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# Floodplain Management 2010

## State and Local Programs



Final Report

The Association of State Floodplain Managers  
[www.floods.org](http://www.floods.org)



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## State and Local Programs

### Final Report



The Association of State Floodplain Managers, Inc.  
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## Foreword

The Association of State Floodplain Managers is pleased to present *Floodplain Management 2010: State and Local Programs*. This report is an update on the state of floodplain management programs throughout our nation. This report updates and supplements previous reports issued in 1989, 1992, 1995, and 2003 and is the most complete national summary of the practice of floodplain management at the state and local levels. As in the past, we hope that the material contained in this report will be a useful reference for those in the floodplain management community interested in comparing state and local programs throughout the United States.

This report demonstrates how the scope of state-level programs has grown even more over the years. It shows how the activities that states have undertaken have multiplied, and how different approaches to perennial problems continue to emerge. States continue to play a vital role in reducing flood losses by providing direct technical assistance to local governments; enforcing regulatory requirements; training local floodplain managers, insurance agents, engineers, surveyors, and others; managing or assisting with hazard mitigation activities; mapping flood hazards; managing protection and restoration projects and programs for floodplain resources and functions; and fostering state and regional floodplain management organizations.

This report is a summary or snapshot on what state programs are doing in the floodplain management arena. It attempts to look at current trends and highlights best practices for good floodplain management. It is our hope that by sharing this information, all can benefit and continue to build strong and sustainable floodplain management programs. Our many thanks go out to all those states that took the time to share their insights to make this publication possible. *Effective* floodplain management demands that states and communities be creative in their approaches, efficient in their performance, and comprehensive in their efforts. We hope that this publication can help provide insights to achieving that goal.

Additional information, advice, and encouragement are always available through the ASFPM. Phone or email the Executive Office to get started.

Gregory Main  
*Chair*

The Association of State Floodplain Managers

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Special thanks are due to Jacquelyn Monday, JLM Associates and Cynthia Crecelius, CC Consults for their knowledgeable guidance that permitted the integration of this survey and report with the Ten Principles of *Effective State Floodplain Management Programs (ASFPM 2003)*. This forward thinking approach toward standardized communication of floodplain management principles and practices will make the work easier for all those involved in floodplain management.

The ASFPM is deeply grateful for the time and effort contributed by all the state personnel who provided detailed responses to this comprehensive survey. The project team especially appreciates Joy Duperrault, Florida State Floodplain Manager and NFIP Coordinator for her patience and feedback during initial testing of the web-based survey. This report would not be possible without the input by everyone involved with the state floodplain management programs.

## Further Information

The *Floodplain Management 2010: State and Local Programs* project consisted of several components, which included: 1. The web-based survey tool; 2. The survey database; 3. The written report; and 4. The web-based reporting tool. The foundation of this report is based on having all of the survey responses fed directly into the survey database via the web-based survey tool. The comprehensive data collected and stored in the database supported the writing and analysis that is found in this report, but the database can provide much more. For this reason, the Association of State Floodplain Managers has created a website that will provide access to this report along with new ways to view and compare the data.

The ASFPM website provides access to the following documents, data and analysis for download and viewing:

- **Web-Based Mapping Portal:** The Web-map allows you to select a specific survey question and then view and compare how each participating state responded to that question.
- **Final Report:** This report entitled *Floodplain Management 2010: State and Local Programs – Final Report*. (63 pages)
- **Appendix:** Full appendix providing detailed tables of survey responses entitled *Floodplain Management 2010: State and Local Programs – Appendix*. (165 pages)
- **Synopsis Report:** Brief synopsis of final report for quick understanding of major issues and conclusions. (8 pages)
- **Survey Questions:** Printed version of the on-line survey questions.
- **Individual State Surveys:** Detailed survey responses for a specific state.

For further information, go to the *Floodplain Management 2010: State and Local Programs* Webpage at [www.floods.org](http://www.floods.org). Use the search term “FPM 2010”.

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## INTRODUCTION

The extent to which flood-prone areas are occupied by human activity is directly proportional to the amount of damage that can occur when flooding takes place. Flooding is a universal happening and every state and territory in the United States has been impacted by this natural, reoccurring event. Consequently the federal government, state governments, and local governments have a long history of undertaking activities that are designed to reduce the impacts of flooding.

It is important to note here, however, that floodplain management is not just about reducing flood losses. It is also about the prudent management of floodplain resources which are interwoven to make it one of the earth's most valuable ecosystems. Therefore, floodplain management is both about reducing the impacts due to floods as well as about managing floodplain resources.

Natural floodplains, whether along the coasts or in riverine or lake areas, improve quality of life by virtue of their role in maintaining overall environmental health. These areas are complex ecosystems that are in turn a part of larger systems. They filter air and water; provide habitat for wildlife; store flood waters; recharge aquifers; and buffer noise, wind, waves and storms. States that preserve these functions are improving their quality of life. Consequently, floodplain management is about reducing losses due to flooding as well as preserving and restoring natural floodplain functions. In short, it is about the management of the floodplains.

### **A Brief Overview of Floodplain Management**

The concept of floodplain management has a broad and varied history, and no simple definition is capable of capturing all of its components. A number of historic documents have characterized the subject, including *House Document 465 – A Unified National Program For Managing Flood Losses*, issued in 1966 by the U.S. Task Force on Federal Flood Control Policy. In 1976, the United States Water Resources Council issued *A Unified National Program for Floodplain Management* (updated in 1986 and 1994). This report set forth a conceptual framework and recommendations for actions at all levels of government to reduce flood losses through floodplain management.

Floodplain management can be regarded as a continuous decision-making process that aims to achieve the wise use of the nation's floodplains. The process typically includes the issuance of permits for development as well as more comprehensive tools, such as land use planning and growth management, protection of the floodplain's natural functions, and traditional structural flood control works.

The National Flood Insurance Program (NFIP) regulations written in 1976 focused on defining floodplain management as "the operation of a community program of corrective and preventive measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special purpose floodplain ordinances" (from [www.fema.gov/plan/prevent/floodplain/index.shtml](http://www.fema.gov/plan/prevent/floodplain/index.shtml), accessed March 25, 2011). Historically, the NFIP has focused on identification of flood hazard areas, regulations to recognize those flood hazards in the developmental process, and administration of flood insurance.

Beginning in the mid-1970s, each governor designated a “state coordinating agency” for the NFIP, with coordinating duties and responsibilities under that program. Since then, the scope and variety of state floodplain management authorities, responsibilities, and initiatives have multiplied. These efforts were made possible in part by those involved in the founding of the Association of State Floodplain Managers (ASFPM) and its State Chapters.

### **Principles for Effective State Floodplain Management**

It has become clear over the years that there is no one “perfect” model for a state floodplain management program. Every state has its own unique combination of factors that shape its approach to managing flood risks and floodplain resources. These components of a floodplain, which vary significantly by geographical region, can vary by each individual floodplain as well. In conjunction with this difference in geographical regions, the constitutionally established relationships between states and local jurisdictions also differ considerably from state to state. Furthermore, the political cultures of each state and its local governments often are such that program components that work well in one state may not be acceptable in another.

Given these factors, in 2003 the ASFPM published the Ten Guiding Principles of *Effective State Floodplain Management Programs (ASFPM 2003)*. This landmark undertaking was the first attempt by any organization to identify and record standards by which states could measure their efforts in the management of their floodplains. Taking into consideration the differences between states, local governments, and geographical regions, these principles are not meant to be the sole model that state and local programs should follow to accomplish effective floodplain management. Rather, they establish a set of standards whereby state programs can gauge their accomplishments in achieving their goal of effective floodplain management. It can be estimated that all effective state floodplain management programs contain at a minimum, components that are consistent with these 10 guiding principles listed below:

#### **PRINCIPLE 1:**

State floodplain management programs need strong, clear authority.

#### **PRINCIPLE 2:**

State floodplain management programs should be comprehensive and integrated with other state functions.

#### **PRINCIPLE 3:**

Flood hazards within the state must be identified and the flood risks assessed.

#### **PRINCIPLE 4:**

Natural floodplain functions and resources throughout the state need to be respected.

#### **PRINCIPLE 5:**

Development within the state must be guided away from flood-prone areas; adverse impacts of development both inside and outside the floodplain must be minimized.

**PRINCIPLE 6:**

Flood mitigation and recovery strategies should be in place throughout the state.

**PRINCIPLE 7:**

The state's people need to be informed about flood hazards and mitigation options.

**PRINCIPLE 8:**

Training and technical assistance in floodplain management need to be available to the state's communities.

**PRINCIPLE 9:**

The levels of funding and staffing for floodplain management should meet the demand within each state.

**PRINCIPLE 10:**

Evaluation of the effectiveness of states' floodplain management programs is essential and successes should be documented.

**Document Organization**

This document is a summary of state responses to the 2010 State & Local Floodplain Management survey undertaken by the ASFPM. Similar surveys in 1989, 1992, 1995 and 2003 allowed the ASFPM to compile its national tally of the practices by which state and local governments manage their floodplains. This 2010 survey will once again detail what the states are doing in the floodplain management arena. The digital survey itself was available via the internet and when printed was made up of approximately 55 pages of questions, often with several questions per page. Hence it became impractical to attempt to incorporate every question and response from the survey into the body of the document. As a result, the more prominent questions and their responses are included in the body of the report. A more all-inclusive set of survey results is included in the Appendix (see Further Information at the beginning of this report for directions on acquiring from ASFPM website).

Like the survey itself, this document has been divided into ten individual sections that tracked each of the Ten Guiding Principles of Effective Floodplain Management listed above. To further aid in the continuity of this document's organization, these ten sections were then placed into four groups of similar focus. These are:

- I. PROGRAM AUTHORITY, FOUNDATION AND FUNDING
- II. IDENTIFYING HAZARDS AND PLANNING
- III. INFORM, TRAIN, EDUCATE AND MITIGATE
- IV. EVALUATE

Each Principle is then divided into four components:

- Description of the Guiding Principle,
- States' responses to selected survey questions and comparison to 2003 survey data where possible,
- Analysis of selected survey responses states provided for that Principle and;
- Summary

Survey questions used for comparison or analysis will have the question number provided for cross-reference to the original survey available from the ASFPM website. The analysis section for each principle is designed to provide - to the extent possible - analysis of the data that was derived from the 2010 survey. This analysis will be bracketed by the level of response from the states to particular questions, and will illustrate relevant changes in the programs from 2003 to 2010 as well as obvious strengths and weaknesses that have evolved during that time. The exception is for Principle 10. Since there were no questions in the 2003 survey relative to this particular principle, there will not be any comparisons made to 2003 data.

Please note that there was an approximate 74% response rate from the states and territories to this survey. However, not all responding states and territories provided answers to every question. Therefore, in order to provide consistency for data interpretation, responses to each question are presented in this document as percentages of the total number of responses to that particular question. See the introduction to the Appendix for a list of states responding to the survey.

### Acronyms

For reference, the following is a list of acronyms that will be used throughout this document. Each acronym definition will be introduced the first time in the text of the document, with the acronym used thereafter.

<b>ASFPM</b>	The Association of State Floodplain Managers
<b>CAC</b>	Community Assistance Contacts
<b>CAP</b>	Community Assistance Program
<b>CAP-SSSE</b>	Community Assistance Program –State Support Services Element
<b>CAV</b>	Community Assistance Visits
<b>CEC</b>	Continuing Education Credit
<b>CFM</b>	Certified Floodplain Managers
<b>CTP</b>	Cooperating Technical Partners Program
<b>DEM</b>	Digital Elevation Model
<b>DFIRM</b>	Digital Flood Insurance Rate Map
<b>FEMA</b>	Federal Emergency Management Agency
<b>FIRM</b>	Flood Insurance Rate Maps
<b>FMA</b>	Flood Mitigation Assistance Program
<b>FPM</b>	Floodplain Management
<b>FTE</b>	Full Time Employee
<b>GIS</b>	Geographic Information System
<b>H&amp;H models</b>	Hydrologic and Hydraulic Models
<b>HAZUS-MH</b>	Hazards U.S. Multi-Hazard
<b>HMA</b>	Hazard Mitigation Assistance Program
<b>HMGP</b>	Hazard Mitigation Grant Program
<b>LOMA</b>	Letter of Map Amendments
<b>LOMC</b>	Letter of Map Change
<b>LOMR</b>	Letter of Map Revisions
<b>MMMS</b>	Map Modernization Maintenance Support
<b>NAI</b>	No Adverse Impact

<b>NFIP</b>	National Flood Insurance Program
<b>PDM</b>	Pre-Disaster Mitigation Program
<b>RFC</b>	Repetitive Flood Claims Program
<b>SHMO</b>	State Hazard Mitigation Officers
<b>SRL</b>	Severe Repetitive Loss Program
<b>USGS</b>	U.S. Geological Survey

## I. PROGRAM AUTHORITY, FOUNDATION AND FUNDING

### PRINCIPLE 1:

#### **State floodplain management programs need strong, clear authority.**

*Effective state programs are stable and long lasting. They are founded with clear legal authority, work cooperatively with local governments and other state and federal agencies, and are supported by adequate resources. Good state-level floodplain management programs allow evolution and improvements in response to changes such as major floods, new research and management techniques, and new federal programs and initiatives.*

An effective state program goes beyond the minimum level of commitment required by federal programs, such as the National Flood Insurance Program (NFIP), to incorporate other techniques and actions that will enable it to best serve the citizens, property, and resources within its jurisdiction and protect them from floods. It also ensures not only that its localities are authorized (by appropriate legislation) to take action to exceed minimums, but also that they are required, or at least encouraged, to do so. It stays abreast of the relevant state and federal case law on liability as it pertains to floodplain management, and on court decisions about the constitutionality of land use and other regulations.

### A. 2010 Survey Response

The survey questions in this section relate to the authority held by states and their localities for administering floodplain management.

#### **State's Primary Floodplain Management Program Location**

Effective statewide floodplain management flows from an established program that has a clear mission, clear statutory authority, a high level of legislative support, adequate and reliable funding, and demonstrated effectiveness. By itself, the NFIP is not enough to effectively manage a state's floodplains. Coordination of the various aspects of the NFIP within the state does, however, provide a core component of a state's floodplain management program.

The NFIP requires each state to designate an agency as the NFIP State Coordinating Agency, and that agency, in turn, assigns one or more individuals to be responsible for the function. Commonly called the State NFIP Coordinator, this is an important function because an active, productive partnership with the Federal Emergency Management Agency (FEMA) helps ensure that the NFIP satisfies the needs of the state and its citizens, and in many cases helps establish a foundation of broader state efforts. In most states or territories, this function is housed in a department or agency for natural resources, water resources, community planning, emergency preparedness/management, or environmental protection. The location of the state program can, and sometimes does, affect the program's status among other state programs and likewise its approach to administering its requirements. Therefore determining the location of state programs can provide insight to their effectiveness. When asked the question below, the responding states provided the following:

***What kind of agency operates your state’s primary floodplain management program? (Question 1)***

<b><u>2010</u></b>		<b><u>2003</u></b>
62%	Environmental Protection/Natural Resources Agencies	61%
16%	Emergency Management/Military Affairs Agencies	21%
13%	Planning and Community Development Agencies	16%
9%	Other agencies such as Public Safety, Planning Board, Water Resources, and Transportation & Development	2%

**Division of Authority for Floodplain-Related Actions**

States have different forms of government, and that affects the way they manage their floodplains. Known as Dillon Rule, some states strictly limit the authority of local jurisdictions to only those authorities explicitly granted by the state legislature. Other states allow local jurisdictions broad authority to adopt rules and regulations that each jurisdiction finds appropriate to its circumstances. This is commonly known as Home Rule. The value of these forms of government need to be recognized and incorporated in a strong statewide floodplain management program.

Typically this state to local authority is laid out in one of three ways. Some states implicitly grant to communities the full, broad, and unrestricted authority to regulate land use and development, while other states explicitly grant and fully define the authority that they convey to communities. Some states grant partial authority to communities to regulate flood hazard areas, while retaining sole authority over certain activities or over certain portions of the floodplain. And some states share regulatory authority with communities over all or part of their floodplains. The response to this survey question describes the division of authority for floodplain related actions. When asked the question below, the responding states provided the following:

***Which of these describes the division of authority for floodplain-related actions in your state? (Question 2)***

- 61% Of the states explicitly or implicitly grant full regulatory authority to communities and retain no clearly defined regulatory role at the state level.
- 23% Of the states split authority with communities by granting authority to regulate some areas of the floodplain or some activities while retaining sole regulatory jurisdiction over certain areas of the floodplain or certain activities.
- 16% Of the states have overlapping or shared regulatory authority over the same area and/or same activities with communities.

**Statewide Standards and Enabling Authority**

When an entity which is dependent on a legislative body for authorization of legitimacy is granted power to take a certain action by said legislative body, that is called enabling legislation. Good management of floodplains extends beyond simply issuing permits for development in floodplains. To be effective, local jurisdictions need a variety of tools, some of which may require explicit authority at the state level. Rather than simply issuing permits for all types of floodplain activities, effective programs guide the nature of these activities in full recognition of their short- and long-term impacts on the floodplain itself. Determining the extent of authority over various aspects of floodplain

management and how that authority is derived is critical in determining the effectiveness of the state and local programs. When asked the next two questions, the responding states provided the following:

***What enabling legislation exists within your state for the following policies and where does authority lie in relation to those policies? (Question 3)***

- 78% of the states reported enabling local authority with floodplain management.
- 78% of the states reported enabling local authority with floodplain permitting.
- 75% of the states reported enabling local authority with zoning.
- 77% of the states reported enabling local authority with subdivision ordinances.
- 61% of the states reported enabling local authority with stormwater management.

**TABLE 1:**

***What statewide standards have been established by your state for the activities listed below and indicate if the standards were created by Governor’s Executive Order or the State Legislature. (Question 4)***

Activity	Executive Order	Legislative	Neither or not-applicable
Floodplain management	23%	67%	10%
Wetlands protection	2%	71%	27%
Hazard mitigation coordination	26%	41%	33%
Other floodplain-related matters	14%	39%	47%

The following survey questions within this section refer to state agency authority to carry out a program of monitoring and enforcement. Monitoring is defined as the review or oversight of activities that affect the floodplain, including local permitting and staff capabilities, as well as the actions of other state agencies. Enforcement can be defined as those actions that may be undertaken to remedy violations.

**Enforcement Mechanisms**

Although most localities administer their floodplain management programs effectively, enforcement issues can and do arise. When violations of local ordinances are suspected, or when it becomes evident that communities are not adequately resolving technical and administrative deficiencies in the management of their floodplains, states can take action to get the situation remedied. The first step in virtually every state is to provide additional technical assistance to the community to help it resolve its difficulties. During this phase some states take a fairly active and directive role, others act as coordinators, while some refer the situation to FEMA and participate in a supportive role thereafter. When asked the question below, the responding states provided the following:

***Which agencies in your state have oversight or monitoring responsibilities for floodplain management regulations or standards that are based on state (not local) law? (Question 7)***

- 5% Agriculture and Food Safety
- 13% Coastal Zone Management
- 24% Emergency Management
- 58% Environmental Protection/Natural Resources

If no state agency has oversight responsibility, then typically that authority would be with the local unit of government.

If technical assistance and consultation do not meet with success, sanctions can be applied to the community or to property owners and developers, depending on the situation. Some states have direct authority to apply enforcement mechanisms themselves (separate from enforcement of state regulations and permit conditions) or ask a court to order a remedy. FEMA can put a community on probation (which adds a surcharge to the flood insurance premium payments for residents of the community) or eventually suspend the community from the NFIP (at which point all the residents lose eligibility to purchase or renew flood insurance, as well as access to federal individual assistance after a federally declared disaster). When asked the question below, the responding states provided the following:

***What authority does your state have to enforce local floodplain management standards? (Question 8)***

- 40% Have authority residing with the community
  - 29% Have authority shared between the state and the community
  - 19% Have authority shared between the state, the community and FEMA
  - 12% Have authority shared between FEMA and the community
- No state responded that it had final authority.

In 2006 and 2007 seven California flood bills passed the state legislature. This created several new mandated floodplain management responsibilities and provided bond funding for their execution.

## **B. Analysis of Selected Data from 2003 and 2010 Surveys**

In the past seven years, very little change has taken place as to where state programs are located with the vast majority still being housed in Environmental/Natural Resources Agencies. As long as the program has the strong legal authority, adequate funding support and sufficient staff to carry out its legislative mandate, the exact location of the program is of secondary importance. There has, however, been a significant shift in the statewide authority for statewide standards in floodplain management, wetlands management and hazard mitigation coordination. According to the data, for these three activities there has been a move away from executive orders and toward state legislatures. Since executive orders are issued by the executive branch of state government, this may be seen as a positive development since it takes it out of the hands of each new incoming administration and places it in the legislative branch where more permanence may be anticipated.

The second item highlighted by the data is that state enabling legislation largely provides authority for floodplain management, floodplain permitting, land use planning, zoning, and subdivision ordinances to reside with local authorities. Of the states responding, 61% reported that they explicitly or implicitly grant full regulatory authority to communities and retain no clearly defined regulatory role at the state level. This is the same as previous surveys and this tendency to place this authority with local government does follow the base requirements set forth for a community's participation in the National Flood Insurance Program.

No states responded that they had final authority to enforce local floodplain management standards. Legislation and oversight can, and oftentimes does, reside at the state and federal level. For the most part, however, the actual authority for the implementation of the base elements of floodplain management still resides at the local level of government, and that is likely to continue.

**Summary**

- The majority of state floodplain management programs are still located in natural resources agencies.
- State floodplain management authority has shifted somewhat from the executive branch to the legislative branch.
- Implementation of the base elements of floodplain management and the National Flood Insurance Program regulations continues to reside primarily at the local level of government.

**PRINCIPLE 9:**

**The levels of funding and staffing for floodplain management should meet the demand within each state.**

*Effective state floodplain management programs know that it is not enough to rely on federal funding to meet state needs or effectively reduce flood costs and damage. Behind an effective state floodplain management program are state executive and legislative branches that have committed adequate staff resources and funding to the necessary program elements and agencies.*

*Effective States have assessed the needed level of funding and staffing, based on factors appropriate to their states such as flooding, local administration, and anticipated functions of staff members. Floodplain management programs' budgets are developed with this information to include salaries, operations, mapping, mitigation grants, and other activities. States seek creative ways of obtaining funds and generating revenue.*

The second most important element of an effective floodplain management program is adequate financial and staffing support. This requires established funding source(s) and staff positions. Regardless of how well-designed a state program is in terms of its status and regulations, or how many state agencies are involved, it cannot perform as proposed if it lacks the resources to do so. Only when a state's executive and legislative branches commit adequate staff, resources, and funding to the various program elements and agencies will a floodplain management program operate efficiently and effectively in carrying out its mandate. The management of floodplains is fundamentally the responsibility of state and local governments. It would be impractical to rely totally on federal standards to address locally unique circumstances, federal funding to meet state needs and local demands, or federal action to reduce state and local costs and damages associated with flooding.

## **A. 2010 Survey Response**

### **Staff Levels, Capabilities and Demand**

Effective state programs are adequately staffed with personnel who have the requisite knowledge, skills, and abilities in floodplain management. The number of flood-prone local jurisdictions and the frequency and severity of floods can, but not always, be factors that influence state staffing levels. In addition to this, staffing levels can also be affected by:

- The degree of state regulatory authority over floodplains and local communities;
- The extent to which state mapping programs include studies, reviews of maps and restudies;
- The number and frequency of community visits to monitor local program performance;
- The number and frequency of community visits to provide technical assistance;
- The geographical size of the state itself.

Although the level of staffing that is adequate varies from state to state, it is possible to get a rough idea of the number of personnel that would be needed for the program to be effective. Based on some of the state programs that are or have been effective in the past, it is safe to figure on approximately one state floodplain management staff person for each 25 to 35 flood-prone communities in the state. That starting point could be adjusted up or down somewhat depending on factors such as level of state

versus local authority, intensity of development, or number of at-risk structures. The staff should have the mix of disciplines explained below, and the more staff the state can place in field offices (closer to the communities), the more potential for communities to get to know them, trust them, and call on them for guidance. State personnel may also be distributed among several state agencies. When asked the question below, the responding states provided the following:

***Since 2003, have any of your state floodplain management related programs or functions changed in any of the following ways? (Question 132)***

- 71% Had programs or functions added
- 18% Had programs or functions discontinued or abolished
- 12% Had programs or functions funding discontinued but activities still continued
- 29% Had no changes

Note that the total percentage does not add up to 100% because some states had functions added and discontinued.

In North Carolina, the state floodplain management program has been merged with the state mapping program, creating a distribution of cross-level responsibilities and allowing staff to be cross-trained.

The desirable mix of professional disciplines required to staff an effective state floodplain management program (which can be spread among multiple agencies) can be selected from among the following:

- Certified Floodplain Managers (CFMs) can ensure overall consistency and knowledge in program implementation;
- Professional planners can contribute interdisciplinary skills that are critical to many elements of floodplain management;
- Civil engineers, water resources engineers and other engineering disciplines are required for state mapping programs and as technical support;
- Structural engineers can support building code reviews and evaluate proposals to flood proof individual buildings;
- Geographic Information System (GIS) specialists are required to support a variety of data assembly functions, impact analysis, risk assessment and mapping;
- Specialists in geography, geology, ecology, coastal geomorphology, fluvial geomorphology, hydrology, meteorology, benefit cost and emergency management may be essential depending on the nature of a state's floodplains and flood-related hazards;
- Public information specialists are needed to craft effective outreach initiatives, put out consistent information, and to deploy technical workshops and training sessions;
- Administrative support staff, including technicians, is vital to efficient program delivery.

When asked the following question regarding professional affiliation of staff members, the responding states provided the following:

**How many Full Time Employees (FTEs) in the following disciplines best characterizes your state's floodplain management staff? (Question 134)**

<u>2010</u>		<u>2003</u>
31%	Engineers, architects, landscape architects	49%
30%	Planners	25%
32%	Other technical (e.g. hydrologist, geologist, GIS)	12%
7%	Support (e.g. clerical, administrative)	14%

When asked the following questions regarding the education of staff members above, the responding states provided the following:

**For each of the FTEs in your state's floodplain management staff, what is the highest degree received? (Question 135)**

<u>2010</u>		<u>2003</u>
24%	Post-graduate degree	27%
55%	College Degree	68%
2%	Community college degree	1%
2%	Two-year technical degree	4%
17%	High school graduates	ND

ND: No Data

It is difficult to determine exactly how many individuals work in floodplain management at the state level because of the different tasking of the individuals during the course of their 2080 working hours per year and job descriptions. The range reported is between 50 individuals to 1 individual per state.

**The following, however, can be determined from the responding states:**

- 5 to 6 Average state floodplain management staff size **(Question 133)**
- 70 Average years experience of each floodplain management staff **(Question 136)**
- 3 to 4 Average number of Certified Floodplain Managers (CFMs) on each state staff **(Question 137)**

**Funding Levels and Sources**

Of equal importance to staffing levels and strong authorities is funding to operate the floodplain management program. To maintain their effectiveness, state programs must be supported by adequate, consistent and reliable funding. Different funding sources can be used, separately and in combination, to support elements of floodplain management programs, including the following: Appropriations of state funds for operations budgets and special purpose funds; fees and surcharges; federal grants; and others. FEMA provides some funding for specific functions related to the NFIP, NFIP mapping and additional funds to support certain mitigation activities.

As with staffing, the appropriate funding levels are a function of the specific program's components and how they are distributed among various state agencies. The most obvious elements of funding are:

- Program annual budget;
- Salaries & fringe benefits;
- Travel costs;
- Operating costs; and
- Funding sources.

The long-term effectiveness of state floodplain management programs should be ensured by a long-term commitment to state funding. When asked the next four questions relating to budget, the responding states provided the following:

**What is the approximate total annual budget for your floodplain management program based on the following resources? (Question 140)**

\$147,715	Average state funding
\$160,235	Average FEMA funding under Community Assistance Program –State Support Services Element (CAP-SSSE)
\$845,689	Average for each state reporting receiving Cooperating Technical Partners (CTP) FEMA funding
\$666,000	Average for each state reporting receiving grants - e.g. cost-sharing mitigation grants
0	Average alternative sources (e.g. permit fees, surcharges, taxes, etc.)
\$1,788,000	Average for each state reporting funding received from other sources

**Please estimate your total budget allocated in each of the areas below: (Question 141)**

<u>2010</u>		<u>2003</u>
\$402,582	Average salaries and fringe benefits per state staff	\$356,225
\$ 19,470	Average travel budget per state staff	\$15,711

**Please indicate the percentage of each budget that comes from Community Assistance Program (CAP) funds and the percentage that comes from state funds: (Question 141.1)**

<u>2010</u>		<u>2003</u>
66.6%	Average from CAP funds per state program	61%
30.1%	Average from state funds per state program	39%
03.3%	Average from other funding sources per state program	ND
ND: No Data		

**TABLE 2:**

**What is your state floodplain management program’s current budget status compared to last year’s, based on state and federal funding sources? (Question 143)**

	Programs with Increase	Programs with Decrease	Programs with No Change
State Funds	13%	16%	71%
Federal Funds	29%	13%	58%

88% of the responding states reported receiving some funding from the FEMA CAP-SSSE Program with 2 out of 3 of those receiving at least 75% of their total budget from that federal program.

## **B. Analysis of Selected Data from 2003 and 2010 Surveys**

The education level of state floodplain management staffs has stayed relatively the same over the past seven years with the vast majority of staff (79%) being either college graduates or post graduates. The 2010 survey shows 17% of staff being high school graduates. This item was not surveyed in 2003, but it is assumed that these individuals are more likely support type staff. The average staff size per state has stayed relatively the same with a significant increase in the number of CFMs on each staff with an average increase of 1.2 to 3.5 CFMs per staff. There is also an almost equal balance in the various professional disciplines that make up these staffs with a slight drop in the number of engineers on state staffs from 2003.

There may be a slight discrepancy in the information reported on budgets between 2003 and 2010 because of possible differences in how the state budget information was derived. The data shows, however, a slight decrease in state funding for state floodplain management programs. This would be in line with the decrease in state budgets across the country due to the shortfall in state revenues and budget cuts across the boards. There can, however, be more confidence in the data reported on CAP-SSSE funding per state since this is a direct budgetary line item. Based on the information received, the average CAP-SSSE funding per state increased over the last seven years.

Both of these items would be in line with the reported data. The data showed that the average state funding for state programs decreased by approximately 9% and the average CAP-SSSE funding increased by approximately 5.6% over the past 7 years. Also, 16% of the reporting states showed a decrease in state funding and 29% showed an increase in federal funding.

By contrast, however, even though there has been a slight decrease in state funding for the state floodplain management programs, 71% of those states reported having programs or functions added and only 18% reported having programs or functions discontinued or abolished. This portrays a general picture, but without more details, little can be read into these numbers.

### **Summary**

- Since 2003, the education level of state floodplain management staffs has stayed approximately the same.
- The staff sizes have likewise stayed approximately the same.
- There has been a slight drop in the average number of engineers on state staffs since 2003.
- There has been a marked increase in CFMs per state staff.
- There has been a slight decrease in state funding for state floodplain management programs and an increase in federal funding for those programs, with the total average funding per reporting state showing a small increase in total funding.
- By contrast, there has been a significant increase in the number of programs and functions being added to state programs.

**PRINCIPLE 2:**  
**State floodplain management programs should be comprehensive and integrated with other state functions.**

*Effective state floodplain management programs set a performance standard by ensuring not only that flood hazards are identified, avoided, minimized, and mitigated but also that floodplain functions and resources are protected. In addition, state floodplain management programs should be comprehensive and be integrated with elements from many state, federal and local agencies and their programs. Because the actions and policies of these agencies can influence new development, mitigation of existing flood risks, and resource management, effective state floodplain management is not confined to a single office or agency but is more holistic in its implementation.*

**A. 2010 Survey Response**

**State Program Activities**

Most state level floodplain management programs are a composite of varied activities undertaken by different agencies and other entities within the state. The state NFIP Coordinator's Office is typically the focal point of a state's floodplain management activities and additional floodplain management activities in other state agencies. That office is usually designated by a governor's executive order. In most states or territories, this function is housed in a department or agency for natural resources, water resources, community planning, emergency preparedness/management, or environmental protection. State floodplain management programs devote time to at least nine categories of activities. States were asked to consider their program's overall effort, including time, personnel and funding, and determine what proportion of their state's floodplain management program is devoted to the tasks usually assigned to the state NFIP coordinator's office. ***The average percentage of staff time spent on each of these categories is listed below: (Question 13)***

**Average percentage of time spent on the activities**

Average percentage of time spent on the activities	Activities
45%	Monitoring and technical assistance to local programs
14%	Mapping or engineering
12%	Education and training for local officials, public, consultants, developers, etc.

The remaining 7 activities were listed as 8% of staff time (or less) per activity.

**Coordination with Other State Agencies**

A vital function performed by state floodplain management programs, in addition to the above, is that of coordinating the myriad of state, local, and federal programs that directly or indirectly affect that state's floodplains. Sometimes the state floodplain management office is the lead agency in such coordination and sometimes it is a participant in a broader process. Therefore, within a given state, there are several types of programs (state, federal, or local) with which the state floodplain management program coordinates its activities.

Effective state floodplain management programs are not confined to a single office, but instead are comprehensive and encompass elements from many state agencies and programs. State floodplain management programs should therefore coordinate on a regular basis with the agencies that may impact its floodplains. This is essential since the actions and policies of other state agencies can influence the impacts on, and the functions of, floodplains. In turn this means that all state agencies should have a consciousness about their effects on the state’s floodplains and ensure that they avoid, minimize, and/or mitigate the effects of their actions on the floodplains when carrying out their own programs and activities.

Some of the state agencies and their programs that typically have an impact on floodplain management within a state are:

- State Planning
- Environmental Quality
- Water Resources
- State Building Codes
- Dam Safety
- Levee Safety
- Natural Resources Protection
- Emergency Management
- Transportation and Road Construction
- Storm Water Management
- Housing, Community, and Economic Development
- Parks and Recreation
- Wetlands Regulations Protection
- Geographic Information System (GIS) Coordination
- Coastal Zone Management
- Mining, Mineral Survey
- Forestry

When asked the question below, the responding states provided the following as to the state programs with whom they most frequently meet:

**TABLE 3:**

***Please indicate the degree of coordination or interaction that is done between your state floodplain management program and each of the following state programs: (Question 11)***

<b>STATE AGENCY</b>	<b>Meet Regularly</b>	<b>Meet As Needed</b>	<b>Minimal or None</b>
Emergency Management	86%	14%	0%
Dam Safety	52%	36%	12%
Transportation	41%	45%	14%
Environmental Quality	40%	43%	17%
Levee Safety	38%	26%	36%
Natural Resource Protection	36%	50%	14%
Storm Water Management	36%	36%	28%
Wetlands Regulation-Protection	36%	48%	16%

**Coordination with Federal Agencies**

The programs, policies and activities of state and local jurisdictions also overlap with federal agencies and their programs and activities. States should work to ensure that these federal programs are well-integrated among the levels of government involved. Of the federal agencies with interest in state floodplain management (excluding FEMA), the U.S. Army Corps of Engineers is the one with which most states coordinate activities. Other federal agencies with which states coordinate are:

- Natural Resources Conservation Services
- U.S. Geological Survey (USGS)
- National Weather Service
- National Oceanic and Atmospheric Administration
- Environmental Protection Agency
- National Park Service

When asked the questions below, the responding states provided the following as to the federal programs with which they most frequently met and the division of work between the FEMA Regional Office and the state office.

**TABLE 4:**

*Please indicate the degree of coordination or interaction that is done between your state floodplain management program and each of the following federal programs: (Question 12)*

FEDERAL AGENCY	Meet Regularly	Meet As Needed	Minimal or None
FEMA	100%	0%	0%
Army Corps of Engineers	60%	33%	7%
National Weather Service	52%	26%	22%

In addition to the above, states were asked the following question.

**TABLE 5:**

*Please indicate the division of work between the FEMA Regional Office and the state office for the following: (Question 14)*

	Always or Mostly State	Evenly Split	Always or Mostly FEMA	Not Applicable
Community Assistance Visits	81%	14%	1%	4%
Community Assistance Contacts	83%	11%	0%	6%
Workshops-NFIP Related	72%	19%	9%	0%
Outreach	69%	26%	4%	1%
Ordinance Reviews	72%	20%	7%	1%
General Technical Assistance	86%	13%	0%	1%
Engineering Assistance	41%	18%	41%	0%
Planning Assistance	65%	23%	5%	7%
Submit for Rate Application	5%	5%	42%	48%
Repetitive Loss Activities	23%	37%	40%	0%
Insurance-Related Activities	14%	25%	61%	0%
Pre-Disaster Mitigation Activities	49%	35%	12%	4%

### **State Adherence to NFIP Standards**

Likewise, effective state floodplain management programs should not only extend into the many facets of state, federal, and local government, but it should extend beyond the minimum requirements of the state coordinating agency for the NFIP as well. States should avoid, minimize, and/or mitigate the effects of flood hazards when they are carrying out their own activities and programs. Under the NFIP, a state meets the definition of a “community” and thus FEMA expects that state’s construction projects in mapped flood zones comply with the minimum floodplain management criteria set forth in Code of Federal Regulations 44 CFR 60.3 – *Flood plain management criteria for flood-prone areas*. Like a community, states are able to obtain federal flood insurance on state buildings in return for properly fulfilling their responsibilities as a participating “community.” States can take different approaches to meet or exceed the minimum requirements of the NFIP for state projects, such as requiring them to comply with local ordinances; adopting floodplain management regulations and permit requirements that apply to all state agencies and their construction activities; issuing a governor’s executive order; or incorporating standards into individual agency procedures and requiring review by the state’s floodplain management program. When asked the question below, the responding states provided the following:

#### ***Is your state compliant with the NFIP and meeting the requirements of 44 CFR 60.25? (Question 10)***

States reported that they were meeting the requirements of 44 CFR 60.25 in the following 5 of the total 12 criteria:

1. Encourage and help communities qualifying for participation in the NFIP;
2. Assist county and municipal public bodies and agencies in developing, implementing, and maintaining local floodplain management regulations;
3. Provide local government and the public with NFIP information on the coordination of local, Federal, and State floodplain management requirements;
4. Notify the NFIP of apparent irreconcilable differences between a community’s local floodplain management program and the minimum requirements of the NFIP;
5. Participate in floodplain management training opportunities and other flood hazard preparedness programs whenever practicable.

## **B. Analysis of Selected Data from 2003 and 2010 Surveys**

The data showed that the most prominent activity undertaken by the state NFIP Coordinator’s Office is monitoring and technical assistance to local programs with an increase from 37% of their time spent in 2003 to 45% in 2010. There has also been an increase in mapping and engineering activities during this period of time from 8% to 14%.

This aligns with data obtained regarding the division of work between the FEMA Regional Office and their state office. Between the years of 2003 and 2010 there was an increase in Community Assistance Visits (CAVs), Community Assistance Contacts (CACs), Ordinance Reviews, and General Technical Assistance undertaken mostly or always by the states. Consequently, as seen under Principle 9 (page 11), there has been an increase in FEMA funding to state floodplain management programs, and likewise under Principle 2 (page 16), an increase in states undertaking activities that are central to the NFIP.

The two most prominent state programs the reporting states met with regularly are emergency management and dam safety. The programs they met with least regularly were natural resources protection, stormwater management and wetland regulation-protection. Typically these latter programs were met with as needed. The federal agencies the state programs reported to have coordinated with on a regular basis were FEMA, Army Corps of Engineers and the National Weather Service. Approximately one-fourth of the states reported meeting with the Natural Resources Conservation Service and US Geological Service on a regular basis.

**Summary**

- Just as there has been an increase in FEMA funding to state floodplain management programs, there has likewise been an increase in monitoring and technical assistance activities undertaken by these programs.
- There continues to be a close coordination between state floodplain management programs and emergency management and dam safety programs at the state level.

## II. IDENTIFYING HAZARDS AND PLANNING

### **PRINCIPLE 3:**

**Flood hazards within the state must be identified and the flood risks assessed.**

*Flood hazard areas change over time, through deliberate modification or as a result of natural changes in the watershed or the body of water itself. An effective state floodplain management program ensures that the flood risks are known and that changing conditions are accounted for. Flood hazard areas need to be identified and delineated in order to:*

- *Avoid future flood damage and disaster costs;*
- *Apply regulatory criteria;*
- *Inform property owners and the public; and*
- *Craft mitigation measures for existing at-risk development.*

One of the basic foundations of floodplain management is the identification and delineation of flood hazard areas and floodplain resources within the state. Only in this way can future flood damages be avoided: By applying regulatory criteria, informing property owners and the public, protecting natural functions, and assessing risks and deciding upon appropriate mitigation measures for existing and future development. Flood-prone areas can change over time, through deliberate modification or as a result of natural changes in the water shed. Effective state floodplain management programs are concerned with ensuring that the flood risks are known and that changing conditions are accounted for.

The most common flood maps are those produced by FEMA's flood hazard mapping program. The program has specific mandates within the Housing and Urban Development Act of 1968 (also known as the National Flood Insurance Act of 1968), as amended; the Housing and Urban Development Act of 1969; the Flood Disaster Protection Act of 1973, as amended; and the National Flood Insurance Reform Act of 1994. FEMA is authorized to identify, publish and update information with respect to all flood-prone areas in the nation. The genesis of the FEMA mapping program began with floodplains drawn on 15 and 7 ½ USGS quadrangle maps and over the years it has advanced to the modernized digital mapping format that we now see today.

### **A. 2010 Survey Response**

#### **Flood Hazard Map Coordination**

Effective state floodplain management programs coordinate a variety of functions related to flood hazard mapping. Whether flood studies and maps are produced by a state agency, by consultants under contract to a state agency, or by other government entities, the state program has a very important coordination role in the entire flood mapping process which is further mandated by Code of Federal Regulations 44 CFR Part 60.25.

#### **Map Study Process and Priorities for the National Flood Insurance Program (NFIP)**

To foster the identification of flood hazards, the NFIP Coordinator's Office performs a number of specific functions related to mapping. These include, but are not limited to:

- Establishment of statewide priorities for new studies and revisions to existing flood maps;
- Dissemination of flood hazard information;
- Review, approval, and adoption of flood hazard maps;
- Revision and adoption of local floodplain management ordinances relevant to their NFIP maps;
- Maintenance of service centers where maps can be accessed and obtained and historic maps consulted.

When asked the three questions below, the responding states provided the following:

***Does your state program maintain and/or regularly update a priority list for mapping/Flood Insurance Studies/restudies? (Question 35)***

<u>2010</u>		<u>2003</u>
69%	Yes	84%
31%	No	16%

***Does your state floodplain management program conduct an engineering review of Hydrologic and Hydraulic (H&H) models developed to establish 1% chance flood elevations? (Question 33)***

<u>2010</u>		<u>2003</u>
36%	Yes	41%
64%	No	59%

In the state of Montana, H&H models are reviewed by six state engineers in the state Department of Natural Resources and Conservation. The review is part of a local community development permit technical review. In Illinois, the state review is required for all new studies and Letter of Map Revisions.

***Do you provide flood maps for public inspection on a walk-in basis? (Question 29)***

<u>2010</u>		<u>2003</u>
95%	Yes	100%
5%	No	0%

**Technical Assistance to Communities**

Effective state programs are capable of providing technical assistance to localities in the revising, updating and adoption of maps. This is needed because many communities do not have in-house engineering staff qualified in hydrologic and hydraulic modeling methods, making it difficult for them to adequately assess the technical material that supports new and revised flood hazard maps.

When asked the question below, the responding states provided the following:

***Does your state floodplain management program review proposed flood maps before they are adopted in local zoning ordinances? (Question 34)***

<u>2010</u>		<u>2003</u>
71%	Yes	47%
29%	No	53%

**Cooperating Technical Partners (CTP)**

Effective state programs foster initiatives to produce and revise flood hazard maps so that all users have current data on which to base decisions. The CTP program creates partnerships between FEMA and participating NFIP communities, regional agencies, and state agencies that have the interest and capability to become more active participants in the FEMA Flood Hazard Mapping Program. As CTPs, states contribute data and units of work to maximize the extent, accuracy, and usability of flood hazard studies to best meet a range of needs, while minimizing costs for all parties. Some partnerships involve cost-sharing, others recognize contributions of data or services, and some are simply recognition of ongoing functions that contribute to mapping goals. When asked the questions below, the responding states provided the following:

***Is your state a FEMA Cooperating Technical Partner (CTP)? (Question 36)***

<u>2010</u>		<u>2003</u>
84%	Yes	49%
16%	No	51%

***When did your state become a CTP? (Question 36.1)***

12%	1999
12%	2000
9%	2001
6%	2002
14%	2003
6%	2004
6%	2005
6%	2006
0%	2007
6%	2008
17%	2009
6%	2010

**Map Modernization Program**

NFIP maps typically have a shelf life based on the rate of development in a given area; hence, maps were constantly becoming outdated. In 1997, in response to this constant outdating of the maps, FEMA made a long-term plan to modernize the nation’s flood hazard mapping program. In addition, new technology has made it desirable and even imperative that the flood hazard maps be digitized, and benefit from the higher level of accuracy now possible. States assisted in an early step of the map modernization program, and are playing increasing roles as the effort progresses. Congress has provided funding for the implementation of the Map Modernization Program, including funds to support states in this effort. When asked the question below, the responding states provided the following:

***In 2002, FEMA made supplemental funds available for developing State Business Plans and Map Modernization Maintenance Support (MMMS). Did your state receive any of this supplemental funding in 2010? (Question 38)***

<u>2010</u>		<u>2003</u>
71%	Yes	72%
29%	No	28%

**State Hazard Identification Program**

Effective state hazard identification programs include both those that establish state standards and have the capability to perform detailed and complex analyses, as well as those that provide technical assistance to communities during review of studies performed by others. Key components of an effective program include the collection, permanent archiving, and dissemination of flood hazard area data and studies and ongoing coordination and priority setting with federal partners. Critical to the effort is the performance of floodplain studies and watershed studies (or contract for those studies) to address state and local needs and changes that are not reflected in national priorities. As an effective state floodplain management program requires adequate and dependable funding sources, so does a state mapping program. When asked the following three questions, the responding states provided the following:

***Does your state have its own flood mapping program? (Question 15)***

<u>2010</u>		<u>2003</u>
43%	Yes	47%
57%	No	53%

***Does your state contribute funds to the U.S. Geological Survey stream gaging program? (Question 16)***

<u>2010</u>		<u>2003</u>
69%	Yes	76%
31%	No	24%

***Does your state operate a stream gaging program separate from the U.S. Geological Survey? (Question 17)***

<u>2010</u>		<u>2003</u>
45%	Yes	37%
55%	No	63%

**Geographic Information Systems (GIS)**

A geographic information system (GIS) is any system that captures, stores, analyzes, manages, and presents data that are linked to location for informing decision makers. GIS can be thought of as a system that digitally creates and manipulates spatial areas that may be jurisdictional, purpose, or application oriented for which a specific GIS is developed. An effective state program fosters their communities' use of geographic information systems in order to take advantage of the flexibilities offered by this computer-based mapping. Every state has an agency or coordination council designated to lead efforts for consistency of standards, development of statewide data, and coordination of GIS use by state and local governments. Combined with other new technologies to acquire data, such as

satellite imagery, remotely sensed ground data, and global positioning system equipment, GIS has revolutionized how flood maps are prepared, distributed, and used. When asked the following seven questions regarding GIS, the responding states provided the following:

***Does your state floodplain management program have staff trained in the use of GIS? (Question 20)***

<u>2010</u>		<u>2003</u>
84%	Yes	72%
16%	No	28%

***What percentage of the localities in your state has GIS capability? (Question 27)***

<u>2010</u>		<u>2003</u>
45%	Average reported per state	22%

***Does your state provide its GIS flood mapping data to localities that have GIS capability? (Question 28)***

<u>2010</u>		<u>2003</u>
83%	Yes	49%
17%	No	51%

***Are riverine or coastal flood hazards areas included in your state GIS mapping efforts? (Question 19)***

<u>2010</u>		<u>2003</u>
86%	Yes	67%
14%	No	33%

***Does your state maintain an inventory of state buildings in flood hazard areas? (Question 21)***

43%	Yes
57%	No

***Below are the percentages of the responding states that possess what could be used to produce flood maps for non-modernized or unmapped jurisdictions or to improve FEMA's flood maps for the state. (Question 22)***

76%	Digital Elevation Model (DEM)
21%	Statewide flow accumulation grid (from DEM)
21%	Statewide slope mapping (from DEM)
18%	Hydro-enforced DEM
59%	Current land use/land cover (hydrology)
53%	Current/accurate soils (hydrology)
15%	Stormwater Management mapping or data
47%	Inventory of as-built drawings of bridges with accompanying cross-sections
26%	Inventory of Culverts

***Does any agency in your state maintain an inventory of available DEM data adequate to support NFIP flood mapping? (Question 23)***

70%	Yes
30%	No

### **Hazards U.S. Multi-Hazard (HAZUS-MH)**

Hazards U.S. Multi-Hazard (HAZUS-MH or simply HAZUS) is a GIS-based program that produces loss estimates. These estimates help state, regional and local governments plan for damage, prepare emergency response and recovery plans, and examine options to reduce future damage. Effective state floodplain management programs provide a range of technical assistance to support communities and regional organizations that use these loss estimates to prepare mitigation plans, evaluate changes in development and regulatory policies, and identify pre-disaster mitigation opportunities. Originally developed by FEMA to assess risks from earthquakes, the model has been expanded to address both floods and winds. The HAZUS model allows users to determine flood depths and to estimate damage and losses for floods of varying magnitudes. When asked the questions below, the responding states provided the following:

#### ***Does your state use FEMA's HAZUS-MH flood loss estimation software? (Question 31)***

65% Yes  
35% No

#### ***Please describe how your state uses HAZUS-MH: (Question 31.1)***

18% Public outreach and education  
70% Mitigation planning  
70% Risk assessment  
44% Disaster response planning

#### ***Below are the percentages of the responding states that undertake the following activities in addition to any USGS post-flood activities to document and map peak flood conditions. (Question 32)***

72% High Water Marks  
34% Geo-referenced photo/images  
21% Remote sensing (satellite/aerial images of flood extent)  
59% Stream staff gage (i.e. on bridges)  
41% Use USGS High Water Marks if collected

## **B. Analysis of Selected Data from the 2003 and 2010 Surveys**

Although there has been a slight decrease in the number of states maintaining and/or regularly updating a priority list for mapping flood insurance studies and restudies since 2003, a majority of the states reported in the survey that they are still providing this service. Likewise, a majority of the states responding conduct reviews of proposed flood maps before they are adopted by local communities for participation in the NFIP, and this represents a substantial rise in the percentage of states providing this service. It is possible therefore to conclude that states are holding their own in providing priority lists for mapping and reviewing proposed maps before they are adopted by local governments. By contrast a majority of the states reported that they do not conduct engineering reviews of the hydraulic and hydrologic models developed to establish the 100 year floodplain. This represents a decrease in the number of states undertaking this task since 2003. Likewise, less than half of the states reported having their own flood mapping program and the data shows a slight decrease in this number as well since 2003.

In regards to the CTP program, a majority of the states responding to the survey are a FEMA Cooperating Technical Partner and the years that they joined the program are listed in Section A, above (page 23). This number represents an almost 50% rise in participating states since 2003. Likewise the majority of the states received money under the Map Modernization Maintenance Support Program; however, the number of states participating in this program has remained approximately the same since 2003. It would appear that cost sharing for these programs has not been a deterrent to the states.

Although a majority of the states are still contributing funding to the USGS for stream gaging, there has been a drop in that number of states participating in this activity since 2003. By contrast, there has been an increase in the number of states that have their own stream gaging program since 2003. These percentages may indicate that states are now putting more of their financial resources into their own gaging programs and less into the federal program.

Regarding GIS, 84% of the states reported having staff trained in this area. This represents a ratio of about 5 to 1 for states that have staff trained in GIS applications as opposed to those states that do not. There has also been 100% rise in the average number of communities with GIS capability since 2003 and almost 100% rise in states that provide flood mapping data to localities that have GIS capability. The data also shows 76% of the states having Digital Elevation Models and 70% of the reporting states maintaining an inventory of available DEM data adequate to support NFIP flood mapping. In conjunction with this, 65% of the states reported using FEMA's HAZUS flood loss estimation software with the majority of it being used for mitigation planning and risk assessment. These percentages represent a substantial rise in the states and communities in the use of digital data.

### Summary

- The percentage of states providing non-engineering support to local governments regarding mapping seems to be constant.
- There does seem to be some indication of a drop in engineering support to local governments regarding mapping.
- The number of states participating in the CTP has risen substantially, but the number of states participating in the Map Modernization Maintenance Support Program has remained about the same.
- There has been a substantial rise in GIS application use in both the states and communities.
- Risk assessment and mitigation planning seem to be enhanced at both the state and local level by increases in GIS capability and digital data.

**PRINCIPLE 5:**

**Development within the state must be guided away from flood-prone areas; adverse impacts of development both inside and outside the floodplain must be minimized.**

*Effective state programs apply land use management techniques directly through state regulations, or authorize and foster application of those techniques at the local level, including planning, zoning, risk assessment, growth management, impact analyses, subdivision regulations, and permitting programs. Besides requiring that floodplain development be built so that it withstands flood damages, effective programs acknowledge that watersheds and floodplains are complex natural systems, and that their interrelationship with human-caused actions and the impacts of each development on other property owners must be taken into consideration.*

To a great extent, adverse floodplain impacts can be minimized, or avoided entirely, if communities have the authority, tools, and political will to guide development to less hazard-prone areas and to examine the full extent of impacts when floodplain development is proposed. To accomplish this, states can apply various land use management tools directly through state regulation, or authorize and foster application of those tools at the local level. States can use a two-pronged approach to manage development in this way: Broad tools for overall planning and coping with growth, and more specific tools for addressing individual developments and even buildings. Underlying both approaches is the provision of assistance to localities to enable them to undertake the measures that are appropriate.

**A. 2010 Survey Response**

**Planning**

Effective state programs require that flood hazards be specifically addressed in local planning. This is a crucial tool in minimizing future flood damage. Plans typically are a collection of policies and guidance on how a community expects to grow, change, and look in the future. With respect to flood hazards, effective local planning will recognize existing and future risks and establish a goal of reducing future exposure to those risks through various mechanisms. When asked the question below, the responding states provided the following:

***Are communities required by your state to conduct land use planning as part of their land development process? (Question 57)***

<u>2010</u>		<u>2003</u>
32%	Yes	43%
68%	No	57%

**Regulations**

Local regulations of flood hazard areas are the cornerstone of floodplain management. In the decades since flood insurance became available in exchange for local management of areas prone to flooding, vast progress has been made in determining the kinds and quality of development that ought to be

allowed in those hazardous areas. When asked the two questions below regarding this subject, the responding states provided the following:

**TABLE 6:**

***Who regulates the following portion of the floodplain in your state? (Question 58)***

	State	Community
Floodway	34%	95%
Floodway Fringe	27%	98%
Velocity Zone	16%	96%
Alluvial Fans	14%	93%
Erosion Hazard Areas	29%	90%

**Note:** Total for each item may not add up to 100% since a state may respond to both if applicable.

***Does your state allow communities to provide for automatic flood map adoption without having to amend the local regulations? (Question 64)***

45% Yes  
55% No

**State Construction Projects**

Effective state programs ensure that construction projects are planned, designed and constructed to minimize floodplain impacts and future damage. State construction activities usually are not subject to local regulations, but often must meet the substantive requirements of those local ordinances adopted by the community. In most states, the most common state activity that affects flood hazard areas is the construction and reconstruction of state highways, bridges, and culverts. When asked the five questions below, the responding states provided the following:

***Are you aware of occasions when agencies in your state have not complied with NFIP minimum floodplain management requirements? (Question 65)***

62% Yes  
38% No

***Are agencies in your state required to obtain development permits from the community for state construction projects within the local jurisdictions? (Question 66)***

	<u>2010</u>	<u>2003</u>
48% Yes	51%	
52% No	49%	

***Are agencies in your state required to obtain development permits or approvals from another state agency? (Question 67)***

	<u>2010</u>	<u>2003</u>
69% Yes	69%	
31% No	31%	

**Are agencies in your state prohibited from constructing in the floodway? (Question 70)**

12% Yes  
88% No

**Are federal activities and/or regulations contributing to flooding problems in your state? (Question 71)**

<u>2010</u>		<u>2003</u>
43%	Yes	37%
57%	No	63%

**Building Codes**

A building code is a set of rules that specify the minimum acceptable level of safety for constructed objects such as buildings and non-building structures. The main purpose of building codes is to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. Effective and comprehensive state floodplain management includes adoption and implementation of building codes - statewide or community by community - that establish flood-related design and construction criteria for buildings and other structures. This is one way states can work to manage their local development in ways that can reduce flood damage and conserve floodplain resources. Although the primary purpose of building codes is public safety and protecting building occupants, a related objective is reducing damage associated with hazards. When asked the two questions below, the responding states provided the following:

**Has your state adopted a building code? (Question 72)**

<u>2010</u>		<u>2003</u>
76%	Yes	69%
24%	No	31%

**If your state does not require local jurisdictions to administer a building code, are communities allowed to adopt a building code of their choice? (Question 73)**

46% Yes  
44% No, if they adopt a code, they must adopt a specified building code.  
10% No, they are prohibited from adopting any building code.

As a result of Hurricanes Katrina and Rita striking Louisiana in 2005, the state legislature adopted its first statewide building code.

**Levee Safety**

A levee (or dike) is a natural or artificial slope or wall used to regulate water levels. It is usually earthen and often parallel to the course of a river or the coast. The main purpose of an artificial levee is to prevent flooding of the adjoining countryside. However, they also confine the flow of the river, often times resulting in higher and faster water flows. Levees in the United States can range from small dikes to the Mississippi River system that is over 3,500 miles long with an average height of 24 feet.

Many levees and floodwalls have been constructed to provide protection against only low-level and frequent flooding, yet occupants in the protected area may not fully understand the likelihood of overtopping and inundation. This is particularly true where small levees that were built many years ago to reduce the frequency of damage to agricultural areas are now inaccurately perceived to protect encroaching development, leading to a false sense of security. Some states have taken special steps to help ensure that existing levees are safe and that future levees are built with a level of protection that is reasonable for the circumstances. When asked the five questions below regarding levees, the responding states provided the following:

***Does your state require permits for levee construction? (Question 74)***

<u>2010</u>		<u>2003</u>
45%	Yes	57%
55%	No	43%

***In your state, if a proposed levee would raise flood heights on other properties or communities, would your state allow it to go forward in the permitting process? (Question 75)***

<u>2010</u>		<u>2003</u>
32%	Yes	33%
68%	No	67%

***Is there a freeboard standard for levees in your state? (Question 79)***

20%	Yes
80%	No

***Does your state restrict development in levee “protected” areas? (Question 80)***

2%	Yes
98%	No

***Are there any floodplain management regulations or other requirements in levee “protected” areas in your state? (Question 81)***

8%	Yes
92%	No

The state of Colorado now has the following statewide higher floodplain management regulatory standards:

- One foot freeboard for all new and substantially improved structures (except Critical Facilities)
- Two foot freeboard for all new and substantially improved critical facilities (in the 100-year floodplain)
- 6” floodway surcharge

### **State Dam Safety**

Dams generally serve the primary purpose of retaining water, while other structures such as levees are used to manage or prevent water flow into specific land regions. Dams, like any other control structure, have a life expectancy, therefore must be built to certain engineering standards, and must constantly be monitored for engineering integrity. Effective state dam safety programs have the authority and adequate staff resources to require permits; review construction proposals and process permits; perform inspection and require owners to perform inspections; provide training and exercise for emergency actions plans; and issue notices to require dam owners to take appropriate action such as maintenance, remedial work, and revising operating procedures. Effective state programs also have the authority and funds to take appropriate action to protect life and property if the dam owner fails to do so, including dam removal. For added public protection, effective programs also regulate or require local regulatory programs to recognize the area that could be inundated in the event of failure or breach of dams. When asked the three questions below, the responding states provided the following:

***Does your state have a stakeholders group that crosses agency jurisdictions that meets to discuss and review dam-related issues? (Question 82)***

50% Yes  
50% No

***Does your state regulate the occupation of the area that would be inundated in the event of a dam failure? (Question 83)***

10% Yes  
90% No

***Do your communities regulate the occupation of the dam safety inundation area? (Question 84)***

15% Yes  
85% No

## **B. Analysis of Selected Data from the 2003 and 2010 Surveys**

There is a ratio of approximately 3 to 1 whereby communities regulate both floodway and flood fringe areas as opposed to states regulating them. This is about the same as was reported in the 2003 survey. This further supports data and conclusions from Principle 1: For the most part, state enabling legislation provides authority for floodplain management, floodplain permitting, land use planning, zoning, and subdivision ordinances, to reside principally with local authorities.

Likewise only about half of the states require permits for levee construction, which is of huge significance since levees oftentimes cross local jurisdictional boundaries. Also the percentage reported (45%) is a drop from 57% of the states requiring permits for levee construction in 2003. In conjunction with this, approximately 1 out of 3 states that responded to the survey stated that a proposed levee that would raise flood heights on other properties or communities would be allowed to go forward in the permitting process. This is the same percentage as in 2003.

In regard to regulations affecting land use behind areas protected by levees and dams, the more dramatic responses from the states show that only 2% restrict development in levee protected areas

and 8% have floodplain management regulations in levee protected areas. Also only 10% of the states regulate the occupation of an area that would be inundated in event of a dam failure in addition to the 15% of the states reporting that they have communities that regulate occupation of dam safety inundation areas.

About half of the respondents reported that their state agencies are required to obtain development permits from the communities for the construction of state projects within their jurisdictions. This is about the same as in 2003 and is supported by the opening statement in this section about the number of communities regulating their floodplains and flood fringe areas as opposed to states regulating them. Even given this response, 62% of the states said that they were aware of state agencies within their state having not complied with the NFIP minimum floodplain management requirements and also reported that federal agency activities and/or regulations are contributing to flooding problems in their state.

### Summary

- In a large majority of the states, flood fringe and floodways are regulated by local jurisdictions and this has not changed very much since 2003. This is supported by the states' responses to previous survey questions.
- Based upon the data, there also seems to be a deficiency in regulations - both state and local - in areas protected by levees and dams.
- A majority of states also reported knowledge of other state agencies not complying with NFIP minimum standards and knowledge of federal agency activities and regulations contributing to flooding problems in their states.

**PRINCIPLE 4:**

**Natural floodplain functions and resources throughout the state need to be respected.**

*Effective state floodplain management programs recognize the additional effort needed to manage the floodplain resources and functions, and allow for the fact that not all flood loss reduction techniques automatically account for natural functions and resources. Effective state programs take a holistic approach to floodplain management—one that moves beyond simply protecting people and property to recognizing the value of allowing floodplains to function as floodplains, and enjoying the benefits that accrue when they do. Effective states coordinate and integrate their goals and activities with the many other state (and federal, local, and private) programs, agencies, and departments whose activities affect floodplain function, some of which are:*

- *Control of sediment and erosion;*
- *Storage and conveyance of flood waters;*
- *Protection of water quality, wetlands, aquifer recharge, and open space;*
- *Management of coastal areas, shorelines, overall growth , and storm water;*
- *Preservation of wild and scenic rivers, unique and rare plant and animal habitat;*
- *Cultural resources, and agricultural lands; and*
- *Public recreation.*

**A. 2010 Survey Response**

**Management of Floodplain Functions and Resources**

Floodplain functions and resources can be managed in a variety of ways, both within the state’s floodplain management program and within other programs and laws as well. Therefore, within the context of the state’s floodplain management program, special care should be taken to adopt policies, programs, regulations, and approaches that serve to protect and restore the floodplain functions and resources while also minimizing flood damage and losses. When asked the five questions below, the responding states provided the following:

***What kinds of programs or activities does your state operate (or authorize) to encourage identification, protection, and/or restoration of the natural values/resources of flood-prone areas (excluding regulatory requirements)? (Question 41)***

<b><u>2010</u></b>	<b><u>Programs or Activities</u></b>	<b><u>2003</u></b>
78%	Public information programs	71%
75%	Habitat preserves/protection	63%
53%	River-basin management	ND
50%	Conservation commissions	ND
83%	River Flow Advisory Commissions	ND
47%	Easement/restriction programs	49%
36%	Restrictive deed covenants	37%
39%	Public disclosure of hazards	47%
64%	Watershed councils	59%
56%	Open space preservation	53%
44%	Dune/beach restoration or protection	43%

ND: No Data

**What natural floodplain functions and/or resources are the focus of protection or enhancement programs in your state? (Question 42)**

<u>2010</u>		<u>2003</u>
83%	Aquatic habitat	71%
83%	Riparian habitat	71%
69%	Riparian vegetation	ND
67%	Access to water bodies	71%
81%	Recreation opportunities	72%
72%	Open space	63%
92%	Wetlands	76%
47%	Estuaries	47%
42%	Dunes	41%
8%	Mangroves	ND

ND: No Data

**What funding and/or technical assistance does your state provide for programs or activities (state, local, other) that preserve and/or restore natural floodplain functions and resources (including coastal and lakeshore)? (Question 43)**

54%	Funds to purchase floodplain lands for open space
66%	Funds/assistance for trail systems
66%	Funds/assistance for protection of wildlife habitat/endangered species
57%	Funds for agricultural conservation
40%	Funds for marsh restoration
51%	Funds/assistance for historic preservation
37%	Funds/assistance for cultural, scientific, educational sites
37%	Funds/assistance for scenic easements, scenic areas

**What programs or activities does your state use to directly protect or restore natural floodplain (including coastal and lakeshore) functions and resources? (Question 44)**

48%	Designation of flood-prone areas as conservation reserves or natural area preserves
7%	Easements downstream of dams
22%	Authorization of counties to establish open space farmland banking systems
26%	Reclamation of mining operations in riparian areas
41%	Dam removal
18%	Levee removal
48%	Marsh restoration

**Are federal activities and/or regulations contributing to the loss of natural resources in your state? (Question 55)**

<u>2010</u>		<u>2003</u>
29%	Yes	31%
71%	No	69%

State regulatory programs can administer some form of direct state permit or approval process for actions that directly or indirectly affect natural floodplain resources and functions. State laws to protect certain resources can also be enacted. State advisory or oversight programs can set guidelines or

criteria for local programs. Governors' executive orders can also set policies and standards for state treatment of special resources. When asked the three questions below, the responding states provided the following:

***Does your state have a coordinating committee or other mechanism to ensure that the natural functions and resources of flood-prone areas (including lake and ocean coasts and watersheds) are accounted for in decision making? (Question 46)***

34% Yes  
79% No

***Does your state have enabling legislation that allows communities to establish riparian, lakeshore, or coastal setbacks? (Question 50)***

65% Yes  
35% No

***Does your state have legislation that requires review and approval of activities that could modify or alter natural functions and/or resources of flood-prone areas (including lake and ocean coasts)? (Question 51)***

40% Yes  
60% No

#### **Tax Incentives for Preservation of Floodplain Resources and Functions**

A tax incentive is an aspect of the tax code designed to incentivize, or encourage, a certain type of behavior. Floodplain functions and resources can be preserved when land is left undeveloped. Some state and/or local tax codes have provisions whereby property owners pay reduced property or income taxes if their land is kept as open space or donated for public use. When asked the two questions below, the responding states provided the following:

***What tax incentives does your state have to keep or restore floodplain lands (including coastal and lakeshore areas) to their natural state or to donate them to public open space use? (Question 52)***

20% Property tax breaks for open space or public donation  
0% Income tax breaks for open space or public donation  
4% Inheritance tax breaks for open space or public donation  
24% Purchase of easements  
28% Tax breaks for forest preservation  
36% Tax breaks for farmland preservation  
16% Tax breaks for wildlife habitat preservation  
12% Tax return check-off for endangered resource protection  
52% None

***Besides tax incentives, what legal techniques does your state use to preserve and/or restore natural floodplain functions and/or resources? (Question 53)***

60%	Easements
72%	Land acquisitions
32%	Transfer of development rights
12%	Land swaps
28%	Rezoning
44%	Mitigation banking (wetlands, other resources)
12%	Other

**Geographical Information Systems (GIS)**

As with flood risks, the functions and resources of the floodplains within a state need to be identified and delineated in a GIS database in order to protect the floodplains from harm, apply appropriate regulatory criteria and other management techniques, keep the public informed about their value, and plan for restoration as needed. (Note: Principle 3, which starts on page 21, covers the definition of GIS.) When asked the two questions below, the responding states provided the following:

***Which natural functions and resources related to floodplains or activities that impact these natural functions and resources are depicted in the state's GIS? (Question 54)***

71%	Land cover
83%	Wetlands
50%	Coastal zones
8%	Setbacks
17%	Buffer zones
29%	Rare/endangered species habitat
33%	Vegetation types
29%	Environmentally sensitive areas
0%	Submerged lands grants and leases (lakebed grants)
4%	Fill

***Does the state floodplain management program have ready access to these GIS data sets? (Question 54.1)***

96%	Yes
4%	No

States have cited either poor or non-implementation of Executive Order 11988 - Floodplain Management (1977) by federal agencies as a major problem in the loss of natural resources of the floodplains.

## **B. Analysis of Selected Data from the 2003 and 2010 Surveys**

Although states are reporting somewhat of a lack of state legislation or any type of statewide coordinating committee focused on the protection and/or restoration of the natural values and resources of floodplains, there does seem to be an overall expansion and awareness of this relatively new concept and certain activities are now being undertaken at the state level.

To support this, since 2003 states are reporting a steady rise in several of the kinds of programs and activities they operate or authorize to encourage identification, protection and/or restoration of the natural values/resources of flood-prone areas. These include such activities as public information programs, habitat preservation and protection, river flow advisory commissions and watershed councils. Likewise, since 2003, there has also been a steady rise in natural floodplain functions and/or resources being the focus of protection or enhancement programs in the states with over half of the states reporting having funding and/or technical assistance targeted towards programs or activities that preserve and/or restore natural floodplain functions and resources.

States are using such things as marsh restoration, dam removal, and designation of flood-prone areas as conservation reserves or natural area preserves to directly protect or restore natural floodplain functions and resources. In a ratio of approximately 2 to 1 states reported having enabling legislation that allows communities to establish riparian lakeshore, or coastal setbacks as well. Although there are some states with various types of tax incentives to keep or restore floodplain lands to their natural state or to donate them to public open space use, a slight majority do not have such incentives. States seemed to be more inclined to use other specific activities - rather than programs - that achieve the same goals.

The use of GIS has also contributed immensely to the preservation of floodplain natural functions and resources with such features as land cover, wetlands, coastal zones, vegetation types and rare and endangered species being depicted on the states' GIS systems. This is consistent with the overall increase in the utilization of GIS by state and local governments. This is further substantiated by 96% of the reporting states' floodplain management programs saying that they have access to these GIS data sets and by the number of states and local governments reported to be using GIS under Principle 3 (page 21).

### **Summary**

- There has been an overall rise in the states' implementation of programs, activities, and incentives to promote the concept of identification, protection, and restoration of the natural and beneficial values, resources and functions of floodplains.
- States are undertaking these activities and are also providing enabling legislation to local governments to undertake such activities.
- Just as with hazard identification and flood risk assessment, the use of GIS as a floodplain management tool has expanded in the concept of protection and restoration of the natural and beneficial values, resources and functions of floodplains as well.

### III. INFORM, TRAIN, EDUCATE AND MITIGATE

#### **PRINCIPLE 8:**

**Training and technical assistance in floodplain management need to be available to the state's communities.**

*Effective state programs assess community needs and provide ongoing training opportunities and access to technical assistance. In most communities, floodplain management is just one of many responsibilities that must be handled by small staffs. However, the administration of the floodplain provisions can be quite complex, and the consequences of inadequate attention can have a very negative impact on the community in terms of costs, legal actions and losses. Effective state programs:*

- *Produce a reference manual to inform local officials about floodplain management;*
- *Monitor how communities are administering their regulations, including enforcement actions for any violations;*
- *Support community efforts to participate in the Community Rating System;*
- *Hold workshops and training on a variety of issues;*
- *Encourage local staff to become Certified Floodplain Managers (CFMs);*
- *Support state-level professional associations;*
- *Produce newsletters and web pages; and*
- *Are accessible to local staffs.*

#### **A. 2010 Survey Response**

##### **Monitoring Community Needs and Technical Assistance**

Effective state programs have sufficient staff resources to monitor community floodplain management program needs and provide support to local floodplain management officials. This can come in the form of manuals, training, and workshops, but also by supporting local officials in dealing with complex situations that arise in local program implementation. With regard to floodplain regulatory responsibilities, technical assistance provided by the state may include such activities as:

- Providing model ordinances for communities that include provisions and standards required by both the state and the NFIP;
- Comments on ordinances and revisions to NFIP ordinances;
- Participating in meetings about or commenting on complex permit applications;
- Engineering review of flood studies, map revisions, and floodway encroachments;
- Conducting community assistance visits (CAVs) to monitor administration of local ordinances;
- Conducting community assistance contacts (CACs) to monitor administration of local ordinances;
- Assisting in the resolution of NFIP ordinance violations.

When asked the questions below, the responding states provided the following:

**What methods does your state floodplain management program use to monitor local programs?**

**(Question 114)** (Note: The percentage represents the number of responding states using that particular method of monitoring.)

<u>2010</u>	<u>Activity</u>	<u>2003</u>
93%	Phone calls	78%
9%	Mail survey	18%
95%	Site visits	94%
95%	Complaints	74%
43%	Submit to rate	39%
48%	Biennial report	29%

Other methods reported to be in use by states are CAVs, CACs, and technical assistance requests.

**How does your state program set priorities for community monitoring visits? (Question 118)**

<u>2010</u>	<u>Method</u>	<u>2003</u>
<u>Average Rank</u>		<u>Average Rank</u>
1	Community contact suggests need for a visit	1
2	Development activity	2
3	Community request	3
4	Complaints	4
5	FEMA guidelines (Regional Request)	5
6	Submit-to-Rate applications	6

**Ideally how often do you think NFIP communities should have a Community Assistance Contact (CAC)? (Question 115)**

Every 3 years	On average
Every 2 years	If there is a history of floodplain management problems
Every 2 years	If the community is experiencing growth
Every 4.5 years	If the community has a small policy count and low population
Every 4.8 years	If there is little or no development

**Ideally how often do you think NFIP communities should have a Community Assistance Visit (CAV)? (Question 116)**

Every 4.1 years	On average
Every 2.9 years	If there is a history of floodplain management problems
Every 3.4 years	If the community is experiencing growth
Every 6 years	If there is little or no development
Every 6 years	If the community has a small policy count and low population

Since 2003 South Carolina has been setting priorities for community monitoring by implementing a Risk Based CAV-CAC analysis on a three to five year cycle.

**Given your state’s staffing and budgetary situation, has the NFIP community monitoring frequency changed since 2003? (Question 117.1)**

45% Increase  
 26% Decrease  
 29% Similar

**If in the course of monitoring local programs you find an NFIP violation, who is responsible for follow-up? (Question 119)**

<b>2010</b>		<b>2003</b>
7%	FEMA	13%
83%	State	21%
10%	Both	66%

**Does your state program receive support you consider appropriate and necessary from your FEMA Regional Office to address enforcement needs in your state? (Question 120)**

67% Yes  
 12% No  
 21% Sometimes

**TABLE 7:**

**Listed below are the percentages of states that accomplish a particular activity under their CAP-SSSE agreement with FEMA. (Question 121)**

<b>2010</b>	<b>Activity</b>	<b>2003</b>
90%	Community Assistance Calls (CACs)	92%
95%	Community Assistance Visits (CAVs)	96%
79%	Community Rating System Activities	76%
100%	Involved in workshops	98%
79%	Regional coordination meetings with states	88%
98%	Outreach activities	98%
100%	Conducted ordinance review	96%
100%	Provided general technical assistance	59%
98%	Maintained the Community Information System	86%
98%	Undertake map assistance activities	41%
95%	State interagency coordination efforts	ND
48%	Undertake public affairs and media work	ND
13%	Other: state mitigation planning, websites, attending conferences, etc.	ND

ND: No Data

**Listed below is the average percent of their total time that those responding states used in performing each of those listed activities. (Question 122)**

8%	Community Assistance Calls (CACs)
17%	Community Assistance Visits (CAVs)
2%	Community Rating System Activities
10%	Involved in workshops
4%	Regional coordination meetings with states
5%	Outreach activities
12%	Conduct ordinance reviews
19%	Provide general technical assistance
4%	Maintain the Community Information System
8%	Undertake map assistance activities
5%	State interagency coordination efforts
2%	Undertake public affairs and media work
2%	Other: state mitigation planning, websites, attending conferences, etc.

### **Workshops and Training**

Although direct monitoring and technical assistance to communities as described above is an invaluable and essential tool in providing support to local communities, it is not a substitute for workshops and training sessions. Effective state floodplain management programs provide opportunities for local officials and private sector professionals to learn about floodplain management at workshops and training sessions. The appropriate number and frequency of workshops and training sessions within a state are functions of the need, which in turn is a function of several factors:

- The number of communities and rate of staff turnover;
- The extent of which growth patterns result in pressure to build in flood hazard areas;
- The variety of flood hazard areas and related factors that are considered when reviewing development proposals;
- The nature and breadth of the state's regulatory authority and the number of related programs, including environmental regulations and the state's building codes;
- The number, frequency, and severity of floods;
- Requirements for continuing education credits for CFMs and allied professionals.

When asked the five questions below, the responding states provided the following:

***Is there an unmet need for more floodplain management assistance to the communities in your state? (Question 123)***

79%	Yes
21%	No

***Below is a list of needs and the percentage of responding states that thought those needs were not being met. (Question 123.1)***

48%	General technical assistance
78%	Training
39%	Community Assistance Calls (CACs)
55%	Community Assistance Visits (CAVs)
58%	Mapping
15%	Habitat evaluation
61%	Enforcement
15%	Ordinance assistance
18%	Ordinance review
30%	Community Rating System support
20%	Other: legal issues, mitigation planning & projects, natural & beneficial functions of the floodplains

***Below is the percentage of responding states that hold floodplain management-orientated workshops for the following groups. (Question 125)***

44%	For general public
92%	For professional groups
39 %	Others-mostly on demand

***Presented below is the average number of people/communities that attended those floodplain management-related workshops or training sessions carried out by state floodplain management staff during the last year. (Question 126)***

335	Average number of attendees per responding state
43	Average number of communities represented per responding state

***When asked if Continuing Education Credits (CECs) were awarded for any of their agency's state-sponsored floodplain management training, the percentage of the responses from the states is as follows. (Question 127)***

81%	Yes
19%	No

Several states reported producing "Quick Guides to the NFIP" as one of their primary publications performed under their programs.

## **B. Analysis of Selected Data from the 2003 and 2010 Surveys**

The activities states perform through the CAP-SSSE have remained approximately the same with the exception of increases in general technical assistance and map assistance. The largest percentage of states' time is being spent (in rank) performing general technical assistance, CAVs, and ordinance reviews. These are generally seen as the three most important undertakings in regards to overall

community compliance with the NFIP regulations and will probably remain top priorities for those states that rely primarily on CAP-SSSE funding. This viewpoint has remained essentially the same since the inception of the CAP-SSSE.

Concerning enforcement for community NFIP violations, there has been a significant shift in responsibility for enforcement follow-up. States feel that the FEMA Regional Offices are taking a much less prominent role in this activity and that the state's role has increased four times as much. This is an important and obvious change since 2003. Likewise there has been a noteworthy reduction in FEMA's Regional Offices' participation in State/Regional joint enforcement follow up. In connection with this shift, the majority of states do feel that they are receiving appropriate and necessary support from their FEMA Regional Office in the undertaking of this increased responsibility.

The method for setting priorities for community monitoring visits has not changed from 2003 to 2010. On average states believe that communities should be visited approximately every 4 years or contacted approximately every 3 years. States view this frequency of visits and contacts as an increase since 2003 and that the exact number should be dependent on growth, development and policy count in the community.

In terms of needs not being met, over three-quarters of the states have confirmed that there is definitely a need for more floodplain management assistance to communities and training. Over half of the states have likewise stated a need for more enforcement, mapping, and community assistance visits. Training, however, will always be an ongoing and very important link to effective floodplain management because of the constant changes and updates in programs and changeovers in state, local and professional staffs.

### **Summary**

- Tasks performed under the CAP-SSSE have remained essentially the same since 2003.
- States are taking an ever-increasing role in community NFIP enforcement.
- States feel that they are receiving the necessary support to undertake this responsibility.
- The method for setting priorities for community monitoring visits has not changed since 2003.
- There is a definite need for more floodplain management assistance to communities.
- There is a definite need for more floodplain management training.

**PRINCIPLE 6:**

**Flood mitigation and recovery strategies should be in place throughout the state.**

*Effective state floodplain management programs use post-flood mitigation and recovery strategies to break the cycle of flood damage, recovery, then repeated flood damage. Immediately after a flood, citizens and government are most aware of the risks and far-reaching consequences of major losses, and additional funds may be leveraged for flood-reduction projects because governments feel compelled to assist right after a disaster. Effective state programs:*

- *Authorize or encourage temporary post-disaster moratoria on reconstruction and repair to create the time needed to assess damage and consider mitigation methods;*
- *Set priorities for mitigation;*
- *Consider alternative ways to recover while reducing future risk;*
- *Have the ability to provide needed help to localities, through pre-disaster training, mobilization of damage assessment teams, direct support, or agreements with other governments and organizations for staff and expertise.*

*Effective state mitigation programs should be in place and active regardless of the presence or absence of flood conditions, because better and more financially sound decisions can be made in the absence of the post-flood rush to correct the problem.*

**Authority, Staff and Funding**

Effective post-flood programs at the state level are stable and long lasting, not just activated in response to a single event. Rather than rely totally on federal post-disaster and mitigation resources, effective state programs, as with floodplain management programs, have clear authority and adequate resources to work on their own and cooperatively with local governments. Although they are established in state law, effective programs are administered in ways that allow resolution and improvement in response to changes such as major floods, new research, technology, and management techniques, and new federal programs and initiatives.

Effective state mitigation and recovery programs have continuity through periods of fewer floods and include personnel with the pertinent knowledge, skills and abilities. As with other state floodplain management program elements, flood mitigation and recovery functions may be located in various state agencies, but they should be considered as a whole when determining how many persons are needed to meet the demand. The number of staff and mix of disciplines depends on the number of flood-prone communities in the state, extent of flood hazard areas, flood history, development pressures, and the nature of each state's program. Consideration should be given to:

- The level of technical assistance needed to foster local mitigation plans and citizens' awareness and responsibility for individual mitigation measures;
- The degree of participation needed in community efforts to identify specific projects and apply for funding;
- The nature of post-flood inspections of damaged public buildings, facilities and infrastructure that will be needed to find ways to incorporate mitigation in recovery;
- The number of staff positions needed to provide effective post-flood support to communities dealing with numerous private and public reconstruction demands;

- The level of state participation desirable in reviewing mitigation project proposals for federal funds, including benefit/cost analyses, engineering feasibility, and environmental impacts; An effective state program can help locals by providing an added state cost share as well.

## A. 2010 Survey Response

### State Funding for Mitigation

To maintain long-term effectiveness, the best state programs are supported by a strong commitment to adequate and consistent ongoing funding. This funding must not be dependent on the occurrence of a major flood that prompts a disaster declaration. Different funding sources are used, separately and in combination, to support elements of mitigation programs, including federal grant funds, appropriations of state funds, and fees and surcharges. FEMA provides some funding to support certain mitigation activities. However, that funding is not intended to support all elements of an effective state mitigation program, which is part of an overall effective state floodplain management program. As with staffing, the appropriate funding levels are a function of the specific details of the mitigation program’s elements. The most obvious elements that require funding continuity are:

- Personnel and operating budgets; and
- Support for planning and mitigation projects, whether to satisfy the non-federal match requirement or to conduct programs without federal funds.

When asked the question below, the responding states provided the following:

#### *Does your state have funds reserved to carry out flood mitigation projects? (Question 90)*

<u>2010</u>		<u>2003</u>
24%	Yes	29%
76%	No	71%

The 2006 floods in New York led to the state setting priorities for using Hazard Mitigation Grant Program (HMGP) funds as well as a state allocation of \$15 million for the buyouts of flood damaged properties.

### Coordination of Mitigation and Recovery

The concept of a state interagency hazard mitigation team was first implemented in the early 1980s by FEMA and has proven to be an effective coordination mechanism. Often called a mitigation team or a mitigation and recovery council, the team approach is now considered a distinguishing characteristic of an effective state hazard mitigation program. Many states experience hazard events with such frequency that the team or council is a standing body, typically established by a governor’s executive order. In other states, the interagency coordination mechanism is mobilized when certain conditions occur, notably a significant flood or other disaster. In effective state programs, interagency coordination for the purpose of mitigation is not dependent upon, or limited to, declarations of a federal disaster. In general, the mitigation/recovery team’s responsibility is to:

- Participate in the development, implementation, and review of the state hazard mitigation plan, which identifies the state’s key hazards and establishes priorities for mitigation approaches;
- Create interagency partnerships and packaging of programs;
- For specific events, evaluate the cause of the disaster and subsequent damage;
- For specific events, examine the nature of the direct damages and consider the full impacts of indirect damages;
- Identify potential projects to address specific circumstances;
- Identify programmatic policy changes that inadvertently contribute to exposure to flood hazards;
- Establish priorities for award of mitigation funds; and
- Evaluate proposals for mitigation projects to select measures that are technically feasible and cost effective and that further state and community mitigation goals.

When asked the five questions below, the responding states provided the following:

***Does your state have a hazard mitigation council or similar coordinating body? (Question 87)***

<u>2010</u>		<u>2003</u>
73%	Yes	69%
27%	No	31%

***What coordination is there between the State NFIP Coordinator and the State Hazard Mitigation Officer in the context of mitigation planning in your state? (Question 89)***

32.5%	Regular, formally established coordination/involvement
35%	Regular, but not formally established coordination/involvement
32.5%	Coordination/involvement only on an as-needed basis
0%	Minimal or no coordination
0%	Other

The state of Florida has a mitigation planning unit that oversees and supports mitigation planning across the state. These planners work closely with both the mitigation grants staff and the NFIP staff.

***How involved is your state floodplain management office in reviewing/evaluating mitigation applications? (Question 91)***

39%	Regular, formally established coordination/involvement
22%	Regular, but not formally established coordination/involvement
29%	Coordination/involvement only on an as-needed basis
10%	Minimal or no coordination

***Since 2003 has your state, or localities within your state, adopted any No Adverse Impact (NAI) management laws, programs, or activities (e.g. zero rise floodway)? (Question 94)***

20%	Yes
80%	No

***Does your state have a program to plan for adaptation to climate change? (Question 97)***

29% Yes  
71% No

**Mitigation Grant Programs**

Effective state floodplain management includes a program to provide technical assistance and financial support for local mitigation planning and projects to reduce the costs of flooding over the long term. Effective state programs also make funds available as part of the non-federal match for federal grants programs and to support local mitigation projects in the absence of federal funds.

Since 1988, FEMA's mitigation grant programs have dominated the federal arena in terms of direct support for state and local mitigation projects. These programs authorize cost-shared funding support for specifically identified types of projects either under its Section 404 Hazard Mitigation Grant Program (HMGP) (activated following a federally declared disaster) and /or its Hazard Mitigation Assistance Program (designed to provide grant assistance in a non-disaster environment). Under the Hazard Mitigation Assistance Program (HMA), FEMA has established the following:

- Pre-Disaster Mitigation Program (PDM) which provides funds to States, Territories, Federally recognized Indian Tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event;
- Flood Mitigation Assistance Program (FMA) which provides funds to States, Territories, Federally recognized Indian Tribal governments, and communities so that cost-effective measures can be taken to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the NFIP;
- Repetitive Flood Claims (RFC) Program which provides funding to reduce or eliminate the long-term risk of flood damage to structures insured under the NFIP that have had one or more claim payments for flood damages; and
- Severe Repetitive Loss (SRL) Program which provides funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the NFIP.

Eligible projects must solve a hazard/risk situation, be cost effective, conform with environmental regulations, meet all applicable codes and standards, and be supported by state and local mitigation plans. When asked the following two questions, the responding states provided the following:

***Does your agency administer the Unified Flood Mitigation Assistance Program (UFMAP)? (Question 95)***

39% Yes  
61% No

***Does your agency have any input into your state's UFMAP decisions? (Question 95.1)***

50% Yes  
50% No

**Post Disaster Moratoria**

A moratorium on development is a short-term suspension of the right to develop or redevelop a property and is usually accomplished by not issuing permits. Imposing a moratorium after a disaster is a

serious undertaking, but effective state programs authorize or encourage post-disaster moratoria because they can be effective tools for disaster-resistant recovery. In communities where damage is extensive, a temporary moratorium on reconstruction and repair creates the time needed to assess the damage, to set priorities for mitigation, and to consider alternative ways to recover while reducing future risks. However, rapid recovery can thwart sound planning because, after repairs, property owners tend to discount the likelihood of reoccurring events and are less interested in mitigation. A temporary moratorium, paired with an immediate creative process to examine alternatives, can lead to enhanced resilience to future events. When asked the following question, the responding states provided the following:

***What authority exists in your state for declaring moratoria on repair/redevelopment after a disaster? (Question 99)***

- 15% State has authority
- 60% Localities have authority
- 5% State has used authority to declare moratoria
- 20% Localities have used authority to declare moratoria

**Substantial Damage Determinations**

If a structure sustains damage of any origin and the cost of restoring the structure to its pre-damage condition would equal or exceed a predetermined amount (usually 50%) of the structure's pre-damage market value, this is referred to as "substantial damage". A building in a flood hazard area sustains substantial damage when the cost of repair to pre-damage conditions exceeds that threshold value, regardless of the actual repair work undertaken. When the damage reaches that level, the floodplain management regulations and codes require that the entire building meet the same flood-resistant standards established for new construction. Most often this means the building must be modified or elevated to meet the minimum elevation criterion.

It is important to bring substantially damaged properties up to the state or local flood-resistant standards. This is one of the best windows of opportunity for the community to help the property owner prevent future damage. It is also the time when more and more federal and state programs offer assistance to make that happen. When asked the following question, the responding states provided the following:

***Does your state have a statewide standard for reconstruction of flood-prone buildings that have been substantially damaged? (Question 85)***

	<b><u>2010</u></b>	<b><u>2003</u></b>
28%	Yes	41%
72%	No	59%

## **B. Analysis of Selected Data from the 2003 and 2010 Surveys**

Mitigation is one of the principle cornerstones of reducing impacts of future disasters. Mitigation, by definition, means to reduce future impacts. This definition obviously gets more involved and complicated as it is applied to floodplain management and flood loss reduction, but the simple concept of mitigation always remains the same. Any activity undertaken to reduce the impact of future disasters - regardless of the source - can be considered in either the broadest or strictest sense, as mitigation.

Any analysis of state mitigation programs by floodplain managers must proceed with the following understanding. At the FEMA regional office, the NFIP, the components of floodplain management and the mitigation programs offered by FEMA are typically in the same organizational division. At the state level, as shown in the beginning of this document, approximately 15% of the state floodplain management programs are located in emergency management type agencies and approximately 85% of the floodplain management programs are located in a variety of other state agencies (with the majority of the programs in an environmental protection- natural resources type of agency at 62%).

This is contrasted by the fact that most state disaster mitigation programs and State Hazard Mitigation Officers (SHMO) are located in state emergency management type agencies. This is further substantiated by the fact that only 39% of the state floodplain management programs reported administering the UFMAP. Although 3 out of 4 states reported having hazard mitigation councils or a similar coordinating body, the opportunity for the coordination of floodplain management and mitigation at the state level is hampered somewhat by this arrangement as it is unable to reach its full potential.

As stated early on in this document, state funding is a critical element for the implementation of state floodplain management and this is no less true for mitigation. Only 1 out of 4 of the states responded that they have funds reserved to carry out flood mitigation projects. This is a slight reduction from 2003, but for the most part this emphasis on state funding for mitigation programs has remained the same. Unless the state funding support for mitigation increases in the future, its effectiveness will continue to be limited. Since mitigation usually comes after the crisis of a disaster, the urgency is not viewed the same.

Even though the majority of the State NFIP Coordinators and the SHMO are not in the same agency, 67% of the State NFIP Coordinators reported coordination with the SHMO regularly (either formally or informally) in the context of mitigation planning for the state. This is consistent with 61% of the State NFIP Coordinators reporting assisting with the reviewing and evaluating of mitigation applications.

Only a slight percentage (15%) of the states reported having authority for declaring moratoria on repair/redevelopment after the disaster. This is contrasted by 60% of the states reporting that such authority lies with the local governments. This is consistent with most of state floodplain management. Also approximately 1 out of 4 of the states reported having statewide standards for reconstruction of flood-prone buildings that have been substantially damaged.

**Summary:**

- Although the state's floodplain management programs and mitigation programs are typically housed in different state agencies, states are working towards coordination with each in this vital activity.
- The declaration of moratoria after a disaster, and standards for reconstruction of flood-prone buildings that have been substantially damaged in a disaster, remains principally with the local government.
- Those states reporting having No Adverse Impact (NAI) standards are implementing requirements that go beyond the NFIP minimums.

**PRINCIPLE 7:**

**The state’s people need to be informed about flood hazards and mitigation options.**

*An effective state program provides the appropriate authority and encourages use of informational tools for flood hazards. Better informed citizens, property owners, private sector entities, public officials, and government agencies are then more likely to make sound decisions about the management of their floodplains.*

States have numerous informational tools at their disposal for keeping the public and floodplain professionals advised about floodplain management concepts and applications. Although many informational tools are applied most effectively at the local level, states have a number of roles, especially to actively support local public information efforts. Other tools for informing the public are more effective if required by state statute or regulation, such as disclosure during property transactions. The better informed the public and local officials are about the risks involved in the management of their floodplains, through whatever means of communication, the more effective their programs will be.

**A. 2010 Survey Response**

**Using Printed Material**

Effective state programs develop and distribute materials, such as handbooks and reference manuals, designed specifically for community officials responsible for administering floodplain regulations. They also distribute materials to improve general knowledge and understanding of floods and encourage mitigation of flood damage. The most common materials that most state programs distribute are brochures and newsletters. When asked the following four questions regarding newsletters, the responding states provided the following:

***Does your state floodplain management agency or program or a state/regional floodplain management association issue a newsletter? (Question 105)***

<u>2010</u>		<u>2003</u>
70%	Yes	69%
30%	No	31%

***How often is the floodplain management newsletter distributed by the State Floodplain Management Program and/or Floodplain Management (FPM) Association? (Question 105.2.1)***

<u>2010</u>		<u>2003</u>
3.6	Average number of issues distributed per year by the State Program	3.3
3.3	Average number of issues distributed per year by the FPM Association	3.3

**What is the number of the floodplain management newsletters distributed per issue by the State Floodplain Management Program and/or Floodplain Management (FPM) Association? (Question 105.2.2)**

<u>2010</u>		<u>2003</u>
590	Avg. number of individual newsletters distributed per issue by the State Program	495
400	Avg. number of individual newsletters distributed per issue by the FPM Assoc.	246

**What is the method of distribution for the floodplain management newsletter? (Question 105.3)**

<u>2010</u>		<u>2003</u>
56%	Hard copy distribution	88%
97%	Electronic distribution	51%
52%	Posted on State agency websites	66%
38%	Linked to or by other websites	ND
79%	More than one method of distribution	ND

ND: No Data

Besides its regular floodplain management newsletter, the State of Delaware distributes a Coastal Connection newsletter to builders, realtors, and homeowner associations.

**Using Internet Web Pages**

Effective state programs can also maintain web pages on the internet that relate to floodplain management, hazard mitigation, and disaster recovery. Basic information can be provided, often through links to other sites. Active outreach through the internet can be accomplished by using lists of e-mail addresses, which usually are compiled by allowing those who visit a web page to sign up to receive further electronic notices. Even the smallest and most rural town and county governments now have access to the internet, as do most public libraries. Typically, however, rural and low-income families are less likely to have easy access to the internet. Therefore, although web pages and e-mail have the potential to be high-impact tools to inform the public, they cannot be the sole approach. When asked the following three questions regarding the use of web pages, the responding states provided the following:

**Does your state maintain a floodplain management-oriented website? (Question 107)**

95%	Yes
5%	No

**Does your state maintain a floodplain management-oriented database? (Question 108)**

68%	Yes
32%	No

Note: Relative to the above two questions, in 2003, 76% of the states reported having a floodplain management oriented website or database.

***What does the floodplain management-oriented database contain? (Question 108.1)***

0%	Community Data (contact info & status)
64%	Mapping related content [e.g. Letter of Map Amendments (LOMAs), Letter of Map Revisions (LOMRs), Flood Insurance Rate Maps (FIRMs), mapping needs]
48%	State regulations
16%	State-issued permits
40%	Repetitive loss properties
28%	Flood history
68%	CAV and CAC information
76%	Ordinances
28%	Engineering Studies
28%	Engineering Models
72%	Contacts
64%	Technical assistance

**Initiatives for Outreach and Education**

Effective state programs undertake informational initiatives and develop and provide materials and tools to communities and others for use in tailored and focused floodplain management campaigns. Likewise state and local government programs to inform the public can be strengthened and made more effective through partnerships with the private sector. Initiatives to inform the public about matters related to flood hazards range from the passive, which are designed for those who seek out the information on their own, to those that target and reach out to specific populations or groups because of their special circumstances. Delivery of information can be greatly expanded by building on both pre-identified audiences and existing dissemination tools. When asked the four questions below, the responding states provided the following:

***What public outreach activities does your state conduct for flooding or floodplain management awareness? (Question 110)***

61%	Set up booths at malls, fairs, etc.
52%	Work with the legislature or other sites
61%	Issue press releases
26%	Initiate public television spots/interviews
68%	Promote flood awareness day or week
6%	Provide a retrofitting open house
45%	Contract or work with homeowners or homeowner groups

**What public outreach activities does your state conduct for awareness of natural resources of floodplains and coastal areas? (Question 111)**

- 44% Set up adopt-a-stream programs
- 28% Advocate wildlife or nature walks
- 76% Set up booths at malls, fairs
- 52% Work with the legislature or other sites
- 60% Issue press releases
- 32% Initiate public television spots/interviews
- 32% Promote beach cleanup

**Does your state floodplain management program produce materials or otherwise help communities in their public outreach activities? (press release, media kits, handouts, brochures) (Question 112)**

<u>2010</u>		<u>2003</u>
72%	Yes	43%
28%	No	57%

California annually sends notices to owners and occupants of structures receiving protection from state/federal "Project" levees regarding flood risks inherent with living behind levees.

**Does your state program participate in or coordinate with private sector efforts to conduct public outreach/awareness of floodplain management or floodplain resources? (e.g. fast food placemats, grocery bags, church activities, Home Depot workshops, etc.) (Question 113)**

- 30% Yes
- 70% No

**Real Estate Disclosure**

A disclosure law requires that sellers of real property and their agents provide any prospective buyer with a hazard disclosure statement if it lies in an identified hazard area. Consumers who know about flood risks are more likely to make better decisions when building new homes and purchasing existing ones if this information is made available. States with effective programs have some form of real estate disclosure law that requires the seller to notify the buyer if the property lies in an identified flood-prone area during the marketing (multiple listing) of property, when consumers are still "shopping" and have not yet made a decision about buying a particular property. The notification must be strong and clear and it is not sufficient merely to require that the seller say whether a property has sustained flood damage and/or if it is in the floodplain. When asked the below question regarding disclosure, the states responded as follows:

***Does your state require flood hazard disclosures for properties, such as deed restrictions? (Question 109)***

<b><u>2010</u></b>		<b><u>2003</u></b>
41%	Yes	53%
59%	No	47%

## **B. Analysis of Selected Data from the 2003 and 2010 Surveys**

Newsletters are typically seen as a cornerstone of any type of organization and accordingly, the use of newsletters as a medium for the distribution of floodplain management-oriented information is still seen by the states as a significant component of their programs. This is substantiated by the fact that the number of reporting states issuing newsletters has remained approximately the same since 2003 and that the number of issues per year has remained approximately the same as well.

What has changed significantly is the method of distribution. There has been a drop in the number of hard copies distributed and an almost 2 to 1 increase in electronic distribution. This follows an ongoing national trend seen with other organizations.

Likewise there has been an increase in the number of states now maintaining floodplain management-oriented websites and databases with the majority containing mapping, CAV and CAC, ordinance, technical assistance and contact information. By contrast, less than half of the states maintain information on state regulations, repetitive loss properties, flood history and engineering studies and models. What the above indicates is that states, for the most part, are moving more towards incorporating digital information into their programs.

Probably the most disquieting data that was reported by the states under this principle is the reduction of states that require flood hazard disclosure. This follows along with other floodplain management regulatory components in as much as they typically reside with the local unit of government.

### **Summary**

- States are moving more towards a digital world. (It should be noted that this 2010 survey of states was conducted in a digital format.)
- More states are maintaining information in a digital format.
- 7 out of 10 states are regularly distributing newsletters.
- The percentage of states reporting that they require disclosure of flood-prone properties has dropped.
- Floodplain Management Associations are becoming more active in the distribution of information and educational material as well as conducting workshops.

## IV. EVALUATE

### **PRINCIPLE 10:**

**Evaluation of the effectiveness of states' floodplain management programs is essential and successes should be documented.**

*An effective state program finds ways to tally and keep records on different aspects of the status of floodplain management within its jurisdiction, such as inventorying flood-prone property, taking advantage of the post-disaster period to document damage avoided and the success of mitigation projects, taking an accounting of acreage of floodplain lands preserved in a natural state or otherwise protected, monitoring community program administration, and tracking the progress of mitigation projects. Such data are essential to evaluating how effective programs are and how to adjust the program to be even more effective.*

Measuring successful floodplain management is not a straightforward process, in part because success is measured by floods and damage that does not occur and by floodplain benefits that are hard to measure. However, an effective state program can find ways to tally different aspects of the status of floodplain management within its jurisdiction. That status can be thought of as generally falling into two broad categories:

1. Overall impacts (or outcomes); and
2. Program operations.

### **A. 2010 Survey Response**

#### **Measuring Outcomes of Floodplain Management**

The two overarching purposes of floodplain management at all levels are 1. To avoid or at least minimize the damage and disruption caused by floods, and 2. To protect natural floodplain resources and functions as much as possible. The extent to which a state floodplain management program makes progress towards those goals can be determined by the measurement of the "outcomes" of the program. Some positive outcomes would be lower actual flood losses, both direct and indirect; lower potential for future losses, both direct and indirect; or improved floodplain functions and resources. Some undesirable outcomes would be increases in flood damage and losses; additional people and property at risk from future floods; or reductions in the natural functions and resources of floodplain lands. Under these general categories, each state must determine its own specific desired "outcomes," and develop ways to measure progress toward them. When asked this question regarding measuring outcomes, the states responded as follows:

***Does your state have defined management outcomes for floodplain management or floodplain resources protection? (Question 148)***

21% Yes  
79% No

### **Identifying Losses and Costs**

Floods are inevitable, and so are some flood losses. Effective state programs establish ways to measure the losses, decide what level is acceptable, track changes over time, and make adjustments to the program, policies, and approaches as needed. This is particularly important at the state level because despite the magnitude of flood-related losses in the United States, accurate measures of flood losses are usually not used widely nor uniformly applied. Losses are generally described as being “direct” or “indirect.”

Direct losses that should be measured include, but are not limited to:

- The physical damage sustained by buildings, measured by the cost of repairs;
- The loss of personal belongings when homes are flooded and business inventory when non-residential buildings are flooded;
- The physical damage associated with flooded government buildings that provide critical services, such as wastewater treatment plants;
- The catastrophic losses associated with failure of flood control levees and floodwalls, or dam failures; and
- Costs of repairs to infrastructure, including provisions for temporary services.

Indirect losses include, but are not limited to:

- Increased costs associated with emergency response to floods, including evacuation, search and rescue operations, and police and fire patrols during and after disasters;
- Certain costs associated with recovery from floods, especially capital projects that are postponed and loss of certain services if government agency staffs are diverted from their normal jobs to participate in flood recovery;
- The costs associated with the loss of use of buildings and loss of access to the buildings due to flooding, including lost business income, lost tax revenue, and lost wages;
- Reduced property values and diminished home values for areas that have been flooded or are at risk from future flooding, which may result in lowering property taxes;
- The increased health risks, costs of treating or importing potable water, and environmental costs associated with cleanup after floods; and
- Health problems associated with persistent mold due to frequent or prolonged inundation.

### **Identifying Management Outcomes**

If state floodplain management is being effective, one of the outcomes will be an increase (or at least, not a reduction) in the benefits derived. Too little attention has been focused on measuring the benefits of effective floodplain management. Like losses, benefits are generally described as being “direct” or “indirect,” but many fall in the indirect category and are hard to quantify. In addition, benefits usually accrue over long periods of time, making it more difficult to compare them to costs, which usually can be readily expressed in numbers or rates. Effective state programs establish management outcomes in order to track changes and make appropriate adjustments to their programs and policies.

Examples of management outcomes associated with effective state and local floodplain management programs include the following:

- Fewer at-risk buildings in floodplains;
- Homeowners and business owners having more money more quickly after a flood, to help repair damage and incorporate mitigation measures;
- Increased attractiveness of, and higher property values in, neighborhoods with floodplain-base open space and recreation;
- Fewer critical facilities in floodplains;
- Reduced losses and costs from floods, or at least losses and costs that are less than would be expected given the state’s population growth and development pressure;
- Enhanced fisheries, and reduction of sediment loading;
- Savings to the U.S. Treasury and taxpayers when fewer income tax returns claim a casualty loss deduction;
- Improved water quality, natural storage and filtration of floodwaters, and groundwater recharge and;
- Preserved natural habitats, forests, and wetlands.

#### **Evaluating Program Operations and Effectiveness**

Achieving and maintaining an effective state floodplain management program is an ongoing effort. Although program needs may be identified at any time, an effective state schedules regular evaluations of its program to identify opportunities to make adjustments or to add new program elements. To really keep track of how well the program is operating and also figure out what it needs to keep doing and what it needs to change, the regular evaluation should have at least two main components:

1. A review of the program’s specific activities, staffing levels, budget, and other operational matters and;
2. A review of how the program’s work is affecting the floodplain management outcomes being realized throughout the state.

When asked the two questions below regarding measuring outcomes, the states responded as follows:

#### ***Has your state evaluated the effectiveness of its state floodplain management and/or floodplain resource protection program? (Question 149)***

13% Yes  
87% No

After the state of Maryland’s evaluation of its floodplain management program’s effectiveness, it adjusted its program to recognize wetlands as a floodplain resource.

#### ***Has your state used FEMA’s CAP-SSSE GAP analysis to close any gaps in NFIP-related activities? (Question 150)***

37% Yes  
63% No

Whether assessing the overall status of the floodplains within their boundaries, or evaluating their performance at the last training session, effective state programs keep track of activities, events, and changes related to floodplain management. This means they establish baselines for assessing progress, keep records of floods, find ways to measure the various floodplain-related benefits and losses, and keep records of success that are not quantifiable.

## **B. Analysis of Selected Data from the 2010 Survey**

States have illustrated that they understand what tasks or activities they are to undertake and if they have accomplished them in the operation of their floodplain management programs. Likewise states understand the tasks and if they are accomplishing them under the FEMA-funded CAP-SSSE. A regular review of the effectiveness of the program's operation (activities, staffing, budget, etc. meeting needs) and the program's work as it is directly and indirectly affecting floodplain management throughout the state is essential. The measurement, however, of their particular program's overall operation and effectiveness becomes a much more difficult task. In this survey of state's programs, the overwhelming majority of those responding stated that they have not evaluated the effectiveness of their floodplain management program or floodplain resources protection program.

The two primary purposes of floodplain management at all levels are 1.) To avoid or at least minimize the damage and disruption caused by floods, and 2.) To protect natural floodplain resources and functions as much as possible. The extent to which a state floodplain management program makes progress towards those goals can be thought of as the "management outcomes" of the program. Although positive outcomes (lower actual flood losses, lower potential flood losses, improved floodplain functions, etc.) and undesirable outcomes (increase in flood damages and losses, additional properties at risk, etc.) have been identified since the inception of floodplain management, the actual measurements of these outcomes is much more elusive. At a ratio of 4 to 1, states responding to the survey have reported that they have not defined those management outcomes.

At the conclusion of this survey, program evaluation has become the most glaring deficiency in the majority of state programs. It does seem that states know what floodplain management activities to undertake, how to accomplish them and how they may affect the citizens of their state, but the data says that they have not measured the effectiveness of the activities themselves or defined management outcomes for their programs. This should become one of the primary focuses for those that have a vested interest in the outcomes of state floodplain management programs.

FEMA has recognized this to be an issue and has recently taken important steps to assist states in such an analysis in order for FEMA to validate funding increases in CAP-SSSE allocations. The CAP-SSSE Gap Analysis helps states to determine levels of effort necessary to perform CAP-SSSE related activities and helps to measure resource needs on a state by state basis. The Strategic Planning pilot is serving as the platform for developing tools and techniques to measure program effectiveness. At the time that the 2010 survey was being conducted, forming the basis of this report, states were also completing the CAP-SSSE Gap Analysis for the first time.

**Summary**

- The overwhelming majority of states have not attempted to measure the effectiveness of their programs.
- The overwhelming majority of states have not identified the management outcomes of their programs.
- The establishment of the Ten Guiding Principles of Effective Floodplain Management and the CAP-SSSE Gap Analysis have been designed to address the above.

## REFERENCES

Association of State Floodplain Managers Inc. (ASFPM). 2003. *Effective State Floodplain Management Programs 2003*. Madison, WI: ASFPM.

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