Use of a Wiki Portal for Watershed Management: An Integrated Approach

Prepared by : Soumya Chennapragada
Presented by : Clay Clifton
• San Diego Coastkeeper protects the region’s bays, beaches, watersheds and ocean for the people and wildlife that depend on them.

• We balance community outreach, education, and advocacy to promote stewardship of clean water and a healthy coastal ecosystem.
Purpose of Water Quality Monitoring

• Augment existing watershed data by engaging community to monitor water quality in their rivers and streams
• To answer: does water quality in county watersheds exceed water quality standards for particular constituents?
• Enhance decision-making at the regulatory level
• Get out in the field and enjoy the local environment!!
Inputs / Data Sources

- Watershed Data: Water Chemistry, Bacteria, Toxicity & Observational Data
- Stormwater co-permittee monitoring data
- County of SD Department of Public Health Beach Water Quality Data
- Observational Data – stormwater illegal discharges. Effectiveness of LID / BMPs in county
- Watershed data: Interviews, videos, pictures, other reports

Audiences

- Volunteers / Watershed Captains / Members of the General Public
  • Need interpretations

Output Needs / Criteria

- Engage community using existing technologies: GIS, Social Media, Google tools to understand w.q. issues and gather feedback
- Regulatory & regulated community to make more informed decisions re. allocation of resources to address non-point source pollution.
- Comparison of w.q. data with standards and Beneficial Uses in the Basin Plan
- Provide easily accessible and informative data to the public.
Welcome to San Diego Watersheds Wiki

This site is a platform to share information and data about San Diego region’s watersheds, along with the data collected through San Diego Coastkeeper’s water quality monitoring program.

- Check out our tutorial to get started
- Participate in our discussions about San Diego’s Watersheds.
- Questions? Contact us by e-mail.

Our program is completely fueled by community participation. Please add your thoughts by registering (it's easy) and starting a conversation about your watershed.

SAN DIEGO REGION WATERSHEDS

Water Monitoring Resources
- Water Quality Monitoring Program
- Low Impact Development
- Calendar
- World Water Monitoring Day
- Water Quality Indicators
- Blog
Water Quality Parameters Monitored and Data Displayed on the wiki:

1. Temperature
2. Dissolved Oxygen
3. pH
4. Conductivity (fresh water) or Salinity (marine)
5. Nitrate
6. Total Orthophosphate
7. Dissolved Metals (Cadmium, Chromium, Nickel, Lead, Copper, and Zinc)
8. Total Coliform bacteria
9. E.Coli bacteria
10. Enterococci bacteria
11. Benthic macro-invertebrates
12. Toxicity
Water Quality Data

**Nitrogen and Phosphorus: CBD_EDC.3 2009**
- **Dissolved Nitrate**
- **Dissolved Phosphorus**

**Conductivity: CBD_EDC.3 2009**
- Units: µS

**pH: CBD_EDC.3 2009**

**Dissolved Oxygen: CBD_EDC.3 2009**
- Units: mg/L
Impaired Waters in Carlsbad Watershed

Carlsbad Watershed Features
- Monitoring Sites
- 303(d) Listed Streams
- Lakes & Lagoons
- Freeways
- 305(b) listed Water Bodies
- Carlsbad Waterfall

Impaired Water Bodies in Carlsbad Watershed

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Pollutant/Stressor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agua Hedionda Creek</td>
<td>Manganese, Selenium, Sulfate, Total Dissolved Salts</td>
</tr>
<tr>
<td>Aguas Hedionda Lagoon</td>
<td>Indicator bacteria, Sedimentation/Infiltration</td>
</tr>
<tr>
<td>Buena Vista Creek</td>
<td>Sediment Toxicity</td>
</tr>
<tr>
<td>Buena Vista Lagoon</td>
<td>Indicator bacteria, Nutrients, Sedimentation/Infiltration</td>
</tr>
<tr>
<td>Cottonwood Creek (San Marcos)</td>
<td>COT, Phosphorus, Sediment Toxicity</td>
</tr>
<tr>
<td>Escondido Creek</td>
<td>Phosphorus</td>
</tr>
<tr>
<td>Escondido Creek</td>
<td>COT, Manganese, Phosphates, Selenium, Sulfate, Total Dissolved Salts</td>
</tr>
<tr>
<td>Escondido Creek</td>
<td>Indicator bacteria</td>
</tr>
<tr>
<td>Pacific Ocean Shoreline, Buena Vista Creek</td>
<td>Indicator bacteria</td>
</tr>
<tr>
<td>Pacific Ocean Shoreline, Escondido Creek</td>
<td>Indicator bacteria</td>
</tr>
<tr>
<td>Pacific Ocean Shoreline, Loma Alta</td>
<td>Indicator bacteria</td>
</tr>
<tr>
<td>Pacific Ocean Shoreline, San Marcos</td>
<td>Indicator bacteria</td>
</tr>
<tr>
<td>Rincon Lagoon</td>
<td>Eutrophic, Indicator bacteria, Sedimentation/Infiltration</td>
</tr>
<tr>
<td>San Dieguito Lagoon</td>
<td>Indicator bacteria, Nutrients, Sedimentation/Infiltration</td>
</tr>
<tr>
<td>San Marcos Creek</td>
<td>DOC, Phosphorus, Sediment Toxicity</td>
</tr>
<tr>
<td>San Marcos Lagoon</td>
<td>Indicator bacteria</td>
</tr>
</tbody>
</table>

Land Use Map of Carlsbad Watershed

Watershed Land Use

<table>
<thead>
<tr>
<th>Type</th>
<th>Share of Watershed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>37.0%</td>
</tr>
<tr>
<td>Commercial</td>
<td>20.0%</td>
</tr>
<tr>
<td>Parks &amp; Open Spaces</td>
<td>31.0%</td>
</tr>
<tr>
<td>Golf Course</td>
<td>2.1%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>6.3%</td>
</tr>
<tr>
<td>Industry</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Legend:
- Streams
- Lakes and Lagoons
- Industry
- Commercial
- Under Construction
- Agriculture
- Parks and Open spaces
- Residential

Data sources provided by SDGWCD, SDE, San Diego County, San Diego River Authority.

Preview of Information on watershed pages
Preview of Information on watershed pages

Interactive Map

Data

Monitoring Sites
San Diego Coastkeeper currently conducts monthly water quality monitoring at 13 sites in the Carlsbad watershed. The monitoring sites and their locations are as follows:

CBD_BVC_1: Encinitas Lagoon near intersection of Jefferson Dr and Monson Rd, off parking lot
CBD_BVC_2: Las Vueltas Lagoon at Jefferson St Bridge (near Vueltas Way)
CBD_BVC_3: Rancho Santa Fe Creek near Loma Rd and College Rd
CBD_BVC_4: Encinitas Creek near the Levante St Bridge (south side)
CBD_BVC_5: San Marcos Creek at Box Canyon Dam (downstream at bank)
CBD_BVC_6: Escondido Creek at Santa Fe Road Bridge
CBD_BVC_7: Encinitas Lagoon at Elfin Forest (north side)
CBD_BVC_8: Escondido Creek near Harmony Grove Road, off dirt road
CBD_BVC_9: Escondido Creek at Elfin Forest Reserve, downstream of main bridge
CBD_BVC_10: Escondido Creek near intersection of Country Club Dr/Harmony Grove Rd, near bridge
CBD_BVC_11: San Elijo Lagoon at Visitor Center, near first observation platform
CBD_BVC_12: San Elijo Lagoon near Mira Costa College Rd

Watershed Captains in Carlsbad Watershed
Blue Valley & Jeff Anderson; Ken Coote & Dan

Watershed Studies and Reports
- Surface Water Ambient Monitoring Program (SWAMP) Report on the Carlsbad Hydrologic Unit - 2007
- Carlsbad Urban Runoff Management Program 2005 - 2006

Watershed Resources
- Carlsbad Watershed Network
- San Elijo Lagoon Conservancy (SELCO)
- Tolay Valley Lagoon Association

Nitrogen and Phosphorus: CBD_BVC_1 2009
Units: mg/L

Conductivity: CBD_BVC_1 2009
Units: uS

Dissolved Oxygen: CBD_BVC_1 2009
Units: mg/L
Interactive LID Inventory Map
Marine Debris Information/Data

Top 10 items collected at San Diego Beach Cleanups

- Cigarette/Cigarette Butts (41%, 2009), (45%, 2008)
- Other Plastics (34%, 2009), (39%, 2008)
- Paper (8%, 2009), (8%, 2008)
- Plastic Food Wrappers (8%, 2009), (5%, 2008)
- Plastic Bottles (8%, 2009), (11%, 2008)
- Other Glass (3%, 2009), (5%, 2008)
- Plastic Bottles Caps (6%, 2009)

Total Wt. of trash collected: 7388 lbs (2009), 5152 lbs (2008)
Total No. of volunteers: 4611 (2009), 3964 (2008)
Water quality indicators

Contents

1 Alkalinity
2 Bacteria
3 Conductivity
4 Dissolved Oxygen (DO)
5 pH
6 Nitrates
7 Phosphates
8 Physical River Characteristics

Alkalinity

This indicator is a measure of the river's ability to neutralize acid inputs from precipitation or discharges. Rivers with low alkalinity are subject to great fluctuations in pH that disrupt aquatic life.

Bacteria

Certain types of bacteria are indicators of the presence of human sewage, pet waste or livestock manure and are a risk to human health. The bacteria indicator for fresh water is "Escheria coli" (E. coli) or fecal coliform. "Enterococcus" indicates pathogens in salt water and is the type of bacteria that is measured to indicate whether a beach should be closed or not. Bacteria is measured in counting the Most Probable Number (MPN).

Conductivity

Water contains various natural and human-introduced materials that are inorganic and have the ability to pass an electric current. Conductivity measures the ability of the particles in the water to transfer electricity. It is used as an indicator of the presence of chlorides, nitrates, sulfates and phosphorus anions (negatively charged ions) and sodium, magnesium, calcium, iron and aluminum cations (positively charged ions). If a conductivity level is high, it indicates a potential problem from these materials.

Dissolved Oxygen (DO)

Please note that all contributions to SDCK Watershed Wiki may be edited, altered, or removed by other contributors. If you do not want your writing to be edited mercilessly, then do not submit it here.

You are also promising us that you wrote this yourself, or copied it from a public domain or similar free resource (see SDCK Watershed Wiki:Copyrights for details). Do not submit copyrighted work without permission!

Summary:
User list

Display users starting at: Group: (all) □ Show only users with edits □ Sort by creation date

(first | last) View (previous 50) (next 50) (20 | 50 | 100 | 250 | 500)

- AJK Media09 (Created on 3 June 2009 at 21:22)
- AJK Media2010 (Created on 3 June 2009 at 21:17)
- AdrianSD (Created on 9 September 2009 at 08:38)
- Akimane (Created on 2 September 2009 at 14:23)
- Alexis Barbieri (Created on 3 June 2009 at 21:20)
- Amandasouza (Created on 8 September 2009 at 22:43)
- Anthony groundworksandiego (Created on 9 February 2009 at 15:43)
- Ashleybrock (Created on 3 September 2009 at 20:03)
- Avanderheijden (Created on 20 July 2009 at 11:41)
- Bkdavidson (Created on 3 June 2009 at 21:18)
- Bethfee (Created on 8 September 2009 at 21:04)
- Bill Meyers (Created on 6 November 2009 at 20:48)
- Bryn (Bot, Bureaucrat, Administrator, widgeteditor) (Created on 9 September 2009 at 21:04)
- Carterheg (Bureaucrat, Administrator) (Created on 13 November 2008 at 14:43)
- Clay Clifton (Created on 14 April 2010 at 17:24)
- Climbergirl (Created on 18 February 2009 at 16:43)
- Currie dugas (Created on 6 May 2009 at 12:30)
- Dantesdick (Created on 20 February 2009 at 19:37)
- Denise Garcia (Created on 23 October 2009 at 14:07)

User: Clay Clifton

I joined San Diego Coastkeeper as the Watershed Program Manager in March 2010. Previously I worked as the Ocean Recreational Environmental Health (1999 - 2008). I look forward to working with community members and concerned citizens who want to take an active role in San Diego. My work phone number is 619-756-7743 x 120.
Talk:Main Page

Bryce said...
What a great new host.

Comment below or sign in with TypePad Facebook Twitter and more...

(URLs automatically linked.)

Email address is not displayed with comment.
Thank You

Clay Clifton
R.E.H.S.
Watershed Monitoring Program Manager
San Diego Coastkeeper
(619) 758-7743, ext. 120
clay@sdcoastkeeper.org

Soumya Chennapragada
Watershed Program Analyst
San Diego Coastkeeper
2825 Dewey Road, Suite 200
San Diego, CA 92106
Phone (619) 758-7743 extension 115

www.sdwatersheds.org