A Swimmable California:
The Importance of Safe to Swim Policies and Programs
Federal and State Policies Regulations for Recreational Water Quality

Clean Water Act

The BEACH Act

Recreational Water Quality Criteria
2012

CPCWQCA means California Porter-Cologne Water Quality Control Act

California Department of Public Health
## CALIFORNIA’S ‘CURRENT’ BEACH WATER QUALITY STANDARDS

<table>
<thead>
<tr>
<th></th>
<th>Ocean</th>
<th>Single Sample Max</th>
<th>30-Day Geo. Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Coliform</strong></td>
<td>10,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td><strong>Fecal Coliform</strong></td>
<td>400</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td><strong>Enterococci</strong></td>
<td>104</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td><strong>Fecal/Total Ratio</strong></td>
<td>0.1 (total &lt;1,000)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Freshwater</th>
<th>Single Sample Max</th>
<th>30-Day Geo. Mean</th>
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</thead>
<tbody>
<tr>
<td><strong>Total Coliform</strong></td>
<td>10,000</td>
<td>1,000</td>
<td></td>
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<tr>
<td><strong>Fecal Coliform</strong></td>
<td>400</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td><strong>E.Coli</strong></td>
<td>235</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td><strong>Enterococci</strong></td>
<td>61</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>
Recreational Water Quality

- Fecal Indicator Bacteria
  - Indicate high likelihood of presence of pathogenic microorganisms
  - Historically concerned about wastewater plant impacts

- Health Risks at high fecal indicator bacteria (FIB) beaches
  - Stomach flu
  - Respiratory illness
  - Ear, nose, and throat infections
  - Skin rashes

- At risk populations
  - Children & elderly
  - Immuno-compromised and those with open wounds
Recreational Water Quality

- Sources of fecal matter (humans and animals)
  - Storm drains carrying urban runoff
  - Leaking septic/sewer systems
  - Human encampments
  - Boat discharges of raw sewage
  - Mammal and avian populations
RECREATIONAL WATER QUALITY PROGRAM

- Monitoring
  - Source ID/Abate
  - Assessment
  - Reporting

- Best Management Practices
  - Structural
  - Non-structural

- Enforcement

- Public Notification
**COMPLIANCE vs. PUBLIC HEALTH**

Why Public Notification Programs are important component in Recreational Water Quality Programs

### Federal Standards

<table>
<thead>
<tr>
<th>Criteria Elements</th>
<th>Estimated Illness Rate (NGI): 36 per 1,000 primary contact recreators</th>
<th>Estimated Illness Rate (NGI): 32 per 1,000 primary contact recreators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>GM (cfu/100 mL)</td>
<td>STV (cfu/100 mL)</td>
</tr>
<tr>
<td>Enterococci – marine and fresh</td>
<td>35</td>
<td>130</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. coli – fresh</td>
<td>126</td>
<td>410</td>
</tr>
</tbody>
</table>

### Federal Recommendations

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Estimated Illness Rate (NGI): 36 per 1,000 primary contact recreators</th>
<th>Estimated Illness Rate (NGI): 32 per 1,000 primary contact recreators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterococci – culturable (fresh and marine)</td>
<td>BAV (Units per 100 mL)</td>
<td>BAV (Units per 100 mL)</td>
</tr>
<tr>
<td>E. coli – culturable (fresh)</td>
<td>70 cfu</td>
<td>60 cfu</td>
</tr>
<tr>
<td>Enterococcus spp. – qPCR (fresh and marine)</td>
<td>235 cfu</td>
<td>190 cfu</td>
</tr>
<tr>
<td></td>
<td>1,000 cce</td>
<td>640 cce</td>
</tr>
</tbody>
</table>

*Note: cfu = colony-forming units, BAV = bacterial action value.*
IMPORTANCE OF A PUBLIC NOTIFICATION PROGRAM

Goals of the Program:

- Increase public awareness about water quality issues
  - Sewage spill notifications
  - Unsafe conditions
  - Contributions

- A tool:
  - to identify, address, and reduce/eliminate pollution problems at beaches
  - for increased research
  - to determine funding priorities and 303(d) listed impaired waters
  - civic involvement
HEAL THE BAY’S PUBLIC NOTIFICATION PROGRAMS

- The Beach Report Card Program
- The ‘Nowcast’ Program—Predictive Modeling
- The River Report Card Program
BEACH REPORT CARD

- A - F grades for beach water quality
- Easy-to-understand translation of bacteria indicator data
- Data from public agencies (Environmental Health Departments and POTWs)
- Endorsed by the CA State Water Resources Control Board and Beach Water Quality Workgroup as an effective education tool
- First published in 1992
NOWCAST PROGRAM—PREDICTIVE MODELING

- Our current monitoring and public notification (M&PN) programs leave the public at risk:
  - 24-48 hours from sample to posting
  - Rapid detection methods still take hours
  - Of the ~500 beaches monitored in CA: 
    ~30 sampled 5x per week
A mathematical tool using years of fecal indicator bacteria (FIB) and environmental data to develop statistical models that predict public health decisions for water.
NOWCAST PROGRAM—PREDICTIVE MODELING

• Great Lakes
  • Localized system with beach managers using models
  • Requires approximately 30 minutes daily per monitoring location

• Hong Kong
  • Centralized system with a third party running and maintaining models for many beaches
  • Requires very little time from local beach manager
NOWCAST PROGRAM—PREDICTIVE MODELING

• SWRCB grant to build permanent CA Beach Nowcast system:
  • Heal the Bay, Stanford, and UCLA
  • 3 year roll-out
  • 20 summer AB-411 beaches
  • 5 winter surf beaches

• Model Review via Technical Advisory Committee

• Implementation Committee

• Webpage and mobile app
A predictive model is being tested at this beach. **POOR WATER QUALITY** is predicted today based on observed conditions this morning. This means that bacteria levels are likely to be high and exceed the health standards and ocean water contact may cause illness. *Click here for more information.*
Steelhead Park, L.A. River

Description
This site is located in the Elysian Valley near Steelhead Park and is a primary exit point for many kayaks and kayak tours. It is the downstream end of the open recreation zone in Elysian Valley. Heal the Bay and the Los Angeles River Watershed Monitoring Program (LARWMP), specifically the Council for Watershed Health and Aquatic Bioassay & Consulting Laboratories, monitor at this location.

7/30/17
1/2 Exceedances (Yellow)

7/28/17
1/4 Exceedances (Yellow)

7/21/17
1/4 Exceedances (Yellow)

7/18/17
1/4 Exceedances (Yellow)

7/15/17
1/4 Exceedances (Yellow)
RIVER REPORT CARD—
UNREGULATED RECREATIONAL WATERBODIES

WARNING
Elevated bacteria levels can occur at
any time in this water

WATER CONTACT MAY CAUSE AN
INCREASED RISK OF ILLNESS
- AVOID water contact
- DO NOT drink the water
- WASH your body if you contact the water

For more information:
www.healthywater.org/waterquality

Fresh Water Swim Areas

Related Links:
- Visit the Los Angeles County Public Works Water Quality
- Fresh Water Swim Area Test Results
- Swimmer Infection Test Results
- Harmful Algae Bloom Information
- Pinyon Lake Warning

Fresh Water Swim Areas
Swimming and other recreation activities in rivers and streams may seem like a good way to keep active, however, there are risks associated with these waters. The water can be contaminated with bacteria, other harmful organisms, and unknown contaminants.

Designated Swim Areas
Los Angeles County maintains three designated swim beaches that provide restroom facilities, lifeguards, and chlorination to reduce the risk of elevated bacteria counts and harmful algae blooms. These swim beaches are located at Puddington Lake, Santa Fe Dam, and Castaic Lake and are normally open for the swim season from Memorial Day to Labor Day.

Pinyon Lake, in the Los Padres National Forest and part of the California State Water Project, also has swim areas. However, these are not
RESULTS

- Strong Public Notification Programs can and should inform Recreational Water Quality Programs:
  - Legislation—AB411, AB528, Clean Beach Initiative
  - Funding—Clean Beach Initiative, State Revolving Funds, Propositions, and SWRCB
  - Policy—303d listings, Bacterial Standards, and Model Monitoring
  - Education—informing agencies, elected, and stakeholders on health, program, policy, and fiscal decisions
THANK YOU