Delta Adapts: Creating a Climate Resilient Future
Delta Adapts = 

Vulnerability Assessment + Adaptation Strategy

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
## Factors that Increase Vulnerability

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Flooding</th>
<th>Extreme Heat Events</th>
<th>Wildfire</th>
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<tbody>
<tr>
<td>People experiencing homelessness</td>
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<td>Emergency response workers</td>
<td>Outdoor workers</td>
<td>Outdoor workers</td>
<td>Outdoor workers</td>
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<tr>
<td>Mobile home residents</td>
<td>Young children</td>
<td>Residents of dense, urban areas</td>
<td>Residents of wildland-urban interface</td>
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</tbody>
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<thead>
<tr>
<th>Sensitivity</th>
<th>Flooding</th>
<th>Extreme Heat Events</th>
<th>Wildfire</th>
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<tr>
<td>Preexisting health conditions</td>
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<tr>
<td>Age</td>
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<td>Ability status</td>
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<td>Pregnancy</td>
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<tr>
<th>Adaptive Capacity</th>
<th>Flooding</th>
<th>Extreme Heat Events</th>
<th>Wildfire</th>
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<td>Access to information</td>
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<tr>
<td>Ability to evacuate</td>
<td>Access to air conditioning</td>
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<td>Access to healthcare</td>
<td>Access to healthcare</td>
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<tr>
<td>Income or other resources to repair damage, procure shelter</td>
<td>Income or other resources to adapt living space</td>
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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  I  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