



FMA News

The Newsletter of the Floodplain Management Association
www.floodplain.org

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Letter From the Chair



August 2008

Greetings!

Our annual conference will be held at the Paradise Point Resort in San Diego, September 2 – 5, 2008. I hope that many of you can attend. The theme of the conference is Floodplain Sustainability, Integrating Flood Risk, Land Use and Environmental Stewardship. Two programs of special interest this year are the U.S. Army Corps of Engineers **Arid Regions Workshop on Tools for Arid Regions Flood Damage Reduction and Restoration** and the **Climate Change and Floodplain Management Symposium**. The Symposium is scheduled to take place all day on Friday, so please schedule your return travel accordingly!

As I prepare this letter, we find ourselves in the midst of a drought following a winter with a less than adequate snow pack. The drought – fire – flood cycle is of grave concern, especially in the West. As floodplain managers, we must continue to emphasize to our constituents the importance of taking a conservative approach to development in known hazard areas, especially riverine floodplains and alluvial fan areas. The **Alluvial Fan Task Force in California** is identifying flood risks in these areas and developing local planning tools, such as a Model Ordinance that can help reduce risk in these areas.

FloodSAFE California is another stakeholder driven program with a goal of improving public safety through integrated flood management. This program acknowledges the interconnection of land use planning, coordination between neighboring jurisdictions, and the importance of environmental stewardship and sustainability. These two initiatives support the sometimes difficult work of the floodplain managers and are very worthy endeavors.

I am looking forward to seeing everyone during the first week in September at the conference!

Jeanne Ruefer



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FMA Annual Conference! September 2-5, 2008 Paradise Point Resort, San Diego



Join us for a spectacular conference filled with workshops, entertainment and networking! **A program overview is included in this newsletter—see Page 11.**



Don't miss the USS Midway Welcome Reception! Sponsored by HDR, Inc., RBF and FMA

As one of San Diego's newest event venues, the Midway offers a magical experience, capturing the beauty of the San Diego Bay and paying tribute to the city's rich naval heritage. Climb inside aircraft, ride flight simulators for free, explore the ship and see the nighttime dazzling lights of downtown San Diego – an unforgettable experience for families, friends and business associates. Enjoy a special reception on the bay under the stars! Transportation provided and individual parking is available.



FMA Conference Sponsors and Exhibitors

The Floodplain Management Association would like to thank all of the following sponsors and exhibitors for making this event possible.

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FAMILY EVENTS AT THE FMA CONFERENCE!

SeaWorld San Diego

SeaWorld San Diego is one of the world's premier marine adventure parks with 200 acres of world-class shows, thrilling rides and unforgettable animal encounters. More than 80 million visitors have explored the mysteries of the sea here,



with up-close animal interactions and exhilarating thrills. Located within walking distance from the Paradise Point Resort, the park offers a variety of visitor packages, dinner events, children's fun and educational tours and evening celebrations. For more information, please visit www.seaworld.com.

The U.S.S. Midway Museum

Live the adventure, honor the legend aboard the longest-serving aircraft carrier in U.S. Navy history--a 47 year odyssey that spanned the end of WWII and the liberation of Kuwait in 1991! Located downtown in San Diego at Navy Pier, the U.S.S. Midway provides a dynamic and enriching experience "from boiler to bridge." A visit to Midway instills a greater appreciation for courage, freedom, and service to country. Bring your family and colleagues to this unforgettable experience within minutes of the Paradise Point Resort in San Diego. Photos below courtesy of the San Diego Aircraft Carrier Museum.



San Diego Zoo

The world-renowned 100-acre (40-hectare) San Diego Zoo is home to over 4,000 rare and endangered animals representing more than 800 species and subspecies, and a prominent botanical collection with more than 700,000 exotic plants. It is located just north of downtown San Diego in Balboa Park, and minutes from the Paradise Point Resort.



Wild Animal Park

The Wild Animal Park is an expansive wildlife sanctuary that is home to more than 3,500 animals representing more than 400 species. Its renowned botanical collection represents 3,500 species and 1.5 million specimens. Over half of the Park's 1,800 acres (730 hectares) have been set aside as protected native species habitat. It is located 35 miles (56 kilometers) north of downtown San Diego in the San Pasqual Valley near Escondido, California.

Conservation and Research for Endangered Species (CRES) is one of the largest zoo-based research centers in the world. Founded in 1975, CRES is dedicated to preserving and protecting rare and endangered wildlife and habitats. CRES researchers develop, gather, and increase knowledge vital for the establishment of self-sustaining populations of wildlife.

Balboa Park

Balboa Park is the nation's largest urban cultural park. Home to 15 major museums, renowned performing arts venues, beautiful gardens and the San Diego Zoo, the Park has an ever-changing calendar of museum exhibitions, plays, musicals, concerts, and classes—all in the beautiful and timeless setting of this must-see San Diego attraction.



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FEMA Releases MHIP Version 3.0


FEMA has released the latest version of the Multi-Year Flood Hazard Identification Plan (MHIP), Version 3.0, which details FEMA's plan for prioritizing and delivering modernized flood maps for areas of the United States with the greatest flood risk.

MHIP Version 3.0 amends Version 2.0 dated September 2006 and Version 2.5 dated April 2007.

MHIP Version 3.0 provides:

- ◆ Detailed tables of flood map production targets;
- ◆ Stakeholder input information;
- ◆ A summary of FEMA's progress in meeting Key Performance Indicators for the Flood Map Modernization program; and
- ◆ Appendices that provide a detailed listing by State and county for all map production activities, both scheduled and completed.

MHIP Version 3.0, as well as previous versions, is available on FEMA's Flood Hazard Mapping Web site at www.fema.gov/plan/prevent/fhm/mh_main.shtm. Interested parties with questions pertaining to the updated flood map production sequencing in MHIP Version 3.0 are encouraged to contact their appropriate local and State officials, who are working with one of FEMA's 10 Regional Offices.

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National Flood Hazard Layer Update

By David Taft, Michael Baker Jr., Inc.

On July 14, 2008, the Federal Emergency Management Agency (FEMA) started updating the National Flood Hazard Layer daily. New Digital Flood Insurance Rate Map (DFIRM) data now is reflected on the NFHL as of their effective dates, providing users with access to the most current flood hazard information. Online NFHL services, including MapViewer - Web, NFHL Web Map Service (WMS), and Google Earth™ utilities, provide access to these data immediately. The updates also are included in the monthly releases of NFHL Geographic Information System (GIS) data, which is packaged by individual state. For more information, visit the FEMA Map Service Center website at <http://msc.fema.gov> or call toll-free at 1-800-358-9616.

Can New Surface Water Storage Alone Solve the State's Flood Control Woes?

By Robert Shibatani, M.Sc., The SHIBATANI GROUP, INC., and Pal Hegedus, P.E., D.WRE, RBF Consulting

Revisiting the State's typical annual water balance, it is clear that California, despite what many believe, really represents a water rich State. However, as water managers know all too well, the challenge is in both the temporal and spatial variability with which our annual precipitation inputs are distributed. Temporally, while approximately two-thirds of the annual precipitation occurs during the November through March period (the "rainy season"), two-thirds of the State's water demands occur outside this period. Spatially, while approximately two-thirds of the precipitation occurs in northern California and within the Sierra Nevada, two-thirds of the demands exist in southern California, far removed from these source areas. Consequently, California possesses one of the most elaborate allocation and conveyance systems anywhere in the nation; a critical necessity to account for this imbalance in water



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availability. This infrastructure of massive proportion is complicated operationally by many factors; the ever increasing pressures imposed on it by urban growth, the need to maintain agricultural productivity, diminishing water quality, migratory sensitive species (e.g., anadromous fish), and the overall fragility of the Sacramento-San Joaquin River Delta ecosystem, the essential switchyard of the State's water delivery system.

Much of this so-called imbalance in hydrology is largely responsible for the flood control challenges we face, and no where more so than in the Central Valley. Undersized reservoirs such as Folsom Reservoir, relative to its watershed size, cannot fully capture or store average annual unimpaired runoff. From a flood control perspective, maintaining deep flood reservation space within the reservoir, therefore becomes critical during the rainy season. This often drives mandated spills to maintain active storage within the flood encroachment curve. Interestingly, without the benefit of what would otherwise result from utopian forecasting, in many years, the reservoir cannot fill even after a period of extensive flood releases during the outset of an above average water year.

Potential future scenarios do not suggest any relaxation of this quandary. In fact, contemporary climate change studies have indicated the very real possibility of climate-forced changes in precipitation type and temporal shifts that would affect many of the source area watersheds in California. Generally, most regionally downscaled GCMs predict future annual precipitation to exist more as rain and less as snow. Since snow acts as an inherent water storage reservoir in itself, reducing the percentage of snow would only exacerbate the flood response hydrograph. The slow release baseflow contributions from daily snowmelt are expected to be significantly reduced under altered future hydrometeorologic conditions. Furthermore, predicted changing climatic conditions also point to an earlier peak in the seasonal watershed hydrograph, with the ratio of quickflow to baseflow becoming significantly larger given the reduction in expected snow accumulation. Operationally then, a further separation or discontinuity between required flood control prescriptions and water supply management objectives appears to be unfolding, given our existing reservoir infrastructure.

Faced with these challenges, greater interest is being focused on whether new storage reservoirs can provide the necessary storage or buffering capacity to

offset the anticipated changes in future runoff hydrology. To be sure, pursuit of such ideas will encounter many of the same long-standing issues associated with new reservoir development. However, confronted now with a changing hydrometeorologic regime and the added pressures for new water supply development (a potential cumulative impact associated with future climate change), water managers are increasingly turning their attention to revisiting the benefits of new storage options. Focusing on the source areas as a means of directly attenuating flood release, as opposed to the more reactive and single-benefit approach of levee management in downstream areas, new storage options can provide a diminution of seasonal inflow to existing reservoirs, thus attenuating encroachment and reducing the frequency of spills from our existing reservoirs. Moreover, they can also provide other benefits: increase in overall source area carryover volume, enhanced hydropower generation potential, improved flexibility for later season pulse flow releases including improved reservoir coldwater pool management flexibility, and increased water-related recreational opportunities.

(continued)



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The ultimate test will come down to how much new flood storage buffering capacity are we willing to implement? A massive new system, if implemented, could significantly reduce the need for spills and accomplish many of the benefits identified above, but at what cost and over what time period? A more modest effort, perhaps integrating a series of natural upstream storage concepts (e.g., upland/meadow storage) along with a fewer array of expanded/modified existing facilities or new on-stream dams may be more amenable from a cost and timing perspective. Regardless of how this debate eventually unfolds, it must be recognized that our existing State-wide source area infrastructure for flood control purposes is no longer ideal. It has taxed our downstream levees and placed an enormous obligation and focus on downstream flood management control.

As is, our current upstream reservoir systems have become increasingly burdened by existing and anticipated future population growth, fall short in adequately serving increasing consumptive uses (e.g., increased water supply need) based on the State's water balance, cannot meet many critical environmental requirements (e.g., coldwater habitat for the State's increasingly at-

risk aquatic species), or realistically ever hope to account for the largely uncertain magnitudes associated with future hydrology brought about by climate-forced changes in hydrometeorology. It is vital that, at least with respect to climate change, source areas receive direct attention since this is where any such affect will be felt first. If many of the hydrologic stressors have indeed changed over the past few decades and, can be expected to continue to change, so too must our thinking about infrastructure. We can no longer expect to manage and adapt to 21st century uncertainties using 20th century static infrastructure.

In increasing numbers, hydrologists, water engineers, water supply/flood control managers and indeed legislators are becoming astutely aware of these issues and are asking if and/or how new storage reservoirs could play a fresh new and expanded role in the State's overall flood control management planning efforts in this new millennium.

Editor's Note: A full discussion of these issues will take place in a panel session on Thursday, September 4, at 2:00 p.m., at the FMA Annual Conference in San Diego. Visit www.floodplain.org for details.



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- Levee Breach Modeling
- Floodplain Mapping
- Emergency Preparedness Mapping
- Flood Hazard Mitigation Planning
- Residual Risk Management
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Seven Principles for Effectively Communicating Flood Risk

By Dr. Timothy Tinker, DrPH, Booz Allen Hamilton and Dr. Gerald E. Galloway, Jr., PE, PhD, University of Maryland


The role of flood management professionals has intensified since Hurricane Katrina, and the importance of communicating flood hazard information to officials and the public is more important than ever. As we move ahead to develop an effective national flood risk communication strategy, we can learn from other risk communication experiences. The following seven principles offer some first steps in ensuring our communication strategies are proven, evidence-based, and can motivate policy action and change on a public and private level.

First, we must communicate in multiple ways. Some people need only a few well-chosen words and statistics to convince them of a flood hazard. Most need to hear the message repeatedly and from multiple directions. To ban smoking in public places, print, broadcast, and electronic media were used to communicate the anti-smoking message to smokers. Next the dangers of second-hand smoke were communicated to the general public.



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The combination put pressure on smokers to quit and gave the public the will to implement the ban. Flood risk communication could adapt a similar strategy aimed at influencing individuals and policy.

We can also distribute our message to the public by using high-quality maps and eventually geospatial messaging. FEMA's Map Modernization program is making better and more accurate information available to communities. FEMA, USACE, USGS, and NOAA are working on inundation and risk maps. USACE represents flood risk in terms of loss—total dollars, percentage of property value, and lives—associated with a 1 percent flood across various New Orleans neighborhoods. In the European Community, Italians use maps that combine inundation with land use and urban planning and also take into account future urban development to communicate risk for multiple probabilities of flooding. Each type of map reaches a different target group.

Second, we must understand how high stress changes the rules. When stressed, most people have difficulty processing information, think negatively, are less trusting, and have altered perceptions of reality. They make decisions based on emotions, not facts. In such circumstances, the usual communication strategies are ineffective, but other techniques can be applied to help people hear, understand, remember, and act on our messages: 27/9/3 (27 words, 9 seconds, 3 key messages); AGL-4; 1N=3P; Primacy/Recency, and more.

Third, the typical definition of risk (probability of an event x consequence) emphasizes the factual and informational dimension. Although useful, it does not account for the influence of perceptions and values. Thus we need to expand our understanding of risk as a threat to something we value, or put simply: probability + values = real risk. The U.S. Fire Administration's "Tribute to Heroes" campaign was successful because it made clear the facts about fire risk and prevention and also appealed to what people value: protecting themselves, their families, and the firefighters.

Fourth, we must recognize and address fear, anger, and hostility. These are common reactions when facing potential risk from hazards—especially if family, friends, and neighbors are involved rather than strangers far away. By addressing and acknowledging these concerns, we can help mitigate them. Providing information about the actions we are taking, as well

as those that people can take themselves (flood-proofing, insurance) also help to reduce risk and allay fears.

Fifth, admitting that information about a risk is not known or available gains credibility with your audience even while evoking feelings of vulnerability; therefore, it is important to acknowledge uncertainty. Listen for the real concerns behind the demand for certainty and address those. Make it known that uncertainty is part of the process and that current answers may not be the final ones.

Sixth, we have to provide information the audience can understand and use. To do so, avoid using industry jargon and acronyms; instead, simplify the information. Use clear, nontechnical language to indicate the nature, form, severity, or magnitude of the risk. Use simple language to create a mental picture of a specific flood risk (4 hours after the levee breaks, you may have 8 feet of water in your home). Maps are most useful when they explain the provided information, and supplemental visuals can clarify and support key points.

Seventh, in the midst of a flood is not the time to think about media relations. We must anticipate, prepare, and practice for media interaction before a crisis occurs. Effective risk communication is predicated on the amount of work devoted to planning and preparation. Anticipate questions that might be asked—especially the difficult ones from audiences you interact with regularly (policymakers, media) and formulate the answers. Consider what information to convey pre-flood, flood, and post-flood; the potential obstacles to and opportunities for risk communication; and how to help the media meet their information needs as a risk evolves to a crisis and then a disaster.

Communicating flood risk is a complex endeavor with multiple perspectives, approaches, and components, because each flood risk communication situation is unique and has numerous variables: the geographic proximity of involved parties, the type and extent of exposure, potential risks, possible actions, and others. The seven principles presented here offer a flexible and multi-component approach for addressing the public's concerns and establishing trust. Their application will result in an informed, involved, interested, solution-oriented, and collaborative public.

Editor's Note: A flood risk communication workshop covering these important issues in greater detail will take place on **Friday, Sept. 5, 8:00 a.m.–10:00 a.m.**, at the **FMA Annual Conference in San Diego**. Visit www.floodplain.org for details.

FMA 2008 ANNUAL CONFERENCE!
Floodplain Sustainability:
Integrating Flood Risk, Land Use and Environmental Stewardship

September 2-5, 2008
 Paradise Point Resort, San Diego
 Program Overview

Visit www.floodplain.org for the [Full Conference Program!](#)

TUESDAY, SEPTEMBER 2, 2008

All Day Workshops (Advance Sign-up Required)

Review for the CFM Exam. *To register for the exam, visit www.floods.org. The exam is optional and scheduled for Sept. 7.*

Special Session: Tribal Collaboration in Floodplain Management

Morning Workshops, Meetings & Field Trip

FEMA Elevation Certificate

Public Workshop: FloodSAFE (*free – no conference registration required*)

Riparian Habitat Restoration

Hydrology and Hydraulics for the Non-Engineer

Field Trip: Chollas Creek and Forester Creek Multi-Objective Restoration Projects

Afternoon Workshops

Public Workshop: Integrated Flood Management in Water Plan Update 2009 (*free – no conference registration required*)

Tools for Arid Regions Flood Damage Reduction and Restoration

How to Design A River and Floodplain Project to Get Your Permits. The Do's and Don'ts From A Regulator's Perspective

Rapid Assessment: Write Better Permits Faster

NOAA Coastal Inundation Mapping

5:30 – 9:30 **Welcome dinner celebration on the U.S.S. Midway!** – Transportation provided.

WEDNESDAY, SEPTEMBER 3, 2008

8:00 – 9:45 Keynote and Plenary Session

10:15 – 12:00 **Concurrent Sessions:**

Perspectives on Recent Flood Management Legislation

U.S. Army Corps of Engineers R&D Opportunities in Floodplain Management (TBD)

Technical Session: Environmental Restoration and Flood Damage Reduction

Technical Session: Levees – Inventory Development and Applications

Technical Session: Wetlands and Flood Management

Workshop: HEC Update: HEC-HMS, HEC-RAS and GeoHMS and GeoRAS

12:00 – 2:00 **Keynote Luncheon**

(continued)

2:00 - 3:45 Concurrent Sessions:

Integrated Flood Management: A Vision for California
 Hazard Mapping and Modeling
 USACE Arid Regions Demonstration Programs
 Technical and Policy Session: Wetlands and Flood Management
 Technical Session: Estimating and Mitigating Flood Risk – Part I
 Technical Session: Levees – Evaluating, Managing and Communicating Flood Hazards

4:15 – 6:00 Concurrent Sessions:

Integrated Flood Management: Regional Perspective
 Regulatory Challenges for Flood Management Agencies: National Legislation
 USACE Arid Regions Demonstration Programs
 Technical Session: Estimating and Managing Flood Risk – Part II
 Technical Session: Levees – Certification, Inspection and Rehabilitation
 Technical Session: Hydraulic Modeling Tools and Applications

6:00 – Evening Reception & Raffle Prizes in Exhibit Hall

THURSDAY, SEPTEMBER 4, 2008**7:00 – 8:00 Community NFIP Roundtable Discussion****8:00 – 9:45 Concurrent Sessions:**

Alluvial Fan Task Force
 Policy into Action: Implementing California's 2007 Flood Protection Laws
 Hydromodification: Regulations and Policies
 USACE Arid Regions Demonstration Programs
 Technical Session: Flood Mapping and Innovative GIS Mapping Tools
 Workshop: Developing an Effective Regional Watershed Partnership

10:15 – 12:00 Concurrent Sessions:

Flood Control and the Sacramento-San Joaquin Delta
 Hydromodification: Local Implementation Opportunities and Challenges
 USACE Arid Regions Demonstration Programs
 Technical Session: Post-Fire Flood Modeling and Mapping
 Technical Session: Collaborative Partnerships and Cost-Sharing
 Workshop: So You Have Been Asked to Be an Expert Witness? Now What?

12:00 – 2:00 **National Legislation Luncheon** Speakers: Susan Gilson, NAFSMA; Larry Larson, ASFPM. Sponsor Acknowledgements.

2:00 – 3:45 Concurrent Sessions:

Floodplain Management Tools and Programs for Implementing Multi-Objective Strategies
 Flood Frequency Analysis
 Can New Surface Water Storage Alone Solve the State's Flood Control Woes?
 USACE Arid Regions Demonstration Programs
 Technical Session: Water Quality, Hydromodification and BMP Design
 Workshop: Legal "Challenges" When Dams and Levees Do Not Protect

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4:15 – 6:00 Concurrent Sessions:

Role of Community Based Organizations in Floodplain Management
 Levee Sustainability
 USACE Arid Regions Demonstration Programs
 Technical Session: Revitalizing Communities and Resources Through Multi-Objective Strategies
 Technical Session: Climate Change and Flood Management
 Workshop: Protecting the Property Rights of All

6:30 – 9:00 Dinner & Entertainment**FRIDAY, SEPTEMBER 5, 2008**

7:00 – 8:00 FMA Membership Meeting

8:00 – 12:00 CFM Exam. (Pre-registration with ASFPM required)
 Legal Workshop: The Patchwork Quilt: Approach

8:00 – 9:45 Concurrent Sessions:

Technical Session: Erosion and Geomorphic Processes
 Technical Session: Multi-Hazard Risk Assessment and Uncertainty Analysis
 Technical Session: Alluvial Fans – Flood Hazard and Sediment Analysis
 Workshop: Risk Communication

10:15 – 12:00 Concurrent Sessions:

Technical Session: Coastal Erosion, Coastal Flood and Sediment Management
 Technical Session: Risk Communication, Public Involvement and Outreach
 Workshop: Quality DFIRM, LOMA & LOMR Submissions

CLIMATE CHANGE SYMPOSIUM

Friday, September 5

This unprecedented symposium is designed to provide the membership with an insightful, state-of-the-art look into the status of climate change research and investigations in California, with a focus on regulatory and legal implications to floodplain management. It includes up-to-date discussions on the salient studies, investigations, and research initiatives including the challenges associated with hydrologic modeling, the uncertainties of future source area hydrologic response, and the physical/infrastructure, natural resource, economic, and socio-cultural risks to floodplain managers and system-wide flood control operators. An open forum with scientists, regulators and policy experts will provide invaluable opportunities for dialogue on challenges, opportunities and recommendations.

8:00 – 9:15 Climate Change Modeling Studies and Findings

9:15 – 12:00 Climate Change Impacts on Floodplain Management – Scientific Assessment

12:00 – 1:00 Buffet Lunch & Networking

1:00 – 3:00 Linking Climate Change Science and Policy in Floodplain Management

3:20 – 4:30 Open Forum with Scientists, Regulators and Policy Experts