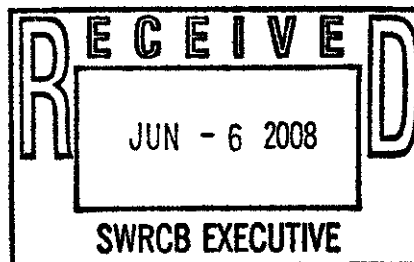


June 4, 2008

Jeanine Townsend  
Clerk to the Board  
State Water Resource Control Board  
1001 I Street  
Sacramento, CA 95814



**SUBJECT: COMMENT LETTER FROM THE COUNTY OF VENTURA CONCERNING  
THE VENTURA HARBOR BEACHES BACTERIA TOTAL MAXIMUM  
DAILY LOAD (TMDL)**

Dear Ms. Townsend,

The County of Ventura is pleased to present the following comments on the proposed Bacteria TMDL for the Harbor Beaches of Ventura County for the State Board's consideration.

The County of Ventura, and more specifically the Harbor Department, has long been committed to providing recreational boating and ocean-related recreational opportunities to residents of and visitors to Ventura County. Healthy water quality is an important component of meeting that commitment. We recognize that testing pursuant to AB 411 has revealed that there are periodic bacteria loads at Kiddie Beach that results in exceedance of State standards. We have expended considerable effort and money, including a State Water Board grant, over the last seven years to identify possible sources of the bacteria loads, and enhance the safety of Kiddie and Hobie Beaches for the families that visit them. As you know, repeated research and testing has been performed to determine the source of bacteria. Structural and non-structural improvements have been made to try to improve the water quality and although improvements have been made, we have not been able to consistently meet prescribed water quality objectives.

Our primary concerns with these documents can be summarized into the following issues:

1. Objection to the use of the reference beach system, and a particular objection to the use of Leo Carrillo beach;

2. Identification of over 20 square miles of drainage for the TMDL when published studies indicate that bacteria is from localized sources;
3. Our belief that the bacteria that remains following our aggressive implementation of structural and non-structural improvements and best management practices comes from natural sources;
4. Exception to having to expend significant limited public resources in mitigating and reducing naturally occurring bacteria.

While the aforementioned issues present our principal concerns with these documents, affected County agencies, including our Harbor Department, Public Works Agency, Watershed Protection District, and Environmental Health Division (EHD) have collaborated in their review of the November 7, 2007 Regional Board adopted Basin Plan Amendment, Harbor Beaches of Ventura County Bacteria TMDL Revised Staff Report ("staff report"), and Substitute Environmental Document. These concerns are presented below.

### **GENERAL COMMENTS**

#### **1. The staff report misrepresents the magnitude of the impairment.**

On Page 8, Introduction, the staff report states that the beaches "...frequently exceed bacteria water quality standards." The staff report further states that the "...purpose of this TMDL is to restore the beneficial uses at the beaches...". Data collected by the EHD and other(s) indicates that these beaches frequently meet the AB 411 water quality standards. At times these beaches have been subject to public advisory notifications pursuant to AB 411 requirements, but have never been closed. Use of these beaches for Rec-1 purposes has not been suspended, and is thus not subject to restoration.

#### **2. The selection of Leo Cabrillo Beach (LCB) as the local reference system is inappropriate.**

The environmental setting of LCB is not representative of the harbor beaches, due to geomorphological dissimilarities in the subwatershed. The "reference system" should not only meet requirements for the water quality, but also exhibit similar physical and hydrologic conditions. Additionally, there are inherent physical and biological differences between an open-ocean facing beach subject to littoral drift (LCB) and an enclosed embayment protected from direct oceanic influence and not subject to littoral drift. The confounders present in the use of LCB as a reference system must all be identified and addressed, or the use of LCB as a reference system for the harbor beaches must be abandoned. Prior comments on the LA harbor Bacteria TMDL and the Marina del Rey Bacteria TMDL state the Regional Board is currently working with the Southern California Coastal Water Research Project (SCCWRP) to

locate and validate a more appropriate reference beach. We request a clarification to the status and progress towards identifying a more appropriate location. We do support the "Regional Board Reconsideration," item d. ("Re-evaluate the selection of the reference beach..."), also referenced on page 34, paragraph 2.

**3. The staff report (Section 1.3 and others) confuses data correlation with disease causality.**

The staff report concludes, "...there is a causal relationship between illness and recreational water quality, as measured by bacteria indicator densities." The correlation of indicator organism density with potential disease risk is a well-established method for regulatory **decision-making** relative to health-risk assessment. However, unless the indicator organism itself is a human pathogen, and a pathogen dose-response has been established, the presence of an indicator organism cannot be deemed to be the cause of disease.

This is germane to this TMDL in that indicator organisms, if not a human pathogen (e.g., E. coli from an avian source), may cause or contribute to a determination of Load Allocation "exceedance," yet may not constitute a human health risk, and may not reflect anthropological contamination.

On June 27, 2007 the Senate Committee on Environment and Public Works' Subcommittee on Transportation Safety, Infrastructure Security, and Water Quality held a hearing to discuss the Beach Protection Act of 2007, which will reauthorize and expand the Beaches Environmental Assessment and Coastal Health (BEACH) Act passed by Congress in 2000. As part of this effort, various studies commissioned by the USEPA as well as a report from the United States Government Accountability Office, GAO 07-591 (Washington, D.C.: May 1, 2007) suggests that E. coli may not be the best indicator of human pathogens in marine or estuary environments. Moreover, most human pathogens are not capable of "environmental multiplication," therefore, a distinction must be made between indicator organisms from the natural environment (birds, wildlife) and human fecal organisms.

Studies conducted by Larry Walker Associates of the ocean water quality at Kiddie and Hobie beaches, indicate that birds and other natural sources are the most likely causes of water quality that exceeds AB 411 standards.

The imposition of bacteria TMDLs and any subsequent Best Management Practices to address and reduce these TMDLs must have a firm scientific basis to justify the millions of dollars of public money that will be spent to mitigate a problem that may not exist.

**4. The “reference system/antidegradation” implementation procedure as applied to this TMDL is fundamentally flawed.**

As previously discussed, the Leo Carrillo Beach has not been demonstrated to represent the non-anthropogenic influenced or pristine state of the harbor beaches due to geomorphological, physical, and biological considerations. Therefore, use of LCB to represent the potentially achievable bacteria density of the harbor beaches is uncertain. The TMDL should not set compliance targets based upon gross uncertainty.

**5. Other studies and supporting relevant studies should be incorporated for use in applying the Natural Source Exclusion for this TMDL.**

The on-going study by the United States Geological Survey (USGS) of shore bird guano contributions to bacteria levels in the Mission Creek Watershed Santa Barbara County (copy included as attachment 1) should also be referenced for natural sources of bacteria. Preliminary results identify significant contributions via shorebirds to the near-shore elevated bacteria levels. We request this information be incorporated into the natural source exclusion process and overall utilized during the TMDL Waste Load (WLAs) and Load Allocation (LAs) process.

**6. The staff report does not adequately explain the ability of the methodology used to assign exceedance days, to reflect actual human health risk.**

The staff report should be modified to include a robust discussion of the methodology used to assign the interim and final exceedance days, in terms of identifying human health risk. This discussion should consider confounders associated with the reference system, and identify any potential for bias introduced by non-pathogenic indicator organisms.

**7. Use of Heal the Bay “Report Cards”.**

Use of Heal the Bay “report card” ratings in a document to justify adoption of public policy should be accompanied by an explanation of how the organization arrives at that rating. It should be noted that the overall rating given to Channel Islands Harbor Beaches has improved significantly over the past few years.

**8. The staff report is unclear relative to bacterial loading potentially attributable to agricultural land.**

The staff report states that agricultural land is “...a significant portion of the CIH [Channel Islands Harbor] subwatershed.” The staff report further states that “...agriculture lands are a potential source of bacteria loading.” However, the staff

report defers further analysis of the potential bacterial contributions of agriculture to speculative future "...monitoring and new data [that] may better quantify the loading potential of agriculture...".

Water quality monitoring and source identification studies performed to date indicate that the occasional exceedances of AB 411 standards observed at Hobie and Kiddie Beaches are attributable to very localized sources, thus bacterial contribution from agricultural land (at considerable distance to these beaches) appears unlikely to be a significant contributor to these exceedances. Nevertheless, when such data becomes available, quantification of the potential bacterial loading attributable to agriculture, including consideration of any seasonal variation, may become useful to more fully understand the potential for exceedances, and to facilitate identification and implementation of appropriate Best Management Practices.

### **JURISDICTIONAL COMMENTS**

**1. Inappropriate listing of the County of Ventura under the "Responsible Parties" listed for the Harbor Cove Beach portion of the TMDL.**

The County of Ventura is inappropriately listed and should be removed from the Harbor Cove Beach portion of this TMDL. The County maintains no facilities at or adjacent to Harbor Cove Beach and both the staff report and basin plan amendment list no supporting data or documentation linking any bacteria sources from the County of Ventura to Harbor Cove Beach.

**2. Inappropriate listing of the Watershed Protection District under the "Responsible Parties" listed for the Harbor Cove Beach portion of the TMDL.**

The Watershed Protection District is inappropriately listed and should be removed from the Harbor Cove Beach portion of this TMDL. The District maintains no facilities at or adjacent to Harbor Cove Beach and both the staff report and basin plan amendment list no supporting data or documentation linking any bacteria sources from the Watershed Protection District to Harbor Cove Beach.

## **TECHNICAL COMMENTS**

**1. The staff report incorrectly indicates that the EHD tests water quality in the entrance to Channel Islands Harbor.**

The staff report states (Page 49, last paragraph) that the EHD tests the main entrance to Channel Islands Harbor weekly. This is incorrect. The EHD tests at monitoring locations to the north and south of the entrance to Channel Islands Harbor. These monitoring points are at open ocean beaches located outside of the harbor breakwaters. There is no demonstrated relevance of these monitoring locations to conditions within Channel Islands Harbor.

**2. Page 80, Section 9.2.1 - Year Round Monitoring.**

The staff report and the tentative TMDL requires that HBVC be monitored at a weekly monitoring frequency, and on a year-round basis. AB 411 mandates that public beaches be monitored weekly only during the months of April through October, inclusive. As such, year-round monitoring of HBVC as required by the TMDL may not be warranted. Staff report should reflect Statewide (mandated) ocean water quality monitoring time frames set forth in the California Health and Safety Code as amended by the State legislature.

**3. Utilization of the whole watershed for the Channel Islands Harbor Beaches TMDL. Staff Report, Page 17, Figure 1-3.**

Please clarify the utilization of the whole watershed as listed on page 17 of the staff report for the Channel Islands Harbor portion of the TMDL. The upper watershed in Channel Islands is listed as "Unincorporated County" in figure 1-3, yet this area contains no MS4 connections to the specific area of concern. Larry Walker Associates (LWA) 2001 report Channel Islands Beach Park Action Plan for Improving Water Quality-Hobie and Kiddie Beach found the dominant flow direction of the Channel Islands Harbor is from the Harbor Proper area North West towards Edison Channel. Further investigations in the LWA 2001 report found conditions in the Harbor Proper meeting Water Quality Objectives, further supporting the premise that the Harbor Beaches Bacteria TMDL is a localized issue, and the influence of the upper watershed to be *de-minimis*.

**4. URS Bacteria Source Study (2004), human versus Avian Loading.**

Section 4.3.2.1 refers to URS Corporation's Bacteria Source Study (2004) and indicates that some human source loading was identified. However this amount was

small compared to the avian (9% versus 42% for avian and 23% for gull). The staff report should accurately describe the results of these tests and acknowledge the percentage of natural occurrence bacteria indicators that are present.

**5. Inaccurate Land Use designations within the Harbor.**

To clarify the staff report (page 16) the Channel Islands Harbor does not consist of 90% two story beach houses. Beach houses are located on the beach on either side of the Harbor entrance. The Harbor itself contains a mix of 2,200 boat slips as well as land-based commercial, residential and boater related light industrial uses. Additionally, there are conflicting statements on page 15 which, on one hand, states that nearly 27% of the drainage area of the Channel Islands Harbor subwatershed is agricultural, but then states that the vast majority is impervious (80-90%). As defined in your staff report, the drainage area includes some 10,000 acres, mostly urbanized. It should be noted that the Harbor itself is not noted as the primary, or even significant, source of runoff.

**6. The staff report does not include the outcome of all available studies relative to the harbor beaches.**

Section 2.3.1.2 should be modified to include Channel Islands Harbor Beach Park Bird Control Measure Efficacy Study (Larry Walker, 2007), and Channel Islands Harbor Beach Park Dry Weather Runoff Diversion Characterization Study (Larry Walker, 2007).

**COMMENTS REGARDING RECOMMENDED IMPROVEMENT STRATEGIES**

**1. Federal agency opposition to circulation devices**

The Harbor Department has investigated the use of mechanical circulation devices. The Army Corp. of Engineers, who funds the dredging of the Harbor every two years, has so far objected to the use of these devices because of the sediment stirred up and deposited into the Harbor channel, increasing the need for costly dredging.

**2. Negative results from previous implementation projects targeting avian populations, listed as suggested strategies for implementation for this TMDL.**

Efforts to discourage birds on the beach without potential disturbance of nearby threatened or endangered species have met with little success to date. The squawkers suggested as one of the implementation strategies were attempted at

multiple times and sound levels (with the discouragement of California Department of Fish and Game). The neighbors across the street, within 150 feet, were extremely opposed to this action because of the annoying noise emitted at regular intervals. More critical is the fact that there are endangered species, the Western Snowy Plover, within a quarter of a mile across the harbor mouth that are affected by loud bursts of noise, particularly those that mimic predators. Similarly, the California Department of Fish and Game has made it clear that they would oppose the construction of any filament barriers to discourage birds from using the beach, and has informed us that we would be held financially accountable for any protected species such as the California Brown Pelican that may be injured by these structures. At one point the Harbor Department went so far as to obtain a depredation permit to utilize a falcon, under the direction of a professional falconer, to discourage birds from congregating on Kiddie and Hobie Beaches. This proposal was based, in part, on the success of a similar project in Santa Barbara County. This action was also objectionable to California Department of Fish and Game and some area residents. California Coastal Commission staff told us that a coastal permit would be required, along with a full environmental analysis, and that they would most likely not support such a measure.

### **3. Implementation Strategies**

Without commenting on each of the listed implementation strategies suggested in the staff report and associated documents, we would like to state that much of the information presented as fact is, instead, mere conjecture on the part of Regional Board staff, and ignores the data gathered to date by the Channel Islands Harbor. We realize that the Regional Board leaves it up to the local agencies to determine ultimate implementation, however, to seriously suggest some of these measures without any evidence of their efficacy is irresponsible in a regulatory document. Furthermore, there is no discussion anywhere of the role of other State or Federal agencies in the implementation of these strategies. As mentioned earlier in this letter, staff from California Department of Fish and Game and the California Coastal Commission have expressed opposition to many of the suggested measures, and have indicated they would, in fact, oppose them. U.S. Army Corp of Engineers, who has control of the harbor mouth and the dredging required to maintain it within certain navigation standards, has opposed any circulation measures, which would stir up sand and disperse it more rapidly into the channel area. Nowhere in the documents is there clear evidence that these measures are actually likely to reduce the bacteria levels with any degree of certainty -- and a few are simply ridiculous. To suggest that we replace the sand with gravel on a beach utilized by families with small children, or that we employ some sort of generator to steam clean the sand, while still maintaining a Rec-1 beach, barely warrants serious consideration, yet the Regional Board staff actually treats these measures as viable.



**SUBSTITUTE ENVIRONMENTAL DOCUMENT**

1. The Habitat section (1.2.5) of the staff report uses old data that is no longer useful. The biological survey within the Channel Islands Public Works Plan was completed in the early 1980s. No recent biological data has been compiled on marine life within the harbor and channels, however, regular observations indicate that small fish, starfish, octopi, sea lions, shellfish, various types of sea birds and plant life thrive within the Harbor. Further, long-term water quality data from samples taken regularly by Harbor Patrol staff indicates that water quality within the Harbor as well as the adjacent channels is well within acceptable limits. The Environmental Impact Report (EIR) certified by the City of Oxnard for Tentative Subdivision Map No. 5266 in 2002 reviews and summarizes this data. A copy of this section is included as attachment 2. As is evident in all the information gathered over the past five years or more, there is no increase in pollutant levels and no diminishment in biological diversity, and such a statement in the staff report is patently false. Further, one could conclude from the water quality testing data compiled by the Harbor for many years that the elevated levels of bacteria at Kiddie Beach are not coming from the Harbor, because those same levels do not exist anywhere else. The report prepared by Larry Walker Association (a copy of which is on file with RWQCB) supports this statement.
2. The Harbor Department disagrees with the statement made on page 6 that, "Most of these BMPs do not cause significant impacts that cannot be mitigated through commonly used construction and maintenance practices," and asserts that there is insufficient data in the SED to support such a statement. The use of noise generating machines to discourage birds on the beaches will have significant noise impacts on adjacent bird populations and residents that cannot be mitigated. Poles with filament strung between them will have a significant visual impact on an area protected as a scenic coastal view, and can actually harm some birds. Actions such as steam cleaning a beach or replacing sand with gravel will have biological impacts that have not been investigated by Board staff and are unknown at this time. To make statements that these suggested BMPs are "reasonably foreseeable to be implemented" (page 15) is inaccurate. At the scoping meeting, County of Ventura staff strongly opposed the suggested BMPs as untenable and impractical to implement, or because they have no record of success with other users.
3. The County of Ventura repeats our objection to the use of phrases such as, "significant water quality problems," and other subjective editorializing throughout the document. This is a mischaracterization of the problem and should be removed from the document. Similarly, there is no evidence to date that any adverse health impacts have occurred from the level of bacteria at Ventura County Beaches, and to state this in the document is inappropriate.

4. To comply with CEQA, the SED needs to present clear evidence, using studies or pointing to successful pilot programs, that these suggested implementation measures may successfully accomplish the goal of reducing bacteria loads in this location. Without this information it does not provide the decision makers with enough information on the environmental effects of the TMDLs to make an informed decision.

Thank you for the opportunity to present these comments from the County of Ventura. It is hoped that our commitment to clean water is evident by the level of effort that has been expended in evaluating and implementing strategies to improve water quality in this region. If you have questions about specific information contained in this communication please contact Christy Madden of my staff at 805 654-2679.

Respectfully Submitted,



Marty Robinson  
County Executive Officer

Attachment 1: USGS study of shore bird guano contributions to bacteria levels in the Mission Creek Watershed Santa Barbara County

Attachment 2: Portion of the 2002 Environmental Impact Report (EIR) certified by the City of Oxnard for Tentative Subdivision Map No. 5266

C: Gerhardt Hubner, Watershed Protection District  
Kevin Coyne, Watershed Protection District  
Bill Stratton, Environmental Health Division  
Lyn Krieger, Harbor Department

## **ATTACHMENT 1**

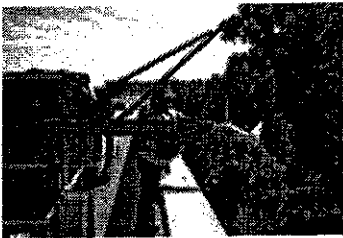
**USGS study of shore bird guano contributions to bacteria  
levels in the Mission Creek Watershed Santa Barbara  
County**



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## Sources of Microbial Contamination at Public Beaches, Santa Barbara

**Project Chief:** John Izbicki

Streams and ocean beaches in Santa Barbara, California, have concentrations of fecal indicator bacteria that exceed public health standards for recreational water. The City of Santa Barbara has been collecting fecal indicator bacteria data from streams and near shore ocean water weekly since June 2001. Concentrations of fecal indicator bacteria in urbanized reaches of Mission Creek, Arroyo Burro, and other urban streams, and in near shore ocean water at recreational beaches can exceed public health standards for recreational water. The sources of the fecal indicator bacteria in streams and near shore ocean water are not known in the Santa Barbara area. Possible sources of fecal bacteria contamination to Arroyo Burro and Mission Creek include direct contamination from animals and transient human populations residing in the area, contamination from leaking sewer lines, or from leaking household connections to sewer lines. Contamination may enter the streams directly or be transmitted short distances through shallow ground water before discharging to the stream. Similar sources also may contaminate recreational beaches and fecal bacteria contributions from resident bird populations also may be large source of bacteria along the oceanfront. Fecal bacteria contamination in near shore ocean water may be associated with tidal extremes that allow increased flux of contaminated ground water from beach sediments.

The purpose of this study is to evaluate the sources of fecal contamination to streams and ocean beaches in Santa Barbara, California. The scope of the study includes: (1) an analysis of existing fecal bacteria data; (2) hydrologic analysis of surface-water/ground-water interactions along urban streams, primarily Mission Creek; (3) hydrologic analysis of ground-water discharge along ocean beaches; and (4) genetic and molecular analysis of bacterial populations in water samples and fecal indicator bacteria cultured from fecal source material, urban streams, and ocean beaches. Because of the association of fecal bacteria with organic carbon, the scope of the study also includes characterization of the composition of dissolved organic carbon in shallow ground water, streamflow, and near-shore ocean water. Specific organic compounds will be measured as tracers in municipal wastewater.

The focus of this study is on analysis of existing hydrologic, chemical, and microbiological data; collection of surface-water and shallow ground-water hydrologic, chemical, and microbiological data; and characterization of dissolved organic carbon composition. Existing fecal bacteria data from streams are linked to continuous-record streamflow data for calculation of bacterial loads and statistical analysis of seasonal trends. Hydrologic data collected for this study define the interaction between streams and the local ground water and evaluate the potential for fecal bacteria to be transported through ground water to surface water. Radium isotopic data with traditional hydrologic data evaluate ground-water discharge along the beach. Genetic and molecular microbiological data are tracers of the sources of bacterial contamination. These data are supplemented with optical property data on the composition of dissolved organic carbon associated with different sources of fecal

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bacteria and chemical tracers of municipal wastewater to help identify the source of fecal bacteria contamination.

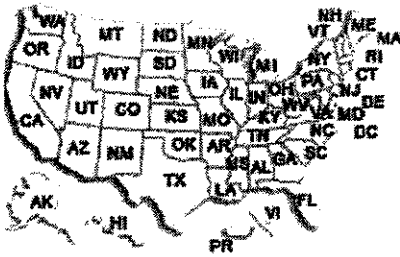
### Contact Information

John Izbicki  
Office phone: 619-225-6100

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## USGS Study: Are Shorebirds Polluting Santa Barbara's Surf?

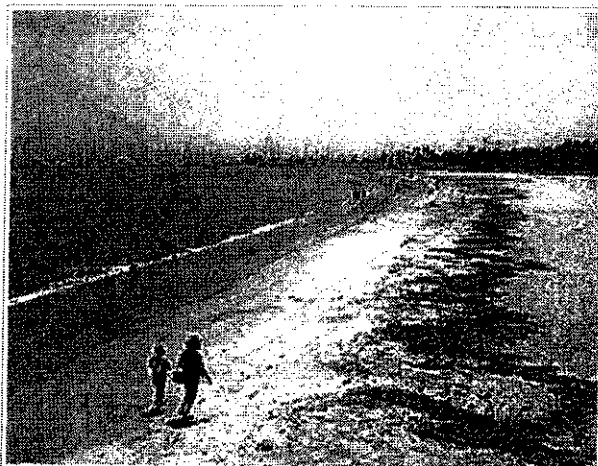
By Melinda Burns  
Monday, June 18 2007



Everybody knows that dirty creeks pollute the ocean during storms. But why is the surf in Santa Barbara sometimes unsafe for swimming in summer, when no creeks are running?

It's a question that led local officials in 2004 to initiate a \$500,000 study of ground water, creek water and the ankle-deep water they call the "splash zone" at East and West beaches near Mission Creek.

Citizens' groups such as Heal the Ocean have long suggested that the city's aging sewer system was leaking into the ground water and travelling underground into the surf. But preliminary results from the study, which is funded in part by Heal the Ocean, suggest that city sewers are not to blame, the authors say.



Kelp accumulates bird droppings, then washes into the sea. Photo by Melinda Burns/SBN



Gulls pick through the kelp on the beach near Mission Creek. Photo by Melinda Burns/SBN

The real culprit, they say, might be the shorebirds. Under this hypothesis, seagulls and other birds pick through the kelp for food; the kelp sits on the beach accumulating a lot of sea bird manure, or guano; a higher-than-usual tide comes along, washes the kelp off the beach, and bingo! The surf tests high for fecal bacteria.

John Izbicki, a U.S. Geological Survey (USGS) hydrologist from San Diego who heads the study, said that hundreds of samples taken from 13 ground water wells, Mission Creek and the ocean for more than two years do not show that city sewers are polluting the ground water.

"So far, we have not found direct evidence of contamination on the beachfront or in Mission Creek from the sewer water," Izbicki said. "One of the concerns was the main sewer line along West Beach. But we have not seen evidence of fecal bacteria contamination from that line."

At the same time, he said, when scientists collected pounds of kelp off the beach in buckets, let the kelp sit in distilled water for awhile and then decanted off the water and tested it, they found, to their surprise, that it was quite contaminated.

"We got very high concentrations of fecal bacteria," Izbicki said. "Classical microbiological thinking says that as that stuff sits on the beach, the bacteria should be dying. But they may be far more persistent than we thought."

There are no studies linking guano with illness in humans. In addition to birds, other potential sources of beach water pollution could include dogs, seals and humans, Izbicki said. Fecal bacteria are present in the gut of all warm-blooded animals.

Hillary Hauser, executive director and co-founder of Heal the Ocean, said the group would be pleased if the study finds conclusively that city sewers are not the cause of ocean contamination.

"It's what you don't know that drives you nuts," Hauser said. "But the jury's still out as to what is going on in the ground water in this area."

Birds have been found guilty in the past for polluting the ocean. In 2001, a DNA study performed by the University of Washington found that thousands of seagulls, attracted by the Tajiguas landfill, were the cause of fecal contamination at Arroyo Quemada Beach, then the No. 1 most contaminated beach in the county. The gulls sat on the beach for hours and the tide carried their guano into the water.

It had been previously thought that the landfill or nearby septic tanks were leaking into the ocean. But soon after a falconer began scaring away the birds from Tajiguas, Arroyo Quemada Beach began testing clean.

Today, Arroyo Burro beach is the most polluted in Santa Barbara County and East Beach at Mission Creek is a close second. In 2006, county data show, these two beaches tested unsafe for swimming at least 40 percent of the time.

Rebecca Bjork, the city's wastewater system manager, said she has always been skeptical that city sewers were the cause.

"We kept saying, 'We don't think so,'" she said. "There's not a strong mechanism for water to move out of a sewer line, unless something is causing it to be pressurized. It takes the route of least resistance."

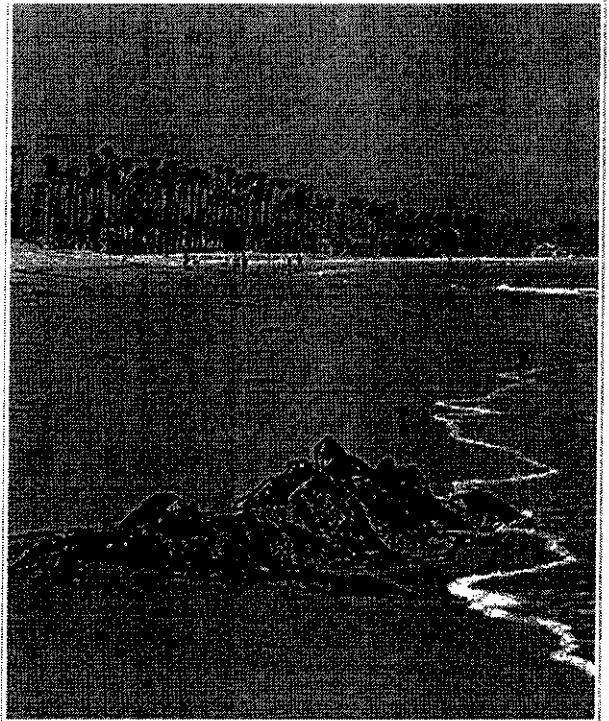
One exception, Bjork said, is that during big storms, city sewers have occasionally been overwhelmed because homeowners leave the caps off their private sewer lines or illegally connect roof drains to them.

To help solve the problem, the city last week inaugurated a new sewer line, 3,200 feet long, in the vicinity of Quarantina and Montecito streets, to act as a sewer bypass in heavy rains.

The USGS study of Santa Barbara's beach and creek water quality is one of the most thorough in the state. Samples were taken from seven wells on West Beach; three near the skateboard park; and three in a residential neighborhood near Old Mission Creek, a tributary of Mission Creek that often tests high for fecal bacteria.

The scientists also tested the "swash zone" and travelled to and fro in a boat along the waterfront, sampling the surf. They studied how water was flowing into the beach and how it was draining out, and how the cycle was affected by rain. They captured data from a breach of the lagoon at Mission Creek, when polluted creek water poured into the surf.

"We go around the clock," Izbicki said. "I've done a number of late-night stints, all through the night. We start following the tidal cycle



East Beach at Mission Creek is the second most polluted beach in the county. Photo by Melinda Burns/SBN

down to the early morning.”

The results of the USGS study show that there is fecal contamination in some of the monitoring wells, indicating that it is present in shallow ground water. But the water is draining into the sewers, not moving towards the beach, Izbicki said.

The study is expected to be finished by the end of this year. It will not include recommendations.

“We can explain the consequences of certain decisions,” Izbicki said. “Ultimately, the beach is the responsibility of the citizens of Santa Barbara. It’s up to you all.”

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## **ATTACHMENT 2**

**Portion of the 2002 Environmental Impact Report (EIR)  
certified by the City of Oxnard for Tentative Subdivision Map  
No. 5266**

## 4.4 MARINE WATER AND SEDIMENT QUALITY

### INTRODUCTION

*The following section evaluates project effects to marine water and sediment quality within the inland waterways of the Channel Islands Harbor development as well as the proposed project. Existing sampling data indicates that water quality is generally good when compared to other semi-enclosed harbors and marinas located along the southern California coast. Dissolved oxygen levels are within the range that can sustain marine biota. Circulation is influenced by operation of the Mandalay Bay Power Generating Station that draws cooling water from a channel located at the north end of the harbor. Computer modeling indicates that water circulation is anticipated to be similar to that presently experienced at the closed-end channels of the harbor. Modeling also indicates that phased buildout of the navigation channels would not result in a significantly different water circulation pattern from that associated with buildout. Construction of the channels on what are presently agricultural fields could result in the release of contaminants within the soil into the marina. Mitigation is provided to reduce this impact to less than significant levels. Finally, operation of the marina could have a detrimental effect on water quality if boat maintenance activities and waste disposal procedures are not properly regulated.*

### EXISTING CONDITIONS

#### Water Quality

The proposed TTM 5266 development is located to the east of a water channel that will be constructed as part of the Westport development at the extreme northern portion of the Channel Islands Harbor (CIH). CIH water areas comprise a single ocean inlet that divides into two northerly-oriented smaller channels, the westernmost of which also supplies seawater to the Mandalay Power Generating Station (MGS) owned and operated by Reliant Energy Company. That seawater, which is used as facility cooling water, is drawn into the generating station through a shore-parallel open, rock- and sediment-lined canal.

The southern portion of TTM 5266 will be connected to the easterly expansion of an existing closed-end channel north of Hemlock Street. TTM 5266 will add approximately 34 acres of open-water channels to the existing 229 acres of CIH water areas. For this analysis, it is assumed that by the time construction on TTM 5266 is initiated, the CIH water area will probably be approximately 243 acres with the addition of the Westport project.

Historical water quality data within the existing harbor is limited to quarterly surface water samples collected by the Channel Islands Harbor Department and analyzed by Capco Analytical Services, Inc.

#### 4.4 Marine Water and Sediment Quality

The Regional Water Quality Control Board (RWQCB) identified no additional water quality data within the project area, although marine sediment samples were collected within the harbor as part of that agency's study of various water bodies within the Los Angeles Region (RWQCB, 1998). The following discussions are based on: (1) available literature, (2) the results of a project-specific field surveys completed in April 1999 and in July 2000, and (3) numerical modeling of CIH water circulation.

The three Harbor Department water quality sampling stations are shown in Figure 4.4-1. That water quality program historically comprised monthly (changed to quarterly in 2000) observations of water clarity and floating material, and laboratory analysis of hydrogen ion concentration (pH), chloride content, dissolved oxygen (DO), and laboratory analyses for phosphate, nitrate, ammonia, Kjeldahl nitrogen, coliform bacteria concentrations, and for 10 heavy metals from a single surface water sample at each station. The results of these analyses are compiled into an annual report that is archived at the Department's offices.

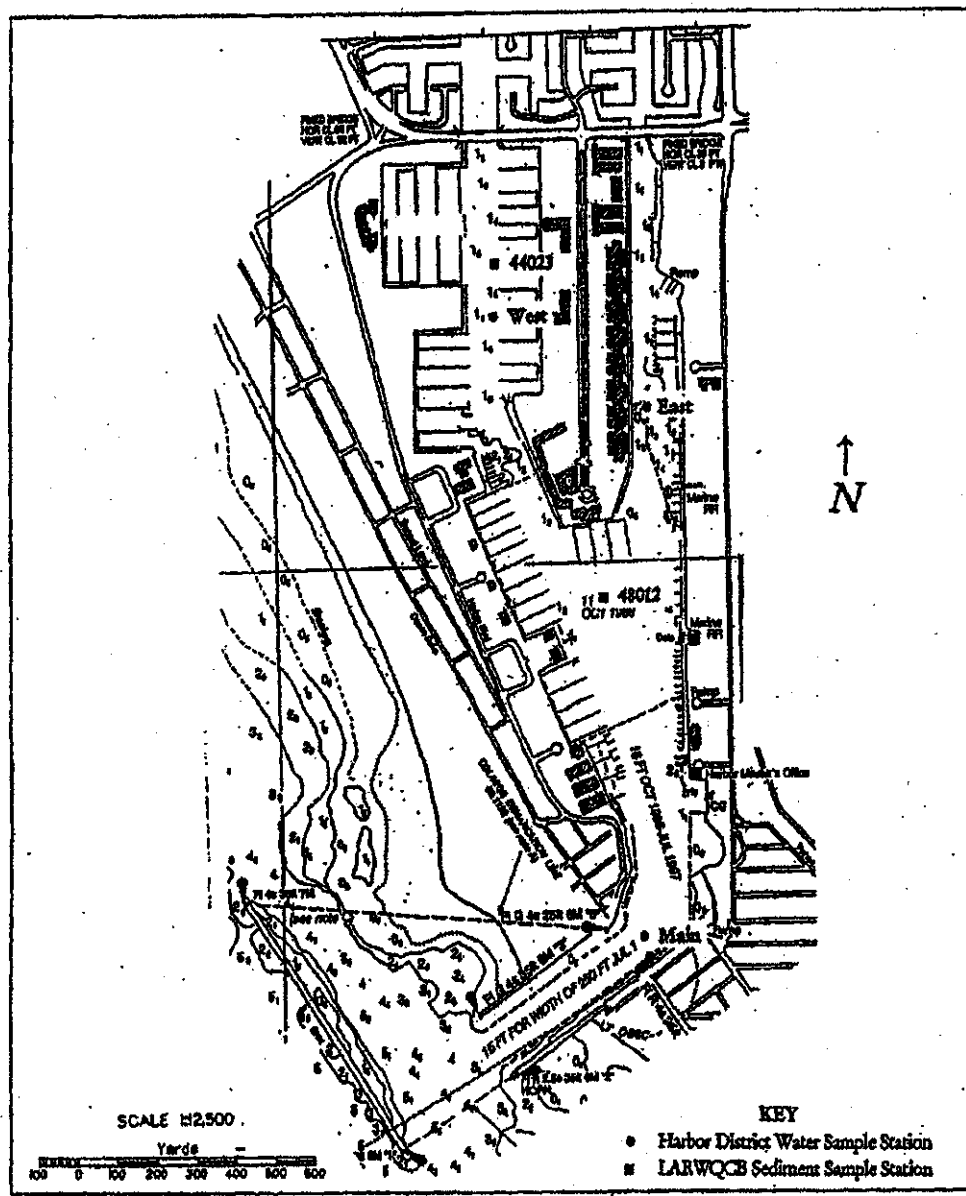
The literature-based data was supplemented with data from two field surveys that comprised vertical profiles of conductivity, temperature, depth and dissolved oxygen over a full tidal cycle at 21 locations and water column currents at 20 of those 21 stations within CIH. Ten of the stations occupied in July 2000 were also sampled during the April 1999 survey (Figure 4.4-2).

Summaries of the results of laboratory analyses for the Harbor Department-collected water samples taken from February 1997 through April 2001, the most recent available, are shown in Table 4.4-1.

Discounting the 1.1 to 1.2 parts per million (ppm) DO measured in the February 1997 samples as anomalous, the data in Table 4.4-1 indicate that DO concentrations were above the 5.0 ppm level, the concentration generally considered conducive to supporting healthy marine biological communities. Dissolved oxygen concentrations were usually the highest at the Main Station (near the harbor entrance). Although some variation is evident, DO levels at the East Station, located within a closed channel, were generally slightly lower than those at West Station. Dissolved oxygen levels measured at 10 stations in April 1999, (MRCL, 1999) and at 22 stations in the July 2000 field survey were similar to historical levels, and ranged from 7 to 9 ppm (70 to 90% of full saturation values), representative of well-oxygenated marine waters. Chloride concentrations measured from the Harbor Department samples appear to be unusually high for all sampling periods, and correspond to salinities of 32.5 to 45.2 psu<sup>1</sup>. Most measurement values indicate salinities substantially higher than oceanic seawater in the region which varies between 33.5 and 33.9 psu (SCCWRP, 1973). The upper limits of salinity within CIH were, however, similar to ocean waters.

<sup>1</sup> Sea water salinity is defined by electrical conductivity and is reported in practical salinity units (psu), which are essentially equal to the formerly used units of parts per thousand (ppt).

Figure 4.4-1  
Marine Water Quality and Sediment Sample Stations  
Channel Islands Harbor



4.4 Marine Water and Sediment Quality

Figure 4.4-2  
Water Quality Profile Stations  
July 2000 Field Survey  
Channel Islands Harbor

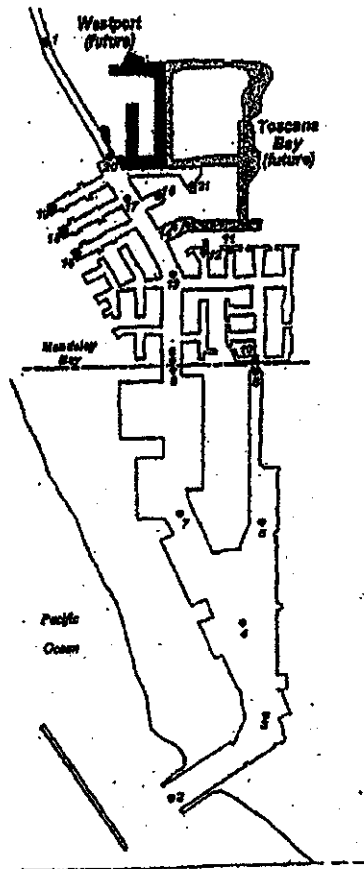


Table 4.4-1  
Summary of Laboratory Analyses of Sea Water Samples (Range of Values)  
Channel Islands Harbor, California

Year	pH	Total Coliform (CFU/100 ml)	Fecal Coliform (CFU/100 ml)	Other Parameters	Notes
2-97	7.7-7.8	21,000-25,000	1.1-1.2	N/A <sup>1</sup>	N/A
3-97	7.6	21,000-22,000	8.0-9.0	N/A	N/A
4-97	7.5-7.6	18,000-19,000	8.1-9.0	N/A	N/A
5-97 <sup>2</sup>	7.5-7.6	20,000-23,000	6.5-8.1	All total and fecal coliform below detection limit.	All metals below detection limit except iron.
1-98	7.8	20,000	8.0-8.3	N/A	N/A
7-98	7.9-8.0	20,000-22,000	7.9-8.7	All total and fecal coliform below detection limit or absent.	All below detection limit except iron at one station.
8-98	8.1	21,000	7.5-8.0	N/A	N/A
9-98	8.0-8.1	19,000-20,000	7.4-8.4	N/A	N/A
10-98 <sup>3</sup>	N/A	N/A	7.2-8.2	Nitrate ranged from below detection limit to 0.14 mg/l and ammonia below detection limit. Total coliform ranged from absent to 79 MPN and fecal coliform from below detection limit to <2 MPN.	N/A
11-2000	7.6-7.8	22,200-23,300	6.7-8.0	Total coliform range from 2 to 4 MPN (per 100 ml) and fecal coliform from <2 to 2 MPN.	Copper and iron present in some water samples.
2-2001	7.9-8.0	18,000-27,100	8.9-9.6	Total coliform range from 2 to 50 MPN and fecal coliform from <2 to 8 MPN.	Silver, zinc, copper, and iron present in some water samples.
4-2001	8.0	19,100-23,000	9.4-10.0	Total and fecal coliform "present" at two stations.	Copper and zinc present in some water samples.

Source: Channel Islands Harbor Department, unpublished.

<sup>1</sup> Analysis not completed this month.

<sup>2</sup> Main station replaced by Beach station this month.

<sup>3</sup> Program modified: pH, chloride not analyzed; only nitrate and phosphate for quarterly analyses.

#### 4.4 Marine Water and Sediment Quality

Hydrogen ion concentration (pH) data shown in Table 4.4-1 indicate little long-term variation between stations, but some seasonal changes are evident with higher values in the summer and fall months. The presence of iron in two of the samples is unexplained.

The data presented in Table 4.4-1 and the water column profile data collected during the April 1999 and July 2000 field surveys show the influence of solar heating on harbor waters and of freshwater runoff into the harbor from the adjacent agricultural lands. Both the lower limits of temperature and the upper limits of salinity in the July 2000 samples are similar to ocean waters outside of the harbor. The lack of strong vertical gradients in water column properties is indicative of a well-mixed, non-stratified water body. A few of the profiles taken during both field surveys show increasing oxygen concentration with depth that could result from oxygen production by algal mats that were observed on the harbor floor.

#### Water Circulation

Except for the April 1999 and July 2000 sampling, no historical measurements of currents and circulation in CIH are known. Project-specific field current speed and direction data were collected at 21 locations were collected in July 2000 (see Figure 4.4-2). The objective of that survey was to collect data on existing circulation and water quality conditions that would be used in a numerical simulation model of water circulation for the existing and expanded harbor configurations.

The MGS intake channel influences the circulation patterns and facilitates water movement into and around the dead-end waterways in the northernmost portion of CIH. In 1998, monthly seawater volumes into the cooling water system of the generating station ranged from 172.9 to 253.4 million gallons per day (mgd); the monthly average was 245.6 mgd (So. Cal. Edison, unpublished). Data provided by Southern California Edison indicate that flows into the generating station average  $9 \pm 2 \text{ m}^3$  per second; that rate was corroborated by data provided by the Regional Water Quality Control Board.

Current measurements taken during the July 2000 field program show that the main harbor channel flow is tidal, (i.e., flow varies in speed and direction with tidal stage). Currents flow northerly on a rising (incoming) tide and flow southerly on a falling (outgoing) tide. Circulation patterns and water quality in CIH are largely driven by the constant withdrawal of ocean waters up the MGS channel. That flow is the mechanism for renewal of harbor waters with cooler and well-oxygenated ocean waters.

Figure 4.4-3 shows the water flow within the existing CIH area as modeled for an outgoing tide and with MGS pumping water from CIH.