California's Flood Future

Recommendations for Managing the State's Flood Risk

Briefing for Central Valley Counties

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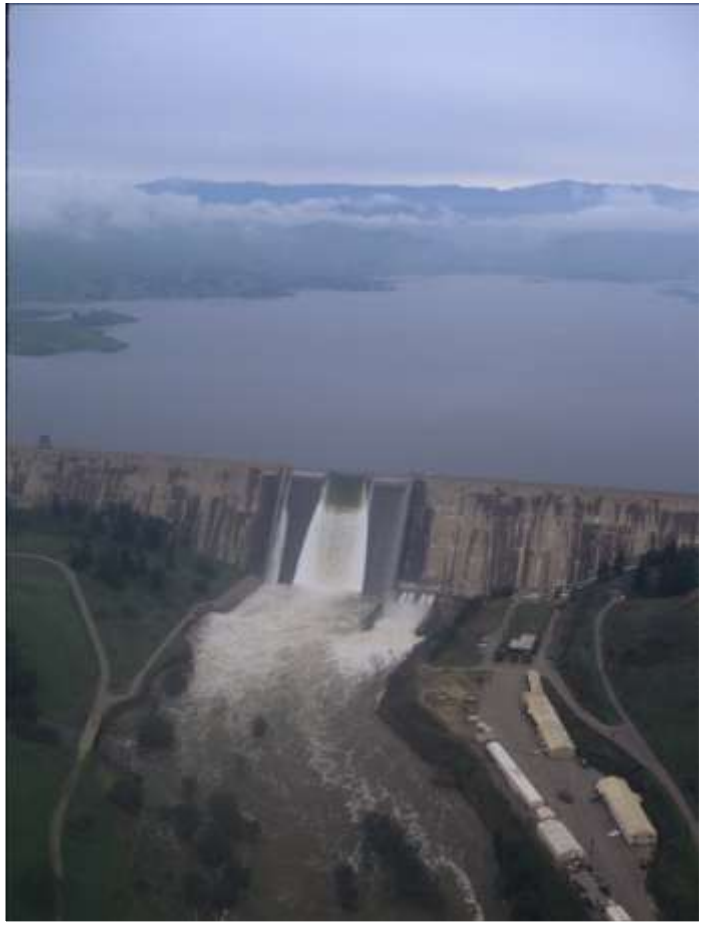
9 May 2013

Agenda

- Introductions
- *California's Flood Future* Presentation
- Break
- Recommendations Discussion
- Questions & Answers
- Closing Remarks

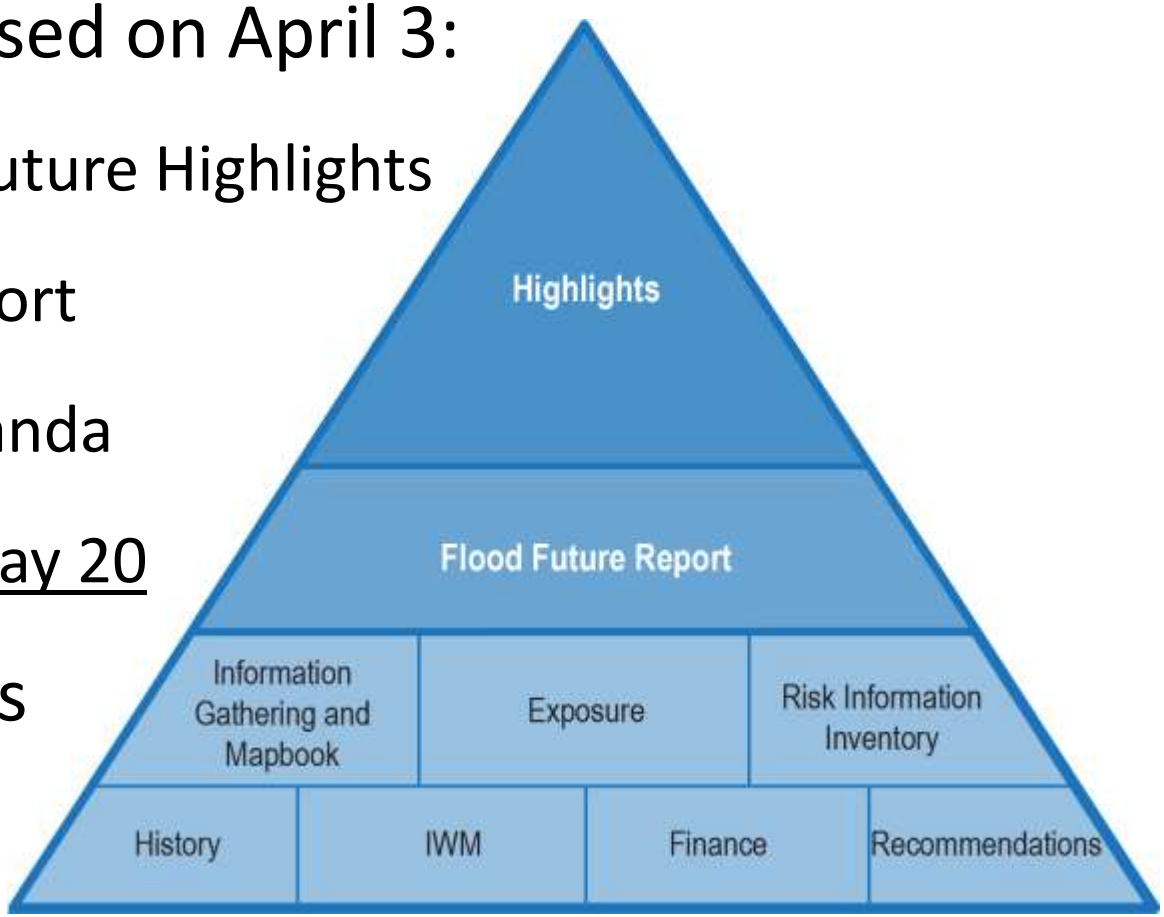


Report Purpose

- Increase understanding of statewide flood problem
- Make recommendations for managing flood risk
- Inform decisions about:
  - Policies
  - Financial investments

California's Flood Future: Release Schedule

- Public Drafts Released on April 3:
  - California Flood Future Highlights
  - Flood Future Report
  - Technical memoranda
  - Comments due <u>May 20</u>
- 9 regional meetings statewide



DWR Flood Planning

- Central Valley
  - CVFPP
- Statewide
  - Flood Future Report
  - California Water Plan

USACE

South Pacific Division

Flood Plain Management Services Authority Program

- Compile/share flood hazard information
- Provide technical and planning advice

USACE Participation does not include:

- Advocating for taxpayer funding
- Advocating for additional USACE authority

Consistent with USACE Civil Works Strategic Plan 2011-2015

Flood Future Report Process

US Army Corps of Engineers ®

California is at risk for catastrophic flooding!

- Devastating impacts to California and the nation
- 1 in 5 Californians are exposed to flooding
- $580B in assets are exposed to flooding
- Every county has experienced a Federally declared flood disaster in the last 20 years

The Problem

California experiences many types of flooding

Tsunami Flooding

Engineered Structure Failure Flooding

Coastal Flooding

Debris Flow Flooding

Stormwater Flooding

Slow Rise Flooding

Flash Flooding

Alluvial Fan Flooding

Flood risk is defined using these factors:

Hazard

What causes harm?

Performance

How will the system react?

Exposure

Who and what can be harmed?

Vulnerability

How susceptible to harm?

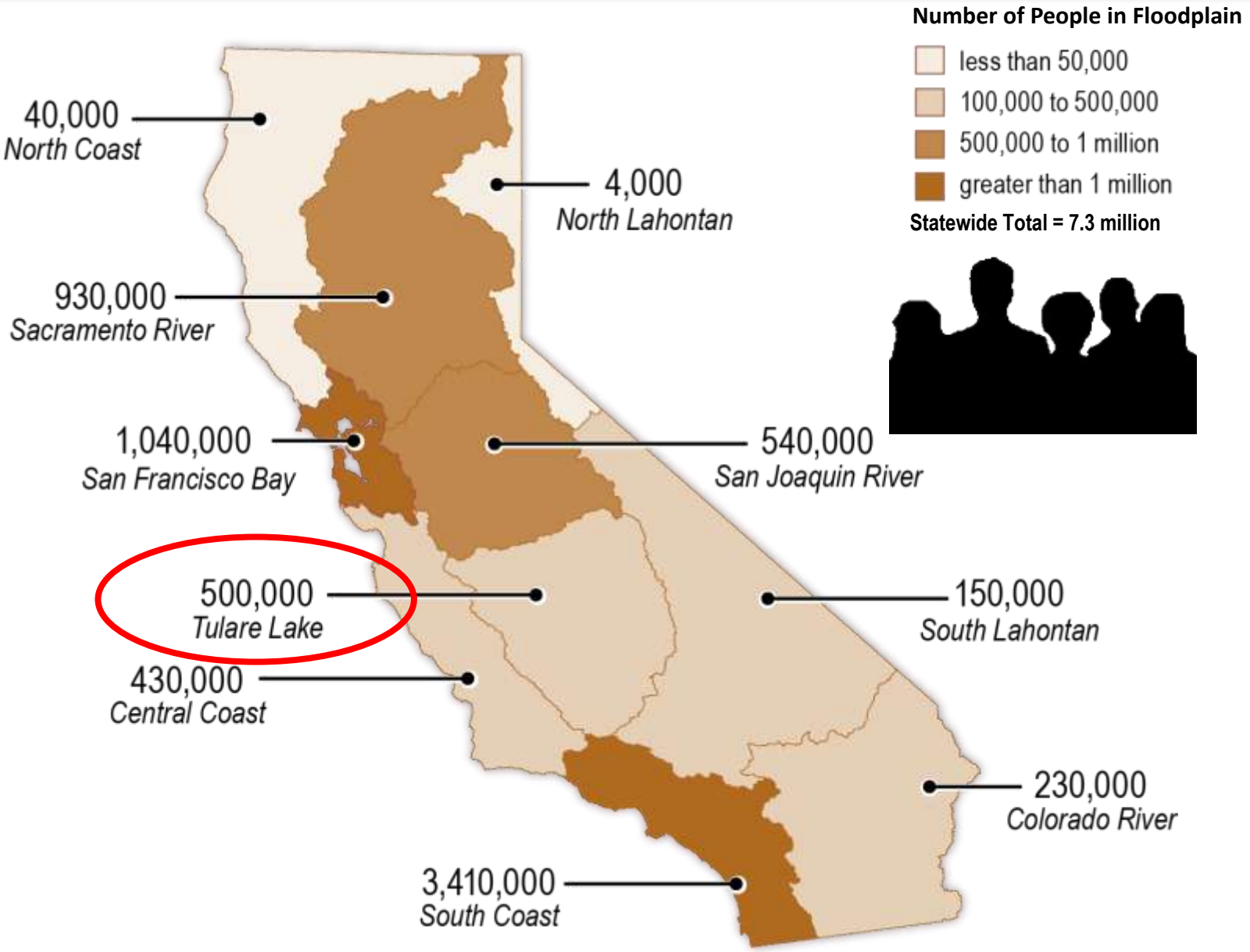
Consequence

How much harm?

Inundation Risk

Likelihood and severity of adverse consequences

7.3 million Californians live in floodplains



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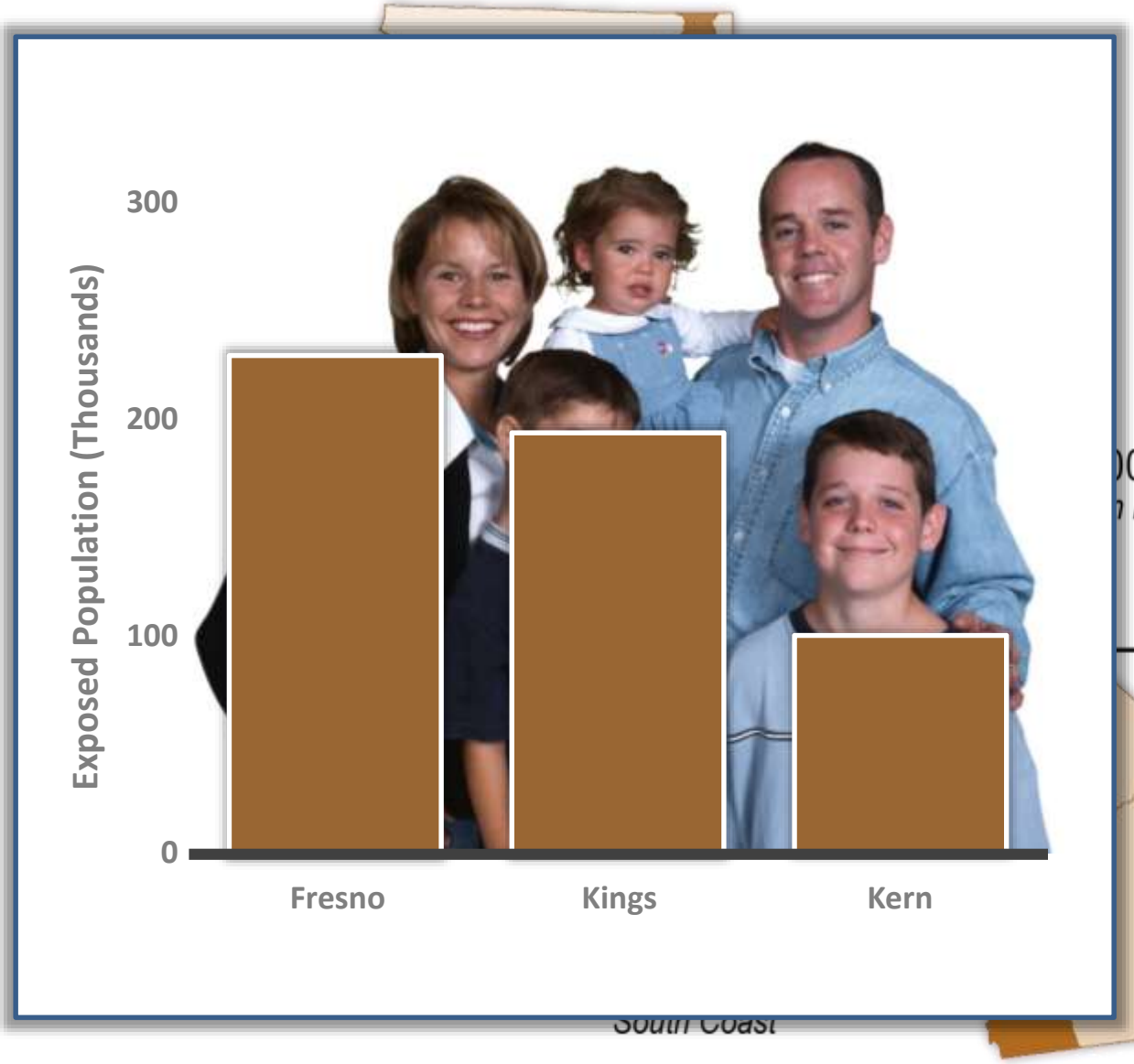

Number of People in Floodplain

- less than 50,000
- 100,000 to 500,000
- 500,000 to 1 million
- greater than 1 million

Statewide Total = 7.3 million

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n River

150,000
South Lahontan

230,000
Colorado River

South Coast

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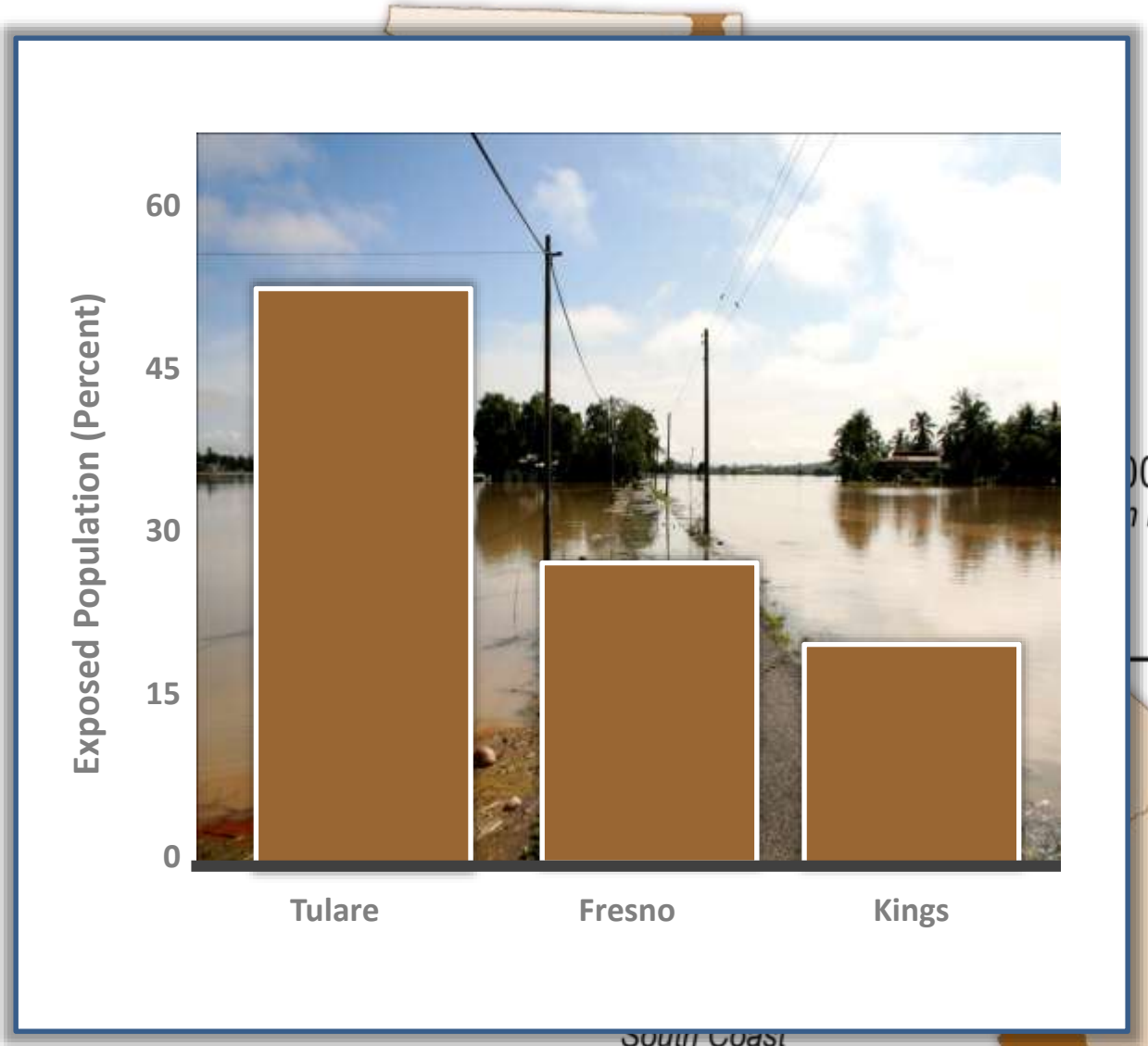

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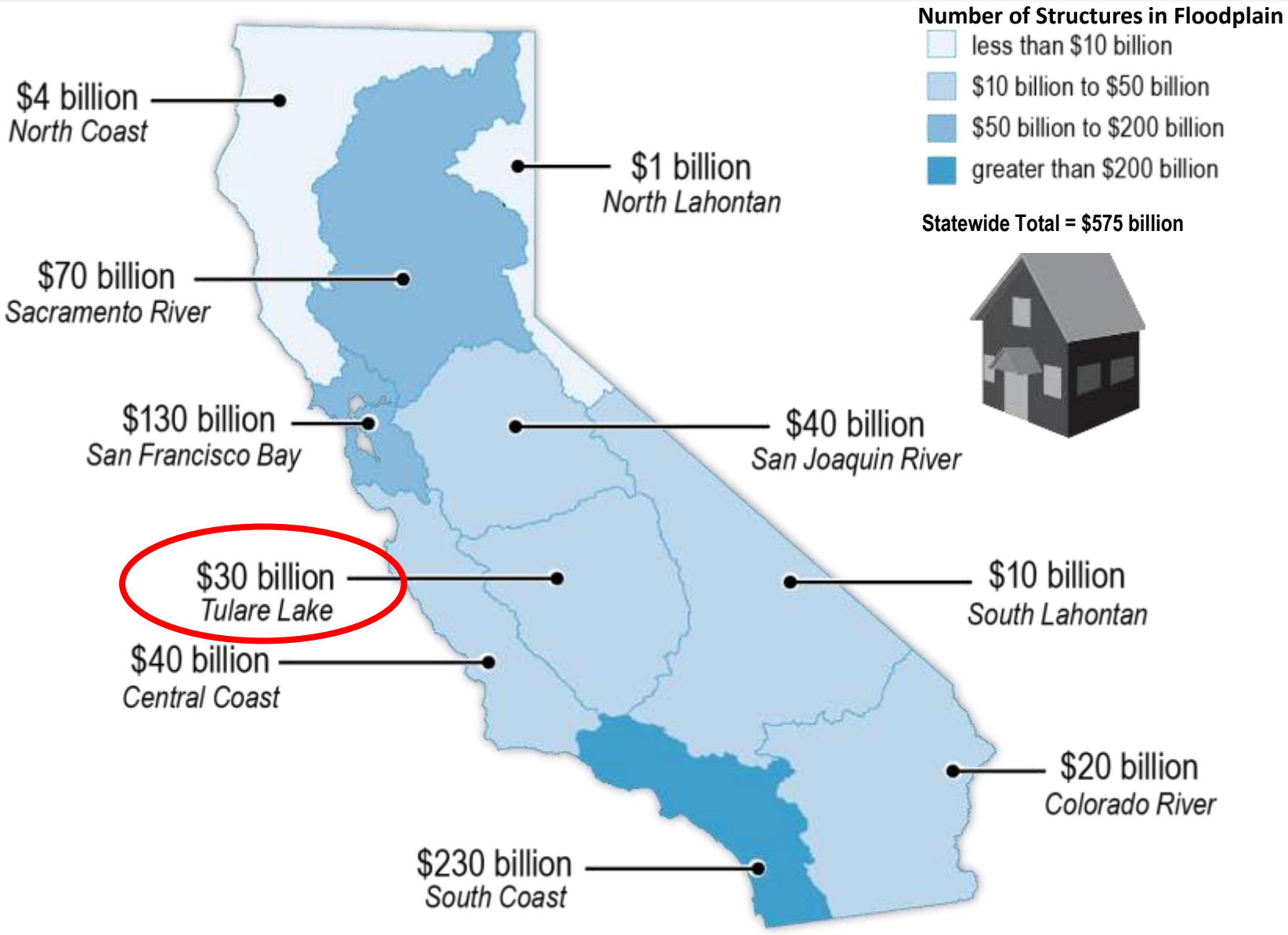
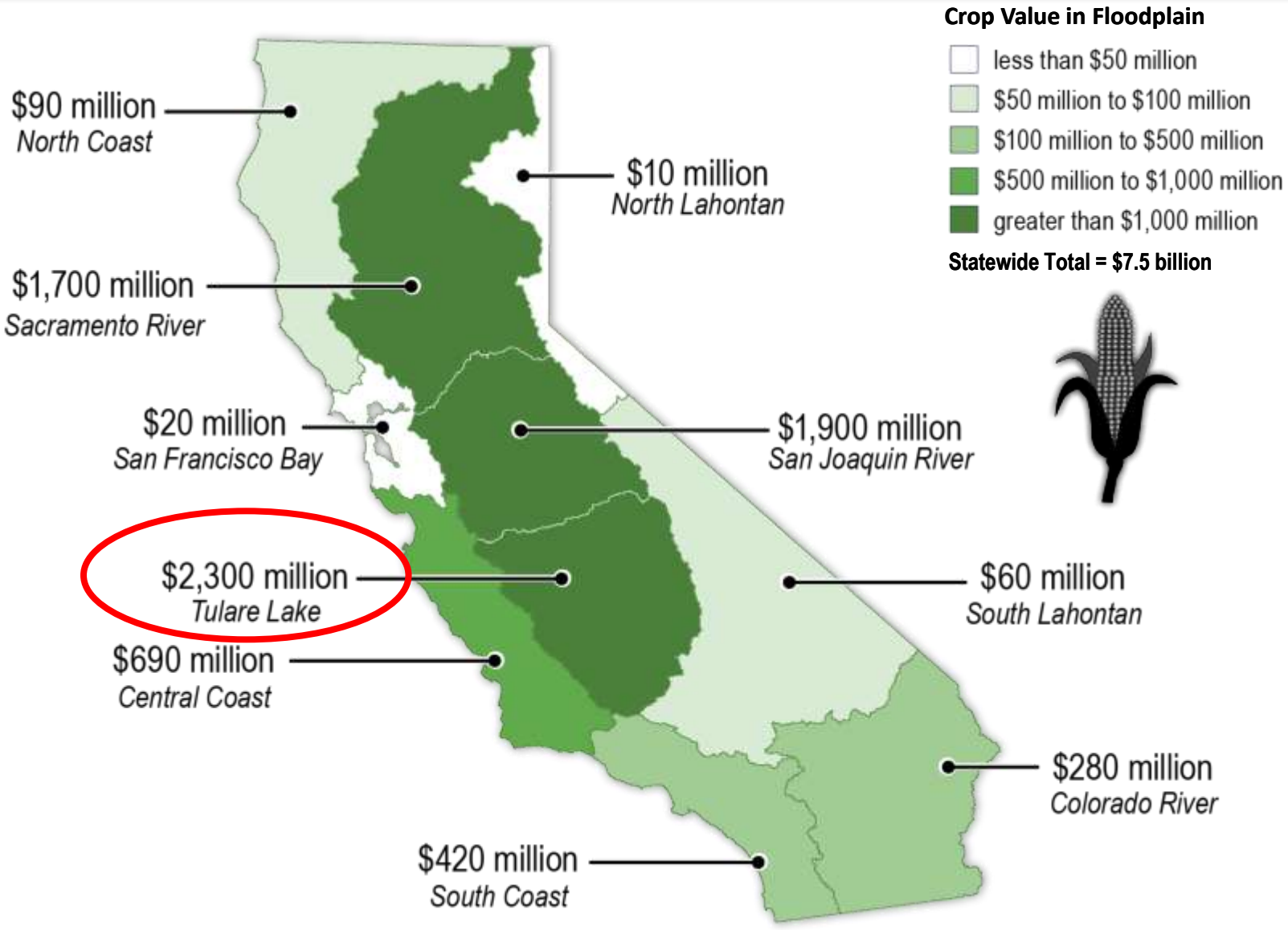
230,000
Colorado River

South Coast

$575 billion in structures are at risk



California's agricultural economy is at risk

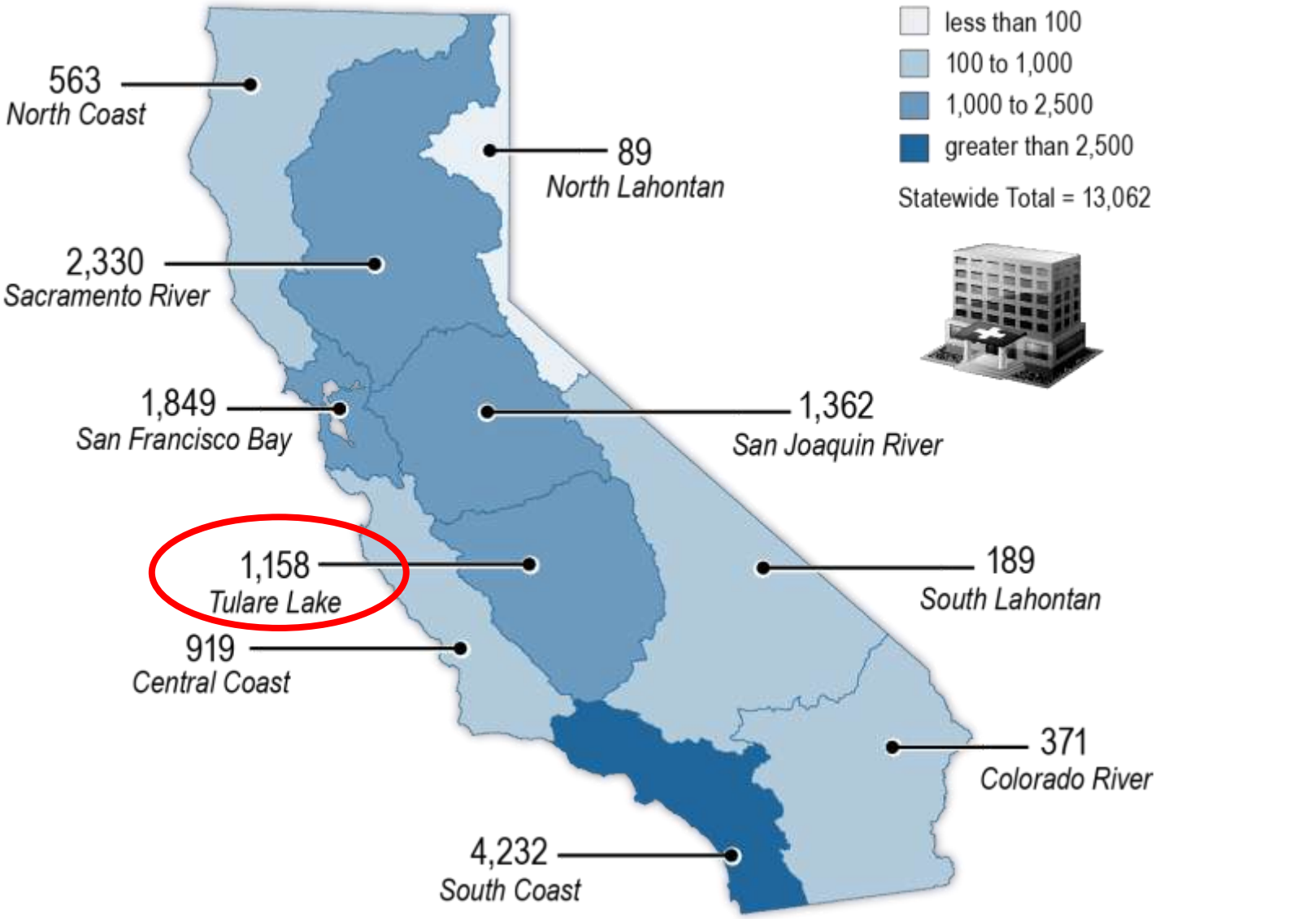


FloodSAFE CALIFORNIA

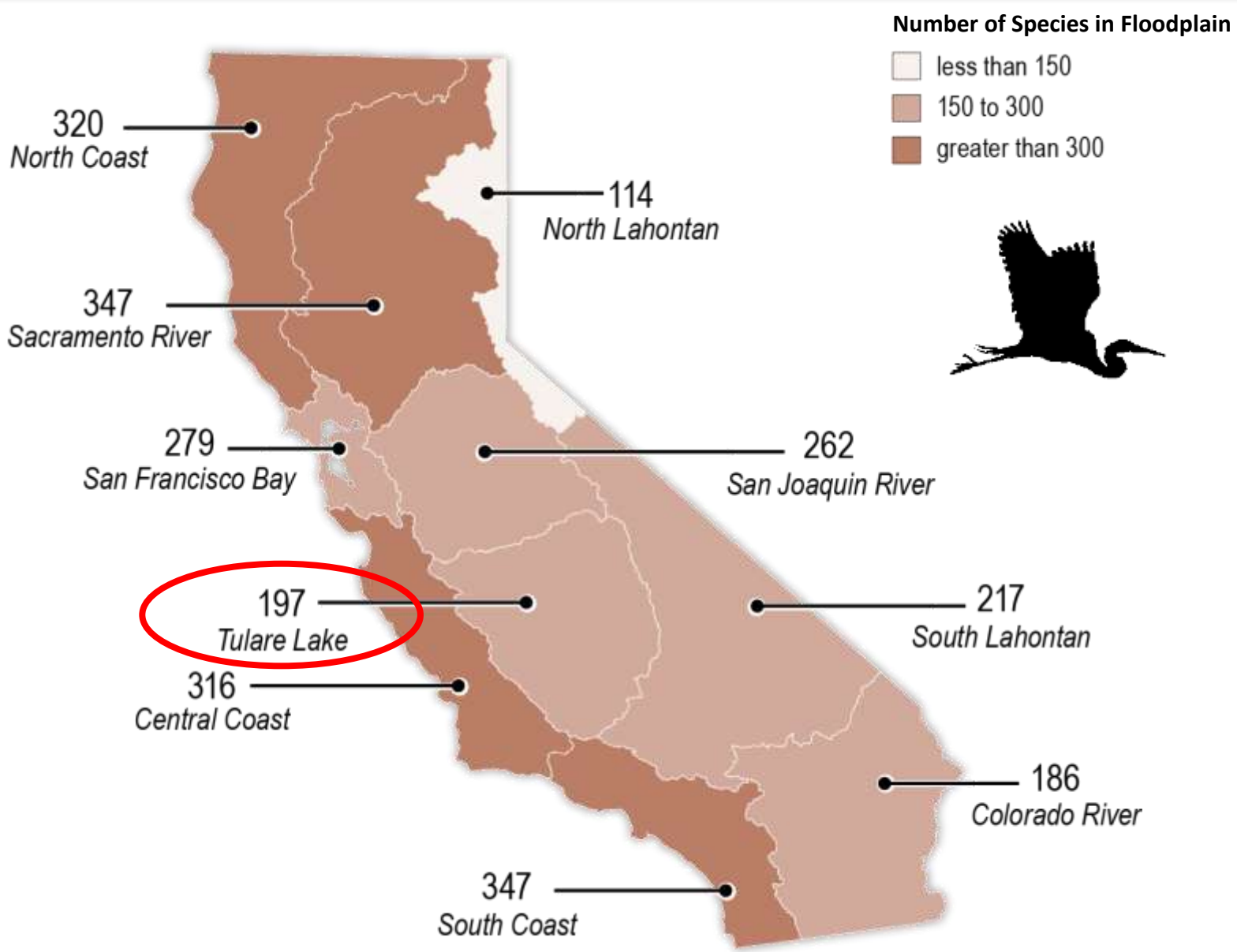
PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

US Army Corps of Engineers

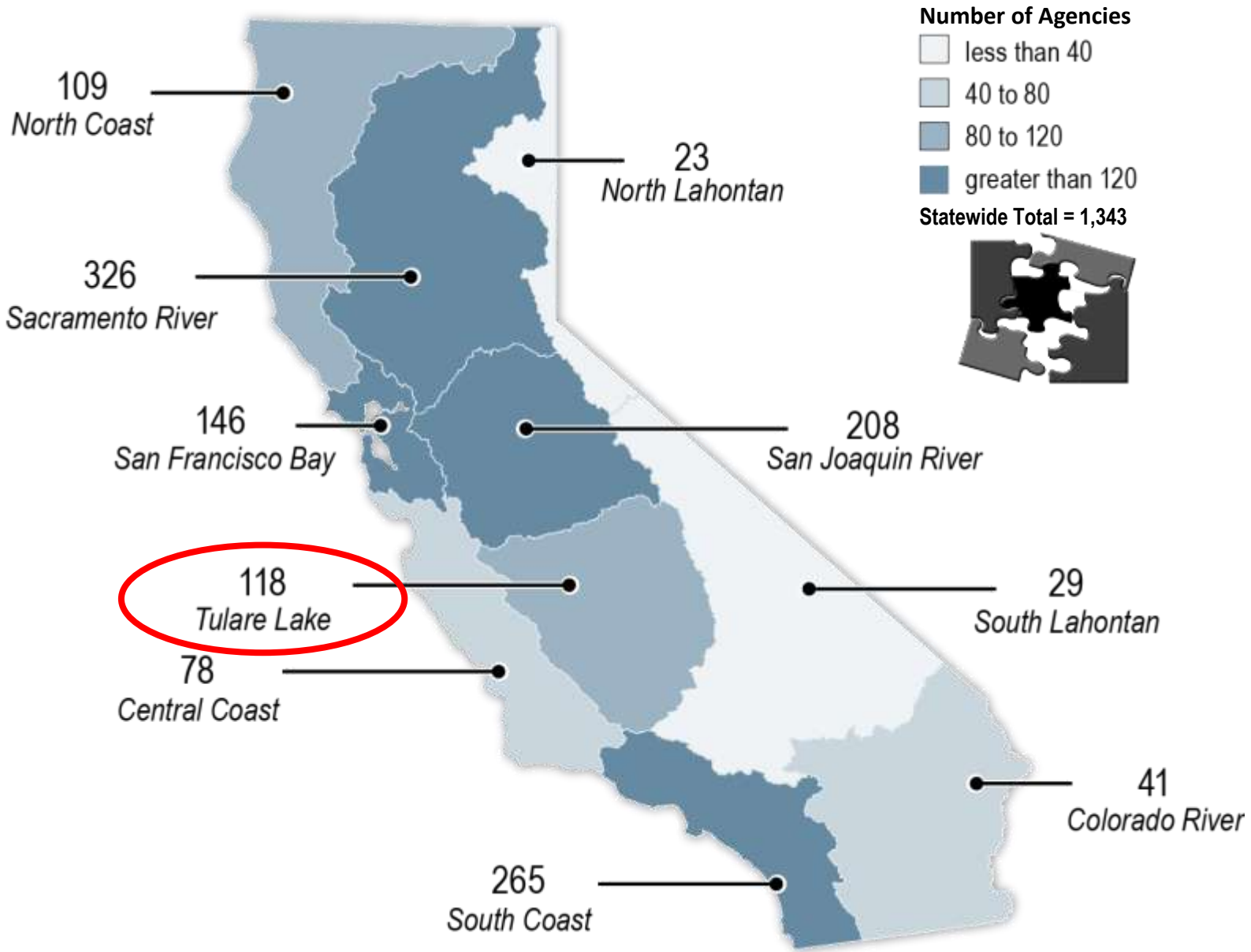
Critical facilities are at risk



Floodplains are rich in environmental resources

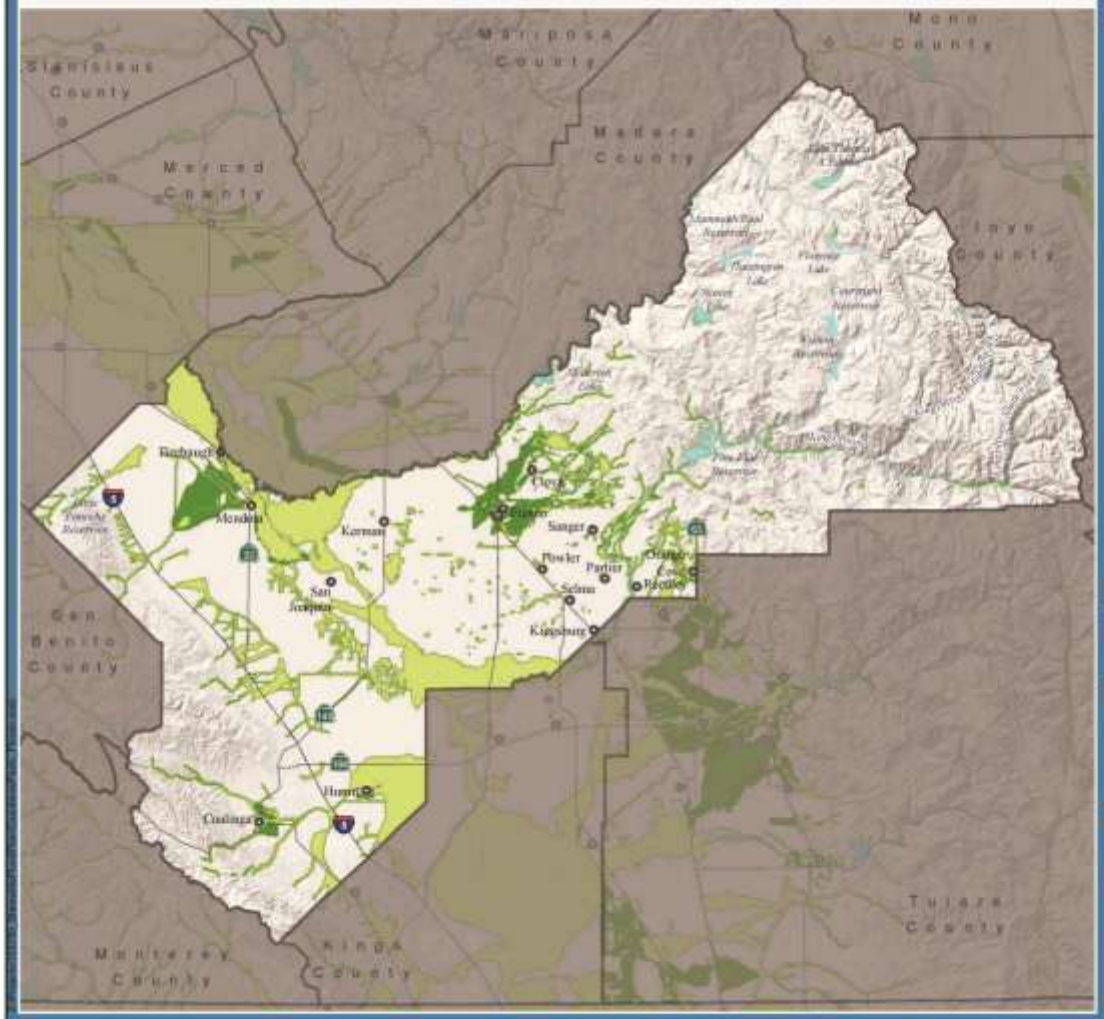


Flood management authority is complex and fragmented



County mapbook example

100-year and 500-year Floodplains



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Miles

City
Populated Place
Highway
Major River
100-yr Floodplain
500-yr Floodplain
Major Water Body
County

DISCLAIMER: The DWR did not develop all the displayed floodplain extents and cannot guarantee their accuracy.

Selected Flood Events by Event Year

1861-1862 Winter, The Great Flood
1958 March-April
1962-1963 December-February
1964-1965 December-January, Mokelumne River Flood, San Joaquin Basin
1968-1969 December-February, Winter '69 Storms, San Joaquin River
1980 January-February, Delta Levee Break
1986 February-March, St. Valentine's Day Storm
1995 January-March, Western Fresno County
1997 January
1998 January-June, El Niño Floods, Valley Region
2005-2006 December 17-January 12, New Year's Eve Flood of 2006, Cities of Fresno and Clovis
2006 April 5, San Joaquin and Kings Rivers
2006 July, Huntington Lake

Types of Flooding

Likely:	Present:
Slow Rise	Engineered Structure Failure
Flash	Alluvial Fan
Stormwater	Debris Flow

Hydrologic Regions

Flood Hazard Exposure

County Statistics

Total Acreage:	3.8 million
Total Population:	798,799
Total Structures:	250,400
Total Value of Structures and Contents:	$60.7 billion
Total Agricultural Acreage:	1.3 million
Total Value of Crops:	$3.0 billion

Summary of Exposure to Flood Hazard Reported by County

	100-yr Event	500-yr Event
Exposed Area (acres):	327,940	396,652
Percent of Area Exposed:	9	10
Population Exposed:	30,132	223,383
Percent of Population Exposed:	4	28
Structures Exposed:	9,106	65,404
Total Depreciated Replacement Value of Exposed Structures and Contents:	$1.8 billion	$13.3 billion
Exposed Crops (acres):	230,877	269,841
Value of Exposed Crops:	$546.0 million	$641.7 million
Department of Defense Facilities Exposed:	2	2
Essential Facilities Exposed:	27	107
High Potential Loss Facilities Exposed:	21	36
Lifeline Utilities Exposed:	2	7
Transportation Facilities Exposed:	199	312
Transportation Segments Exposed (miles):	126	220
Native American Tribal Land Exposed (acres):	0	0
Total Sensitive Plant Species Exposed:	44	44
Total Sensitive Animal Species Exposed:	67	67

Figure D-19
Summary of Available Flood Types, Flood History and Flood Hazard Exposure, Fresno County.

DRAFT

Mar 22, 2013

US Army Corps of Engineers.

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

Local agencies speak out

- Inadequate data
- Limited understanding by Public and Policymakers
- Emergency management coordination
- Inconsistent land use planning
- Fragmented responsibility
- Conflicting permit requirements
- Unstable funding

Flood infrastructure does not meet current and future needs

- 800+ projects identified statewide
- $30-$50+ billion in improvements and projects
- Will not provide protection from a 100-year flood statewide

Flood funding is limited and unreliable

- Inconsistent and insufficient funding
- Declining local resources
- Reduced Federal cost shares
- Challenging revenue structure
- Cost of flood management misunderstood by public and policy makers

The Solution

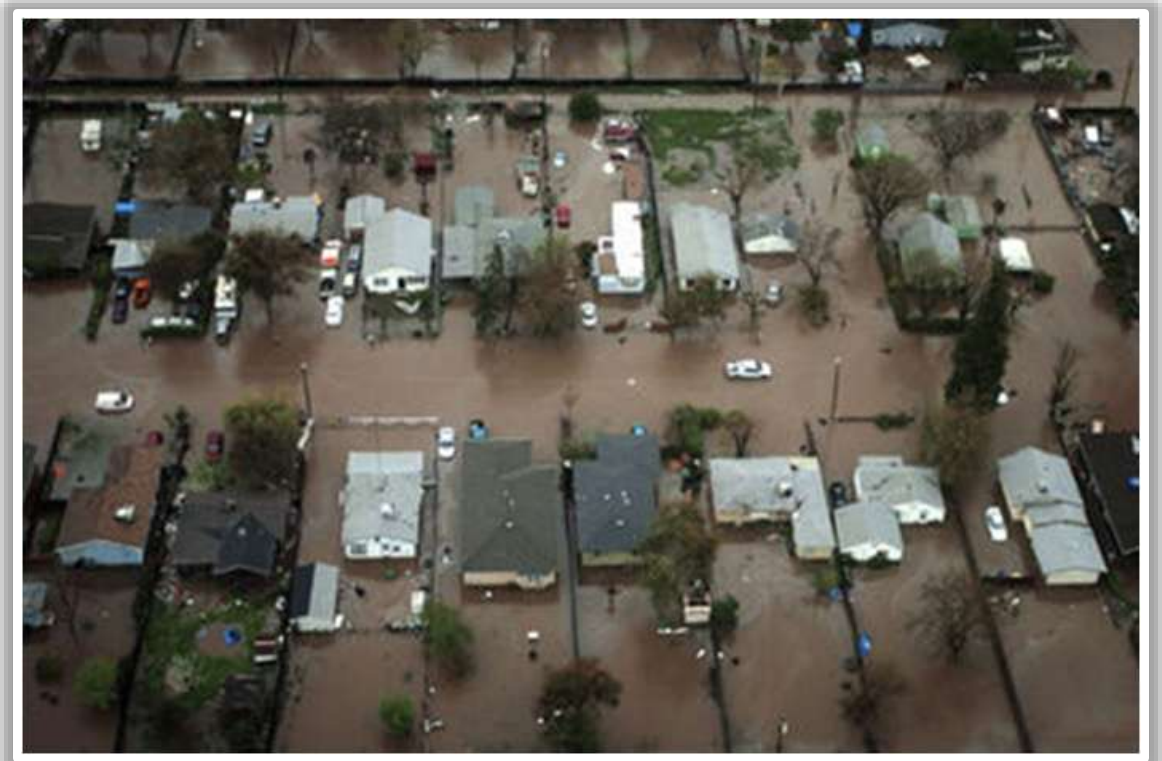
Solutions must use an "Integrated Water Management" approach

- Combines flood management, water supply, and ecosystem actions
- Regional and systemwide approach
- Collaboration and cooperation
- Array of funding sources

Recommendation

TOOLS

1. Conduct regional flood risk assessments to better understand statewide flood risk.



Recommendations

TOOLS

2. Increase public and policymaker awareness about flood risks to facilitate informed decisions.

3. Increase support for flood emergency preparedness, response, and recovery programs to reduce flood impacts.

Recommendations

PLANS

4. Encourage land-use planning practices that reduce the consequences of flooding.

5. Conduct flood management from regional, systemwide, and statewide perspectives to provide multiple benefits.

Recommendations

PLANS

6. Increase collaboration among public agencies to improve flood management planning, policies, and investments.

7. Establish sufficient and stable funding mechanisms to reduce flood risk.

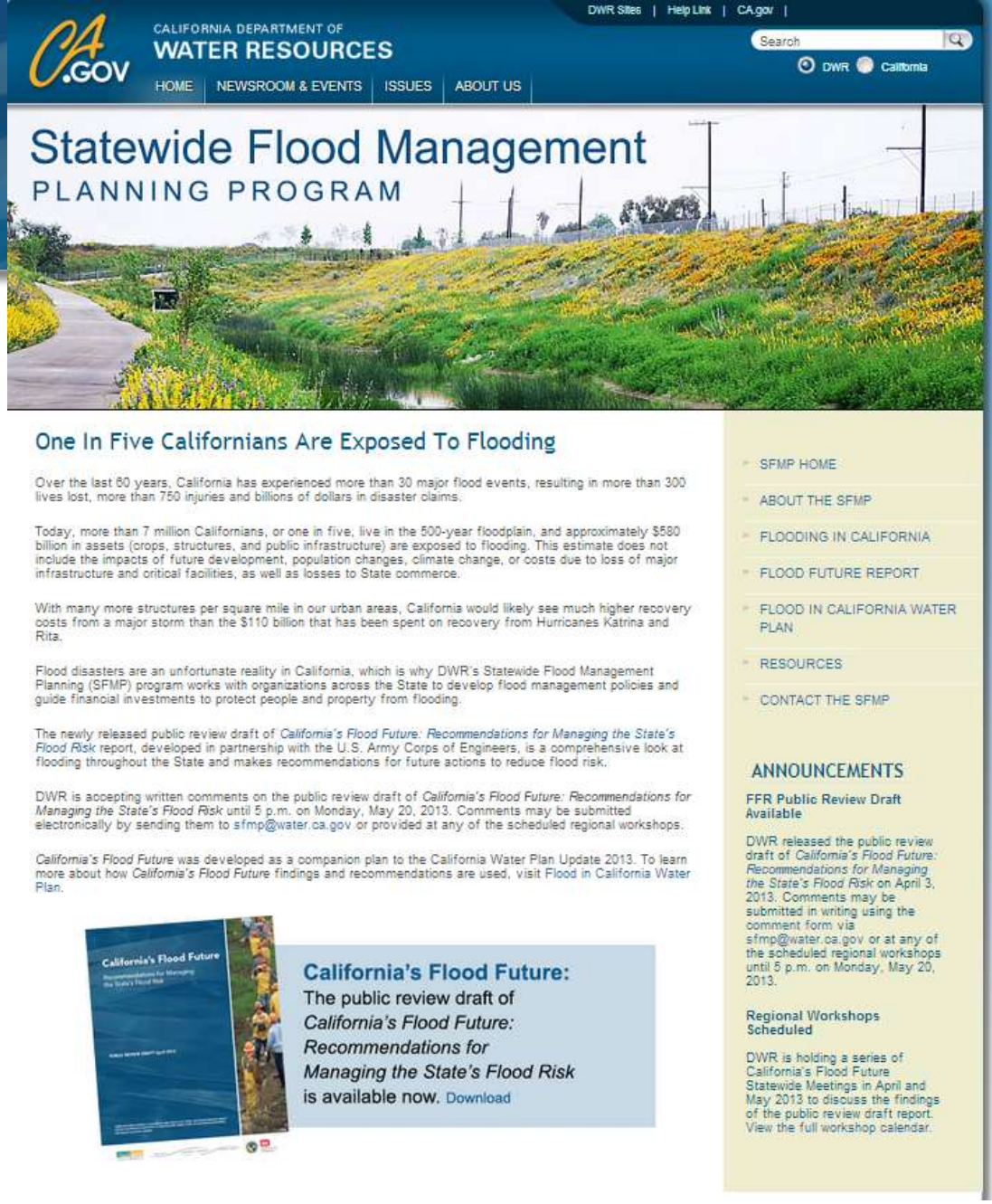
We Must Take Action. Now.

California's future depends on:

- Local, State, and Federal agencies working together
- Implement policies and projects using an IWM approach
- Increase awareness of the cost and consequences of flooding
- Establish investment priorities and sufficient and stable funding
- Short-term and long-term action and solutions

SFMP Website

For More Information about California's Flood Future : **http://www.water.ca.gov/SFMP**



Questions

Recommendations

1 Conduct regional flood risk assessments to understand statewide flood risk

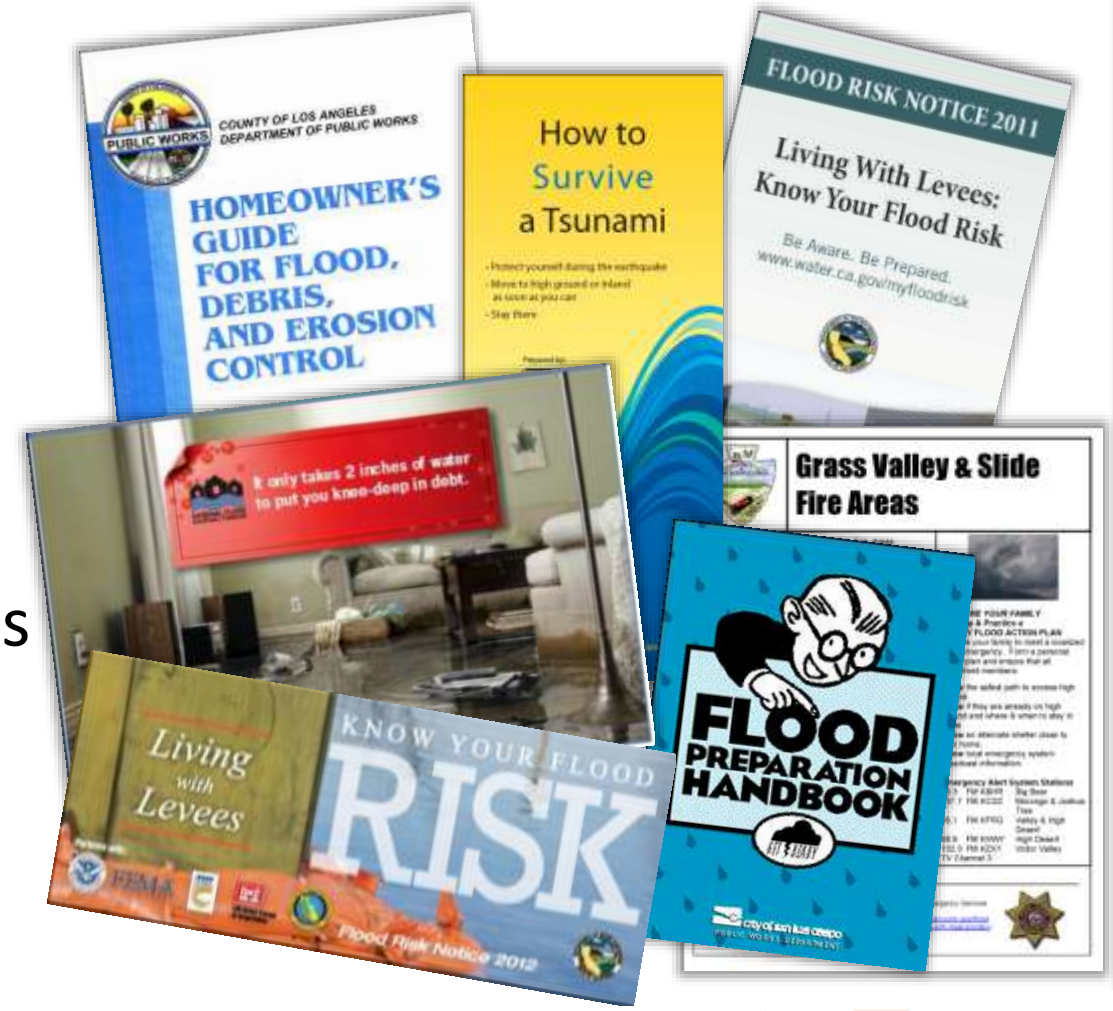
TOOLS

- Identify methods for and conduct regional flood risk
- Set regional flood risk reduction goals
- Identify opportunities to restore or maintain natural systems
- Assess climate change and sea level rise impacts

2 Increase public and policymaker awareness about flood risks to facilitate informed decisions

TOOLS

- Develop consistent messaging
- Provide outreach materials
- Promote Online information resources
- Share data and information



FloodSAFE CALIFORNIA

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

US Army Corps of Engineers

3 Increase support for flood emergency preparedness, response, and recovery programs to reduce flood impacts

TOOLS

- Provide increased flood readiness funding
- Develop or improve Flood Emergency Management Plans
- Conduct regular flood emergency exercises
- Identify data/forecasting needs

4 Encourage land-use planning practices that reduce the consequences of flooding

PLANS

- Develop planning principles for development in floodplains
- Facilitate coordination and alignment between planners and emergency managers
- Incentivize best management practices

5 Implement flood management from regional, systemwide, and statewide perspectives to provide multiple benefits

PLANS

- Identify regional flood planning areas
- Prioritize flood management projects
- Improve State and Federal Processes
- Coordinate regional water and flood management
- Link funding to an IWM approach

6 Increase collaboration among public agencies to improve flood management planning, policies, and investments

ACTIONS

- Utilize regional working groups
  - *Permits*
  - *Plans*
  - *Implementation*
- Provide funding, grant, and in-kind credit programs
- Prioritize flood management investments

7 Establish sufficient and stable funding mechanisms to reduce flood risk

ACTIONS

- Assess potential funding sources and propose new options
- Facilitate access to funding sources
- Increase funding for priority flood management projects

For more information:

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Jason Sidley: jason.sidley@water.ca.gov
Hunter Merritt: Hunter.Merritt@usace.army.mil

http://www.water.ca.gov/SFMP

Statewide Flood Meetings

Regional meetings to discuss the report:

April 8 – Marin County

April 9 – Santa Clara County

April 15 – Sacramento County

April 17 –San Diego County

April 18 – Riverside and
Los Angeles Counties

April 19 – Ventura County

May 9 – Fresno County

May 14 – Humboldt County