

# Addressing California's growing flood risk: An overview

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# Vulnerability to floods in California is high and rising

## Population exposed: > 7 million

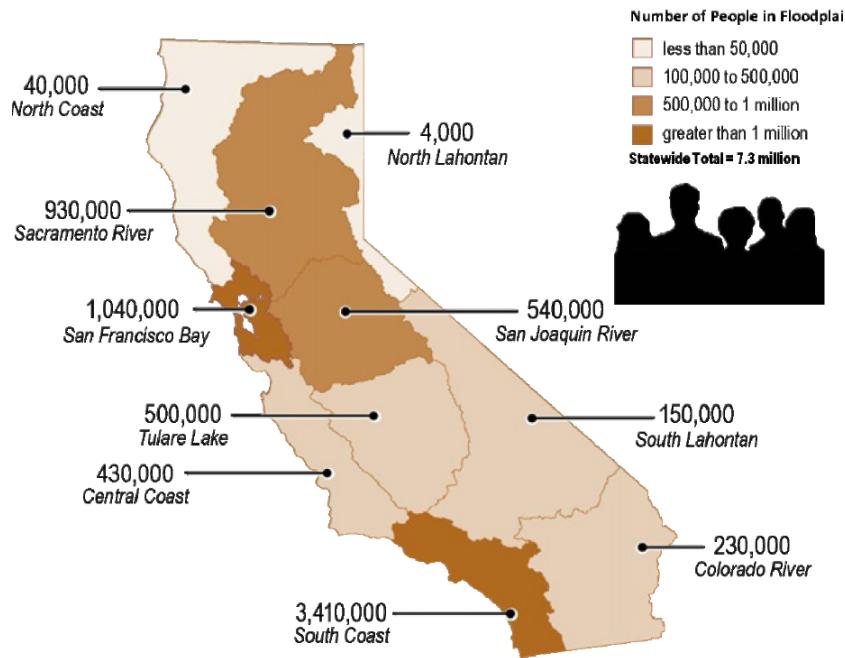


Figure 3-1. Population Exposed to Flooding within the 500-year Floodplain in California by Hydrologic Region

## Property exposed: > \$575 billion

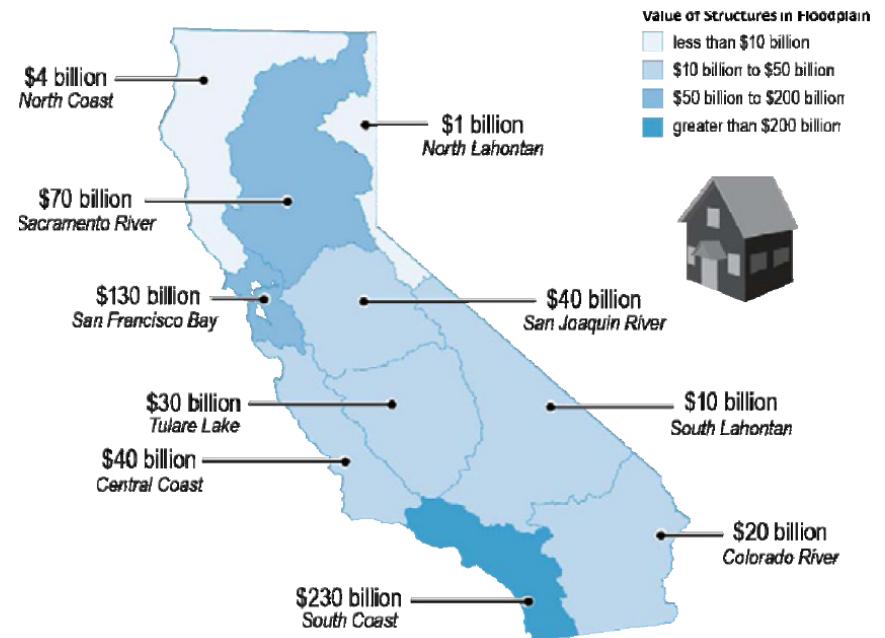


Figure 3-4. Structure Values Exposed to Flooding in California by Hydrologic Region

- 21% of population in floodplains, 4% at extreme risk
- Every county has had multiple flood disasters since 1950
- Risk increasing: population growth, warming temperatures, rising sea level



# California's flood management systems vary in size and complexity



**Yolo Bypass**  
(Photo: Rand Schaal)

- Managed by state, federal, and local agencies
- Elements include:
  - Reservoirs
  - Levees
  - Channelized rivers
  - Urban stormwater systems
  - Floodplain bypasses
  - Seawalls
- Some approaches have multiple benefits, e.g., ecosystem and water supply

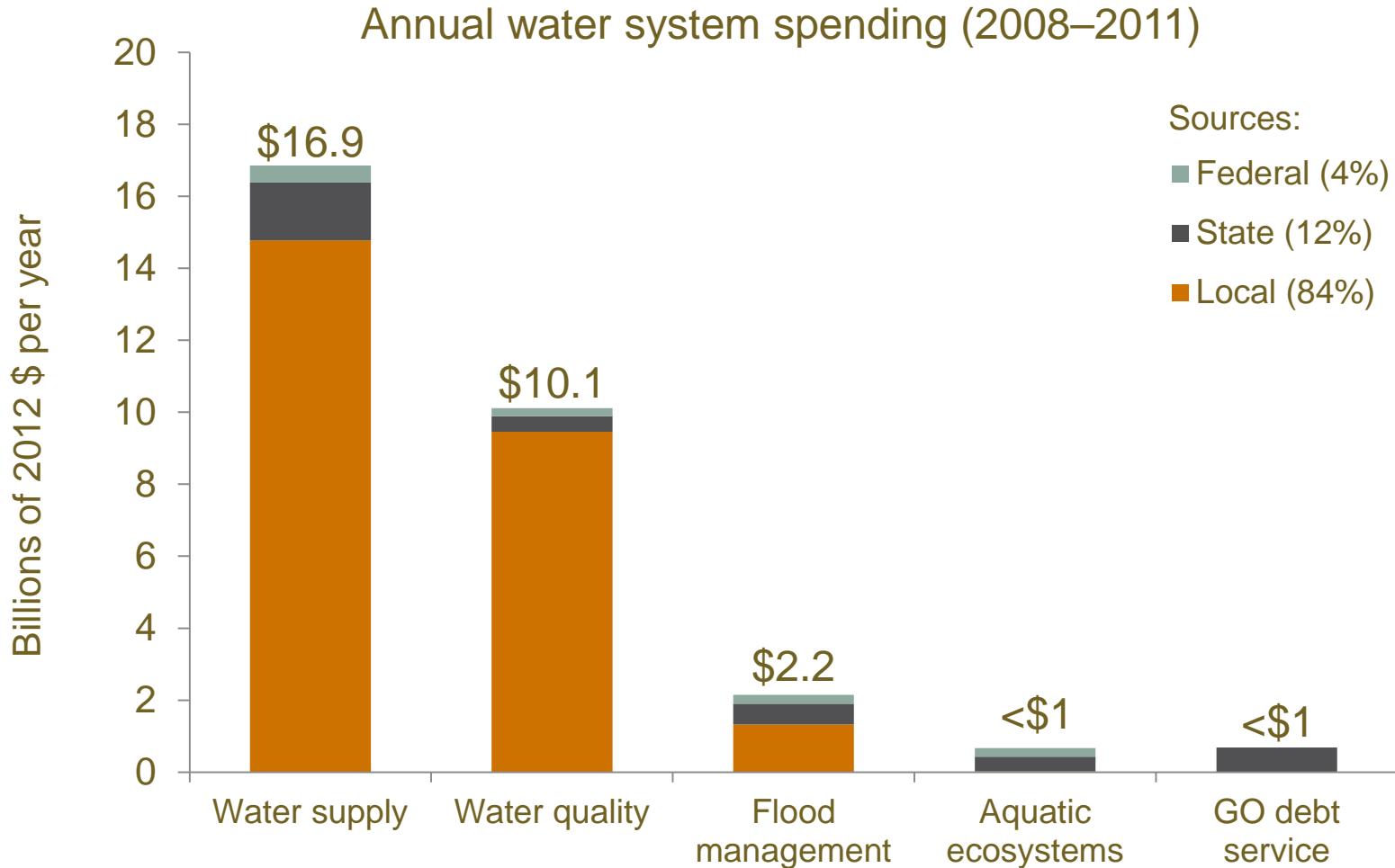
# California flood management faces significant challenges



San Joaquin River near Stockton  
(Photo: Rand Schaal)

- Big investment gap
- Potentially high state liability since 2003 *Paterno* ruling
- Flood control investments help, but they don't eliminate risk – sometimes they increase it (given low federal standards)
- Public complacency and lack of awareness = limited use of flood insurance

# Flood protection is a small share of the \$30+ billion spent annually on CA water



Source: *Paying for Water in California* (PPIC, 2014)



# Since 2006 state GO bonds have allocated funds to flood protection

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## GO Bonds in 2006 (Prop 1E, 84)

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Authorized flood funds (millions)\* \$4,900

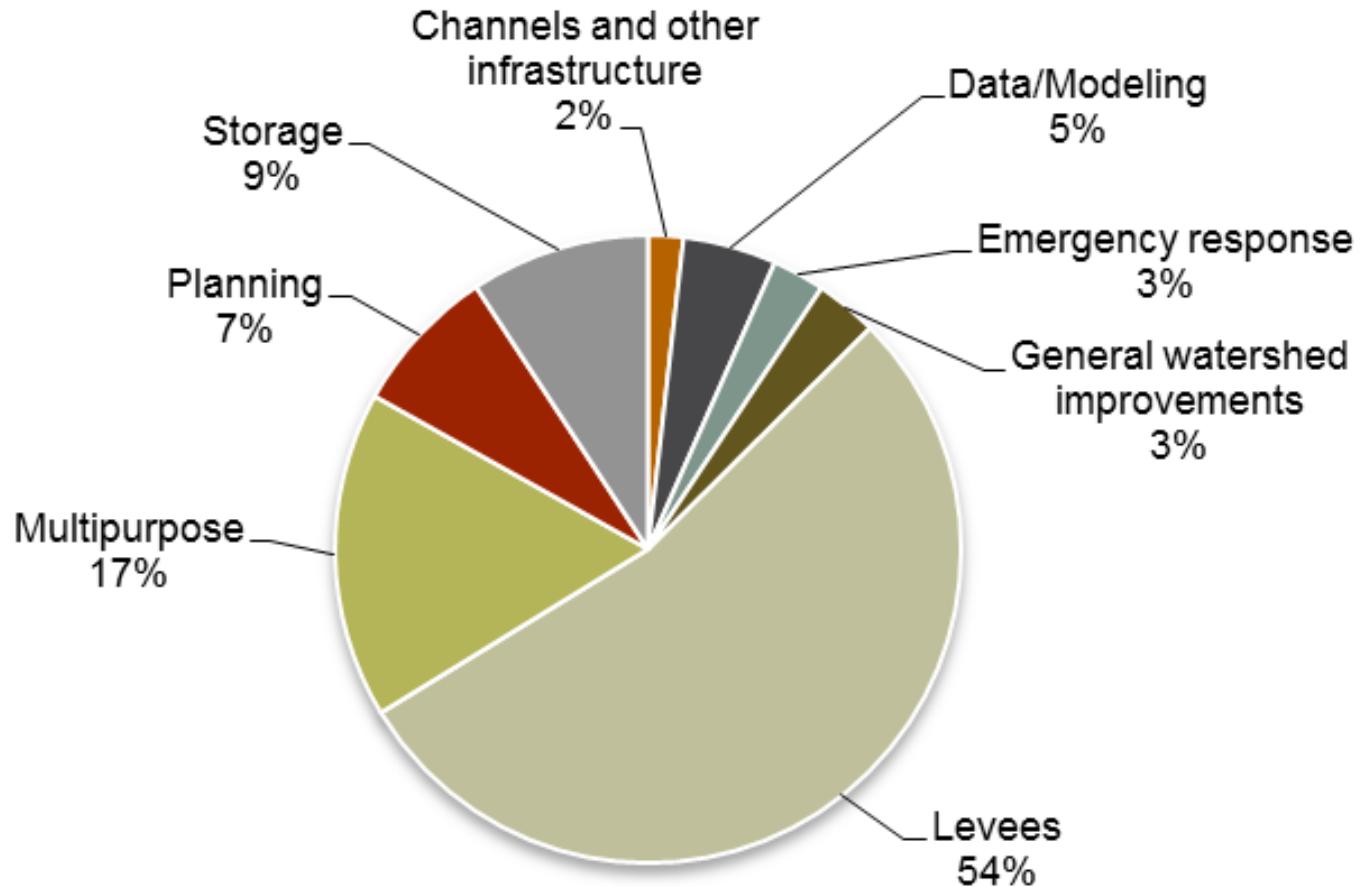
*Most already spent or soon to be spent*

## GO Bonds in 2014 (Prop 1)

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Authorized flood funds (millions) \$395

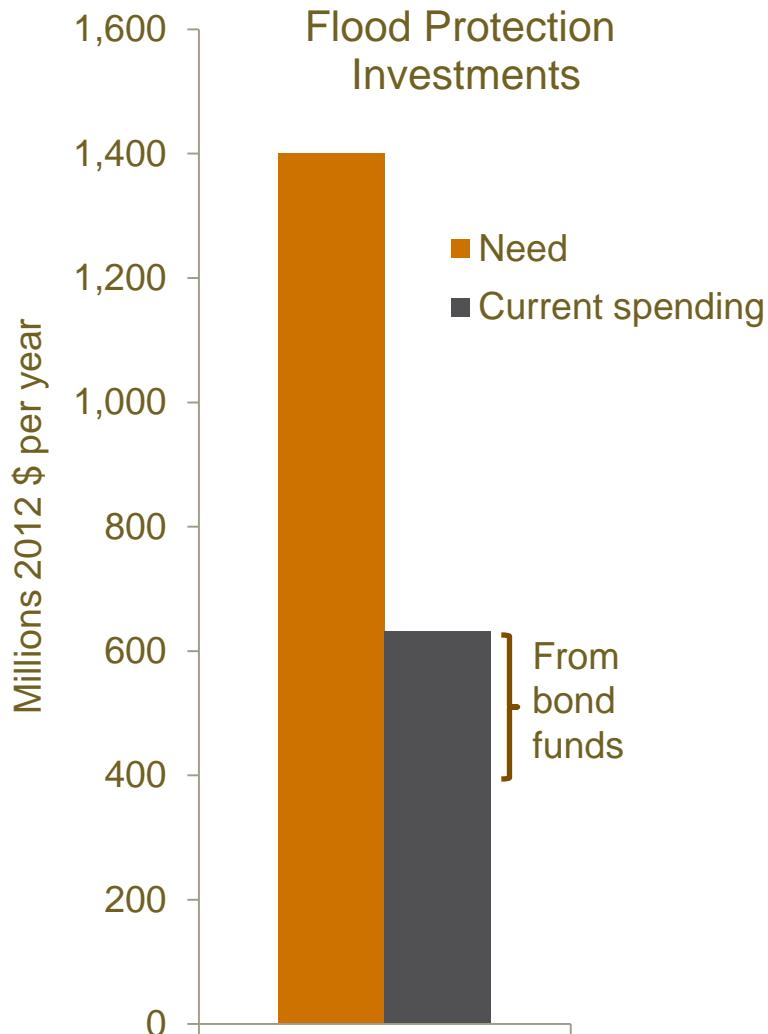
# Bonds have supported a variety of projects, but mainly levee improvements



Flood management bond awards by function through 2012 (\$3,356 million)



# Despite recent boost, flood investments are seriously lagging

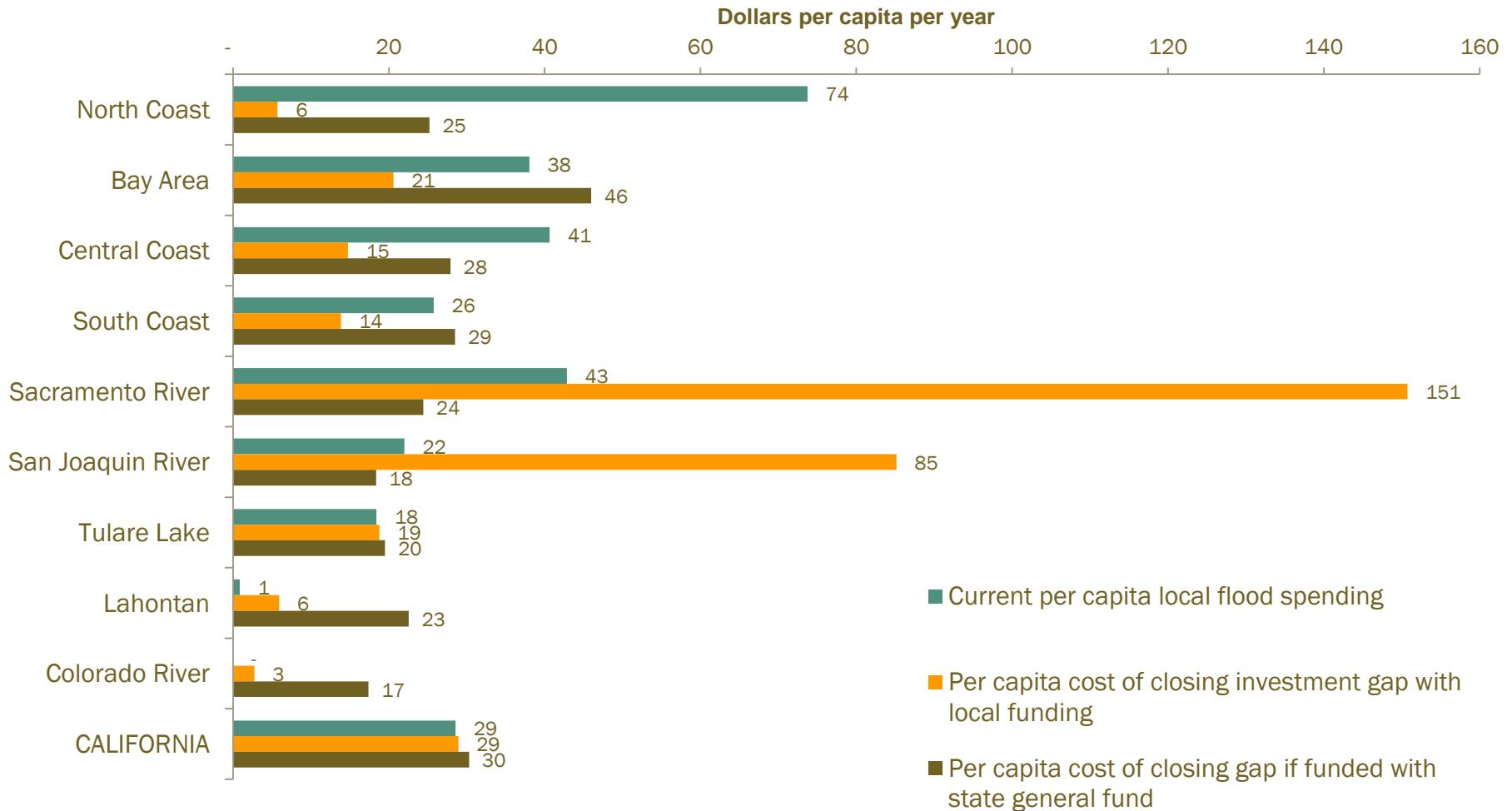


- Annual gap: \$800M - \$1B
- Federal cost share funds have lagged, and are now falling
- Prop 218 requirements hinder local fundraising

Source: *Paying for Water in California* (PPIC, 2014)



# Filling the gap locally would cost Central Valley residents most



# Some policy priorities

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- Important steps taken with 2007 Central Valley flood legislation
  - Higher urban protection standards, new planning tools, ecosystem objectives
- State should consider extending these reforms to other flood-prone regions
- Local agencies need more ways to raise funds (e.g., regional approach)
- State should prioritize limited bond funding – multi-benefit approaches especially valuable



# Notes on the use of these slides

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These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.

