



# Corps Risk Analysis Gateway

## Flood Risk Communications Toolbox

Series:  
Corps Risk Analysis Gateway Resources

Prepared by:  
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US Army Corps of Engineers

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## Flood Risk Communication Toolbox

This toolbox provides resources that can help USACE District personnel effectively communicate with their sponsors, stakeholders, and the public about flood risk and flood risk management projects. It features information about the principles and best practices of risk communication, as well as materials that can be distributed directly to the public. The Toolbox provides information that will be helpful to a wide range of District staff, including Planners, Silver Jackets Coordinators, Project Managers, Public Affairs Officers, Levee and Dam Safety Officers and Program Managers, and others.

The Toolbox consists of three sections:

**How to Communicate Risk** can help you learn more about how to plan and conduct risk communication. It includes documents covering:

- Corps guidance and policy,
- Methods and strategies developed by the Corps,
- Methods and strategies developed by other organizations, and
- Peer-reviewed research literature on risk communication and perception.

**Flood Risk Outreach** includes materials that can be used directly for risk communication activities and cover a range of technical topics, including:

- Documents,
- Fact sheets,
- Multi-media and websites, and
- Interactive tools.

**Case Studies and Testimonials** provides a growing collection of resources to demonstrate how people have carried out successful risk communication around the U.S.

## How to Communicate Risk

Learn more about how to plan and conduct risk communication. Look for keywords:

- Corps Risk Communication Guidance and Policy - Official Corps guidance and/or policy for risk communication practices.
- Corps Methods and Strategies - Materials from Corps sources that describe or demonstrate methods and strategies for conducting flood risk communication.
- Other Methods and Strategies - Materials from outside the Corps that describe or demonstrate methods and strategies for conducting flood risk communication.
- Research - Peer-reviewed and other research on risk communication and risk perception.

### Corps Risk Communication Guidance and Policy

#### Safety of Dams- Policy and Procedures

*U.S. Army Corps of Engineers (2014)*

This USACE regulation discusses the Dam Safety Program and the Dam Safety Program Framework.

Source file:

[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1156.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1156.pdf)

Keywords: Corps Risk Communication Guidance and Policy

### Corps Methods and Strategies

#### Can a Realistic Interactive Visualization Model Communicate Flood Risk More Effectively?

*Dr. V. Beth K. Olsen, University of Maryland (2014)*

This webinar, part of the US Army Corps of Engineers' Flood Risk Communication Webinar Series, proposes a user-friendly, inexpensive model interface that communicates flood risk information effectively and motivates action to reduce risk.

Source file: <https://www.iwr.usace.army.mil/Missions/Risk-Analysis/Risk-Analysis-Gateway/Learning-Center/Webinars/>

Keywords: Corps Methods and Strategies

**Critical Think Piece Title: A Partnership for Flood Risk Communication: “Many Partners – One Voice – Communicating Risk”**

*T. Friona; M. Gilmer; R. Pinzon; G. Williams (2008)*

This Critical Think Piece covers priorities for flood risk communication for the Corps. The authors discuss main concerns including confusing terminology and definitions, the lack of efficient and effective distribution of communication standards, and not speaking to the nation with "one voice."

Source file:

<http://www.iwr.usace.army.mil/Portals/70/docs/CTP/teamblueeagles/APartnershipforFloodRiskCommunicationPaper.pdf>

Keywords: Corps Methods and Strategies

**Discussing the Results of the Georgia Hurricane Evacuation Study**

*U.S. Army Corps of Engineers (2014)*

This draft paper discusses the results of USACE Savannah District's Georgia Hurricane Evacuation Study, including data and information on hazards due to hurricanes, social vulnerability, attitudes and intended behavior of coastal Georgians in response to the threat of a hurricane, a transportation analysis, and a GeoPDF mapping tool.

Source file: <https://www.iwrlibrary.us/document/c54ea1ce-8e51-446d-cfef-4b44ffe099b7>

Keywords: Corps Methods and Strategies

**North Atlantic Coast Comprehensive Study Overview - U.S. Army Corps of Engineers**

*North Atlantic Division, U.S. Army Corps of Engineers (2015)*

A video that provides an overview of the results of the USACE North Atlantic Coast Comprehensive Study Overview, including the coastal storm risk management framework, products to assess vulnerability and develop performance metrics, and recommendations for flood risk management.

Source file: <https://www.youtube.com/watch?v=t2BzTH5FoSo>

Keywords: Corps Methods and Strategies

**North Atlantic Coast Comprehensive Study Report and Related Documents**

*North Atlantic Division, U.S. Army Corps of Engineers (2015)*

A hub of resources regarding the USACE North Atlantic Coast Comprehensive Study, including a map of risk management strategies and links to reports and products from the initiative.

Source file: <http://www.nad.usace.army.mil/compstudy>

Keywords: Corps Methods and Strategies

**Principles of Risk Analysis for Water Resources**

*Charlie Yoe, Notre Dame of Maryland University; Dave Moser, IWR; Brian Harper, IWR (2017)*

The purpose of this manual is to articulate for USACE and all of its stakeholders the risk analysis process used by USACE in its Civil Works program. The primary audience for this manual is the workforce of the U.S. Army Corps of Engineers. Its secondary audiences include those affected by the Civil Works program as well as those who work closely with USACE in support of their mission.

Source file: <https://www.iwrlibrary.us/document/deacd6fd-67d7-4c70-e21e-9c6ccc5bc4ba>  
(Series)

Keywords: Corps Methods and Strategies

**Risk Communication Series: Boosting Local Preparedness – Stories from the Georgia**

**Hurricane Evacuation Study and the Northwest Flood Fighting Workshops**

*Jeff Morris, Savannah District, U.S. Army Corps of Engineers; Maria Lantz, Institute for Water Resources, U.S. Army Corps of Engineers; Les Miller, Portland District, U.S. Army Corps of Engineers (2014)*

This webinar, part of the US Army Corps of Engineers' Flood Risk Communication Webinar Series, discusses the activities and results from two projects in IWR's Public Involvement in Flood Risk Management Pilot Program. The speakers detail best practices and lessons learned from the pilot projects.

Source file: <https://www.iwr.usace.army.mil/Missions/Risk-Analysis/Risk-Analysis-Gateway/Learning-Center/Webinars/Keywords: Corps Methods and Strategies>

**Risk Communication Series: DSAC I, 100-Year Floods and Other Myths**

*Charles E. Yoe, PhD, Notre Dame of Maryland University; Erin Rooks, Institute for Water Resources, U.S. Army Corps of Engineers (2014)*

This webinar, part of the US Army Corps of Engineers' Flood Risk Communication Webinar Series, features speaker Charlie Yoe, PhD, discussing risk communication and public perception of risk.

Source file: <https://www.iwr.usace.army.mil/Missions/Risk-Analysis/Risk-Analysis-Gateway/Learning-Center/Webinars/>

Keywords: Corps Methods and Strategies

## **Risk Communication Series: From Flood Damage Reduction to Flood Risk Management – Implications for USACE Policy and Programs**

*Dr. Len Shabman, Resources for the Future; Paul Scodari, Institute for Water Resources, U.S. Army Corps of Engineers (2014)*

This webinar, part of the US Army Corps of Engineers' Flood Risk Communication Webinar Series, discusses the results of a study that sought to identify policy & legislative changes that would allow USACE to be more effective in working with other federal & non-federal agencies and stakeholders in the management of flood risk.

Source file: <https://www.iwr.usace.army.mil/Missions/Risk-Analysis/Risk-Analysis-Gateway/Learning-Center/Webinars/>

Keywords: Corps Methods and Strategies

## **Social Vulnerability Analysis: A Comparison of Tools**

*U.S. Army Corps of Engineers (2013)*

A USACE White Paper that provides the rational for the choice of the Social Vulnerability Index as the foundational method for characterizing social vulnerability as employed in the 2011 IWR handbook on social vulnerability analysis.

Source file:

<https://www.iwrlibrary.us/document/91a1cc9f-2b59-451c-ec12-d0374d59883a>

Keywords: Corps Methods and Strategies

## **USACE Natural Resource Management Gateway: Find a Facilitator**

*U.S. Army Corps of Engineers (2013)*

A database that provides contact information for individuals within USACE who have experience in facilitation and are willing to provide that service.

Source file: <https://corpslakes.erdc.dren.mil/employees/facilitator/find.cfm>

Keywords: Corps Methods and Strategies

## **USACE Risk Analysis Gateway: Risk Communication Online Training**

*U.S. Army Corps of Engineers*

This USACE training features information on defining risk communication, determining what should be considered when tailoring messages, and distinguishing the characteristics that affect risk perception, among other topics.

Source file: <https://www.iwr.usace.army.mil/Missions/Risk-Analysis/Risk-Analysis-Gateway/Learning-Center/>

Keywords: Corps Methods and Strategies

## Other Methods and Strategies

### Applying Social Science Findings and Visualization Tools to Communicate Risks

*Heidi Stiller, NOAA (2017)*

Webinar presentation on social science findings, theoretical models, best practices, The Digital Coast, Sea Level Rise Viewer and Coastal Flood Exposure Mapper.

Source file: <https://corplakes.erdc.dren.mil/employees/learning/webinars/7March17-FacStillerRisk.pdf>

Keywords: Other Methods and Strategies

### Communicating Probabilistic Information from Climate Model Ensembles- Lessons from Numerical Weather Prediction

*Elisabeth M. Stephens; Tamsin L. Edwards (2012)*

A paper that analyzes novel approaches to visualizing and communicating climate models and compares them to the more established and evaluated communication strategies used in weather prediction models for hurricanes and flood warnings.

Source file:

[http://www.researchgate.net/profile/David\\_Demeritt/publication/253644774\\_Communicating\\_probabilistic\\_information\\_from\\_climate\\_model\\_ensembleslessons\\_from\\_numerical\\_weather\\_prediction/links/00b7d51f978e54161d000000.pdf](http://www.researchgate.net/profile/David_Demeritt/publication/253644774_Communicating_probabilistic_information_from_climate_model_ensembleslessons_from_numerical_weather_prediction/links/00b7d51f978e54161d000000.pdf)

Keywords: Other Methods and Strategies

### Communicating Risks and Benefits: An Evidence-Based User's Guide

*Food and Drug Administration (2011)*

An FDA/DHHS manual that covers various aspects of evidence-based communication, including: basic processes (affect and emotion, information and persuasion), communication design (readability, warnings and disclosures, shared decision making), and implementation from practitioner and agency perspectives.

Source file:

<http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UCM268069.pdf>

Keywords: Other Methods and Strategies

### **The Constitution of Risk Communication in Advanced Liberal Societies**

*Jamie K. Wardman (2008)*

In this paper, a theoretical scheme is devised to articulate four fundamental "idealized" models of risk communication. The authors aim to bring conceptual clarity to discussions about the use and utility of risk communication.

Source file: <http://dx.doi.org/10.1111/j.1539-6924.2008.01108.x>

Keywords: Other Methods and Strategies

### **Developing a Translational Discourse to Communicate Uncertainty in Flood Risk between Science and the Practitioner**

*Hazel Faulkner; Dennis Parker; Colin Green; Keith Beven (2007)*

This paper outlines the tools available for the development of a discourse between scientists developing flood models and professional groups who receive flood risk estimates in the UK. The described tools may be applicable to USACE communications.

Source file: [http://www.jstor.org/stable/25547838?seq=1#page\\_scan\\_tab\\_contents](http://www.jstor.org/stable/25547838?seq=1#page_scan_tab_contents)

Keywords: Other Methods and Strategies

### **Enhancing flood resilience through improved risk communications**

*J. J. O'Sullivan; R. A. Bradford; M. Bonaiuto; S. De Dominicis; P. Rotko; J. Aaltonen; K. Waylen; S. J. Langan (2012)*

This paper describes a framework of guiding recommendations for effective pre-flood and flood warning communications, based on the URFLood project in Finland, Ireland, Italy, and Scotland.

Source file: <http://www.nat-hazards-earth-syst-sci.net/12/2271/2012/nhess-12-2271-2012.pdf>

Keywords: Other Methods and Strategies

### **Flood Risk Communication - Visualization Tools and Evaluations of Effectiveness**

*M.K.M. Charrière; S.J. Junier; E. Mostert; T.A. Bogaard (2013)*

This study reviews the field of visual risk communication by inventorying examples of visual communication, reviewing flood risk mapping research and practice, and analyzing examples of evaluation of effectiveness. The authors conclude that the field is advanced but that there is a need to integrate prevention and preparedness in the same communication tools.

Source file: <https://pdfs.semanticscholar.org/c3a8/bbb8fc1ab17a983e89c169aedb1bc9a35305.pdf>

Keywords: Other Methods and Strategies

## **How to Communicate Flood Risks Effectively**

*Tim L. Tinker; Gerald E. Galloway (2009)*

A paper that offers insight on principles of risk communication which can be used to more effectively communicate flood risk to the public at different stages of a flood event. The authors recommend communicating risk in multiple ways, and acknowledging uncertainty, among five other main points.

Source file:

[http://greatlakesresilience.org/sites/default/files/library\\_reports\\_2008\\_BoozAllenHamilton\\_HowDoYouEffectivelyCommunicateFloodRisks.pdf](http://greatlakesresilience.org/sites/default/files/library_reports_2008_BoozAllenHamilton_HowDoYouEffectivelyCommunicateFloodRisks.pdf)

Keywords: Other Methods and Strategies

## **Levees and the National Flood Insurance Program: Improving Policies and Practices, Chapter 7 (Understanding and Communicating Flood Risk Behind Levees)**

*National Research Council of the National Academies (2013)*

A chapter that describes flood risk perception by the public, a brief history of risk communication in the National Flood Insurance Program, current flood risk communication efforts, and contemporary flood risk mapping.

Source file: <http://www.nap.edu/read/18309/chapter/9>

Keywords: Other Methods and Strategies

## **Living with Levees: Information for Community Officials**

*Federal Emergency Management Agency (2015)*

This FEMA website features useful links and information for community officials that live in areas close to levees. Guidance includes information on how to identify and communicate risk, how levees are categorized and accredited, and requirements for mapping levee restoration or construction projects.

Source file: <https://www.fema.gov/flood-maps/living-levees/community-officials>

Keywords: Other Methods and Strategies

### **Models of Best Practice in Flood Risk Communication and Management**

*David Demeritt; Sebastien Nobert (2014)*

This paper discusses the models that underlie the tactics of effective risk communication. The authors discuss four approaches for risk communication including a risk message model for communicating to the public, a risk instrument model for changing behavior, a risk dialogue model to engage the public in decision making, and a risk government model of self-regulation.

Source file:

[https://www.researchgate.net/publication/265551715\\_Models\\_of\\_best\\_practice\\_in\\_flood\\_risk\\_communication\\_and\\_management](https://www.researchgate.net/publication/265551715_Models_of_best_practice_in_flood_risk_communication_and_management)

Keywords: Other Methods and Strategies

### **NOAA Digital Coast**

This NOAA-sponsored website is focused on helping communities address coastal issues and has become one of the most-used resources in the coastal management community. The dynamic Digital Coast Partnership, whose members represent the website's primary user groups, keeps the effort focused on customer needs. There are tools and more information on flood risk management.

Source file: <https://coast.noaa.gov/digitalcoast/>

Keywords: Other Methods and Strategies

### **NOAA Sea Level Rise Viewer**

This tool show visual depictions of flood risk within communities.

Source file: <https://coast.noaa.gov/digitalcoast/tools/slrv.html>

Keywords: Other Methods and Strategies

### **Risk Communication Basics**

*NOAA (2016)*

Risk Communication Basics is the ninth in a series of publications developed to bring information to coastal managers about the use of social science tools in their field of work. This document shares insights into why people respond to risk the way they do. Coastal managers will find examples and tips for working with residents to explore solutions and make decisions to improve the resilience of coastal communities. This material is linked to the interactive training webinar provided by the Office for Coastal Management, Seven Best Practices for Risk

Communication. This guidebook was developed through a partnership of the NOAA Office for Coastal Management and the Jacques Cousteau National Estuarine Research Reserve, with contractor Sarah Watson, graduate student at Rutgers University.

Source file: <https://coast.noaa.gov/data/digitalcoast/pdf/risk-communication-basics.pdf>

Keywords: Other Methods and Strategies

**Risk Communication in Emergency Response to a Simulated Extreme Flood**

*Joe Howe; Simon McCarthy; Sylvia Tunstall; Dennis Parker; Hazel Faulkner (2007)*

A discussion of a range of new models and tools that could be beneficial for flood incident management, based on a study in the Thames Estuary, United Kingdom.

Source file: <http://eprints.mdx.ac.uk/293/1/r1217032.pdf%5B1%5D.pdf>

Keywords: Other Methods and Strategies

**TED Talk: "Talk Nerdy to Me"**

*Melissa Marshall (2012)*

This is a TED talk by Melissa Marshall, a communications teacher who discusses the importance of scientists presenting complex scientific ideas to general audiences in an understandable way.

Source file: [http://www.ted.com/talks/melissa\\_marshall\\_talk\\_nerdy\\_to\\_me](http://www.ted.com/talks/melissa_marshall_talk_nerdy_to_me)

Keywords: Other Methods and Strategies

**Terrorists Vs. Bathtubs**

*On the Media (2013)*

A podcast featuring risk analyst Peter Sandman. He explains that it is not very persuasive to communicate comparisons between different risks.

Source file: <http://www.onthemedia.org/story/300750-terrorists-versus-bath-tubs/>

Keywords: Other Methods and Strategies

**Understanding Risk Communication Best Practices: A Guide for Emergency Managers and Communicators**

*National Consortium for the Study of Terrorism and Responses to Terrorism (2012)*

A report that discusses creating and disseminating effective risk messages. Elements such as risk-related emotions and public proximity to risk are discussed, among others. The article highlights effective methods of reaching out to underserved or disabled populations.

Source file:

<http://www.start.umd.edu/sites/default/files/files/publications/UnderstandingRiskCommunicationBestPractices.pdf>

Keywords: Other Methods and Strategies

**Understanding Risk Communication Theory: A Guide for Emergency Managers and Communicators**

*National Consortium for the Study of Terrorism and Responses to Terrorism (2012)*

This document defines risk communication, explains risk characteristics, and discusses various risk communication theories and models. The theories and models are discussed in two groups: those that cross-cut the phases of risk management (preparedness, response, and recovery) and others that are specific to certain phases.

Source file:

<https://www.start.umd.edu/sites/default/files/files/publications/UnderstandingRiskCommunicationTheory.pdf>

Keywords: Other Methods and Strategies

**The Use of Social Media in Risk and Crisis Communication**

*OECD Working Papers on Public Governance (2013)*

A paper that explains how social media can be a beneficial tool for risk and crisis communicators.

Source file: [http://www.oecd-ilibrary.org/governance/the-use-of-social-media-in-risk-and-crisis-communication\\_5k3v01fskp9s-en](http://www.oecd-ilibrary.org/governance/the-use-of-social-media-in-risk-and-crisis-communication_5k3v01fskp9s-en)

Keywords: Other Methods and Strategies

**Visualizing flood forecasting uncertainty: some current European EPS platforms - COST731 working group 3**

*K. Daamen; M. Bruen; P. Krahe; M. Zappa; J. Olsson; B. Vehvilainen; K. Kok (2010)*

The authors took examples of hydrometeorological observations, models, and forecasts from various European countries to study how uncertainty information is presented to and used by the end-user. Their findings indicate that end-users do find the information useful. They suggest that meetings between forecasting organizations and recipients of the forecasts would be useful in helping to improve how uncertainties are presented to the public.

Source file: <http://www.econbiz.de/Record/visualising-flood-forecasting-uncertainty-some-current-european-eps-platforms-cost731-working-group-3-bruen-michael/10009475683>

Keywords: Other Methods and Strategies

## Research

### **2013 General Population Survey Findings on Flood Risk**

*Federal Emergency Management Agency (2014)*

This information, presented on the FEMA website, details the findings from FEMA's 2013 nationwide study of flood risk awareness among U.S. households. According to FEMA, "this page is intended for home, property and business owners and other community members interested in better understanding their local flood risk."

Source file: <http://www.fema.gov/protecting-homes/public-survey-findings-flood-risk>

Keywords: Research

### **2013 Local Officials Survey Findings on Flood Risk**

*Federal Emergency Management Agency (2014)*

Results of the FEMA annual nationwide study on flood risk awareness, including findings on risk awareness, mitigation, and communication.

Source file: <https://www.fema.gov/protecting-our-communities/local-official-survey-findings-flood-risk>

Keywords: Research

### **Communicating Uncertainty via Probabilities: The Case of Weather Forecasts**

*John Handmer; Beth Proudley (2007)*

This paper examines public understanding of probabilities and public and specialist understanding of verbal categorical forecast terms. The authors found that the majority of those surveyed have basic understanding about probabilities as used in weather forecasts.

Source file:

[https://www.researchgate.net/publication/229365403\\_Communicating\\_uncertainty\\_via\\_probabilities\\_The\\_case\\_of\\_weather\\_forecasts](https://www.researchgate.net/publication/229365403_Communicating_uncertainty_via_probabilities_The_case_of_weather_forecasts)

Keywords: Research

### **The Distinction Between Risk and Hazard: Understanding and Use in Stakeholder Communication**

*Gaby-Fleur Bol; Dirk Scheer; Christina Benighaus; Ludger Benighaus; Ortwin Renn; Stefan Gold; Bettina Roder (2014)*

While not specific to flood risk, this journal article discusses why communication is difficult when scientists and engineers think in terms of risk while the public does not differentiate risk from hazard. Their discussion has implications for risk message development.

Source file: <http://dx.doi.org/10.1111/risa.12169>

Keywords: Research

### **Does Communicating (Flood) Risk Affect (Flood) Risk Perceptions? Results of a Quasi-Experimental Study**

*Teun Terpstra; Michael K. Lindell; Jan M. Guttelingy (2009)*

This study evaluates the effects of a small-scale flood risk communication program in the Netherlands. The authors evaluated participants' attitude change due to direct personal experience and attitude polarization. They concluded with the possibility that attitude polarization could cause people to confirm their preexisting beliefs, which could have important implications for risk communication.

Source file: <http://dx.doi.org/10.1111/j.1539-6924.2009.01252.x>

Keywords: Research

### **Efficient and effective? The 100-year flood in the communication and perception of flood risk**

*Heather M. Bell; Graham A. Tobin (2007)*

A peer-reviewed paper describing the background of the 100-year flood as a the standard for the National Flood Insurance Program and findings from a survey that compared citizens' perceptions of different descriptions and characterizations of the 100-year event.

Source file:

[https://www.researchgate.net/publication/223027139\\_Efficient\\_and\\_effective\\_The\\_100-year\\_flood\\_in\\_the\\_communication\\_and\\_perception\\_of\\_flood\\_risk](https://www.researchgate.net/publication/223027139_Efficient_and_effective_The_100-year_flood_in_the_communication_and_perception_of_flood_risk)

Keywords: Research

### **It'll never happen to me': understanding public awareness of local flood risk**

*Kate Burningham; Jane Fielding; Diana Thrush (2007)*

This paper contributes to understanding people's recognition that their property is in a high flood risk area. The authors conclude "that the problem is often not simply a lack of awareness, but rather, assessments of local risk based on experience that underestimate the impact of rare or extreme events. "

Source file: <http://dx.doi.org/10.1111/j.1467-7717.2007.01036.x>

Keywords: Research

**Perception and Communication of Flood Risks: A Systematic Review of Empirical Research**

*Phillipe De Maeyer ; Wim Kellens; Teun Terpstra (2013)*

A literature review of risk perception and risk communication research. The authors conclude that the majority of the studies are of exploratory nature and have not applied any frameworks that are available in social science research. They make recommendations for future research.

Source file: <http://dx.doi.org/10.1111/j.1539-6924.2012.01844.x>

Keywords: Research

**Perception of Risk**

*Paul Slovic (1987)*

A paper that provides a basis for understanding and anticipating public responses to hazards and suggests improvements of the communication of risk information across audiences. It covers topics such as revealed and expressed preferences, factor-analytic representations, and forecasting public acceptance.

Source file: <http://socsci2.ucsd.edu/~aronatas/project/academic/risk%20slovic.pdf>

Keywords: Research

**Public Perception of the Risks of Floods: Implications for Communication**

*Lester B. Lave; Tamara R. Lave (1991)*

Although this paper explores issues more directly relating to FEMA, it does explore what people do and do not understand about flood risks and how that impacts their ability to plan and take action.

Source file: <http://dx.doi.org/10.1111/j.1539-6924.1991.tb00602.x>

Keywords: Research

**Risk Behavior and Risk Communication: Synthesis and Expert Interviews**

*Betty H. Morrow, National Oceanic and Atmospheric Administration (2009)*

A thorough report covering how and why the public perceives risk in certain ways, makes decisions about risk, and accepts and responds to risk. Risk communication and management is also covered.

Source file: <https://coast.noaa.gov/data/digitalcoast/pdf/risk-behavior.pdf>

Keywords: Research

### **Risk Communication Series: National Flood Risk Awareness Survey 2013 Results**

*Dr. Melanie Goodrich, Booz Allen Hamilton; Angela Bidnick, Booz Allen Hamilton (2014)*

This webinar, part of the US Army Corps of Engineers' Flood Risk Communication Webinar Series, discusses the results of the National Flood Risk Awareness Survey from 2013. The speakers offer some key takeaways, including the idea that communication should bridge the gap in perception between community risk and household risk.

Source file: <https://www.iwr.usace.army.mil/Missions/Risk-Analysis/Risk-Analysis-Gateway/Learning-Center/Webinars/>

Keywords: Research

### **Understanding Flood Risk Decisionmaking: Implications for Flood Risk Communication Program Design**

*Leonard Shabman; Carolyn Kousky (2015)*

In an effort to inform flood risk communication programs, the authors of this paper delve into how individuals make decisions regarding floodplain land-use.

Source file: <http://www.rff.org/RFF/Documents/RFF-DP-15-01.pdf>

Keywords: Research

### **You Have Been Framed! How Antecedents of Information Mediate the Effects of Risk Communication Messages**

*W.J.W Botzen; T. Terpstra; R. Zaalberg; J. de Boer (2014)*

This paper looks at how the use of framing impacts people's information needs regarding flood risks. The authors explain that communication messages will be more effective when they stimulate risk perceptions and evoke negative effect. However, the arousal of fear can have unwanted side effects which could lower levels of trust in risk management. Of note is that there are likely differences in the trust and perceived expertise of the Netherlands government regarding these issues vs U.S. citizens trust in USACE or FEMA.

Source file: <http://dx.doi.org/10.1111/risa.12181>

Keywords: Research

## Flood Risk Outreach

These materials that can be used directly for risk communication activities and cover a range of technical topics, including:

- Basic Descriptions of Floods - Materials that can be used to communicate how and why floods occur and general characteristics about their impacts.
- 1% ACE Flood - Materials to help communicate about the 1% ACE (or 100-year), including what it means, why it is a common concept, and why it can be misleading.
- Reducing Risk: Mitigation - Materials to help communicate about risk reduction measures that focus on the flood hazard, including both structural and non-structural approaches.
- Reducing Risk: Preparedness - Materials to help communicate about risk reduction measures that reduce impacts of flooding, such as evacuation, insurance, and flood-proofing homes.
- Levees and Dams - Materials to help communicate about existing levees and dams.

### Basic Descriptions of Floods

#### Advanced Hydrologic Prediction Service

*National Weather Service (2014)*

Weather.gov's inundation maps webpage, featuring maps by city as well as the document "NOAA Partnered Guidelines for the Development of Advanced Hydrologic Prediction Service Flood Inundation Mapping."

Source file: <http://water.weather.gov/ahps/inundation.php>

Keywords: Basic Descriptions of Floods

#### California Flood Preparedness

*California Department of Water Resources (2013)*

This website features flood risk information relating to alluvial fan and debris flow, riverine, coastal, flash, and localized flooding. Although this is a State of California website, it primarily includes general information.

Source file: <https://water.ca.gov/What-We-Do/Flood-Preparedness>

Keywords: Basic Descriptions of Floods

### **Caution, Flood Ahead!**

*Nebraska Silver Jackets (2014)*

A Silver Jackets brochure that offers information on basic flood facts, managing flood risk, and flood response. It includes the "turn around, don't drown" graphic.

Source file: [https://floods.nebraska.gov/Library/FloodResourcestrifold\\_NESJ.PDF](https://floods.nebraska.gov/Library/FloodResourcestrifold_NESJ.PDF)

Keywords: Basic Descriptions of Floods

### **Corps Concepts: What are Floodways and Spillways?**

*St. Louis District, U.S. Army Corps of Engineers (2011)*

A short video produced by St. Louis District that explains what floodways and spillways are. It also provides a brief history of the structures.

Source file: <https://www.youtube.com/watch?v=sOWQhvK3gs0>

Keywords: Basic Descriptions of Floods

### **The Cost of Flooding**

*FloodSmart.Gov, National Flood Insurance Program (2015)*

This National Flood Insurance Program tool illustrates the potential costs of flooding for homeowners and allows users to input a sample home size and flood height to calculate total monetary losses.

Source file: <https://www.fema.gov/data-visualization-floods-data-visualization>

Keywords: Basic Descriptions of Floods

### **FEMA's Flood Map Service Center**

*Federal Emergency Management Agency (2015)*

A source for flood hazard information produced in support of the National Flood Insurance Program. This source can be used to find flood maps and tools that help to explain flood risk to the public.

Source file: <http://msc.fema.gov/portal>

Keywords: Basic Descriptions of Floods

Keywords: Basic Descriptions of Floods

**Flood after Fire Risks**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

This factsheet explains the flood risk associated with wildfires, including heavy rains, flash floods, and mudflows.

Source file: [https://www.ready.gov/sites/default/files/Flood\\_After\\_Fire\\_Fact\\_Sheet.pdf](https://www.ready.gov/sites/default/files/Flood_After_Fire_Fact_Sheet.pdf)

Keywords: Basic Descriptions of Floods

**Flood Maps: Talking Points for Community Officials**

*FloodSmart.Gov, National Flood Insurance Program (2014)*

This National Flood Insurance Program factsheet presents talking points that can help government officials explain Flood Insurance Rate Maps to the public.

Source file: <https://www.fema.gov/media-library-data/1427835290004-22824862b99303693084223569da53a8/>

Flood\_Maps\_TP\_CommunityOfficials\_03132015.pdf

Keywords: Basic Descriptions of Floods

**Flood Risk Management: Floodplains and Floodways**

*Philadelphia District, U.S. Army Corps of Engineers (2012)*

A short video produced by Philadelphia District describing floodplains and floodways and how they relate to flood risk.

Source file: <https://www.youtube.com/watch?v=Pqyessf4xBA>

Keywords: Basic Descriptions of Floods

*National Weather Service (2005)*

A National Weather Service webpage that allows the user to click through tabs to access information regarding flood safety, flood warnings vs. watch, and actions to take before, during, and after a flood.

Source file: <https://www.weather.gov/safety/flood>

Keywords: Basic Descriptions of Floods

**Learn about Natural Hazards in Your Neighborhood**

*California Emergency Management Agency (2015)*

A tool that allows users in California to discover the hazards that exist in their local areas. The website also provides links to more geographically general information about flood hazards and flood preparedness.

Source file: <http://myhazards.caloes.ca.gov/>

Keywords: Basic Descriptions of Floods

**Potential effects of anticipated sea level change to coastal communities by 2100**

*North Atlantic Division, U.S. Army Corps of Engineers*

An animation showing types of potential effects that may occur in coastal communities by 2100 due to anticipated sea level change.

Source file: [http://www.nad.usace.army.mil/portals/40/siteimages/NACCS/SLR\\_1-600.gif](http://www.nad.usace.army.mil/portals/40/siteimages/NACCS/SLR_1-600.gif)

Keywords: Basic Descriptions of Floods

**Projected coastal flood increases (2018 to 2118)**

*North Atlantic Division, U.S. Army Corps of Engineers*

This gif depicts two graphs that reveal projected coastal flood increases from 2018 to 2118.

Source file: [http://www.nad.usace.army.mil/portals/40/siteimages/NACCS/wc\\_2.gif](http://www.nad.usace.army.mil/portals/40/siteimages/NACCS/wc_2.gif)

Keywords: Basic Descriptions of Floods

## **Understanding Flood Risk in the Delaware River Basin: Chapter 1: Terrain, Geography And Flood Risk**

*The Nurture Nature Center: Focus on Floods (2010)*

A website and video that explains in general terms how floods occur in the Delaware River Basin. It explains details weather patterns, topography and other factors that determine flood risk. While the examples are specific to the Delaware River Watershed, the general concepts are relevant to any river or watershed.

Source file: <http://focusonfloods.org/flood-science-and-technology/chapter-1-understanding-flood-risk>

Keywords: Basic Descriptions of Floods

## **Understanding Flood Risk in the Delaware River Basin: Chapter 2: Climate and Weather Impacts on Flood Risk**

*The Nurture Nature Center: Focus on Floods (2011)*

This website and video provide a short explanation of whether floods are becoming more frequent in the Delaware River Basin. The video and accompanying webpage text more generally cover the difference between weather and climate.

Source file: <http://focusonfloods.org/flood-science-and-technology/chapter-2-understanding-flood-risk>

Keywords: Basic Descriptions of Floods

## **Understanding Flood Risk in the Delaware River Basin: Chapter 6: The Prepared Citizen: Are You Ready?**

*The Nurture Nature Center: Focus on Floods (2010)*

A website and video showing how one resident along the banks of Delaware River monitors and prepares for potential flood events to protect his property and the safety of his family. The examples described can be applied to almost any resident living near a river.

Source file: <http://focusonfloods.org/flood-science-and-technology/chapter-6-understanding-flood-risk>

Keywords: Basic Descriptions of Floods

## **Water Watch**

*U.S. Geological Survey (2015)*

USGS's resource that displays maps, graphs, and tables describing real-time, recent, and past streamflow for the United States. USGS generally updates the information on an hourly basis.

Source file: <https://waterwatch.usgs.gov/>

Keywords: Basic Descriptions of Floods

## **Winter Flood Risk**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

A National Flood Insurance Program factsheet that details flooding risks in the winter. Causes of flooding briefly described include ice jams, snowmelt, and coastal flooding.

Source file: [https://www.fema.gov/media-library-data/1459189789918-a77ac65fa20237a76f195d5ab1c0b579/FloodRisksWinterFlooding\\_09\\_2015.pdf](https://www.fema.gov/media-library-data/1459189789918-a77ac65fa20237a76f195d5ab1c0b579/FloodRisksWinterFlooding_09_2015.pdf)

Keywords: Basic Descriptions of Floods

## **1% ACE Flood**

### **The 100-Year Flood**

*U.S. Geological Survey (1996)*

This is a two-page document with graphics that summarize the 100-year flood concept and how it can be misleading. It includes bar charts to help explain how statistical data can be used to estimate probability of flood events. Some advanced technical language is used.

Source file: [http://pubs.usgs.gov/fs/FS-229-96/pdf/FS\\_229-96.pdf](http://pubs.usgs.gov/fs/FS-229-96/pdf/FS_229-96.pdf)

Keywords: 1% ACE Flood

### **100-Year Flood- It's All About Chance**

*Karen Dinicola, U.S. Geological Survey; Robert R. Holmes, Jr., U.S. Geological Survey (2010)*

A one-page article providing detailed background on the "100-year" flood and how it is measured and predicted for any given stream or river. The document includes some simplified language to help make the concepts understandable for people who are trained in statistics or related topics.

Source file: <http://pubs.usgs.gov/gip/106/>

Keywords: 1% ACE Flood

### **Corps Concepts: 100 Year Flood**

*St. Louis District, U.S. Army Corps of Engineers (2012)*

A short video produced by St. Louis District explaining the "100-Year" flood concept and how it can be a misleading from the standpoint of the public.

Source file: <https://www.youtube.com/watch?v=nsV2HQ47uFc>

Keywords: 1% ACE Flood

### **Understanding Flood Risk in the Delaware River Basin: Chapter 3: Hydrology and the “100-Year-Flood”**

*The Nurture Nature Center: Focus on Floods (2012)*

Website featuring a video of Dr. Dru Germanoski explaining the concept of the "100-year" flood and putting the concept in a larger context. He explains that smaller floods can occur quite frequently and that the 100-year regulatory floodplain is not necessarily a good gage of flood risk for any given property owner. This video uses examples from the Delaware River Basin and some technical language (e.g., discharge) is used.

Source file: <http://focusonfloods.org/flood-science-and-technology/chapter-3-understanding-flood-risk>

Keywords: 1% ACE Flood

### **Using the National Flood Hazard Layer Web Map Service (WMS) in Google Earth**

*Federal Emergency Management Agency (2015)*

A FEMA webpage featuring instructions for using the WMS in Google Earth, including descriptions and kmz downloads of the "Stay Dry" application, which provides basic flood hazard map information from FEMA, and the "FEMA NFHL" application, which displays flood hazard zones and labels.

Source file: <https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload>

Keywords: 1% ACE Flood

## **Reducing Risk: Mitigation**

Decade of work to reduce flood risk nearly complete in Napa Sacramento District, U.S. Army Corps of Engineers (2013)

This video explains USACE's expansive flood risk reduction efforts in Napa, California including restoring natural floodplains and wetlands, raising bridges, and building flood walls.

Source file: <https://www.youtube.com/watch?v=IfopSvtIMLU>

Keywords: Reducing Risk: Mitigation

### **Emergency Watershed Protection (EWP) Program**

*Natural Resources Conservation Service, U.S. Department of Agriculture (2011)*

A USDA factsheet that describes the department's Emergency Watershed Protection Program, including the purpose of the program and the type of work that is authorized by it.

Source file:

[http://www.nfrmp.us/state/docs/Pennsylvania/PASJ\\_NRCS\\_EWS\\_Factsheet\\_011912.pdf](http://www.nfrmp.us/state/docs/Pennsylvania/PASJ_NRCS_EWS_Factsheet_011912.pdf)

Keywords: Reducing Risk: Mitigation

### **Flood Risk Management: Backflow Prevention Measures**

*Philadelphia District, U.S. Army Corps of Engineers (2012)*

This USACE video focuses on backflow prevention measures at tributaries and at storm sewer outlets.

Source file: <https://www.youtube.com/watch?v=qzaNVis8pyc>

Keywords: Reducing Risk: Mitigation

### **Flood Risk Management: Structural and Non-Structural Measures**

*Philadelphia District, U.S. Army Corps of Engineers (2012)*

A USACE video that explains the differences between structural and non-structural flood risk management measures.

Source file: [https://www.youtube.com/watch?v=TC6\\_Qd3nlzs](https://www.youtube.com/watch?v=TC6_Qd3nlzs)

Keywords: Reducing Risk: Mitigation

**Get Ready: Isabella dams failure could lead to 'shocking' flooding**

*Eyewitness News: Get Ready Kern County (2015)*

This video is part of a flood preparation series produced by a local news network that illustrates the potential effects of different types of floods. It highlights the need for residents to prepare for worst-case flood scenarios.

Source file: <http://bakersfieldnow.com/archive/get-ready-isabella-dams-failure-could-lead-to-shocking-flooding>

Keywords: Reducing Risk: Mitigation

**Hurricane and Storm Damage Risk Reduction System (HSDRRS) Flyover Video**

*New Orleans District, U.S. Army Corps of Engineers (2012)*

A USACE video discussing how the Corps has built a storm damage risk reduction system post-Hurricane Katrina.

Source file: <https://www.youtube.com/watch?v=4wMnFxWqIMQ>

Keywords: Reducing Risk: Mitigation

**Interim Risk Reduction Measures Fact Sheet**

*U.S. Army Corps of Engineers (2012)*

A USACE factsheet that discusses interim risk reduction measures, including what triggers their need, who is responsible for developing them, who pays for them, and examples of these projects.

Source file: <http://cdm16021.contentdm.oclc.org/cdm/ref/collection/p16021coll11/id/1740>

Keywords: Reducing Risk: Mitigation

**New Jersey beach project protects freshwater wetlands**

*Philadelphia District, U.S. Army Corps of Engineers (2013)*

This video describes the beach renourishment process in the context of a Philadelphia district project in New Jersey.

Source file: <https://www.youtube.com/watch?v=KZr6ixJZaPM>

Keywords: Reducing Risk: Mitigation

**Planning for Changing Sea Levels Detailed Tool**

*Federal Emergency Management Agency*

A webpage that explains how users in New York and New Jersey can use the FEMA Flood Hazard Resources Maps to understand some potential future vulnerabilities to changing sea levels.

Source file: [http://www.corpsclimate.us/Sandy/curvesNJNY2\\_detailed.asp](http://www.corpsclimate.us/Sandy/curvesNJNY2_detailed.asp)

Keywords: Reducing Risk: Mitigation

### **Hazard Mitigation Grant Program**

*Federal Emergency Management Agency*

This factsheet provides an overview of the Department of Homeland Security Federal Emergency Management Agency Hazard Mitigation Assistance programs, which aim to reduce the risk to individuals and property from natural hazards while simultaneously reducing reliance on Federal disaster funds.

Source: <https://www.fema.gov/grants/mitigation/hazard-mitigation>

Keywords: Reducing Risk: Mitigation

### **USACE Flood Risk Management Frequently Asked Questions**

*U.S. Army Corps of Engineers (2010)*

A USACE document that provides Flood Risk Managers with talking points for frequently asked questions relating to the USACE Flood Risk Management Program, national associations, national committees, and USACE flood risk management authorities, among other topics.

Source file:

<https://www.iwrlibrary.us/document/0dcd17fa-8366-4761-aeb9-788551187d27>

Keywords: Reducing Risk: Mitigation

### **USACE Flood Risk Management Program (FRMP)**

*Flood Risk Management Program, U.S. Army Corps of Engineers (2016)*

This IWR webpage provides a basic description of what floodplain management is, the history of the USACE FRMP is, a description of the Silver Jackets program, and why USACE chose the name "Silver Jackets."

Source file:

<http://www.iwr.usace.army.mil/Missions/FloodRiskManagement/FloodRiskManagementProgram/FrequentlyAskedQuestions/faqFRMP.aspx>

Keywords: Reducing Risk: Mitigation

## Reducing Risk: Preparedness

### [Sample] Hurricane Fact Sheet

*FloodSmart.Gov, National Flood Insurance Program (2007)*

This sample hurricane season factsheet from the National Flood Insurance Program can be used as a template and updated with up-to-date information on recent hurricane events, flood risk, flood insurance statistics, and preparation tips.

Source file: <https://www.fema.gov/national-flood-insurance-program>

Keywords: Reducing Risk: Preparedness

### America's PrepareAthon! Resources in Other Languages

*America's PrepareAthon, Federal Emergency Management Agency (2014)*

Several of the primary PrepareAthon! promotional materials are available in other languages including Spanish, Chinese, Arabic, French, Japanese, and Tagalog.

Source file: <http://community.fema.gov/node/204>

Keywords: Reducing Risk: Preparedness

**Answers to Tough Questions: Talking Points for Community Officials**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

This National Flood Insurance Program factsheet covers frequently asked questions that the public may ask officials before and after floods events.

Source file: [https://www.fema.gov/media-library-data/1433530044551-27556c1f19513ad151682dea45f8a457/FS\\_Answers\\_Tough\\_Questions\\_June2015.pdf](https://www.fema.gov/media-library-data/1433530044551-27556c1f19513ad151682dea45f8a457/FS_Answers_Tough_Questions_June2015.pdf)

Keywords: Reducing Risk: Preparedness

**ARKStorm Movie**

*U.S. Geological Survey (2011)*

A high-quality video that details a hypothetical scenario of an Atmospheric River 1,000 storm, or ARkStorm, in California. It proposes actions should be taken now to limit risk to life and property.

Source file: <https://vimeo.com/19012969>

Keywords: Reducing Risk: Preparedness

**Communications Toolkit: Materials for Your Outreach and Promotion**

*Federal Emergency Management Agency (2014)*

A Toolkit of resources that leaders from organizations can use to plan for a PrepareAthon "Day of Action" to prepare their organization for disasters. The toolkit includes resource materials such as an overview of the PrepareAthon program, key messages, and talking points, as well as social media tools including sample Twitter and Facebook posts.

Source file: [https://www.fema.gov/media-library-data/1445030226309-7c7bb723c93678b3edf4d69e986862de/20151016\\_AP\\_Comm\\_Toolkit\\_Sept2015\\_508.pdf](https://www.fema.gov/media-library-data/1445030226309-7c7bb723c93678b3edf4d69e986862de/20151016_AP_Comm_Toolkit_Sept2015_508.pdf)

Keywords: Reducing Risk: Preparedness

**Communications Tools**

*Federal Emergency Management Agency (2015)*

A media guide with resources that community and business leaders can use to promote PrepareAthon! drills or events. Resources include an event planning guide, promotional materials, a communications toolkit, digital media tools, an action checklist, certificates of participation, and a participant feedback survey.

Source file: <https://go.usa.gov/xGkhG>

Keywords: Reducing Risk: Preparedness

**Emergency Preparedness Guidelines for Levees**

*U.S. Department of Homeland Security (2012)*

A USACE guide for owners and operators of levees that provides recommendations and practical steps for planning and preparing for flood events, specifically with regard to managing levees, floodwalls, and pumping stations.

Source file: <http://cdm16021.contentdm.oclc.org/cdm/ref/collection/p16021coll11/id/1749>

Keywords: Reducing Risk: Preparedness

**Flood Insurance 101: Talking Points for Community Officials**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

This 3-page factsheet explains the importance of having flood insurance, how premiums are set, and what flood insurance does and does not cover.

Source file: <https://www.fema.gov/media-library/assets/documents/11337>

Keywords: Reducing Risk: Preparedness

**Flood Insurance and Flood Maps**

*FloodSmart.Gov, National Flood Insurance Program (2014)*

Source file: <https://www.fema.gov/flood-maps>

Keywords: Reducing Risk: Preparedness

## **Flood Insurance: How it Works**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

This National Flood Insurance program factsheet describes the basics of flood insurance, including purchasing, requirements, waiting periods, and what is and is not covered.

Source file: [https://www.fema.gov/media-library-data/1427811288492-36fb55e74d14c318db2996580527d131/Flood\\_Insurance\\_How\\_It\\_Works.pdf](https://www.fema.gov/media-library-data/1427811288492-36fb55e74d14c318db2996580527d131/Flood_Insurance_How_It_Works.pdf)

Keywords: Reducing Risk: Preparedness

## **Flood Protection**

*Federal Alliance for Safe Homes (2015)*

A Flash.org video that discusses inexpensive measures that homeowners can take before a flood occurs, including elevating electrical outlets and basement appliances such as washers and dryers.

Source file: <http://flash.org/video.php?id=19>

Keywords: Reducing Risk: Preparedness

## **Flood Risk and Flood Insurance: The FloodSmart Campaign**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

This National Flood Insurance Program factsheet explains the creation of and strategy for the FloodSmart campaign, which promotes awareness about the threat of flooding caused by weather-related events.

Source: <https://agents.floodsmart.gov/marketingcampaigns>

Keywords: Reducing Risk: Preparedness

## **Flood Risk and Insurance: Know the Facts**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

A National Flood Insurance program factsheet discussing the basics of flood risk and flood insurance.

Source: <https://www.floodsmart.gov/flood-insurance-cost>

Keywords: Reducing Risk: Preparedness

## **Flood Risk Management: Flood Proofing**

*Philadelphia District, U.S. Army Corps of Engineers (2013)*

A video describing dry and wet floodproofing measures and how they can protect against floods if used in the correct situations.

Source file: <https://www.youtube.com/watch?v=eAmLMTKYB10>

Keywords: Reducing Risk: Preparedness

**Flood Risk Management: Structure Elevation**

*Philadelphia District, U.S. Army Corps of Engineers (2012)*

A video explaining what structural elevation is and how it can protect a home from flood water.

Source file: [https://www.youtube.com/watch?v=CyY\\_6-mxdMs](https://www.youtube.com/watch?v=CyY_6-mxdMs)

Keywords: Reducing Risk: Preparedness

**Floodproofing Non-Residential Buildings**

*Federal Emergency Management Agency (2013)*

A FEMA guide presenting in-depth information on design considerations for floodproofing, dry floodproofing measures, and other flood protection measures.

Source file: [https://www.fema.gov/media-library-data/1541615774329-170190ea05ddbbb6fdc5f1170a018d41/P-936\\_11-06-18\\_508r.pdf](https://www.fema.gov/media-library-data/1541615774329-170190ea05ddbbb6fdc5f1170a018d41/P-936_11-06-18_508r.pdf)

Keywords: Reducing Risk: Preparedness

**Homeowner's Guide to Retrofitting**

*Federal Emergency Management Agency (2014)*

An in-depth FEMA guide covering retrofitting methods, deciding which method is appropriate for a given home, elevating homes, relocation and demolition, floodproofing, barriers (including levees and floodwalls), and protecting service equipment.

Source file: [http://www.fema.gov/media-library-data/1404148604102-f210b5e43aba0fb393443fe7ae9cd953/FEMA\\_P-312.pdf](http://www.fema.gov/media-library-data/1404148604102-f210b5e43aba0fb393443fe7ae9cd953/FEMA_P-312.pdf)

Keywords: Reducing Risk: Preparedness

**How to Prepare for a Flood**

*America's PrepareAthon, Federal Emergency Management Agency (2015)*

A PrepareAthon document including basic information about floods, types of emergency notifications, flood preparation action items, and information on protecting one's self during and after a flood.

Source file: [http://www.fema.gov/media-library-data/1409002852888-3c5d1f64f12df02aa801901cc7c311ca/how\\_to\\_prepare\\_flood\\_033014\\_508.pdf](http://www.fema.gov/media-library-data/1409002852888-3c5d1f64f12df02aa801901cc7c311ca/how_to_prepare_flood_033014_508.pdf)

Keywords: Reducing Risk: Preparedness

**Hurricane Sandy Recovery Mission: Commander's Update October 2013**

*North Atlantic Division, U.S. Army Corps of Engineers (2013)*

An update from Brig. Gen. Ken Savre with language about risk reduction and the concept of residual risk that can be used in communication efforts.

Source file:

<http://www.usace.army.mil/Portals/2/docs/Emergency%20Ops/Sandy/Commanders%20Update%20October%202013.pdf>

Keywords: Reducing Risk: Preparedness

**Increased Cost of Compliance: Talking Points for Community Officials**

*FloodSmart.Gov, National Flood Insurance Program (2013)*

A National Flood Insurance Program factsheet that provides talking points about Increased Cost of Compliance (ICC), including determining ICC eligibility and payment for mitigation activities.

Source: [https://www.fema.gov/media-library-data/1381432404241-303cfa28a4778049613160a3d3da7350/FS\\_ICCTPForCommunity\\_092013.pdf](https://www.fema.gov/media-library-data/1381432404241-303cfa28a4778049613160a3d3da7350/FS_ICCTPForCommunity_092013.pdf)

Keywords: Reducing Risk: Preparedness

## **Nonstructural Flood Risk Management Measures**

*2014 USACE Flood Risk Management and Silver Jackets Workshop (2014)*

A USACE factsheet that briefly describes what flood risk is and lists nonstructural flood risk reduction measures.

Source file: <https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll2/id/826>

Keywords: Reducing Risk: Preparedness

## **Nonstructural Flood Risk Reduction: A 3-Dimensional View**

*Nonstructural and Floodproofing Committee, U.S. Army Corps of Engineers*

This video describes various nonstructural flood risk management techniques, including dry floodproofing, elevation, and earthen berms, among others. It also discusses the annualized monetary benefit, costs, and benefit-cost ratio of each type of structure.

Source file: [http://static.dvidshub.net/media/video/1208/DOD\\_100466414/DOD\\_100466414-486x274-300k.mp4](http://static.dvidshub.net/media/video/1208/DOD_100466414/DOD_100466414-486x274-300k.mp4)

Keywords: Reducing Risk: Preparedness

## **Plan, Prepare, Mitigate**

*Federal Emergency Management Agency (2015)*

A hub of FEMA webpages with information regarding home, business, and community protection, preparedness and preparedness grants, and hazard mitigation assistance.

Source file: <https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning>

Keywords: Reducing Risk: Preparedness

## **Prepare Your Organization for a Flood Playbook**

*America's PrepareAthon, Federal Emergency Management Agency (2014)*

This FEMA guide is intended for community leaders and employers. It provides tools and resources to support flood event preparedness efforts in their organizations and help conduct a "PrepareAthon! Day of Action." A "Day of Action" can include discussions and drills to explain workplace plans and policies and to motivate employees or other members of a given organization to be better prepared at home.

Source file: [http://www.fema.gov/media-library-data/1409930512086-e6a6bd53bf0cc73603f0a28771137cb3/prepareathon\\_playbook\\_flood\\_final\\_090414\\_508.pdf](http://www.fema.gov/media-library-data/1409930512086-e6a6bd53bf0cc73603f0a28771137cb3/prepareathon_playbook_flood_final_090414_508.pdf)

Keywords: Reducing Risk: Preparedness

### **Ready.gov Kids: Floods**

*Ready.gov*

This webpage is a child-friendly resource describing what floods are, flood risk, and actions that should be taken before, during, and after a flood.

Source file: <https://www.ready.gov/kids/disaster-facts/floods>

Keywords: Reducing Risk: Preparedness

### **Ready.gov Kids: Hurricanes**

*Ready.gov (2015)*

This webpage is a child-friendly resource describing what hurricanes are, the risks from hurricanes, and actions that should be taken before, during, and after a hurricane.

Source file: <https://www.ready.gov/kids/disaster-facts/hurricanes>

Keywords: Reducing Risk: Preparedness

### **Sandbagging**

*U.S. Army Corps of Engineers (2009)*

A USACE St. Paul District video that explains how to build an effective sandbag levee, as well as how to manage the seepage that occurs.

Source file: [https://www.youtube.com/watch?v=rj7aUwlHYlw&feature=channel\\_page](https://www.youtube.com/watch?v=rj7aUwlHYlw&feature=channel_page)

Keywords: Reducing Risk: Preparedness

**Step Down Diagram**

*Institute for Water Resources, U.S. Army Corps of Engineers*

This IWR webpage includes a graphic of the step down diagram as well as a description of shared responsibility.

Source file:

<https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/FloodRiskManagementProgram/PartnersinSharedResponsibility/>

Keywords: Reducing Risk: Preparedness

**Understanding Flood Risk in the Delaware River Basin: Chapter 4: Flood Alerts and Warning Technology**

*The Nurture Nature Center: Focus on Floods (2013)*

A website and video that explains how different parts of NOAA monitor and predict floods and how individuals can sign up for automatic flood alerts sent via email or text.

Source file: <http://focusonfloods.org/flood-science-and-technology/chapter-4-understanding-flood-risk>

Keywords: Reducing Risk: Preparedness

**Using Pumps to Protect Property During a Flood**

*Corps Connection, U.S. Army Corps of Engineers (2009)*

A USACE St. Paul District video that explains how pumps can help manage seepage that comes through a sandbag levee.

Source file: <https://www.youtube.com/watch?v=gxKcXC8FEQ4&feature=channel>

Keywords: Reducing Risk: Preparedness

## Levees and Dams

### **Acronyms and Abbreviations Often Used for Levee Systems**

*Federal Emergency Management Agency (2012)*

This list features acronyms and abbreviations that are frequently used in documents relating to the evaluation of levee systems and levee-impacted communities.

Source file: [http://www.fema.gov/media-library-data/20130726-1538-20490-6715/acronyms\\_and\\_abbreviations\\_often\\_used\\_with\\_levees.pdf](http://www.fema.gov/media-library-data/20130726-1538-20490-6715/acronyms_and_abbreviations_often_used_with_levees.pdf)

Keywords: Levees and Dams

### **Baltimore District Levee Safety Program**

*Baltimore District, U.S. Army Corps of Engineers (2016)*

A video providing an overview of the Baltimore District Levee Safety Program, including its inspection process. It highlights the concept of residual risk for those who live behind a levee.

Source file: <http://www.youtube.com/watch?v=lqgjxHtIJJA&feature=youtu>.

Keywords: Levees and Dams

### **Building a Setback Levee in West Sacramento**

*Sacramento District, U.S. Army Corps of Engineers (2011)*

This is a USACE video that describes what a setback levee is, the benefits of setback levees, and the basics of how they are built.

Source file: <https://www.youtube.com/watch?v=N0Vj8Qmnma0>

Keywords: Levees and Dams

### **Corps Concepts: Levee Inspections**

*St. Louis District, U.S. Army Corps of Engineers (2011)*

A short video produced by St. Louis District describing why USACE conducts levee inspections and what the different types of levee inspections are.

Source file: <https://www.youtube.com/watch?v=Rn-5DqnfqH8>

Keywords: Levees and Dams

### **Corps Concepts: Levee Types**

*St. Louis District, U.S. Army Corps of Engineers (2012)*

A video that explains the differences between federally or locally built and federally or locally operated and maintained levees.

Source file: <https://www.youtube.com/watch?v=FyKyOK3FRd4>

Keywords: Levees and Dams

### **Corps Concepts: Underseepage Fixes**

*St. Louis District, U.S. Army Corps of Engineers (2011)*

A video describing Corps construction projects that work to control excess underseepage, including seepage berms, relief wells, and slurry trench cutoffs.

Source file: <https://www.youtube.com/watch?v=4pRNWaJsfMo>

Keywords: Levees and Dams

### **Corps Concepts: What is a Levee System?**

*St. Louis District, U.S. Army Corps of Engineers (2011)*

A video that details the components of levee systems, and how communities sharing a levee system have a shared responsibility to maintain it.

Source file: [https://www.youtube.com/watch?v=1-7\\_P3ursLw](https://www.youtube.com/watch?v=1-7_P3ursLw)

Keywords: Levees and Dams

### **Corps Concepts: What's a Levee?**

*St. Louis District, U.S. Army Corps of Engineers (2010)*

A short video produced by St. Louis District describing the basic facts of levees.

Source file: <https://www.youtube.com/watch?v=ix32QtAeOil>

Keywords: Levees and Dams

### **Corps Concepts: What's Underseepage?**

*St. Louis District, U.S. Army Corps of Engineers (2011)*

A short video produced by St. Louis District describing underseepage and sand boils, and the problems that they can cause.

Source file: <https://www.youtube.com/watch?v=8RtiOMZJxC0>

Keywords: Levees and Dams

### **Flood Risk Management: Levees and Floodwalls**

*Philadelphia District, U.S. Army Corps of Engineers (2012)*

This is a video produced by the Philadelphia District detailing the basics of levees and floodwalls, as well as issues associated with these structures.

Source file: <https://www.youtube.com/watch?v=FPJac74QUrc>

Keywords: Levees and Dams

### **Flood Risk Management: Ring Levee**

*Philadelphia District, U.S. Army Corps of Engineers (2012)*

A video describing what a ring levee is and how it differs from other types of levees.

Source file: <https://www.youtube.com/watch?v=HmrFSR2RADo>

Keywords: Levees and Dams

### **History of Levees**

*Federal Emergency Management Agency (2012)*

This FEMA factsheet describes the history of levees since the early 20th century, including major legislation that has worked to develop the nation's levee systems.

Source: [https://www.fema.gov/media-library-data/1463585486484-d22943de4883b61a6ede15aa57a78a7f/History\\_of\\_Levees\\_0512\\_508.pdf](https://www.fema.gov/media-library-data/1463585486484-d22943de4883b61a6ede15aa57a78a7f/History_of_Levees_0512_508.pdf)

Keywords: Levees and Dams

### **How Levees Fail, How We Fix Them**

*Sacramento District, U.S. Army Corps of Engineers (2011)*

A short video produced by Sacramento District describing the risks associated with levees and how levees are rebuilt.

Source file: <https://www.youtube.com/watch?v=A1lxIKLV68E>

Keywords: Levees and Dams

## **Levee Inspections**

*U.S. Army Corps of Engineers (2015)*

A USACE HQ webpage that explains levee inspections, including why the Corps conducts them, the types of inspections, and inspection ratings.

Source file:

<http://www.usace.army.mil/Missions/CivilWorks/LeveeSafetyProgram/LeveeInspections.aspx>

Keywords: Levees and Dams

## **Living with Dams: Know Your Risks**

*Federal Emergency Management Agency (2013)*

A FEMA document that covers common beliefs and basic facts about dams. It features graphics and maps.

Source file: [https://www.fema.gov/media-library-data/20130726-1845-25045-7939/fema\\_p\\_956\\_living\\_with\\_dams.pdf](https://www.fema.gov/media-library-data/20130726-1845-25045-7939/fema_p_956_living_with_dams.pdf)

Keywords: Levees and Dams

## **Living with Dams: Know Your Risks Brochure**

*Federal Emergency Management Agency (2012)*

A booklet for citizens who live near dams, including a "fact or fiction" section on common beliefs about dams and discussion of dam risks as well as flood risk mitigation action items.

Source: [https://www.fema.gov/sites/default/files/2020-08/fema\\_living-with-dams\\_p-956.pdf](https://www.fema.gov/sites/default/files/2020-08/fema_living-with-dams_p-956.pdf)

Keywords: Levees and Dams

## **Living with Levees: Information for Homeowners, Renters, Business Owners and the General Public**

*Federal Emergency Management Agency (2015)*

A FEMA webpage that provides risk reduction information to homeowners, renters, business owners, and the general public.

Source file: <https://www.fema.gov/flood-maps/living-levees>

Keywords: Levees and Dams

## **Living with Levees: Information for Real Estate, Lending and Insurance Professionals**

*Federal Emergency Management Agency (2015)*

A FEMA webpage that provides risk reduction information for real estate, lending, and insurance professionals that operate in communities near levees.

Source file: <https://www.fema.gov/insurance-professionals-lenders>

Keywords: Levees and Dams

### **The NFIP and Levee Systems Frequently Asked Questions**

*Federal Emergency Management Agency (2012)*

This Q&A document from FEMA provides information about levees including how they are different from other flood risk reduction structures, who is responsible for building and maintaining levee systems, and what FEMA is doing to address levee system issues, among other topics.

Source file: [https://www.fema.gov/media-library-data/20130726-1603-20490-7033/the\\_nfip\\_and\\_levee\\_systems\\_frequently\\_asked\\_questions.pdf](https://www.fema.gov/media-library-data/20130726-1603-20490-7033/the_nfip_and_levee_systems_frequently_asked_questions.pdf)

Keywords: Levees and Dams

### **The NFIP and Levees: An Overview**

*Federal Emergency Management Agency (2007)*

This factsheet describes levee risks, FEMA's updates to flood hazard maps, how the NFIP works to reduce risk, and FEMA's levee responsibilities.

Source file: [https://www.fema.gov/media-library-data/1470864202423-00a29ae6526a799304ffea4d97ad3400/NFIP\\_and\\_Levees\\_508.pdf](https://www.fema.gov/media-library-data/1470864202423-00a29ae6526a799304ffea4d97ad3400/NFIP_and_Levees_508.pdf)

Keywords: Levees and Dams

### **Provisionally Accredited Levees**

*Federal Emergency Management Agency (2012)*

This is a factsheet from FEMA discussing the Provisionally Accredited Levee (PAL) designation, which FEMA established to help facilitate the levee accreditation process. The document discusses how PAL designations affect communities and what happens if a levee system meets PAL requirements, among other topics.

Source file: [http://www.fema.gov/media-library-data/20130726-1531-20490-1102/provisionally\\_accredited\\_levees.pdf](http://www.fema.gov/media-library-data/20130726-1531-20490-1102/provisionally_accredited_levees.pdf)

Keywords: Levees and Dams

### **So, You Live Behind a Levee!**

*American Society of Civil Engineers (2009)*

A document for members of the public living near levees, emphasizing the inevitability of flooding, risks associated with flooding, the idea that no levee is flood-proof, and actions that homeowners should take now to save lives and property.

Source file: <http://ascelibrary.org/doi/book/10.1061/9780784410837>

Keywords: Levees and Dams

**Surviving the Storm, Rebuilding Together: FEMA officials and their partners discuss the unique risks associated with levees**

*FloodSmart.Gov, National Flood Insurance Program*

This is a video produced by the National Flood Insurance Program with insights about levee risks and actions the public can take to reduce this risk.

Source file: [https://www.youtube.com/watch?v=MEN\\_0ddjW\\_A](https://www.youtube.com/watch?v=MEN_0ddjW_A)

Keywords: Levees and Dams

**USACE Dam Safety Program Website**

*U.S. Army Corps of Engineers*

A hub of resources for the USACE Dam Safety Program. It links to information about program activities, facts and figures, program principles, and key documents, among other resources.

Source file: <http://www.usace.army.mil/Missions/CivilWorks/DamSafetyProgram.aspx>

Keywords: Levees and Dams

**USACE Levee Safety Program Website**

*U.S. Army Corps of Engineers*

A hub of resources for the USACE Levee Safety Program. It links to information about the program, the National Levee Database, and descriptions of levee inspections, among other resources.

Source file: <http://www.usace.army.mil/Missions/CivilWorks/LeveeSafetyProgram.aspx>

Keywords: Levees and Dams

**What is a Levee?**

*Federal Emergency Management Agency (2012)*

A factsheet that provides a basic description of levees and levee systems, and how people living near a levee can prepare themselves for a flood.

Source file: [https://www.fema.gov/media-library-](https://www.fema.gov/media-library-data/1463585105805-48106ac358b81c67287ea9021db17804/)

[data/1463585105805-48106ac358b81c67287ea9021db17804/](#)

[What\\_is\\_a\\_Levee\\_0512\\_508.pdf](#)

Keywords: Levees and Dams

### **What is a Slurry Wall?**

*Sacramento District, U.S. Army Corps of Engineers (2012)*

A short video produced by Sacramento District describing what a seepage wall is and how slurry is created.

Source file: <https://www.youtube.com/watch?v=3KdUgIxGmiA>

Keywords: Levees and Dams

## Case Studies and Testimonials

This collection of resources are case studies and testimonials to demonstrate how people have carried out successful risk communication around the U.S.

### Resources

#### **Becky Bentley Flood Story**

*Floodtools.com (2012)*

A testimonial video depicting a homeowner whose home was flooded. At the time of the flood event, she did not have flood insurance because her home was not in a floodplain.

Source file: <https://www.youtube.com/watch?v=g33Ye8A7vnw>

Keywords: Case Study

#### **Flood Risk Communication Case Study: California (Central Valley)**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of Central Valley, California. The report discusses California's Flood Preparedness week, an event that provides a mechanism for local officials to discuss real flood risk in a non-threatening environment.

Source file: <https://www.iwrlibrary.us/document/96c9a58a-6023-4484-e918-6716f48d4477>

([Series](#))

Keywords: Case Study

#### **Flood Risk Communication Case Study: Central Shenandoah Valley, Virginia**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of the Central Shenandoah Valley, Virginia. The report discusses a program targeting the general public, children, the business community, and "special populations."

Source file: <https://www.iwrlibrary.us/document/1b124028-b69a-440f-8a95-b55713554d90>  
([Series](#))

Keywords: Case Study

#### **Flood Risk Communication Case Study: Charlotte-Mecklenburg County, North Carolina**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of Charlotte-Mecklenburg County,

North Carolina. The report discusses the county Storm Water Services Division's data-driven process to support flood risk communication and mitigation decisions that exceed federal standards.

Source file: <https://www.iwrlibrary.us/document/35bc96a8-3ad6-4256-cd4b-50d26a4c2f2b>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: City of Fort Collins, Colorado**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of Fort Collins, Colorado. The report discusses the City's long-term public outreach initiatives and 2013 social media campaign.

Source file: <https://www.iwrlibrary.us/document/cd3df296-d19a-4a6b-9b6d-956276a563e5>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: City of Pasadena, Texas**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of the City of Pasadena, Texas. The report discusses the City's implementation of the National Flood Insurance Program's Program for Public Information.

Source file: <https://www.iwrlibrary.us/document/0a7af696-c155-4845-c213-a1a40e399651>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: Glasgow, Montana**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of Glasgow, Montana. The report discusses an outreach effort that Omaha District and Silver Jackets conducted as part of the System Wide Improvement Framework.

Source file: <https://www.iwrlibrary.us/document/c094267b-d185-4d7a-dedf-60fd6026af5>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: Indian Creek Watershed, Iowa**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of the Indian Creek Watershed, Iowa.  
<sup>44</sup>

The report discusses the Iowa-Cedar Watershed Interagency Coordination Team's series of public "visioning exercise" workshops for stakeholders.

Source file: <https://www.iwrlibrary.us/document/f2612ed3-c6df-4ddb-8b14-3d26ac8e5a85>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: Lake Isabella Dam, Kern County, California**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of the Lake Isabella Dam, Kern County, California. The report discusses a Corps outreach effort to keep stakeholders and the public apprised of a dam safety modification plan and to encourage evacuation planning by the County.

Source file: <https://www.iwrlibrary.us/document/7d6729f1-5aff-482e-ede2-53472cf7ca61>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: St. Bernard Parish, Louisiana**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of St. Bernard Parish, Louisiana. The report discusses the Parish and Lake Borgne Basin Levee District's (levee district) outreach campaign to educate the public about FEMA flood mitigation enhancement projects, and to increase the general level of flood risk awareness, preparedness, and mitigation in the region.

Source file: <https://www.iwrlibrary.us/document/349598df-68c9-4147-e128-8cfb7f7a9eeef>  
[\(Series\)](#)

Keywords: Case Study

**Flood Risk Communication Case Study: Tulsa, Oklahoma**

*Abt Associates Team (2016)*

A case study report that identifies challenges in risk communication along with potential solutions for overcoming those challenges in the context of Tulsa, Oklahoma. The report discusses the Oklahoma Silver Jackets team pilot program for public engagement that lays out a strategy for educating members of the public on flood risk and encouraging them to take actions to reduce risk.

Source file: <https://www.iwrlibrary.us/document/2883782c-cb77-4c5f-d098-3a7fd33f34c0>  
[\(Series\)](#)

Keywords: Case Study

## **Flood Risk Communication: Challenges, Successes, and Lessons Learned**

*Abt Associates Team (2016)*

This study assesses outreach programs of ten communities to understand common challenges of risk communication, and where possible, identify potential solutions to overcoming these challenges. The document synthesizes the results of the study and provides individual vignettes (case studies) about each community. The case studies are also posted individually to this section of the Toolbox.

Source file: <https://www.iwrlibrary.us/document/c829a764-72d2-42c7-9032-e358ca7fb8f3>

(Series) Keywords: Case Study

### **Frank Billingsley Flood Story**

*Floodtools.com (2012)*

A testimonial video of a homeowner who explains the importance of having flood insurance after a flood damaged his home.

Source file: <https://www.youtube.com/watch?v=YsEPXZZFAfY>

Keywords: Case Study

### **Heavy Rain and Snowmelt**

*Floodtools.com (2012)*

A testimonial video of business owners affected by heavy rain and snowmelt who were grateful for having flood insurance.

Source file: <https://youtu.be/c0IR9jHyhyc>

Keywords: Case Study

### **Hurricane Katrina, New Orleans Flood Story**

*Floodtools.com (2012)*

A testimonial video depicting a homeowner affected by levee breaches in New Orleans during Hurricane Katrina. She expresses the importance of having flood insurance.

Source file: <https://www.youtube.com/watch?v=Lz8nr4Mjk6M>

Keywords: Case Study

**Mary Martin Flood Story, Waterbury VT**

*Floodtools.com (2012)*

A testimonial video showing the effects of Hurricane Irene on an individual's home in Vermont. She states that she was able to rebuild her home quickly because she had flood insurance at the time of the flood event.

Source file: <https://www.youtube.com/watch?v=1Su9K9JG2IM>

Keywords: Case Study

**Rich Smith Flood Story**

*Floodtools.com (2012)*

A testimonial video of a homeowner who discusses the importance of having flood insurance as he rebuilds his home after a flood.

Source file: <https://www.youtube.com/watch?v=ORVeqquoPkE>

Keywords: Case Study