

OCT 2020

Delta Adapts: Creating a Climate Resilient Future



**Delta
Stewardship
Council**

A CALIFORNIA STATE AGENCY

Delta Adapts =



+



Overarching goal is to build climate resilience in the Delta

Goals

- Inform future Delta Plan amendments and implementation
- Help State prioritize future actions and investments
- Provide a toolkit of information for local governments to use in their regulatory documents
- Serve as a framework to be built upon by the Council and others in the future

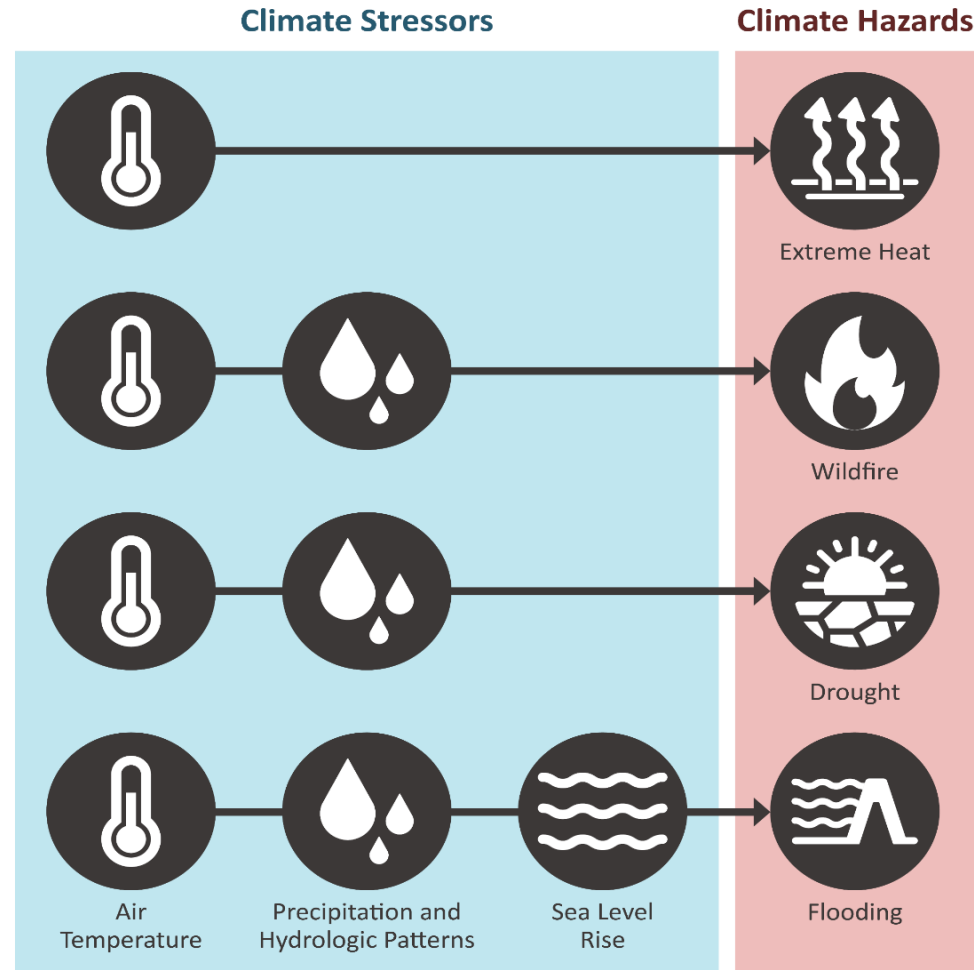


Regional Study

- Regional approach
- Planning level study
- Different from other climate vulnerability assessments completed
- Designed to be complementary with other efforts



Climate Stressors & Hazards



Engagement Opportunities

- Ongoing collaboration with agency partners
- Stakeholder briefings
- Outreach to community-based organizations
- Technical Advisory Committee
- Stakeholder Work Group



Results and Key Findings

- Equity
- Flooding
- Water Supply
- Ecosystem



Equity Analysis

FACTORS THAT INCREASE VULNERABILITY | VULNERABLE POPULATIONS

Factors that Increase Vulnerability

	Flooding	Extreme Heat Events	Wildfire
Exposure	<ul style="list-style-type: none"> People experiencing homelessness Emergency response workers Mobile home residents 	<ul style="list-style-type: none"> People experiencing homelessness Outdoor workers Young children Residents of dense, urban areas 	<ul style="list-style-type: none"> People experiencing homelessness Outdoor workers Residents of wildland-urban interface
Sensitivity	<ul style="list-style-type: none"> Preexisting health conditions 	<ul style="list-style-type: none"> Preexisting health conditions Age Ability status Pregnancy 	<ul style="list-style-type: none"> Preexisting health conditions Age Pregnancy Smokers
Adaptive Capacity	<ul style="list-style-type: none"> Access to information Ability to evacuate Access to healthcare Income or other resources to repair damage, procure shelter 	<ul style="list-style-type: none"> Access to information Access to air conditioning Access to healthcare Income or other resources to adapt living space 	<ul style="list-style-type: none"> Access to information Ability to evacuate Access to healthcare Income or other resources to adapt living space

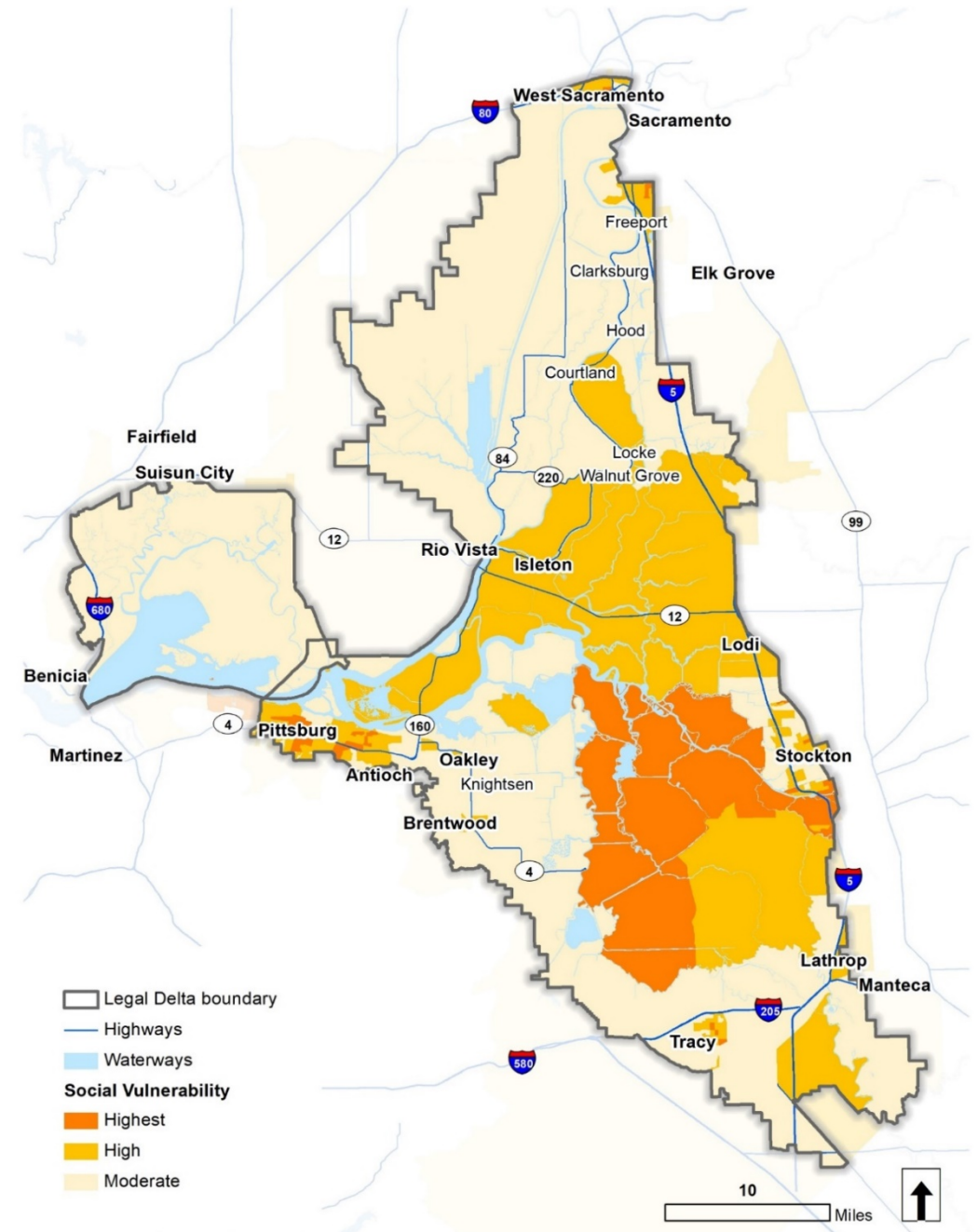
Vulnerable Populations

Social vulnerability index (comprised of 14 indicators):

- Young children
- Older adults living alone
- Ability status
- Educational attainment
- Linguistic isolation
- Poverty status
- Race and ethnicity
- Tenancy
- Vehicle access
- Access to health insurance
- Asthma rate
- Cardiovascular rate
- Low birth weight rate
- Food security

Other vulnerable populations:

- Outdoor workers
- Incarcerated populations
- Institutionalized populations
- People experiencing homelessness
- People living in mobile homes



Flood Hazard Maps

MODELING + ANALYSIS APPROACH | CURRENT + FUTURE CONDITIONS

Modeling and Analysis Approach

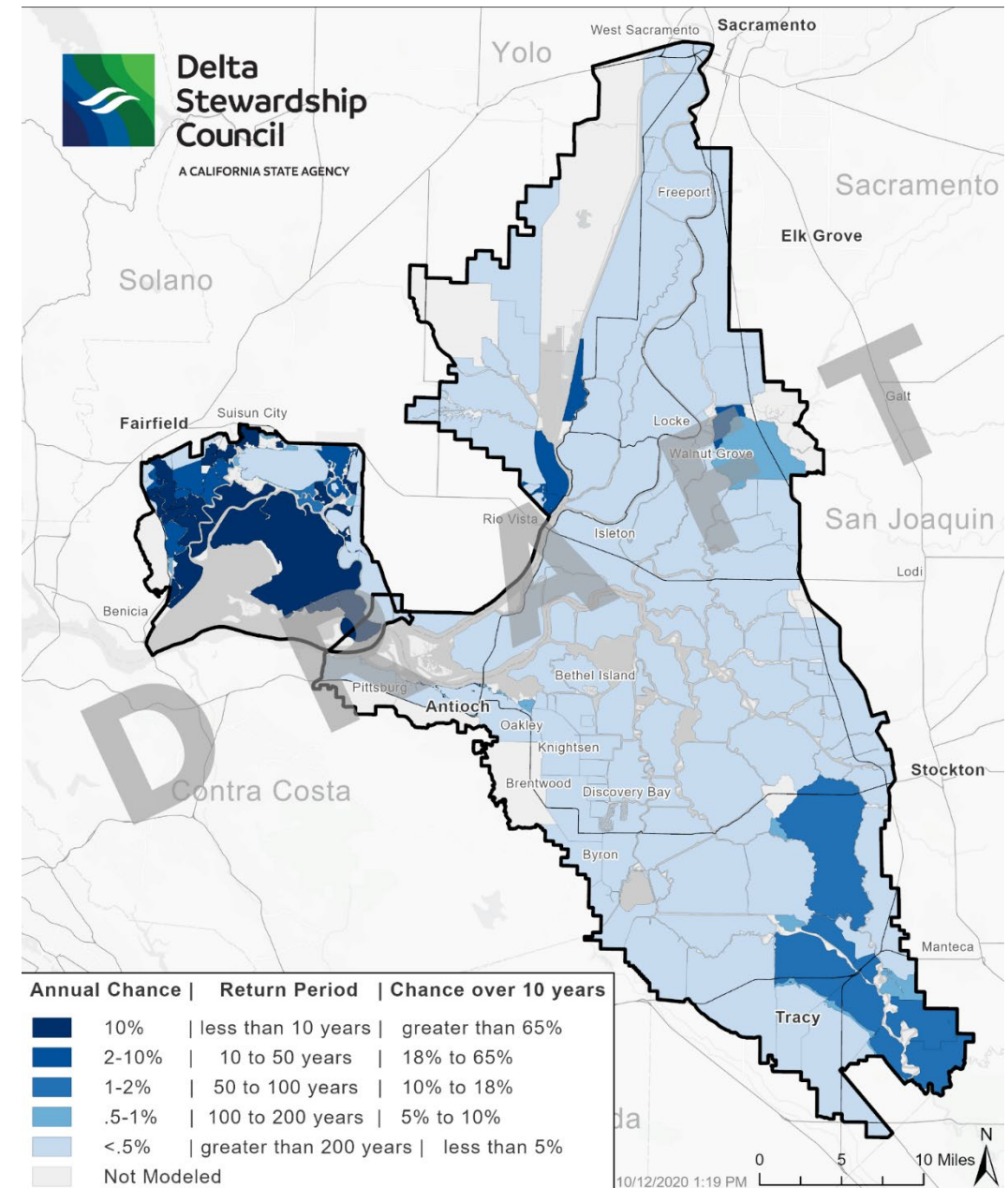
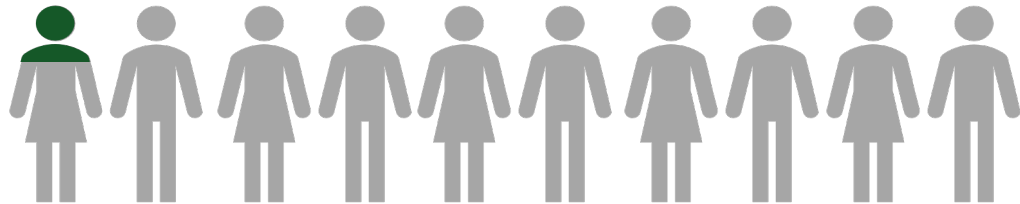
- Builds on and adapts previously developed tools
- Considers a wide **range of future climate changes**:
 - Tide and storm surge
 - Sea level rise
 - Delta inflows
- Improves system understanding
- Flexibility to changing climate change information



Current Conditions

10% of the Delta exposed during a 100-year flood

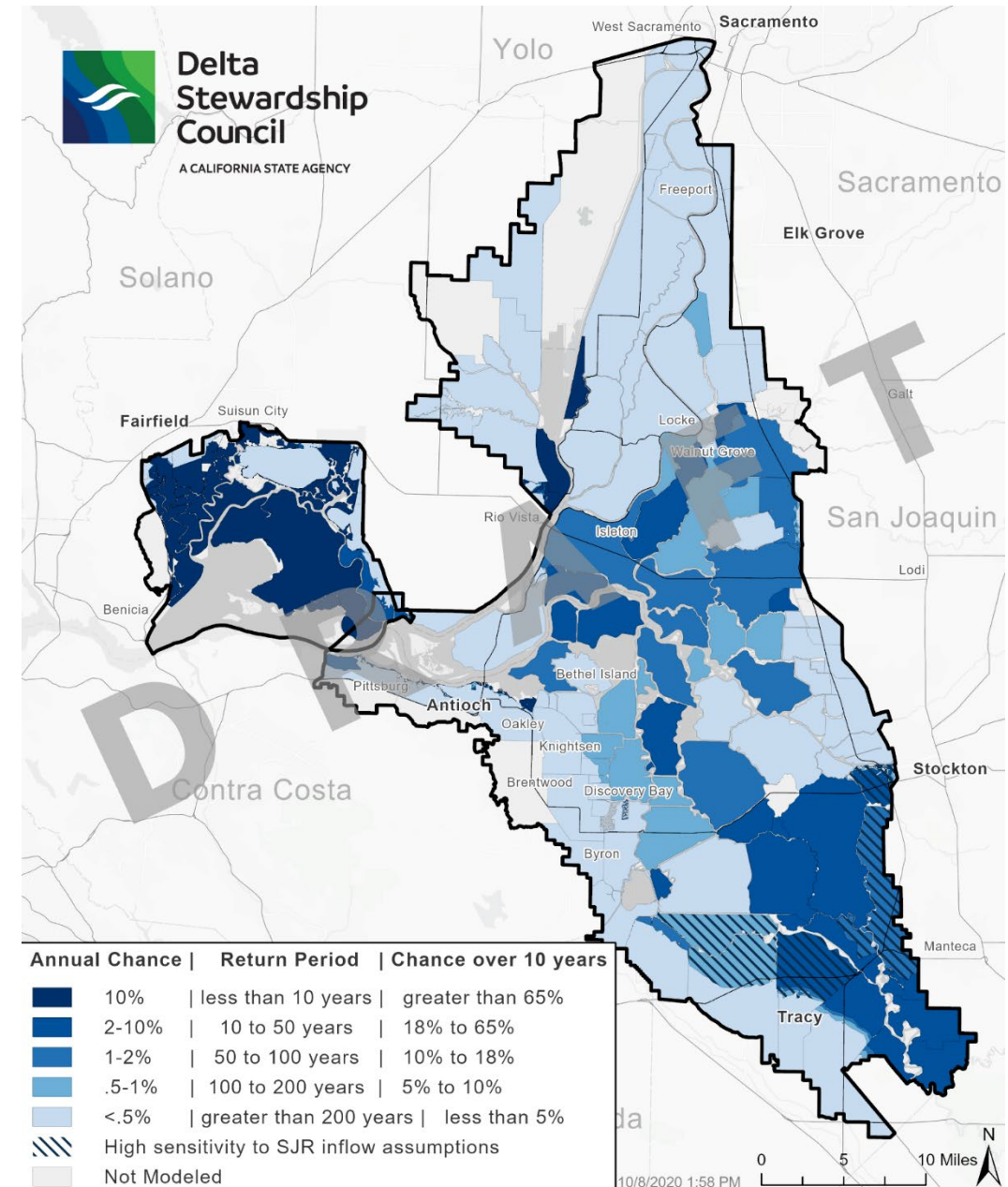
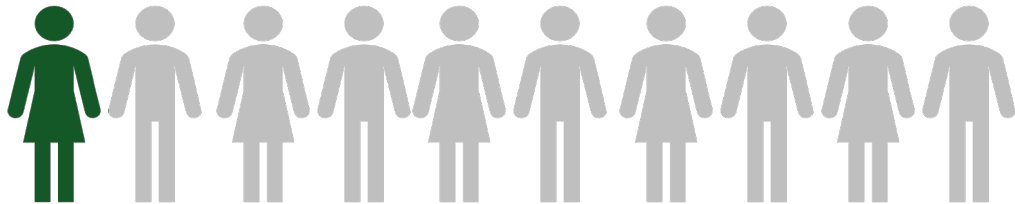
2% of Delta population exposed during a 100-year flood, including over **3,000** people living in communities with high social vulnerability



2050 Conditions

35% of the Delta exposed during a 100-year flood

Over 10% of Delta population exposed during a 100-year flood, including over **42,000** people living in communities with high social vulnerability

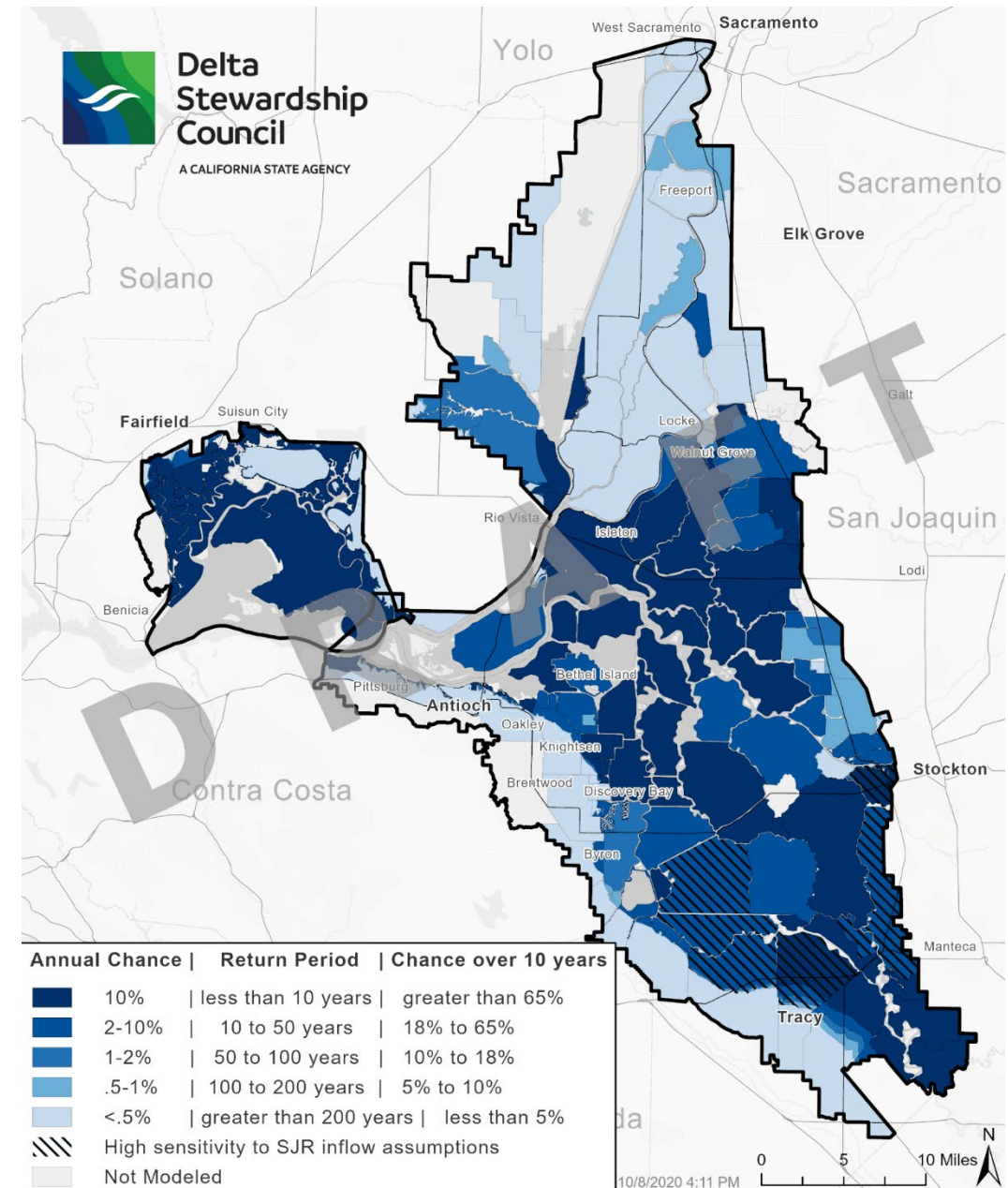
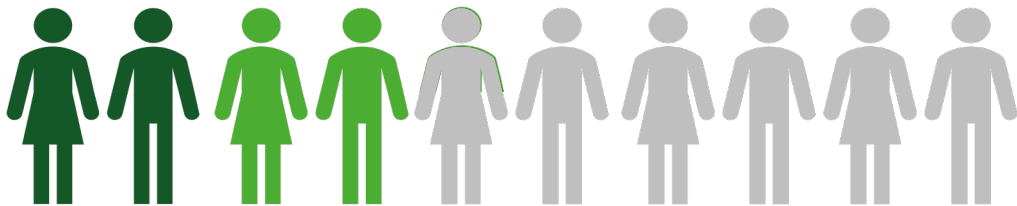


2085 Conditions

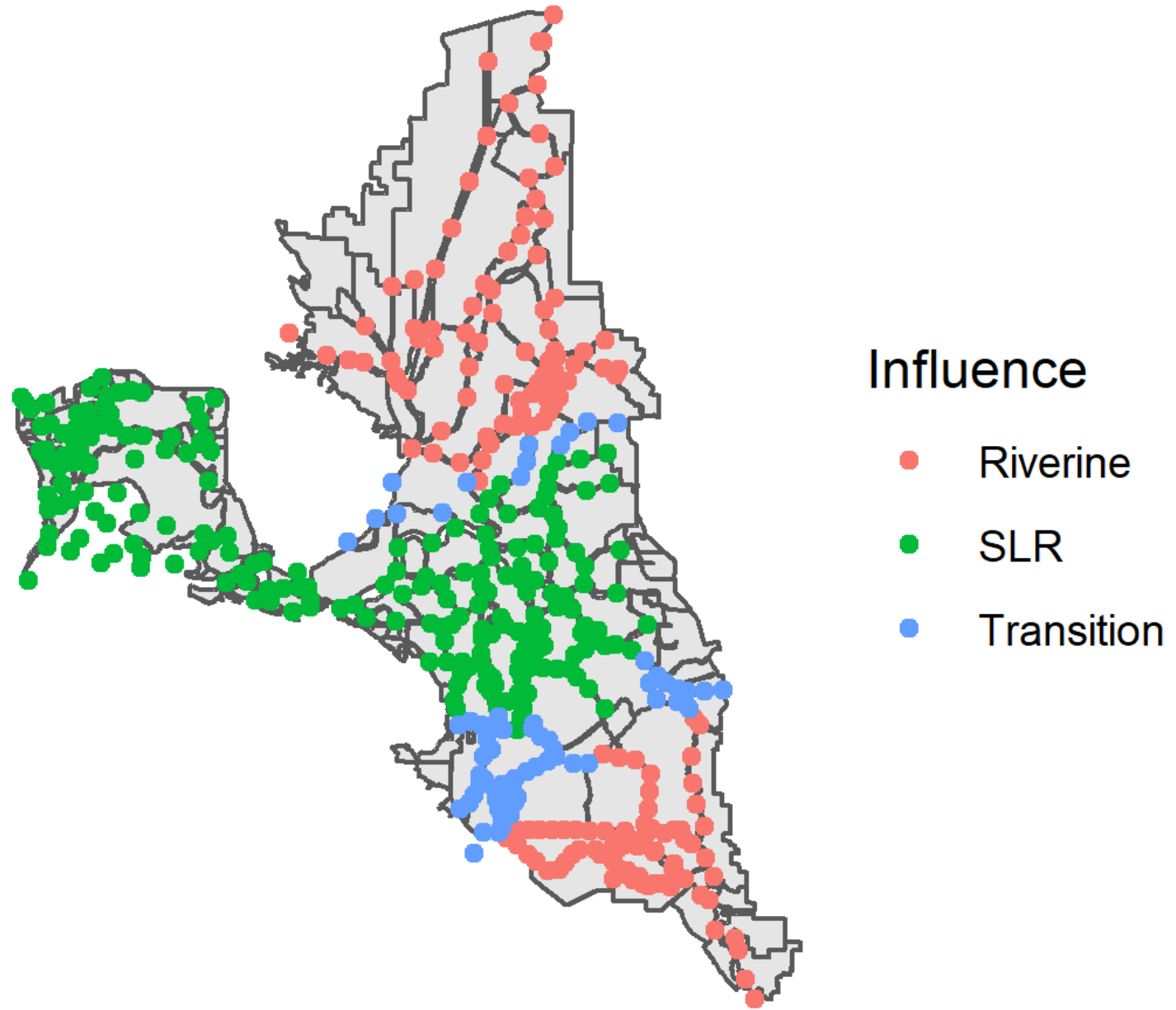
68% of the Delta exposed during a 100-year flood

20% of Delta population exposed during a 100-year flood, including over **71,000** people living in communities with high social vulnerability

44% of Delta population exposed during a 200-year event (mostly in Stockton and Pocket)



Adaptation to
climate change
should focus on
the source of
vulnerability



What does this mean?

- Know where to target future levee investments
- Can estimate costs of keeping up with climate change
- Can test adaptation strategies



Water Supply

KEY FINDINGS

Key Findings

- Higher temperatures pose the greatest risk
- More variable precipitation is especially impactful during dry periods
- Sea level rise is of less concern



Key Findings

- Climate change will reduce Delta exports in all year types, but impacts will be disproportionately large in dry years, increasing drought vulnerability
- Droughts will get more common and worse



Ecosystem Analysis

ASSETS | SLR FINDINGS

Ecosystem Assets



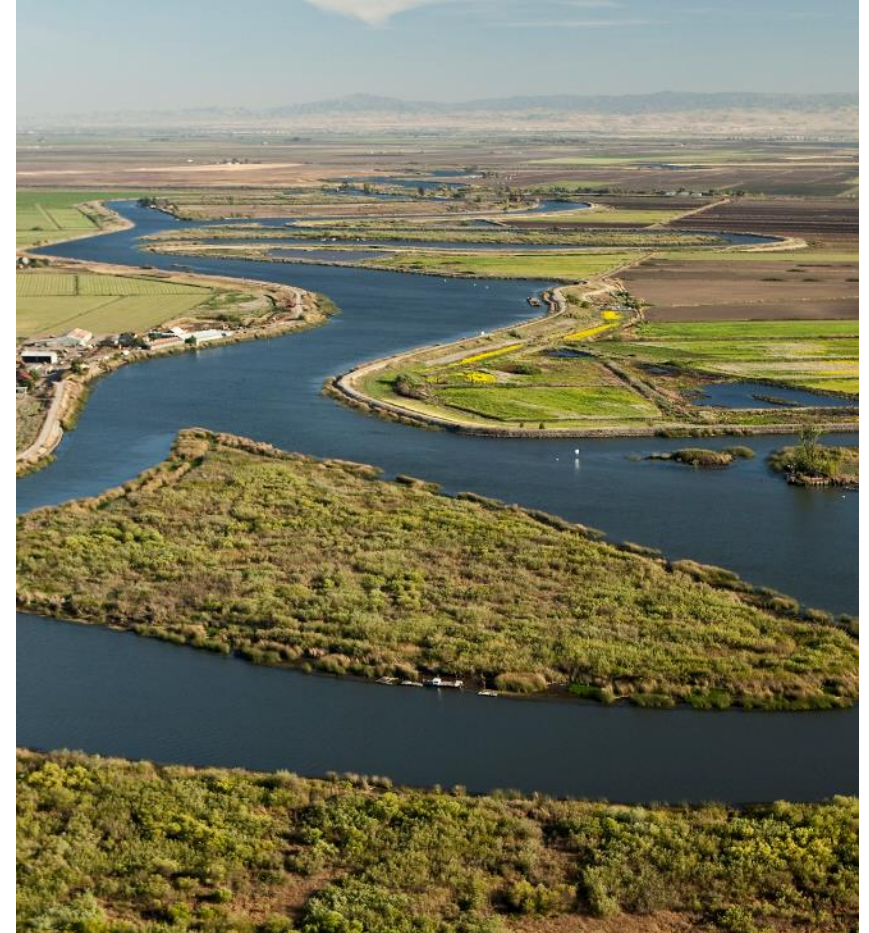
Un-leveed Ecosystems:
Connected to water
38,250 ac



Leveed Ecosystems:
Disconnected from water
132,680 ac

Key Findings - SLR

- High exposure of leveed ecosystems, but may have high adaptive capacity depending on levee management
- Exposure is also substantial for un-leveed ecosystems, and adaptive capacity is lower
- Upland accommodation space is key for un-leveed tidal ecosystems, but is lacking in the Delta
- Restoring natural processes and tidal/fluvial connection are critical for reducing tidal wetland vulnerability



Significance of Delta Adapts

- First comprehensive climate change study of the Delta
- Developed comprehensive flood and water supply models that can be replicated and updated
- Identifies most socially vulnerable communities
- Extensive community outreach
- Collaboration between partner agencies and complementary studies





Thank you

Web: deltacouncil.ca.gov/delta-plan/climate-change

Twitter: @DeltaCouncil