



FLOODPLAIN MANAGEMENT 2017

State Programs

The Association of State Floodplain Managers



Floodplain Management 2017

State Programs

Final Report



Association of State Floodplain Managers, Inc.
www.floods.org

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<https://www.floodsciencecenter.org/projects/floodplain-management-state-programs-update-2017/>

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Image Credits

A majority of the images used throughout this report are from [ASFPM's Flickr page](#), for appropriate image credits and usage rights please visit [Flickr](#).

Further Information

The Floodplain Management 2017: State Programs project consisted of two primary components: (1) the survey database and (2) the written report. The foundation of this report is based on survey responses that were transferred to the survey database via a web-based survey tool. The data collected and stored in the database facilitated the analysis and writing presented in this report, but the comprehensive database can be used for additional, more detailed analyses. For this reason, ASFPM has created a website (<https://www.floodsciencecenter.org/projects/floodplain-management-state-programs-update-2017/>) that will provide access to the following:

- **Final Report:** This report, titled *Floodplain Management 2017: State Programs—Final Report*.
- **Survey Questions:** A printable version of the online survey questions.
- **Individual State Surveys:** Detailed survey responses from responding states.
- **2017 Survey Data Set:** The complete survey data set in Microsoft Excel format.

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Executive Summary

The Association of State Floodplain Managers is the nation's largest organization dedicated to protecting floodplains and promoting education, policies and activities that mitigate current and future losses, costs and human suffering caused by flooding. As part of its broader mission, ASFPM periodically conducts a national assessment of state floodplain managers to learn more about the practices by which state and local governments manage floodplains.

This 2017 report, which was completed in collaboration with research partners at the Natural Hazards Center at the University of Colorado Boulder, updates and supplements findings from prior reports.

Release Years for ASFPM National Reports on State Floodplain Management Programs



The central objective of this project is to assess and make public, by way of this report, the current status of state level floodplain management in the United States. The material contained in this report is meant to serve as a useful reference for policy advocates and those in the floodplain management community who are interested in understanding more about the identification and assessment of flood risks and the actions that are being taken to reduce those risks. The report assesses current funding and staffing trends and highlights best practices for sound floodplain management. By sharing this information, the intent is to provide an evidence base to help states build stronger floodplain management programs.

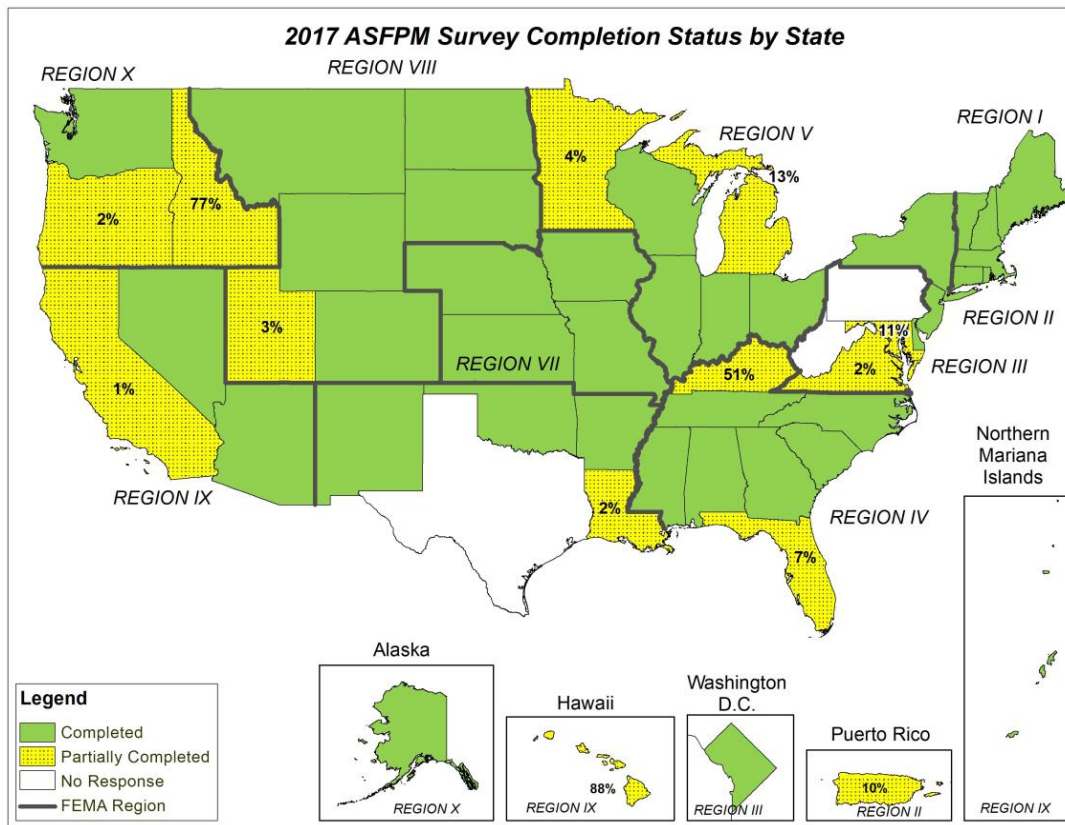
The report is organized around the 10 guiding principles for floodplain management, as established in prior ASFPM reports.

Ten Guiding Principles for Floodplain Management

Principle 1 <ul style="list-style-type: none"> •State floodplain management programs need strong, clear authority. 	Principle 2 <ul style="list-style-type: none"> •State floodplain management programs should be comprehensive and integrated with other state functions. 	Principle 3 <ul style="list-style-type: none"> •Flood hazards within the state must be identified and associated risks must be assessed. 	Principle 4 <ul style="list-style-type: none"> •Natural floodplain functions and resources throughout the state need to be respected. 	Principle 5 <ul style="list-style-type: none"> •Development within the state must be guided away from flood-prone areas; adverse impacts of development inside and outside the floodplain must be minimized.
Principle 6 <ul style="list-style-type: none"> •Flood mitigation and recovery strategies should be in place throughout the state. 	Principle 7 <ul style="list-style-type: none"> •The state’s people need to be informed about flood hazards and mitigation options. 	Principle 8 <ul style="list-style-type: none"> •Training and technical assistance in floodplain management need to be available to the state’s communities. 	Principle 9 <ul style="list-style-type: none"> •The levels of funding and staffing for floodplain management should meet the demand within each state. 	Principle 10 <ul style="list-style-type: none"> •Evaluation of the effectiveness of state floodplain management programs is essential and successes should be documented.

The present report draws on data from a 2017 online survey sent to each state’s NFIP coordinator (in this report the term state NFIP coordinator and state floodplain manager are used interchangeably) . The survey included many of the same items as prior surveys to allow for the analysis of change across time. Although the 2017 survey was substantially shortened when compared to previous iterations, it still took most survey respondents several hours to complete given the depth and detail required to assess the status of floodplain management within a given state and its local jurisdictions.

In the end, 39 state floodplain managers answered more than 75% of the survey questions (see Map A) regarding their state level activities. This survey analyzes their responses according to the 10 principles, and, where applicable, compares findings from 2003, 2010 and 2017.



Map A

The report opens with a brief introduction to the survey and report. This introduction is followed by 10 sections which include a detailed description of the relevant guiding principle, followed by highlights of select findings from each and details of the 2017 survey responses (with comparisons to 2003 and 2010 data, when available).

Key findings from this report highlight a number of positive trends regarding floodplain management regulations and other mitigation, response and recovery activities:

- Of the respondents reporting changes in *state laws or regulations* since 2010, a majority have reported that laws have been *strengthened* over this decade.
- To varying degrees, responding states indicate that statewide standards have been established for floodplain management, wetlands protection, hazards mitigation and other floodplain-related matters.
- Since 2010, there appear to be some interesting shifts in respect to *state authority* to enforce local floodplain management standards, with a reduction in the percentage of states reporting that authority is shared between the state and communities and an increase in states reporting that communities hold the authority.

- State floodplain managers *regularly and effectively coordinate* with many other state and federal agencies.
- State floodplain managers dedicate a large portion of their time, offering *monitoring and technical assistance* to local communities; engaging in *mapping and engineering* activities; and *educating and training* local officials, the public, consultants and others.
- Nearly half (46%) of responding states have their own *flood mapping program*, either a state mapping program, a CTP agreement with FEMA or some combination.
- State floodplain managers are promoting *green infrastructure* by providing technical guidance and a framework for understanding this type of infrastructure as a nonstructural flood management alternative.
- Nearly two-thirds (63%) of states have *tax incentives* to keep or restore floodplain lands, which represents an increase from 2010.
- States are more likely to use other *legal techniques* such as land acquisitions, easements, and mitigation banking to preserve and/or restore natural floodplain functions and resources. Local *land use plans* that consider flood hazards are required by 83% of states.
- The following *regulations* are the top five most likely to be either required or implemented in the responding states: dam failure warning, stormwater management/detention, freeboard standards above Base Flood Elevation (66%), public awareness/outreach programs and flood hazard disclosure.
- Nearly three-quarters of responding states indicated that their state has a *building code*.
- Seventy percent of states reported that they provide *resources* to carry out flood mitigation projects. Funds for these projects are most often provided by the state legislature or by other programs such as Community Development Block Grants-Disaster Recovery.
- A mandate or program to plan for *adaptation to climate change* is in place for 41% of reporting states. This represents a substantial increase from 2010, when only 29% reported that they had such a mandate or program.
- State floodplain management programs engage in a variety of *post-flood mobilization activities*, such as participating in/conducting public meetings after flooding; sending notices to communities about post-disaster responsibilities, including substantial damage determinations; training others to conduct substantial damage determinations; providing increased cost of compliance advice; and participating in Hazard Mitigation Grant Program briefings when a federal disaster is declared.

- In terms of *communication*, slightly more than half of states issue a *floodplain management newsletter*, and all reporting states use electronic methods for distributing information including electronic newsletters and a variety of social media sources.
- Among the *outreach activities* conducted for public awareness of flooding or floodplain management, states most often engage in promoting flood awareness day, week or month events; setting up booths at malls or fairs; working with the legislature or other governing bodies; issuing press releases; and contacting/working with homeowners or homeowner groups.

Although much progress has been made at the state level, key findings from this report also highlight new or ongoing challenges in floodplain management.

- As detailed throughout the report, respondents identified a number of high priority needs to extend and enhance mapping programs. Some of the unmet needs indicated by states in 2017 are training (68%); Community Assistance Visits (43%); mapping (43%); enforcement (43%); Community Rating System support (39%); and general technical assistance (32%).
- Only 63% of responding states provide *flood maps* for public inspection on a walk-in basis, which represents a substantial reduction from previous survey years.
- There continues to be a downward trend in states contributing to *stream gaging programs*.
- More than half of states report that they do not maintain an *inventory of state buildings* located in flood hazard areas.
- Since 2010, there have been substantial declines in several programs and activities that states use to directly *protect or restore natural floodplain functions and resources*.
- Most states do not 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 floodplain management decision making.
- Consistent with findings from the 2010 survey, most states do not regulate the occupation of areas that would be inundated in a *dam failure*. Moreover, most states—roughly two-thirds—do not provide resources for dam repairs, dam removals or for dam failure inundation mapping.
- A large majority of states reported that they do not have a program for mobilizing volunteers (e.g., floodplain managers, building officials, engineers) for the purpose of helping communities do substantial damage determinations.

- State participation or coordination with private sector efforts to conduct *public outreach and awareness of floodplain management or floodplain resources* appears to have decreased substantially since 2010, from 30% to 13%.
- There have been a number of changes in the ways that states *monitor local floodplain management programs*. Among these are substantial decreases in the number of phone calls and site visits, and large increases in mail surveys.
- Only 61% of respondents indicated their state programs receive adequate support from their FEMA regional office to address *enforcement needs*.

In terms of funding and staffing for floodplain management, the 2017 survey illuminated the following trends and patterns:

- The average size of a state floodplain management program staff is 6.8 full-time equivalents. This is a slight increase from 2010, when states reported an average staff size of 5-6 FTEs.
- FTEs in state floodplain offices focus on the following activities:
 - Coordinating the National Flood Insurance Program
 - Administering state regulations and permits
 - Working in state or NFIP flood mapping as a Cooperating Technical Partner
 - Administering mitigation assistance programs
 - Other activities including planning and project management, engineering technical assistance, GIS technician, administrative, Floodplains by Design and floodplain planning
- In terms of *staff experience*, the average number of years that respondents served in their current position (state floodplain manager) is 8.4 years, with an average of 14.8 years in floodplain management more broadly. Almost one-third (29%) have a bachelor's degree, with an additional 45% holding a master's degree or higher.
- The average number of Certified Floodplain Managers employed as part of the responding states' floodplain management staff is 3.7—roughly the same as in 2010.
- When asked about any changes in the overall capability of their state's floodplain management program staff since 2010, 34% indicated this capability has increased; 32% that it has decreased; and the remaining 34% reported that it has stayed about the same.
- Just over half of responding states—56%—reported that there have been no changes in their floodplain management program since 2010.

- The total annual *budgets* for state floodplain management programs reported in 2017 were strikingly similar to the numbers reported in 2010 from most resources. Budgets have not grown as rapidly as populations and development have in many of the responding states. Budgets have also failed to keep up with the rate of inflation, meaning state floodplain management programs are, on average, making do with less.
- When asked about changes in the overall capacity of their state floodplain management program since 2010, 38% indicated capacity had increased; 24% that it had decreased; and the remaining 38% reported it had stayed about the same.
- When asked about their program's current *state budget* compared to last year, most reported no change (65%), with 14% indicating an increase and 22% reporting a decrease. When asked about their program's current *federal funding* compared to last year, most reported no change (70%), with 14% indicating they experienced an increase and 16% reporting a decrease.
- Responding states provided examples of external factors or events that have negatively affected their state's floodplain management program staffing levels. These included funding constraints, budget cuts, hiring freezes, staff turnover and low prioritization of floodplain management at the state level.

Key findings regarding the evaluation of state floodplain management activities revealed:

- Roughly one-quarter of respondents (26%) reported that they have *defined management outcomes* for floodplain management or resource protection.
- Only a small portion of respondents indicated that their state has *evaluated the effectiveness* of its state floodplain management and/or floodplain resource protection program, which represents a clear area for growth.
- A majority of states have not used the FEMA Community Assistance Program - State Support Services Element Gap analysis to close any gaps in National Flood Insurance Program-related activities.

Introduction

Principles for Effective State Floodplain Management

In 2003, ASFPM published *Effective State Floodplain Management Programs*. This landmark undertaking, which introduced the 10 guiding principles of effective management,¹ was the first attempt by any organization to identify and record standards by which states could measure their efforts in the management of floodplains. These principles, which take into consideration the differences between states, local governments and geographical regions, 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 that state programs can use to gauge accomplishments in achieving their goals of effective floodplain management. It is our assertion that all effective state floodplain management programs contain, at a minimum, components that are consistent with the 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 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 states 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 state floodplain management programs is essential and successes should be documented.

¹ Special thanks are due to Jacquelyn Monday, JLM Associates, and Cynthia Crecelius, CC Consults, for introducing the use of the 10 principles of effective state floodplain management programs in the 2003 and 2010 survey reports. This forward-thinking approach toward standardized communication of floodplain management principles and practices is used again in this 2017 report.

Organization of the Report

This document is a summary of state responses to the 2017 State Floodplain Management survey undertaken by ASFPM in collaboration with the Natural Hazards Center at the University of Colorado Boulder. Similar surveys in 1989, 1992, 1995, 2003 and 2010 allowed ASFPM to compile its national tally of the practices by which state and local governments manage floodplains.

This 2017 survey focuses on state-level practices in the floodplain management arena. Like the survey itself, this report is divided into 10 sections according to the 10 guiding principles of effective floodplain management listed above.

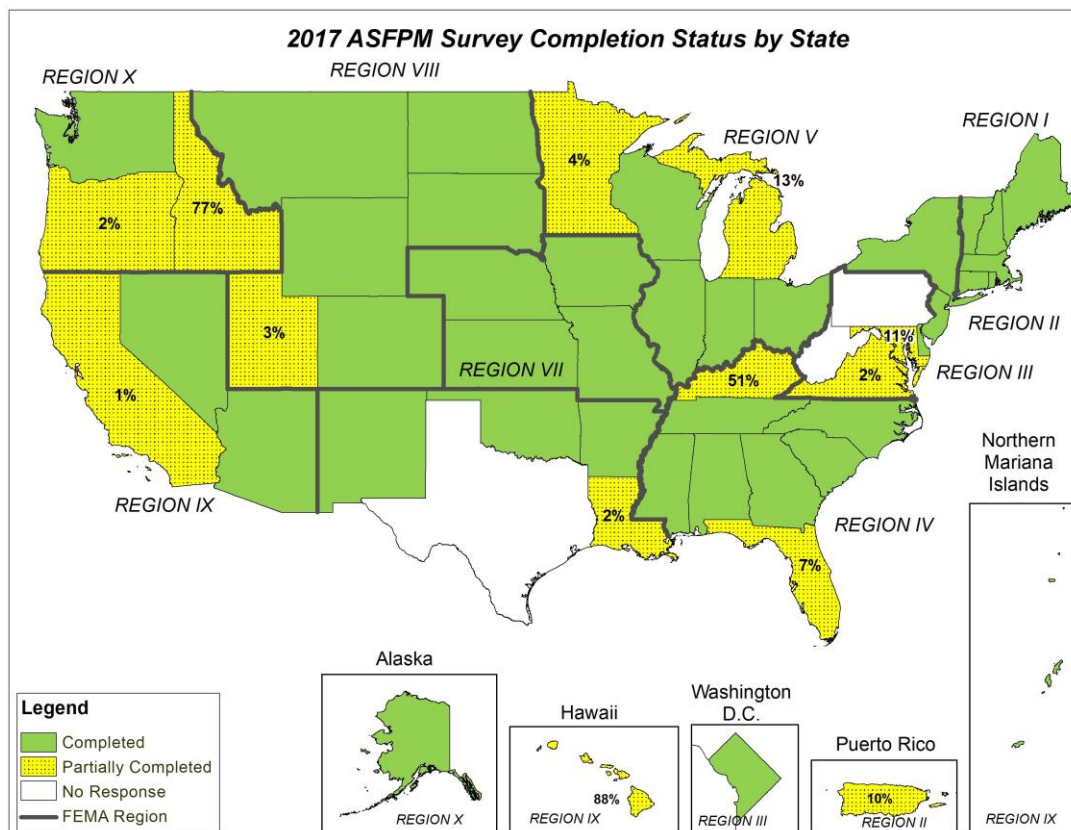
Each principle is then divided into three components:

- Description of the guiding principle
- Highlights of selected findings for each principle
- Detailed 2017 survey responses and comparisons to 2003 and 2010 data, when available

Throughout this report, we have provided the text from the 2017 survey questions and the [original survey is available on the ASFPM website](#). The analysis section for each principle provides a description of the 2017 findings. This analysis includes the number of states that responded to each question (N=total number of responding states); or, in some cases, the number of states that provided a specific response (n=number of states that gave a response to a particular question).

Where possible, we have provided comparative data from 2003 and 2010 surveys in relation to the 2017 survey findings (ASFPM 2003, 2010). Caution should be used in interpreting the trends of these results, however, since we do not have complete response rate information for many 2003 and 2010 survey questions. Where no data are available for 2003 and 2010, this is noted by "ND."

The survey launched on April 27, 2017, and a link to the questionnaire was sent to the designated NFIP coordinator in each state (i.e., one per state). The survey remained open for respondents to participate through Sept. 8, 2017. Although representatives from 50 states opened the survey, not all surveys were completed. The findings presented in this report are based on the states that answered more than 75% of the survey questions (N=39) (see Map A and Table A). We used this approach to ensure the integrity of the data analysis and to maintain consistency in the presentation of the findings.



Map A

Table A. 2017 List of Responding States and Completion Status

State or Territory	Status	State or Territory	Status
Alaska	Complete	North Carolina	Complete
Alabama	Complete	North Dakota	Complete
Arkansas	Complete	Nebraska	Complete
Arizona	Complete	New Hampshire	Complete
California	Mostly Incomplete (1%)	New Jersey	Complete
Colorado	Complete	New Mexico	Complete
Connecticut	Complete	Nevada	Complete
District of Columbia	Complete	New York	Complete
Delaware	Complete	Ohio	Complete
Florida	Mostly Incomplete (7%)	Oklahoma	Complete
Georgia	Complete	Oregon	Mostly Incomplete (2%)
Hawaii	Mostly Complete (88%)	Pennsylvania	No Response
Iowa	Complete	Puerto Rico	Mostly Incomplete (10%)
Idaho	Mostly Complete (77%)	Rhode Island	Complete
Illinois	Complete	South Carolina	Complete
Indiana	Complete	South Dakota	Complete
Kansas	Complete	Tennessee	Complete
Kentucky	Partially Complete (51%)	Texas	No Response
Louisiana	Mostly Incomplete (2%)	Utah	Mostly Incomplete (3%)
Massachusetts	Complete	Virginia	Mostly Incomplete (2%)
Maryland	Mostly Incomplete (11%)	Commonwealth of Northern Mariana Islands	Complete
Maine	Complete	Vermont	Complete
Michigan	Mostly Incomplete (13%)	Washington	Complete
Minnesota	Mostly Incomplete (4%)	Wisconsin	Complete
Missouri	Complete	West Virginia	No Response
Mississippi	Complete	Wyoming	Complete
Montana	Complete		

Acronyms

For reference, the following is a list of acronyms that will be used throughout this document.

AICP	American Institute of Certified Planners
ASFPM	Association of State Floodplain Managers
BFE	Base Flood Elevation
BLE	Base Level Engineering
CAC	Community Assistance Contacts
CAP	Community Assistance Program
CAP-SSSE	Community Assistance Program - State Support Services Element
CAV	Community Assistance Visits
CCCL	Coastal Construction Control Line
CEC	Continuing Education Credit
CFM	Certified Floodplain Managers
CFS	Certified Floodplain Surveyor
CLMOR	Certified Letter of Map Revision
CRS	Community Rating System
CTP	Cooperating Technical Partners Program
DEM	Digital Elevation Model
DFIRM	Digital Flood Insurance Rate Map
EMI	Emergency Management Institute
ERF	Erosion Reference Features
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance Grant Program
FPM	Floodplain Management
FTE	Full-Time Employee
GTA	General Technical Assistance
GIO	Geographic Information Officer
GIS	Geographic Information System
H&H Models	Hydrologic and Hydraulic Models
Hazus-MH	Hazus Multi-Hazard software
HMA	Hazard Mitigation Assistance Program
HMGP	Hazard Mitigation Grant Program
I-Codes	International Building Code Series
LOMA	Letter of Map Amendments
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
MMMS	Map Modernization Maintenance Support
MTAS	Municipal Technical Advisory Service
NAI	No Adverse Impact
NEC	National Electric Code

NFIP	National Flood Insurance Program
PDM	Pre-Disaster Mitigation Grant Program
PE	Professional Engineer
RFC	Repetitive Flood Claims Program
Risk MAP	Risk Mapping, Assessment and Planning
SFHA	Special Flood Hazard Areas
SHMO	State Hazard Mitigation Officer
SRL	Severe Repetitive Loss
UHMAP	Unified Hazard Mitigation Assistance Program
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey



PRINCIPLE 1

State floodplain management programs need strong, clear authority.

Effective state programs are stable and long lasting. They are founded on 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.

Highlights

- Of respondents reporting changes in state laws or regulations since 2010, a majority have reported that laws have been strengthened. While an overall majority of respondents (58%) indicated that state laws or regulations have not changed, of those that did report changes, 50% indicated changes have strengthened floodplain management, 31% said changes maintained their floodplain management efforts, 13% indicated that the changes resulted in a combination of strengthening and weakening efforts, and six percent said they resulted in weakened efforts (see Figures 1.1 and 1.2).
- In most responding states—62%—the primary floodplain management program is operated by environmental protection or natural resources agencies. An additional 18% of states report that their programs are run by emergency management or military affairs agencies. These figures are consistent with data provided in 2003 and 2010 (see Table 1.1).
- Environmental protection and natural resources agencies, followed by emergency management agencies, have the majority of oversight and monitoring responsibility for floodplain management regulations and standards for state activities (see Table 1.5). These findings are consistent with the results of the 2010 survey.
- Between 2010 and 2017 there has been a slight increase—about 10%—in the overlapping or shared regulatory authority between the states and communities. On the other hand, there has been a 14% decrease in the extent to which states explicitly or implicitly grant full regulatory authority to communities and do not retain a clearly defined regulatory role at the state level (see Table 1.2).
- To varying degrees, responding states indicate that statewide standards have been established for floodplain management, wetlands protection, hazards mitigation and other floodplain-related matters. Generally speaking, where these standards exist, they have been created by the state legislature (see Table 1.4).
- Since 2010, there appear to be some interesting shifts in respect to state authority to enforce local floodplain management standards. Most noticeably, there has been a reduction in the percentage of states reporting that authority is shared between the state and communities (from 29% in 2010 to 8% in 2017) and an increase in states reporting that authority resides with communities (from 40% in 2010 to 53% in 2017) (see Table 1.6).

Survey Responses and Comparisons to Available 2003 and 2010 Data

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

Primary Agency Operating the State Floodplain Management Program

When asked about the agency operating the state's primary floodplain management program, 2017 responses were similar to those provided in 2003 and 2010.

Table 1.1 *What kind of agency operates your state's primary floodplain management program (Question 1)?*

Agency	2003	2010	2017² (N=39)
Environmental Protection/Natural Resources Agencies	61%	62%	62%
Emergency Management/Military Affairs Agencies	21%	16%	18%
Planning and Community Development Agencies	16%	13%	5%
Other agencies such as Public Safety, Planning Board, Water Resources and Transportation and Development	2%	9%	15%

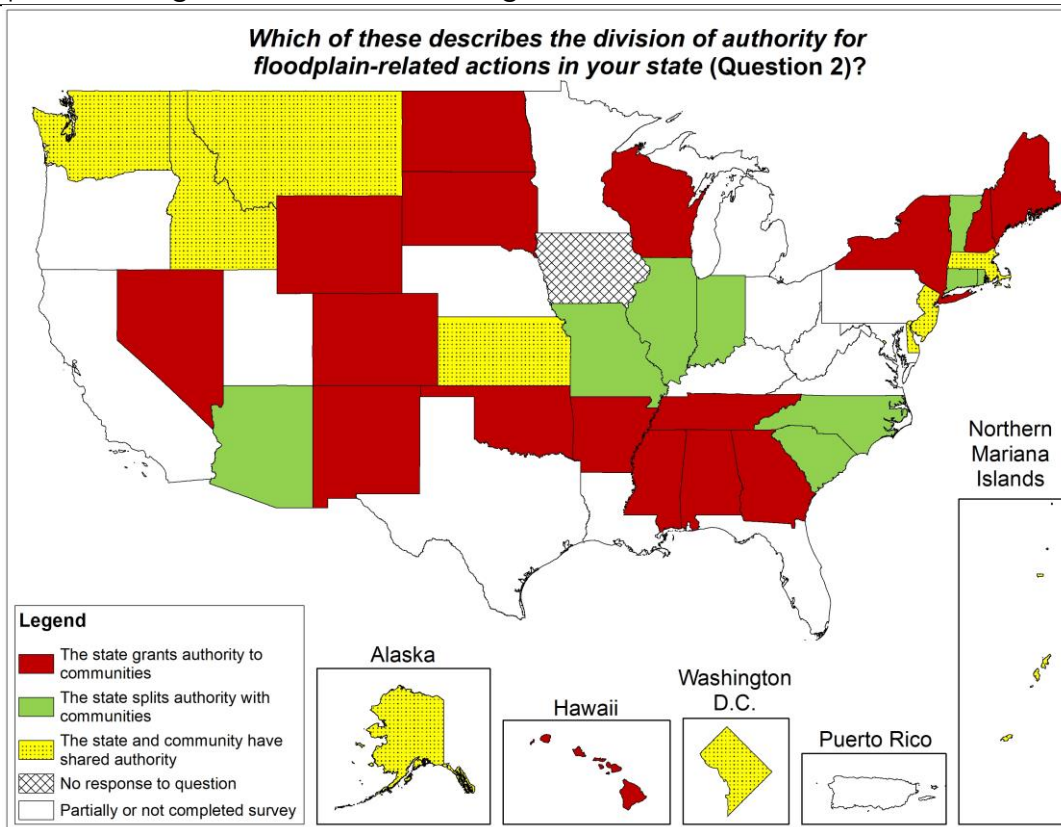
Division of Authority for Floodplain-Related Actions

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

Table 1.2 *Which of these describes the division of authority for floodplain-related actions in your state (Question 2)?*

Division of Authority	2010	2017 (N=38)
The state explicitly or implicitly grants full regulatory authority to communities and retains no clearly defined regulatory role at the state level	61%	47%
The state splits 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	23%	26%
The state and communities have overlapping or shared regulatory authority over the same area and/or same activities	16%	26%

² Throughout this report, percentages are rounded to the nearest whole number.



Map 1.1

Statewide Standards and Enabling Authority

State responses to questions regarding statewide standards and enabling authority are presented below, in Tables 1.3 and 1.4, as well as in Figures 1.1 and 1.2.

Table 1.3 For each of the following policies, indicate whether or not there is a state enabling authority (Question 3).

Policy	Percentage Reporting that State Enabling Authority Exists
Floodplain management (N=39)	90%
Stormwater management (N=31)	77%
Public stream/wetland alterations (N=31)	74%
Zoning (N=32)	72%
Floodplain permitting (N=36)	69%
Disaster recovery planning (N=32)	69%
Flood hazard mitigation (or hazard mitigation generally) (N=34)	68%
Comprehensive planning (N=33)	64%
Riparian, lakeshore or coastal setbacks/buffers (N=32)	57%
Watershed-based planning (N=32)	56%
Stormwater utility formation (N=32)	52%
Floodplain resource protection (N=33)	52%
Stormwater management (N=31)	77%
Coastal Zone Management (N=36)	47%
Growth management (N=31)	35%
Climate change/adaptation planning (N=33)	30%

Questions 4-7 pertained to the development of statewide standards for certain activities. The results are listed in Table 1.4.

Table 1.4 What statewide standards have been established by your state for the activities listed below? Please indicate if the standards were created by Governor's Executive Order or the State Legislature (Questions 4-7).

Activity	Standards Created By:		
	Executive Order	State Legislature	Neither or Not Applicable
Floodplain management (N=39)	23%	54%	23%
Wetlands protection (N=32)	3%	53%	44%
Hazard mitigation coordination (N=32)	13%	38%	50%
Other floodplain-related matters (N=33)	15%	15%	69%

When asked if there had been any changes in state laws or regulations since 2010 that affected floodplain management, more than half of states responded "no" as shown in Figure 1.1. A follow-up question was then asked regarding how these changes impacted floodplain management efforts. These results are shown in Figure 1.2.

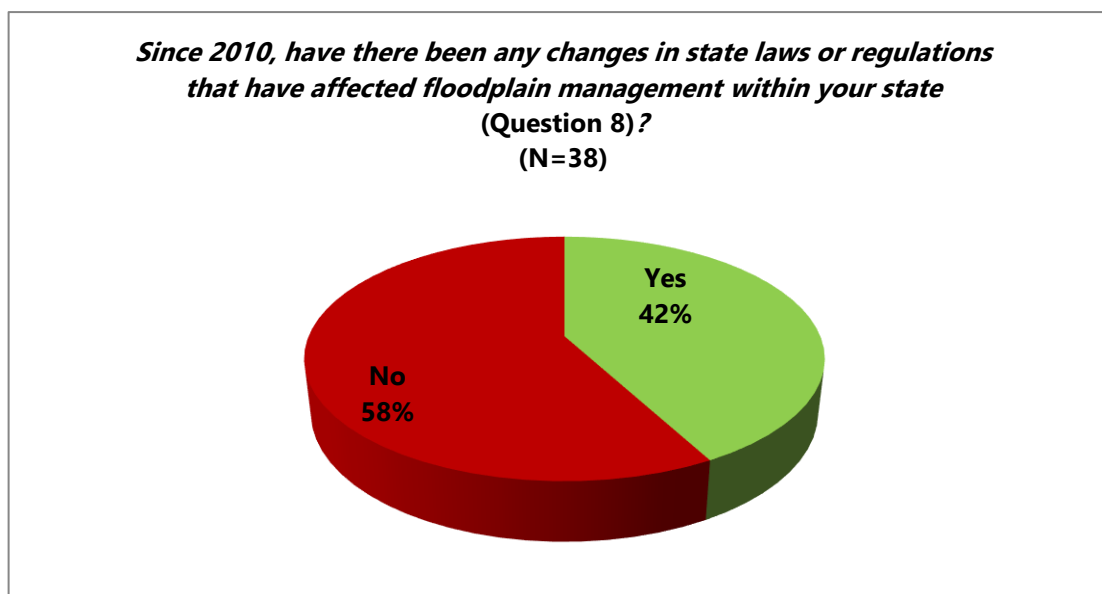


Figure 1.1

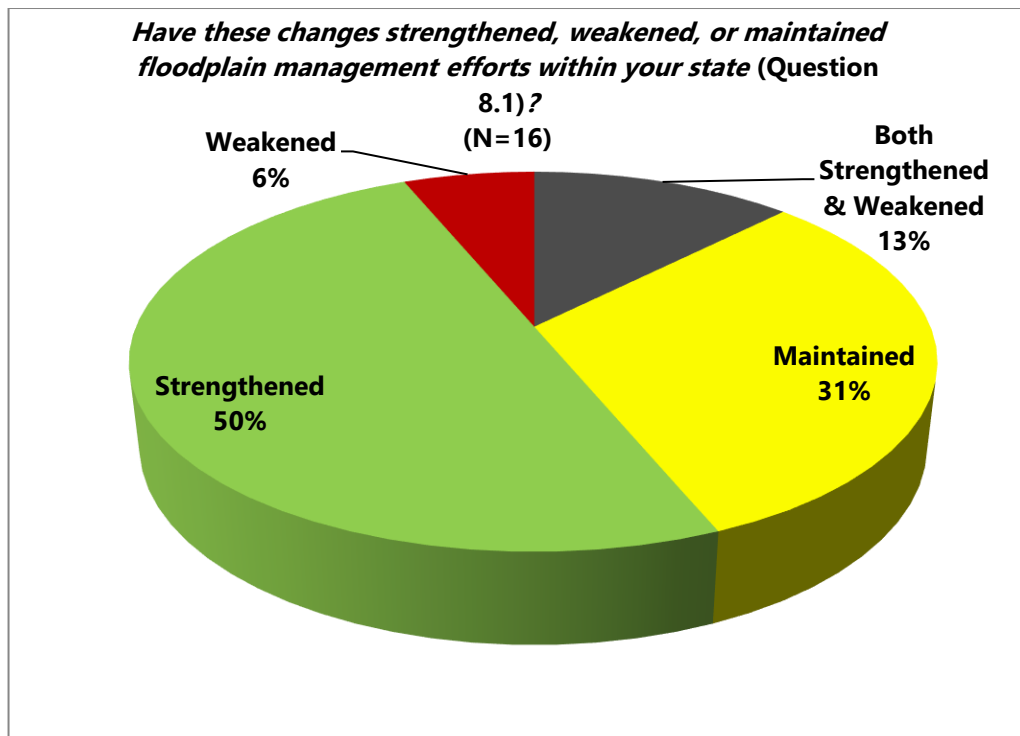


Figure 1.2

Specific ways in which changes in state laws or regulations strengthened floodplain management, according to open-ended responses:

- *More stringent freeboard requirements*
- *Heightened standards for building codes*
- *Floodplain management ordinance requirements*
- *Construction codes that strengthened coordination between the floodplain administrator and building code officials*
- *Adoption of the latest International Building Code and International Residential Code floodplain requirements*

Monitoring and Enforcement Mechanisms

The following survey questions in 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, staff capabilities and the actions of other state agencies. *Enforcement* is defined as actions that may be undertaken to remedy violations.

When asked the question below, the responding states provided the following information about oversight and monitoring responsibilities:

Table 1.5 Which agencies in your state have oversight or monitoring responsibilities for floodplain management regulations or standards for state activities (check all that apply) (Question 9)?

Agency	Percentage that Have Oversight or Monitoring Responsibilities (N=27)*
Environmental Protection/ Natural Resources	49%
Emergency Management	32%
Water Resources Agency	16%
Coastal Zone Management	14%
State Building Code	14%
State Dam Safety	14%
State Transportation Agency	8%
Agricultural Extension Service	3%
Agriculture and Food Safety	3%
Historic Preservation Office	3%
Housing, Community and Economic Development	3%
Insurance Commissioner, Agency and Flood Insurance	3%
Parks and Recreation	3%
State Planning Agency	3%

*One respondent reported that the local government has oversight and monitoring responsibilities.

Table 1.6 shows state responses to the following question regarding enforcement for the years 2010 and 2017.

Table 1.6 What authority does your state have to enforce local floodplain management standards (please check one) (Question 10)?

State Authority to Enforce Local Floodplain Management Standards	2010	2017 (N=38)
Authority resides with community	40%	53%
Authority is shared between state and community	29%	8%
Authority is shared among state, community and FEMA	19%	26%
Authority is shared between FEMA and community	12%	8%
State has final authority	0%	5%



PRINCIPLE 2

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

Effective state floodplain management programs set a performance standard not only by ensuring that flood hazards are identified, avoided, minimized and mitigated, but also by protecting floodplain functions and resources. In addition, state floodplain management programs should be comprehensive and integrated with elements from a number of state, federal and local agency 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 holistically implemented.

Highlights

- Other state agencies with which states most regularly coordinate most are: emergency management (82%), dam safety (64%), shoreline/coastal management (60%), coastal zone management (58%) and transportation (53%) (see Table 2.2).
- Federal agencies with which states most regularly coordinate are: U.S. Army Corps of Engineers (84%), National Weather Service (63%) and U.S. Geological Survey (58%) (see Table 2.3).
- In 2017, states reported that they spent an average of 24% of their efforts on monitoring and technical assistance to local programs; 17% on mapping or engineering; and 16% on education and training for local officials, the public, consultants, developers and others (see Table 2.1). In 2010, states reported that they spent an average of 45% of their efforts on monitoring and technical assistance to local programs.
- In terms of the division of work between FEMA Regions and states in coordinating the NFIP, states tended to focus on conducting community monitoring (CAVs and CACs), outreach, ordinance reviews and general technical assistance. FEMA regional staff tend to focus on submit-for-rate applications, repetitive loss activities, insurance-related activities and map update activities (see Table 2.4).

Survey Responses and Comparisons to Available 2003 and 2010 Data

State Program Activities

The average proportion of staff time spent on each of these categories is listed in Table 2.1 below, with the most being spent on monitoring and technical assistance to local programs.

Table 2.1 *Considering your program's overall effort, including time, personnel and funding, what proportion of your state's floodplain management program is devoted to the following (Question 14)?*

Activity	Average Percent of Program Devoted to Activity	
	2010	2017
State permit review	ND	6% (N=38)
Monitoring and technical assistance to local programs	45%	24% (N=38)
Mapping or engineering	14%	17% (N=38)
Promoting sale of flood insurance	ND	3% (N=38)
Protection of natural floodplain resources and functions	ND	4% (N=38)
Education and training for local officials, public, consultants, developers, etc.	12%	16% (N=38)
Enforcement of state regulations and standards	ND	6% (N=38)
Helping with enforcement of local ordinances	ND	16% (N=37)
Grant programs	ND	6% (N=38)

Coordination with Other State Agencies

Some state agencies and the programs that typically have an impact on floodplain management within a state are listed in Table 2.2. When asked the question below, the responding states provided the following information about state programs with which they most frequently coordinate or interact. The state programs where a majority of respondents indicated that there was "minimal or no contact" included economic development, health, mining and mineral survey, and housing.

Table 2.2 Please indicate the degree of coordination or interaction between your state floodplain management program and each of the following state programs (Question 12).

State Program	Degree of Coordination or Interaction			
	Regular, formally established	Regular but not formally established	As needed	Minimal or none
Attorney general (N=37)	3%	-	51%	46%
Coastal or riverine erosion (N=31)	19%	26%	29%	26%
Coastal zone management (N=21)	10%	48%	29%	14%
Dam safety (N=36)	28%	36%	25%	11%
Economic development (N=37)	3%	11%	41%	46%
Emergency management (N=38)	50%	32%	18%	-
Environmental quality (N=37)	19%	30%	41%	11%
Fish, game, wildlife (N=37)	3%	22%	49%	27%
Geological survey (N=37)	14%	16%	46%	24%
Health (N=35)	3%	6%	40%	51%
Housing (N=37)	8%	5%	41%	46%
Manufactured housing authority (N=29)	7%	10%	45%	38%
Levee safety (N=28)	14%	32%	29%	25%
Mining, mineral survey (N=32)	-	9%	41%	50%
Natural resources protection (N=35)	20%	17%	54%	9%
Parks, recreation, forests (N=37)	5%	5%	57%	32%
Planning (N=31)	19%	10%	45%	25%
Shoreline/coastal management (N=25)	12%	48%	32%	8%
Soil erosion (N=37)	14%	11%	41%	35%
Building codes/construction (N=33)	21%	9%	61%	9%
Stormwater management (N=35)	14%	23%	51%	11%
Transportation (N=36)	31%	22%	42%	6%
Wetlands regulation, protection (N=37)	8%	27%	51%	14%

Coordination with Federal Agencies

The programs, policies and activities of state and local jurisdictions 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. As presented in Table 2.3, states report the highest degree of interaction and coordination with USACE of all the federal agencies that have an interest in state floodplain management (excluding FEMA). These higher levels of interaction are characterized as either regular and formally established or regular, but not formally established.

Table 2.3 Please indicate the degree of coordination or interaction between your state floodplain management program and each of the following federal agencies (Question 13).

Floodplain Management 2017: State Programs

Federal Agency	Degree of Coordination or Interaction			
	Regular, formally established	Regular but not formally established	As needed	Minimal or none
Federal Depositors Insurance Corp (FDIC) (N=31)	-	-	6%	94%
Federal Energy Regulatory Commission (N=34)	6%	3%	15%	76%
Federal Highway Administration (FHA) (N=37)	5%	5%	30%	59%
Small Business Administration (N=37)	-	5%	46%	49%
Tennessee Valley Authority (N=11)	9%	9%	36%	45%
U.S. Army Corps of Engineers (N=39)	46%	38%	15%	-
U.S. Environmental Protection Agency (N=38)	11%	8%	47%	34%
Wild & Scenic Rivers (N=32)	-	3%	25%	72%
U.S. Forest Service (N=36)	-	3%	39%	58%
Natural Resources Conservation Service (N=38)	11%	16%	50%	24%
Rural Development Administration (N=32)	-	3%	41%	56%
Economic Development Administration (N=35)	-	6%	31%	63%
National Geodetic Survey (N=34)	3%	9%	24%	65%
National Hurricane Center (N=18)	6%	11%	39%	44%
National Marine Fisheries Service (N=21)	-	5%	24%	71%
National Weather Service (N=38)	26%	37%	32%	5%
Office for Coastal Management (N=20)	-	20%	35%	45%
Department of Housing and Urban Development (N=38)	-	11%	39%	50%
Bureau of Indian Affairs (N=28)	4%	7%	29%	61%
Bureau of Land Management (N=29)	-	3%	28%	69%
Bureau of Reclamation (N=28)	4%	11%	29%	57%
Fish & Wildlife Service (N=38)	3%	13%	37%	47%
Minerals Management Service (N=29)	-	-	14%	86%
National Park Service (N=35)	3%	-	31%	66%
U.S. Geological Survey (N=38)	34%	24%	26%	16%

When asked the question in Table 2.4, the responding states provided the following information about the division of work between FEMA Regional Offices and the state offices in respect to common floodplain management program activities.

Table 2.4 *For each of the following activities, please indicate the division of work between the FEMA Regional Office and your office (Question 15).*

Floodplain Management 2017: State Programs

Activity	Division of Work					
	Always State	Mostly State	Evenly Split	Mostly FEMA Region	Always FEMA Region	Not Applicable
Community Assistance Visits (N=38)	3%	71%	24%	3%	-	-
Community Assistance Contacts (N=38)	21%	68%	11%	-	-	-
Workshops—NFIP Related (N=37)	14%	49%	27%	11%	-	-
Outreach (N=38)	13%	71%	16%	-	-	-
Ordinance Reviews (N=38)	21%	63%	16%	-	-	-
General Technical Assistance (N=38)	13%	79%	5%	3%	-	-
Engineering Assistance (N=33)	15%	45%	18%	18%	-	3%
Planning Assistance (N=37)	8%	57%	22%	5%	-	8%
Submit-for-Rate Applications (N=20)	-	10%	15%	45%	-	30%
Repetitive Loss Activities (N=37)	3%	35%	30%	30%	-	3%
Insurance-Related Activities (N=35)	-	14%	40%	46%	-	-

Floodplain Management 2017: State Programs

Map Update Process (Discovery, Preliminary Release, etc.) (N=35)	11%	26%	43%	20%	-	-
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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. Flood hazards are varied and widespread from riverine to coastal to dam/levee failures to tsunami inundation to alluvial fan flooding. An effective state floodplain management program ensures 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 reduce disaster costs*
- *Apply regulatory criteria*
- *Inform property owners and the public of possible risks*
- *Craft mitigation measures for existing at-risk development*

Highlights

- In 2017, 63% of responding states provide flood maps for public inspection on a walk-in basis. This is substantially lower than the number of states that did in 2003 (100%) and in 2010 (95%). The 2017 survey also indicated 32% of states provide base flood elevation determinations (generating a BFE where none exists) on request (see Table 3.1).
- It was reported that floodplain management program reviews proposed flood maps before they were adopted locally in 79% of states. This represents an increase of 8% since 2010 and an increase of nearly one-third since 2003 (see Table 3.4).
- Nearly half (46%) of states have their own flood mapping program, either a state mapping program, a CTP agreement with FEMA or some combination (see Map 3.3).
- On a scale of 1-10, with 1 being inadequate/poor and 10 being totally adequate/excellent, states rated coordination with FEMA during the map update process the highest (7), followed by coordination with FEMA's contractors during the map update process (6.9); quality of flood data (6); and extent of floodplains mapped (5.6). Length of time to complete a flood study (from discovery to final FIRMs) was rated lowest (5) on average (see Table 3.6).
- When asked about priority mapping needs, respondents rated the following as most important: (1) develop more BFEs where data doesn't exist; (2) update old flood studies; (3) acquire LIDAR to do better flood mapping; (3) map more floodplain areas than currently shown on FIRMs; (4) eliminate the unmodernized paper map inventory; and (6) mapping of other hazards (see Table 3.8).
- There continues to be a downward trend in states contributing to stream gaging programs, either to the USGS program or by operating their own (see Table 3.9).
- More than half (54%) of states report that they do not maintain an inventory of state buildings located in flood hazard areas (see Map 3.4).
- Almost three-quarters (74%) of states indicate that at least one agency in their state maintains an inventory of available digital elevation model (DEM) data adequate to support

NFIP flood mapping (see Table 3.11).

- Seventy percent of states report that they use FEMA's Hazus-MH flood loss estimation software. Most use it for mitigation planning, risk assessment and risk mapping (See Tables 3.12 and 3.13).

Survey Responses and Comparisons to Available 2003 and 2010 Data

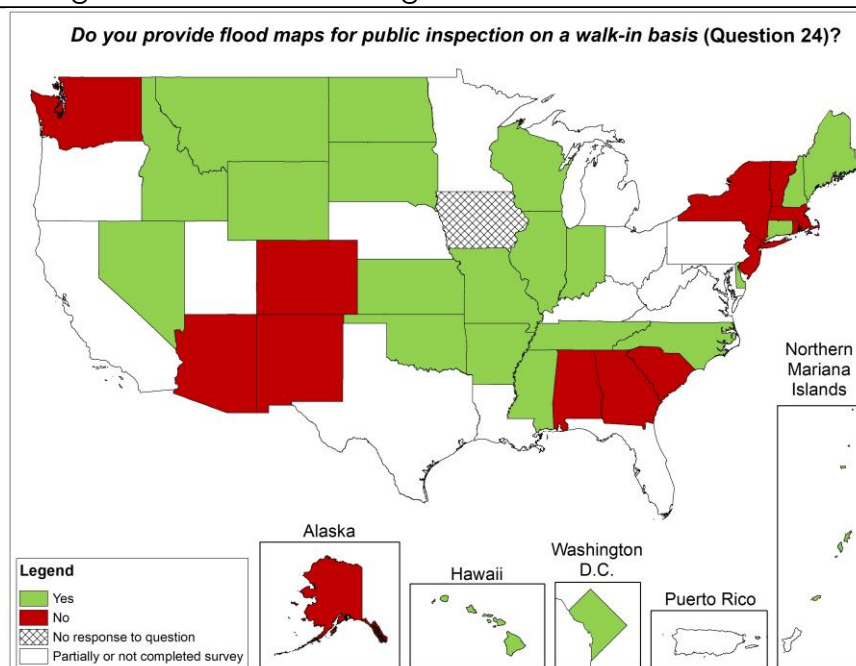
Flood Mapping Efforts and Priorities

When asked questions about flood mapping, the following percentages of respondents from the 2003, 2010 and 2017 surveys replied that they were engaging in these efforts.

Table 3.1 Percentage responding "yes" to the following questions regarding flood maps and mapping efforts.

Question	2003	2010	2017
<i>Do you provide flood maps for public inspection on a walk-in basis*</i> (Question 24)? (See Map 3.1)	100%	95%	63% (n=24)
<i>Do you provide BFE determinations on request (not interpreting flood maps; rather, generating a BFE where none exists)</i> (Question 25)?	ND	ND	32% (n=12)
<i>Does your state program maintain and/or regularly update a priority list for mapping/Flood Insurance Studies/restudies</i> (Question 35)?	84%	69%	65% (n=24)

*Most states indicated that they do not charge for this service.



Map 3.1

The responding states indicated that they work with a variety of federal agencies to help meet various mapping, flood insurance and restudy needs, with FEMA being the most frequently cited partner (see Table 3.2.).

Table 3.2 *What federal agencies may be able to assist or meet those restudy needs (please check all that apply) (Question 35.1)?*

Agency	Percentage "Yes" (N=24)
Federal Emergency Management Agency	96%
U.S. Army Corps of Engineers	67%
U.S. Geological Survey	50%
Natural Resources Conservation Service	21%
Bureau of Reclamation	13%
National Weather Service	13%
Office for Coastal Management	8%
Tennessee Valley Authority (TVA)	8%
Federal Highway Administration (FHA)	4%
National Park Service	4%
Rural Development Administration	4%
U.S. Environmental Protection Agency	4%

Engineering Review Processes

The following table depicts responses to questions 33, 33.2, 33.3 and 33.4, compared to the years 2003 and 2010.

Table 3.3 Percentage responding "yes" to the following questions related to engineering review processes.

Question	2003	2010	2017
<i>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)?</i>	41%	36%	42% (n=16)
<i>Do you issue a formal approval letter in conjunction with the engineering review (Question 33.2)?</i>	84%	36%	42% (n=16)
<i>Is your state engineering review equivalent to FEMA's engineering review (Question 33.3)?</i>	ND	ND	71% (n=10)
<i>Does your state have an engineering review checklist (Question 33.4)?</i>	ND	ND	43% (n=6)

Flood Map Review Processes

The following table presents the percentage of respondents replying "yes" to questions 34, 34.1 and 34.3, regarding flood map review processes.

Table 3.4 Percentage responding "yes" to the following questions related to proposed flood map processes.

Question	2003	2010	2017
<i>Does your state floodplain management program review proposed flood maps before they are adopted locally (Question 34)?</i>	47%	71%	79% (n=30)
<i>Is the state review of proposed flood maps required by law (Question 34.1)?</i>	ND	ND	19% (n=5)
<i>Do you issue an approval letter in conjunction with the review or approval of proposed flood maps (Question 34.3)?</i>	ND	ND	21% (n=6)

Cooperating Technical Partners (CTPs)

Figure 3.1 compares the percentage of state respondents identifying as a FEMA CTPs throughout the survey years. These results, as well as CTP-related funding information, are also depicted in Maps 3.2 and 3.3.

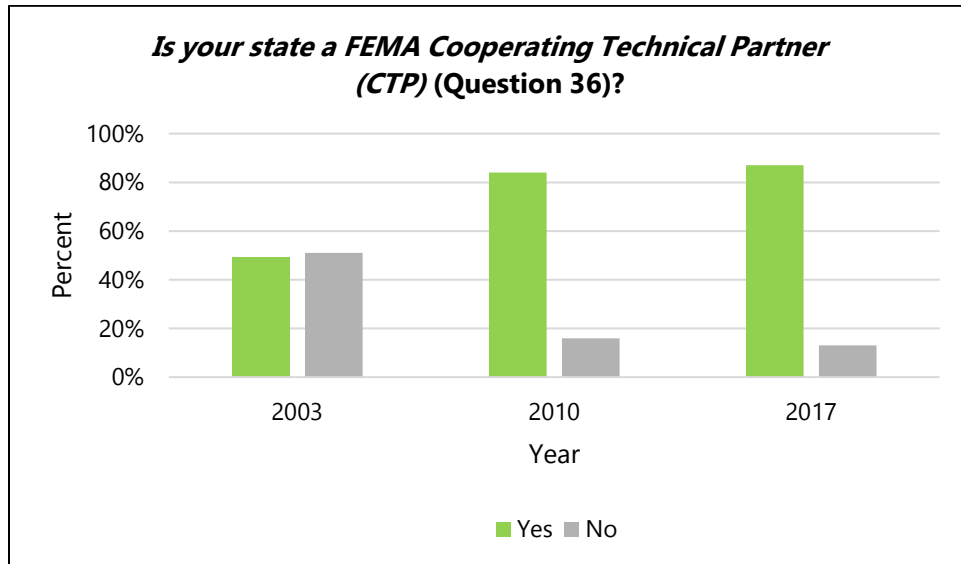
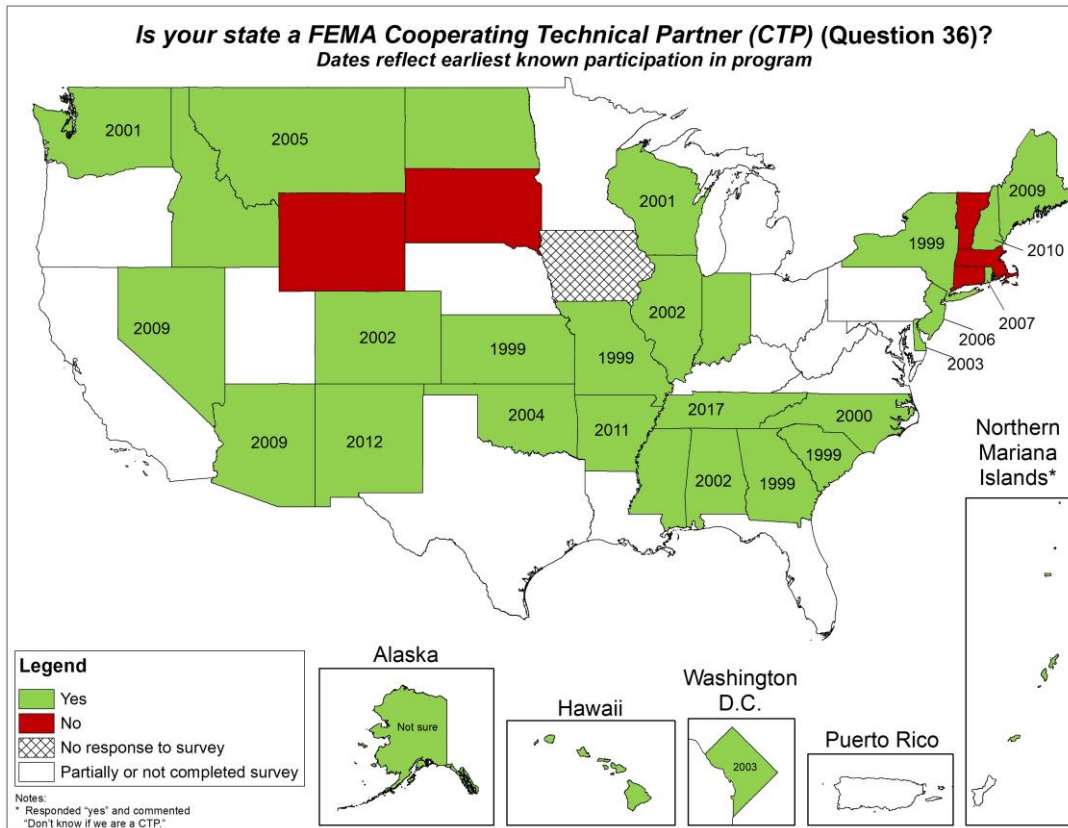
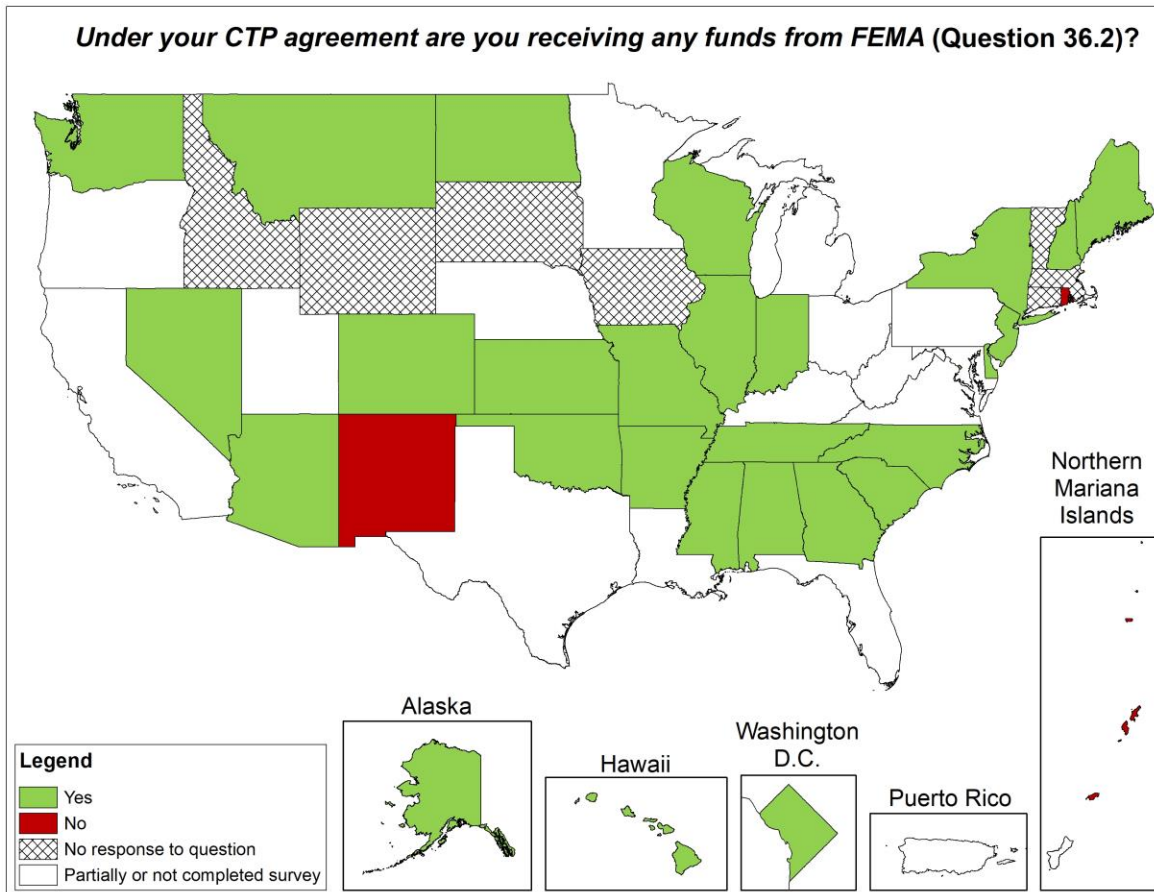


Figure 3.1



Map 3.2



Map 3.3

When asked an open-ended follow-up question which asked, *"What has prevented your state from becoming a CTP (Question 36.4)?"* state feedback illustrated four themes:

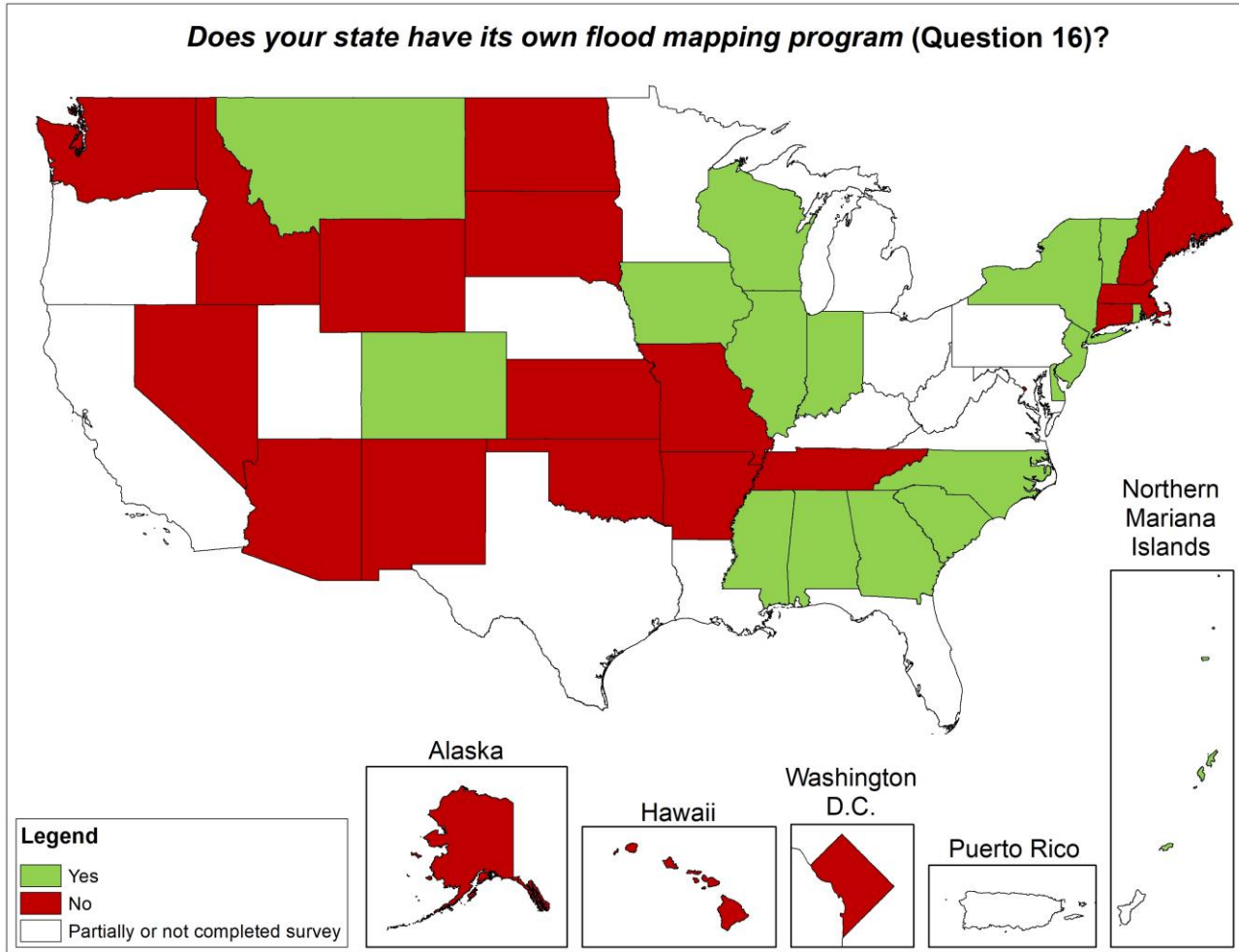
- Transaction/administration costs to become a CTP outweigh the benefits
- Office size and staffing limitations, including lack of technical expertise, can be an obstacle
- Lack of or decreased levels of funding—including CTP funds and FEMA mapping funds—are an issue
- In some cases, CTP funds were limited to ongoing projects with active CTPs, which prevented some state programs from becoming a CTP.

State responses to Question 36.3 for the following activities are listed in the table below.

Table 3.5 Which of the activities listed below are you doing under your CTP agreement or through your own state resources (Question 36.3)?

Activity	State	CTP	Both State and CTP
Set priorities for mapping (N=28)	18%	46%	36%
Participate in pre-mapping scoping meetings (N=29)	10%	52%	38%
Participate in final meetings (N=28)	14%	46%	39%
Conduct engineering or floodplain delineation review (N=21)	19%	57%	24%
Approve the hydrology and hydraulic analyses for use within your state (N=15)	27%	53%	20%
Assist in base map acquisition (N=24)	25%	46%	29%
Process LOMAs (N=5)	40%	-	60%
Process LOMRs (N=10)	30%	60%	10%
Conduct detailed studies to produce work maps used for DFIRMs (N=21)	10%	76%	14%
Conduct approximate analyses or re-delineation projects that produce work maps for DFIRMS (N=23)	13%	74%	13%
Quality assurance/quality check preliminary D-FIRMS (N=19)	16%	79%	5%
Produce DFIRMS (N=18)	6%	89%	6%

The CTP program provides a mechanism for FEMA to partner with capable and willing states to produce flood maps, flood risk assessment tools and support community planning and outreach within their state. According to the 2017 survey data, most responding states (54%) do not have their own flood mapping program.



Map 3.4

Respondents from the 15 states that indicated that they had a flood mapping program were asked about the specific components of the program. As shown in Table 3.6, those mapping efforts include a variety of features and a range of hazards-related information.

Table 3.6 Do your state's flood mapping efforts include mapping any of the following flood hazards or features (please check all that apply) (Question 16.1)?

Flood Hazard or Feature	Percentage of States Reporting that Mapping Efforts Include These Hazards or Features (N=15)
BFEs in A-Zone Areas	67%
Dam inundation zones	33%
Floodways with less than one-foot rise	33%
Levee- and floodwall-protected areas	27%
Erosion-prone coastal areas	20%
Channel migration zones	13%
Shoreline environmental designations	13%
Wetlands	13%
Closed basin lakes	7%
Critical setbacks	7%
Debris flows (mud flood, mudslide, mud flow)	7%
Erosion Reference Features (ERF)	7%
Flood hazard areas affected by subsidence	7%
Ice jam areas	7%
Tsunami hazards	7%
Urban stormwater flooding	7%
Wildfire areas	7%
Alluvial fan hazard	0%
Coastal Construction Control Line (CCCL)	0%
Future conditions hydrology	0%
Stream corridor buffer zones	0%
Other*	29%

*Twenty-nine percent reported "Other." These responses included: flood storage, fluvial erosion hazards mapping, dam breach, freshwater ponds, freshwater emergent/forested shrub wetlands, and riverine, lakes, estuarine and marine deep-water wetlands.

Respondents were also asked about the coordination, quality and rapidity of completion for a variety of efforts. As shown in Table 3.7, respondents, on average, rated these efforts in the fair to good range.

Table 3.7 On a scale of 1-10, with 1 being inadequate/poor and 10 being totally adequate/excellent, how would you rate each of the following (Question 17)?

Activity	Average Rating (n=38)
Coordination with FEMA during the map update process?	7.0
Coordination with FEMA contractors during the map update process?	6.9
Quality of flood data (including special flood hazard areas [SFHA] boundaries, engineering data)?	6.0
Extent of floodplains mapped (the amount of mapped SFHAs vs unmapped streams)?	5.6
Length of time to complete a flood study (from discovery to final FIRMs)?	5.0

Priority Mapping Needs

Respondents were also asked to rank mapping needs for their state (Table 3.8). Eleven states identified developing more BFEs where data doesn't exist as the highest priority, and 10 states identified acquiring LIDAR to do better flood mapping as the highest priority. Sixteen states identified updating old studies as the second highest priority.

Table 3.8 Please rank the following in terms of priority mapping needs for your state (rank from the highest priority to the least, with 1 being the highest priority and 6 being the lowest priority) (Question 18).

Type of Mapping Need	Average Priority Ranking (N=38)
Develop more BFEs where data doesn't exist	2.7
Update old flood studies (hydrology/models)	2.7
Acquire LIDAR to do better flood mapping	3.4
Map more floodplain areas than are currently shown on existing FIRMS	3.7
Eliminate the unmodernized paper map inventory	3.9
Map of other hazards (dam failure zones, 500-year floodplains, residual risk areas, etc.)	4.6

When asked to provide other priority mapping needs (Question 19), responding states (n=19) specified a range of needs. Although not an exhaustive list, examples of needs that were mentioned more than once include:

- Mapping unmapped areas in the state, primarily rural areas and including Flood Insurance Rate Maps (FIRMs) and Base Flood Elevations (BFEs)
- Additional stream gaging and levee evaluations
- Detailed studies concerning watersheds, updated engineering and base level engineering (BLE) modeling
- Mapping of statewide fluvial and riverine erosion hazards

Ramifications of Unmet Needs: Open-ended Responses

"We have 10 unmapped counties. Because all are rural, these communities never get to the top of the list for mapping. Meanwhile, the more populated communities get remapped over and over. The way that the priorities are set for identifying the communities that get map updates is biased against the rural communities. Sometimes these communities are also lower on the socio-economic scale and/or have higher percentages of minority populations."

"The state needs FIRMs with BFEs in each community. It is unfair to entire unincorporated counties to not have any zone AE. You put the burden of determining [zones] on areas that lack the money to get the BFE established and impose a higher fee on those property owners."

As depicted below, a majority of state respondents (65%) contribute funds to the USGS stream-gaging program, and only 33% of responding states operate a stream gaging program separate from the USGS.

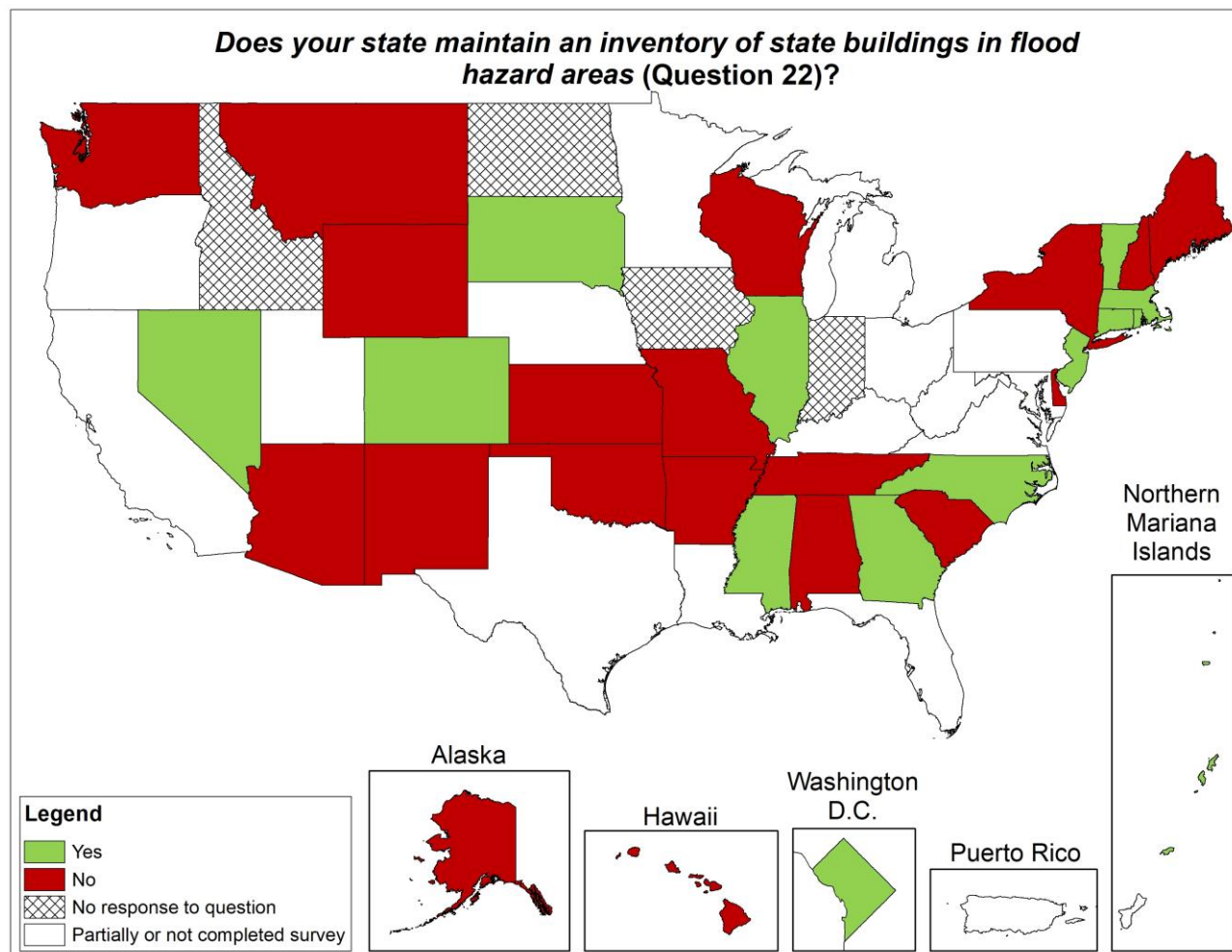
Table 3.9 Percentage responding "yes" to the following questions related to stream gaging programs.

Question	2003	2010	2017
<i>Does your state contribute funds to the U.S. Geological Survey stream-gaging program (Question 20)?</i>	76%	69%	65% (n=22)
<i>Does your state operate a stream gaging program separate from the U.S. Geological Survey* (Question 21)?</i>	37%	45%	33% (n=11)

*Out of the six states responding that they operated a stream gaging program, three reported that they operate between 2-20 and three reported operating from 26-126 stream gages. Note: Responses implied these are estimates that need to be verified.

Attributes Available for Mapping

Less than half of state respondents maintain an inventory of state buildings in flood hazard areas, as is depicted in Map 3.4.



Map 3.5

Table 3.10 shows the percentage of responding states that identified the following attributes as available for the state building inventory.

Table 3.10 What attributes are available for the state building inventory (please check all that apply) (Question 22.1)?

Floodplain Management 2017: State Programs

Attribute	Percentage of States Reporting that the Attribute is Available (N=15)
Number of buildings	100% (n=14)
Geographic location coordinates (e.g., latitude, longitude)	73% (n=11)
Occupants/users	57% (n=8)
Flood insurance coverage	21% (n=3)
Building elevations	14% (n=2)
Degree of flood risk (for retrofitting, floodproofing, etc.)	7% (n=1)
Contents of buildings	0% (n=0)

States were asked to list all of the agencies that maintain state building inventories. Sixteen states responded to this question, listing between one to five agencies. Below is a list of the agencies that were mentioned (Question 22.2):

- Department of Buildings and General Services (6%, n=1)
- Environmental Protection/Natural Resources (19%, n=3)
- Emergency Management (44%, n=7)
- Department of Administrative Services (13%, n=2)
- Bureau of Administration (6%, n=1)
- Division of Capital Assets Management and Maintenance (6%, n=1)
- State Patrol (6%, n=1)
- State Geographic Information Systems or Office (GIO) (13%, n=2)
- State Planning Agency (6%, n=1)
- State Public Works Division (6%, n=1)
- State Building Code (6%, n=1)
- Direct Federal Assistance (6%, n=1)
- FEMA (6%, n=1)

Nearly three-quarters (74%) of respondents indicated that at least one agency within their state maintains an inventory of available DEM data to support flood mapping. This is consistent with the findings of the 2010 survey.

Table 3.11 Percentage responding “yes” to the question: **Does any agency in your state maintain an inventory of available DEM data adequate to support NFIP flood mapping** (Question 23)?

Question	2010	2017 (N=34)
<i>Does any agency in your state maintain an inventory of available DEM data adequate to support NFIP flood mapping</i> (Question 23)?	70%	74%

Twenty-four states indicated that a range of agencies within their states maintain an inventory of availability DEM data adequate to support NFIP flood mapping. (Question 23.1) These agencies include:

- Environmental Protection/Natural Resources (50%, n=12)
- State Geographic Information Systems Office, Coordinator or Geographic Information Officer (GIO) (21%, n=5)
- Emergency Management (13%, n=3)
- Water Resources Agency (13%, n=3)
- State Transportation Agency (8%, n=2)
- State University or College (8%, n=2)
- State Geological Survey (8%, n=2)
- Coastal Zone Management (4%, n=1)
- State Building Code (4%, n=1)
- State Dam Safety (4%, n=1)

Three respondents provided other examples of state agencies that maintain an inventory of DEM data, such as the Office of Information Technology, the Department of Finance and Administration Strategic Technology Solutions and the Division of Homeland Security and Emergency Services.

Hazards U.S. Multi-Hazard (Hazus-MH) Loss and Risk Assessment Software

In both 2010 and 2017, most state respondents indicated that they are using FEMA's Hazus-MH Loss and Risk Assessment Software.

Table 3.12 Percentage responding "yes" to the question: ***Does your state use FEMA's Hazus-MH flood loss estimation software (Question 26)?***

Question	2010	2017 (N=37)
<i>Does your state use FEMA's Hazus-MH flood loss estimation software (Question 26)?</i>	65%	70%

Respondents were then asked to list how their state uses Hazus-MH software. Table 3.13 lists the percentages of states using the software for various purposes.

Table 3.13 *Please describe how your state uses Hazus-MH (check all that apply) (Question 26.1).*

How HAZUS-MH is Used	2010	2017
Public outreach and education	18%	21% (n=5)
Mitigation planning	70%	63% (n=15)
Risk assessment	70%	42% (n=10)
Risk mapping	ND	42% (n=10)
Disaster response planning	44%	30% (n=7)
Flood risk reduction projects	ND	4% (n=1)

When asked about activities to document and map peak flood conditions, state respondents indicated they made the following efforts.

Table 3.14 Percentage of responding states that undertake the following activities in addition to any USGS post-flood activities to document and map peak flood conditions (Question 27)?

Activity	2010	2017
Use high water marks (N=37)	72%	49%
Use geo-referenced photo/images (N=36)	34%	33%
Use remote sensing (satellite/aerial images of flood extent) (N=33)	21%	18%
Use stream staff gage (i.e., on bridges)*	59%	-
Use USGS High Water Marks if collected (N=33)	41%	48%
Develop inundation maps* (N=36)	-	39%

*"Stream staff gage" was not an option on the 2017 survey. Similarly, "develop inundation maps" was added.

Twenty-two states answered the question, *"Does your state undertake other activities not previously listed in addition to any USGS post-flood activities to document and map peak flood conditions (Question 32)?"* Fourteen reported that they did not undertake other activities previously listed. Seven provided examples of other activities conducted to document and map peak flood conditions, such as collecting high water marks; working with a state GIS department to maintain FEMA's online National Flood Hazard Layer; developing real-time maps linked to local gages and used with building inventory and low floor elevations; using aerial photography provided by a state Department of Transportation; and documenting flood records to use for permitting when record elevation floods are higher than the BFE.



PRINCIPLE 4

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

Effective state floodplain managers recognize the additional effort needed to manage floodplain resources and functions and allow for the fact that not all flood loss reduction techniques 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 one that recognizes the value of allowing floodplains to function naturally, and enjoying the benefits 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 and unique or rare plant and animal habitat*
- *Preservation of cultural resources and agricultural lands*
- *Provision of opportunities for public recreation*

Highlights

- Among the programs and activities states most often operated (or authorized) to identify, protect and restore the natural values and resources of flood-prone areas are: public information programs (66%), habitat preserves/protection (57%), open-space preservation (51%), river basin management (49%), conservation commissions (46%) and watershed councils (46%). Notably, between 2010 and 2017 there was a 77% decrease in the number of states that operate or authorize the use of river flow advisory commissions (see Table 4.1).
- Since 2010, there have been substantial declines in several of the programs and activities that states use to directly protect or restore natural floodplain functions and resources. While use decreased across all activities specified in the question, the largest declines were reflected in the designation of flood-prone areas as conservation or natural area preserves, authorization of counties to establish open-space/farmland banking systems and reclamation of mining operations in riparian areas (see Table 4.4).
- Most states (82%) do not 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 floodplain management decision making. This represents a 16% decrease since 2010 (see Map 4.1).
- The primary way that states are promoting green infrastructure is by providing technical assistance or guidance (63%). Moreover, about half (53%) are promoting green infrastructure as a local nonstructural flood management alternative (see Figure 4.1).

- Nearly two-thirds (63%) of states have tax incentives to keep or restore floodplain lands. This is an increase from 2010, when roughly half (48%) of states indicated that they had these types of incentives. Of those that do have incentives, tax breaks include forest (26%) and farmland (26%) preservation (26%); purchase of easements (22%); and property tax breaks for open space or public donation (see Table 4.5).
- In addition to tax incentives, states are using other legal techniques to preserve and/or restore natural floodplain functions and resources, such as land acquisitions (61%), easements (46%) and mitigation banking (43%) (see Table 4.6).

Survey Responses and Comparisons to Available 2003 and 2010 Data

Management of Floodplain Functions and Resources

Table 4.1 shows a comparison of state responses from 2003, 2010, and 2017, indicating the percentage of respondents operating programs related to floodplain functions and resources.

Table 4.1 *What kind 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 (please check all that apply) (Question 37)?*

Type of Program or Activity	2003	2010	2017* (n=35)
Public information programs	71%	78%	66%
Habitat preserves/protection	63%	75%	57%
River-basin management	ND	53%	49%
Conservation commissions	ND	50%	46%
River Flow Advisory Commissions	ND	83%	6%
Easement/restriction programs	49%	47%	29%
Restrictive deed covenants	37%	36%	20%
Public disclosure of hazards	47%	39%	20%
Watershed councils	59%	64%	46%
Open space preservation	53%	56%	51%
Dune/beach restoration or protection	43%	44%	34%

*Twenty-three percent reported "Other." These responses included programs such as: Emergency Relief and Assistance Fund, Riverkeepers, natural resource districts, Greenway and Recreation Authority, Soil and Water Conservation Commission, stream restoration projects, restoration projects funded by state agencies and the Floodplains by Design program.

Provision of Funding or Technical Assistance

Respondents listed programs for preservation and/or restoration of floodplain functions and resources that received funding or technical assistance from their state. These results, as well as the results from 2003 and 2010 are presented in Table 4.2.

Table 4.2 What natural floodplain functions and/or resources are the focus of protection or enhancement programs in your state (please check all that apply) (Question 37.1)?

Type of Natural Floodplain Function or Resources	2003	2010	2017* (n=34)
Aquatic habitat	71%	83%	68%
Riparian habitat	71%	83%	68%
Riparian vegetation	ND	69%	71%
Access to water bodies	71%	67%	59%
Recreation opportunities	72%	81%	74%
Open space	63%	72%	68%
Wetlands	76%	92%	76%
Estuaries	47%	47%	35%
Dunes	41%	42%	32%
Mangroves	ND	8%	3%

*Fifteen percent reported "Other," including river meander belt.

Table 4.3 depicts the percentage of responding states with the following funds, compared to 2010.

Table 4.3 What funding and/or technical assistance does your state provide for programs and activities that could be used to preserve natural floodplain functions and resources (please check all that apply) (Question 38)?

Type of Funding/Technical Assistance	2010	2017* (N=24)
Funds to purchase floodplain lands for open space	54%	53%
Funds/assistance for trail systems	66%	53%
Funds/assistance for protection of wildlife habitat/endangered species	66%	56%
Funds for agricultural conservation	57%	53%
Funds for marsh restoration	40%	38%
Funds/assistance for historic preservation	51%	41%
Funds/assistance for cultural, scientific, educational sites	37%	50%
Funds/assistance for scenic easements, scenic areas	37%	35%
Funds/assistance for dam removal and restoration	ND	32%

*Fifteen percent reported "Other." These responses indicated funds for clean water, ecosystem restoration, hazard mitigation and farm and ranch protection.

When asked about activities that directly protect or restore natural floodplain functions and resources (Table 4.4), the most frequent type of program listed was river, coastal or marsh restoration (36%) followed by dam removal (26%).

Table 4.4 *What programs or activities does your state use to directly protect or restore natural floodplain functions and resources? Please check only those that have been in use since 2010 (please check all that apply) (Question 39).*

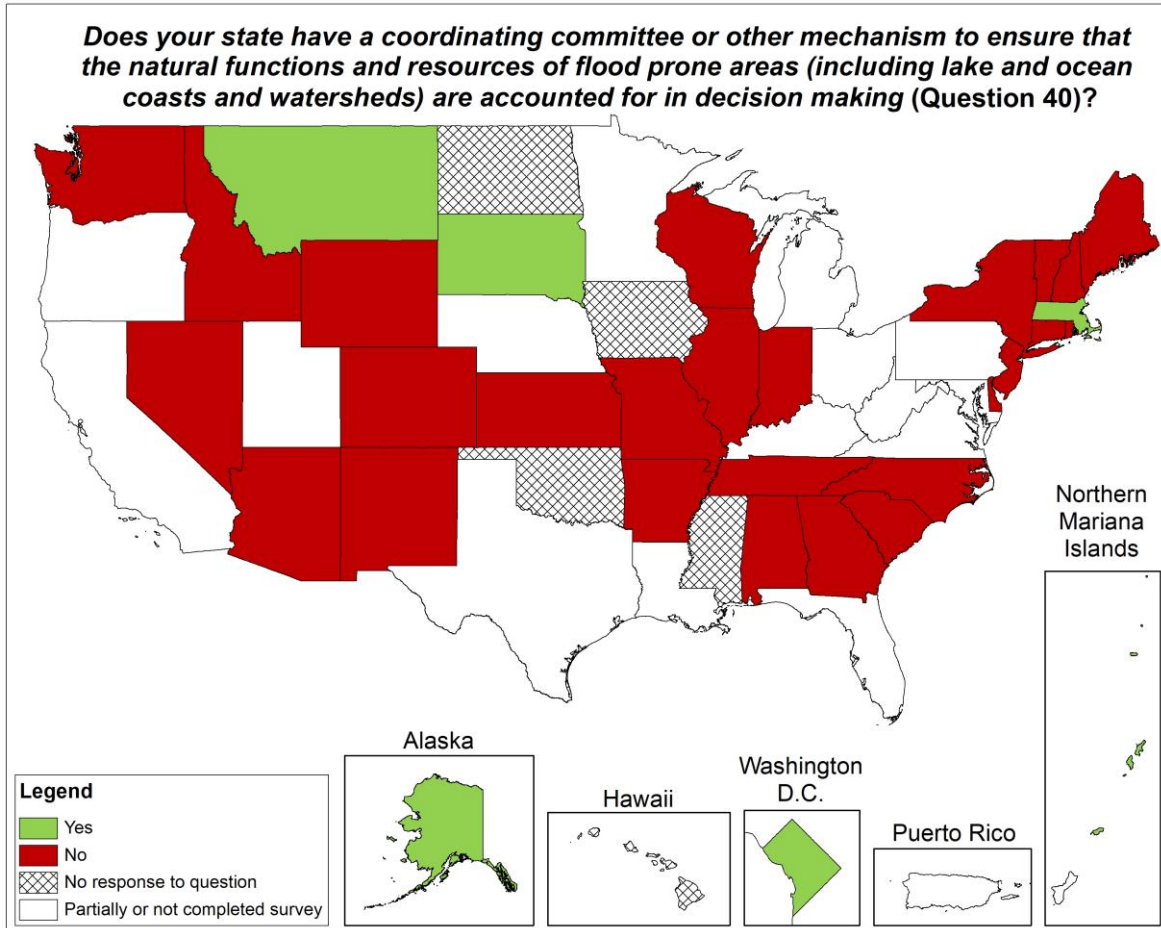
Type of Program/Activity in Use Since 2010	2010	2017* (N=30)
Designation of flood-prone areas as conservation reserves or natural area preserves	48%	15%
Easements downstream of dams	7%	3%
Authorization of counties to establish open space farmland banking systems	22%	-
Reclamation of mining operations in riparian areas	26%	8%
Dam removal	41%	26%
Levee removal	18%	8%
River, coastal or marsh restoration**	48%	36%

*15% reported "Other." These responses included State Clean Water Fund, stream restoration projects, and Community Rating System activities.

**In 2010, this question was limited to marsh restoration.

Coordinating Committees

The number of respondents answering “yes” to the following question about coordinating committees decreased from 34% in 2010 to 18% in 2017.



Map 4.1

The following graph depicts characteristics of responding states' green infrastructure programs (Figure 4.1).

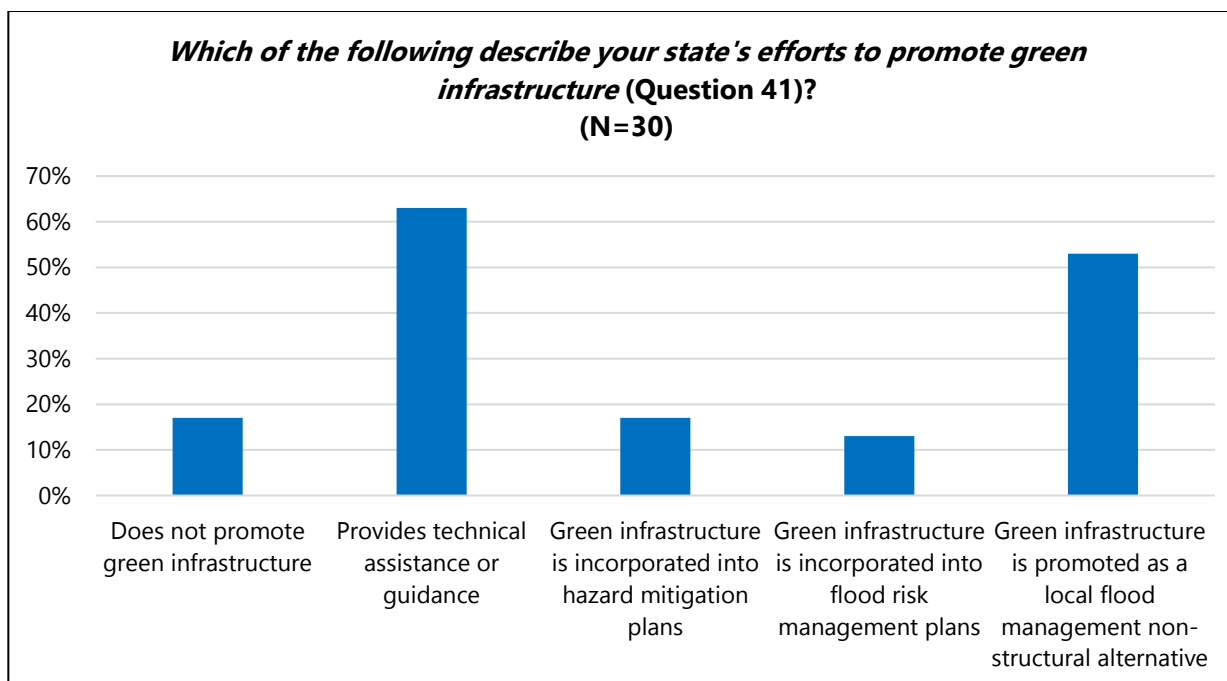


Figure 4.1

Incentivizing Floodplain Management

When asked the following question about tax incentives to keep or restore floodplain lands, responding states provided the following:

Table 4.5 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 42)?

Type of Tax Break	2010	2017 (N=27)
Property tax breaks for open space or public donation	20%	22%
Income tax breaks for open space or public donation	-	7%
Inheritance tax breaks for open space or public donation	4%	7%
Tax breaks for purchase of easements	24%	22%
Tax breaks for forest preservation	28%	26%
Tax breaks for farmland preservation	36%	26%
Tax breaks for wildlife habitat preservation	16%	19%
Tax return check-off for endangered resource protection	12%	15%
None	52%	37%

When asked about legal techniques that preserve or restore natural floodplain functions and resources, responding states provided the following:

Table 4.6 *Besides tax incentives, what legal techniques does your state use to preserve and/or restore natural floodplain functions and/or resources (Question 43)?*

Type of Legal Technique	2010	2017 (N=28)
Easements	60%	46%
Land acquisitions	72%	61%
Transfer of development rights	32%	18%
Land swaps	12%	11%
Rezoning	28%	14%
Mitigation banking (wetlands, other resources)	44%	43%



PRINCIPLE 5

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

Effective state programs apply land use management techniques directly through the use of 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. Effective programs acknowledge that watersheds and floodplains are complex natural systems that include human actions.

Highlights

- Local land use plans to consider flood hazards are required by 83% of states (see Table 5.2)
- The following regulations are the top five most likely to be either required or implemented in the responding states: dam failure warning (87%); stormwater management/detention (68%); freeboard standards above BFE (66%); public awareness/outreach programs (66%); and flood hazard disclosure (59%) (see Table 5.4).
- The following classes of activities tend to be most likely to be preempted by the state: state properties/facilities (81%), transportation facilities (50%), public utilities (45%) and on-site waste disposal (45%) (see Table 5.7).
- Communities are allowed to provide for automatic flood map adoption without having to amend the local regulations in 28% of states. This represents a decrease from 2010, when 45% allowed for this (see Table 5.8).
- When asked whether or not their state has a building code, 73% of respondents reported that their state did have a building code. (See Table 5.9 and Map 5.1) This percentage is fairly consistent with previous years. States were also asked about the basis of their building codes. The International Building Code Series (I-Codes) provided the basis for 81% of responding states (see Figure 5.2).
- Nine percent of states responded "yes" to the question "*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?*" This represents a substantial decrease from the 2010 survey where 32% of responding states indicated they would go forward with the permitting process (see Table 5.13).
- Slightly more than one-third (37%) of states have a cross-jurisdictional stakeholder group that meets to discuss and review dam-related issues. This represents a decrease since 2010, when 50% indicated they had such a group (see Table 5.14).
- Consistent with findings from the 2010 survey, most states (91%) do not regulate the occupation of areas that would be inundated in a dam failure. Moreover, most states—roughly two-thirds—do not provide resources for dam repairs, dam removals or for dam failure inundation mapping (see Table 5.15).

Survey Responses and Comparisons to Available 2003 and 2010 Data

Planning

In 2017, 55% of responding states indicated that communities are required to conduct land use planning as part of their land development process. This represents an increase over time.

Table 5.1 Percentage responding “yes” to the question: **Are communities required by your state to conduct land use planning as part of their land development process (Question 44)?**

Question	2003	2010	2017 (N=33)
<i>Are communities required by your state to conduct land use planning as part of their land development process (Question 44)?</i>	43%	32%	55% (n=18)

When asked the following questions regarding local land use plans, the responding states provided the following:

Table 5.2 Percentage responding “yes” in 2017 to the following questions about land use requirements.

<i>Are there requirements for local land use plans to consider ...</i>	Percentage Responding “Yes”
<i>Flood hazards (Question 44.1)?</i>	83% (n=15)
<i>The natural functions of floodplains (e.g., conveyance, storage, etc.) (Question 44.2)?</i>	47% (n=8)
<i>Natural floodplain resources (e.g., vegetation, riparian habitat, recreation, etc.) (Question 44.3)?</i>	47% (n=8)

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 flood-prone areas, vast progress has been made in determining the types and quality of development that is allowed in those hazardous areas. Table 5.3 provides information about the entities that regulate various portions of the floodplain.

Table 5.3 Who regulates the following portion of the floodplain (Question 45)?

Portion of the Floodplain	State	Community	Both State and Community	Not Applicable
Floodway (N=39)	5%	64%	31%	-
Floodway fringe (N=39)	3%	69%	28%	-
Velocity zones (N=38)	3%	42%	13%	42%
Alluvial fans (N=37)	-	24%	8%	66%
Erosion Hazard Area (N=37)	3%	27%	19%	51%

Respondents were asked to fill out information regarding the existence and implementation of floodplain management regulations. Their responses are listed in Table 5.4.

Table 5.4 Which of the following floodplain management regulations exist in your state? (Question 46).

Floodplain Management 2017: State Programs

Type of Regulation	Required by State	Implemented by State	Both Required and Implemented by State	Not Applicable
Flood hazard disclosure (n=32)	31%	3%	25%	41%
Floodplain/coastal/watershed planning (n=30)	13%	10%	13%	63%
Stormwater management/detention requirement (n=31)	29%	16%	23%	32%
Floodplain Open Space Preservation (n=29)	7%	24%	3%	66%
Freeboard standards above BFE (n=34)	24%	18%	24%	35%
Floodway encroachment standards more stringent than a 1 foot rise (n=31)	23%	-	13%	65%
Public awareness/outreach programs (n=30)	3%	60%	3%	33%
Compensatory storage requirements (n=30)	13%	6%	13%	67%
Dam failure warning/response systems and plans (n=30)	37%	20%	30%	13%
Public availability of dam failure maps (n=26)	8%	23%	8%	62%
X-zone drainage/protection requirements (n=27)	4%	4%	4%	89%
Sensitive areas/watershed protection regulations (n=28)	18%	14%	17%	45%
Critical facilities protection beyond the BFE (n=29)	24%	14%	17%	45%
Setback requirements from water-bodies: lakes, ocean, rivers (n=29)	24%	10%	17%	48%
Bridge opening conveyance, elevations (n=26)	19%	15%	8%	58%
Coastal erosion protection (n=30)	7%	10%	17%	67%
Flood warning system program (n=30)	10%	10%	7%	73%
Levee maintenance/failure emergency response (n=24)	4%	17%	8%	71%
Dry land access to new lots or developments (n=26)	12%	4%	8%	77%
Other statewide standards or activities (n=24)*	13%	8%	8%	71%

*29% reported that other statewide standards or activities were either required by the state, implemented by the state or both required and implemented by the state. Three states provided examples of these additional standards which included: "no new residential structures in floodway," "require communities with properties that have received LOMR-Fs to regulate to the BFE the existent prior to the removal" and "1 foot Freeboard required by the State Building Code (IRC 2012) for Coastal AE zone and VE zone with perpendicular wave action only."

Respondents who indicated that they had freeboard standards above BFE were asked to indicate the level. These findings are presented in Table 5.5.

Table 5.5 What is the level of freeboard required by the state (Question 46.2)?

Level of Freeboard	Percentage of Responding States with this Requirement (N=15)
0	7% (n=1)
1	60% (n=9)
2	33% (n=5)

Respondents who indicated that they had freeboard standards for critical facilities were asked about these requirements. The following table summarizes the percentage of reporting states identifying as having the following freeboard requirements:

Table 5.6 What is the freeboard for the following types of critical facilities (Question 46.5)?

Critical Facilities (N=11)	Freeboard							
	0	1	2	3	0.2% annual chance flood hazard (500 yr. +1 foot)	0.2% discharge +1 foot (Q500 +1 foot)	Not Allowed	NA
Water treatment facilities	18%	36%	27%	9%	-	-	-	9%
Wastewater treatment facilities	18%	36%	27%	9%	-	-	-	9%
Hazardous waste facilities	9%	27%	18%	-	9%	9%	9%	9%
Hospitals/care centers	18%	27%	27%	-	9%	9%	-	9%
Emergency operations centers	27%	27%	27%	-	0%	9%	-	9%
Nursing homes	18%	36%	27%	-	9%	-	-	9%
Schools/childcare centers	18%	36%	27%	-	9%	-	-	9%

States were also asked to identify activities within the floodplain that they have exclusive regulatory/oversight authority over, this exclusive authority is also known as preemption. Out of

responding states, 81% indicated that the state law preempted local law with respect to state property/facilities.

Table 5.7 Percentage responding "yes" to the following question: *For each of the following activities within the floodplain, please indicate which are preempted by the state* (Question 47).

Activity	Percentage Responding "Yes"
State property/facilities (N=32)	81%
Transportation facilities (N=28)	50%
On-site waste disposal (N=29)	45%
Public utilities (N=29)	45%
Mining (N=29)	38%
Forestry (N=28)	36%
Agriculture (N=29)	28%
Private utilities (N=28)	18%
Small drainage basins (<2 sq. mi.) (N=28)	18%
Setback requirement for small buildings (N=28)	14%
Small projects (<\$50,000) (N=28)	11%
Other (N=20)	15%*

*"Other" activities listed were "State transportation facilities" and "certain habitat restoration projects."

Compared to 2010, fewer responding states (28%) reported that their state allows communities to provide for automatic flood map adoption without having to amend local regulations. This is compared to 45% in the year 2010.

Table 5.8 Percentage responding "yes" to the question: *Does your state allow communities to provide for automatic flood map adoption without having to amend the local regulations* (Question 48)?

Question	2010	2017 (N=39)
<i>Does your state allow communities to provide for automatic flood map adoption without having to amend the local regulations?</i>	45%	28% (n=11)

State Construction Projects

When asked the following series of questions about state construction projects, respondents provided the following:

Table 5.9 Percentage responding “yes” to the following questions about floodplain impacts.

Question	2003	2010	2017
<i>Are you aware of occasions when agencies in your state have not complied with NFIP minimum floodplain management requirements (Question 49)?</i>	ND	62%	51% (n=20)
<i>Are state agencies required to obtain development permits from the community for state construction projects that impact floodplains within the local jurisdiction (Question 50)?</i>	51%	48%	53% (n=20)
<i>Are state agencies required to obtain development permits or approvals from another state agency for construction projects that impact floodplains (Question 51)?</i>	69%	69%	59% (n=22)
<i>Are your state's agencies prohibited from constructing in the floodway (Question 53)</i>	ND	12%	16% (n=6)
<i>Are federal activities and/or regulations contributing to flooding problems in your state (Question 55)?</i>	37%	43%	29% (n=10)

Ten responding states reported activities and/or regulations that contributed to flooding problems in their state. Among them were:

- Minimum federal NFIP standards
- Road, bridge and USACE projects not compliant with state and federal regulations
- Lack of federal funds to mitigate flood-prone non-repetitive-loss properties
- FEMA metrics
- USACE levees and excess water released from upstream dams
- USACE failure to ensure compliance on Public Law 84 levees and USACE leases
- State department of transportation projects; state utilities projects; and Community Development Block Grants projects without permits or no-rise certifications
- Federal highways/bridges replaced in coastal areas; rebuilding in flood-prone areas
- National Park Service, General Service Administration, U.S. Navy and federal projects that are exempt from floodplain requirements
- Wildfire management areas that control water without regard to neighboring areas; federal spending on highways that contribute to drainage issues; and federal facilities in the floodplain

Figure 5.1 depicts the distribution of responding states' roles in the construction or permitting approval process.

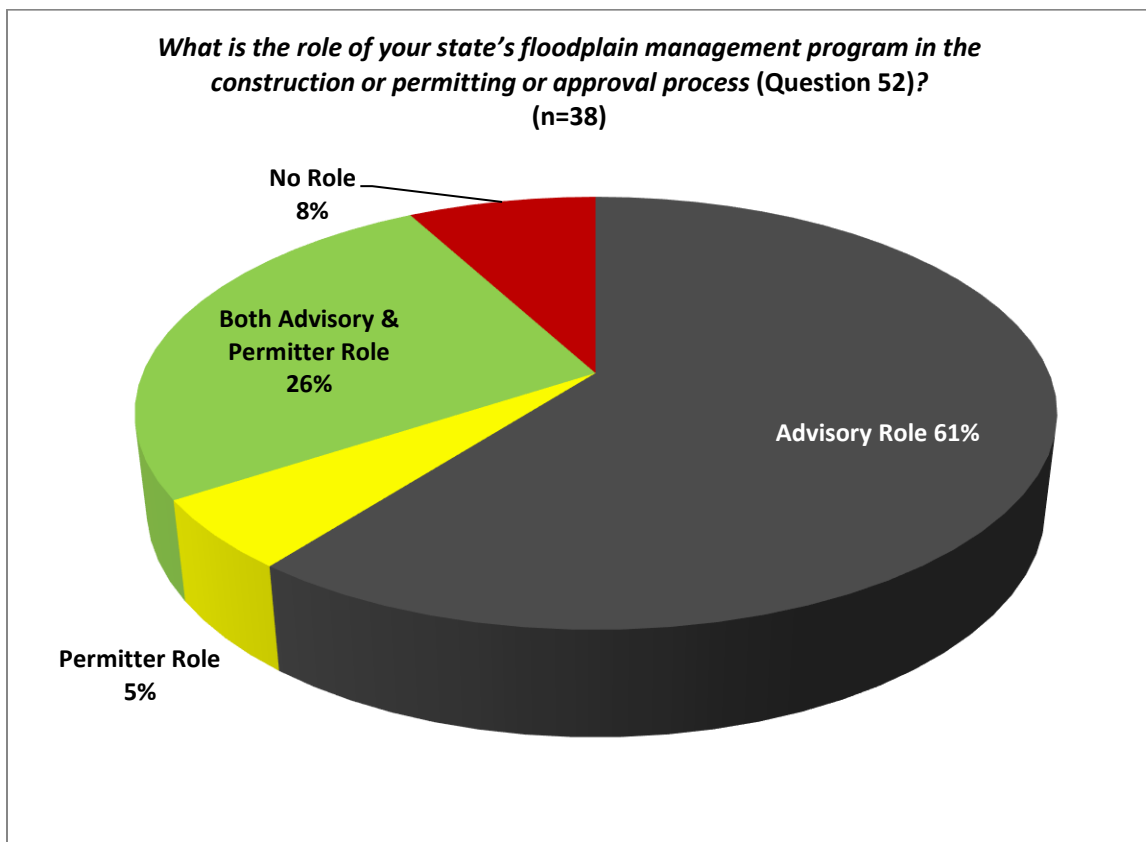


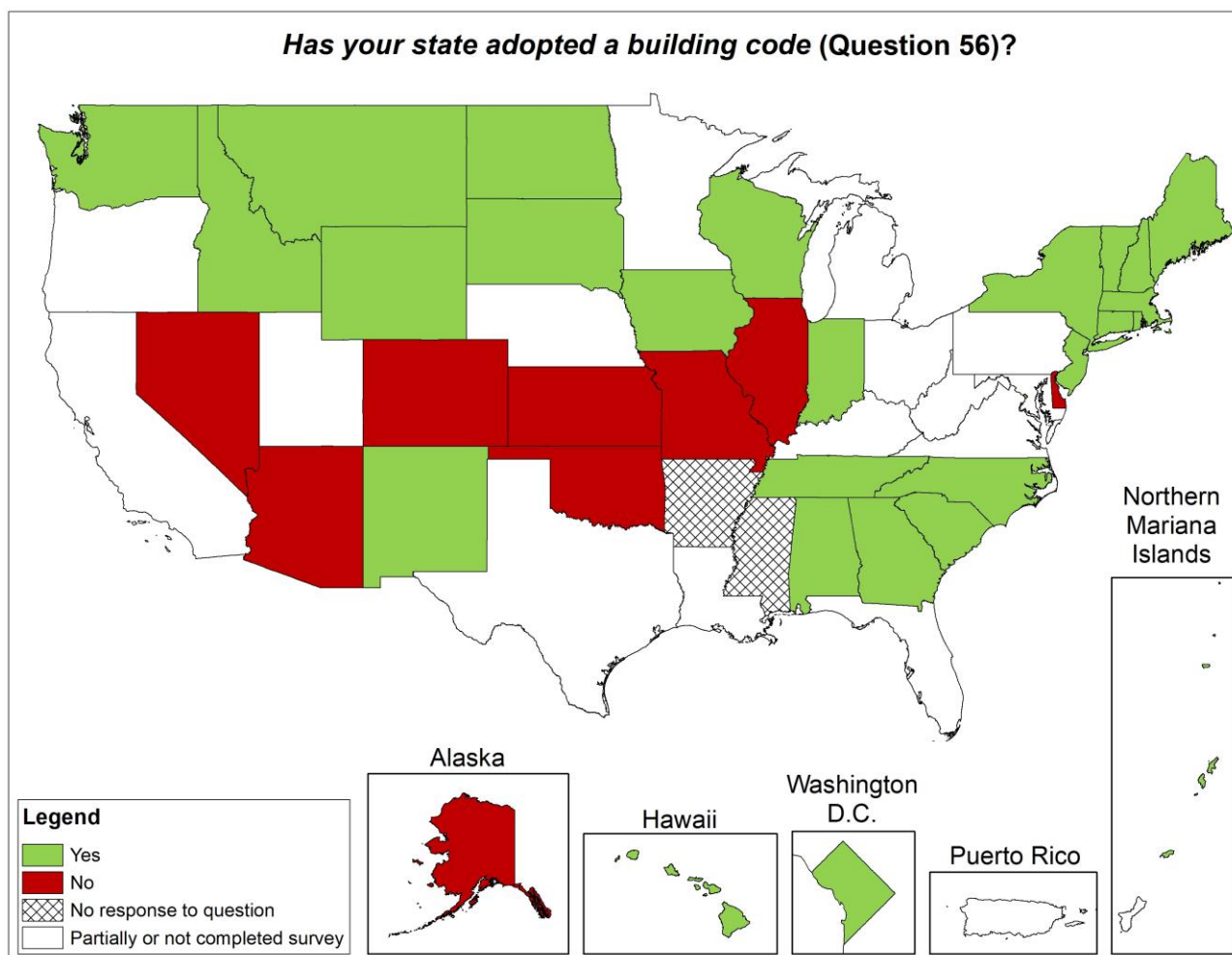
Figure 5.1

Building Codes

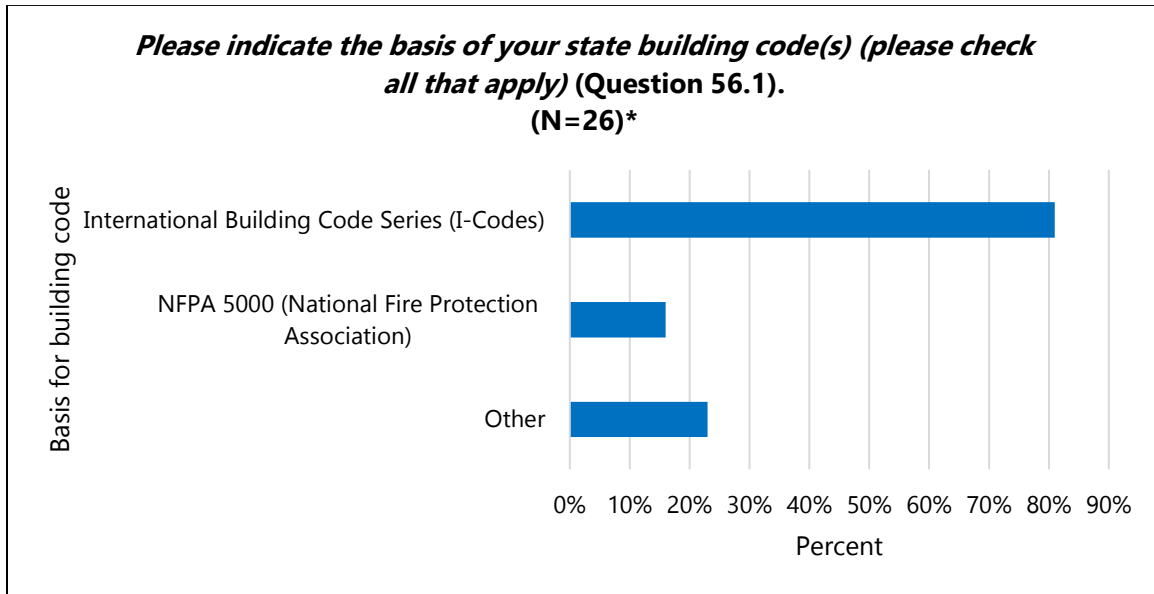
When asked whether or not their state has a building code, 73% of respondents indicated “yes” (see Table 5.10 and Map 5.1). This percentage is fairly consistent with previous years. States were also asked about the basis of their building codes. The International Building Code Series (I-Codes) provided a basis for 81% of responding states (Figure 5.2).

Table 5.10 Percentage responding “yes” to the question: *Has your state adopted a building code (Question 56)?*

Question	2003	2010	2017
<i>Has your state adopted a building code (Question 56)?</i>	69%	76%	73% (n=27)



Map 5.1



*Twenty-three percent reported "Other." These responses included the following: "State Construction Manual," "Wisconsin Uniform Dwelling Code," "Indiana Building Code," and "NEC 2014."

Figure 5.2

The following table depicts the percentage of states with the following building codes in the years 2006, 2009, 2012 and 2015.

Table 5.11 Please check the appropriate boxes for the version and date that are the basis of your state building codes (Question 56.2).

	2006	2009	2012	2015
International Building Code (N=20)	5%	15%	40%	40%
International Residential Code (N=20)	6%	17%	44%	33%
International Existing Building Code (N=18)	7%	13%	47%	33%
International Plumbing Code (N=15)	7%	13%	47%	33%
International Code Council Performance Code (N=5)	-	20%	20%	60%
International Green Construction Code (N=6)	-	17%	50%	33%

Twenty-seven states answered the question: "If your state allows (but does not require) local jurisdictions to adopt a code, how would you characterize the attitudes toward building code adoption among communities in your state (Question 57)?"

Notably, over half of the responses (n=14) did not include a characterization of community attitudes toward building code adoption. Instead, some participants used this as an opportunity to explain requirements in their state, including enforcement and the presence of existing building codes statewide.

For those who did discuss community attitudes toward building code adoption, these attitudes varied from state to state and within states. Themes from the data are highlighted below:

- Seen as very critical, either because of distaste toward regulations or a lack of local capacity—especially in smaller communities—including limited staff to administer and enforce codes
- Supportive
- Mixed attitudes, dependent upon the community

**Community Size and Sentiments about Building Codes:
Open-ended Responses**

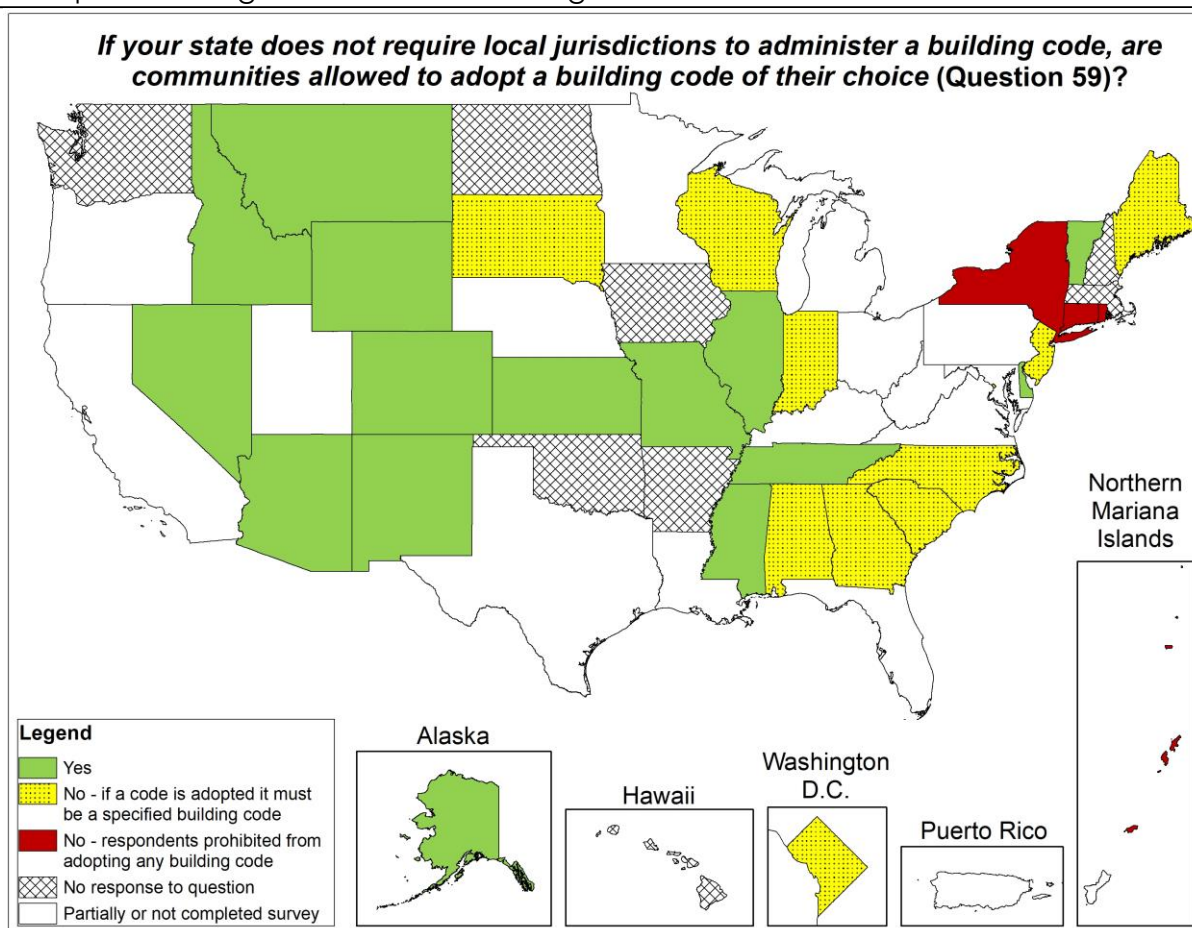
"For smaller communities...the building codes may become burdensome to follow. Larger urban areas or boroughs may have the building code requirements."

"The attitude is good and so is the enforcement in larger cities. Fourth-class cities, towns, and villages resist building code adoption, as well as many counties."

As shown in Table 5.12, most responding states (52%) indicated that communities could adopt building codes of their choice if their state did not require local jurisdictions to administer a building code (see also Map 5.2).

Table 5.12 *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 59)?*

Response	2010	2017 (N=31)
Yes	46%	52% (n=16)
No – If they adopt a code, they must adopt a specified building code	44%	35% (n=11)
No – They are prohibited from adopting any building code	10%	13% (n=4)



Map 5.2

Levee Safety

In 2003, 2010 and 2017, states were asked to respond to a series of questions regarding levee construction, standards, regulations and protections. The table below includes comparative data, when available, across the states and the survey years.

Table 5.13 Percentage responding “yes” to the following questions about levees.

Question	2003	2010	2017
<i>Does your state require permits for levee construction (Question 60)?</i>	57%	45%	56% (n=20)
<i>Does your state have or utilize levee design standards as a basis for permitting (Question 61)?</i>	ND	ND	26%* (n=8)
<i>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 62)?</i>	33%	32%	9% (n=3)
<i>Is there a freeboard standard for levees in your state (Question 63)?</i>	ND	20%	28% (n=9)
<i>Does your state restrict development in levee “protected” areas (Question 65)?</i>	ND	2%	0%
<i>Are there any floodplain management regulations or other requirements in levee “protected” areas in your state (Question 66)?</i>	ND	8%	18% (n=6)

*Sixty-three percent reported “Other.” These responses included statements about having to go through CLOMR/LOMR processes. Others responded that permits are the responsibility of local jurisdictions and need to comply with NFIP requirements. Others indicated that the state would work with communities to mitigate flood losses or that the state did not build or use levees.

State Dam Safety

The following table shows responses for Questions 67 and 68 regarding dam related issues and dam failure compared to responses from 2010.

Table 5.14 Percentage responding “yes” to the following questions about dams.

Question	2010	2017
<i>Does your state have a stakeholders group that crosses agency jurisdictions that meets to discuss and review dam-related issues (Question 67)?</i>	50%	37% (n=13)
<i>Does your state regulate the occupation of the area that would be inundated in the event of a dam failure (Question 68)?</i>	10%	9% (n=3)

Less than half of responding states reported that their state provides resources for dam repairs, removals and dam failure inundation. For those responding “yes,” Table 5.16 shows how those resources are provided.

Table 5.15 Percentage responding “yes” in 2017 to the following questions about dam resources.

Question	Percentage Responding “Yes”
<i>Does your state provide resources for dam repairs</i> (Question 69)? (N=34)	38%
<i>Does your state provide resources for dam removals</i> (Question 70)? (N=34)	38%
<i>Does your state provide resources for dam failure inundation</i> (Question 71)? (N=33)	36%

Table 5.16 How are resources for each of the following provided? (Please check all that apply).

Resources for . . .	Grant	Loan	Other*
Dam repairs? (Question 69.1) (N=13)	54%	38%	46%
Dam removals? (Question 70.1) (N=13)	62%	23%	62%
Dam failure inundation? (Question 71.1) (N=11)	18%	-	82%

* “Other” responses included state bonds and/or funds, capital budget projects and technical/staff assistance.



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 and recovery followed by 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 can be leveraged for flood-reduction projects because governments feel compelled to assist immediately 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 to provide staff and expertise*

Highlights

- Seventy percent of states reported that they provide resources to carry out flood mitigation projects (see Figure 6.1). Funds for these projects are most often provided by the state legislature or by other programs such as Community Development Block Grants-Disaster Recovery (CDBG-DR) (see Figure 6.2).
- Most funds for flood mitigation projects are provided either as grants to individual property owners or as grants to communities (see Figure 6.3). Typically, these funds are administered by the state hazard mitigation office (see Figure 6.4).
- Although most states—74%—reported that they do not administer any aspect of the Unified Hazard Mitigation Assistance Program (UHMAP) (such as FEMA’s Flood Mitigation Assistance Program), 65% of states indicated that they have input into Unified Flood Mitigation Assistance decisions. The latter has increased by 15% in comparison with the 2010 survey results (see Table 6.1).
- A large majority of states—81%—reported that they do not have a program for mobilizing volunteers (e.g., floodplain managers, building officials, engineers) for the purpose of helping communities do substantial damage determinations (see Figure 6.7).
- Almost one-third (31%) of states indicated that the degree of coordination or involvement between the NFIP state coordinator and State Hazard Mitigation Officer is regular and formally established, with an additional 26% reporting that it is regular, but not formally established. Another 26% reported that their interactions were only on an as-needed basis, or minimal (8%). These findings are consistent with survey data from 2010 (see Table 6.3).

- A mandate or program to plan for adaptation to climate change is in place for 41% of reporting states. This represents a substantial increase from 2010, when only 29% reported that they had such a mandate or program (see Figure 6.8). Primary efforts through this program are assessment of private property at risk from sea level rise or increasingly intense storms (62%); changes to state programs/policies to account for increased flood risk (62%); and assessment of infrastructure at risk from sea level rise or increasingly intense storms (54%) (see Figure 6.9).
- One-third (33%) of states reported that the degree of coordination or involvement of the state floodplain management office in evaluating mitigation project applications is regular and formally established, with an additional 21% reporting that it is regular, but not formally established. Slightly more than one-quarter (28%) of states are involved only as needed, and the remaining 18% have minimal or no coordination. Again, these findings are similar to the 2010 survey findings (see Table 6.3).
- State floodplain management programs engage in a variety of post-flood mobilization activities, such as participating in/conducting public meetings after flooding (83%); sending notices to communities about post-disaster responsibilities, including substantial damage determinations (75%); training others to conduct substantial damage determinations (72%); providing increased cost of compliance advice (67%); and participating in Hazard Mitigation Grant Program briefings when a federal disaster is declared (67%) (see Table 6.7).

Survey Responses and Comparisons to Available 2003 and 2010 Data

State Funding for Mitigation

In the 2017 survey, a majority of the responding states indicated that they provide resources to carry out flood mitigation projects (see Figure 6.1). Figure 6.2 details the source of funding among states that have state-level financial support for such projects.

Does your state provide resources to carry out flood mitigation projects (Question 77)?
(N=37)

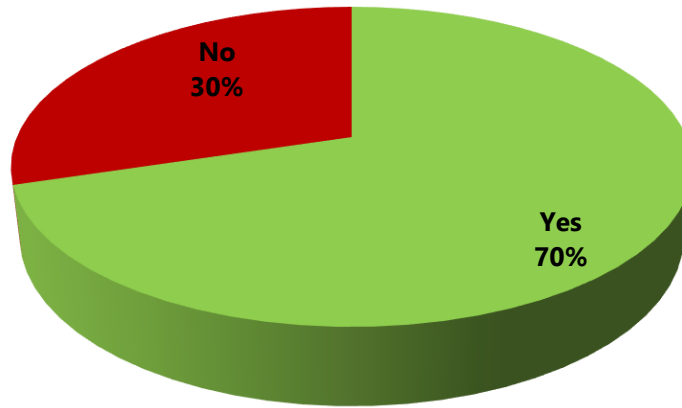
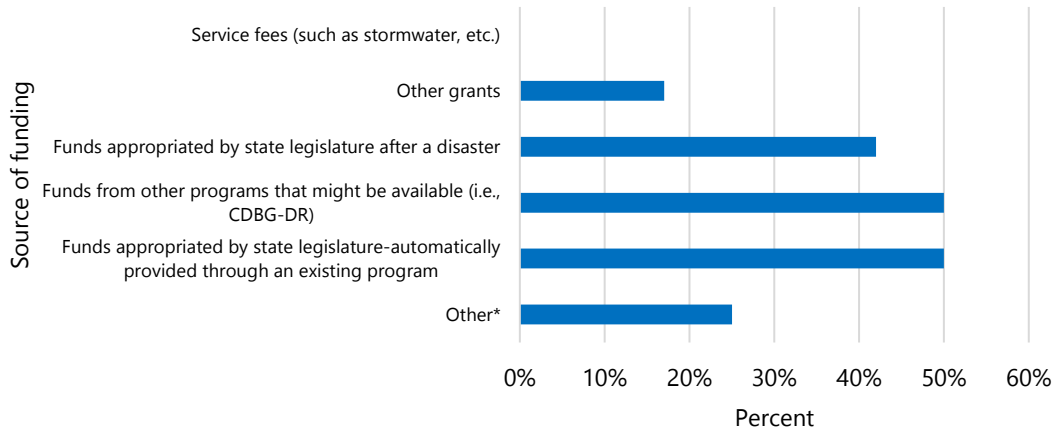


Figure 6.1

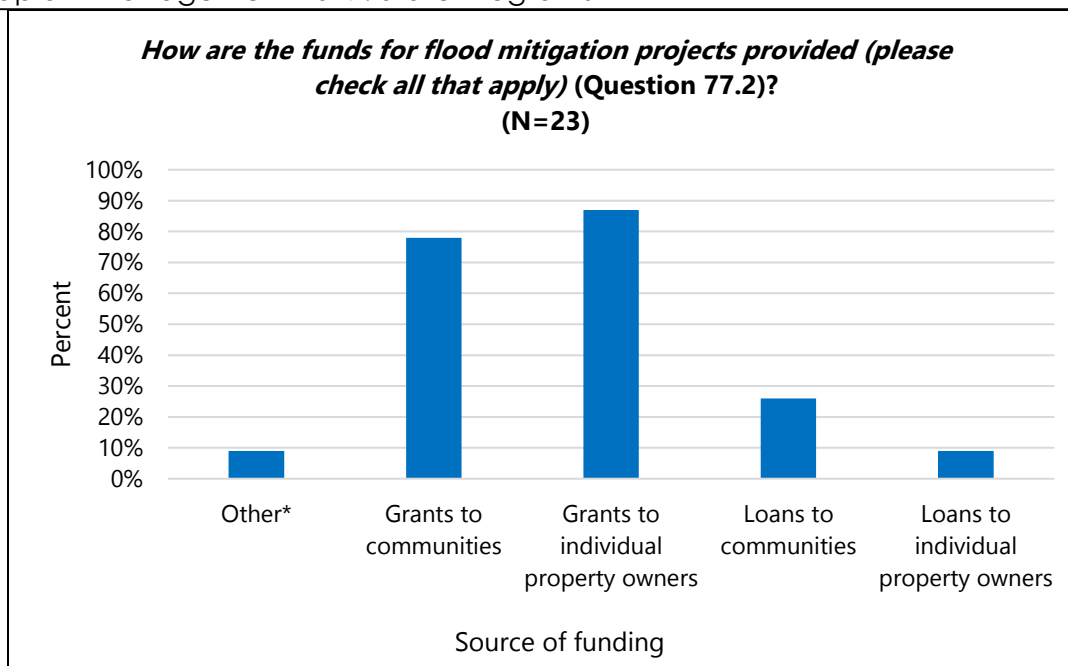
What is the source of funding that is reserved to carry out flood mitigation projects (please check all that apply) (Question 77.1)?
(N=24)



*Twenty-five percent reported "Other." The responses included sources such as: Emergency Management Agency, FEMA grant programs, state portion of the contribution for Pre-Disaster Mitigation Program and state capital outlay funds.

Figure 6.2

Figure 6.3 shows state responses about how flood mitigation funds are provided. Grants to individual property owners and communities were most frequently listed by responding states.



*Of the nine percent who reported "Other," one response included the following source of funding: Floodplains by Design grants to communities, tribes, flood districts or NGOs.

Figure 6.3

When asked who administers funds reserved to carry out flood mitigation projects, the state hazard mitigation office was most frequently listed by responding states (Figure 6.4).

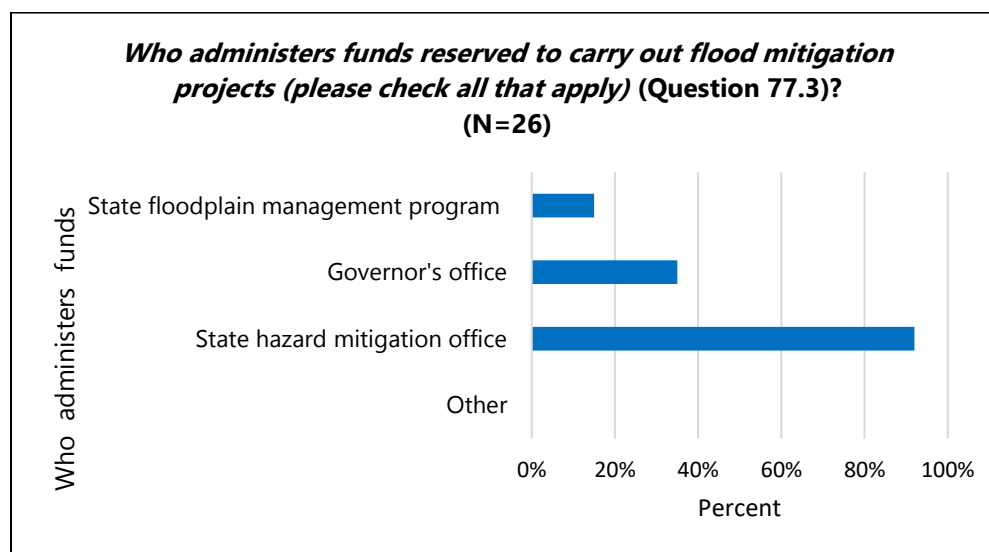


Figure 6.4

Mitigation Grant Programs

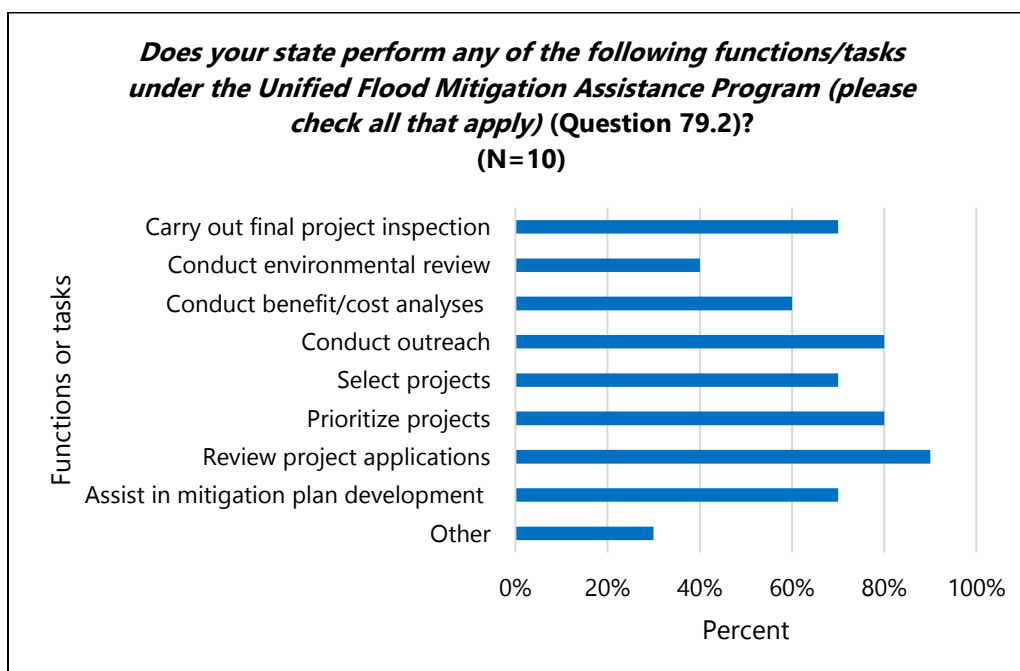
The following questions pertain to the Unified Hazard Mitigation Assistance Program. States were asked whether they administer any aspect of the program or have input regarding decisions (Table

6.1). States were also asked what functions they perform under the program (Figure 6.5).

Table 6.1 Percentage responding “yes” to the following questions about the Unified Hazards Mitigation Assistance Program.

Question	2010	2017
<i>Does the state floodplain management program administer any aspect of the Unified Hazard Mitigation Assistance Program (such as the Flood Mitigation Assistance Program)* (Question 79)?</i>	39%	26% (n=10)
<i>Does your agency have any input into Unified Flood Mitigation Assistance decisions (Question 79.1)?</i>	50%	65% (n=17)

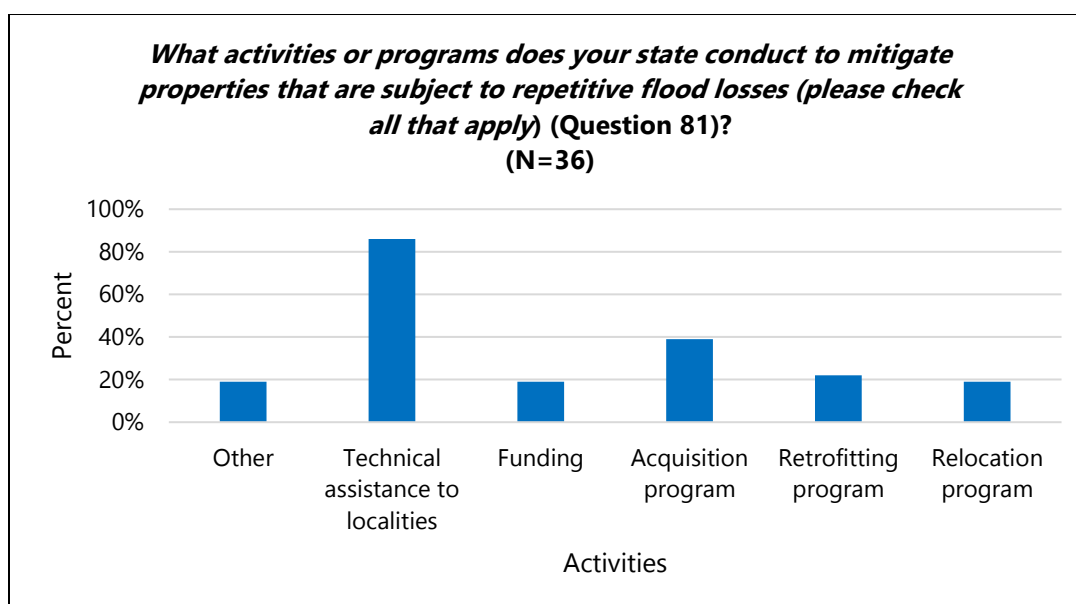
*In 2010, the question was phrased as follows: Does your agency administer the Unified Flood Mitigation Assistance Program (UFMAP) (Question 79)?



*Thirty percent reported “Other.” This single response included the following additional function: Administer Flood Mitigation Assistance Grant Program (FMA).

Figure 6.5

States were asked to list activities or programs that they conduct to mitigate repetitive flood losses in their state. The most frequently listed activity was providing technical assistance to localities.



*Nineteen percent reported "Other." The responses included the following specific activities: FEMA Hazard Mitigation Assistance Program [HMA] grants, technical assistance for FMA, HMGP, Pre-Disaster Mitigation Grant program [PDM] grants and close tracking of cumulative damages, and state match to FEMA grant programs.

Figure 6.6

Coordination of Mitigation and Recovery

The vast majority of respondents in 2017 indicated that their floodplain management association does not currently have a program or process for mobilizing volunteers (Figure 6.7).

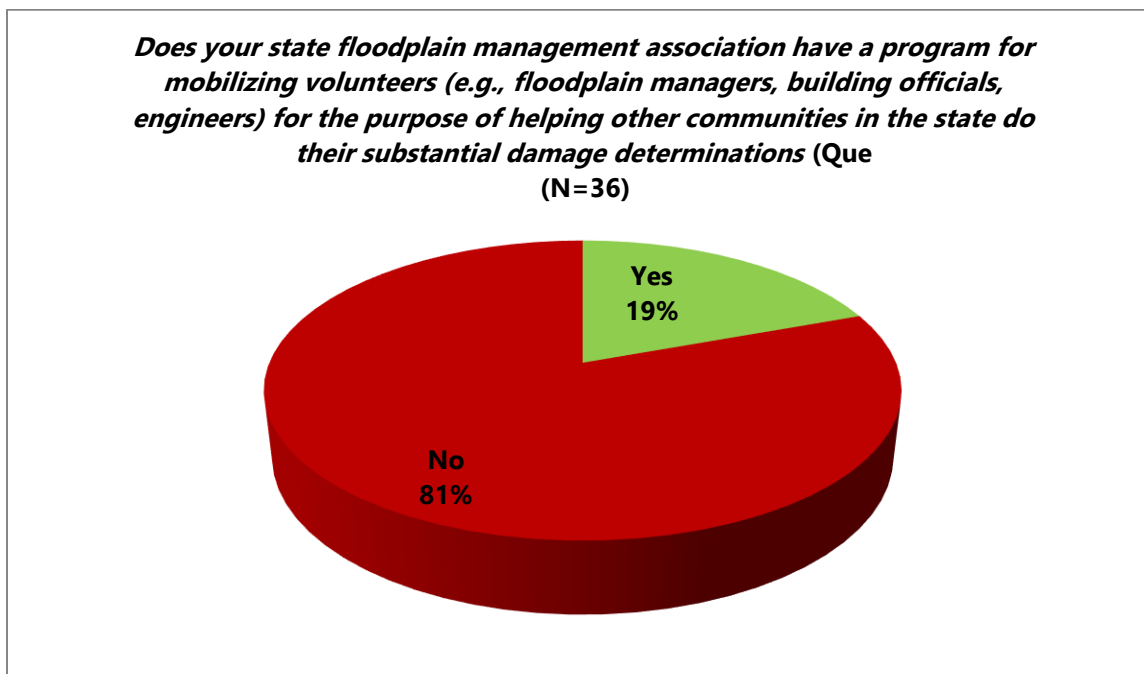


Figure 6.7

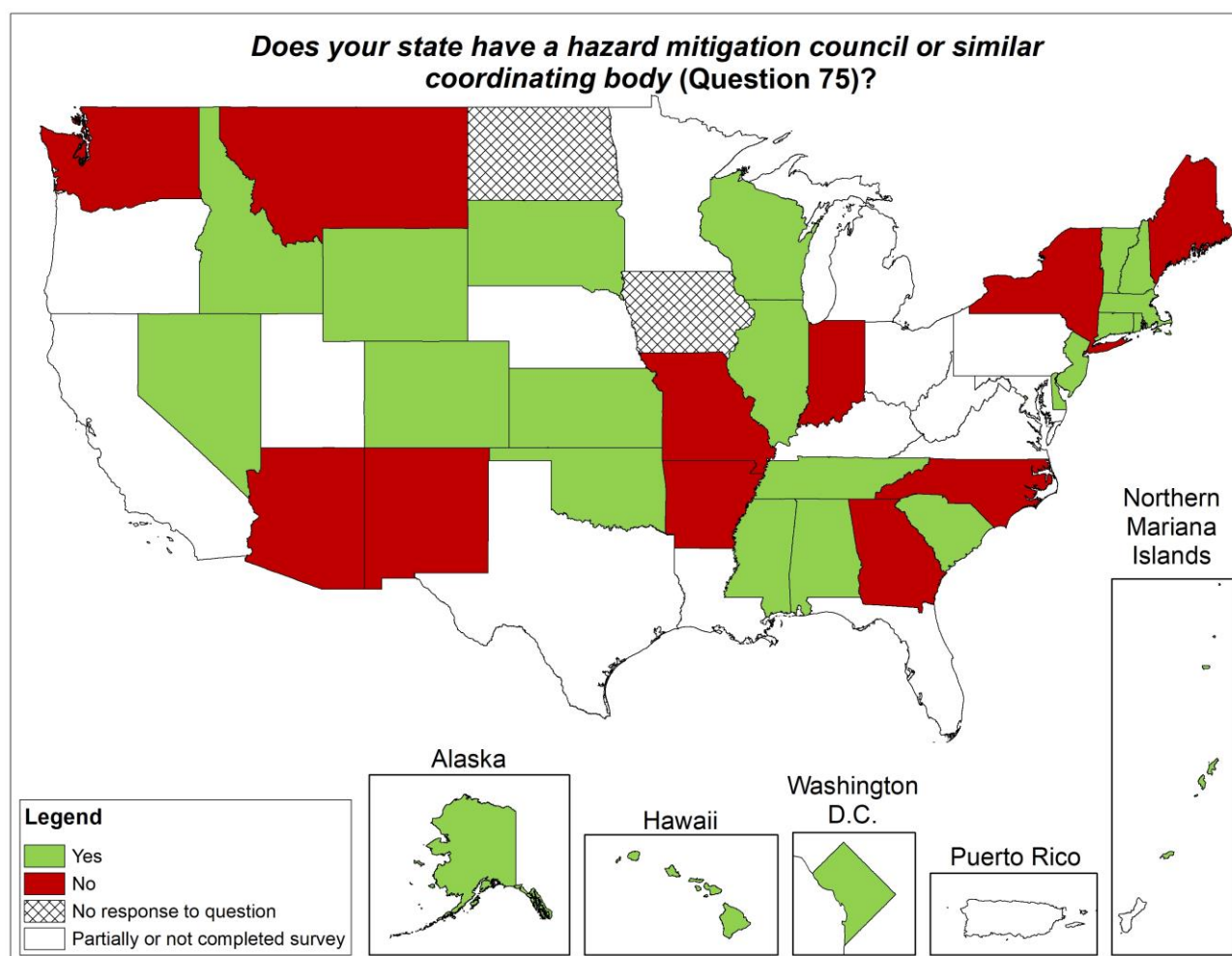
As shown in Figure 6.7, only 19% of the respondents indicated that they have a program for mobilizing volunteers. In a follow-up question, five survey participants responded to an open-ended question that asked how many times this volunteer program has been activated since 2010, and responses ranged from one to three activations. Two respondents shared that the program had been activated two times; another two indicated that the program had been activated one time; and one participant reported three activations. Only two states reported that their program can be used to send volunteers outside of the state in the event of a large-scale U.S. disaster (Question 74.3).

Six participants responded to the question that asked about the maximum number of volunteers that could be expected to mobilize for a large in-state flood event through this program (Question 74.4). Three of those responses said the range was from 25-30, and two of the responses mentioned that their programs have four to five volunteers. The remaining responses indicated that they were uncertain as to what the maximum number could be. Just two respondents indicated that the state association or the state floodplain management program regularly trains volunteers for this type of activity (Question 74.2).

The percentage of responding states with a hazard mitigation council or coordinating body had stayed fairly consistent over the years (Table 6.2) (see also Map 6.1).

Table 6.2 Percentage responding “yes” to the question: Does your state have a hazard mitigation council or similar coordinating body (Question 75)?

Question	2003	2010	2017 (n=37)
<i>Does your state have a hazard mitigation council or similar coordinating body (Question 75)?</i>	69%	73%	70% (n=26)



Twenty-three participants responded to the question that asked: “How was your state hazard mitigation council or similar coordinating body created (Question 75.1)?” Six states indicated that their state hazard mitigation council or similar coordinating body was created through executive order, two through legislative action and fifteen respondents indicated “other.”

Those who selected “other” explained that their hazard mitigation council or similar coordinating body was created through one of the following, with five emphasizing the ad hoc and informal nature of the group’s creation:

- State Hazard Mitigation Plan
- Interagency Hazard Mitigation Committee
- State Hazard Mitigation Officer
- An agency advisory council
- Executive designation
- Program directives and requests to form a State Hazard Mitigation Team
- Ad hoc working group of state agencies (with some being formed following a major flood or disaster event)
- Informal committees

A follow-up series of questions asked about the degree of coordination between various floodplain management stakeholders. Table 6.3 details the responses, ranging from regular and formally established to minimal or no coordination.

Table 6.3 Responses to the following questions about the degree of coordination or involvement among various parties (Questions 76 and 78).

Degree of coordination/ involvement (N=39)	Regular, formally established	Regular, but not formally established	Only on an as-needed basis	Minimal or no coordination	Other
Between NFIP State Coordinator and State Hazard Mitigation Officer	31%	26%	26%	8%	10%
State floodplain management office in evaluating mitigation project applications	33%	21%	28%	18%	-

Climate Change Planning

States were also asked whether or not the state had a mandate or program to plan for climate change adaption. Less than half of responding states (41%) indicated "yes" (Figure 6.6). The next question asked what efforts would be included in this program.

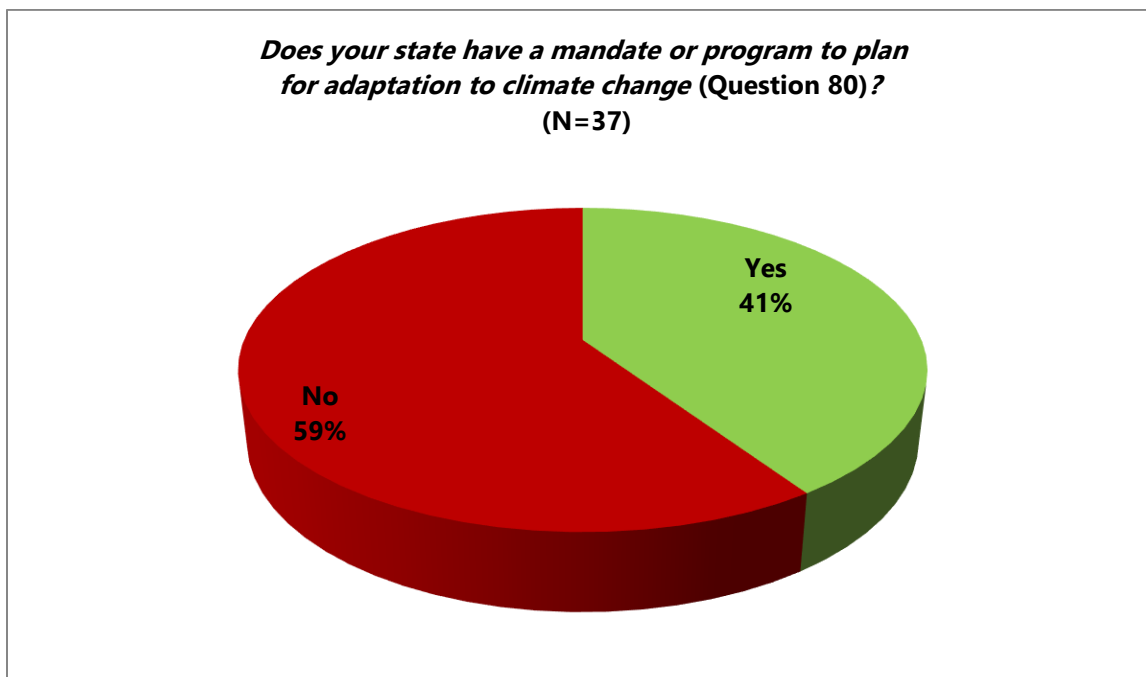
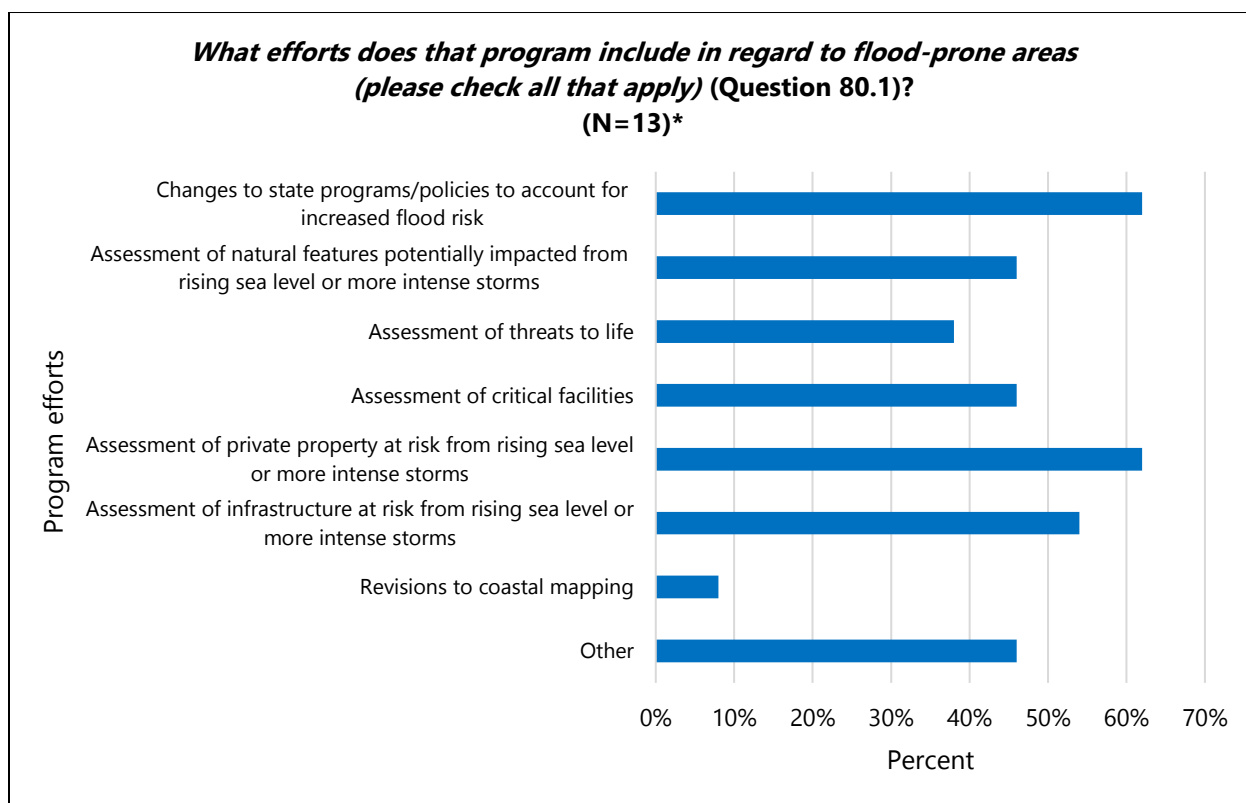


Figure 6.8



*Forty-six percent reported "Other." The responses included the following efforts: community outreach and training, as well as specified state grant programs and permits to consider sea level rise; storm surge; and future flooding conditions. Two responses also stated that climate-related efforts deal primarily with drought conditions and agriculture.

Figure 6.9

Post Disaster Moratoria

The 2017 survey asked a series of questions about post-disaster moratoria activities. Table 6.4 shows who has authority for declaring moratoria and compares state responses to 2010. Table 6.5 shows responses to questions pertaining to whether or not this authority has been exercised.

Table 6.4 What authority exists in your state for declaring moratoria on repair/redevelopment after a disaster (Question 82)?

Response	2010	2017 (n=31)
State has authority	15%	84%
Localities have authority	60%	6%
State and localities have authority	ND	10%

Table 6.5 Percentage responding “yes” to the following questions about moratoria after disaster (Questions 82.1 and 82.2).

Question	Percentage Responding “Yes”
<i>Have localities used authority to declare moratoria after a disaster (Question 82.2)?</i>	50% (n=16)
<i>Has the state used authority to declare moratoria after a disaster (Question 82.1)?</i>	3%* (n=1)

*In 2010, just 20% of localities used their authority to declare moratoria.

Substantial Damage Determinations

When asked the following question regarding a statewide standard for reconstruction of flood-prone buildings, responding states provided the following:

Table 6.6 Percentage responding “yes” to the question: *Do you have a statewide standard for reconstruction of flood-prone buildings that have been substantially damaged that is more stringent or different than NFIP minimum standards (Question 72)?*

Question	2003	2010	2017 (n=39)
<i>Do you have a statewide standard for reconstruction of flood-prone buildings that have been substantially damaged that is more stringent or different than NFIP minimum standards (Question 72)?</i>	41%	28%	15%

States were asked to list the post-flood mobilization activities that they conduct. The following table shows the most frequently listed activities.

Table 6.7 What post-flood mobilization activities are done by the state floodplain management program (please check all that apply) (Question 73)?

Activity	Percentage Responding "Yes" (N=36)
Participate in/conduct public meetings after the flood	83%
Send notices to communities about post-disaster responsibilities including substantial damage determinations	75%
Train others to conduct substantial damage determinations	72%
Participate in HMGP mitigation briefings if a federal disaster is declared	67%
Provide increased cost of compliance advice	67%
Physically staff Joint Field Office	61%
Physically staff state Emergency Operations Center	61%
Participate on preliminary damage assessment teams	50%
Conduct permit reviews and variance reviews	47%
Actually conduct substantial damage determinations with or for communities	42%
Create press releases and other public awareness/information initiatives	42%
Conduct flood audits and offer flood-proofing advice	31%
Set high water marks	22%
Participate on public assistance 406 mitigation teams	17%



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, public officials and government agencies are then more likely to make sound decisions about floodplain management.

Highlights

- Slightly more than half (53%) of states issue a floodplain management newsletter. This represents a decrease from 2010, when 70% of respondents reported that they did so (see Table 7.1).
- All states are now using electronic distribution methods for their floodplain management newsletters. Only 26% distribute hard copies as well as digital versions of this information (See Figure 7.1).
- Almost two-thirds (62%) of states report that they provide information through social media (see Figure 7.2). Of the 14 respondents who shared information about what types of platforms they use, six used Facebook only, one used Twitter only and seven used both Facebook and Twitter.
- Among the outreach activities conducted for public awareness of flooding or floodplain management, states most often engage in promoting flood awareness day, week or month events (54%); setting up booths at malls or fairs (46%); working with the legislature or other governing bodies (43%); issuing press releases (43%); and contacting/working with homeowners or homeowner groups (37%) (see Figure 7.3).
- States engage in a number of outreach activities to promote public awareness of the natural resource value of floodplains and coastal areas. Among the most frequently used approaches are setting up booths at malls and fairs (52%); working with the legislature (48%); issuing press releases (48%); promoting beach cleanup (39%); and advocating wildlife or nature walks (35%) (see Figure 7.4).
- State participation or coordination with private sector efforts to conduct public outreach and awareness of floodplain management or floodplain resources appears to have decreased substantially since 2010, from 30% to 13% (see Table 7.4).

Survey Responses and Comparisons to Available 2003 and 2010 Data

Information and Communication

Information tools such as newsletters, webpages and social media allow state programs to disseminate critical information to the public about flood hazards. These tools facilitate public access to information that may help citizens, public officials, government agencies and private sector organizations make informed decisions about floodplain management and mitigation.

Newsletters

The first question associated with Principle 7 asked respondents if their state floodplain management agency/program issued a newsletter. Slightly more than half of states issue a floodplain management newsletter, which is a decrease from 2010.

Table 7.1 Percentage responding “yes” to the question: *Does your state floodplain management agency or program issue a newsletter (Question 83)?*

Question	2003	2010	2017 (N=38)
<i>Does your state floodplain management agency or program issue a newsletter (Question 83)?</i>	69%	70%	53%

The following tables present states’ responses pertaining to the average number of issues of floodplain management newsletters they distribute per year and the average number distributed per issue, respectively.

Table 7.2 Please describe how often and how many issues of the floodplain management newsletter are distributed (Question 83.1).

Question	2017 (N=19)
Average number of issues distributed per year	3
Average number distributed per issue	900

Questions 83.2 and 84 asked respondents to provide information about methods of distribution for floodplain management newsletters (Figure 7.1) and whether their agency or program uses social media to disseminate information (Figure 7.2). Notably, all responding states indicated that their agency uses electronic methods for newsletter distribution. Only 26% distribute hard copies of this information in addition to the digital versions.

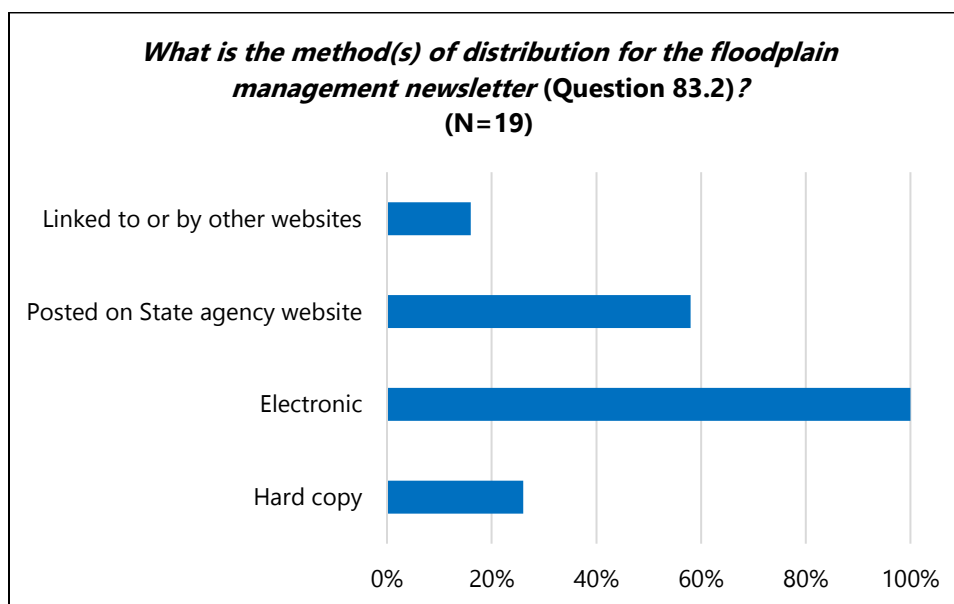


Figure 7.1

Social Media

Figure 7.2 shows that a little more than sixty percent (62%) of agencies use social media as a method of information dissemination. Of the 14 respondents who shared information about what types of platforms they use, six used Facebook only, one used Twitter only and seven used both Facebook and Twitter.

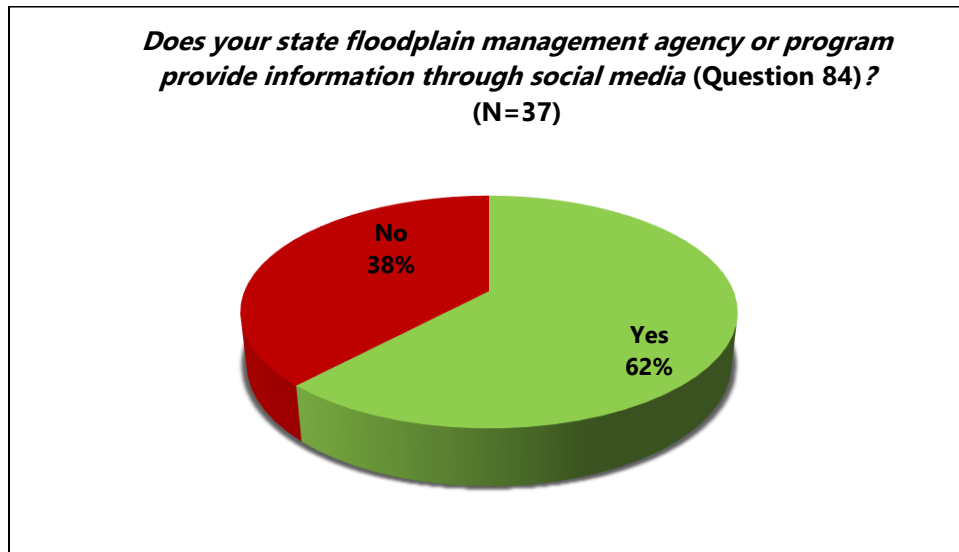
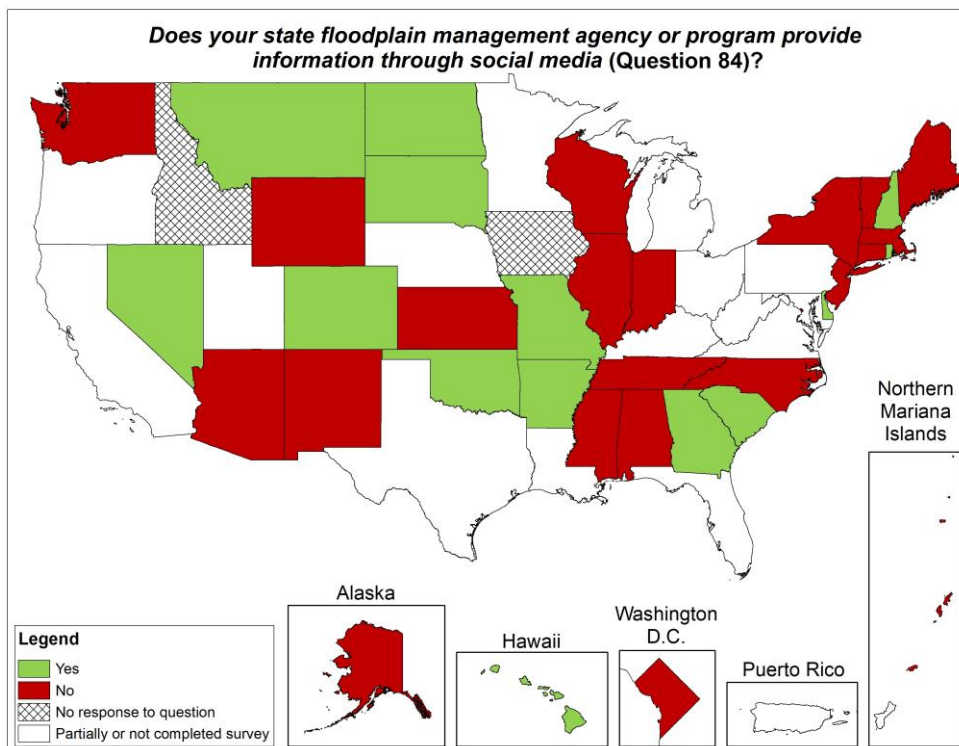


Figure 7.2



Map 7.1

Webpages

Similar to 2010 data, more than 90 percent of responding states reported that their state maintains a floodplain management-oriented website (see Table 7.3).

Table 7.3 Percentage responding “yes” to the question: Does your state maintain a floodplain management-oriented website (Question 85)?

Question	2010	2017 (N=39)
<i>Does your state maintain a floodplain management-oriented website (Question 85)?</i>	95%	92%

Initiatives for Public Outreach and Education

Figure 7.3 illustrates participant responses about the types of public outreach activities conducted in each state. Among the outreach activities conducted for public awareness of flooding or floodplain management, states most often engage in promoting flood awareness day, week or month events (54%); setting up booths at malls or fairs (46%); working with the legislature or other governing bodies (43%); issuing press releases (43%); and contacting/working with homeowners or homeowner groups (37%).

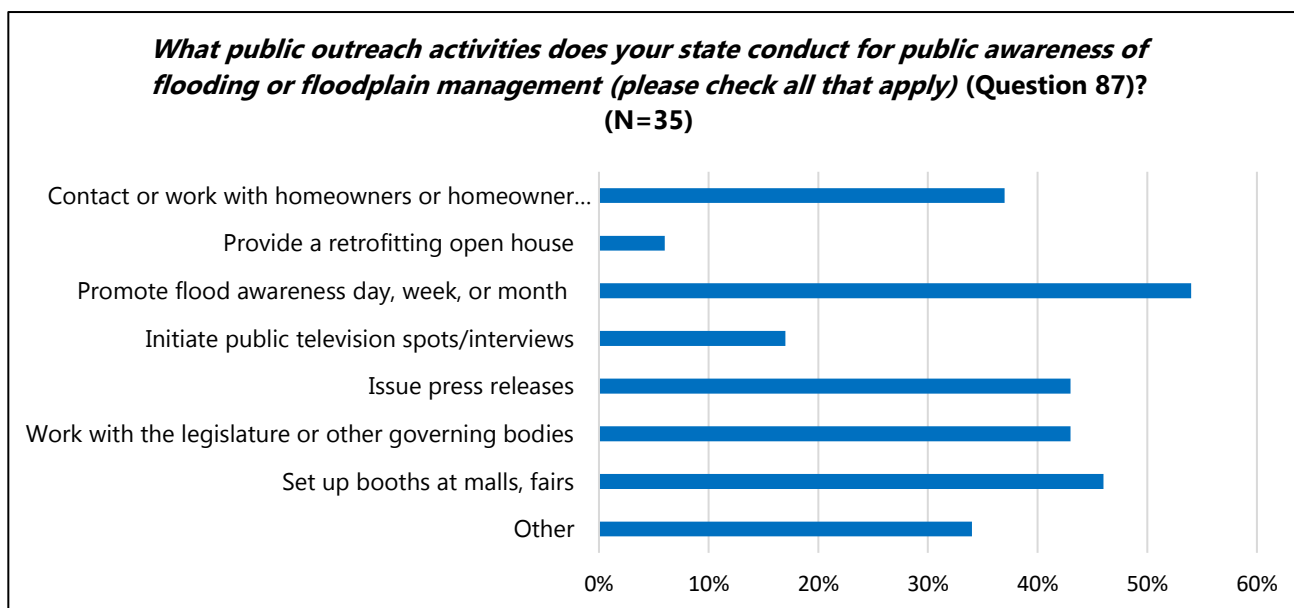


Figure 7.3

The following text box provides additional examples of the types of public outreach activities reported in 2017.

**Examples of Types of Public Outreach Activities as Reported in 2017
(Question 87)**

- Assisting towns with outreach to residents at public events (fairs, meetings, etc.)
- Exhibiting or speaking at conferences
- Reaching out to realtors, insurance agents and local communities (local officials, property owners, NGOs) with training events
- Developing web pages on floodplain management and risk awareness, especially for riverine flooding
- Providing training for local officials and at statewide association meetings
- Helping local communities develop resources for public awareness
- Participating in public forums for Alabama Coastal Coalition
- Letting local jurisdictions take the lead
- Municipal Technical Advisory Service trainings, Regional Tennessee Association of Floodplain Management trainings—normally train 500 people a year
- During flooding, working through the media for public outreach, including using state websites
- Working primarily with local community officials and public meetings
- Conducting presentations for realtors, lenders and insurance agent groups/associations

States engage in a number of outreach activities to promote public awareness of floodplains and coastal areas as natural resources. The most frequently used approaches include setting up booths at malls and fairs (52%); working with the legislature (48%); issuing press releases (48%); promoting beach cleanup (39%); and advocating wildlife or nature walks (35%).

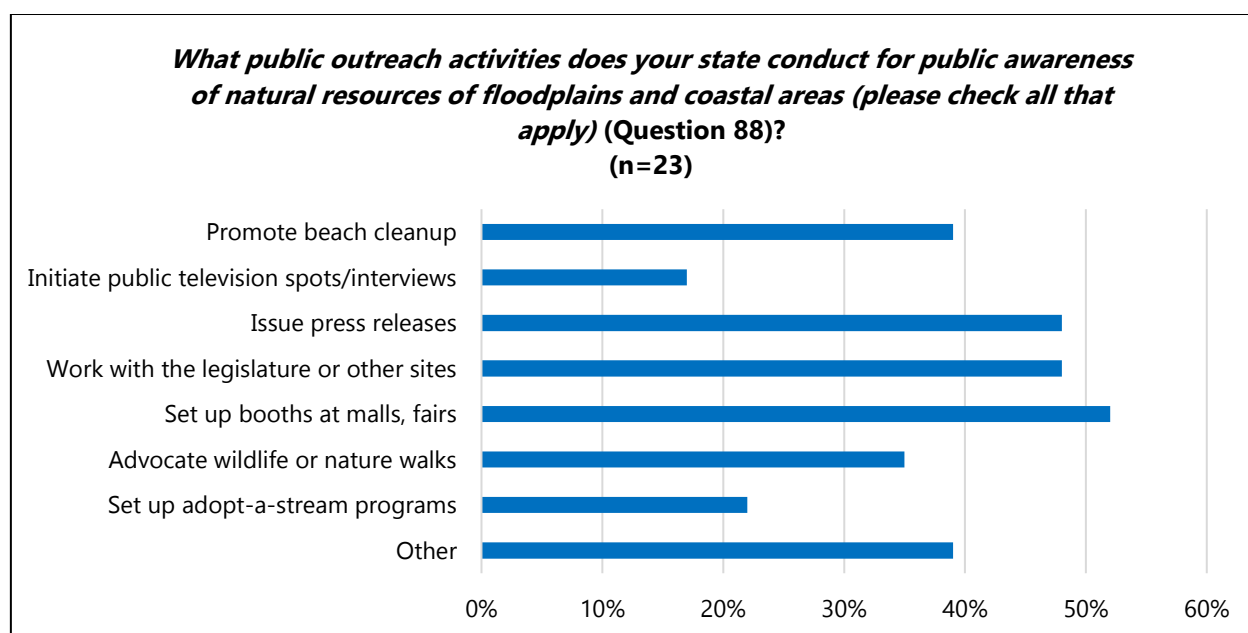
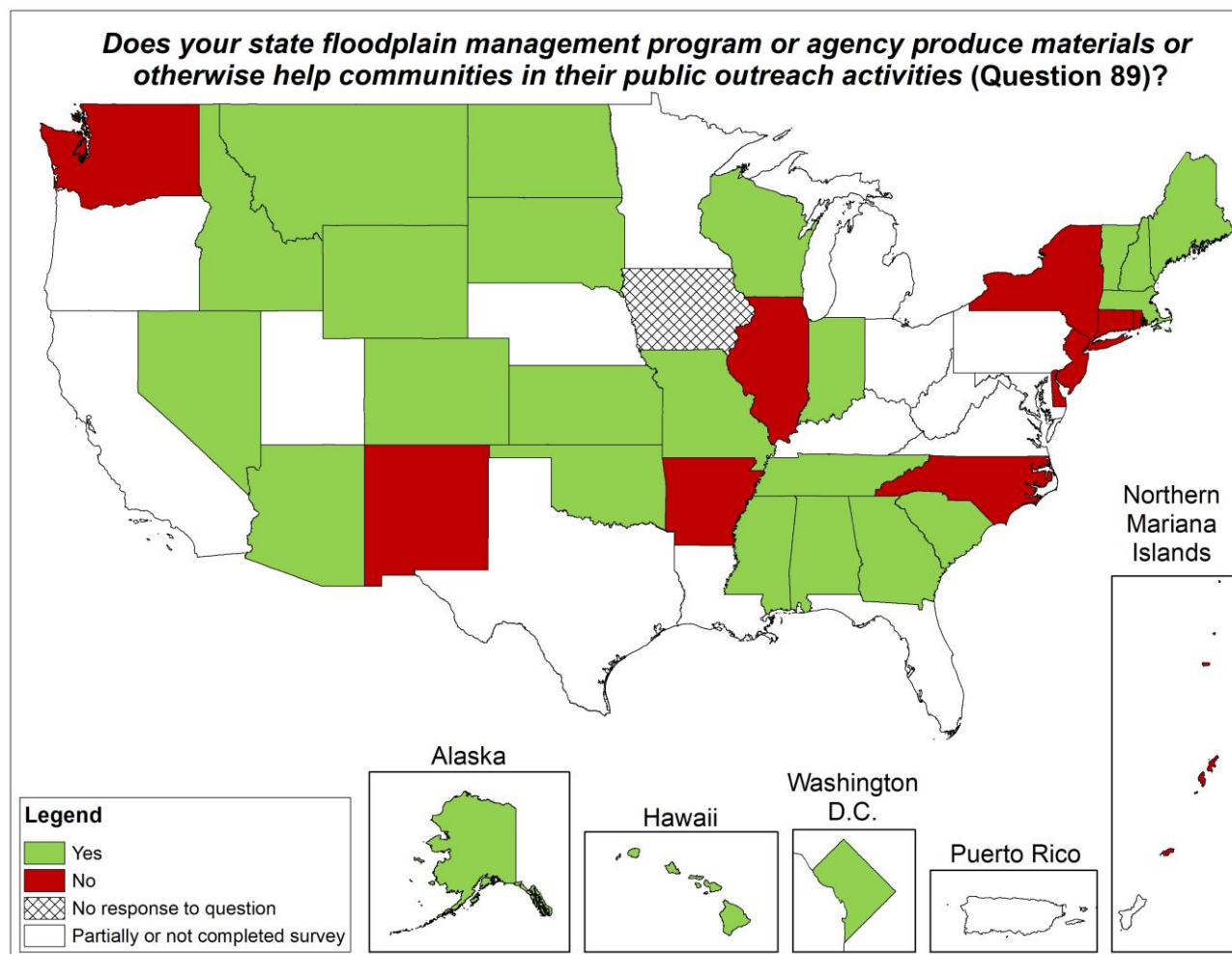
**Figure 7.4**

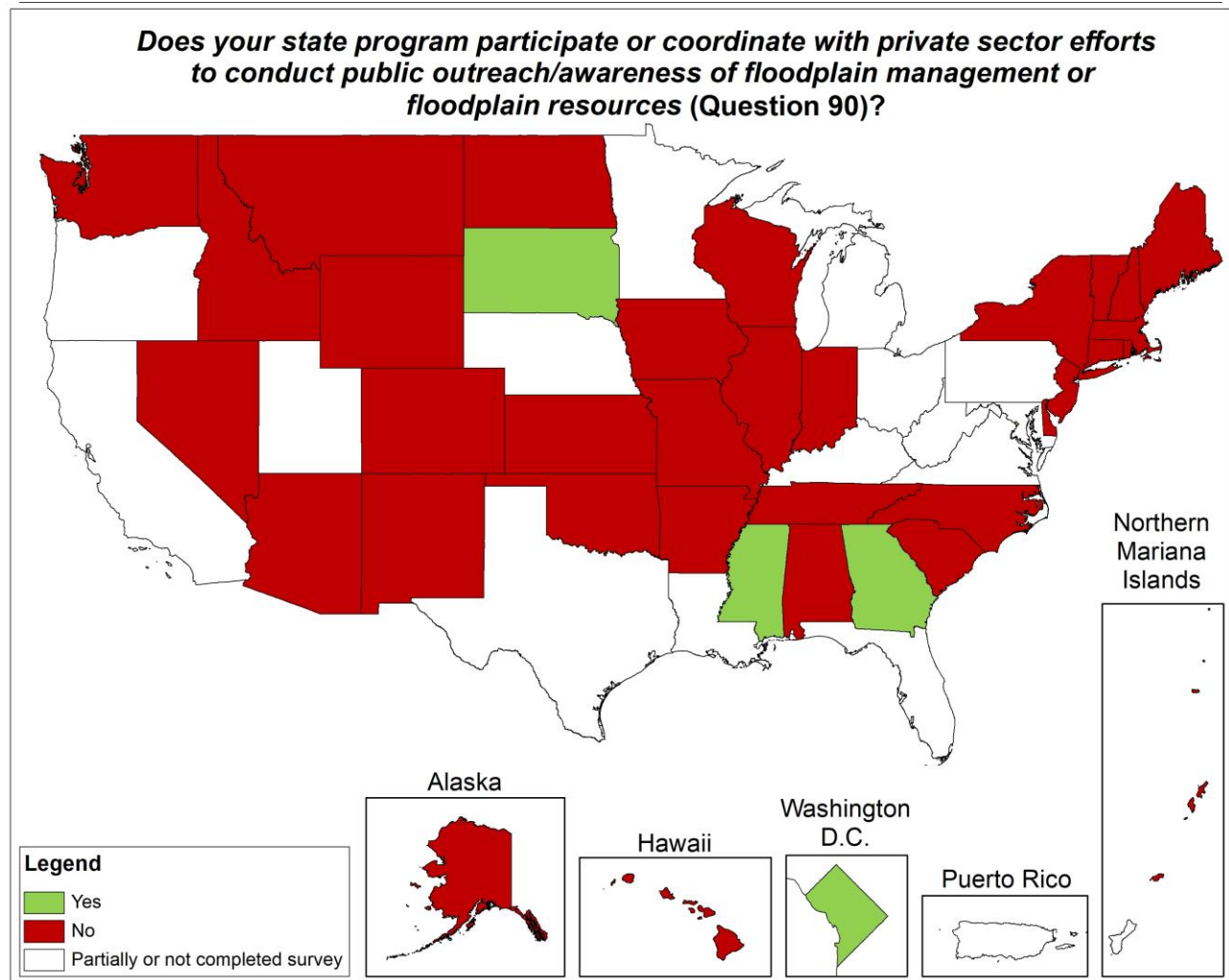
Table 7.4 provides a comparison of 2003, 2010 and 2017 data about the production of public outreach materials and coordination with private sector efforts to conduct public outreach (Questions 89 and 90). When asked whether their floodplain management agency/program produced materials or assisted communities in public outreach, 71% of 2017 participants responded “yes.” This is nearly identical to 2010 data (72%). State participation or coordination with the private sector to conduct public outreach and awareness of floodplain management or floodplain resources appears to have decreased substantially since 2010, from 30% to 13%.

Table 7.4 Percentage responding “yes” to the following questions about public outreach.

Question	2003	2010	2017
<i>Does your state floodplain management program or agency produce materials or otherwise help communities in their public outreach activities (e.g., press releases, media kits, handouts, brochures) (Question 89)?</i>	43%	72%	71% (n=27)
<i>Does your state program participate 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 90)?</i>	ND	30%	13% (n=5)



Map 7.2



Map 7.3

Real Estate Disclosure

Table 7.5 reports on the number of “yes” responses to a question that asked if states require flood hazard disclosures for real estate actions (Question 86). The percentage of 2017 “yes” responses (44%) were similar to those provided in 2010 (41%) but remain lower than “yes” responses in 2003 (53%). As in previous survey years, most states—66%—do not require flood hazard disclosures for real estate transactions, such as deed restrictions or previous flooding history.

Table 7.5 Percentage responding “yes” to the question: *Does your state require flood hazard disclosures for real estate transactions, such as deed restrictions or prior history of flooding* (Question 86)?

Question	2003	2010	2017 (n=36)
<i>Does your state require flood hazard disclosures for real estate transactions, such as deed restrictions or prior history of flooding</i> (Question 86)?	53%	41%	44%



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, as well as access to technical assistance. In most communities, floodplain management is just one of many responsibilities that are handled by a small number of staff. The administration of floodplain provisions, however, can be quite complex, and the consequences of inadequate attention can have negative impacts on the community in terms of costs, legal actions and losses. Alternatively, communities who show leadership and dedicate proper resources can inspire positive actions that benefit the whole community.

Specific actions that effective state programs take include:

- *Producing a reference manual to inform local officials about floodplain management*
- *Monitoring how communities administer regulations, including violation enforcement*
- *Supporting community efforts to participate in the Community Rating System*
- *Holding workshops and training*
- *Encouraging local staff to become Certified Floodplain Managers (CFMs)*
- *Supporting state-level professional associations*
- *Producing newsletters and webpages*
- *Remaining accessible to local staff*

Highlights

- Almost half of reporting states (46%) indicated that the frequency of NFIP community monitoring has stayed the same since 2010. The remainder reported a 35% increase and a 19% decrease in terms of community monitoring (see Figure 8.2).
- There have been a number of changes in the ways that states monitor local floodplain management programs. Among these are substantial decreases in the number of phone calls and site visits, and large increases in mail surveys (see Table 8.1).
- More than half of respondents (55%) reported that it is solely the state's responsibility to follow-up on an NFIP violation. States reported that NFIP participating communities are monitored every three years on average (see Figure 8.1). Forty-two percent reported that it is the responsibility of both the state and FEMA. There does appear to be an increase in shared responsibility between the state and FEMA, as this percent increased from 10% in 2010 to 42% in 2017 (see Table 8.7).
- Unmet needs indicated by states in 2017 are training (68%); Community Assistance Visits (CAVs) (43%); mapping (43%); enforcement (43%); Community Rating System support (39%); and general technical assistance (32%) (see Table 8.9).
- In 2017, states reported that the average number of attendees at floodplain management-related workshops or training sessions carried out by state floodplain management staff

during the last year was 269, with 84 communities represented. Although this is a decrease from 2010 (335 average attendees per responding state), there are almost double the number of communities represented (43) as compared to 2010 (see Table 8.13).

- States report that the most significant challenge to holding flood-related (Emergency Management Institute (EMI) field-deployed training is funding (see Table 8.14).
- Only 61% of state programs feel that they receive adequate support to address enforcement needs from their FEMA regional office. This is a decrease of six percent from the 2010 survey (see Table 8.8).

Survey Responses and Comparisons to Available 2003 and 2010 Data

Community Monitoring and Technical Assistance

Table 8.1 reports on the types of methods responding states use to monitor local floodplain management programs. There were some notable shifts in the 2017 responses compared to 2010 and 2003 responses, especially regarding the use of phone calls, mail surveys, site visits and submit-to-rate requests as methods used to monitor local programs.

Table 8.1 *What methods does your state use to monitor local floodplain management programs (Question 91)?*

Methods Used to Monitor Local Programs	2003	2010	2017* (n=38)
Phone calls	78%	93%	32%
Mail survey	18%	9%	87%
Site visits	94%	95%	11%
Complaints	74%	95%	97%
Submit-to-rate requests	39%	43%	87%
Biennial report	29%	48%	29%

*Thirty-two percent reported "Other." These responses included the following methods: municipal permit reviews, CAVs, CACs, GTAs, email surveys, personal communications, state permit applications and meetings with building code offices.

A subsequent question asked participants to report the average frequency at which NFIP-participating communities are monitored. Over a third of respondents (38%) indicated that NFIP-participating communities are monitored every four to seven years, with 35% reporting that they are monitored every 8-11 years. A little more than 20% (22%) responded that NFIP communities are monitored every three years or less, and only five percent indicated that monitoring takes place every 12-15 years.

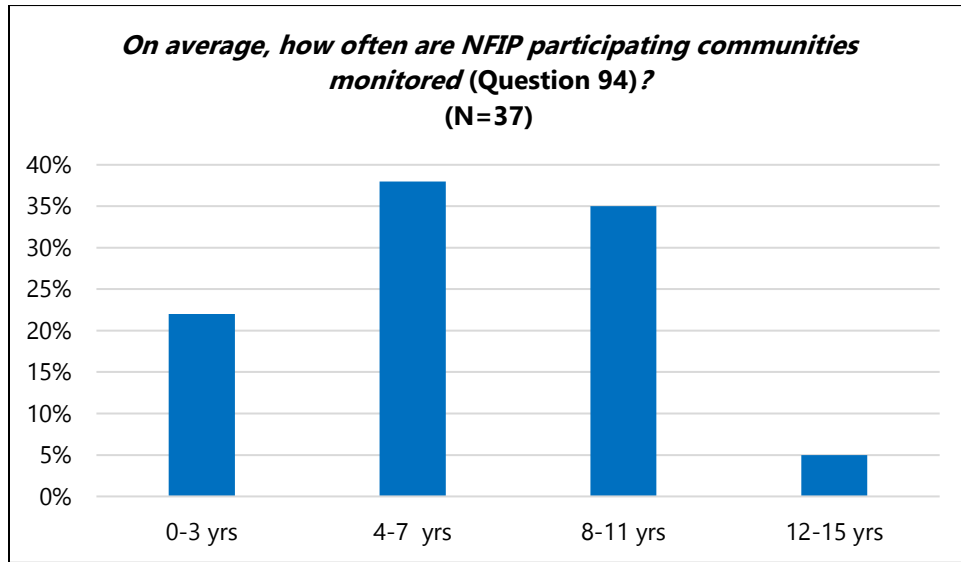


Figure 8.1

In order to assess any changes related to the frequency of NFIP community monitoring over time, Question 95 asked participants if the frequency of NFIP community monitoring within their state has changed since 2010. Nearly half of the respondents (46%) indicated that NFIP community monitoring was similar to 2010, with 35% reporting an increase and 19% reporting a decrease in the frequency of NFIP community monitoring.

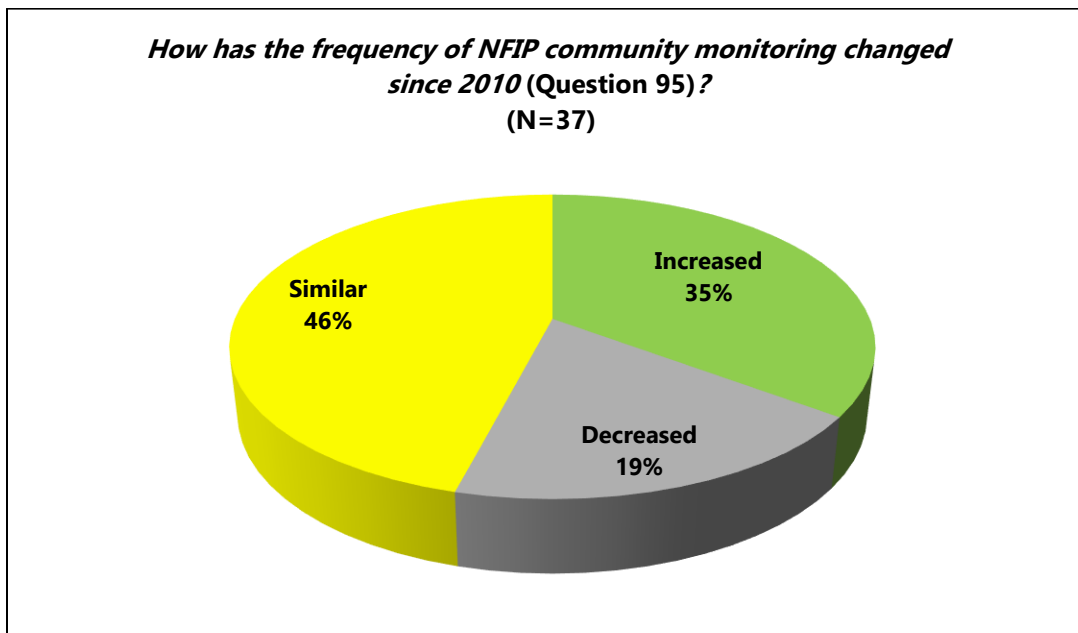
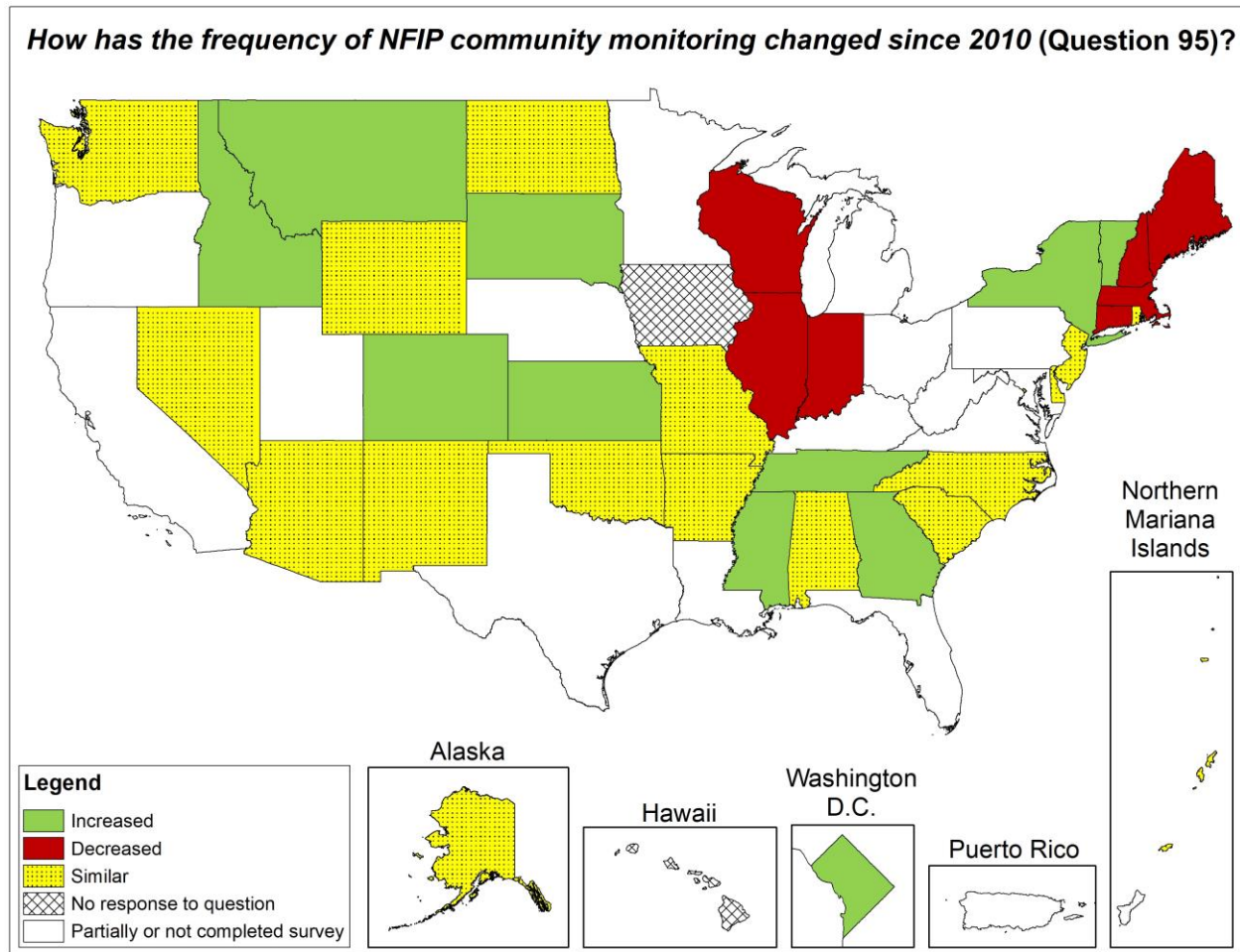


Figure 8.2



Map 8.1

When asked to rank the types of methods their state uses for setting priorities for community monitoring visits, "Community contact suggests need for a visit" and "FEMA guidelines (Regional request)" were reported as the two top methods used for setting priorities. These were followed, in order, by: complaints; community requests; development activity; and submit-to-rate applications.

Table 8.2 How does your state set priorities for community monitoring visits (rank from most frequently used to least frequently used with 1 being the most commonly used and 6 being the least commonly used method for setting the priority) (Question 96)?

Rank	Method	Average Ranking (N=38)
1	Community contact suggests need for a visit	2.8
2	FEMA guidelines (Regional request)	2.8
3	Complaints	3.2
4	Community request	3.3
5	Development activity	3.5
6	Submit-to-rate applications	5.4

Question 101 asked participants to indicate the activities that are accomplished under their state Community Assistance Program agreement with FEMA. As Table 8.3 demonstrates, some of the largest shifts reported between 2010 to 2017 include a 24% reduction in workshops, a 36% reduction in state interagency coordination efforts and a 47% increase in public affairs and media work.

Table 8.3 Please indicate which of the following activities your state floodplain management program accomplished under your Community Assistance Program (CAP) agreement with FEMA (please check all that apply) (Question 101).

Activity	2003	2010	2017 (n=37)
Community Assistance Calls (CACs)	92%	90%	95%
Community Assistance Visits (CAVs)	96%	95%	78%
Community Rating System Activities	76%	79%	97%
Workshops	98%	100%	76%
Regional coordination meetings with states	88%	79%	95%
Outreach	98%	98%	95%
Ordinance review	96%	100%	95%
General technical assistance	59%	100%	95%
Maintain Community Information System	86%	98%	86%
Map assistance	41%	98%	95%
State interagency coordination efforts	ND	95%	59%
Public affairs and media work	ND	48%	95%
Other	ND	13%	19%*

*For those 19% who reported "Other," the following activities were listed: coordination with Emergency Management and State Hazard Mitigation Officer, Silver Jackets Team, flood mitigation grant program coordination, disaster assistance, disaster response and recovery, and meetings with professional groups.

The next question asked states to provide the average percent of total time spent on activities under CAP agreements with FEMA. The 2017 responses were similar to responses provided in 2010.

Table 8.4 *The average percent of states' total time spent on activities under their CAP agreement with FEMA (Question 102).*

Activity	2010	2017 (n=38)
Community Assistance Calls	8%	10%
Community Assistance Visits	17%	16%
Community Rating System	2%	4%
Workshops	10%	10%
Regional coordination meetings with states	4%	4%
Outreach	5%	7%
Ordinance review	12%	7%
General technical assistance	19%	20%
Maintain Community Information System	4%	4%
Map assistance activities	8%	6%
State interagency coordination efforts	5%	5%
Public affairs and media work	2%	1%
Other*	2%	6%

*Six percent reported "Other." The following activities were listed: conferences, exams and renewal for state staff, staff training, grant management and reporting, and floodway project reviews.

Tables 8.5 and 8.6 highlight 2017 responses related to participant opinions on the frequency of Community Assistance Contacts (CACs) and Community Assistant Visits (CAVs) that NFIP communities *should* have.

Table 8.5 *Ideally, how often do you think NFIP communities should have a Community Assistance Contact (CAC) (Question 92)?*

Community Circumstances	How Often Community Assistance Contacts (CACs) Should be Conducted				
	1-3 years	4-6 years	7-9 years	10-12 years	13-15 years
Every _ years (N=34)	47%	50%	-	3%	-
Every_ years (If there is little or no development activity) (N=34)	29%	50%	-	15%	6%
Once every _ years (If there is a history of floodplain management problems) (N=33)	82%	15%	-	-	-

Floodplain Management 2017: State Programs

Once every _ years (If the community is experiencing growth) (N=34)	76%	24%	-	-	-
Every _ years for communities with small policy counts (N=33)	30%	39%	9%	15%	6%

Table 8.6 Ideally, how often do you think NFIP communities should have a Community Assistance Visit (CAV) (Question 93)?

Community Circumstances	How Often Community Assistance Visits (CAVs) Should be Conducted					
	1-3 years	4-6 years	7-9 years	10-12 years	13-15 years	Shouldn't be held
Every _ years (N=35)	3%	89%	3%	6%	-	-
Every _ years (If there is little or no development activity) (N=34)	3%	47%	9%	29%	6%	6%
Once every _ years (If there is a history of floodplain management problems) (N=33)	70%	30%	-	-	-	-
Once every _ years (If the community is experiencing growth) (N=33)	52%	48%	-	-	-	-
Every _ years for communities with small policy counts (N=33)	3%	42%	12%	30%	9%	3%

NFIP Violations and Enforcement

In this section of the survey, states were asked to answer questions regarding who is responsible for follow-up to an NFIP violation and if they believed they are receiving the appropriate level of support from FEMA to address enforcement needs. The following tables (Tables 8.7 and 8.8) display state responses to questions pertaining to NFIP violation follow-up and enforcement.

As demonstrated in Table 8.7, more than half of respondents (55%) reported that it is solely the state's responsibility to follow-up on an NFIP violation, with three percent reporting that it is solely FEMA's responsibility. Although there was a stark increase from 2003 (21%) to 2010 (83%) in respondents reporting that the state is the sole entity responsible for following up, there was a notable decline in respondents reporting this in 2017 (55%). From 2010 to 2017, there appears to be an increase in shared responsibility between the state and FEMA, with 10% of respondents indicating this in 2010 to 42% in 2017.

Table 8.7 *If in the course of monitoring local programs you find an NFIP violation, who is responsible for follow-up (please check all that apply) (Question 98)?*

Entity Responsible for Following Up on NFIP Violation	2003	2010	2017 (N=38)
FEMA	13%	7%	3%
State	21%	83%	55%
Both FEMA and State	66%	10%	42%

The question below asked state programs if they are appropriately supported by FEMA regional offices in addressing enforcement needs. The 2017 responses vary minimally from 2010 responses.

Table 8.8 *Responses to the question: Does your state program receive support you consider appropriate and necessary from your FEMA Regional Office to address enforcement needs in your state (Question 100)?*

Response	2010	2017 (n=38)
Yes	67%	61%
No	12%	16%
Sometimes	21%	24%

Thirteen survey participants responded to the question: "If 'no' or 'sometimes,' what additional support do you think is needed?" (Question 100.1). Themes from their responses are:

- The need for FEMA to enforce actions against violations, such as probation
- Clearer guidelines for invoking sanctions and clearer definitions of what constitutes a violation
- The need for FEMA to respond in a timely manner regarding enforcement
- More training and community outreach

Unmet Needs and Challenges

Respondents provided feedback about unmet needs and challenges they face within their states. Figure 8.3 reports on state responses to a question that asked if there is an unmet need for floodplain management assistance to communities in their states. Notably, more than three-quarters of respondents (76%) indicated that there is an unmet need.

Is there an unmet need for more floodplain management assistance to the communities in your state (Question 103)?
(N=34)

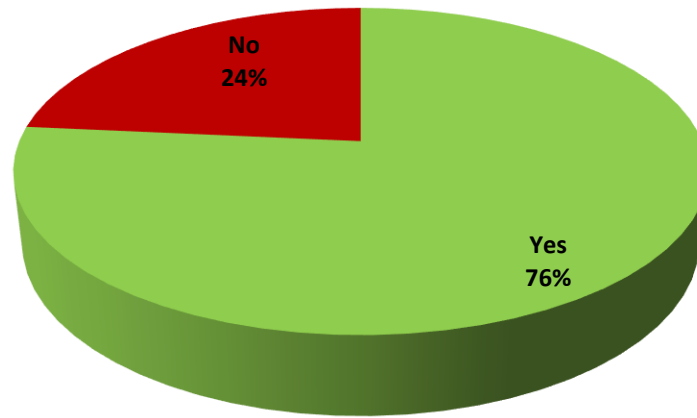
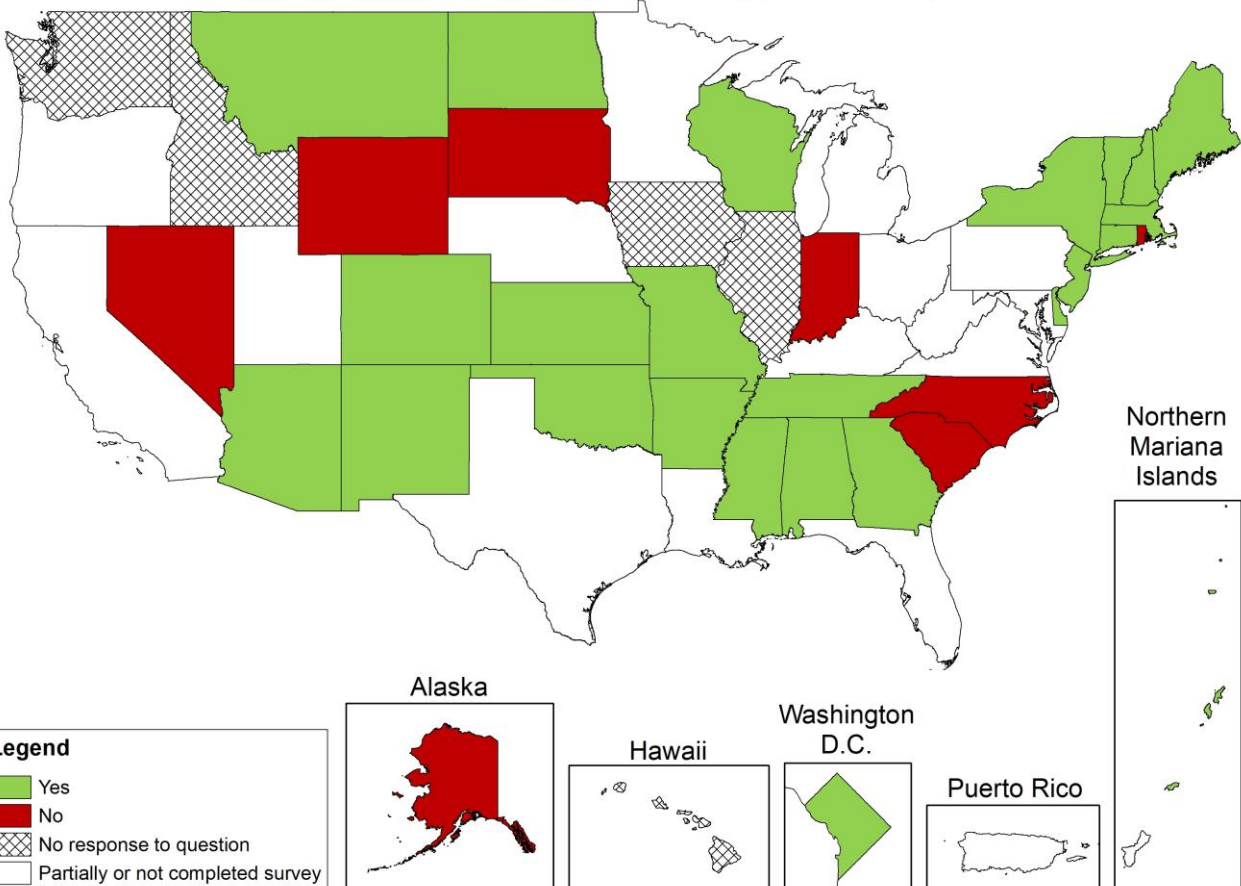


Figure 8.3

Is there an unmet need for more floodplain management assistance to the communities in your state (Question 103)?



Map 8.2

The following question asked respondents to indicate unmet needs as they apply to respondent state programs. Unmet needs reported by states in 2017 are training (68%); CAVs (43%); mapping (43%); enforcement (43%); Community Rating System support (39%); and general technical assistance (32%).

Table 8.9 Please select which needs have been unmet (please check all that apply) (Question 103.1).

Unmet Needs Reported	2010	2017 (N=34)
General Technical Assistance (GTA)	48%	32%
Training	78%	68%
Community Assistance Calls (CAC)	39%	25%
Community Assistance Visits (CAV)	55%	43%
Mapping	58%	43%
Habitat evaluation	15%	7%
Enforcement	61%	43%
Ordinance assistance	15%	-
Ordinance review	18%	-
Community Rating System (CRS) support	30%	39%
Other (please describe):	20%	7%*

*Of the seven percent who reported "Other," the following unmet need was listed: "resilience and mitigation planning for day-to-day operations."

Workshops and Training

State responses to questions pertaining to workshops and training are presented below in Tables 8.10 through 8.14 and Figure 8.4. Table 8.10 reports on participant responses to a question asking them to indicate whether their state programs provide training or input on floodplain management issues in state licensing programs and examinations for a range of professionals (listed below). For each profession listed, a majority of respondents reported that they provide training or input for continuing education credits (CECs).

Table 8.10 Please indicate if your state floodplain management program (or state floodplain management association) provides training or input related to floodplain management issues into your state licensing programs and examinations for any of the following allied professionals (please check all that apply) (Question 105)?

Floodplain Management 2017: State Programs

Type of Professional	Provision of Input or Training		
	Input for licensing or exams	Training for licensing or exams	Training for CECs
Building Officials (N=16)	6%	19%	100%
Code Enforcement Officers (N=15)	13%	13%	93%
Plan Examiners (N=7)	14%	14%	86%
Planners (N=15)	7%	7%	100%
Elected Officials (N=7)	7%	-	86%
Emergency Managers (N=15)	-	7%	100%
Other state agencies (N=11)	-	-	100%
Professional Land Surveyors (N=22)	9%	14%	100%
Real Estate Agents (N=14)	7%	14%	93%
Insurance Agents (N=14)	14%	14%	93%
Lenders (N=8)	13%	13%	88%
Building Contractors (N=7)	14%	-	86%
Architects (N=9)	22%	-	89%
Landscape Architects (N=5)	20%	-	80%
Professional Engineers (N=18)	-	11%	100%
Attorneys (N=7)	14%	-	89%
Housing Inspectors (N=9)	11%	-	89%
Site Evaluators (N=4)	25%	-	75%
Manufactured Housing Installers (N=6)	17%	-	83%

Tables 8.11 through 8.13 present 2017 responses to questions about floodplain management-oriented workshops. First, respondents were asked if their state floodplain management programs (as opposed to state floodplain associations) held workshops for the general public, local government floodplain managers and professional groups.

As shown in Table 8.11, workshops for local government floodplain managers were the most common type of audience for workshops held by state programs (5.5 per year), followed by professional groups (3.3 per year) and the general public (2.4 per year).

Table 8.11 Does your state floodplain management program hold floodplain management oriented workshops for any of the following (Question 106)?

Workshop Audience	Number of Workshops Per Year	
	Average	Range in Number of Workshops
General public (N=22)	2.4	0-10
Local government floodplain managers (N=34)	5.5	0-20
Professional groups (N=28)	3.3	0-10
Other (N=10)	1.5	0-5

Responses to the question below indicate that, on average, state floodplain management associations hold 1.7 workshops per year for local government floodplain managers, 1.1 for professional groups and 0.6 for the general public.

Table 8.12 Does your state floodplain management association hold floodplain management oriented workshops for any of the following (Question 107)?

Workshop Audience	Number of Workshops Per Year	
	Average	Range in Number of Workshops
General public (N=18)	0.6	0-4
Local government floodplain managers (N=26)	1.7	0-6
Professional groups (N=22)	1.1	0-4
Other (N=10)	0.3	0-1

In 2017, states reported that the average number of attendees at floodplain management-related workshops or training sessions carried out by state floodplain management staff in the last year was 269, with 84 communities represented. Although this is a decrease from 2010 (335 average number of attendees per responding state), there are almost double the number of communities represented (43) as compared to 2010.

Table 8.13 How many people/communities attended floodplain management-related workshops or training sessions carried out by your state floodplain management staff during the last year (Question 108)?

Presence at Workshops or Training Sessions (N=34)	Average*	Range in Number of Attendees
Attendees	269	0-1,377
Communities represented	84	0-300

*In 2010, the average number of attendees per responding state was 335 and the average number of communities represented was 43.

Figure 8.4 and the following text box display state responses about continuing education credits (CECs). A large majority (84%) of states award CECs for at least one of their state-sponsored floodplain management training opportunities. This is comparable to the 2010 survey results.

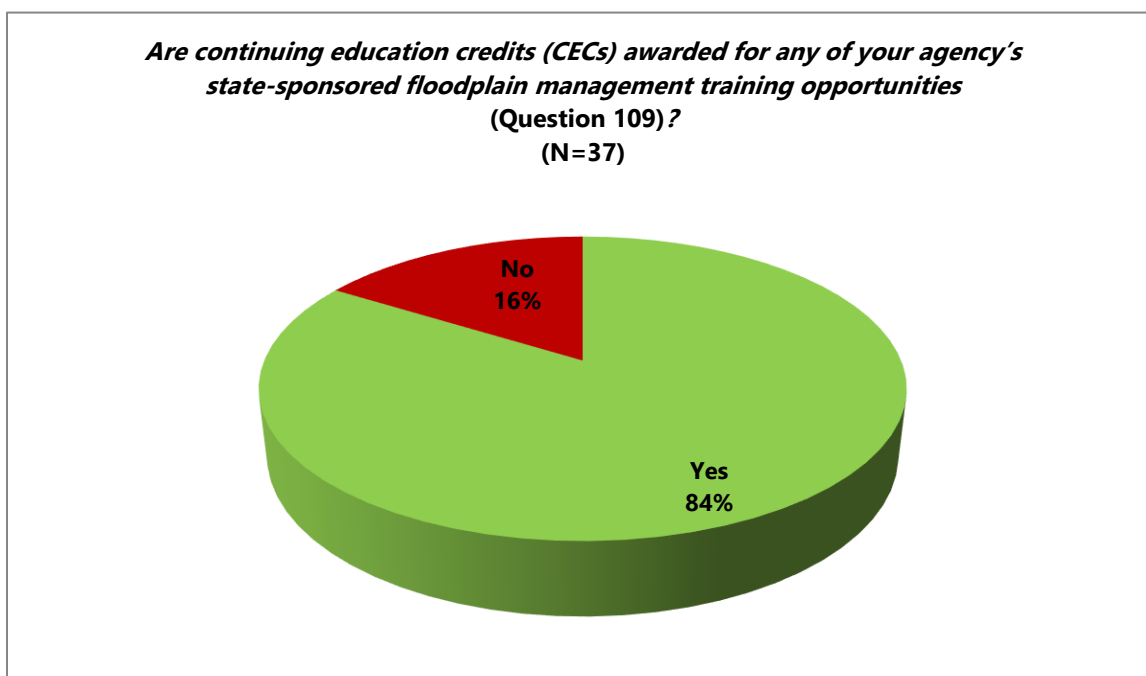


Figure 8.4

When asked under which certification programs CECs are granted for their agencies' state-sponsored floodplain management training opportunities, responding states provided the following:

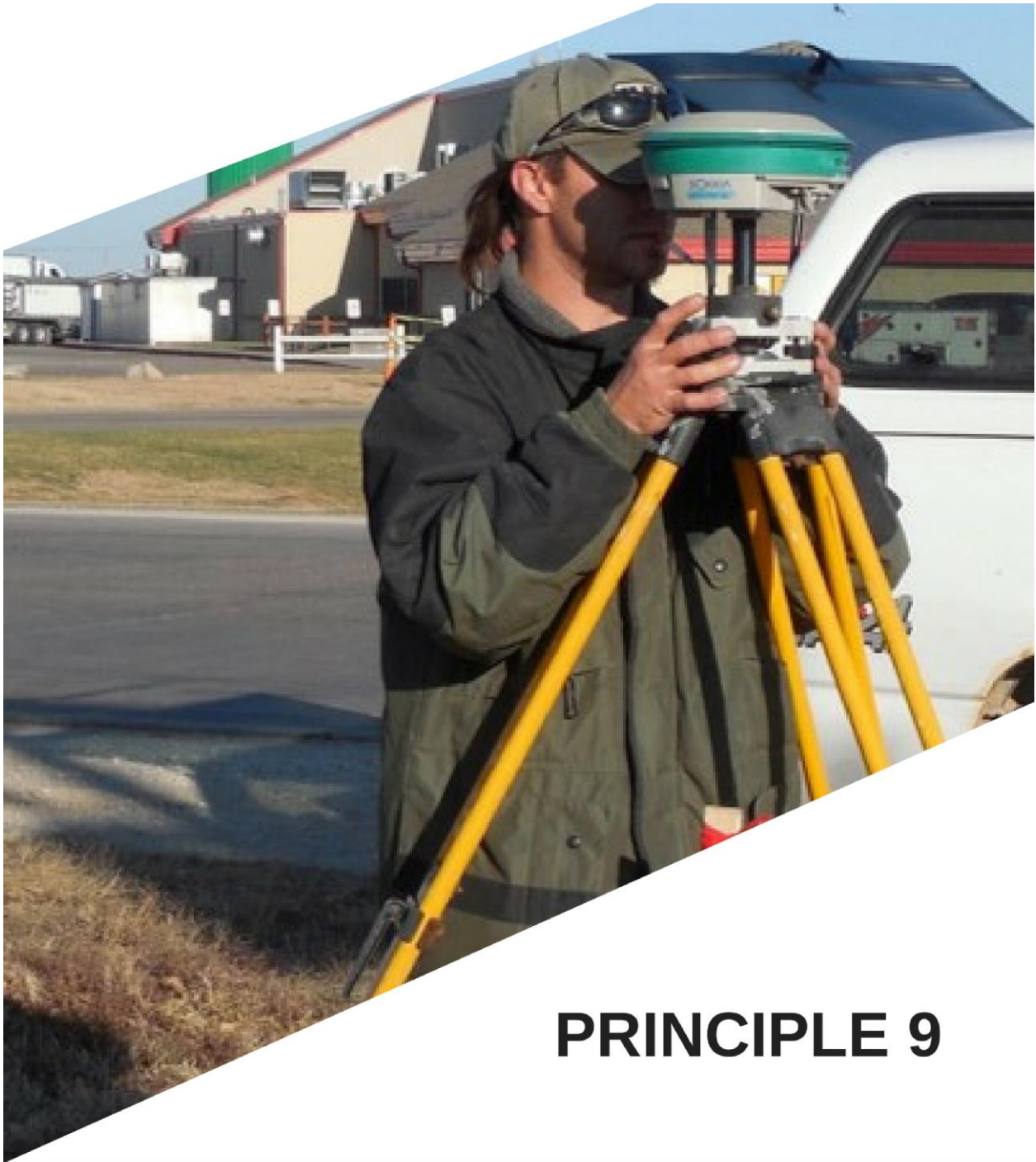
Under which certification program(s) are CECs granted for any of your agency's state-sponsored floodplain management training opportunities (Question 109.1)?

- American Institute of Certified Planners
- Association of State Floodplain Managers Certified Floodplain Manager Program
- Building Officials/Inspectors
- Certified Floodplain Surveyor
- Continuing Education of the Bar
- Elevation Certificates
- Floodplain Administrator
- Insurance
- Kansas Society of Land Surveyors
- Massachusetts Bureau of Building Regulations and Standards
- New Mexico Floodplain Managers Association
- New York Codes Division accredited workshops for Building Inspectors
- Ohio Building Officials Association
- Professional Engineer
- Professional Land Surveyor
- Realtors/Real Estate Agents
- South Dakota Board of Technical Professions for Professional Engineers and Licensed Surveyors
- State Code Enforcement Officer Training and Certification Program (Maine)

Table 8.14 shows responses to a question asking participants to rate how much of a challenge funding, staffing and community interest in EMI field-deployed training was on a scale from “not at all” (1) to “significant challenge” (5). States reported that the most significant challenge was funding. (See Table 8.14)

Table 8.14 *How much of a challenge is each of the following in terms of holding flood-related EMI field-deployed training in your state? Please rate each on a scale of 1-5, where 1 is “not at all” and 5 is a significant challenge (Question 111)?*

Component of EMI field-deployed training (N=37)	Challenge Rating (1 = "not at all"/5 = "significant challenge")				
	1	2	3	4	5
Funding	19%	16%	19%	8%	38%
Staffing	16%	24%	19%	19%	22%
Community interest	19%	22%	30%	19%	11%



PRINCIPLE 9

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

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

States that have been the most effective at floodplain management have assessed the needed level of funding and staffing, based on factors appropriate to their states, such as flooding, local administration and the anticipated functions of staff members.

Floodplain management programs use this information to develop budgets that include salaries, operations, mapping, mitigation grants and other activities. States seek creative ways of obtaining funds and generating revenue.

Highlights

- The average size of a state floodplain management program staff is 6.8 full-time equivalents (FTEs). This is a slight increase from 2010, when states reported an average staff size of five to six FTEs. The 2017 FTEs are focused on the following activities:
 - Coordinating the NFIP (26%)
 - Administering state regulations and permits (21%)
 - Working in state or NFIP flood mapping as a CTP (33%)
 - Administering mitigation assistance programs (8%)
 - Other, with activities listed as planning and project management, engineering technical assistance, GIS technician, administrative, Floodplains by Design and floodplain planning (12%)
- When asked about any changes in the overall capability of their state's floodplain management program staff since 2010, 34% indicated this capability has increased; 32% that it has decreased; and the remaining 34% reported that it has stayed about the same (see Figure 9.6).
- Just more than half of responding states—56%—reported that there have been no changes in their floodplain management program since 2010, compared with 29% in 2010 that reported no changes since 2003. Roughly one-third (28%) of states indicated programs or functions were added—a major decrease from 71% reported as being added in 2010 (from 2003). There were minimal reports of programs being discontinued or funding being discontinued while activities continued (see Table 9.1).
- The total annual budgets for state floodplain management programs reported in 2017 were strikingly similar to the numbers reported in 2010 from most resources. For example, average state funding for staffing/operation and FEMA funding under the CAP was nearly identical in 2017 and 2010. That said, budgets have failed to keep up with

inflation, meaning the average state floodplain management program is making do with less. The average amount reported for CTP FEMA funding, however, reflected a decrease of more than \$250,000 (see Table 9.6).

- When asked about changes in the overall capacity of their state floodplain management program since 2010, 38% indicated capacity had increased; 24% that it had decreased; and the remaining 38% reported it had stayed about the same (see Figure 9.7).
- When asked about their program's current state budget compared to last year, most reported no change (65%), with 14% indicating an increase and 22% reporting a decrease (see Table 9.7).
- When asked about their program's current federal funding compared to last year, most reported no change (70%), with 14% indicating they experienced an increase and 16% reporting a decrease (see Table 9.7).
- In terms of staff experience, the average number of years that respondents served in their current position (State Floodplain Manager) is 8.4 years, with an average of 14.8 years in floodplain management more broadly. Almost one-third (29%) have a bachelor's Degree, with an additional 45% holding a master's degree or higher (see Figures 9.1-9.3).
- On average, state floodplain management program/agency staff have a collective 70 years of floodplain management experience (see Figure 9.4). This is the same as in 2010. Consistent with broader trends in emergency management, floodplain management has also shown a tendency toward the professionalization, with higher percentages of floodplain managers holding advanced degrees than in previous years.
- The average number of Certified Floodplain Managers employed as part of the responding states' floodplain management staff is 3.7—roughly the same as in 2010 (see Figure 9.5).
- Responding states provided examples of external factors or events that have negatively affected their state's floodplain management program staffing levels. These included funding constraints, budget cuts, hiring freezes, staff turnover and low prioritization of floodplain management at the state level.

Survey Responses and Comparisons to Available 2003 and 2010 Data

Staff Levels, Capabilities and Demand

Changes to Floodplain Management Programs

The first question associated with Principle 9 asked respondents to share ways in which their

state's floodplain management program has changed since 2010. More than half of responding states (56%) said there had been no changes to their floodplain management program since 2010, as compared to 2010 data where 29% of respondents reported that there were no changes since 2003. Nearly 30% of respondents (28%) indicated they had programs or functions added. This is a substantial decrease from 2010 data, which showed 71% added since 2003. Few respondents reported programs being discontinued or funding being discontinued to programs that remained active.

Table 9.1 Percentage responding “yes” to the question: Since 2010, has your state floodplain management program changed in any of the following ways (Question 113)?

Type of Change	2010*	2017 (N=36)
Programs or functions added	71%	28%
Programs or functions discontinued/abolished	18%	11%
Programs or functions funding discontinued; activities continued	12%	17%
No changes	29%	56%

*The 2010 survey question was phrased as: “Since 2003, have any of your state floodplain management related programs or functions changed in any of the following ways?”

A follow-up question asked states to elaborate on how or why programs or functions were added, discontinued, abolished or not funded (Question 113.1). Sixteen participants responded to this question, with some providing feedback that fell into one or more categories mentioned in Question 113. For example, some respondents indicated that programs were added *and* discontinued. For those respondents who indicated that programs or functions had been added (n=10), they explained that these added functions and programs were a result of a number of factors, ranging from new legislation requiring new functions and regulations to increased emphasis on pre-disaster preparation to temporary programs created after a flood event.

Explanations for programs or functions that have been discontinued or abolished (n=4) centered on budget constraints such as cuts in federal and state funding, including funding dedicated to the CTP program. State budget restrictions, reduced staffing levels and staff turnover (with

“Community Assistance Program funding has remained flat over the last few years. As salaries and fringe benefit costs increase, the amount of CAP money used to fund staff diminishes. CAP funds [once funded] 2 FTEs, now it is 1.385 FTEs and continues to drop. FEMA expects the level of activities to remain the same. With the budget crisis in our state, if you are not federally funded, then staff will be put on other activities. This year we had to reduce the number of Community Assistance Visits due to limited staff resources.”

—Open-ended response related to reductions in CAP funding

limited funds to hire new staff) also contributed to the discontinuation or abolishment of programs and functions.

Six respondents shared qualitative responses to describe how activities were maintained despite discontinued funding for programs or functions. Staff reduction and staffing constraints topped the list of impacts of funding discontinuation. In some cases—although activities continued—they were either reduced or the responsibility for certain programs and functions was shifted to remaining staff members. Following similar patterns presented in previous and subsequent qualitative feedback, state budget crises, and state-level funding constraints and prioritization represent recurring themes in the data that shed light on staffing levels and program implementation.

Floodplain Management Staff

This section focuses on descriptions of states floodplain management staff as reported by respondents. The questions highlighted below pertain to the length of time floodplain managers have served in their current position and floodplain management more generally, education attainment, staff size, the types of disciplines represented within floodplain management staff and changes in staff size and capacity over time.

Figures 9.1 through 9.3 highlight the work experience and educational attainment of the individuals who completed the survey on behalf of their state's floodplain management program. The average number of years that respondents have served in their current position as State Floodplain Manager is 8.4 years, with the average number of years being 14.8 in floodplain management more broadly. Nearly one-third (29%) have a four-year college or bachelor's Degree, with 45% holding a master's Degree or higher.

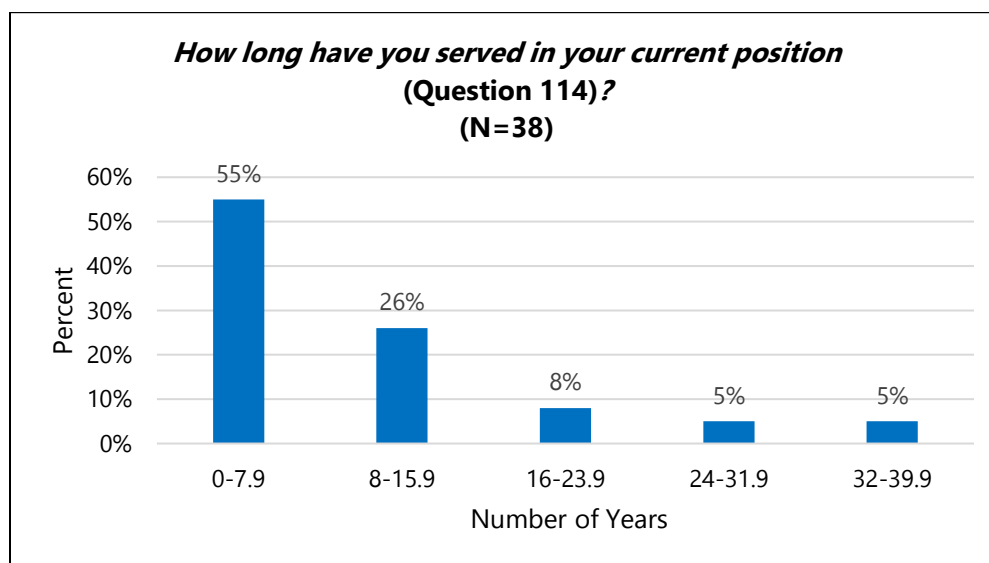


Figure 9.1

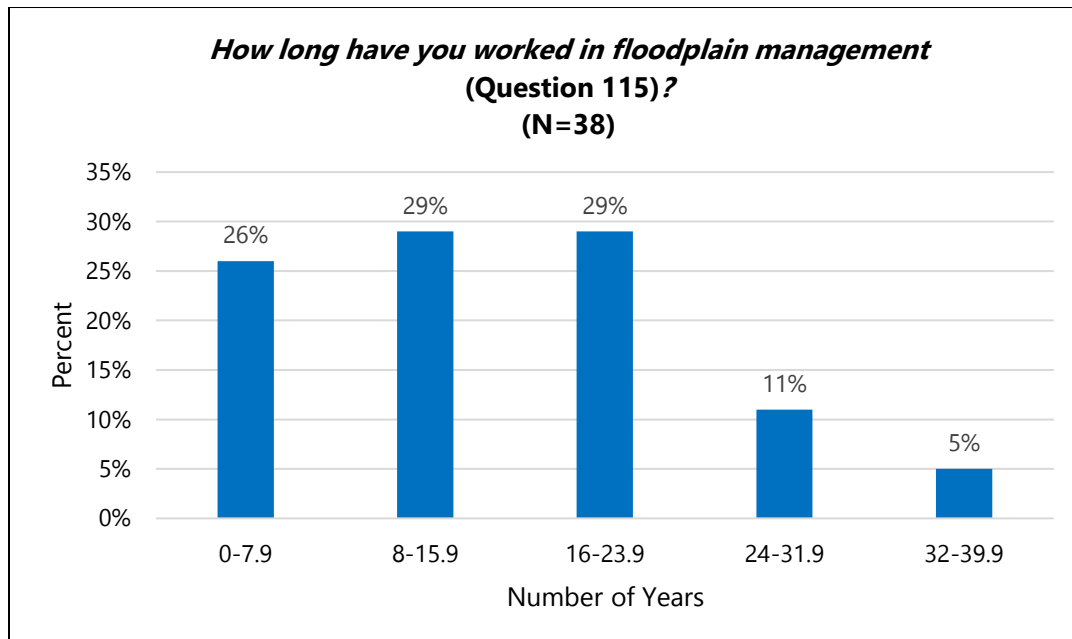


Figure 9.2

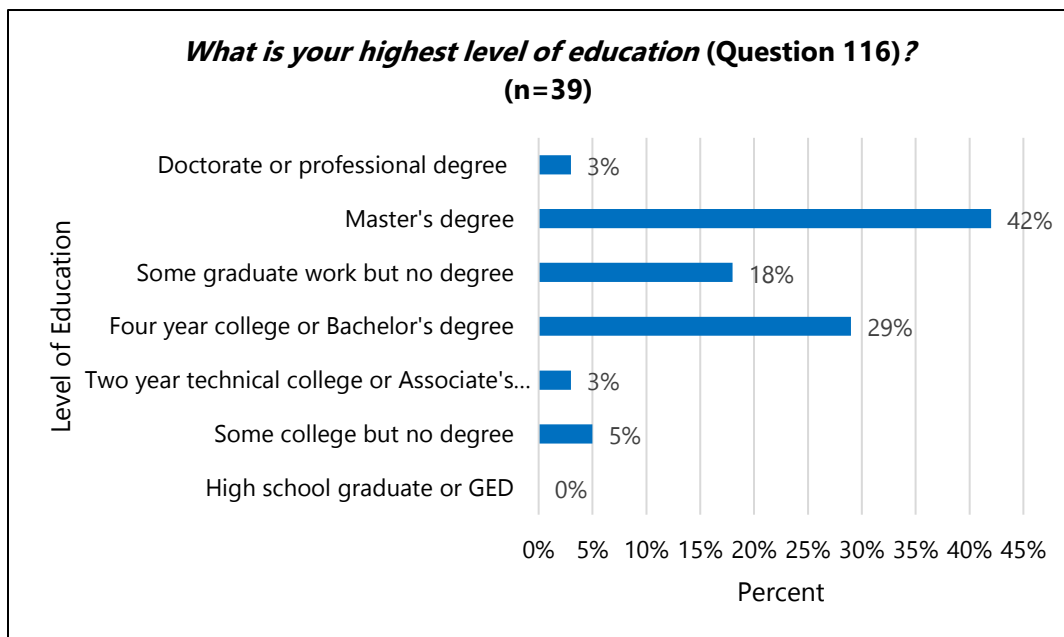


Figure 9.3

Table 9.2 summarizes the size of floodplain management programs by presenting the number of full-time equivalent (FTE) staff engaged in NFIP coordination, state regulations/permit administration, state or NFIP flood mapping, mitigation assistance program administration and other activities.

Table 9.2 *What is the total size of your state floodplain management program? Indicate the number of full-time equivalent (FTE) staff persons per year (Question 117).*

Program Activity	Average Number of FTEs	Range of FTEs
NFIP Coordination (N=38)	1.8	0-8
State regulations/permit administration (N=37)	1.5	0-20
State or NFIP flood mapping (N=36)	2.4	0-20
Mitigation assistance program administration (N=35)	0.6	0-5
Other (N=37)	2.5	0-15

Table 9.3 reports the types of disciplines that characterize state floodplain management staff, as well as the number of FTEs associated with each discipline.

Table 9.3 *How many FTEs in the following disciplines characterize your state's floodplain management staff (Question 118)?*

Discipline	Average Percentage of FTEs	Average Number of FTEs	Range of FTEs
Engineers (N=38)	33%	3	0-40
Planners (N=37)	26%	0.9	0-5
Natural Resource Professionals (N=37)	13%	0.6	0-5
GIS (N=37)	7%	0.6	0-4
Emergency Managers (N=37)	6%	0.1	0-1
Other technical (N=37)	5%	0.5	0-10
Support (e.g., clerical, admin.) (N=37)	4%	0.2	0-3
Hydrologist or geologist (N=37)	2%	0.2	0-4
Architects, landscape architects (N=37)	-	0.03	0-1
Other (N=37)	4%*	0.2	0-2

*On average, 4% of FTE were in the "Other" category. The following areas were listed: surveyors, education, NFIP coordinator and outreach.

In order to further understand the educational preparation of full-time staff members, two survey questions asked specifically about the highest degree received among floodplain management staff. As shown in Table 9.4, staff were most likely to have a four-year college or bachelor's degree. Table 9.5 compares 2003, 2010 and 2017 data in terms of highest degree received among full-time staff. Consistent with broader trends in emergency management, floodplain management has also shown a tendency toward the professionalization of the floodplain manager, with higher percentages holding advanced degrees than in previous years.

Table 9.4 For each of the FTEs in your state's floodplain management staff, what is the highest degree received (Question 119)?

Degree	Average Number of FTEs	Range of FTEs
High school graduate or GED (N=19)	0.7	0-5
Some college but no degree (N=18)	0.4	0-3
Two-year technical college or associate degree (N=16)	0.1	0-1
Four-year college or bachelor's degree (N=31)	4.8	0-42
Some graduate work but no degree (N=19)	0.4	0-3
Master's degree (N=26)	1.8	0-6
Doctorate or professional degree (N=15)	0.1	0-1

Table 9.5 For each of the FTEs in your state's floodplain management staff, what is the highest degree received (Question 119)?

Agency	2003	2010	2017 (N=36)
High school graduate or GED	ND	17%	6%
Some college but no degree	ND	ND	3%
Two-year technical college or associate's degree	5%	4%	1%
Four-year college or bachelor's degree	68%	55%	65%
Some graduate work but no degree	ND	ND	4%
Master's degree	ND	ND	20%
Post-graduate degree	27%	24%	1%

Figure 9.4 reports on the collective years of experience among floodplain management staff in the states surveyed. Years of experience are obviously influenced by the size of the staff, but overall, states demonstrated high levels of collective experience, with more than one third of

respondents indicating that their staff had somewhere between 25 to 49.9 years of floodplain management experience. On average, states' floodplain management staff have a collective 70 years of floodplain management experience.

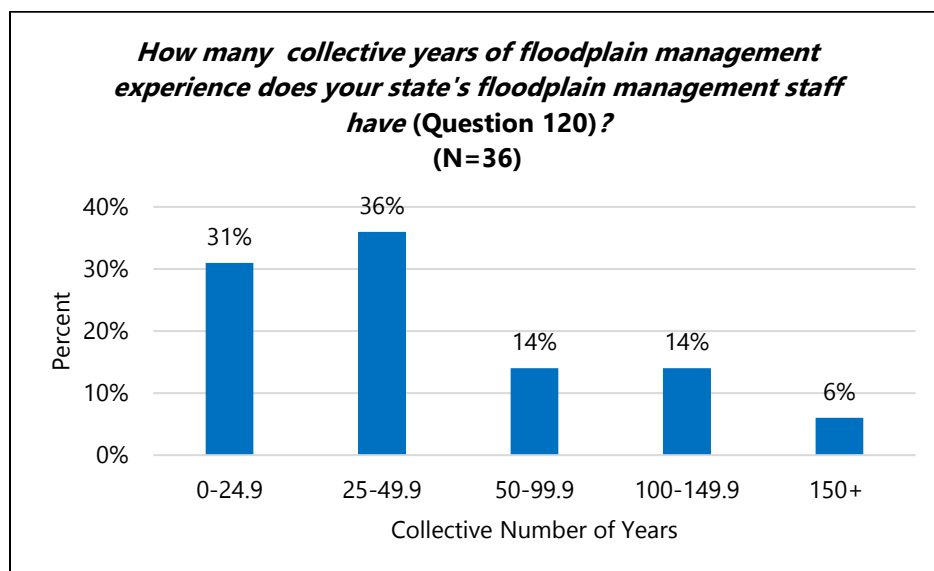


Figure 9.4

Figure 9.5 illustrates the number of CFMs reported as part of responding states' floodplain management staff. More than three-quarters (76%) of respondents indicated that the number of CFMs within their floodplain management staff ranges from zero to 4.9.

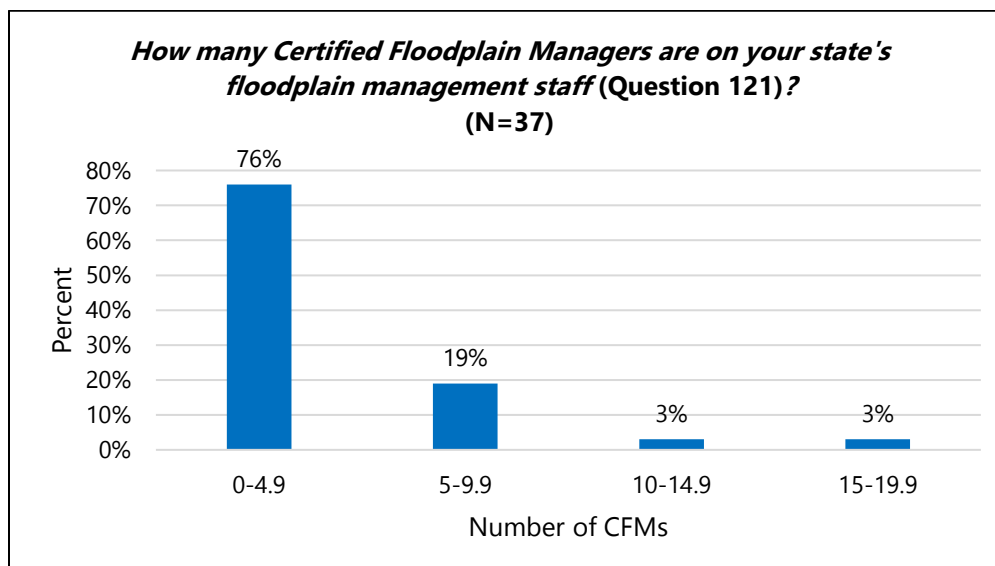


Figure 9.5

Responding states were then asked an open-ended question: "*Since 2010, what external factors or events have affected your state's floodplain management program staffing levels* (Question

122)?” Respondents reported a range of factors that affected state floodplain management program staffing levels, including:

- Budget cuts and funding constraints
- Hiring freezes, staff reduction and staff turnover
- Low prioritization of floodplain management
- New legislation
- Increases in technical assistance requests

For question 123, which asked “*Since 2010, what has been the impact of any changes (increases or decreases) in your state’s floodplain management program staffing levels?*,” 33 states provided qualitative feedback. Eleven respondents indicated that there had been no impacts or changes in staffing levels, with one respondent stating that while staffing levels did not fluctuate, they did experience workload increases. Notably, many respondents did not mention the impacts of changes to staffing levels, but instead simply stated “decreased staff” or “staffing increased” without explanation of impacts.

“More dollars and capacity available for Risk MAP has led us to hire many more staff members.”

—*Open-ended response on positive changes since 2010*

“[There has been a] 25% reduction in agency staff affecting all programs. We're treading water. Field offices have personnel who wear many hats and they are pushing back at delivering floodplain programs. There is extreme competition for staffing.”

—*Open-ended response related to the ramifications of reduced staffing*

Of the four respondents who mentioned *increases* in staffing, there were no discussions of impacts. However, one respondent who reported an elimination of their mapping program as an impact of staffing changes also mentioned that since “adding two full time floodplain management staff to take place of lost part-time field staff, we have increased delivery of CACs and especially CAVs.”

For those who reported *decreases* in staffing (n=13), impacts can be characterized as being within one or more of the following themes:

- Decreased funds make staff reactionary to requests instead of proactive
- Smaller number of CAP activities and loss of other activities
- Unable to offer necessary training, limited in enrolling new communities and no time for “truly creative” projects
- Decreased capacity, which limited tasks such as mapping, outreach and public education
- High turnover rates translate into a lack of institutional memory and historic knowledge
- Vacancies are not promptly filled or are left permanently vacant

These qualitative responses are coupled with quantitative reports regarding the overall capability of state floodplain management program staff, as shown in Figure 9.6. Responses to the question below are rather evenly dispersed among the three response categories—34% reported that program capability stayed about the same; 34% reported that it increased; and 32% reported decreases in overall capability.

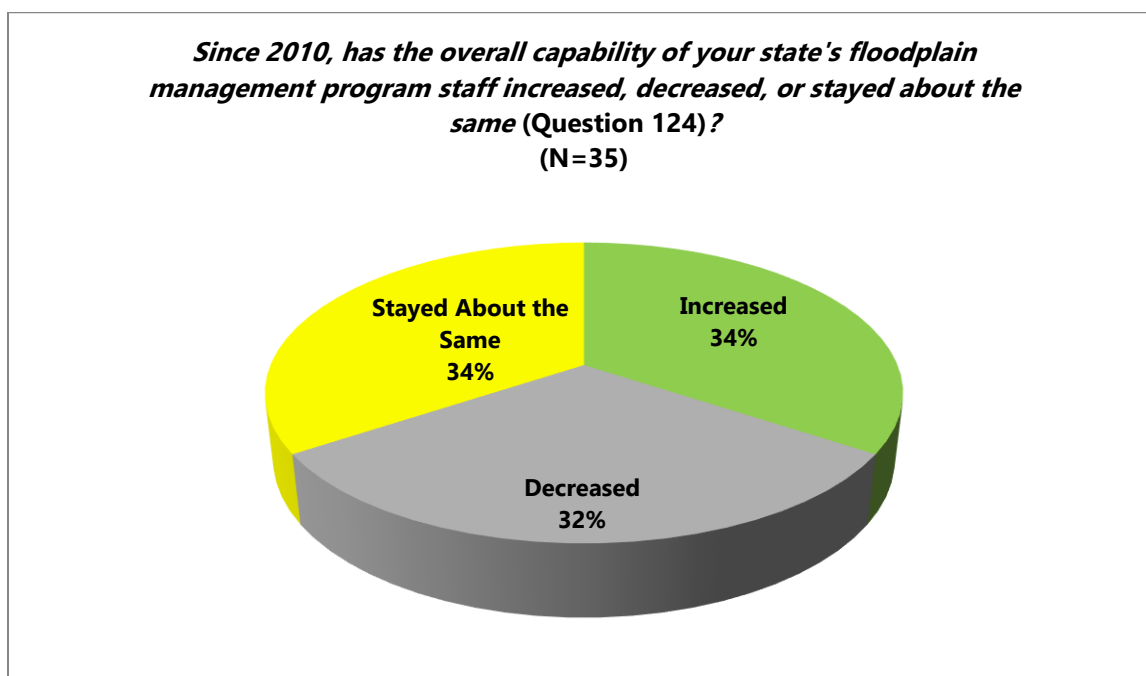


Figure 9.6

Funding Levels and Sources

The following questions pertain to funding levels and sources. The first question in this series asked respondents to share the approximate total annual budget for their states' floodplain management program based on state funding for staffing/operation, FEMA funding under the CAP, CTP FEMA funding and other funding sources. Responses are averaged and summarized in Table 9.6. Responses from 2010 average budget sizes in 2010 and inflation-adjusted 2017 dollars are reported for comparison.

Table 9.6 What is the approximate total annual budget for your floodplain management program based on the following resources (Question 125)?

Type of Resource	Average Budget Size in Dollars		
	2010	2010 results in 2017 dollars	2017
State funding for staffing/operation	\$147,715	\$165,543	\$144,470 (N=29)
FEMA funding under the CAP	\$160,235	\$179,574	\$160,150 (N=30)
CTP FEMA funding	\$845,689	\$947,755	\$584,953 (N=27)
Other funding sources	ND	ND	\$3,500 (N=20)

When asked about what external factors or events have affected state floodplain management program funding levels since 2010 (Question 126), seven states (out of 31) explained that they have not experienced any external events or factors, or that funding has remained consistent. However, 24 states shared a number of external factors that affected funding levels their floodplain management program either negatively or positively. Themes from those responses are summarized in bulleted points below:

- State budget cuts and crises
- New and/or more stringent regulatory standards
- Levels of federal funding, including Community Assistance Program and Cooperating Technical Partners funding
- Flood declarations
- Increased attention on agendas such as floodplain mapping, Risk Mapping, Assessment, and Planning (Risk MAP) projects, and climate adaptation planning

Other responses highlighted external factors such as state legislative agendas, FEMA grant requirements, staff reduction through layoffs and attrition, and lack of proper management.

While state and FEMA CAP funding levels have not changed substantially since 2010 when compared using *nominal dollars*, it is clear that floodplain management programs are being asked to make do with smaller budgets when inflation is taken into account. Specifically, when compared in *real dollars*, state funding for staffing/operation has decreased by nearly 13 percent since 2010. Similarly, FEMA funding under the CAP has decreased by nearly 11 percent since 2010.

Ramifications of Reduced Funding: Open-Ended Responses

"We are unable to offer all of the training necessary to bring local officials up to speed on good floodplain management. We are limited in our attempts to enroll new communities and to encourage more CRS participation. We don't have time for the truly creative projects we'd like to do, such as strategic planning, better outreach, or creating a state association."

"Vacancies are either not filled promptly or simply not filled. There is no succession plan and no transition of knowledge to new staff. Historic knowledge is lost."

"Our agency has lost about 25 percent of its staff through layoffs and attrition. This makes it harder to argue for floodplain management staff. Even though there is outside funding, total agency staffing levels are dictated separately from grant funding levels."

Thirty-one states answered the question *"Since 2010, what has been the impact of any changes (increases or decreases) on your state's floodplain management program funding levels?"* (Question 127). Below, qualitative themes with examples are categorized by positive impacts and negative impacts. Importantly, some states reported both positive and negative impacts, but not all of the responses included an explanation for the types of impacts their state floodplain management program experienced. Instead, a number of respondents indicated that funding increased or decreased without explanation of impacts. Nine

responding states reported that they did not experience any impacts.

"FEMA Region I has held fast to the same annual CAP allocation for our state; it has not increased in a number of years. Program costs have increased, so the state has continued to increase funding, currently funding 40% of the program. How long this will be acceptable is uncertain."

—Open-ended response related to uncertainty about funding

Positive impacts or references to increased funding (n=8):

- Increased grant funding
- Increased capacity to produce flood studies, perform floodplain management tasks and conduct community outreach
- Ability to acquire field vehicle, GIS equipment and conduct additional mapping

"We have more ability to produce flood studies, staff are better trained and more able to do the breadth of floodplain management tasks, and we have been increasing the 'back-ups' on various roles in the program."

—Open-ended response about the positive effects of increased funding

Negative impacts or references to decreased funding (n=13):

- Staff reduction, increased workloads and decreased capacity
- Decrease in mapping and other program efforts

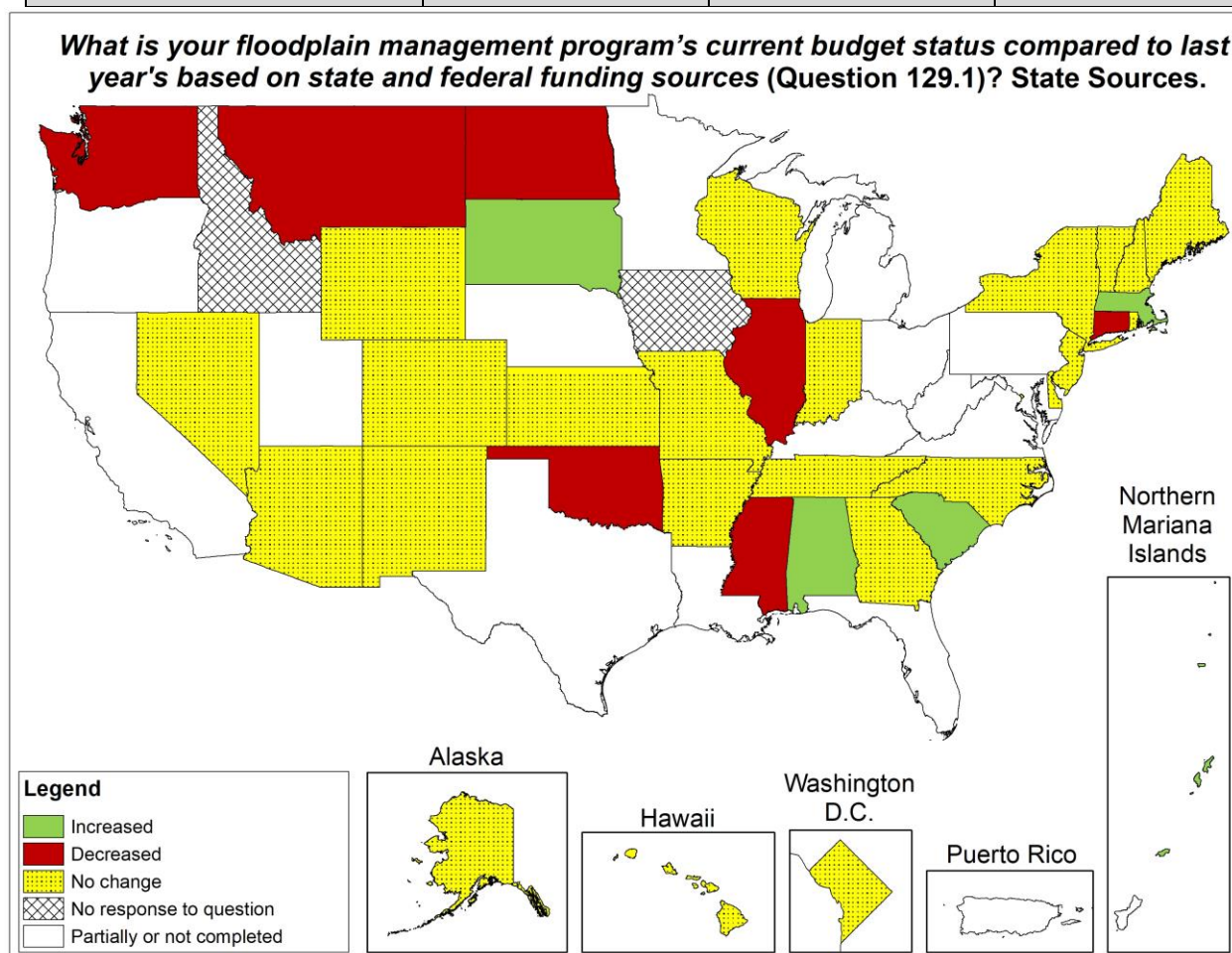
"The cuts in funding impacted the program's ability to maintain activity levels in outreach and training as there was less funding to cover travel."

—Open-ended response about the ramifications of reduced funding

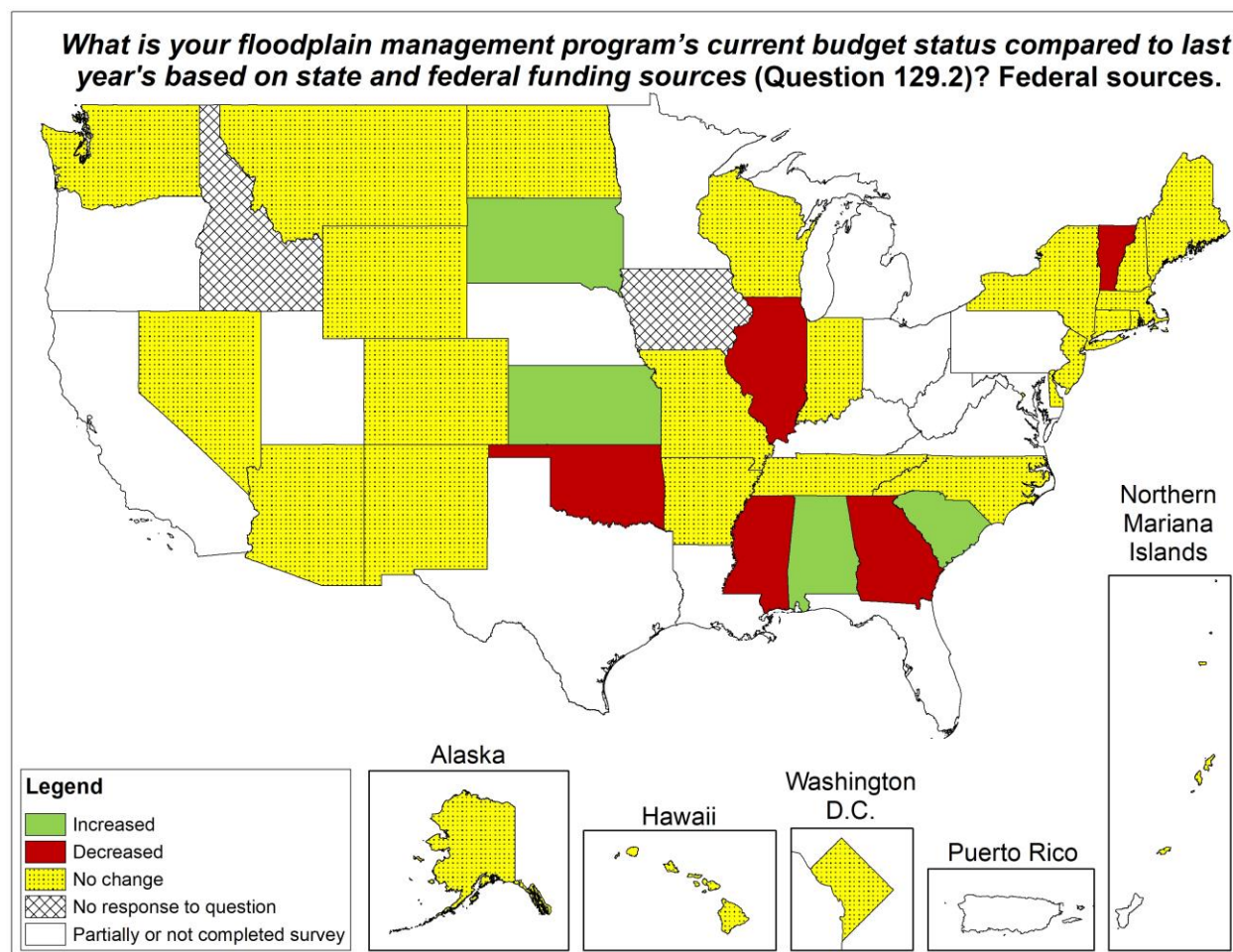
Table 9.7 shows changes in floodplain management program budgets from the previous year. These changes are shown separately in terms of changes associated with state funds, federal funds and other funds. A majority of respondents reported "no change" in state funds (65%), federal funds (70%) and other funds (84%) (see also Maps 9.1 – 9.3).

Table 9.7 What is your state floodplain management program's current budget status compared to last year's, based on state and federal funding sources (Question 129)?
[2010 percentages are in brackets.]

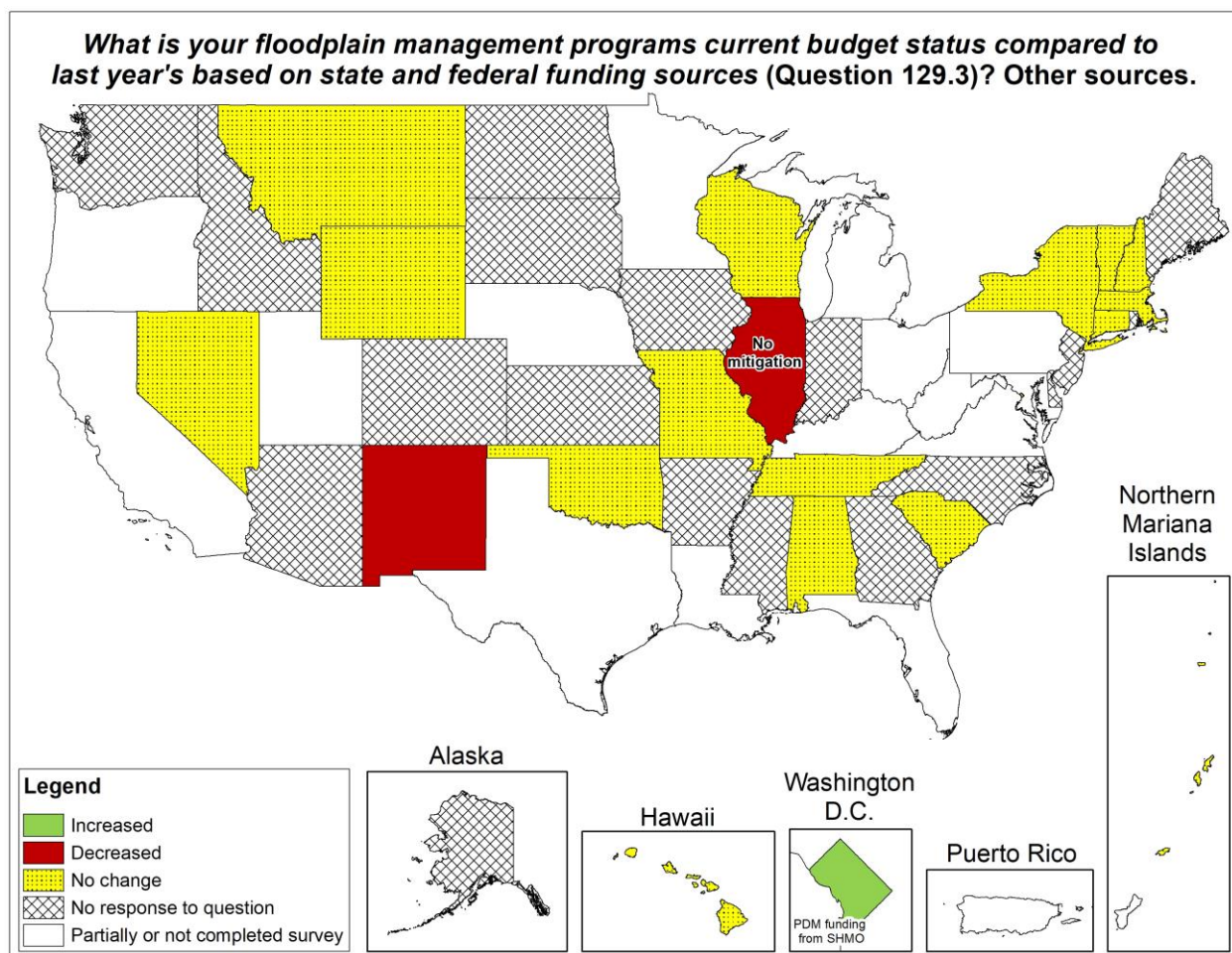
	Programs with Increase	Programs with Decrease	Programs with No Change
State Funds (N=37)	14% [13%]	22% [16%]	65% [71%]
Federal Funds (N=37)	14% [29%]	16% [13%]	70% [58%]
Other Funds (N=19)	5% [ND]	11% [ND]	84% [ND]



Map 9.1



Map 9.2



Map 9.3

Figure 9.7 and Map 9.4 illustrate state responses to a question asking if the overall capacity of a state's floodplain management program increased, decreased or stayed about the same. Roughly 40 percent (38%) of states indicated that capacity has stayed about the same, with another 38% reporting that it has increased. Nearly a quarter of respondents (24%) indicated that capacity had decreased.

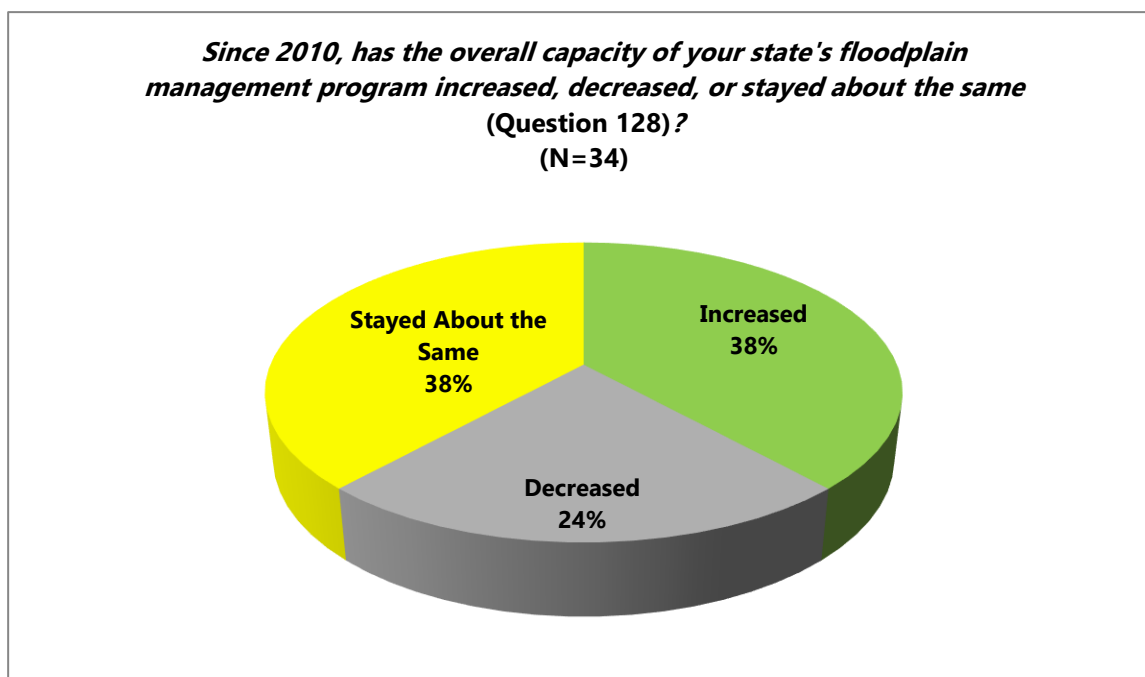
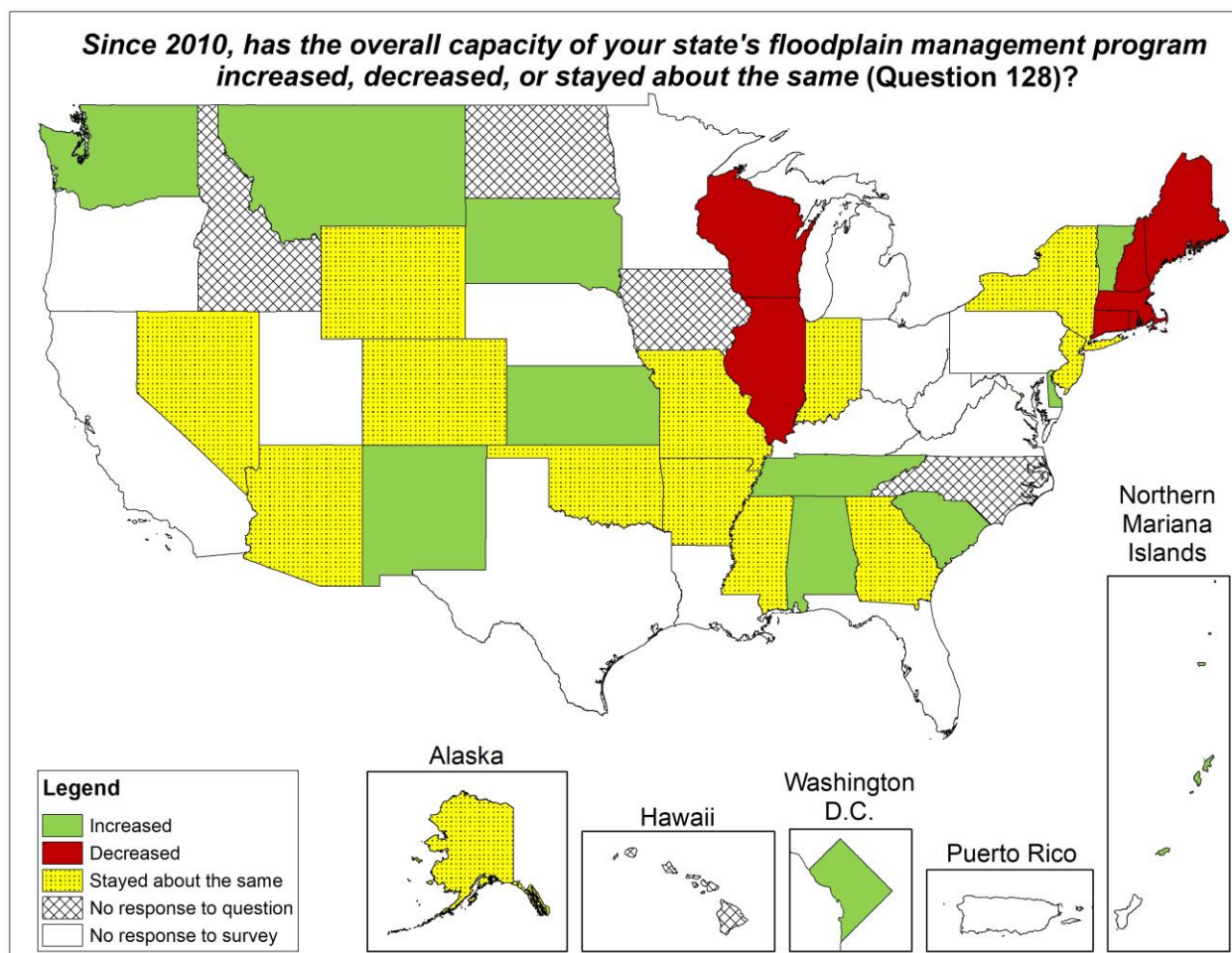


Figure 9.7



Map 9.4

When asked the question below, a little more than three quarters (76%) of responding states said that there were no additional agencies involved in statewide floodplain management activities (See Figure 9.8).

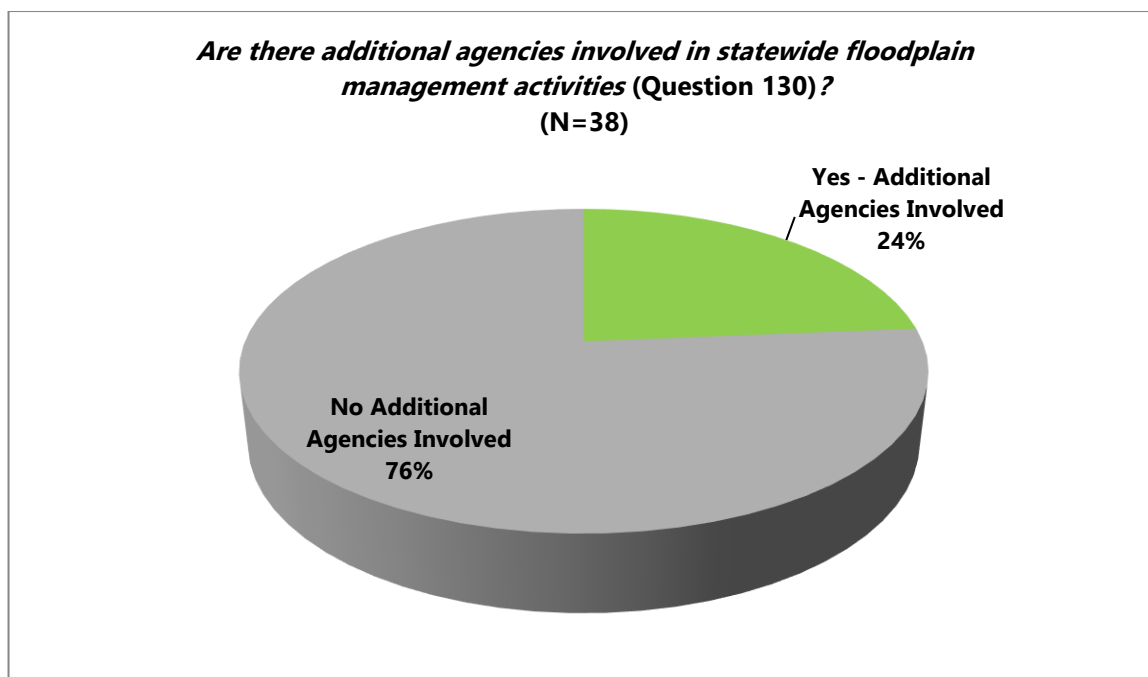


Figure 9.8



PRINCIPLE 10

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

An effective state program finds ways to tally and keep records on aspects of floodplain management in its jurisdiction, such as creating an inventory of flood-prone properties; documenting damage avoided and successful mitigation projects post disaster; keeping an account of the acres 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 adjusting programs 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 do not occur and by floodplain benefits that are difficult to measure. However, an effective state program can find ways to calculate different aspects of the status of floodplain management within its jurisdiction by examining overall impacts (or outcomes) and program operations.

Highlights

- Roughly one-quarter of respondents (26%) reported that they have defined management outcomes for floodplain management or resource protection. These responses were similar to 2010 data (21%) (see Table 10.1).
- Although the question, "*Have you established any of the following measures to identify losses and costs toward evaluating the defined management outcomes?*" yielded few responses (n=8), it is worth noting that seven participants reported that there were no direct or indirect losses established.
- Similarly, when asked "*Has your state tracked, inventoried or gathered information for any of the following in order to develop baseline metrics for measuring progress?*," five out of eight respondents reported "none tracked, inventoried, or collected."
- A small portion of respondents (14%) indicated that their state has evaluated the effectiveness of its state floodplain management and/or floodplain resource protection program. These findings are similar to the 2010 survey results (see Table 10.3).
- A majority of states have not used the FEMA Community Assistance Program - State Support Services Element (CAP-SSSE) Gap Analysis to close any gaps in NFIP related activities. This is higher than the 63% in 2010 that reported not using the tool (see Table 10.4).

Survey Responses and Comparisons to Available 2003 and 2010 Data

Measuring Outcomes of Floodplain Management

When asked if states have defined management outcomes for floodplain management or floodplain resource protection, 2017 state responses were similar to those provided in 2010, with a slight increase in 2017 (see Table 10.1 below).

Table 10.1 Percentage responding “yes” to the question: Does your state have defined management outcomes for floodplain management or floodplain resource protection (Question 131)?

Question	2010	2017 (n=34)
<i>Does your state have defined management outcomes for floodplain management or floodplain resource protection (Question 131)?</i>	21%	26%

A follow-up question asked, “Which management outcomes has your state defined for floodplain management or floodplain resource protection?” Nine states responded (see Table 10.2).

Table 10.2 Which management outcomes has your state defined for floodplain management or floodplain resource protection (please check all that apply) (Question 131.1)?

Management Outcome	Percentage of States Reporting that They Use Management Outcome
Lower potential for future losses (direct and indirect)	78% (n=7)
Lower actual flood losses (direct and indirect)	56% (n=5)
Improved floodplain functions and resources	56% (n=5)
Increased floodplain acreage in open space	22% (n=2)
Other	11% (n=1)

Identifying Losses and Costs

When asked the question, "*Have you established any of the following measures to identify losses and costs toward evaluating the defined management outcomes?*" (Questions 131.2 and 131.3) eight states provided feedback about direct and indirect losses. Seven reported that there were no established measures to identify *direct* losses, with one responding state indicating "loss of personal belongings and business inventory" as a measure used to identify direct losses and costs. One participant who reported both "none established" and "other" described their state emergency management agency as being "better able to respond." When asked to identify any *indirect* losses (Question 131.3), most (n=7) of the eight respondents selected "none established."

Identifying Management Outcomes

Question 131.4 asked, "*Has your state tracked, inventoried or gathered information for any of the following in order to develop baseline metrics for measuring progress? (Please check all that apply.)*" Eight survey participants provided answers to this question, with more than half (63%) reporting "None tracked, inventoried, or collected." The remaining respondents (38%) indicated the following: protected or preserved flood-prone lands (e.g., amount, types); post-flood information (e.g., community, flood year, water-body, structures affected); and mitigation costs, efforts and results. One respondent answered the follow-up question: "*How does your state measure its progress toward these management outcomes?*" (Question 131.6)—to which they reported a "losses avoided study."

As figure 10.1 shows, a majority (67%) of responding states (n=9) indicated that they evaluate progress toward management outcomes.

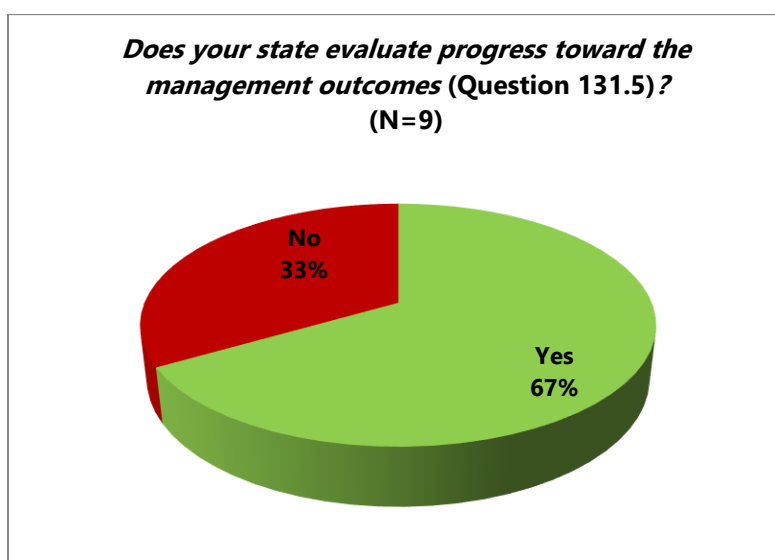


Figure 10.1

Evaluating Program Operations and Effectiveness

When states were asked the question, *"Has your state evaluated the effectiveness of its state floodplain management and/or floodplain resource protection program?"* 14% (n=5) responded "yes." These findings are similar to findings from the 2010 report (see Table 10.3).

Table 10.3 Percentage responding "yes" to the question: Has your state evaluated the effectiveness of its state floodplain management and/or floodplain resource protection program (Question 132)?

Question	2010	2017 (N=36)
<i>Has your state evaluated the effectiveness of its state floodplain management and/or floodplain resource protection program (Question 132)?</i>	13%	14%

Thirty-five states answered the question, *"Has your state used FEMA's CAP-SSSE Gap analysis to close any gaps in NFIP-related activities?"* Twenty-five participants responded "no," while the remaining 10 indicated they had used FEMA's CAP-SSSE Gap analysis. A comparison of 2010 and 2017 data is presented in Table 10.4 below.

Table 10.4 Percentage responding "yes" to the question: Has your state used FEMA's CAP-SSSE Gap analysis to close any gaps in NFIP-related activities (Question 133)?

Question	2010	2017 (N=35)
<i>Has your state used FEMA's CAP-SSSE Gap analysis to close any gaps in NFIP-related activities (Question 150)?</i>	37%	29%

A follow-up prompt asked participants to "please explain" their response to Question 133 (Question 133.1). Nine participating states elaborated on their responses. The relevant open-ended responses are included in full, below.

- 1. In the past we have conducted the Gap analysis, not recently. It showed there was a funding gap many years ago, so we don't bother to re-run it every year unless requested as it will only show we are further into a funding deficit.*
- 2. We did a Gap Analysis in 2010 and it did nothing for us. Since then, costs to maintain the program continue to go up, but there has been very little addition to CAP funding in 20 years!*
- 3. Used it to justify the need for additional funding in 2010 as Map Mod resulted in many additional ordinance reviews for new map adoptions. It has also been used to help identify the need for CAVs.*
- 4. Developed a Strategic Plan for our state's NFIP; increased number of training workshops to increase floodplain management and NFIP knowledge in local officials; initiated Alabama based fact sheets on FPM and NFIP compliance to improve local officials*

- understanding of roles and responsibilities; and increased outreach through newsletters.*
5. *We have used it to show the need for increased funding for more staff.*
 6. *A review of the analysis was done a few years ago as far as I know but how much of the activity has been implemented I'm not sure.*
 7. *It helped identify the staffing needs for training and outreach. Increased staff positions to assist with activities.*

References

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

Association of State Floodplain Managers Inc. (ASFPM). 2010. *Floodplain Management 2010: State and Local Programs – Final Report*. Madison, WI: ASFPM.

List of Figures

- 1.1 *Since 2010, have there been any changes in state laws or regulations that have affected floodplain management within your state* (Question 8)?
- 1.2 *Have these changes strengthened, weakened, or maintained floodplain management efforts within your state* (Question 8.1)?
- 3.1 *Is your state a FEMA Cooperating Technical Partner (CTP)* (Question 36)?
- 4.1 *Which of the following describe your state's efforts to promote green infrastructure* (Question 41)?
- 5.1 *What is the role of your state's floodplain management program in the construction or permitting or approval process* (Question 52)?
- 5.2 *Please indicate the basis of your state building code(s) (please check all that apply)* (Question 56.1).
- 6.1 *Does your state provide resources to carry out flood mitigation projects* (Question 77)?
- 6.2 *What is the source of funding that is reserved to carry out flood mitigation projects (please check all that apply)* (Question 77.1)?
- 6.3 *How are the funds for flood mitigation projects provided (please check all that apply)* (Question 77.2)?
- 6.4 *Who administers funds reserved to carry out flood mitigation projects (please check all that apply)* (Question 77.3)?
- 6.5 *Does your state perform any of the following functions/tasks under the Unified Flood Mitigation Assistance Program (please check all that apply)* (Question 79.2)?
- 6.6 *What activities or programs does your state conduct to mitigate properties that are subject to repetitive flood losses (please check all that apply)* (Question 81)?
- 6.7 *Does your state floodplain management association have a program for mobilizing volunteers (e.g. floodplain managers, building officials, engineers) for the purpose of helping other communities in the state to do their substantial damage determinations* (Question 74)?
- 6.8 *Does your state have a mandate or program to plan for adaption to climate change*

(Question 80)?

6.9 *What efforts does that program include in regard to flood-prone areas (please check all that apply) (Question 80.1)?*

7.1 *What is the method(s) of distribution for the floodplain management newsletter (Question 83.2)?*

7.2 *Does your state floodplain management agency or program provide information through social media (Question 84)?*

7.3 *What public outreach activities does your state conduct for public awareness of flooding or floodplain management (please check all that apply) (Question 87)?*

7.4 *What public outreach activities does your state conduct for public awareness of natural resources of floodplains and coastal areas (please check all that apply) (Question 88)?*

8.1 *On average, how often are NFIP participating communities monitored (Question 94)?*

8.2 *How has the frequency of NFIP community monitoring changed since 2010 (Question 95)?*

8.3 *Is there an unmet need for more floodplain management assistance to the communities in your state (Question 103)?*

8.4 *Are continuing education credits (CECs) awarded for any of your agency's state-sponsored floodplain management training opportunities (Question 109)?*

9.1 *How long have you served in your current position (Question 114)?*

9.2 *How long have you worked in floodplain management (Question 115)?*

9.3 *What is your highest level of education (Question 116)?*

9.4 *How many collective years of floodplain management experience does your state's floodplain management staff have (Question 120)?*

9.5 *How many Certified Floodplain Managers are on your state's floodplain management staff (Question 121)?*

9.6 *Since 2010, has the overall capability of your state's floodplain management program staff increased, decreased, or stayed about the same (Question 124)?*

9.7 *Since 2010, has the overall capacity of your state's floodplain management program increased, decreased, or stayed about the same (Question 128)?*

9.8 *Are there additional agencies involved in statewide floodplain management activities*
(Question 130)?

10.1 *Does your state evaluate progress toward the management outcomes* (Question 131.5)?

List of Maps

A. 2017 ASFPM Survey Completion Status by State

- 1.1 *Which of these describes the division of authority for floodplain-related actions in your state (Question 2)?*
- 3.1 *Do you provide flood maps for public inspection on a walk-in basis (Question 24)?*
- 3.2 *Is your state a FEMA Cooperating Technical Partner (CTP) (Question 36)?*
- 3.3 *Under your CTP agreement are you receiving any funds from FEMA (Question 36.2)?*
- 3.4 *Does your state have its own flood mapping program (Question 16)?*
- 3.5 *Does your state maintain an inventory of state buildings in flood hazard areas (Question 22)?*
- 4.1 *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 40)?*
- 5.1 *Has your state adopted a building code (Question 56)?*
- 5.2 *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 59)?*
- 6.1 *Does your state have a hazard mitigation council or similar coordinating body (Question 75)?*
- 7.1 *Does your state floodplain management agency or program provide information through social media (Question 84)?*
- 7.2 *Does your state floodplain management program or agency produce materials or otherwise help communities in their public outreach activities (Question 89)?*
- 7.3 *Does your state program participate or coordinate with private sector efforts to conduct public outreach/awareness of floodplain management or floodplain resources (Question 90)?*
- 8.1 *How has the frequency of NFIP community monitoring changed since 2010 (Question 95)?*
- 8.2 *Is there an unmet need for more floodplain management assistance to the communities in your state (Question 103)?*

- 9.1 *What is your floodplain management program's current budget status compared to last year's based on state and federal funding sources* (Question 129.1)? State Sources.
- 9.2 *What is your floodplain management program's current budget status compared to last year's based on state and federal funding sources* (Question 129.2)? Federal sources.
- 9.3 *What is your floodplain management programs current budget status compared to last year's based on state and federal funding sources* (Question 129.3)? Other sources.
- 9.4 Since 2010, has the overall capacity of your state's floodplain management program increased, decreased, or stayed about the same (Question 128)?

List of Tables

A. 2017 List of Responding States and Completion Status

- 1.1 *What kind of agency operates your state's primary floodplain management program (Question 1)?*
Comparison of 2003, 2010 and 2017 data.
- 1.2 *Which of these describes the division of authority for floodplain-related actions in your state (Question 2)?* Comparison of 2010 and 2017 data.
- 1.3 *For each of the following policies, indicate whether or not there is a state enabling authority (Question 3).*
- 1.4 *What statewide standards have been established by your state for the activities listed below? Please indicate if the standards were created by Governor's Executive Order or the State Legislature (Questions 4-7).*
- 1.5 *Which agencies in your state have oversight or monitoring responsibilities for floodplain management regulations or standards for state activities (please check all that apply) (Question 9)?*
- 1.6 *What authority does your state have to enforce local floodplain management standards (please check one) (Question 10)?* Comparison of 2010 and 2017 data.
- 2.1 *Considering your program's overall effort, including time, personnel and funding, what proportion of your state's floodplain management program is devoted to the following (Question 14)?*
- 2.2 *Please indicate the degree of coordination or interaction between your state floodplain management program and each of the following state programs (Question 12).*
- 2.3 *Please indicate the degree of coordination or interaction between your state floodplain management program and each of the following federal agencies (Question 13).*
- 2.4 *For each of the following activities, please indicate the division of work between the FEMA Regional Office and your office (Question 15).*
- 3.1 Percentage responding "yes" to the following questions regarding flood maps and mapping efforts. Comparison of 2003, 2010 and 2017 data.
- 3.2 *What federal agencies may be able to assist or meet those restudy needs (please check all that apply) (Question 35.1)?*

- 3.3 Percentage responding "yes" to the following questions related to engineering review processes. Comparison of 2003, 2010 and 2017 data.
- 3.4 Percentage responding "yes" to the following questions related to proposed flood map processes. Comparison of 2003, 2010 and 2017 data.
- 3.5 *Which of the activities listed below are you doing under your CTP agreement or through your own state resources (Question 36.3)?*
- 3.6 *Do your state's flood mapping efforts include mapping any of the following flood hazards or features (please check all that apply) (Question 16.1)?*
- 3.7 *On a scale of 1-10, with 1 being inadequate/poor and 10 being totally adequate/excellent, how would you rate each of the following (Question 17)?*
- 3.8 *Please rank the following in terms of priority mapping needs for your state (rank from the highest priority to the least, with 1 being the highest priority and 6 being the lowest priority) (Question 18).*
- 3.9 Percentage responding "yes" to the following questions related to stream gaging programs. Comparison of 2003, 2010 and 2017 data.
- 3.10 *What attributes are available for the state building inventory (please check all that apply) (Question 22.1)?*
- 3.11 Percentage responding "yes" to the question: *Does any agency in your state maintain an inventory of available DEM data adequate to support NFIP flood mapping (Question 23)?* Comparison of 2010 and 2017 data.
- 3.12 Percentage responding "yes" to the question: *Does your state use FEMA's Hazus-MH flood loss estimation software (Question 26)?* Comparison of 2010 and 2017 data.
- 3.13 *Please describe how your state uses Hazus-MH (check all that apply) (Question 26.1).*
- 3.14 *Percentage of responding states that undertake the following activities in addition to any USGS post-flood activities to document and map peak flood conditions (Question 27).*
- 4.1 *What kind 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 (please check all that apply) (Question 37)?* Comparison of 2003, 2010 and 2017 data.
- 4.2 *What funding and/or technical assistance does your state provide for programs or activities that could be used to preserve and/or restore natural floodplain functions and resources*

(please check all that apply) (Question 37.1)? Comparison of 2003, 2010 and 2017 data.

4.3 *What funding and/or technical assistance does your state provide for programs and activities that could be used to preserve natural floodplain functions and resources (please check all that apply)?* (Question 38) Comparison of 2010 and 2017 data.

4.4 *What programs or activities does your state use to directly protect or restore natural floodplain functions and resources? Please check only those that have been in use since 2010 (please check all that apply)* (Question 39).

4.5 *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 42)?

4.6 *Besides tax incentives, what legal techniques does your state use to preserve and/or restore natural floodplain functions and/or resources* (Question 43)?

5.1 Percentage responding "yes" to the question: *Are communities required by your state to conduct land use planning as part of their land development process* (Question 44)? Comparison of 2003, 2010 and 2017 data.

5.2 Percentage responding "yes" in 2017 to the following questions about land use requirements.

5.3 *Who regulates the following portion of the floodplain* (Question 45)?

5.4 *This next question set asks which of the following floodplain management regulations exist in your state. If they are required in your state, please check the first box. If they have actually been implemented, please check the second box. If neither required or implemented, please check N/A* (Question 46).

5.5 *What is the level of freeboard required by the state* (Question 46.2)?

5.6 *What is the freeboard for the following types of critical facilities* (Question 46.5)?

5.7 Percentage responding "yes" to the following question: *For each of the following activities within the floodplain, please indicate which are preempted by the state* (Question 47).

5.8 Percentage responding "yes" to the question: *Does your state allow communities to provide for automatic flood map adoption without having to amend the local regulations* (Question 48)? Comparison of 2010 and 2017 data.

5.9 Percentage responding "yes" to the following questions about floodplain impacts. Comparison of 2003, 2010 and 2017 data.

- 5.10 Percentage responding "yes" to the question: *Has your state adopted a building code* (Question 56)? Comparison of 2003, 2010 and 2017 data.
- 5.11 *Please check the appropriate boxes for the version and date that are the basis of your state building codes* (Question 56.2).
- 5.12 *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 59)? Comparison of 2010 and 2017 data.
- 5.13 Percentage responding "yes" to the following questions about levees. Comparison of 2003, 2010 and 2017 data.
- 5.14 Percentage responding "yes" to the following questions about dams. Comparison of 2010 and 2017 data.
- 5.15 Percentage responding "yes" in 2017 to the following questions about dam resources.
- 5.16 *How are resources for each of the following provided?*
- 6.1 Percentage responding "yes" to the following questions about the Unified Hazard Mitigation Assistance Program. Comparison of 2010 and 2017 data.
- 6.2 Percentage responding "yes" to the question: *Does your state have a hazard mitigation council or similar coordinating body* (Question 75)? Comparison of 2003, 2010 and 2017 data.
- 6.3 Responses to the following questions about the degree of coordination or involvement among various parties (Questions 76 and 78).
- 6.4 *What authority exists in your state for declaring moratoria on repair/redevelopment after a disaster* (Question 82)? Comparison of 2010 and 2017 data.
- 6.5 Percentage responding "yes" to the following questions about moratoria after disaster (Questions 82.1 and 82.2).
- 6.6 Percentage responding "yes" to the question: *Do you have a statewide standard for reconstruction of flood-prone buildings that have been substantially damaged that is more stringent or different than NFIP minimum standards* (Question 72)? Comparison of 2003, 2010 and 2017 data.
- 6.7 *What post-flood mobilization activities are done by the state floodplain management program (please check all that apply)* (Question 73)?

- 7.1 Percentage responding "yes" to the question: *Does your state floodplain management agency or program issue a newsletter* (Question 83)? Comparison of 2003, 2010 and 2017 data.
- 7.2 *Please describe how often and how many issues of the floodplain management newsletter are distributed* (Question 83.1).
- 7.3 Percentage responding "yes" to the question: *Does your state maintain a floodplain management-oriented website* (Question 85)? Comparison of 2010 and 2017 data.
- 7.4 Percentage responding "yes" to the following questions about public outreach. Comparison of 2003, 2010 and 2017 data.
- 7.5 Percentage responding "yes" to the question: *Does your state require flood hazard disclosures for real estate transactions, such as deed restrictions or prior history of flooding* (Question 86)? Comparison of 2003, 2010 and 2017 data.
- 8.1 *What methods does your state use to monitor local floodplain management programs* (Question 91)?
- 8.2 *How does your state set priorities for community monitoring visits (rank from most frequently used to least frequently used with 1 being the most commonly used and 6 being the least commonly used method for setting the priority)* (Question 96)?
- 8.3 *Please indicate which of the following activities your state floodplain management program accomplished under your Community Assistance Program (CAP) agreement with FEMA (please check all that apply)* (Question 101). Comparison of 2003, 2010 and 2017 data.
- 8.4 *The average percent of states' total time spent on activities under their CAP agreement with FEMA* (Question 102). Comparison of 2010, and 2017 data.
- 8.5 *Ideally, how often do you think NFIP communities should have a Community Assistance Contact (CAC)* (Question 92)?
- 8.6 *Ideally, how often do you think NFIP communities should have a Community Assistance Visit (CAV)?* (Question 93).
- 8.7 *If in the course of monitoring local programs you find an NFIP violation, who is responsible for follow-up (please check all that apply)* (Question 98)?
- 8.8 Responses to the question: *Does your state program receive support you consider appropriate and necessary from your FEMA Regional Office to address enforcement needs in*

your state (Question 100)? Comparison of 2010 and 2017 data.

8.9 *Please select which needs have been unmet (please check all that apply)* (Question 103.1).
Comparison of 2010 and 2017 data.

8.10 *Please indicate if your state floodplain management program (or state floodplain management association) provides training or input related to floodplain management issues into your state licensing programs and examinations for any of the following allied professionals (please check all that apply)* (Question 105).

8.11 *Does your state floodplain management program hold floodplain management-oriented workshops for any of the following* (Question 106)?

8.12 *Does your state floodplain management association hold floodplain management-oriented workshops for any of the following* (Question 107)?

8.13 *How many people/communities attended floodplain management-related workshops or training sessions carried out by your state floodplain management staff during the last year* (Question 108)?

8.14 *How much of a challenge is each of the following in terms of holding flood-related EMI field-deployed training in your state? Please rate each on a scale of 1-5, where 1 is "not at all" and 5 is a significant challenge* (Question 111)?

9.1 *Percentage responding "yes" to the question: Since 2010, has your state floodplain management program changed in any of the following ways* (Question 113)? Comparison of 2010 and 2017 data.

9.2 *What is the total size of your state floodplain management program? Indicate the number of full-time equivalent (FTE) staff persons per year* (Question 117)?

9.3 *How many FTEs in the following disciplines characterize your state's floodplain management staff* (Question 118)?

9.4 *For each of the FTEs in your state's floodplain management staff, what is the highest degree received (please type in the box to the right of each degree) (e.g., 4 FTEs, 0.5 FTEs, etc.)* (Question 119)?

9.5 *For each of the FTEs in your state's floodplain management staff, what is the highest degree received? (please type in the box to the right of each degree.) (e.g., 4 FTEs, 0.5 FTEs, etc.)* (Question 119). Comparison of 2003, 2010 and 2017 data.

9.6 *What is the approximate total annual budget for your floodplain management program based on the following resources* (Question 125)?

9.7 *What is your state floodplain management program's current budget status compared to last year's, based on state and federal funding sources* (Question 129)?

10.1 Percentage responding "yes" to the question: *Does your state have defined management outcomes for floodplain management or floodplain resource protection* (Question 131)? Comparison of 2010 and 2017 data.

10.2 *Which management outcomes have your state defined for floodplain management or floodplain resource protection (please check all that apply)* (Question 131.1)?

10.3 Percentage responding "yes" to the question: *Has your state evaluated the effectiveness of its state floodplain management and/or floodplain resource protection program* (Question 132)? Comparison of 2010 and 2017 data.

10.4 Percentage responding "yes" to the question: *"Has your state used FEMA's CAP-SSSE Gap analysis to close any gaps in NFIP-related activities"* (Question 133)? Comparison of 2010 and 2017 data.