Integrating Water Management

The Role of Integrated Water Management (IWM)

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California Water Plan Plenary

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Over the last century, water development in California has fueled economic vitality and made progress achievable.
Integrating Water Management

Defining California’s Water Challenges

Major system deficiencies put public safety, financial stability and economic well being of the State at risk of flooding.

California’s Bay-Delta ecosystem is declining with many fish populations at record lows.

Water supplies from the Delta are less reliable. Aging infrastructure and growing population put more pressure on water systems.

Multi-year drought has further stressed water supplies for all purposes. Reservoirs are low and groundwater levels are declining.

Climate change impacts, including less snowpack, higher flood peaks, and sea level rise, create new uncertainties.
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Problems & Opportunities

- Major Flood Events:
  - 1970
  - 1980
  - Mar. 1983
  - Feb. 1986
  - Mar. 1995
  - Jan. 1997
  - Apr. 2006

- Major Drought Periods:
  - 1977 - 1978
  - 1980
  - 1987 - 1992
  - 2000
  - 2001 - 2004
  - 2006 - 2010

San Joaquin River, Fall Run Salmon Escapement

1,000s of Returning Adult Fall Run Salmon

- Hatcheries
- In River
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Values associated with water management activities include:

<table>
<thead>
<tr>
<th>Public Safety</th>
<th>Environmental Stewardship</th>
<th>Economic Stability</th>
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<tbody>
<tr>
<td>• Making communities safe</td>
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<tr>
<td>• Planning ahead to achieve best collaboration</td>
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<tr>
<td>• Emergency planning and response</td>
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<td>• Helping ecosystems thrive</td>
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<td>• Creating healthier communities by enhancing the environment</td>
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<td>• Responsible and reasonable balance between protecting people and the environment</td>
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<td>• Providing for our families’ future</td>
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<tr>
<td>• Protecting businesses and investments</td>
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<tr>
<td>• Enhancing communities</td>
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Integrating Water Management

Aligning Programs & Initiatives towards *key values*
### Integrating Water Management

#### Tools

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<tr>
<th>Integrated Water Management</th>
<th>Tools</th>
<th>Plans</th>
<th>Actions</th>
<th>Results</th>
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<tbody>
<tr>
<td>Federal Advocacy</td>
<td>CASGEM</td>
<td>Dam Safety</td>
<td>BDCP</td>
<td>Delta Levee Subvention</td>
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<td>Technical Publications</td>
<td>CIMIS</td>
<td>Dam Safety Development and Leadership</td>
<td>Central Valley Flood Protection Plan</td>
<td>Delta Special Projects</td>
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<tr>
<td>California Water Plan</td>
<td>Floodplain Evaluation &amp; Delineation</td>
<td>F-CO</td>
<td>Conservation Strategy</td>
<td>Early Implementation Program Projects</td>
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<td>Bond Accountability</td>
<td>Geotechnical System Performance Assessments</td>
<td>FERIS/CDEC</td>
<td>Delta Emergency Response</td>
<td>Flood Control Subventions Program</td>
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<td>Grants Management System</td>
<td>IWM Economic Assessments</td>
<td>Flood Emergency Operations</td>
<td>DHIWCP</td>
<td>Flood Corridor</td>
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<td>Business Administration</td>
<td>Land &amp; Water Use Data</td>
<td>Flood Project Integrity and Inspections</td>
<td>Interstate Water Management</td>
<td>IRWM Planning &amp; Implementation Grants</td>
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<td>Climate Change</td>
<td>Public Benefits Evaluation</td>
<td>Flood Risk Awareness</td>
<td>IRWM Strategic Plan</td>
<td>Local Levee Assistance Program</td>
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<td>Environmental Stewardship</td>
<td>Statewide Data Program</td>
<td>Floodplain Management</td>
<td>Regional Coordination</td>
<td>O&amp;M and Environmental Support</td>
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<td>Sustainability Indicators Framework</td>
<td>System Feasibility Studies</td>
<td>Hazard Mitigation</td>
<td>Statewide Flood Management Planning</td>
<td>Recreation Planning and Implementation</td>
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<td>Program Delivery Plans</td>
<td>Systemwide Flood Benefit Evaluation</td>
<td>National Flood Insurance Program</td>
<td>SWAN</td>
<td>Regional Flood Management Plans</td>
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<td>Project Management Support</td>
<td>Water PIE</td>
<td>Snow Surveys</td>
<td>System Reoperation</td>
<td>Regional Partnership</td>
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<td>Bond Resources Accountability</td>
<td>Water Use Efficiency</td>
<td>F-BO (T)</td>
<td>San Joaquin River Restoration</td>
<td>Stormwater Grants</td>
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<td>Safeguarding System (BRASS)</td>
<td>Conjunctive Water Management</td>
<td>Water Recycling &amp; Desalination</td>
<td>Surface Storage Investigations</td>
<td>Watermaster Services</td>
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<td>Water Transfers</td>
<td>Water Transfers</td>
<td>SWP Operations</td>
<td>System Maintenance</td>
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#### Plans

- Technical
- Risk Management
- Integration
- Implementation

#### Actions

- Results

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**Aligning Programs & Initiatives towards Implementation**
Integrating Water Management

Examples of DWR Programs:
Integrating Water Management

Timeline of Flood Financing in California

<table>
<thead>
<tr>
<th>Legacy / History</th>
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<th>Legacy / History</th>
<th>As Is</th>
<th>To Be</th>
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<tbody>
<tr>
<td>1870</td>
<td>1900</td>
<td>1930</td>
<td>1960</td>
<td>1990</td>
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**LEGEND**
- Major & Moderate Triggering Event
- Major Response

- Green Act (1868) RDs Est.
- CA Flood Control Act (1911) CVFPB Est.
- Jackson Report (1910) USACE SRFCP Planned
- Sac. Valley Flood (1909)
- Federal Flood Control Act (1928) USACE SRFCP Est.
- Mississippi Flood (1928)
- St. Francis Dam Failure (1928)
- Federal Flood Control Act (1944) WWI (1941-45)
- SRFCP Assurances (1957)
- LSJRTP Assurances (1955)
- Feather Flood (1955)
- Feather Flood (1986)
- DWR Est. (1956)
- Props 1E & 84 (2006)
- Katrina (2005)
- Prop 50 (2002)
- Prop 13 (2000)
- Prop 204 (1996)