Welcome to My Water Quality

This web portal, supported by a wide variety of public and private organizations, presents California water quality monitoring data and assessment information from a variety of perspectives that may be viewed across space and time.

IS OUR WATER SAFE TO DRINK?

Safe drinking water depends on a variety of chemical and biological factors regulated by a number of local, state, and federal agencies. More >>

IS IT SAFE TO SWIM IN OUR WATERS?

Swimming safety of our waters is linked to the levels of pathogens that have the potential to cause disease. More >>

IS IT SAFE TO EAT FISH AND SHELLFISH FROM OUR WATERS?

Aquatic organisms are able to accumulate certain pollutants from the water in which they live, sometimes reaching levels that could harm consumers. More>>

ARE OUR AQUATIC ECOSYSTEMS HEALTHY? (links to page 2)

The health of fish and other aquatic organisms and communities depends on the chemical, physical, and biological quality of the waters in which they live. More>> (links to page 2)

WHAT STRESSORS AND PROCESSES AFFECT OUR WATER QUALITY?

Beneficial uses of our waters are affected by emerging contaminants, invasive species, trash, global warming, acidification, pollutant loads, and flow. More>>
Ecosystem Health

Are Our Aquatic Ecosystems Healthy?

California has many types of aquatic habitats. Follow the links below to learn more…

- **WETLANDS**
  Wetlands form along the shallow margins of deepwater ecosystems such as lakes, estuaries, and rivers. They also form in upland settings where groundwater or runoff makes the ground too wet for upland vegetation. More >>

- **ESTUARIES**
  Estuaries are unique habitats found where rivers and the ocean mix. They feature a diverse array of plants and animals adapted to life along this mixing zone. More >>

- **STREAMS, RIVERS & LAKES**
  California's streams and rivers flow through diverse habitats, from mountain canyons, valleys, deserts, estuaries and urban areas. Riparian woodlands develop along stream banks and floodplains, linking forest, chaparral, scrubland, grassland, and wetlands. California lakes, supporting deep water, wetlands, riparian woodlands, offer a quiet refuge for plants, animals and humans alike. More >>

- **OCEAN**
  California has 1,100 miles of shoreline and 220,000 square miles of state and federal oceanic habitat, featuring one of the world's most diverse marine ecosystems. More >>
Are Our Stream & River Ecosystems Healthy?


To view stream and river information:
- Click on a county or
- Select a County or Region from a pop-up menu above the map

QUESTIONS ANSWERED
- What is the extent of stream and river resources? (links to page 4)
- What is the condition of our streams and rivers? (link to page 13)
- Which streams or rivers are listed by the State as impaired? (links to page 8)
- What is being done to protect and restore our streams and rivers? (links to page 15)
- What are the trends in the condition of our streams and rivers? (links to page 14)
- What are the stressors affecting the condition of our streams and rivers? (links to page 16)
What is the Extent of Our Stream & River Resources?


The hydrologic regions of California are based on divisions established by the California Department of Water Resources. Each region exhibits similar precipitation, runoff, geologic, and tectonic conditions.

Statewide Figures

- Perennial Streams and Rivers
  - xx,xxx km (xxx miles)
  - xx% of the total
- Non-Perennial Streams and Rivers
  - xxx,xxx km (xxx miles)
  - xx% of the total

To view stream and river info by hydrologic region:

- Click on a hydrologic region or
- Select from the pop-up menu above the map
What is the Extent of Our Stream & River Resources?

Select Region: North Coast

<table>
<thead>
<tr>
<th>River</th>
<th>Length (mi.)</th>
<th>Watershed Area (sq. mi.)</th>
<th>Peak Discharge (cfs)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eel</td>
<td>200</td>
<td>3,120</td>
<td>752,000</td>
<td>Dec. 23, 1964</td>
</tr>
<tr>
<td>Guadalupe</td>
<td>95</td>
<td>320</td>
<td>55,000</td>
<td>Dec. 22, 1955</td>
</tr>
<tr>
<td>Klamath</td>
<td>210</td>
<td>12,100</td>
<td>557,000</td>
<td>Dec. 23, 1964</td>
</tr>
<tr>
<td>Mad</td>
<td>90</td>
<td>490</td>
<td>81,000</td>
<td>Dec. 22, 1964</td>
</tr>
<tr>
<td>Mateole</td>
<td>56</td>
<td>340</td>
<td>90,400</td>
<td>Dec. 22, 1955</td>
</tr>
<tr>
<td>Navarro</td>
<td>19</td>
<td>300</td>
<td>64,500</td>
<td>Dec. 22, 1955</td>
</tr>
<tr>
<td>Noyo</td>
<td>35</td>
<td>130</td>
<td>26,600</td>
<td>Mar. 29, 1974</td>
</tr>
<tr>
<td>Russian</td>
<td>105</td>
<td>1,450</td>
<td>102,000</td>
<td>Feb. 18, 1986</td>
</tr>
<tr>
<td>Salmon</td>
<td>46</td>
<td>750</td>
<td>100,000</td>
<td>Dec. 23, 1964</td>
</tr>
<tr>
<td>Scott</td>
<td>68</td>
<td>650</td>
<td>54,600</td>
<td>Dec. 22, 1964</td>
</tr>
<tr>
<td>Shasta</td>
<td>52</td>
<td>790</td>
<td>21,500</td>
<td>Dec. 22, 1964</td>
</tr>
<tr>
<td>Smith</td>
<td>50</td>
<td>650</td>
<td>228,000</td>
<td>Dec. 22, 1964</td>
</tr>
<tr>
<td>Trinity</td>
<td>170</td>
<td>2,850</td>
<td>251,000</td>
<td>Dec. 22, 1964</td>
</tr>
<tr>
<td>Van Duven</td>
<td>68</td>
<td>275</td>
<td>48,700</td>
<td>Dec. 22, 1964</td>
</tr>
</tbody>
</table>

Some Statistics:
- Area: 19.476 square miles (12.3% of State)
- Average annual precipitation: 50.6 inches
- Year 2000 population: 4,015
- Total reservoir storage capacity: 3.78 TAF
- 2000 irrigated crop area: 325,000 acres


What is the Extent of Our Stream & River Resources?

Select Region: North Coast

<table>
<thead>
<tr>
<th>Climate</th>
<th>Highest yearly rainfall totals in California, with areas near the Oregon border receiving nearly 200 inches. High-intensity, long-duration rainfall events common. Precipitation dominated by rainfall with heavy snowfall limited to Klamath Mountains and Trinity Alps. Intense orographic effects in mountain ranges near coast.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tectonic Setting</td>
<td>Area located north of Mendocino Triple Junction dominated by subduction zone tectonics with high rates of uplift in Coast Ranges close to subduction zone and active volcanoes in nearby Cascade Range. Area south of Mendocino Triple Junction dominated by mountain building along compressional sections of San Andreas Transform.</td>
</tr>
<tr>
<td>Geology</td>
<td>Geologic units record past and present subduction zone tectonic activity. Near-modern and ancient subduction zone rocks dominated by mixtures of volcanic and sedimentary units with isolated serpentinite units. In area to east, older rocks composed of granitic and metamorphic rocks with younger rocks dominated by volcanics. Subduction zone rocks highly unstable and prone to landslides and erosion.</td>
</tr>
<tr>
<td>Sediment Supply</td>
<td>State’s highest total sediment yields. Caused by combination of unstable rock types/soils, high rates of uplift, high total rainfall, and land use practices that promote erosion, such as logging and grazing.</td>
</tr>
<tr>
<td>Runoff Characteristics</td>
<td>Rivers have highest peak discharges recorded in state. Smaller, coastal watersheds like Navarro, Mad, Smith, and Eel exhibit rapid hydrograph response with limited base flow and snowmelt. Eastern, larger rivers like Klamath and Trinity have more subdued hydrograph response and high overall base flow and snowmelt runoff.</td>
</tr>
</tbody>
</table>
Types of Streams & Rivers


→ **Large Rivers**


→ **Streams**

Landscape features with defined beds and banks that have been formed by water and which under typical circumstances are maintained by the flow of water.

→ **Perennial Streams**

A stream with the year-round presence of flowing surface water during a typical water year.

→ **Non-Perennial Streams**


- **Intermittent Streams**
  Streams containing flowing water for only a portion of the year. When not flowing, water may remain in sections (e.g., isolated pools) fed by springs or ground water with dry stretches occurring in the intervening areas.

- **Ephemeral Streams**
  Streams that contain running water only seasonally and not necessarily every year.
What is the Condition of Our Streams & Rivers?

Condition Measured Using Biological and Physical Indicators


Tools to Assess Biological and Physical Condition

Statewide Condition Assessment - Toxicity

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Stream and River Water Quality Assessment and Impairments Pursuant to the Clean Water Act

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Where has toxicity been observed in California waters?

What is the magnitude of observed toxicity?

How do the results of toxicity measurements compare among different land cover types?
This interactive map shows locations of sites sampled by the SWAMP and partner programs. All sites are color coded using the categorization process described here, which considers the available toxicity test endpoints in both water and sediment.

Develop associated page that provides means of viewing the raw data (CCAMP layout one example). Raw data show summarized value (% survival), as opposed to replicate data.

[Note: Add disclaimer language]

Add drop-down menus that allow you to filter data according to:
- matrix
- magnitude of toxicity
- Test species
- Toxicity observed (Y/N)
- Matrix
- Date – start and end

Drop-down menu on raw data page
- Test species
- Toxicity observed (Y/N)
- Matrix
- Date – start and end

[Here links to slide 9]
Where has Toxicity Been Observed in California Waters and What is the Magnitude of Observed Toxicity?

![Diagram of site categorization process]

**Figure 11. Site categorization process**

The process used to characterize the magnitude of toxicity at each site was designed to take into consideration the widely varying number of samples and test endpoints (such as fish or crustacean survival) among sites. If any toxic samples were measured for a site, the site was categorized based on the most sensitive endpoint. This process considers both individual sample results and the mean results for sites with multiple samples. Relative to the impaired waterbody listing process, a site coded “green” would not be listed for toxicity. Sites coded “yellow” to “red” would be listed if the number of toxic samples met the criteria outlined in the State Water Board’s Listing and De-listing Policy.

**NOTE:**

“**Toxic**” means sample result (e.g., survival) is significantly lower than the control result using the EPA Test of Significant Toxicity.

**The high toxicity threshold was derived for each endpoint as the mean between the most toxic 25th percentile of all toxic samples and the point of 99% confidence that the samples was toxic.”

The word “here” in text on slide 10 links to a separate page with this figure.
How do the Results of Toxicity Measurements Compare Among Different Land Cover Types?

Samples from sites in agricultural and urban areas had significantly higher toxicity than sites in less developed areas (Figure 9), and had a greater magnitude of toxicity (Figure 10). The differences in toxicity between undeveloped and urban areas was highly statistically significant ($p < 0.0005$); and the same is true for the difference between undeveloped and agricultural areas.

A subset of the sites assessed (536 out of 992) were mapped and categorized for land cover using geographic information system (GIS) analysis. For each site, an area 1 km upstream (including tributaries) and 500 m on either side of the stream was mapped. If land cover within those areas was greater than 10% “developed” (National Land Cover Dataset classification), they were designated as urban. This is based on the widely supported impervious surface area model that shows decreased ecological condition in streams draining lands with greater than 10% impervious surface area. Sites with greater than 25% agricultural land cover were classified as agricultural sites. Sites were classified as “undeveloped” if they had both less than 10% urban and less than 25% agricultural land cover. Sites were classified as “ag-urban” if they had both greater than 10% urban and 25% agricultural land cover.

Use fusion charts for these figures. These will be static figures that are updated occasionally. Possibly use series of tabs for figures or other means so only one figure shows at any given time.
This interactive map shows which of California's waters are listed as impaired for aquatic life uses (i.e., may not protect aquatic life) and which pollutants are involved. Also shown are condition assessments pursuant to Section 305(b) of the Clean Water Act. [Note: Add disclaimer language - Hunt]

**View 2010 303(d) Listing and current TMDL Information:**
- Click on a county or
- Select County from the pop-up menu above map
- Select Pollutant Category from the pop-up menu
- Use magnifier tool to zoom into an area of interest

**Listed Waters by Water Quality Control Region**
This chart shows …

[Note: discuss differences in assessment approaches between Regions]
What is Being Done to Protect and Restore Our Streams and Rivers?

A number of programs address existing water quality problems that affect stream health.

**Total Maximum Daily Loads (TMDLs)**  
Link back to 303(d) page/map


**Clean Water Grant Projects**  
[Show on map?]


**NPS – Watersheds of Focus**

**ILRP**

**Stormwater**

**Flow Studies (DFG and SWRCB)**

**Critical Habitat Designations** – (include link to map of designated critical habitat for salmonids)

**DPR Pyrethroid Re-registration**
Much of the water quality information for California streams was gathered in studies designed to identify problem areas and recommend solutions. Assessment of trends over time requires studies specifically designed for that purpose that can be maintained over many funding cycles. The trends information presented here is primarily from one large-scale State/federal program. Other trend monitoring programs have begun recently, but do not yet have a long enough data record to be presented here.

To view stream and river trend information:

- Click on a county, Region, or monitoring location or
- Select from the pop-up menu above the map

**Statewide Trends**
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What are the Stressors Affecting the Condition of our Streams and Rivers?


To view stream and river information:
- Click on a county or Region or
- Select from the pop-up menu above the map

Physical Stressors

Chemical Stressors

The Extent of Stressor Impact

This chart shows ...

[Note: include data from PSA, SPoT SMC, EMAP, CMAP, SG/LA, NPDES, land use, and pesticide use]
Tools to Assess Biological and Physical Condition


Toxicity Testing

Biological Assessment Indicators

- Benthic Macro-Invertebrates (BMI)
- Algae
- Fish

Physical Habitat Assessment

Chemical Assessment

Integrated Assessment Methods

- California Rapid Assessment Method (CRAM)
Laws, Regulations, Standards, and Guidelines to Protect Aquatic Life and Ecosystems

Introductory text

- Aquatic Life and Ecosystem Protective Standards

- Aquatic Life Protection Standards for Streams and Rivers
  The Water Quality Control Plans (Basin Plans) of the nine Regional Water Quality Control Boards include standards to protect aquatic life and ecosystems. These standards vary from place to place.

- Development of Biological Objectives
  The State Water Resources Control Board is developing statewide biological objectives to protect aquatic life uses of streams and rivers.

- Clean Water Act Sections 303(d) and 305(b)
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- Non-Point Source Policy
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- Stormwater Program Permits
  Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut quis ante arcu, non rutrum dolor. Morbi nec malesuada urna. Cras a metus elit. Quisque aliquam pharetra

- Numeric Nutrient Endpoints
  Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut quis ante arcu, non rutrum dolor. Morbi nec malesuada urna. Cras a metus elit. Quisque aliquam pharetra