

The Use of Dry Weather Storm Drain Diversions in California – Diverted by Diversions?

By Rick Wilson

Introduction – What Are Diversions?

In order to understand diversions, it is first necessary to understand that in most areas of the country there are two sewer systems – a “sanitary sewer system” that takes wastewater from toilets, sinks and other drains inside buildings to a sewage treatment plant and a “storm drain system” that collects rainwater and excess water (“runoff”) from irrigation, car washing and other activities and routes that water, without treatment, to storm drain channels, rivers, creeks, and ultimately to a lake or the ocean.

Since storm drain systems do not include any treatment, various contaminants such as fertilizers, pesticides, herbicides, gasoline, oil, radiator fluid, and animal waste get washed into the storm drains and ultimately reach the ocean or other receiving waters. Water runs down hill until it reached sea level or a confined water body. This means that “urban runoff” from areas many miles away from the ocean can cause water quality and health problems at the beach. In Southern California, portions of Riverside County 50 miles or more from the ocean can drain to the Santa Ana River, which flows to the ocean in Huntington Beach.

In some areas of the country there is just one “combined sewer system.” In these areas, dry weather urban runoff is sent to a sewage treatment plant and does not directly flow to the beach. This helps prevent beach closures and health advisories during dry weather, but creates big problems during rain events. During major rainstorms, the amount of rainfall runoff can easily overwhelm the capacity of sewer lines, causing a mixture of raw sewage and rainwater to spill out of sewer manholes and go directly to the beach. This is called a “Combined Sewer Overflow.” Many east coast cities are working to separate their sewer systems to avoid this problem. San Francisco County is the only coastal area in California that has combined sewers.

So, what’s the answer to the problems caused by urban runoff? The best long-term solution is to control pollution at its source so that it never gets to the storm drain system. This involves minimizing the use of toxic chemical products and eliminating them, where possible. It also involves water conservation and recycling efforts, avoiding over-watering, fixing car leaks, picking up after your pet, and other common-sense practices recommended in Surfrider Foundation’s brochure *20 Ways to Cleaner Oceans and Beaches*.

Until source control measures can be effectively implemented, many cities are installing “dry weather diversions” to divert urban runoff to the sanitary sewer system and sewage treatment plants. These systems are designed to operate only during periods of dry weather. During wet weather, the systems are typically shut off or bypassed to avoid the

“combined sewer overflow” problem described above. Diversion structures vary in complexity from temporary inflatable dams and portable pumps to complex engineered systems with automatic controls, flow meters, and alarm systems. The systems may be gravity flow or rely on pumps. In many cases there is some type of screening, filtering, or centrifugal separation device installed as part of the diversion that keeps trash and large solid particles out of the sewer lines.

Advantages/Benefits of Diversions

Diversions can completely stop the flow of polluted urban runoff from a particular storm drain from reaching the ocean or other receiving water body during dry weather. To the extent that beach closures and health advisories are caused by flows from a given storm drain, directing the dry weather flow from that drain to the sewer system should eliminate or greatly lessen that problem. Another advantage of diversions is that they can potentially catch a sewer spill that has flowed into an upstream portion of the storm drain and divert it back into the sewer system before it reaches the beach

Limitations

As mentioned above, the main disadvantage of diversions is that they must be bypassed and are therefore not effective in wet weather. The most serious beach closure episodes typically occur during periods of rain, and the lingering effects of polluted rainwater runoff may last 72 hours or more after the end of the rain. In any given jurisdiction, other limitations may be the capacity of the sewer lines, the capacity of the sewage treatment plant, or the unwillingness of the sewer agency to accept the diverted dry weather urban runoff. Sewer collection and treatment agencies are formed to handle sewage, not urban runoff, and they are not required to accept such flows. Some agencies may have prohibitions against accepting urban runoff, or may limit the flow to avoid capacity problems in their lines or at the treatment plant. Another concern is that since diversions are fairly new and the constituents in runoff can vary widely, the degree to which these constituents may pass through the treatment plant and cause problems in the receiving water or with uses of recycled water are unknown.

Disadvantages of Diversions

The main potential disadvantage of diversions is that they may discourage efforts at source control of pollutants and may also discourage water conservation. During dry weather, a beach city may think that their beach closure problems are “solved” by the diversion, only to find out that they have significant problems during rainy periods or when the diversion is otherwise not in operation. It is important that source identification and control efforts continue to minimize both the pollutant load and the dry weather water flow. Ideally, there should be no dry weather urban runoff to the beaches.

Dry weather diversions are but one tool to address the problem of beach closures. Some wastewater agencies (see below) require a demonstration that all feasible source control

reduction measures have been implemented before they will allow a diversion to be connected to their system.

Another disadvantage of diversions is that they only protect the final receiving waters, not the creek, stream, or wetlands areas upstream of the diversion. If discharge of excessive flows or pollutants is impacting human health or the environment in these upstream areas, the diversion will do nothing to address these problems.

A final disadvantage of diversions may be cost. The capital cost to install diversions varies widely, depending on such factors as the flow, the nearness and relative elevation of sewer lines and the degree of automatic control desired. The cost may range from a few thousand dollars to hundreds of thousands of dollars. Depending on the sewer agency, there may also be a continuing cost based on the flow rate and/or the concentration of contaminants.

Wastewater Agency Diversion Acceptance Policies

As mentioned above, dry weather diversions are not possible unless the local sewer agency agrees to accept the diverted flow from the storm drain system. A few agencies have prepared detailed acceptance policies. Two such agencies are the Orange County Sanitation District (OCSD) and the South Orange County Wastewater Authority (SOCWA).

a. Orange County Sanitation District

OCSD is a large wastewater collection and treatment agency that handles approximately 240 million gallons per day of wastewater generated by residents and businesses in north and central Orange County. OCSD was drawn into the urban runoff dry weather diversion business by the well-publicized beach closings in Huntington Beach during the summer of 1999. In April 2000, OCSD adopted a resolution for accepting runoff on a long-term basis on non-rain days. On September 27, 2001, OCSD adopted a second resolution that limited the total amount of urban runoff flow to 10 million gallons per day (MGD) and waived any fees for the first 4 MGD. Flows in excess of 4 MGD are charged at a rate of \$321 per million gallons.

Other requirements include:

- The diversion shall be designed to exclude wet weather flow and must have a lockable shut-off device accessible to OCSD.
- The applicant must apply for and obtain a permit from OCSD prior to discharging.
- The permit applicant must demonstrate that other disposal alternatives have been considered, evaluated and deemed not feasible.
- Debris and pollutants of concern must be prevented from entering the sewer system. The daily total flow must be measured.
- The applicant must employ Best Management Practices (BMPs) designed to minimize or eliminate dry weather urban runoff.

- The quality of the discharge must meet OCSD’s wastewater discharge standards, the discharger must conduct quarterly self-monitoring and must submit reports to OCSD.
- Discharges must be shut off no later than the commencement of any measurable rainfall and cannot be resumed without written approval from OCSD.

A substantial amount of information regarding OCSD’s policies and details on existing diversions within OCSD’s service area is available on OCSD’s web site at www.ocsd.com

b. South Orange County Wastewater Authority

SOCWA serves 17 cities and communities in south Orange County and has a total sewage treatment capacity of approximately 38 MGD at four treatment plants¹. The total available capacity for dry weather diversion flows at SOCWA’s treatment plants in Aliso Canyon and Dana Point is about 1 MGD. SOCWA adopted Resolution No. 2001-23 on December 6, 2001 as a “Nuisance Flow Diversion Policy.” Similar to OCSD, SOCWA’s policy requires that a permit application be completed and a permit granted prior to beginning a diversion. The discharger must demonstrate that all other disposal alternatives have been considered and found not to be feasible. The discharger’s total flow (wastewater plus diverted flow from the storm drain system) must stay within their “capacity ownership” limits. Dischargers must measure flows, analyze the discharges, and submit periodic reports to SOCWA. 24-hour composite samples are required to be collected and analyzed twice per week. Dischargers must also submit plans and specifications for the diversion project to the Member Agency or SOCWA. The resolution requires the installation of a lockable shut-off device and gives SOCWA the authority to require the installation of appropriate pretreatment devices “to remove grease and oil, trash, debris, and other objectionable substances prior to connection to the sewage collection system.” The resolution states “pumped diversions are the preferred method of discharge in order to prevent debris from entering the sewage collection system and to control the maximum rate of flow.”

SOCWA’s resolution further states:

“Diversion of nuisance flows to the SOCWA and Member Agency wastewater systems should not be considered as a permanent or long-term solution to the problem of dry weather nuisance flows; provided, a Member Agency may consider certain diversions as permanent components of an overall program to reduce nuisance flows to creeks, streams or the ocean.”

The affected Member Agency or SOCWA may require the project applicant to implement BMPs and pollution prevention strategies to minimize or eliminate nuisance flow from the area or site served by the proposed diversion project.

¹ South Orange County Wastewater Authority web site. <http://www.socwa.com/home.htm>

SOCWA's resolution states that diversions may be permitted only from April 15th to October 15th and "shall be designed to shut down prior to the "first flush" during a storm event. A diversion of nuisance flows may be permitted beyond the dry weather period so long as the system is properly designed and approved by the receiving Member Agency and SOCWA to shut down prior to the "first flush" of any significant precipitation event. Permits may be issued for up to 5 years and may be renewed for additional periods.

Notices of each diversion project must be sent by SOCWA to the appropriate Regional Water Quality Control Board upon permit issuance for such project.

Survey of Southern California Diversion Projects

Surfrider Foundation contacted representatives of the State Water Resources Control Board (SWRCB), several Regional Water Quality Control Boards, and several coastal cities to gather data on diversion projects throughout southern and central California. A starting point was the Clean Beaches Initiative (CBI) project list on the SWRCB web site at: <http://www.swrcb.ca.gov/cwphome/beaches/index.html>

This list showed SWRCB and RWQCB contacts for the approved projects. These indicated contacts provided additional contacts at various cities who provided information on past, present and future diversion projects. For this list of approved CBI projects, a total of \$31.7 million in projects was approved. Projects that were entirely or primarily diversion projects totaled \$11.6 million, or 36.5% of the total authorized amount.

A priority list of additional proposed projects was posted on the SWRCB website in early June 2003. The lists of CBI projects shown below are only the projects where storm drain flow is being diverted into the sewer system. There are many other projects (including storm drain filtration and treatment systems, sewer line upgrades, conversion of septic systems to sewers, wetlands and bio-swale construction, and source identification and reduction) on the complete lists, which can be viewed on the State Water Resources Control Board web site. Over \$395 million in CBI projects was requested. Diversion projects represented \$41.8 million of this total, or 10.6%.

A lack of diversion projects for a certain county (e.g., Santa Barbara) should not be interpreted as lack of effort in addressing beach water quality problems. The city of Santa Barbara has instituted several innovative programs funded by Measure B, which was approved by the voters on November 2000. The city and county are actively exploring opportunities for creek restoration, as well as evaluating the use of storm drain filters, bio-swales and ozone treatment systems. Several such projects have been initiated or have been proposed for funding under CBI, including some constructed wetlands and a septic-to-sewer conversion at Rincon. The city of Buenaventura (Ventura County) has requested CBI funding to treat urban runoff at Surfer's Point. Other treatment alternatives that have been implemented or have been proposed at popular surfing areas include a filtration/disinfection system and septic system repair at Malibu (Los Angeles County), a high volume urban runoff treatment system at Salt Creek (Orange County), an

ozone treatment system at Moonlight Beach in Encinitas, and constructed wetlands, a vegetated channel, and storm drain filters at Cardiff Reef (San Diego County).

Surfrider Foundation’s research into diversion projects was not meant to be exhaustive or all-inclusive, but rather to provide a representative indication of the approximate number, status and cost of diversion projects in several California coastal communities.

SANTA CRUZ COUNTY

Existing Clean Beaches Initiative Projects

Name and Location	Authorized Amount
Santa Cruz - Main, Cowell & Seabright Beaches – Storm Drain Diversions	\$926,400
Capitola Beach – Storm Drain Diversions	\$100,000

Proposed Clean Beaches Initiative Projects, June 2003

Name and Location	Estimated Project Costs
Santa Cruz – Main, Cowell & Seabright Beaches – Dry weather diversion, pump station retrofit & storm drain lining	\$1,000,000

MONTEREY COUNTY

Existing Clean Beaches Initiative Projects

Name and Location	Authorized Amount
Pacific Grove, Lover’s Point – Dry Weather Diversion ² ; Tidal Circulation Feasibility Study; Source Abatement	\$500,000

Proposed Clean Beaches Initiative Projects, June 2003

Name and Location	Estimated Project Costs
Pacific Grove – Divert Urban Runoff – Expand existing project (above) to include additional 45 acres	\$1,200,000
Seaside – Monterey State Beach – Dry weather diversion, reconstruct outfall, add retention ponds	\$2,500,000

Comments on Monterey County Programs:

The source abatement and diversion program at Lover’s Point in Pacific Grove was initiated after a 70,000-gallon sewage spill into Monterey Bay National Marine Sanctuary on January 12, 2000.³

SANTA BARBARA COUNTY

² Project under construction, complete in Fall 2003. Verbal communication, Steve Liker, City of Pacific Grove.

³ “Pacific Grove Puts a Cork In It.” By Ross G. Hubbard. www.westerncity.com/publicworks.htm

Pre-CBI or Non-CBI Diversion Projects

Name and Location	Authorized Amount
The city is evaluating several possible diversion projects. ⁴	

VENTURA COUNTY

Existing Clean Beaches Initiative Projects

Name and Location	Authorized Amount
Kiddie and Hobie Beach, Channel Island Harbor – Dry Weather Diversion and BMP Implementation	\$705,000

LOS ANGELES COUNTY

Pre-CBI or Non-CBI Diversion Projects

Name and Location	Comments
Santa Monica, Pico/Kenter Storm Drain	One of the first diversion projects in California
Santa Monica, Ashland Ave. Storm Drain	
Venice City Beach at Brooks Avenue	
Redondo Beach - Herondo Street Storm Drain	Still a problem even with the diversion? ⁵
Venice City Beach at Windward Ave.	
Bel Air Bay Club	
Manhattan Beach Pier	
Alamitos Bay	Completed in 2000 ⁶

Existing Clean Beaches Initiative Projects

Name and Location	Authorized Amount
Colorado Lagoon, Long Beach – Storm Drain Diversion and Disinfection	\$500,000
Temescal Canyon – Dry Weather Diversion	\$800,000
27 th /28 th St., Manhattan Beach – Dry Weather Diversion	\$200,000
Santa Monica Canyon – Dry Weather Diversion	\$1,020,000
Imperial Highway – Dry Weather Diversion	\$810,000
Avalon Beach – Dry Weather Diversion & Tidal Circulation	\$248,100

⁴ “Santa Barbara Uses Unique Approach to Restore Creeks and Improve Water Quality.” By Jill E. Zachary. www.westerncity.com/publicworks.htm

⁵ Heal the Bay “13th Annual Report Card” www.healthebay.org/brc/annual/2003/counties/la/analysis.asp

⁶ “Storm Drain Diversions Will Help Protect Southern California Beaches.” www.wef.org/MemberZone/WefReporter/Archive/2000/wefreporter.0524.jhtml

Feasibility Study	
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Proposed Clean Beaches Initiative Projects, June 2003

Name & Location	Estimated Project Costs
Will Rogers State Beach, PCH & Sunset – Year round low flow diversion (LA Bureau of Sanitation)	\$1,400,000
Duplicate of project listed above (LA County DPW)	\$550,000
Will Rogers State Beach, 16500 PCH in Pacific Palisades – Year round low flow diversion (LA Bureau of Sanitation)	\$980,000
Will Rogers State Beach, Pulga Canyon – dry weather diversion. Duplicate of project listed above (LA County DPW)	\$550,000
Dockweiler State Beach, 8000 Vista Del Mar – Year round low flow diversion (LA Bureau of Sanitation)	\$840,000
Dockweiler State Beach, Culver Blvd. – Duplicate of project listed above. (LA County DPW)	\$550,000
Will Rogers State Beach, PCH & Coastline – Year round low flow diversion (LA Bureau of Sanitation)	\$840,000
Topanga Beach - Dry Weather Diversion in the Parker Mesa Drain – duplicate of project listed above (LA County DPW)	\$550,000
Will Rogers State Beach – year round low flow diversion at Marquez Ave & PCH	\$560,000
Santa Monica, Wilshire storm drain, north of Santa Monica Pier – dry weather and initial wet weather diversion	\$980,000
Redondo & Torrance Beach, South Esplanade & Ave. I – dry weather diversion	\$550,000
Dockweiler State Beach, El Segundo Blvd. & Whiting St. – dry weather diversion	\$550,000
Venice Beach, Brooks Ave. – modification of low flow diversion in the existing Electric Ave. pump station	\$550,000
Venice Beach, Rose Ave. – low flow diversion	\$550,000
Santa Monica Beach, Ashland Ave. – dry weather diversion	\$550,000
Santa Monica Bay Watershed – Upgrade 10 existing dry weather diversions to year round operation	\$2,800,000
Rancho Palos Verdes, Redondela Drive & Western Ave. – Dry Weather Diversion for 96” and 60” storm drains	\$186,000
Hermosa Beach, Pier Ave. & Hermosa Ave. – Dry Weather Diversion	\$550,000
Dockweiler State Beach, Westchester Parkway – Dry Weather Diversion	\$550,000

Comments on Los Angeles County and City Programs:

There are approximately 342 storm drains that reach the ocean from Point Dune to the Palos Verdes Peninsula.⁷ Palos Verdes Estates has an additional 24 storm drains.⁸

⁷ Santa Monica Baykeeper, as reported in the South Bay Daily Breeze. October 25, 2001.

Diversions are typically routed to the LA City Bureau of Sanitation's Hyperion Treatment Plant in El Segundo or Los Angeles County's treatment plant in Carson.

ORANGE COUNTY

Pre-CBI or Non-CBI Diversion Projects

Name and Location	Comments
San Clemente – Riviera District	Low cost gravity flow system
San Clemente – Linda Lane	
Aliso Creek Diversion	At Coast Highway
J03P02 storm drain (Aliso Creek)	In conjunction with operation of treatment system (temporary) and constructed wetlands
Huntington Beach – 9 pump stations	Approx. 0.9 MGD total flow
Newport Dunes	Gravity flow, 0.026 MGD. Cost was \$60,000 to design and construct. ⁹
Los Trancos & Muddy Canyon pump stations, PCH/Crystal Cove	0.6 MGD
Huntington Beach Pump Station; Greenville Banning Channel; Santa Ana River Channel; Talbert Channel (4 separate projects)	0.972 MGD
Laguna Beach – 10 dry weather diversions	Diversions installed beginning in 1997 through 2002. Four additional diversions and one upgrade were completed in May 2003. ¹⁰
Dana Point/Capistrano Beach	Diversion at Camino de Estrella/Camino Capistrano plus approx. 8 diversions along Beach Road in Capistrano Beach (30,000-40,000 GPD total flow). ¹¹

Existing Clean Beaches Initiative Projects

Name and Location	Authorized Amount
Dana Point Harbor, Baby Beach – Dry Weather Diversion & Tidal Circulation Feasibility Study	\$750,000
Aliso Beach – Dry Weather Diversion; Wetland Treatment	\$500,000

⁸ City of Palos Verdes Estates website. www.palosverdes.com

⁹ Personal communication, David Kiff, Assistant City Manager, City of Newport Beach.

¹⁰ Personal communication, Craig Justice, City of Laguna Beach.

¹¹ Personal communication, Matt Sinacori, City of Dana Point.

of Runoff	
Doheny State Beach (San Juan Creek) – Dry Weather Diversion & Pollution Abatement – Alipaz Stormdrain Treatment & Diversion ¹²	\$369,500
Doheny State Beach – Del Obispo Diversion (funds used for North Creek Diversion) ¹³	\$380,500
Newport Bay – Dry Weather Diversions	\$500,000
Dana Point – Poche Creek – Dry Weather Diversion	\$500,000
Huntington State Beach – Santa Ana River – Greenville Banning Channel – Dry Weather Diversion	\$1,000,000

Proposed Clean Beaches Initiative Projects, June 2003

Name and Location	Estimated Project Costs
Newport Bay & Ocean Beaches – 4 storm drain diversions	\$240,000
Seal Beach, West end pump station urban runoff diversion	\$400,000
Seal Beach, East end pump station urban runoff diversion	\$400,000
Seal Beach, urban runoff diversion at Marina Drive storm drain	\$400,000
Dana Point, Doheny State Beach, Del Obispo Storm Drain – low flow diversion ¹⁴	\$1,000,000
Capistrano County Beach Storm Drain Master Plan Project – new storm drain with low flow diversion for bluff top community	\$3,000,000
Dana Point, Doheny State Beach – San Juan Creek Low Flow Diversions in two 54” storm drains and one 42” storm drain	\$1,000,000
Dana Point, Doheny State Beach – low flow diversion from 150-acre tributary	\$750,000
Laguna Beach, Main Beach – 3 dry weather diversions at Laguna Channel & city yard, PCH & Broadway, and at north Main Beach storm drain outlet	\$500,000
San Clemente, North Beach – Pico storm drain dry weather diversion to a treatment system and then return to flood control channel	\$500,000
Dana Point Harbor, Baby Beach – divert urban runoff, reduce irrigation runoff, education, wash area construction, bird control, trash reduction	\$1,375,000
Huntington & Newport Beaches – Greenville Banning Channel – divert water into biofiltration ponds and then return to storm channel	\$2,469,000
Laguna Beach, Dry Weather Diversions at various locations	\$700,000
Costa Mesa/Newport Bay – Dry weather diversion of 84”	\$450,000

¹² 96” storm drain with CDS unit. Estimated flow 20-100 GPM. Personal communication, Matt Sinacori.

¹³ Under construction, estimated flow about 50 GPM. Personal communication, Matt Sinacori.

¹⁴ Estimated start of construction July 2003. Personal communication, Matt Sinacori.

storm drain at Bristol St. & Paularino Ave.	
Huntington Beach, Huntington Harbor/Anaheim Bay/Outer Bolsa Chica – Divert low flow urban runoff from Wintersberg Channel to constructed wetlands	\$4,000,000

Comments on Orange County and City Programs:

The Orange County Board of Supervisors allocated \$250,000 in FY2000 matching funds for coastal cities (Huntington Beach, Newport Beach, Laguna Beach, Dana Point and San Clemente) urban runoff treatment and diversion programs. In FY 2001 the Board of Supervisors allocated \$1,000,000 in matching funds for all cities for urban runoff treatment and diversion projects.¹⁵

The Los Angeles Times reported in January 2000 that Laguna Beach was diverting 38% of it runoff during the dry season and hoped to have all city drains diverted by 2007. The same article indicated that Dana Point planned to eventually divert 1 million gallons per day flowing through 26 storm drains from Doheny Beach through Capistrano Beach. San Clemente had proposed two storm drain diversion projects as of the date of this article.¹⁶

Newport Beach has one existing diversion at Newport Dunes and is planning on installing five more (four along Coast Highway and one at Santa Ana Delhi Channel where it discharges into Newport Bay).¹⁷

Although not directly related to diversions, Huntington Beach is planning to install eight filters to catch debris from 12 storm drains that discharge onto the beach. The filters are planned to be installed in September 2003. The \$646,000 installation is being funded through a \$4-million water quality grant that the city received through Proposition 13 water bond funds.¹⁸

SAN DIEGO COUNTY

Pre-CBI or Non-CBI Diversion Projects

Name and Location	Comments
Mission Bay Sewer Interceptor System	Diverts storm drain flows away from Mission Bay ¹⁹
Additional City of San Diego Diversions	City Council approved a plan in August 1997 to spend \$3.3 million to dry weather flows from additional storm drains around San

¹⁵ “The Urban Runoff Battle - Ready, Fire, Aim!” Orange County Grand Jury Report. 2001.

¹⁶ “OC Moves to Cut Pollution from Runoff” by David Reyes. Los Angeles Times, Orange County Edition. January 12, 2000.

¹⁷ David Kiff, Assistant City Manager, Newport Beach. Personal Communication. April 29, 2003.

¹⁸ “Surf City Hopes Filters Put a Stop to Beach Debris” by Stanley Allison. Los Angeles Times. July 20, 2003.

¹⁹ City of San Diego web site. www.sannet.gov/mwwd/community/beaches.shtml

	Diego to the Point Loma Wastewater Treatment Plant. ²⁰
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Existing Clean Beaches Initiative Projects

Name and Location	Authorized Amount
Imperial Beach, Palm Ave. – Dry Weather Diversion ²¹	\$375,000
Imperial Beach, Date Ave. – Dry Weather Diversion ²²	\$375,000
Coronado Beach – Dry Weather Diversion ²³	\$1,000,000

Proposed Clean Beaches Initiative Projects, June 2003

Name and Location	Estimated Project Costs
Del Mar, San Dieguito Lagoon, Camino Del Mar & 27 th St. – dry weather diversion	\$1,000,000
Del Mar, 17 th St. – low flow diversion	\$800,000
Del Mar, San Dieguito Lagoon – 27 th St. low flow diversion	\$500,000
Del Mar, 17 th St. – low flow and “first flush” diversion	\$1,500,000

Comments on San Diego County and City Programs:

The San Diego Regional Water Quality Control Board estimates that over 100 storm drain diversion projects have been installed along the coast between Laguna Beach (Orange County) and the U.S.-Mexico Border. The city of San Diego obtained a \$6.1 million federal grant in July 2003 to construct a network of diversion projects. The grant is the largest ever to a West Coast City from the U.S. EPA intended to combat the effects of urban runoff. The planned diversion projects will handle flows up to 400 gallons per minute. The city will contribute \$2.65 million to install diversions at 28 coastal locations and rehabilitate 47 diversions along the shoreline of Mission Bay that were installed in 1985. The first 18 diversion projects are scheduled to be completed by summer 2004, with the remainder to be completed in 2005.²⁴

Conclusions

It is clear that diversion of storm drain flows into the sewer system during dry weather is a tactic that many coastal communities in Southern California are using to address the serious problem of beach closures and beach health advisories caused by high concentration of indicator bacteria. The good news is that diversions seem to be effective

²⁰ Ibid.

²¹ Part of larger project, currently held up by litigation. Verbal communication, Hank Levine, City of Imperial Beach

²² Hope to start this project in Fall 2003. Verbal communication, Hank Levine, City of Imperial Beach. The Date and Palm Ave. diversions have been operating manually for about 3 years.

²³ Diversions of two outfalls at North Beach have been in operation for 2-3 years. There are four current diversions with about 10 more planned. Verbal communication, Scott Huth, City of San Diego.

²⁴ “S.D. Gets \$6.1 Million Grant for Urban Runoff”, by Terry Rodgers. SignOnSanDiego.com. July 19, 2003.

during dry weather, which can be well over 300 days per year in Southern California. The bad news is that they cannot be used during wet weather and that serious pollution problems and human health threats caused by polluted runoff still occur on a regular basis during rainy periods. The further bad news is that diversions do nothing to address the sources of pollution, encourage water conservation, or protect water quality or habitat upstream of the diversion.

Diversions are an effective band-aid, but unless we modify our societal bad habits, water (mis)use practices and infrastructure flaws that cause and exacerbate the problem, we will continue to have unhealthy beaches.

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