Maximizing the Effectiveness of Water Quality Data Collection & Dissemination

Jon B. Marshack, D.Env.
Monitoring Council Coordinator
State Water Resources Control Board
Everyone Needs Data

- 211,000 miles of rivers & streams
- >1.6 million acres lakes
- 1,100 miles of coastline
- 1.3 million acres of bays and estuaries
- 15 million acre-feet of groundwater extracted per year
The Water Quality & Ecosystem Information Problem

2006 CALIFORNIA 303(d) LIST *
OF WATER QUALITY LIMITED SEGMENTS

* Includes waters requiring TMDLs, and those being addressed by completed TMDLs or actions other than a TMDL.
The Response – Senate Bill 1070

- Became state law in 2006
- Required formation of California Water Quality Monitoring Council
- Memorandum of Understanding between California Environmental Protection Agency and California Natural Resources Agency
- By December 1, 2008: Monitoring Council recommendations
  - Maximize efficiency and effectiveness of existing water quality data collection and dissemination
  - Ensure collected data available to decision makers and public
- Comprehensive Monitoring Program Strategy for CA
Monitoring Council Members

California Natural Resources Agency
California Department of Water Resources
California Coastkeeper Alliance
California Department of Public Health
SCCWRP
EBDA
Klamath Watershed Institute
California Water Quality Monitoring Council

East San Joaquin Water Quality Coalition
California Water Boards
Cal/EPAT
California Stormwater Quality Association
Association of California Water Agencies
CASQA
CDPH

A Statewide Voice for Our Waters
Established 1969
EAST BAY DISCHARGERS AUTHORITY
Leadership Advocacy Information
The Monitoring Council’s Solution

Don’t get mired in technical details!

- Focus first on streamlined data access
  - Theme-based web portals
  - Directly address users’ questions
  - Single global point of entry
- Theme-specific workgroups
- Overarching Monitoring Council guidance
Theme-Specific Workgroups
Issue-experts represent key stakeholders

Monitoring Council

Develop web portal

Develop monitoring & assessment methods & data management procedures
Achieve standardization
Coordinate monitoring programs
Role of the Monitoring Council

- Establish policies and guidelines
- Clearinghouse for standards, guidelines & collaboration
- Resolve key issues
- Provide support
- Improve visibility
My Water Quality Website and Portal Demonstration

www.CaWaterQuality.net
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 that may be viewed across space and time. Initial web portal development concentrates on four theme areas, with web portals to be released one at a time. Click the Contact Us tab for more information.

The Monitoring Council seeks to provide multiple perspectives on water quality information and to highlight existing data gaps and inconsistencies in data collection and interpretation, thereby identifying areas for needed improvement in order to better address the public’s questions. Questions and comments should be addressed through the Contact Us tab.

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. [Future Portal]

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?
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 >>
Is It Safe to Swim In Our Waters?

Show County Info:  – Select County –

Beach water quality monitoring and strong pollution prevention measures are critical for protecting beach goers from waterborne diseases. Monitoring is performed by city and county health agencies, publicly owned sewage treatment plants, other dischargers, environmental groups and numerous citizen-monitoring groups.

View Monitoring and Assessment Information

- Click on a county or;
- Select from the Show County Info menu.

QUESTIONS ANSWERED

- Can I swim at my beach, lake, or stream?
- How clean was my beach, lake, or stream during the past week or month?
- What are the long-term trends at my beach, lake, or stream?
- Which beaches, lakes, and streams are currently closed by county health agencies?
- Which beaches, lakes, and streams are listed by the State as impaired?
- Are the problems getting better?
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Can I Swim at My Beach, Lake, or Stream?

The vast majority of the time, California’s waters are open and available for recreation uses visitors enjoy. Unfortunately, there are times when it is not advisable to go in the waters due to bacterial contamination.

- County Health Agency Ocean Beach Closures and Postings
  County health agency websites and contact information provide the most immediate information on ocean beach postings and closures.
  - Postings - Warnings to avoid contact with the water, monitoring shows bacteria levels exceed standards.
  - Closures - Prohibitions on uses of water. Imminent public health threats, such as sewage spills.

- Heal the Bay Ocean Beach Report Card
  A third party rating system that evaluates the water quality of individual California beaches, based on the previous 4 weeks of monitoring results. Data are submitted to the State Water Resources Control Board from county health agencies. These report cards are updated weekly. Report card grades are based on the State’s water quality standards for recreational waters. Click on a county and then on a specific beach to view information about that beach. Not a state-affiliated website.

- Assessments for Freshwater Lakes and Streams
  Currently, few agencies and organizations provide such assessments electronically. Contact your local park, concessionaire, or county health agency for more information.
Which Beaches, Lakes, or Streams are Currently Closed or Posted by County Health Agencies?

Show County Info: – Select County –

Ocean Beaches
This interactive map provides access to the most current information on postings and closures.

- Postings - Warnings to avoid contact with the water. Monitoring shows bacteria levels exceed standards.
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This information is updated daily to weekly, depending on the county.

View Posting and Closure Information

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Freshwater Lakes and Streams
A few county health agencies provide creek and lake information along with ocean beach information. Otherwise, lake and stream information is currently unavailable electronically.
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California Water Quality Monitoring Council

Ocean Water Protection Program
Health Care Agency

Ocean & Bay Closures, Warnings and Advisories Status Report

March 1, 2011 at 11:45 AM
Report is updated when a change of status occurs.

Updates by phone: (714) 433-6400

Ocean Water Quality updates on twitter
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What are the Long-Term Bacteria Trends at My Beach, Lake, or Stream?

Understanding trends allows decision makers to determine whether pollution sources are increasing in magnitude and/or frequency and the effectiveness of control measures.

View Trends in Bacterial Indicator Levels

The interactive map below provides sampling results for coastal beach monitoring locations over time. A few county health agencies provide creek and lake information along with ocean beach information. Otherwise, lake and stream information is currently unavailable electronically.

- To find bacterial sample results for a particular site, first select the county, then click on a site location. The results will appear to the right of the map. Results may take time to appear.
- Place your mouse cursor over a point on the chart to see the date and sample result for a particular sample event.

Horizontal lines on the charts represent bacterial water quality objectives specified in the 2005 California Ocean Plan.

- Red is the Single Sample Maximum
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Which Beaches, Lakes, and Streams Are Listed as Impaired for Bacterial Indicators?

This interactive map shows which of California's waters are listed as impaired for contact recreation related factors and which pollutants are involved. Also shown are potential sources of pollutants and the Total Maximum Daily Load (TMDL) projects to reduce pollutants to acceptable levels.

View 2006 303(d) Listing and current TMDL Information:

- Click on a water body (shown in red), or;
- Select (or type) the county in the County box, then select the water body from the Water Body menu, or;
- Select (or type) the water body name directly in the Water Body box.

Impaired Water Bodies

Listed a water body as impaired in California is governed by the State Water Board's 303(d) Listing Policy.

Regional Water Boards assess water quality data for California's waters every two years to determine if they contain pollutants at levels that exceed protective water quality criteria and standards. This biennial assessment is required under Section 303(d) of the federal Clean Water Act.
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Pathogens in the Napa River Watershed
Total Maximum Daily Load (TMDL)

Staff Report

California Regional Water Quality Control Board
San Francisco Bay Region
Are the Problems Getting Better?

A number of programs address existing water quality problems that affect swimming safety.

- **Clean Beaches Initiative Grant Projects**
  California is committed to improving and protecting beaches along its coast. Since 2001, California has invested $100 million in Clean Beaches Initiative grants to fund local projects that reduce bacterial contamination along the coast. The State has also funded research to develop more rapid detection methods for knowing when to post beaches, tracking the sources of contamination, and studies to better understand the relationship between bacterial indicators and incidence of disease.

- **Total Maximum Daily Loads (TMDLs)**
  A Total Maximum Daily Load, is a regulation designed to improve water quality by controlling the amount of a pollutant entering a water body. Under the federal Clean Water Act, every impaired water body on the [303(d) list](https://example.com) is required to have a TMDL, designed to bring the water body back into compliance with water quality standards.

  - **TMDLs that address Pathogens, Bacterial Indicators, and Swimming Safety.**
Clean Beaches Initiative (CBI)

The Clean Beaches Initiative Grant Program addresses postings and closures at California public beaches caused by bacterial contamination. CBI grants help local agencies, non-profit organizations, and public agencies implement projects that protect and restore California's coastal water quality. This interactive map presents coastal water quality improvement projects funded by the CBI Grant Program.

View Information on a Specific CBI Grant Project

- Click on a map location, or
- Select the project name from the pop-up menu.

Statewide Clean Beaches Initiative Information

- For more information about a specific project, email Patricia.Leary or phone (916) 341-5167
- Clean Beach Videos
  - English Version:
    - no subtitles
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Cal/EPA
Natural Resources Agency
About the California Water Quality Monitoring Council

SAFE TO SWIM LINKS
Pollution Sources & Health Risks
Laws, Regulations & Standards
Regulatory Activities
Enforcement Actions
Research
Monitoring Programs, Data Sources & Reports

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Fecal Bacteria Source Identification Study at Campbell Cove State Beach, Bodega Bay

Campbell Cove State Beach, Bodega Bay is a popular beach for families, school field trips, kayaks, divers, etc. because of its beach being protected from the rough northern California surf and water temperatures often 10° warmer than the open coastline water temperatures. A year-round source of freshwater flows from the “Hole-in-the-Head” pond onto the beach that attracts a constant flock of sea gulls who like to drink from the creek. However, a phenomenon has been observed of elevated fecal bacteria contamination typically during the fall months that led to a Clean Beaches Initiative (CBI) Grant that should help lower the level of bacteria at the beach.

The County of Sonoma Environmental Health Division in cooperation with the North Coast Regional Water Quality Control Board, Bodega Marine Laboratory and California Parks and Recreation Department to date have ruled out the State beach’s vault privy (see attached photo) through extensive dye studies. The California Parks and Recreation Department has implemented a dog ban notice. The Bodega Marine Laboratory has completed one study phase of tidal circulation patterns in May 2003 and is conducting a second study the week of October 13-17, 2003. Results from the May 2003 tidal circulation study indicated: strong tidal circulation with high rate of flushing within Bodega Harbor including Campbell Cove and small area of tidal intake outside the harbor mouth limited to less than 300 meters.

The County of Sonoma contracted with Dr. Mansour Samadpour with the Institute for Environmental Health to conduct
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QUESTIONS ANSWERED

- Can I eat fish or shellfish caught in my lake, stream, or ocean?
- Does my lake, stream, or ocean location have fish or shellfish with contaminants at levels of concern?
- What are the levels and long-term trends in my lake, stream, or ocean location?
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Show County Info:  - Select County -  

Yuba County
- Fish consumption advisories
- Recent conditions
- Fish contaminant data
- Impaired waters and TMDLs

Questions Answered
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Water Quality information addressing these questions is currently available for the counties that are shaded on this map. This information is regularly updated and is available for your use.
Can I Eat Fish or Shellfish Caught in My Lake, Stream, or Ocean Location?

County: Yuba

Water Body:

Show county

Fish and Shellfish Consumption Advisories by Location

There are health benefits from eating fish and shellfish. But, some fish and shellfish may contain chemical or biotoxin contaminants that could pose health risks. When contaminant levels are unsafe, consumption advisories may recommend that people limit or avoid eating certain species of fish caught in certain places and at certain times.

California Sport Fish Consumption Advisories

For a number of California water bodies, the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) publishes consumption advisories for chemicals in noncommercial fish which you and your family or friends catch.

These advisories are shown on the map to the left.

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SAFE EATING GUIDELINES FOR FISH FROM THE LOWER FEATHER RIVER (BUTTE, YUBA AND SUTTER COUNTIES)
[08/11/06, UPDATED 03/18/09]

Safe Eating Guidelines for the Lower Feather River

Women 18 – 45 and Children 1 – 17 Years

<table>
<thead>
<tr>
<th>Fish</th>
<th>Safe Eating Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Shad</td>
<td>4 Servings a week</td>
</tr>
<tr>
<td>Carp</td>
<td>1 Serving a week</td>
</tr>
<tr>
<td>Black Bass</td>
<td>Do not eat</td>
</tr>
<tr>
<td>Sucker</td>
<td></td>
</tr>
<tr>
<td>Redear or other sunfish</td>
<td></td>
</tr>
<tr>
<td>Catfish</td>
<td></td>
</tr>
<tr>
<td>Pikeminnow</td>
<td></td>
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- Safe Eating Guidelines
- Women & Children
- Alternate Languages
  - Pescado
- Chemicals in Fish
  - Mercury
  - PCBs
- Advisory Map
- Reports
  - Angler Survey
  - Fish Consumption
  - Advisory Tissue Levels
- Oil Spill Information
- Links

EXTERNAL FISH RESOURCES

- USEPA/FDA RECOMMENDATIONS FOR FISH CONSUMPTION
- DEPARTMENT OF FISH AND GAME SPORT FISH REGULATION BOOKS
- DEPARTMENT OF PUBLIC HEALTH FISH INFORMATION
- SACRAMENTO-SAN JOAQUIN DELTA FISH MERCURY PROJECT
- SOUTHERN
What are the Levels and Long-Term Trends in My Lake, Stream, or Ocean Location?

Contaminant Data

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- Enter your own threshold or modify thresholds displayed on the map by clicking the Change Thresholds link in the map legend.

Select Species:
Species With Highest Avg Concentration

Select Contaminant:
Mercury

Select Start Date:
2007

Select End Date:
2008

Go  Reset
What are the Levels and Long-Term Trends in My Lake, Stream, or Ocean Location?

Select location from list.

Zoom to county.

Contaminant Data

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Select Species:

- Species With Highest Avg Concentration
- American Shad
- Black Crappie
- Bluegill
- Brook Trout
- Brown Bullhead
- Brown Trout
- Channel Catfish
- Chinook Salmon
- Common Carp
- Eagle Lake Trout

2008

Go | Reset
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2007

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Select Species:

- Species With Highest Avg Concentration

Select Contaminant:

- Mercury
- Chlordane
- DDTs
- Dieldrin
- Mercury
- PCBs
- Selenium

Select End Date:

- 2008

Go Reset
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**Select Species:**

- Species With Highest Avg Concentration

**Select Contaminant:**

- Mercury

**Select Start Date:**

- 2005
- 2006
- 2007
- 2008
- 2009

**Change Thresholds**
What are the Levels and Long-Term Trends in My Lake, Stream, or Ocean Location?

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- Species With Highest Avg Concentration

Select Contaminant:
- Mercury

Select Start Date:
- 2005

Select End Date:
- 2008

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<table>
<thead>
<tr>
<th>Threshold</th>
<th>Units</th>
<th>Comments</th>
<th>Include?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.07</td>
<td>ug/g</td>
<td>OEHHA Advisory Tissue Level - 3 servings/week (upper end of recommended range)</td>
<td>✔️</td>
</tr>
<tr>
<td>0.15</td>
<td>ug/g</td>
<td>OEHHA Advisory Tissue Level - 2 servings/week (upper end of recommended range)</td>
<td>✔️</td>
</tr>
<tr>
<td>0.22</td>
<td>ug/g</td>
<td>OEHHA Fish Contaminant Goal</td>
<td>✔️</td>
</tr>
<tr>
<td>0.3</td>
<td>ng/g</td>
<td>USEPA National Recommended Water Quality Criterion and State Water Board 303(d) Threshold</td>
<td>✔️</td>
</tr>
<tr>
<td>0.44</td>
<td>ug/g</td>
<td>OEHHA Advisory Tissue Level - 1 serving/week (upper end of recommended range)</td>
<td>✔️</td>
</tr>
</tbody>
</table>

Select Species:

- Highest Avg Concentration
What are the Levels and Long-Term Trends in My Lake, Stream, or Ocean Location?

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Select location from list.

Zoom to county: Butte

Lake Oroville

What are the most recent data for my location?

Contaminant Data For 2007 - 2009

<table>
<thead>
<tr>
<th>Species</th>
<th>Sample Type</th>
<th>MERCURY (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Carp</td>
<td>Location Composite 1</td>
<td>0.29 (2007)</td>
</tr>
<tr>
<td>Common Carp</td>
<td>Location Composite 2</td>
<td>0.22 (2007)</td>
</tr>
<tr>
<td>Common Carp</td>
<td>Location Composite 3</td>
<td>0.23 (2007)</td>
</tr>
<tr>
<td>Common Carp</td>
<td>Location Composite 4</td>
<td>0.31 (2007)</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>Average of Individuals 1</td>
<td>0.5 (2007)</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>Average of Individuals 2</td>
<td>0.45 (2007)</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>Average of Individuals 3</td>
<td>0.42 (2007)</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>Average of Individuals 4</td>
<td>0.39 (2007)</td>
</tr>
</tbody>
</table>

Mercury in Species With Highest Avg Concentration (ppm) Years: 2007 - 2008
- 0.44
- 0.3 - 0.44
- 0.22 - 0.3
- 0.15 - 0.22
- 0.07 - 0.15
- <0.07

Change Thresholds

Select End Date:

2008

Go    Reset
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Contaminant Data

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Lake Oroville

How does my location compare to nearby water bodies?

<table>
<thead>
<tr>
<th>Nearby Water Body</th>
<th>Distance (mi)</th>
<th>Species</th>
<th>Mercury (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermalito Afterbay</td>
<td>14.07</td>
<td>Species With Highest Avg Concentration (Common Carp)</td>
<td>0.24 (2007)</td>
</tr>
<tr>
<td>Collins Lake</td>
<td>16.01</td>
<td>Species With Highest Avg Concentration (Largemouth Bass)</td>
<td>0.38 (2008)</td>
</tr>
<tr>
<td>Bullards Bar Reservoir</td>
<td>18.33</td>
<td>Species With Highest Avg Concentration (Largemouth Bass)</td>
<td>0.4 (2008)</td>
</tr>
<tr>
<td>Harry L Englebright Lake</td>
<td>21.19</td>
<td>Species With Highest Avg Concentration (Sacramento Sucker)</td>
<td>0.62 (2008)</td>
</tr>
<tr>
<td>Paradise Lake</td>
<td>22.72</td>
<td>Species With Highest Avg Concentration (Largemouth Bass)</td>
<td>0.16 (2008)</td>
</tr>
<tr>
<td>Bucks Lake</td>
<td>25.52</td>
<td>Species With Highest Avg Concentration (Rainbow Trout)</td>
<td>0.02 (2008)</td>
</tr>
<tr>
<td>Little Grass Valley Reservoir</td>
<td>25.94</td>
<td>Species With Highest Avg Concentration (Rainbow Trout)</td>
<td>0.02 (2008)</td>
</tr>
<tr>
<td>Lower Bucks Lake</td>
<td>26.45</td>
<td>Species With Highest Avg Concentration (Kokanee)</td>
<td>0.1 (2007)</td>
</tr>
<tr>
<td>Zayak/Swan Lake</td>
<td>32.74</td>
<td>Species With Highest Avg Concentration (Largemouth Bass)</td>
<td>0.98 (2007)</td>
</tr>
<tr>
<td>Scotts Flat Reservoir</td>
<td>33.25</td>
<td>Species With Highest Avg Concentration (Rainbow Trout)</td>
<td>0.03 (2008)</td>
</tr>
</tbody>
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Change search parameters:
Which Lakes, Streams, or Ocean Locations Are Listed By The State As Impaired?

This interactive map shows which of California's waters are listed as impaired for uses related to fish or shellfish consumption by humans and which pollutants are involved. Also shown are the Total Maximum Daily Load (TMDL) projects to reduce pollutants to acceptable levels.

View 2006 303(d) Listing and current TMDL Information:

- Click on a water body (shown in red), or
- Select (or type) the county in the County box, then select the water body from the Water Body menu, or
- Select (or type) the water body name directly in the Water Body box
- Use the magnifier tool to zoom into an area of interest (more highlighted water bodies will appear)
- Click on the state outline tool to return to a statewide view

Impaired Water Bodies

Listing a water body as impaired in California is governed by the State Water Board's 303(d) Listing Policy.

The State and Regional Water Boards assess water quality data for California's waters every two years to determine if they contain pollutants at levels that exceed protective water quality criteria and standards. This biennial assessment is required under Section 303(d) of the federal Clean Water Act.
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San Pablo Bay

- Pollutant of concern: PCBs (Polychlorinated biphenyls)
- Size affected: 68,349 Acres
- TMDL status: Regional Board adopted TMDL
  - Final Staff Report
  - TMDL Page

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Listed water body in the San Francisco Bay Region.
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Safe to Eat Fish & Shellfish
Pollution Sources & Health Risks

What are the Sources of Fish and Shellfish Contamination?

Most California fish consumption advisories involve four primary contaminants: mercury, PCBs, DDTs, and dieldrin. These and other chemical contaminants persist for long periods in the environment. Persistent organic chemicals, such as PCBs, DDT, and dieldrin accumulate in fatty tissues. Mercury, on the other hand, accumulates primarily in muscle tissue. Levels of all of these contaminants increase as they are transferred up the food chain. For example, concentrations of mercury in top predators (such as largemouth bass) may be a million times higher than concentrations in water.

These pollutants originate from a number of past and present municipal, industrial, and agricultural sources, such as mercury and gold mining, pesticide use around homes and in agriculture, leaking electrical transformers, and chemical manufacturing.

The history of gold mining in California’s Sierra Nevada Motherlode began with the Gold Rush of 1848/49 and is well known. Mercury, mined mainly in the Coast Range, was used to amalgamate the gold. Between 1848 and 1931, 88% of the mercury mined in the United States came from the northern Coast Range of California. The map on the right shows the historic extent of gold, silver, and mercury mining in California. Mercury contamination from mining activities persists to this day and contributes to the mercury that accumulates in fish. Other sources of mercury include emissions from the burning of fossil fuels and oil refining, the deposition of those atmospheric emissions, municipal and industrial wastewater discharges, and urban runoff.

What are the Risks of Eating Contaminated Fish and Shellfish?

The amounts of chemicals found in sport fish in California are not known to cause immediate sickness. But chemicals can collect in the body over time and they may eventually affect your health or that of your children. Some of the adverse health effects that might occur from long-term exposure to high levels of toxic chemicals in fish include increased risk of cancer, damage to the developing nervous system in the fetus and in young children, and damage to the reproductive system.

Information for Fish Consumers:

- Methylmercury in sport fish
- PCBs in fish caught in California

How Can I Reduce My Risks from Eating Contaminated Fish and Shellfish?

Fish and shellfish are an important part of a healthful diet. There are things you can do to help lower your chances of taking in...
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 that may be viewed across space and time. Initial web portal development concentrates on four theme areas, with web portals to be released one at a time. Click the Contact Us tab for more information.

The Monitoring Council seeks to provide multiple perspectives on water quality information and to highlight existing data gaps and inconsistencies in data collection and interpretation, thereby identifying areas for needed improvement in order to better address the public's questions. Questions and comments should be addressed through the Contact Us tab.

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. [Future Portal]

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?
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>>
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. [Future Portal]

**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. [Future Portal]

**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. [Future Portal]
Welcome to the California Wetlands Portal

The purpose of the Wetlands Portal is to provide the public information on the quantity and quality of California wetlands.

Explore your wetlands

Select a region to view interactive maps monitoring information related to wetlands and wetland projects.

- North Coast
- San Francisco Bay Area
- Central Coast
- South Coast
- Central Valley
- Lahontan
- Colorado River Basin

Questions Answered

Click on a question below to view summary information based on available monitoring results.

- Where are California’s wetlands? Is there a wetland near me?
- How much wetland habitat does California have?
- How much wetland habitat has California lost?
- How healthy are California's wetlands?
- What is being done to improve California's wetlands?
- What is the status of wetland mapping in California?

Wetland Condition

The California Wetlands Portal reports on wetland condition on the CRAM website.

News

Oct-18-2010

The California Natural Resources Agency released the second State of the State’s Wetlands report, which summarizes the progress made by
Bay Area Wetland Information

The California Wetlands Portal provides wetland scientists, managers, and the public information about the wetlands of selected regions of California. The Bay Area is one of several regions covered.

Information available

- Habitat: historical and modern habitat maps
- Projects: tidal and formerly tidal regions downstream of the Delta since 1998; Napa River watershed since 1998; Water Board certified projects since October 2006

- View a list of Bay Area wetland projects
- See Bay Area projects on an interactive map
- View summaries of Bay Area wetland restoration activity
- View answers to questions about Bay Area wetlands

Also: view a California map of wetland condition assessments (CRAM)
CALIFORNIA WETLANDS
Initial Portals

IS IT SAFE TO SWIM IN OUR WATERS?
- Coastal beaches, bays & estuaries – July 2009

IS IT SAFE TO EAT FISH AND SHELLFISH?
- Sport fish – December 2009

ARE OUR AQUATIC ECOSYSTEMS HEALTHY?
- Wetlands – March 2010
- Streams & Rivers – mockup approved
- Marine Rocky Intertidal – in construction
- Estuaries – workgroup forming

IS OUR WATER SAFE TO DRINK?
- Preliminary effort by GeoTracker GAMA
## Water Quality Monitoring Council’s Monitoring, Assessment, & Reporting Matrix

<table>
<thead>
<tr>
<th>WATER BODY TYPE</th>
<th>WATER BODY TYPE</th>
<th>BENEFICIAL USE</th>
<th>Stressors &amp; Processes</th>
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<td>SWRCB, SWAMP Healthy Streams Partnership</td>
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<td>Streams</td>
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<td>&quot;Swimmable&quot;</td>
<td>SWRCB, SWAMP Bioaccumulation Oversight Group</td>
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<td>Rivers</td>
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<td>&quot;Fishable&quot;</td>
<td>CDPH Drinking Water Program / DWR Water Quality Programs</td>
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<tr>
<td>Lakes</td>
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<td>&quot;Drinkable&quot;</td>
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<td>SWRCB, SWAMP Healthy Streams Partnership</td>
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California Water Quality Monitoring Council
Opportunities and Benefits

- Deliver answers to the public
  - Underscore important work of agencies involved

- Provide framework to motivate and guide improvement
  - Reveal data gaps, lack of assessment tools, poor data integration, and other problems hamper statewide assessment

- Broader assessments possible through information sharing
Opportunities and Benefits (cont.)

- Automate agencies’ annual reporting
- Allow decision makers, legislators, and public understand how their dollars are spent
  - Beyond bean counting – Are conditions getting better?
  - Big picture status and trends
  - Access to information to guide future expenditures
- Collaboration improves efficiency of monitoring and assessment programs
- Transparency builds credibility
California’s Comprehensive Monitoring Program Strategy

www.waterboards.ca.gov/water_issues/programs/monitoring_council
CA Estuary Monitoring Workgroup
Monitoring Council Direction

- Endorsed proposal to
  - Form California Estuary Monitoring Workgroup
  - Develop California Estuaries Portal
- Initial focus on SF Bay-Delta
- Include statewide focus from the beginning
  - Be open to participants representing monitoring and assessment efforts in other California estuaries
CA Estuary Monitoring Workgroup
Assessment Questions Drive Portal

- What are Estuaries?
  - What is the SF Estuary?
    - Location and extent of the resource
      - Dept of Water Resources Delta Atlas
      - Water Education Foundation – Aquafornia web portal
      - Habitats/ecosystems, flooding, levees
    - Importance to California -- Water supply; Fishery

- What is the status of SF Estuary health?
  - Fish tissue – BOG & other studies
  - Water Quality
  - Fish population / food web / POD synthesis report
  - Report Card – integrate indicators

- What are the trends in SF Estuary health?
  - Historic Bay/Delta habitats – guide for ecosystem restoration?
  - Recent regime shift

- What is being done to make the estuary better?
  - Is it working?
  - Wetland restoration – link to wetland portal