

**Clean Beaches Task Force  
Southern California Coastal Water Research Project  
November 6, 2006**

**Attendees:**

Mark Gold, Heal the Bay  
Trish Holden, University California Santa Barbara  
Richard Lichtenfels, San Luis Obispo Environmental Health Services  
Monica Mazur, Co. of Orange Environmental Health  
Charlie McGee, Orange Co. Sanitation District  
Dean Peterson, San Mateo County  
Jim Rasmus, PBSJ  
Mary Small, State Coastal Conservancy  
Philip Smith, Marin County Environmental Health  
Guangyu Wang, Santa Monica Bay Restoration Commission  
Steve Weisberg, Southern California Coastal Water Research Project  
Kurt Berchtold, Santa Ana Regional Water Board

**Members Absent:**

John Dorsey, Loyola Marymount University  
Jack Gregg, California Coastal Commission  
Peter Mangarella, Geosyntec Consulting  
Mark McPherson, San Diego County Environmental Health  
John Ricker, Santa Cruz Environmental Health Services  
Michael Johnson, University of California, Davis  
Jenny Jay, University of California, Los Angeles  
Alexandra Boehm, Stanford University

**SWRCB Staff:**

Laura Peters	Leslie Laudon
Kari Holmes	Ruben Mora
Dayne Kendrick	Kathy Bare
Michael Gjerde	Jack Petralia, Southern California Coastal Water Research Project

**Guests:**

Yin Poon, Everest Intl Consulting	Angie Berg, City of Avalon
Bob Stein, City of Newport Beach	Audra McDonald, City of Avalon
Dr. Stanley Grant, UC Irvine	Bill Workman, City of Redondo Beach
Dr. William Cooper, UC Irvine	Mike Shay, City of Redondo Beach
Dennis Wood, Carollo Engineers	Gretel Roberts, Weston Solutions
Hawkeye Sheene, City of Oceanside	Jill Murray, City of Santa Barbara
Guss Pennell, City of Oceanside	Jill Zachary, City of Santa Barbara
Pete Woolson, City of Avalon	Robert Almy, Santa Barbara County

### **Changes/ Additions to Agenda**

Laura Peters requested a discussion regarding the interpretation of the disadvantaged communities match waiver in the adopted CBI Prop 50 Guidelines. Wastewater infrastructure projects are only eligible for 25% grant funds per Section IV.D.ii. Is the remaining 75% considered match with respect to disadvantaged communities? If so, wastewater infrastructure projects could be fully funded. If not, they would be required to find other funding sources for the remaining 75% of the total project cost. The Task Force agreed that disadvantaged communities should be able to request full funding for sewer projects.

Members of the CBI task force were solicited to travel to Eureka to discuss Prop 50 concept proposals with Northern California applicants on December 20<sup>th</sup>.

### **Proposition 40 Phase 2: Revisited Proposals**

#### **Pin No. 10095- City of Oceanside – Loma Alta Creek UV Treatment Facility**

Total Cost of Project: \$ 5,235,536; Funds Requested: \$5,000,000

Project Presentation by Guss Pennell, City of Oceanside

This Project involves the construction of a filtration and UV treatment facility to be located adjacent to the Loma Alta Creek outlet in the existing La Salina Wastewater Treatment Facility. One hundred percent of the dry weather creek flows will be intercepted at the outlet and diverted to the UV treatment facility located on the northern bank of the creek. The treatment facility will be housed within a reinforced masonry building. The Project, once completed, will capture up to 1,000 gallons per minute of urban runoff, treat it, and discharge it in the surf zone on Buccaneer Beach via a pipe that will extend along the existing section of rip-rap that runs along the north side of the Loma Alta Creek outlet. During wet weather months (December through March), the lagoon will be open to allow the free flow of storm water to the ocean, bypassing the UV facility.

*Discussion:* Issues regarding outfall capacity and why the City could not continue to use the existing outfall were raised. The outfall is near capacity during dry weather. The City noted that wet weather flow is stored in holding ponds until outfall capacity is sufficient to allow discharge. The CBTF is concerned that bypassing 100 percent of the lagoon flow through the UV treatment system will potentially damage the flora and fauna in the lagoon. The doubling of the project cost estimate was discussed. Mr. Pennell explained that the City relied on an outside consulting firm for cost estimates and was also surprised by the cost increase. The current \$5.2 million project cost appears in line with similar projects.

*Recommendation:* Fund the project for the maximum amount of \$5 million dollars. The CBTF suggested that beach attendance data be included in the final report. The final report should also show wet weather posting data to show project effectiveness. In addition, the City should gather water quality data when diversion was not performing – this is what conditions would normally be at and would give further background on water quality data.

#### **Pin No. 10095- City of Newport Beach- Newport Dunes Beaches Circulation Improvement Project**

Total Cost of Project: \$705,000 Funds Requested: \$680,000

Project Presentation by Bob Stein, City of Newport Beach

The City is seeking a Prop 40 grant to design, procure and install twelve (12) mechanical flow enhancers (Oloids) to improve water circulation within the Dunes area. These compact devices have a vertical shaft connected to an innovative double pivot propeller with an electric motor mounted on top. The entire assembly is enclosed in a safety cage. Each unit is tethered to the bottom such that the unit can rise and fall with the tide. There will be independent power sources. Telemetry will provide staff with the capability to remotely monitor and control each individual circulation unit. The City has already tested the Oloids (using City funds), and the Oloids were found to be very effective in improving water circulation.

*Discussion:* The discussion focused on whether or not there is a bacteria problem at the Newport Dunes Beaches; more of an algal issue in the Dunes area. The Beach has had very few violations and the violations do not occur at the where the model identifies as the most impacted area. It appears that the Proposition 13 CBI grant funded diversions have been improving water quality in Newport Dunes. It will be difficult to show project effectiveness without a bacteria problem.

*Recommendation:* The CBTF does not recommend this project be funded due to the lack of a bacteria problem at the Newport Dunes Beaches. CBTF recommends installing Oloids in the West Newport Channels where there are known bacteria problems, as previously requested by City.

## **Proposition 50: Project Concept Proposals**

### **City of Newport Beach with UC Irvine**

Presentation by William Cooper/Bob Stein

*Presentation Summary –*

**Study Aim:** A major initiative, as part of the California Clean Beach Initiative, is being proposed to characterize the major pollutant influences in an impacted area of the City of Newport Beach. The project team will be lead by UCI (the Urban Water Research Center) in cooperation with the City of Newport Beach and their consulting firm, Weston Solutions, focusing on:

- Quantifying the effectiveness of best management practices (BMPs) for minimizing beach contamination by storm water runoff, and
- Developing a quantitative understanding of the bacterial transport mechanisms including bacterial magnification and regrowth in sediment and storm drains.

Second tier objectives, which will be addressed to answer the major focus of the proposed project, are:

- Development of new, innovative and corroborative techniques for both source apportionment (source tracking), and, to assist health managers identify sources of fecal contamination.
- Explore the use of micro-array bacterial techniques for new quantifiable, accurate and relatively inexpensive indicators of human pathogens.

**Study Sites:** The proposed experimental design includes a unique feature and that is the inclusion of both a test (impacted) and control site (unimpacted) in adjacent watersheds. The impacted (test) area is Buck Gully while the control area is El Moro Canyon (located in the State Park, between the Cities of Newport Beach and Laguna Beach).

There are four sources of water in the impacted area:

- 1) rain, directly falling in the catchment area
- 2) groundwater
- 3) rain collected in the storm water runoff system
- 4) treated effluent used for irrigation

Identical water sources exist in the control area with the exception of treated effluent, which occurs in Buck Gully but not El Moro Canyon.

*Discussion/Suggestions:*

The projects are much more suited for OPC funds since the beach is an ASBS and is not bacterially impaired. CBTF recommends reading Prop 50 Guidelines and cater a research project to it.

**City of Avalon**

Presentation by Pete Woolson/Dr. Stanley Grant  
Presentation Summary –

Avalon Beach has had high levels of fecal indicator bacteria (FIB), which could be coming from a number of different sources. These sources could vary from treated sewage effluent, nuisance runoff, bird and wild animal feces, sewage-contaminated groundwater and boat sewage collection tanks. The City plans the following study approach; 1) Analysis of historical FIB data 2) Tiered source tracking 3) Human virus and human bacteria testing 4) Hydrographic surveys of mixing rates in Avalon Bay.

*Historical Data Summary:*

- Pleasure Pier appears to be a “hot spot” for water quality violations
- Mitigation efforts started after 2001 (including sewer line slip lining) do not appear to have improved water quality; instead water quality steadily worsened since 2002
- The observation that summers with better than average water quality were unusually dry implies that rainfall may play a role in Avalon’s water quality problem

*Tiered Source Tracking Summary:*

- FIB originate from inside Avalon Bay (rules out the sewage outfall)
- FIB concentrations are highest in ankle depth waters, and dilute with distance into the Bay
- FIB concentrations at ankle depth are highest at night during falling tides
- Shallow groundwater is contaminated with FIB, perhaps from sewage
- Samples of runoff and bird feces also have very high concentrations of FIB

*Human virus and human bacteria testing Summary:*

- HF and HV markers were detected at multiple locations in Avalon Bay-->human fecal contamination exists in the Bay
- Some samples of shallow groundwater also positive for HF and HV--> human fecal contamination exists in shallow groundwater
- Shallow groundwater near the Pleasure Pier was most frequently positive for human fecal markers
- Shallow groundwater near the Pleasure Pier also had extremely high concentrations of FIB and low salinity; sewage contamination is very likely at this site

*Hydrographic Surveys of Mixing Rates in Avalon Bay Summary:*

- Horizontal eddy diffusion rate is  $\sim 1 \text{ m}^2/\text{s}$  and horizontal advection within the Bay is on the order of 50-200 m/hr (1.4 – 5.6 cm/s)
- While these transport/dilution rates are not high, they are sufficient to disperse contaminants that might be introduced near the beach within a matter of an hour provided that the source is not continuous
- A significant fraction of the Bay appears to exchange with the tidal cycles
- No concentrating mechanisms were identified that would cause pollutants to accumulate and/or increase in concentration in a particular location of the Bay
- A cross shore survey was conducted which found high levels of FIB in the sediment and the water near shore (“ankle-box area”). The sediment was determined to be a potential water quality pollution source.

*Prop 50 Proposal Concept:*

- Improve water quality in the “ankle box”
- Increase within-Bay circulation (e.g. through deployment of Oloid devices)
- Get mixing energy directly into the “ankle box” (e.g. by deployment of a wave device)

*Approach:*

- FIB studies to evaluate effect of circulation and wave devices on ankle depth water quality
- Dye and modeling studies to develop empirical correlations for ankle depth mixing coefficients
- Power input
- Configuration
- Circulation vs Wave Machines

*Study Sites:*

- Avalon Bay
- Newport Bay (tentative)

*Study Team:*

- City of Avalon
- Device deployment and mixing characterization studies: Stanley Grant (UCI)
- Dye studies: To be determined
- Modeling efforts: simple analytical models vs 3D hydrodynamic modeling: To be determined

*Discussion/Suggestions:*

A “groundwater box” should be added to evaluate the transport of groundwater contamination to the ankle box. The City of Avalon replaced the sewer lines in the commercial zone and now they’ll be doing the sewer lines in the residential areas. They will also replace and repair residential lateral lines for source elimination. Mark Gold said that he was willing to assist the City secure funds from the County of Los Angeles. The Task Force is in favor of the projects and encourages submittal of projects for Prop 50 funding.

**City of Santa Barbara**

Presentation by Jill Zachary/Jill Murray  
Presentation Summary –

The City of Santa Barbara Creeks Division provided an overview of its water quality improvement programs, including the purpose and progress of its Proposition 13 and 40 funded CBI projects and water quality monitoring efforts. These projects include two storm drain diversion projects and an ultraviolet treatment facility that will improve water quality in Arroyo Burro and Mission Creek. Jill Murray presented an overview of City's water quality monitoring goals and key findings, as well as the microbial source tracking research being conducted by Dr. Trish Holden in City creeks and storm drains. Creeks Division Manager, Jill Zachary, outlined potential implementation and research projects that the City could pursue for funding under CBI Proposition 50. Specifically, the City of Santa Barbara is interested in pursuing grant funding to continue microbial source tracking research with a focus on Mission Creek and Arroyo Burro and then linking the results of that research to implementation projects. The City is also interested in seeking implementation grant funding for a dry weather water quality treatment project for Laguna Channel, which discharges into the coastal ocean at East Beach.

*Discussion/Suggestions:* Diversion projects were mainly proposed. Sources are difficult to identify. Link projects to beach issue's and how it will enhance them. Supported by Task Force.

### **County of Santa Barbara**

Presentation by Robert Almy

Presentation Summary –

The County of Santa Barbara provided an overview of potential projects that would be proposed for CBI Proposition 50 funding. The following proposed projects have all completed project descriptions and have documented bacteria problems.

- A new sewer connection at Rincon County Park would reduce Rincon Point bacteria problems. There are no current fees at Rincon County Park and match funds would come from the County Parks budget for this project.
- Arroyo Burro watershed sewer connection would connect and replace existing sewer lines in the older neighborhoods. The existing sewer lines are made of concrete and clay. Match funds for this project would come from the residents served.
- Isla Vista stormdrain diversion would connect four stormdrains to the sewer main. In-line solids removal was installed in 2003. UCSB students would match funds for this project.
- Jalama County Park septic system would expand the sewer treatment capacity at the park. This project would be "exemp" from CEQA. The park fees are insufficient to pay for capital costs. The first phase of this project was funded by a Prop 13 CBI allocation. Match funds for this project would come from the County Parks budget.

*Discussion/Suggestions:* Task Force concurred with all the proposals and encouraged the County to submit concept proposals on them.

### **City of Redondo Beach**

Presentation by Michael Shay

Presentation Summary –

The City of Redondo Beach is confronted with a water quality problem in the beach area south of the City's pier. Historically, this stretch of beach has had high levels of bacteria, and has consistently received poor grades on Heal the Bay's Annual "Report Card."

Over the last three years, the City has made numerous improvements around the pier aimed at reducing or eliminating potential sources of bacteria or vectors that could also contribute to the bacteria problem. These improvements include: replacement of the sanitary sewer main under the pier; installation of a new fish cleaning station that is connected to the sanitary sewer system; construction of trash enclosures on the pier; purchase of new trash bins; and construction of a low flow diversion (infiltration bed) on the ocean outlet that discharges under the pier. The City also formed a Water Quality Task Force made up of a diverse cross-section of our citizenry. Over 12 months, the Task Force developed a "Recommendations Report" that delineated over 30 actions the City could take to improve water quality. This report was presented to the City Council in August, 2006. Many of these recommendations are currently being implemented.

Snap-shot monitoring of before and after the improvements showed improved water quality. An analysis of the weekly monitoring data collected for the Santa Monica Bay Beach Bacteria TMDL monitoring site just south of the pier showed a downward trend in bacteria levels. However, the Heal the Bay "Report Card" continues to indicate poor water quality.

Additional investigation is required. Other possible sources that need to be explored include: bacteria growth in the sand; bacteria growth on piles; harbor influence; current influence; Redondo Canyon influence; lack of circulation; pier influence; storm drains; and birds and other wildlife.

In order to determine which of these sources or a combination of these sources is (are) the true culprit(s), an extensive source identification study is needed. This site would be an ideal location for expanding the state-of-the art methods for tracking sources of bacteria. What will be required: expanding, both spatially and temporally, traditional indicator bacteria testing; expanding the knowledge base of other types of tests that can be used to determine water quality including "DNA" types among others; expanding the types of media that are being tested to include sand, biofilm, etc.; and expanding the knowledge of why bacteria concentration dramatically varies over time and space, the causes of which could be circulation, tides, currents, etc.

In conclusion, a source identification study in this location could greatly expand the City's capabilities for monitoring, collecting, and analyzing ambient water quality (including improving monitoring technology), and would allow the City to better direct its resources toward Capital Projects that would be more likely to improve water quality.

*Discussion/Suggestions:*

Do source identification first and then make recommendations. Differentiate wet and dry sources/water quality data. Combine data sets in proposal (AB411 and TMDL). Pin-point the problem to the beach – make it compelling.

**Next Meeting: December 5, 2006 at the San Francisco Bay Conservation and Development Commission office in San Francisco.**

**Following Meeting: February 27, 2007 at NEW SCCWRP office in Orange County.**

\* For copies of the presentations, please contact Ruben Mora at [Rmora@waterboards.ca.gov](mailto:Rmora@waterboards.ca.gov) or (916) 341-5387.