corp., WA Joe Kula, URS Corp., Gaithersburg, MD B. Dan Marks, Marks Enterprises, Arden, NC Marty McCann, Jack R. Benjamin & Associates, NPDP, CA Art Miller, Penn State University, PA and AECOM George Mills, GEM Consulting, OH Carl Montana, CJM, NJ Karl Myers, Piedmont Geotechnical Consultants, GA Mishelle R. Noble-Blair, Fairfax Water - Griffith Water Treatment Plant, VA Anthony M. Nokovich, American Water Company, PA Greg Paxson, Schnabel Engineering, PA Jeff Powers, Florence & Hutcheson, Inc, GA John Rutledge, Freese & Nichols, TX Paul Schweiger, Gannett Fleming, PA Steve Snider, Independent Consultant, NY Ed Tomlinson, Applied Weather Associates, CO Steve Verigin, GEI Consultants, CO Jim Weldon, Jim Weldon and Associates, LLC, CO

Annual Conference Program Committee

John Ritchey, New Jersey, Chair John France, URS Corp. Eric Ditchey, McCormick Taylor Michele Lemieux, Montana Matt Lindon, Utah Greg Hanson, USDA NRCS ARS Doug Johnson, FERC Garrett Jackson, Colorado Jason Campbell, Illinois

Annual Awards Committee

John Falk, Idaho, Chair, West Region Bob Finucane, Vermont (Retired), Northeast Region Lyle Bentley, Tennessee, Southeast Region Bob Dalton, Illinois (Retired), Midwest Region Dennis Dickey, Pennsylvania, Northeast Region Jason Campbell, Illinois, Midwest REgion Jim Pawloski, Michigan, Midwest Region

Constitution & Bylaws Committee

Brian Long, Chair, West Virginia Bo Bolourchi, LA Charles Cobb, Alaska Elaine Pacheco, New Mexico Glenn Lloyd, Missouri Jim Gallagher, New Hampshire John Moyle, New Jersey Jon Phillippe, Virginia Ken Smith, Indiana Zhengang Wang, VA Tom Woosley, GA Jonathan Kelsch, ND

Dam Failure Investigations Committee

Mark Baker, National Park Service, Chair Alon Dominitz, NY Mark Ogden, ASDSO Jason Boyle, MN Robert Clay, MO Lori McDaniel, IA Warren Harris IV, CHA Inc. Wayne King, FERC Irfan Alvi, Alvi Associates Neil Schwanz, USACE Dusty Myers, MS Jim Pawloski, MI

> Technical Advisors Bill Allerton, FERC Frank Blackett, FERC Dan Mahoney, FERC (retired) Edwin Matsuda, HI Pat Regan, FERC Chris Karam, GEI Lee Wooten, GEI

Dam Owner Outreach Advisory Committee

George Mills, Chair, GEM Consulting Richard DeBold, New Hampshire (retired) Dennis Dickey, Pennsylvania (retired) John Moyle, New Jersey Raul Silva, Massachusetts Kenneth Smith, Indiana

Trainers

Phil Moreschi, Fuss & O'Neil Dan Marks, Marks Enterprises John France, URS Danny McCook Joe Kula, URS Dean Durkee, Gannett Fleming Greg Paxson, Schnabel John Harrison, Schnabel John Rutlledge, Freese & Nichols Eric Ditchey, McCormick Taylor Carl Montana, French & Parello Paul Schweiger, Gannett Fleming John France, URS

Finance

Jim Gallagher, Chair, New Hampshire Jason Campbell, Illinois Bo Bolourchi, Louisiana John Moyle, New Jersey Ken Smith Indiana John France, URS Corp., Colorado Matt Lindon, Utah Rob Martinez, Nevada (Include Board Secretary in correspondence as well.)

Legislative Activities

Dave Gutierrez, Chair, California Brad Iarossi, USFWS Jim Gallagher, New Hampshire John Moyle, New Jersey John Falk, Idaho Raul Silva, Massachusetts Meg Galloway, Wisconsin Eric Ditchey, McCormick Taylor, NJ Ken Smith, Indiana Joe Kula, URS Jack Byers, Bureau of Indian Affairs Frank Maitski, Santa Clara Valley Water District Brian Pallash, ASCE

Levee Safety Committee

Steve Verigin, GEI, Chair Dave Gutierrez, California Paul Perri, URS Bill Bingham, Gannett Fleming John Rutledge, Freese and Nichols Don Basham, Stantec Francisco Silva-Tulla Kim Hunninghake, KS

Membership Committee

Chrissy Ferrazanno (Chair), Schnabel Jason Boyle, MN Visty Dalal, Maryland Marie McKenzie , CA

Officers Nomination Committee

2012 John Moyle, NJ, Chair, Bo Bolourchi, LA Jason Campbell, IL David Gutierrez, CA

Outlet Works Committee

Joe Monroe (Chair), Schnabel, Georgia Erik Dove, Missouri Les Boyd, Texas Joe Stock, Ohio Ken Worster, Texas John Falk, Idaho Dennis Hogan, Pennsylvania Mark Haynes, Colorado (retired)

Peer Review Committee

Steve Verigin, Chair, GEI Consultants Bill Bingham, Gannett Fleming Engineers George Mills, Ohio (retired) Dan Mahoney, FERC John Cima, Dominion Resources David Gutierrez, California Ken Smith, Indiana

Peer Review Team Pool

Consultants Terry Arnold, MWH America Randall P. Bass, P.E., Schnabel Engineering William B. Bingham, Gannett Fleming Inc. Eric J. Ditchey, P.E., McCormick, Taylor & Associates, Ron M. Lemons, Freese & Nichols, Inc. Carl J. Montana, French & Parrello Associates Alton P. Davis, Jr., Alton P. Davis, Jr. Engineering Consulting

Dam Owners

Larry K. Lambert, Flood Control Dist. Of Maricopa County Richard M. Rudolph, P.E., Xcel Energy (retired) John Cima, Dominion Resources Services, Inc.

State Dam Safety Officials

David A. Gutierrez, CA Greg Hammer, Sr. CO Dan R. Lawrence, P.E., AZ (retired) George E. Mills, OH (retired) John Moyle, NJ John Ritchey, NJ Stephen W. Verigin, CA (retired)

Specialized Pool (US Federal & Canada)

Ms. Mona Bechai, MOBEC Engineering Barry Hurndall, BJH Engineering Ltd. Daniel J. Mahoney, Federal Energy Regulatory Commission Arthur H. Walz, Jr., P.E.

Scholarship Committee

John Moyle, Chair, New Jersey Elaine Pacheco, NM Carl Montana, French & Parello Raul Silva, Massachusetts Jeris Danielson, Danielson & Associates George Mills, GEM Consulting Don Martino, (PA, retired) 2012 Regional Reviewers NE: Alon Dominitz SE: Dusty Myers MW: Jim Palowski W: Dave Marble

Security and Risk Mitigation for Critical Infrastructure Dams

John Moyle, Chair Steve McEvoy (North Carolina)) Pat Diederich (Nebraska) Keith Banachowski (Ohio) David Gutierrez (California) Roger Adams (Pennsylvania) Jim Gallagher (New Hampshire) Rob Martinez (Nevada) Joe Kula, URS Corp. Carl Montana, retired Al Hancock, Xcel Energy Enrique Matheu, DHS

Student Education Outreach Committee

Peter Nicholson, Chair, University of Hawaii Bruce A. Tschantz, Prof. Emeritus, Knoxville, TN (Chair Emeritus) Nicholas Agnoli, FERC, NY Jeff Bertel, Reitz & Jens, Inc., St. Louis, MO Erin Gleason, AECOM, Denver, CO Marty McCann, Stanford University, Stanford, CA Art Miller, AECOM (ret., Penn State Univ., College Sta.), PA Debora Miller. Miller Geotechnical Consultants, CO John Moyle, New Jersey Vinoth Muthia, Gannett Fleming, PA Keith Thole, USACE - St. Louis Dist.

Student Outreach Cmte USSD LIAISON Dan Johnson, MWH, Denver, CO

Technical Journal Editorial Committee

Keith Ferguson, Chair, HDR Lyle Bentley, Tennessee Craig Findlay, Findlay Engineering John France, URS Corp. Jim Gallagher, New Hampshire Michele Lemieux, Montana Arthur Miller, AECOM Mark Schultz, California Bill Sturtevant, Wisconsin James Weldon, Denver Water Dept. Nathan Snorteland, USACE

Technical Training Program Committee

Tom Woosley, Georgia, Chair Randy Bass, Schnabel Engineering Paul Schweiger, Gannett Fleming Rodney Tornes, Ohio Art Miller, AECOM Brain DesFossess, New Hampshire Jack Byers, Bureau of Indian Affairs Dennis Dickey, Pennsylvania (retired) Dan Mahoney, FERC Dave Marble, Utah Jim Gallagher, New Hampshire (NDSRB rep) Traci Powell, Indiana Robert Bowers, O'Brien & Gere Carl Montana

USSD LIAISON to Training Walt Davis, Seattle City Light Doug Boyer, FERC Dan Mahoney, FERC (retired)

TASK FORCES/WORK GROUPS

Task Force to Develop Guidance for Dam Safety

Review of Engineering Designs Greg Paxson, Chair, Schnabel Jeff Powers, GA Dean Durkee, Gannett Fleming Bob Dalton, Vasconcelles, IL Doug Johnson, FERC Darin Schafer, NJ) Mat Lyons, NRCS Steve Doyon, NH) John Garton, IA Eric Malvic, CA

CHAPTERS

New Jersey/Pennsylvania Council for Safe Dams A chapter of ASDSO formed to increase involvement of the owners and consultants in Pennsylvania and New Jersey.

EXECUTIVE COMMITTEE

Eric Ditchey, P.E., Chair, McCormick, Taylor & Associates Thomas Fitzgerald, P.E., Schnabel Engineering Associates. Inc. David (Dave) K. Burd, Director, Merrill Creek Reservoir (retired) Leo J. Coakley, P.E., P.P., Vice President, Hatch, Mott MacDonald Keith A. Pytlik, P.E., Senior Engineer/Projects Manager, North Jersey District Water Supply Commission John H. Moyle, PE, Department of Environmental Protection, NJ John Ritchey, PE, Department of Environmental Protection, NJ Dennis Dickey, Department of Environmental Protection, PA (retired) Mike Conway, P.E., P.L.S., Department of Environmental Protection, PA Christopher M. Hager, PE, Langan Engineering Dick Horvath, Gannett Fleming Ken Fosnaught, Lake Meade Property Owners Association Christopher S. Adams, P.E., President, Civil Dynamics, Inc. Joseph R. Kula, P.E., Vice President, URS Corporation Anthony L. Fernandes, P.E., Manager, Engineering, Design & Construction, Aqua Pennsylvania, Inc. Rodney E. Holderbaum, P.E., Vice President, Gannett Flemina. Inc.

John Harrison, P.E., Schnabel Engineering

LIAISONS WITH OTHER ORGANIZATIONS AND OUTSIDE COMMITTEE REPRESENTATION

ASCE Environment and Water Resources Institute Liaison Meg Galloway, Wisconsin

National Dam Safety Review Board State Reps Michael Johnson, Arizona Byron Lane, Michigan Brian Long, West Virginia

Brian Long, West Virginia Jim Gallagher, New Hampshire David Gutierrez, California

National Hydropower Association Liaison Joe Kula, URS

National Watershed Coalition Liaison Tom Woosley (interim)

DHS Dams Sector Government Coordinating Council State Reps

John Moyle (New Jersey); John Kale (alternate) Steve McEvoy (North Carolina); Mel Nevils (alternate) Pat Diederich (Nebraska); Tim Gokie (alternate) Keith Banachowski (Ohio); Rodney Tornes (alternate) David Gutierrez (California); Randy Fessler (alternate) Roger Adams (Pennsylvania), Tom Bold (alternate) Jim Gallagher (New Hampshire) Rob Martinez (Nevada)

DHS Dam Sector Coordinating Council Private Sector ASDSO Reps

Lori Spragens and Mark Ogden, rep. ASDSO

NATIONAL DAM SAFETY REVIEW BOARD WORK GROUPS

FEBRUARY 2012

Work Group	Chair	Current Membership	Member Affiliation
Research Work Group	Brian Becker, BoR	Hal Van Aller, MD	4 Federal Reps.
		John Ritchey, NJ	4 State Reps.
		Jason Boyle, ND	1 Private Sector Rep.
		Mike Sharp, USACE	2 FEMA Reps.
		Vacant, FERC	
		Greg Hanson, USDA/ARS	
		Bob Dalton, Private Sector	
		Pat Diederich, NE	
		James Demby, FEMA HQ	
		Gene Zeizel, FEMA HQ	
Training Work Group	Jay Stateler, USACE	Jim Gallagher, NH	4 Federal Reps.
		Bill Bouley, BoR	1 State Rep.
		David Snyder, FERC	2 Private Sector Rep.
		Dan Rodriguez, USACE	2 FEMA Reps.
		Francisco Silva-Tulla, Private Sector	
		Chris Veeseart, Private Sector	
		Vacant, FEMA EMI	
		Gene Zeizel, FEMA HQ	
		Bud Plisich, FEMA Region IV	
National Inventory of Dams	Rebecca Ragon, USACE	Tom Woosley, GA	3 Federal Reps.
Work Group		Richard Reisinger, PA	3 State Reps.
		Jason Ward, CO	2 FEMA Reps.
		Natalie Leach, FERC	
		Mark Locke. USDA/NRCS	
		James Demby, FEMA HQ	
		Gene Zeizel, FEMA HQ	
EAP Work Group	Thomas E. Bold, Jr., PA	Michael Johnson, AZ	5 Federal Reps.
	Jason Sheeley, BoR	Byron Lane, MI	3 State Reps.
		Paul Simon, MO	3 FEMA Reps.
		Robert Mead, FEMA Region IX	
		Robert Pesapane, FEMA Region I	
		Kathy Norris, BoR	
		Paul Shannon, FERC	
		Vacant, USDA/NRCS	
		Victor Hom, NOAA	
		James Demby, FEMA HQ	

Appendix 3

2011-12 Patron Program

2011-2012 Sustaining Members

AECOM **AMEC Environment & Infrastructure** ASI Constructors, Inc. Barnard Construction Company, Inc. Buck, Seifert & Jost, Inc. CA Department of Water Resources **CARPI USA CDM Smith** CHA, Inc. Gannett Fleming, Inc. **GEI** Consultants, Inc. Golder Associates Inc. GZA GeoEnvironmental Inc. Hayward Baker Inc. HDR Engineering, Inc. Kleinfelder, Inc. Lawson-Fisher Associates, P.C. NH Department of Environmental Services NJ Department of Environmental Protection O'Brien & Gere **OH** Department of Natural Resources PA Department of Environmental Protection Schnabel Engineering Tetra Tech, Inc. **TREVIICOS** Corporation **URS** Corporation **US Army Corps of Engineers** Worthington Products Inc.

Friend Level \$1 - \$99

Bauer Foundation Corp., Odessa, FL Brayman Construction Corporation, Saxonburg, PA Marks Enterprises of NC, PLLC, Arden, NC Mead & Hunt, Madison, WI OH Department of Natural Resources, Columbus, OH Karl F. Acimovic, Coventry, CT Dr. Mustafa Altinakar, University of Mississippi, University, MS Mark E. Baker, National Park Service, Lakewood, CO John R. Barnes, WY State Engineer's Office, Chevenne, WY A.Peter Barranco Jr., Montpelier, VT David S. Benner, Cheyenne, WY Jonathan K. Bennett, Brayman Construction Corporation, Manassas, VA Donald A. Benvie, Tectonic Engineering & Surveying, Mountainville, NY Laila Berre, US Army Corps of Engineers, Omaha, NE Greg Boonstra, Hayward Baker Inc., Broomfield, CO Robert R. Bowers, O'Brien & Gere, East Norriton, PA David S. Brenner, Cheyenne, WY Brook Brosi, US Army Corps of Engineers, Russell Springs, KY Stephen Brown, GEI Consultants, Inc., Denver, CO H.Joseph Buhac, Columbus, OH Ronald A. Corso, Mead & Hunt, Vienna, VA Thomas Critelli, Tectonic Engineering & Surveying, Mountainville, NY Steven R. Day, Geo-Solutions, Littleton, CO Luis A. de Bejar, US Army Engineer Research & Development Center, Vicksburg, MS Tye R. DeMass, Rimkus Consulting Group, Inc., Houston, TX James Doane, Aloha, OR Richard L. Donovan, Omaha, NE Paul Dunlap, CA Department of Water Resources, Vallejo, CA Robert W. Fairbanks, Fairbanks Engineering Corporation, Exeter, RI

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Appendix 5

Association of State Dam Safety Officials

ASDSO



STRATEGIC PLAN

2012 - 2016

APPROVED BY THE BOARD OF DIRECTORS DECEMBER 6, 2011

ASDSO is a national non-profit organization serving state dam safety programs and the broader dam safety community, which includes federal dam safety professionals, dam owners and operators, engineering consultants, manufacturers, suppliers, academia, contractors, and others interested in improving dam safety.

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June 30, 2012

Message from the President

The Association as part of our operating plan reviews the strategic plan every 5 years. This past year we wanted to assemble a consolidated and succinct reference of our most important goals and activities. Our process was for our association staff to review ongoing efforts and challenges, our partner's agencies and stakeholders and identify opportunities to improve program effectiveness.

The resulting plan is the result of a collaborative dialog between the staff and Board of Directors, informed by our facilitator Council Oaks and insights from our program stakeholders. The plan is intended to effectively communicate the ASDSO goals and objectives, strategies and implementation activities to ensure our activities are directed by this complete program perspective.

The plan reflects a comprehensive review of our program, from the executive director goals to day to day activities to implement a comprehensive dam safety program for our association. It is intended to provide a framework for the next five years. The primary focus of this review was to examine the current program activities undertaken in recent years, identify missing strategies and take advantage of other stakeholder's projects.

The action plan is a commitment by the association to review the annual action plan performance measures and priority evaluations for the use of existing resources combined with an ongoing evaluation of program results from our action plan. The updated plan documents the basic program policies and strategies that have been pursued over the past five years as well several new goals. The plan has been developed to help ensure that the dam safety community decisions we make deploy our program resources and flow from a clear strategic framework.

The dedicated dam safety leaders within our association will work together to achieve our vision where all dams are safe which provides safe communities and preserves are natural resources. I look forward to working with our dam safety stakeholders in the years ahead.

ASDSO and Dam Safety in the U.S.

Dams are an essential component of our nation's infrastructure. Dams provide a number of benefits to society including flood protection, water supply, hydropower, irrigation, recreation, transportation, wildlife habitat and many other uses. Most of the 84,000 dams are well maintained and in good condition providing the service for which they were intended. However many dams are deteriorating and some are at risk of failure which could be catastrophic. The average age of dams in the U.S. is over 50 years old. Poorly maintained dams and older dams built to standards lower than required today create a serious concern. The number of high-hazard potential¹ dams is increasing at an alarming rate as communities grow downstream. There are now over 15,000 high hazard dams in the United States and the number of identified deficient dams has significantly increased in the past decade.

¹ The National Inventory of Dams (NID) classification of High Hazard Potential is not a measure of deficiency but rather of the potential level of consequences from a failure.

Dam failures can cause loss of life and considerable economic and environmental damages. At least 4,800 deaths in the U.S. have been directly attributed to dam failure and the economic toll is in the billions of dollars. In one case alone, the U.S. Army Corps of Engineers estimates that a catastrophic failure of the deficient Lake Isabella Dam in California would destroy the town of Lake Isabella and leave the City of Bakersfield under 30 feet of water, causing irreparable harm to the lives of 340,000 residents. In addition to direct flood damages, failures lead to significant indirect costs. The loss of the resources that dams provide following a dam failure can devastate communities.

The cumulative impacts of dozens of smaller failures are also of grave concern. During the period from 1960 to 1998 there were more than 300 fatalities from failures,

Estimated Damages for Selected Failures				
Location	Year	Cost		
Buffalo Creek	1972	\$400 Million		
Teton	1976	>\$1 Billion		
Toccoa Falls	1977	\$30 Million		
Lawn Lake	1982	\$25 Million		
Silver Lake	2003	\$102 Million		
Hope Mills	2003	\$8.1 Million		
Big Bay	2004	\$4.75 Million		
New Jersey	2004	\$30 Million		
Kingston	2008	>\$1 Billion		

most of which were caused by failures from dams less than 49-feet-high. From January 1, 2005 to January 1, 2009, state dam safety programs reported 132 dam failures and 434 "incidents" – episodes that, without intervention, would likely have resulted in dam failure.

Owners play a key role in dam safety and are ultimately liable for dam failures or mis-operation. While the federal government and state and local agencies own some dams, the vast majority are privately owned. Maintenance and rehabilitation of a dam can range in cost from thousands of dollars to hundreds of millions of dollars. As a result many small private owners and local agencies are having difficulties making much needed repairs There is currently no available federal funding sources and are only a few state funding sources to assist dam owners with dam repairs In 2009, ASDSO concluded that it would take approximately \$16 billion to rehabilitate the nation's most critical (high-hazard potential) dams



that are in need of rehabilitation. In 2009, the American Society of Civil Engineers released a report card giving dams a "D" partially due to the lack of funding available to support the repair and upgrade needs of the nation's dams.

State governments regulate approximately 80% of dams in the U.S., yet many state dam safety programs lack the necessary resources to adequately monitor and regulate their inventories. For

example, in three states, for each Full-Time Employee (FTE) in the regulatory program there are more than 1,000 dams. Lack of resources or legislative authority limits the States' capacity to conduct safety inspections, take appropriate enforcement actions, or ensure proper construction through plan review and construction inspections.

Although our society is highly dependent on dams, there is a severe lack of public awareness about dam safety issues. Dams are generally hidden from view, rendering the benefits they provide largely taken for granted. Developers and communities build downstream of dams sometimes completely unaware of the potential upstream hazards.

Preventing dam disasters and working toward a future where all dams are safe is the reason ASDSO exists. ASDSO has made significant achievements through pursuing a cohesive national approach to dam safety, raising awareness, providing technical training, establishing forums for information exchange, facilitating financing for dam safety activities, and supporting its members. ASDSO's role as the primary advocate for state dam safety programs continues to be of critical importance.

While ASDSO has made significant strides in improving the safety of dams in the U.S., the dynamics of the operating environment is continually evolving. External factors play a significant role in how ASDSO considers targeting its efforts. Important factors in today's environment include:

- Continuation of and changes in the National Dam Safety Program and its intersection with federal infrastructure security, flood risk and emergency management policies and programs.
- Support from federal and state policymakers and appropriators for dam safety programs
- The evolution of levee safety
- The evolution of infrastructure protection/security
- The ever-changing economic climate
- The perception and awareness of dams and dam safety by the general public, environmental activists and the media.
- Concerns about public safety around dams.
- Growing interest by the engineering community in setting national technical dam standards.
- Increased interest in dam safety and changes in strategic direction of other non-governmental organizations that have typically not been involved in dam safety issues.
- Increased interest in infrastructure within the U.S.

ASDSO is a national leader in dam safety and operates within the national framework of the National Dam Safety Program (NDSP). ASDSO supports the NDSP by advancing many of the objectives within the act such as providing dam safety training, coordinated research, developing a model state dam safety program, coordination between safety and security goals, promoting dam safety awareness and other important aspects. ASDSO is also the conduit to the states and works closely with National Dam Safety Review Board (NDSRB) members, including both state representatives and federal agencies to ensure the NDSP continues to be an effective program. ASDSO is now working to ensure the reauthorization and full appropriation of the National Dam Safety Program Act, including full appropriation at the authorized funding levels.

Levee safety has become an important issue to ASDSO since it will have a significant impact on its members. ASDSO continues to support the recommendations of the National Committee on Levee Safety for a National Levee Safety Program and will continue to monitor the developments of levee safety issues and, where appropriate, support and incorporate levee safety advancement.

The current economic and climatic uncertainties create a challenging operational environment for ASDSO, for the state programs and for dam owners. ASDSO will strategically target activities that best leverage financial resources. ASDSO will continue to address the potential impacts to dam safety from extreme weather events and newly emerging climate trends.

In order to effectively operate within this stark reality, ASDSO has developed this strategic plan to help guide its program of work to ensure current successes continue and are strengthened while identifying new areas of opportunity to improve the safety of dams throughout the United States.

Vision

A future where all dams are safe.

Mission

Improve the condition and safety of dams through education, support for state dam safety programs, and fostering a unified dam safety community.

ASDSO Strategic Planning Goals

ASDSO's 2011 strategic planning goals were developed by the Board and refined by the Strategic Planning team. The strategic goals for the next five years are:

- 1. Improve state dam safety programs;
- 2. Increase awareness of dam safety and its benefits to all stakeholders;
- 3. Increase the technical expertise of dam safety professionals and owners/operators;
- 4. Develop and implement financial instruments to improve dam safety programs;
- 5. Promote and facilitate a consistent approach to dam safety regulation and technical criteria in all states and federal agencies; and,
- 6. Support levee safety activities consistent with dam safety principles and interests.

Description of Strategic Planning Goals

Goal 1: Improve state dam safety programs.

Improving and supporting state dam safety programs is an essential function of ASDSO. In order to achieve this goal, ASDSO will increase the number of dam condition assessments by providing guidance, tools, and assistance to states to update the condition assessments data within the National Inventory of Dams and to promote the integration of the national condition assessment definition into state practice. ASDSO will assist states in improving compliance authorities. Given funding limitations, ASDSO will increase its efforts to find partner organizations (NGOs, local governments, etc.) with vested interests and available funding to support dam safety efforts, including rehabilitation and, where appropriate, removal of dams. ASDSO will expand and enhance data collection efforts and will make

data available in order to improve the common operational picture of dam safety challenges. ASDSO will also collect and distribute best practices from within the dam safety community. ASDSO will facilitate networking between state dam safety programs and offer support for state officials to assist their day-to-day program operations.

Goal 2: Increase awareness of dam safety and its benefits to all stakeholders.

This goal is essential to managing risks to public safety, property, and infrastructure and to securing broad support for measures that minimize these risks.

ASDSO supports a broad national flood risk management approach and will work with its partners to better ensure that dams and dam safety issues are well understood and incorporated into the flood risk management plan. Partners include but are not limited to the following: federal, state and local governments including elected officials, regulatory agencies, emergency management agencies, dam owners, the media and the public.

We are all stakeholders in the issue of dam safety. Everyone is impacted by dams in some way. Increasing awareness of the risks associated with dam failure is essential to motivating stakeholders to take action:

- State, federal, and local governments are more likely to allocate resources for oversight and upkeep of dams;
- Emergency and floodplain managers are more likely to be prepared in the event of a dam failure or incident;
- Dam owners are more likely to assume responsibility for safely maintaining and operating their dams;
- The media is more likely to report accurately and objectively on dam safety issues;
- The public is more likely to pressure elected officials, state and federal regulators, local planning officials, and dam owners to take appropriate measures to prevent catastrophic dam failures.

An important method for reaching more stakeholders is through increasing ASDSO membership. ASDSO members become informed advocates for dam safety and help to reach a wider audience. ASDSO seeks to broaden its scope of influence by implementing membership benefits and recruitment programs designed to increase both the size and commitment of its membership base.

Goal 3: Increase the technical expertise of dam safety professionals and owners/operators.

ASDSO is resolute in its belief that creating a community of qualified and effective dam safety practitioners will directly and positively impact the number of safe dams in our communities.

In order to support current practitioners and advance the development of the next generation of dam safety professionals, ASDSO will deliver high quality dam safety and security technical training and networking opportunities. Live events, such as conferences and seminars will serve both to educate and provide critical peer-to-peer interaction among the participants. Web-based and other distance learning events will allow a broad, even international audience to take advantage of technical training opportunities on an on-demand basis.

ASDSO will also serve as a critical resource by managing an information repository, encouraging and facilitating research efforts on behalf of the dam safety community.

ASDSO will further strive to ensure the professional development of new dam safety practitioners and students. Specifically, ASDSO will engage students of all ages with targeted programs and activities designed to spark an interest in dam safety as a professional career.

ASDSO will coordinate with federal and state programs to carry out national strategies dedicated to improving the knowledge and expertise on dam safety and security. Where security is a concern, this coordination will provide those State Dam Safety Programs a source for training and information to address security issues.

Goal 4: Develop and implement financial instruments to improve dam safety programs.

State dam safety regulatory programs are operating under increasingly challenging budget constraints, and therefore securing appropriate financing for dam safety is one of ASDSO's highest priorities. ASDSO will conduct and support lobbying and advocacy campaigns to secure funding necessary to maintain the effectiveness of existing state dam safety programs, and to improve the performance of those state programs that do not currently meet the guidelines established in FEMA's publication entitled "Model State Dam Safety Program."

The lack of financing to rehabilitate dams in the U.S. is a problem nationwide. To mitigate this problem, ASDSO will continue to advocate for the passage and implementation of legislation to fund repair of deficient dams , while simultaneously exploring and promoting alternative financing mechanisms such as Revolving Loan Funds, the development of a competitive grant program, and identifying partner organizations with interest and funding for dam rehabilitation or removal.

Goal 5: Promote and facilitate a consistent approach to standardization of dam safety regulation and technical criteria in all states and federal agencies.

One of ASDSO's emerging roles is to advocate for increased consistency in dam safety throughout the nation. ASDSO will promote and facilitate consistency within the dam safety community by providing peer review services, evaluating state programs, identifying threats/gaps to programs, providing opportunities for collaboration sharing best practices, education/training and promoting the adoption of risk-informed decision-making

Goal 6: Support levee safety activities consistent with dam safety principles and interests.

A foundation for a National Levee Safety Program has been developed and continues to evolve. ASDSO supports the recommendations from the National Committee on Levee Safety for the development of a National Levee Safety Program. ASDSO recognizes that there are many similarities between dam safety and levee safety. Some state dam safety programs already handle levee safety issues. With the implementation of the National Levee Safety Program it is anticipated that additional state dam safety programs will have a role in levee safety. ASDSO therefore believes it should actively participate in the development of a National Levee Safety Program. The technical and administrative knowledge within ASDSO will be beneficial to the National Levee Safety Program.

Strategic Plan Action Table

The following table outlines the Goals, Activities, and Measures for the 2011 ASDSO Strategic Plan:

Goal	Activities	Measures
1.	Condition Assessments:	Percent of high-hazard
Improve state dam safety programs.	1.1.1	dam condition assessments included in
	Provide guidance, tools, and assistance to states to update the National Inventory of Dams condition assessments.	the NID
		Trend data charted and reported
	1.1.2	Population at risk methodology developed and implemented
	Facilitate peer to peer exchanges.	
	1.1.3	
	Coordinate an NID condition assessment update action plan with NDSRB.	
	1.1.4	
	Use condition assessment data to help "tell the story" of the dam safety outlook.	
	1.1.5	
	Develop a standardized 'population at risk' methodology	
	Enforcement Capabilities:	Annual state performance measures data collected Develop grass roots organizations in target states and provide information
	1.2.1	
	Assist with authority improvements in states through grassroots state advocacy for tougher statutes and increased budgets.	
	1.2.2	
	Provide best practices from other states focusing on enforcement programs.	Best practices developed and distributed
	1.2.3	Enforcement funding
	Identify funding to increase enforcement resources.	methods identified and publicized to states
	State Performance Metrics:	Data collected and
	1.3.1	reported.
	Collect, analyze and distribute available data about the performance of state regulatory programs.	Increased survey responses from ASDSO members
	1.3.2	

Goal	Activities	Measures
	Develop scorecard. Communicate states scorecards to policymakers to educate them and improve policies and budgeting.	
	1.3.3	
	Increase member responses to ASDSO surveys.	
	1.3.4	
	Identify new data needs.	
	Identify Critical Gaps in State Programs:	Best practices compiled
	1.4.1	and distributed
	Develop best practices for states to follow (Model Program)	Annually identify states with performance gaps and solicit them for a
	1.4.2	peer review
	Provide a peer review program for states.	Provide networking
	1.4.3	program
	Utilize all resources available to develop state-specific projects to assist with implementation of state laws/regulations.	
	1.4.4	
	Manage networking program for state officials to maintain open lines for communication between states and between states and federal dam safety officials.	
Goal	Activities	Measures
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2.	Identify Stakeholders:	Percent increase in
Increase awareness of dam safety and its benefits to all stakeholders.	2.1.1	ASDSO membership (set
	Create a centralized list of various categories of stakeholders, including ASDSO members, media, dam owners, state agencies, federal agencies (including OMB), emergency managers, floodplain managers, elected state officials, elected federal officials, elected local officials, students, researchers, and others.	
	2.1.2	
	Create baseline lists for all categories and update them with each use. Utilize Web resources, internal membership/contacts database, and networking with members and partners in this ongoing task.	
	2.1.3	
	Increase ASDSO membership.	
	 Timely and Targeted Messaging: 2.2.1 Develop an ASDSO Communications Plan that describes: various types of messages that ASDSO should routinely issue, including press releases, workshop notices, legislative alerts, etc.; corresponding stakeholder audiences for each type of message; recommended communications methods for each audience, including the technical journal, the electronic newsletter, press releases, activity updates, videos, pamphlets, the ASDSO website and social media communications tools; clear policies on when to issue each type of message, including a list of specific events that trigger them; Responsibilities of staff, Board members, and volunteers. 	Communications plan developed and implemented

2.2.2	
Seek external professional expertise to help develop and deliver general "core" public awareness materials.	
2.2.3 Track relevant news and legislation and inform stakeholders of issues that may impact them.	
Madia Francesco	Nume have a firm a dia
Media Engagement: 2.3.1	Number of media requests
Maintain an up-to-date online "Press Kit"	
2.3.2	Number of articles about
Provide information to the media on request and alert impacted state programs and potential spokes persons of media interest	Number and frequency
2.3.3.	of press releases
Proactively issue information to the media in the event of specified "trigger events," such as the annual state program data collection, legislative activities, dam incidents, threats to state dam safety programs, ASDSO initiatives, anniversaries of dam failures, national awareness events, etc. as specified in an ASDSO Communications Plan	Number of online references to ASDSO Number of hits to ASDSO website
2.3.4	
Develop messages that communicate benefits of dam safety (services, economic value, etc.) and highlight dam safety successes.	
2.3.5	
Maintain a cadre of technical and policy experts willing to be interviewed by the media.	
2.3.6	
Track media interest in dam safety.	
2.3.7	
Promote and help coordinate national awareness event(s).	

2.3.8	
Supply corrections to inaccurate news articles and positive recognition for exemplary reporting through letters to editors and commentaries. Consider reporters and writers as potential recipients of ASDSO annual awards.	
Engage Policymakers:	Policy week participation
2.4.1 Encourage and facilitate ASDSO member participation in ASCE Policy Week in Washington, DC.	Prepare state reports and distribute to states including policy makers
2.4.2	issue articles and alerts
Following the annual state program data collection, develop individual state reports and distribute them to state and federal lawmakers.	Testimony submitted at the federal and state levels. Participation in IFRMC and related
2.4.3 Keep ASDSO members and partners informed of legislative issues through the website, monthly state newsletters, monthly eNews, and legislative alerts.	groups
2.4.4	
Facilitate communications from ASDSO members and partners by providing model letters, talking points, and legislative contact information.	
2.4.5 Partner with other organizations to craft letters and communications urging support for dam safety as needed.	
2.4.6 Provide information to policymakers and organizations that influence federal, state and local policies on request.	
2.4.7	
Explore communications opportunities potentially available through groups such as the National Governors Association and National Conference of State Legislators.	
2.4 8– Add flood risk management coordination here.	
Participate in groups such as the	

Intergovernmental Flood Risk Management	
Committee and others as a way to engage	
senior policy makers with the Corps and	
FEMA.	
External Coordination:	
2.5 – Coordinate with all partner	
organizations and government agencies.	
Promote Responsible Ownership:	Peer review service
2.6.1	marketed to dam owners
Provide peer review services to dam owners.	Amount of educational
262	materials and number of
2.0.2 Provide educational materials and workshops	workshops conducted for
for dam owners.	dam owners
2.6.3	
Develop and distribute materials targeted to	
dam owners that describe why it is important	
to maintain safe dams and how to manage	
the risks and responsibilities of dam	
ownership.	

Goal	Activities	Measures
3. Increase the technical	Technical Trainings & Information Exchange:	Number of workshops / conferences held
expertise of dam safety professionals and owners/operators.	3.1.1 Organize conferences and seminars for	Evaluations / feedback from workshops / conferences
	technical training and networking for dam safety and security practitioners.	Number of web-based or distance learning opportunities provided.
	Deliver electronic training and distance learning opportunities to a wide range of participants.	Achieve approved provider status in those states which require it.
	3.1.3	Assist with tracking and reporting of PD activity for engineers in those states which require it.
	Refine and promote ASDSO's Program of Study to organizations that provide training in order to create a national dam safety curriculum.	
	3.1.4	
	Keep abreast of the changing	

Goal	Activities	Measures
	professional development requirements for engineers and other dam safety professionals. Assist training participants in securing credits for participating in ASDSO's educational events.	
	3.1.5	
	Collaborate with other organizations (i.e., the National Dam Safety Review Board Training Workgroup and the DHS Dams Sector Education & Information Exchange Workgroup) to provide dam safety and security related educational opportunities and materials.	
	Serve as Primary Percurse for Dam	Amount of technical
	Safety Information:	training materials
	3.2.1	developed and offered
	Create guidelines and tools, develop proceedings and training materials from conferences, workshops and seminars.	Track usage of library, bibliography, and info services.
	3.2.2	Training opportunities
	Maintain and enhance a circulation library, on-line bibliography and other information services for use by the community.	publications and on website.
	3.2.3	
	Support and promote use of educational resources developed by agencies and related organizations (e.g., Training Aids for Dam Safety [TADS]; the NID, DHS Dams Sector, FEMA National Dam Safety Program, state and federal agency guidelines.)	
	3.2.4	
	Keep ASDSO members and the wider dam safety community informed about the available technical and dam safety and security program resources through a variety of channels, including the association website, electronic newsletter, and the Journal of Dam	

Goal	Activities	Measures
	Safety.	
	Technical Research:	Number of research
	3.3.1	projects added to the Bibliography and on-line
	Work with the National Dam Safety Review Board Research Workgroup to track and promote research projects of interest to state dam safety programs.	resource center. Use (hits) on
	3.3.2	Bibliography/Resource
	Circulate and promote dam safety research needs lists to research funding sources (e.g. National Science Foundation, National Research Institute).	Center website.
	3.3.3	
	Develop technical areas of significance to dam engineering by creating focus committees, creating a clearinghouse by topic and creating or promoting the creation of dam safety program guidelines on these technical topics.	
	Student Outreach:	Number of:
	3.4.1	Student/faculty members
	Continue scholarship program.	Student/faculty
	3.4.2	conference attendees
	Continue student paper competition.	Scholarship applicants
	3.4.3	Paper competition entries
	Develop educational materials for all	Speakers Bureau dates
	grade levels.	Participation in student
	3.4.4	Faculty use of ASDSO
	Facilitate interaction between academia and dam safety professionals to	resources (webinars, etc)
	encourage technology transfer, (e.g. participate in visiting lecture series).	Number of interns working in offices of ASDSO
	3.4.5	Mumbers
	Produce tools to promote dam safety engineering as a profession to be	listings on website
	distributed to existing programs at ASCE and others, and to school career centers.	Number of requests for help securing internships

Goal	Activities	Measures
	3.4.6	
	Encourage new funding sources or programs to place students as interns or co-op students in dam safety engineering programs.	
	3.4.7	
	Support speakers' bureau to speak about dam safety engineering as a profession at student meetings.	
	3.4.8	
	Encourage student participation at ASDSO conferences by conducting targeting advertising and waiving the registration fees.	

Goal	Activities	Measures
4. Develop and implement financial instruments to improve dam safety programs.	 State & Federal Program Funding: 4.1.1 Advocate for improvement of the National Dam Safety Act and its implementation, and advocate for full funding. 4.1.2 Create state advocacy programs to encourage state policy makers to focus resources on dam safety and security. 	Contract with ASCE/similar advocacy group for federal legislation Target states for advocacy programs, hold meetings with and provide information to local stakeholders
	 Repair / Rehabilitation Funding: 4.2.1 Advocate passage and implementation of the National Dam Rehabilitation and Repair Act. 4.2.2 Promote promulgation of State Revolving Loan and Grant Programs. 4.2.3 Identify existing non-traditional grant 	Number of new funding / loan / grant programs established Number of partner organizations. Number of signed agreements. Increase in number of dams rehabilitated or removed as a result of collaboration

Goal	Activities	Measures
	programs that could be used for dam rehabilitation or safety programs and disseminate information on these grants to stakeholders.	For states with revolving loan funds (RLFs) compare needs assessment with
	4.2.4	allocated funding.
	Explore alignment of federal programs for incentivizing good safety programs (include disincentives).	
	4.2.5	
	Promote NRCS Small Watershed Program Dam Rehabilitation Program (65/35) for dam repair as a model federal funding program. Advocate for increased federal share.	
	4.2.6	
	Explore use of other federal grant programs for dam rehabilitation or related risk reduction measures to improve dam safety (e.g., FEMA pre-disaster mitigation funds or hazard mitigation grant program [Stafford Act]).	
	4.2.7	
	Explore WRDA as a tool for fixing non- federal dams.	
	4.2.8	
	Develop case studies and best practices on financing dam rehab from the state and local levels. Develop case studies of innovative dam rehabilitation practices that are cost-effective.	
	4.2.9	
	Identify alternative avenues of funding projects (e.g. public-private partnerships).	
	4.2.10	
	Explore creation of an ASDSO foundation dedicated to providing funds for emergency measures to prevent dam failures.	
	4.2.11	
	Identify agencies or organizations (e.g. NGOs, local governments) with interest and	

Goal	Activities	Measures
	funding to assist with rehabilitation, removal, etc. Make contact with these other groups and facilitate communication and development of mechanisms to create funding. Facilitate communications between sources and dam owners. 4.2.12	
	Develop competitive grant programs.	

Goal	Activities	Measures
5. Promote and facilitate a consistent approach to dam safety regulation and technical criteria in all states and federal agencies.	Analysis:	Collect data and conduct annual analysis of data fields/collection process
	5.1.1 Maintain state data collection system in conjunction with the Corps of Engineers Topographic Engineering Center.	
	 Opdate data fields as necessary; Analyze data routinely, highlighting areas were agencies differ from a regulatory standpoint and with regard to technical criteria and communicate those back to agencies. 	
	Program Expertise:	Number of peer reviews
	5.2.1	of state and non-state programs
	Conduct peer reviews of State and non-state dam safety programs	
	Regulatory Expertise:	
	5.3.1	
	Establish "The State of Practice" to provide States a resource to improve laws and regulations and technical criteria.	
	Risk-informed Decision-making:	Identify stakeholders and
	5.4.1	organize a meeting
	Initiate discussion on the value of making risk-informed decision-making a part of the state of practice.	

6.

Goal	Activities	Measures
6.	Communication:	Levee communication and involvement plan developed
Support levee safety activities consistent with dam safety principles and interests	6.1.1	
	Develop a communication and membership involvement plan that describes intent and rationale for a progressive approach to addressing ASDSO role in levee issues to ASDSO membership. This will include:	
	 Key messages/talking points, tracking information about state levee safety programs, solicitation of opinions from membership on existing National Committee on Levee Safety recommendations, etc. 	
	Coordination:	Implementation of the
	6.2.1	program.
	Support the development of a national levee safety program and lead the coordination (ongoing) / development of a model levee safety program (if appropriate).	
	Training:	Number of training
	6.3.1	courses that include
	Identify logical points of inclusion of levee safety in existing & future training (ongoing).	levees
	Data Collection:	Participate on NLD
	6.4.1	Funding provided to ASDSO from USACE to assist with NLD data collection
	Partner with the USACE to serve as a conduit to the states to implement National Levee Database (NLD) for voluntary inclusion of information. This includes: existing information survey to states, etc. (ongoing)	
	Strategic Partnerships:	Number of partnerships
	6.5.1	
	Explore additional strategic partnerships to support development of national and state levee safety programs. Includes:	

Common messages, roles and • responsibilities, joint lobbying, combining resources, etc.

The Association of State Dam Safety Officials, Inc.

450 Old Vine St.

Lexington, KY 40507

859.257.5140

www.damsafety.org