Total Maximum Daily Loads for Indicator Bacteria Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay

Technical Report

Appendix N

Responses to Public Comments

California Regional Water Quality Control Board
San Diego Region

June 11, 2008

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N.1 Introduction

This appendix to the Technical Report provides responses to public comments received on the draft documents for the project *Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay*. Draft documents distributed for public review and comment included the draft Technical Report, Tentative Resolution No. R9-2008-0027, and a draft Basin Plan Amendment. The draft documents were made available to the public for formal review and comment on February 22, 2008.

The California Regional Water Quality Control Board, San Diego Region (Regional Board) received written comments in letters and oral testimony given during the public hearing on April 9, 2008 from interested persons on the proposed TMDL. Individuals from the public that provided comments in writing and/or as testimony during the public hearing are listed in section N.2. Responses to comments and questions by members of the Regional Board during the April 9, 2008 public hearing are provided in section N.3. Responses to oral comments and testimony by members of the public during the April 9, 2008 public hearing are provided in section N.4. Written responses to written comments submitted by the public in advance of the April 9, 2008 public hearing are provided in section N.5.

N.2 List of Persons Submitting Comments and Testimony

- San Diego Coastkeeper
- City of Dana Point
- County of Orange
- US Environmental Protection Agency

N.3 Responses to Comments from Regional Board Members

Providing Written Responses to Comments from Stakeholders

Comment: During the April 9, 2008 Board meeting, Board members King and Ritschel expressed concern that the Regional Board was not responding to comments from the stakeholders in a timely manner.

> **Response**: Throughout the development of this TMDL, the Regional Board has responded to the questions and concerns of the stakeholders as soon as possible.
>
> When this project was initiated in 2004, a stakeholder advisory group (SAG) was formed to facilitate communication with stakeholders during the development of the TMDL. The SAG members included representatives from the municipalities, non-governmental organizations, and environmental interest groups. The SAG was involved in this project for several years before the TMDL was formally released to the public for review in February 2008 and given several opportunities to provide comments and feedback throughout the process. In December 2004, a technical memorandum (memo) was sent to all the SAG members informing them of the data

sets that were being used for the development of the models to be used for estimating bacteria loads from the watersheds and in the receiving water (please see Exhibit 1 at the end of this appendix). The memo also requested the SAG members to provide available data to fill identified data gaps or update the data sets listed in the memo, otherwise the gaps would be addressed with "technical assumptions based on literature or regional data analysis."

On May 23, 2005, a meeting was held with the SAG members to present the technical approach and provide the SAG members an opportunity to provide feedback and comments on the preliminary draft technical report, dated April 19, 2005, that was to be sent for scientific peer review. A second SAG meeting was held on June 30, 2005 to respond to the comments provided by the SAG members.

During the June 30, 2005 meeting, the Regional Board verbally addressed and responded to all the written and oral comments provided by the SAG members. At the meeting, the SAG members were informed that any SAG member interested in more detailed responses to comments submitted could set up an appointment or teleconference with the Regional Board. The SAG members were informed that written responses to the June 2005 comments would not be provided; however, SAG members could re-submit comments during the formal comment period to receive written responses if they were not satisfied with the oral responses. This was reiterated in the June 30, 2005 meeting notes, which were sent to all the SAG members soon after the meeting. At the June 30, 2005 meeting, SAG members were also informed that they had another opportunity to provide additional data that could be used to improve the models. Several SAG members provided additional data after the meeting.

Between July 2005 and December 2007, the draft technical report underwent scientific peer review and several revisions based on SAG member comments, on developments resulting from Bacteria TMDL Project I for Beaches and Creeks, and on the removal or delisting of several shoreline segments from the Clean Water Act section 303(d) List of Water Quality Limited Segments (303(d) List). In January 2008, the draft Technical Report was provided to the SAG members for their review and comment prior to releasing it to the public for formal public review and comment. A SAG meeting was held with the stakeholders on February 14, 2008 to discuss their comments. Those attending the SAG meeting were told that they should provide written comments during the formal public review process if they would like to receive written responses. At the time of the February 14, 2008 meeting, the SAG members had been involved with the development of this TMDL for over 3 years.

The draft Technical Report was formally released for public review and comment on February 22, 2008. At this time, the public (including the SAG members) were given an opportunity to formally provide written comments on the draft Technical Report. The public was given 48 days to review the documents before the April 9, 2008 public hearing. Written comments were requested to be submitted by April 3, 2008, six days before the April 9, 2008 Board meeting and public hearing, in order for those comments to be provided to the Board members before the meeting. The

purpose of the April 9, 2008 public hearing was only to hear comments and testimony on the proposed TMDL Basin Plan amendment, and no Board action was expected or taken.

As discussed above, comments that were submitted by the SAG members during the project development were responded to verbally, prior to the formal public comment period. As of April 9, 2008, all the formal public comments and testimony in advance of the public hearing have been submitted. These written responses were prepared for all written comments submitted during the formal public review and comment period to date (see section N.5) and the oral comments and testimony provided during the April 9, 2008 meeting (see section N.4). Throughout this process responses to comments from the stakeholders and the public were provided in a timely manner.

Accounting for Illegal Discharges in TMDL

Comment: During the April 9, 2008 Board meeting, Board members Wright, King and Rayfield expressed an interest in explicitly addressing illegal discharges (e.g., from boats and/or wastewater treatment plants) in the TMDL.

Response: There is an apparent concern that illegal discharges of sewage from boats and wastewater treatment plants are not being addressed or accounted for in the development of the TMDL. While illegal sewage discharges from boats and wastewater treatment plants are likely occurring, these discharges are not authorized or allowed.

The Basin Plan includes waste discharge prohibitions specifically for the discharge of treated or untreated sewage from vessels to Dana Point Harbor and San Diego Bay and the unauthorized discharge of treated or untreated sewage to waters of the state. Adoption of a TMDL cannot include a WLA specifically for illegal discharges. This could potentially be interpreted as an authorization for these types of illegal discharges.

However, this TMDL does take illegal discharges into account in two ways:

As discussed in section 8 of the Technical Report, a TMDL is equal to the sum of the wasteloads allocation (WLAs) plus the sum of the load allocations (LAs) plus a margin of safety (TMDL = $\sum$ WLAs + $\sum$ LAs + MOS), where WLAs are portions of the TMDL that are assigned to point sources, and LAs are assigned to nonpoint sources.

When allocating portions of the TMDL to the known sources of bacteria, portions of the TMDL are assigned to allowable sources or uncontrollable sources. Discharges of sewage from boats and spills from wastewater treatment plants are neither legal nor uncontrollable. Assignment of a zero WLA or LA is the most stringent allocation possible and the only allocation that can be assigned to an illegal discharge in the context of a TMDL. So, in the case of the TMDLs for Shelter Island Shoreline Park and Baby Beach, the WLAs for illegal discharges from boats and wastewater treatment plants were set to zero (e.g., $WLA_{Boats} = 0$

and $WLA_{WWTP} = 0$). Bacteria that might originate from homeless persons is also illegal, so the LA for illegal discharges from homeless person was set to zero (e.g., $LA_{Homeless} = 0$). Therefore, the TMDL does account for bacteria originating from boats and wastewater treatment plants by assigning them a WLA of zero.

1. The TMDL includes an LA for natural and background sources. According to the text in section 8.2 of the Technical Report, the LA for natural and background sources includes "direct inputs from birds, terrestrial and aquatic animals, or *other unidentified sources* [emphasis added] within the receiving waters."

   Other unidentified sources could potentially include bacteria load contributions originating from illegal discharges from boats or wastewater treatment plants. Due to lack of data and resources, sources of "natural and background" bacteria were not quantified. In any case, identifying and quantifying the sources would not change how the TMDL would be allocated. However, potential contributions from boats and wastewater treatment plants could be considered accounted for in the LA for natural and background sources.

In the development of these TMDLs, illegal discharges from boats and wastewater treatment plants were identified as potential point sources of bacteria and assigned WLAs of zero. To the extent that illegal discharges from boats and wastewater treatment plants are occurring in reality, actions must be taken to reduce those discharges to zero. Actions may be taken by marina and harbor operators, the muncipalities, and/or the Regional Board to enforce the regulations that prohibit these types of illegal discharge.

The Technical Report has been revised to provide more information about how illegal discharges were specifically accounted for in the TMDL. Additionally, the Implementation Plan in the Technical Report has been revised to include additional discussion about what actions may be taken to address and eliminate these illegal discharges.

Value of Zero Wasteload Reduction Requirements to Comply with WLAs/TMDLs

Comment: During the April 9, 2008 Board meeting, Board members King and Rayfield questioned the value of developing a TMDL that has zero wasteload reductions required. Developing a TMDL for a waterbody that has a zero wasteload reduction seems to be a misuse of staff time and resources when other impaired waterbodies should have had higher priority.

Response: When the Bacteria TMDL projects were first initiated in 2003, addressing the recreational beneficial uses of the waterbodies that were listed as impaired by indicator bacteria was a high priority for the TMDL Program. At the time, the water quality data indicated that there were frequent exceedances of the indicator bacteria water quality objectives that support the recreational water contact (REC-1) beneficial uses in many waterbodies. Many beaches up and down the coast of the San Diego Region were frequently closed or had warning signs posted

because of elevated bacteria levels. The Regional Board gave direction to develop TMDLs for the bacteria-impaired waterbodies in the Region.

Before the models were developed and completed, the calculation of a zero wasteload reduction for MS4 discharges was not anticipated. In 2003 and 2004, available data indicated that there were elevated bacteria levels in these receiving waters warranting the listing of these waterbodies on the 2002 303(d) List. In most cases, elevated bacteria levels are associated with anthropogenic activities, and urban runoff is often suspected as one of the primary sources contributing to the impairments.

For Baby Beach, zero wasteload reductions were calculated for MS4 discharges for total coliform and fecal coliform bacteria under the wet weather TMDLs. For Shelter Island Shoreline Park, zero wasteload reductions were calculated for MS4 discharges for total coliform, fecal coliform, and *Enterococcus* bacteria under wet weather and dry weather conditions. These zero wasteload reductions mean that the discharges from the MS4s are not expected to cause an exceedance in water quality objectives for the given indicator bacteria and hydrologic regime (i.e., wet weather or dry weather). However, the loads from the MS4s must be the same or less than what was estimated in the load calculations and assigned as WLAs in the TMDLs. Any exceedances in water quality objectives caused by wasteloads originating from the MS4s will mean that the MS4 discharges are no longer in compliance with the WLAs and TMDLs.

The current available data, at least for Shelter Island Shoreline Park, appear to justify the zero wasteload reduction requirements. Based on the watershed loads estimated by the models and the calculated TMDLs under wet and dry weather, no wasteload reductions are required for Shelter Island Shoreline Park under the critical conditions. This is reasonable considering the watershed area that was modeled consists entirely of park/recreation land use and is a very small area relative to the size of the receiving water.

Additionally, the water quality data collected at Shelter Island Shoreline Park since 2003 have shown a strong trend of improved bacteria levels. Prior to 2003, the San Diego Unified Port District suspected illegal sewage discharges from one or more boats moored directly off the Shelter Island Shoreline Park shoreline. The San Diego Unified Port District conducted surveillance to identify any boats that might be discharging illegally. No boats were identified by the surveillance program. However, since the conclusion of that program, indicator bacteria REC-1 water quality objectives have been met consistently. Furthermore, the San Diego Unified Port District has implemented several BMPs such as street sweeping and covering garbage cans to reduce bacteria loading at Shelter Island Shoreline Park. Therefore, assuming there are no longer any illegal boat discharges, the MS4 does not appear to be causing elevated bacteria levels in the receiving water. The modeling approach and its results appear to have correctly predicted the current outcome. Therefore, Shelter Island Shoreline Park MS4 discharges do not appear to cause elevated bacteria levels and a zero wasteload reduction for MS4 discharges appear to be correct.

A TMDL project that presents zero wasteload reductions may appear as if a TMDL was not required or that limited resources were not spent wisely. These waterbodies, however, have historically had elevated bacteria levels, and measures were needed to correct the problem. This project and process has resulted in significant and measureable improvements in water quality. Originally, this project included 6 bacteria-impaired shoreline segments in Dana Point Harbor and San Diego Bay. Since these waterbodies were listed in 2002 and the bacteria TMDL projects were initiated in 2003, the municipalities have actively implemented several measures and collected data to begin the process for complying with the TMDLs, resulting in the removal or delisting of 4 of the original 6 impaired shorelines from the 303(d) List. For the remaining 2 shorelines, Baby Beach and Shelter Island Shoreline Park, the efforts of the municipalities have resulted in significant improvements in water quality.

N.4 Responses to Oral Public Comments and Testimony

Members of the public were given an opportunity to provide oral comments and testimony during the April 9, 2008 public hearing. Only oral comments that were not duplicated in written comments are presented in this section.

Oral Comment 1
(*US Environmental Protection Agency*)
During the April 9, 2008 Board meeting, the US Environmental Protection Agency requested that the Implementation Plan be revised to include more details about monitoring, actions that would be taken for unexpected loadings, and differences in implementation with Bacteria TMDL Project I for Beaches and Creeks.

Response: The Implementation Plan in the Technical Report has been revised to include more details and discussion about the monitoring that may be expected and actions that may be taken by the Regional Board to address illegal discharges or other unexpected loadings, and a discussion about the differences in implementation between this TMDL project and Bacteria TMDL Project I for Beaches and Creeks.

Oral Comment 2
(*County of Orange*)
During the April 9, 2008 Board meeting, the County of Orange suggested that the Implementation Plan include more recognition of the efforts taken by the County of Orange and City of Dana Point in addressing the elevated bacteria levels at Baby Beach.

Response: The Regional Board requested the County of Orange and City of Dana Point to provide recommendations for revising the Technical Report and Implementation Plan text to better acknowledge the efforts previously implemented and currently being implemented. The text of the Implementation Plan, as well as

other parts of the Technical Report, were revised to incorporate recommended revisions provided by the County of Orange and City of Dana Point determined to be appropriate.

Oral Comment 3

(*County of Orange*)

During the April 9, 2008 Board meeting, the County of Orange expressed concern that adoption of the TMDLs would open the County of Orange to third party lawsuits.

Response: The development of TMDLs is required under federal law, pursuant to Clean Water Act section 303(d). TMDL implementation plans are required under state law. State law requires that a TMDL include an implementation plan since a TMDL supplements, interprets, and/or refines existing water quality objectives.

According to Water Code section 13050(j), Basin Plans must have a program of implementation to achieve water quality objectives. According to Water Code section 13242, the implementation plan must include a description of actions that are necessary to achieve the objectives, a time schedule for these actions, and a description of surveillance to determine compliance with the water quality objectives. Assuming that the dischargers comply with the WLAs and LAs in the TMDLs within the schedule of compliance provided in the Implementation Plan and continue to do so, they will not be subject to third party lawsuits.

If the dischargers cannot comply with the WLAs and LAs in the TMDLs within the schedule of compliance provided in the Implementation Plan, not only will they be subject to third party lawsuits, they will also be subject to enforcement action by the Regional Board. Failure by the dischargers to comply with the WLAs and LAs and failure by the Regional Board to enforce compliance with the TMDLs would also open the Regional Board to third party lawsuits.

Oral Comment 4

(*City of Dana Point*)

During the April 9, 2008 Board meeting, the City of Dana Point pointed out that there was no discussion of the planned Reference System and Antidegradation Approach / Natural Sources Exclusion Approach (RSAA/NSEA) Basin Plan amendment. The City suggested that the Technical Report should include a reference to this Basin Plan amendment.

Response: If all anthropogenic sources of bacteria are controlled and natural and background sources appear to be the sole source of continued impairment, the NSEA may be applied. A discussion of the RSAA/NSEA Basin Plan amendment was included in the Implementation Plan in the Technical Report and its potential applicability for these TMDLs.

N.5 Responses to Written Public Comments

Written comments were submitted by San Diego Coastkeeper and County of Orange. The comment letters were not reproduced in this document. Written comments are provided verbatim from the letters. Several of these comments were also presented as oral comments and testimony during the April 9, 2008 public hearing. The comments are numbered sequentially below. Under each comment number is the source of the comment and the date of the comment.

Written Comment 1
(*San Diego Coastkeeper letter, dated March 28, 2008*)
Reasoning for Zero Existing Wasteload and Wasteload Allocation for SISP Dry Weather is Unclear
We are uncertain, after reading the Technical Report and the Appendices why the existing wasteload and wasteload allocation for SISP dry weather is zero. The Technical Report states that the model used to calculate bacteria loads from urban runoff did not correctly predict observed loads. As a result, a back-calculation of the allowable loading from nonpoint sources, accounting for allowable dry weather urban runoff loads predicted by the model, was performed. (Technical Report, p. 44-45) However, the justification for such analysis is not given. It is unclear why a model that is inadequate for predicting dry weather urban runoff loads should be relied upon. As stated in the Technical Report, further studies should be conducted to identify and quantify sources that may be contributing to bacteria loads. Attributing all existing bacteria loads to natural sources seems unjustified without further analysis or supporting data. (*Id*. at. 45)

Response: A zero existing wasteload means that the model predicts that no bacteria load is expected under critical conditions. A zero wasteload allocation (WLA) means that no part of the TMDL has been allocated to that particular point source.

In the case of Shelter Island Shoreline Park, the dry weather model predicts that no bacteria load is expected from the watershed under the critical dry weather conditions. This is reasonable considering the watershed area that is modeled consists entirely of park/recreation land use. This land use is not expected to have dry weather nuisance flows associated with human activities, such as over-irrigation or car washing, like residential, commercial or industrial land uses.

If no load is expected from the watershed under dry weather conditions, then there was no basis to assign any part of the dry weather TMDL as a WLA to the MS4. Therefore, the WLA for MS4s is zero in the dry weather TMDLs for Shelter Island Shoreline Park.

Written Comment 2

(*San Diego Coastkeeper letter, dated March 28, 2008*)

Clarification for the Lack of Consideration of Illicit Discharges from Boats in Determining Wasteloads

Because illicit discharges from boats in both SISP and Baby Beach are illegal, they are not quantified in the TMDL. However, the Technical Report acknowledges that such discharges are a potential source of bacteria in receiving waters. (*Id*. at 27) As a significant potential threat, such discharges may not be easily quantified, but it is unclear why they should be wholly discounted. Likewise, sewage spills from wastewater treatment plants should be taken into account. Though sewage spills and illicit discharges from boats should not occur, in reality they do. Coastkeeper suggests incorporating such sources into an explicit margin of safety in order to capture them within the TMDL. In addition, more information about the predicted loading potential from sewage spills and illicit discharges from boats would be helpful in determining how to account for such sources.

Response: The responses for comments from Regional Board members in section N.3 also address this comment.

Written Comment 3

(*San Diego Coastkeeper letter, dated March 28, 2008*)

Unclear why a TMDL that Results in a Zero Percent Decrease is Useful

Coastkeeper would like clarification for the reasoning behind the adoption of the SISP wasteload reductions. All reductions attributable to SISP are zero under the proposed TMDL. Further, incorporation of the TMDL into the NPDES permit will likely be preceded by the removal of SISP from the Clean Water Act 303(d) list, according to the Technical Report. (*Id*. at 66) Therefore, we ask that clarification for adoption of such reductions on the suggested timeline be given.

Response: A zero percent load reduction to meet the WLA for MS4s means that the model predicts that the bacteria loads are not expected to cause an exceedance in the water quality objectives (WQOs) that will support the water contact recreation (REC-1) beneficial use in the receiving water. A zero wasteload reduction does not mean that the municipalities responsible for discharges from MS4s are not required to meet the WLA. If the bacteria load from the Shelter Island Shoreline Park watershed does in fact cause an exceedance of REC-1 WQOs in the receiving water, those loads would require a reduction to comply with the WLA assigned to the MS4. Based on data provided by the San Diego Unified Port District, the water quality appears to have improved significantly since the 2003. If the trend continues, continued collection of water samples should provide enough data to support the delisting of Shelter Island Shoreline Park from the Clean Water Act section 303(d) List of Water Quality Limited Segments (303(d) List).

However, if the water quality begins to degrade, or the data collected do not support delisting Shelter Island Shoreline Park by 2012, the Regional Board may issue an investigative order as authorized under Water Code sections 13267 and 13383 to

require the municipalities to identify the sources of bacteria that are causing the continued exceedances in REC-1 WQOs and recommend and implement measures to eliminate those exceedances. The Implementation Plan in the Technical Report has been revised to provide more information about what actions may be taken to address failures to meet the REC-1 WQOs within the given compliance schedules.

Written Comment 4

(*County of Orange letter, dated April 3, 2008*)

We have attached our prior comments dated June 2, 2005. It should be noted that no response to these comments has been forthcoming.

Response: Responses to these comments were provided verbally during the June 30, 2005 meeting with the Stakeholder Advisory Group (SAG), which was attended by the County of Orange.

The June 2, 2005 comments were submitted after the County of Orange reviewed the April 19, 2005 preliminary draft of the Technical Report that was only provided to members of the SAG. The purpose of the review was to receive input to revise the preliminary draft Technical Report prior to the submittal to the scientific peer reviewers. The SAG members were informed that verbal responses to their comments would be provided at the June 30, 2005 SAG meeting.

During that June 30, 2005 SAG meeting, verbal responses were provided to the June 2005 written comments submitted for the preliminary draft Technical Report. The SAG members were informed at the meeting that any SAG member interested in more detailed responses to comments submitted could set up an appointment or teleconference. The SAG members were also informed that written responses to the June 2005 comments would not be provided; however, SAG members could re-submit comments during the formal comment period to receive written responses. This was reiterated in the June 30, 2005 meeting notes, which were sent to all the SAG members soon after the meeting.

Given the length of time between the June 30, 2005 SAG meeting and the release of the February 22, 2008 draft Technical Report, the County of Orange may not recollect the verbal responses that were provided. Because the June 2, 2005 comments were submitted during the public comment period with the formal April 3, 2008 comments, written responses are provided in this document.

Written Comment 5

(*County of Orange letter, Attachment A, Comment 1, dated April 3, 2008*)

Executive Summary, Page 1, Third Paragraph: The TMDLs established in this technical report relate to water quality objectives for REC-1 and REC-2 beneficial uses not shellfish harvesting. As noted in the third paragraph, SHELL beneficial use will be addressed in a separate TMDL and/or standards action. To prevent confusion to the reader, references to shellfish harvesting beneficial uses should be removed from the document.

Response: The shellfish harvesting (SHELL) beneficial use reference was deleted from the Executive Summary. The SHELL beneficial use references in sections 1 and 2 of the Technical Report were not deleted because the SHELL beneficial use is pertinent to the discussions.

Written Comment 6

(*County of Orange letter, Attachment A, Comment 2, dated April 3, 2008*)
Section 1 Introduction, Page 5, Second Paragraph: The document states, "The bacteria loads from the watershed were used as inputs into a second model used to calculate the assimilative capacity of receiving waters at the impaired BB and SISP shorelines". This text should be revised to reflect that the bacteria loads were modeled based upon land use area and that the actual bacteria loads from the MS4 systems are not known.

Response: The sentence has been revised to state that the bacteria loads *calculated by the watershed model* were used as inputs into the receiving water model.

Written Comment 7

(*County of Orange letter, Attachment A, Comment 3, dated April 3, 2008*)
Section 1.1 Technical Approach, Page 7, Fifth Paragraph: The document states, "For these TMDLs, the receiving waters are the impaired shoreline segments of BB and SISP, and the watersheds are the areas of the watershed that drain directly to those receiving waters." This does not match with text in other parts of the document which define the watershed area for Baby Beach as 522.6 acres or the entire watershed for Dana Point Harbor and not just the watershed area to the impaired shoreline segment of Baby Beach.

Response: The sentence has been revised to state that the receiving waters are Dana Point Harbor and San Diego Bay, and the watersheds are areas of the watershed that are conservatively assumed to have a potential impact on the impaired shorelines of those receiving waters.

Written Comment 8

(*County of Orange letter, Attachment A, Comment 4, dated April 3, 2008*)
Section 2.1 Project Area Description, Page 11, Second Paragraph: The document states, "Impairment of these shorelines is likely due to local sources of bacteria such as human, domestic animals and urban runoff." This statement does not appear to be correct based upon 2003 studies and conflicts with the text in Section 5.1.1 Natural Sources, Page 26, Third Paragraph, which states that for both wet and dry weather fecal bacteria deposited from waterfowl may be the primary source or a relatively significant source of impacts to the shorelines.

Response: There is no conflict between the statements from section 2.1 and section 5.1.1. Natural and background sources (including fecal bacteria deposited by waterfowl) are a significant source of bacteria. Natural and background sources

are not expected to cause exceedances in REC-1 WQOs. For Baby Beach, exceedances in REC-1 WQOs are not expected to occur based solely on natural and background sources without the bacteria loads from the watershed (i.e., MS4s), and assuming no illegal discharges are occurring within the immediate vicinity of the shorelines

According to the June 2003 State of the Beach Report for Baby Beach, "[t]he most significant contributor of bacteria [at Baby Beach] appeared to be the storm drains." The statement that, "Impairment of these shorelines is likely due to local sources of bacteria such as human, domestic animals and urban runoff" is supported by the June 2003 State of the Beach Report.

Written Comment 9

(*County of Orange letter, Attachment A, Comment 5, dated April 3, 2008*)

Section 2.1 Project Area Description, Page 11, Fourth Paragraph: The 522.6 acre watershed described in Table 2-1 includes drainages for all of Dana Point Harbor. This is an incorrect depiction of the drainages to the Baby Beach shoreline. A review of grading and development plans (Dana Point Headlands Project Hydrology Exhibit, Stantec Consultants, Inc. 2/15/2007, Ocean Institute BMP Evaluation Site Plan, RDMD 11/26/2002, Dana Point Harbor Parking Lot No. 2 Grading and Paving Plan, Koebig & Koebig, Inc. September 1971), for the area surrounding Baby Beach defines a drainage area of only 43.4 acres (see Attachment B). In addition, harbor water quality monitoring data and circulation studies indicate that bacteria impairment is confined to the Baby Beach shoreline and that limited circulation exists between the waters near to Baby Beach and the waters further in the harbor channel. The Baby Beach bacteria TMDLs were developed based upon modeling results driven by watershed size and land use. The use of a watershed area representative of the actual inputs that drain to the segment of impaired shoreline is imperative to accurate model TMDL development. The watershed area used in the model should be revised to reflect the actual drainage area to Baby Beach and the TMDLs should be revised accordingly.

Response: The circulation study referred to by the commenter took place over a 2-day period in September 2002. According to the March 2003 Circulation Study Report for Baby Beach, "it appears that there was limited circulation between the waters near to Baby Beach and the waters further in the channel." However, the report also states that the direction of flow at the harbor channel adjacent to Baby Beach (Station 8) "appeared to be strongly influenced by winds and tides with surface flows predominantly in the direction of the tidal flow." Additionally, the report states that wind and wave patterns can vary significantly throughout the year, particularly during seasonal shifts in weather patterns and additional studies would be required to evaluate currents under variable conditions.

All the areas of the watershed that drain into Dana Point Harbor were assumed to potentially have an influence on the bacteria levels along Baby Beach. This is the most conservative assumption and the most accurate way to represent the watershed inputs into the receiving water model.

Written Comment 10
(*County of Orange letter, Attachment A, Comment 6, dated April 3, 2008*)
Section 2.3 Impairment Overview, Page 15, Second Paragraph: The document states, "For this project, the most recent water quality data available at the time of the model development in 2004 were used to develop the models." Based upon the data sources listed in Appendix D only Baby Beach water quality data from 11/1996-10/2002 was used. Therefore, water quality data from 10/2002 to 2004 was not used and neither was the extensive data collected as part of the June 2003 State of Beach Report which included a data mining study, circulation study, and special bacteriological studies conducted at Baby Beach. The document should be revised to reflect what data was actually used for modeling. This comment also applies to document text in Section 4.1.1, Page 20, First Paragraph.

Response: Much of the data from the data mining study included in the June 2003 State of the Beach Report were also used in the model. The data mining study had tidal, rainfall and water quality data from January 1997 to April 2002. These data were collected from the same sources that were used for model development. The circulation study and special bacteriological studies, however, were both inconclusive and could not be used in the model development.

The data collection and model development were initiated in January 2004. The County of Orange was given an opportunity to provide additional data. A memo from the Regional Board was sent to the SAG members, dated December 10, 2004, listing the data sets that were used in the model and requesting additional data if available. The County of Orange was also given an opportunity to provide additional data in June 2005. The County of Orange made a reference to the June 2003 State of the Beach Report, but did not provide any of the raw data.

The data used to develop the watershed and receiving water models are as shown in Appendix D to the Technical Report. Because 2001 and 2002 had the most complete hydrology/hydraulics data, the water quality data collected in 2001 and 2002 were used to calibrate and validate the water quality model. Water quality data collected after 2002 would not have been used in the calibration or validation of the water quality model.

The model was set up, calibrated, and validated assuming that either there were no BMPs in place, or that the BMPs in place were not effective in controlling bacteria loads entering Dana Point Harbor. The use of 2001 and 2002 hydrologic and water quality data is appropriate because the water quality during this time period exhibited high frequencies of REC-1 WQO exceedances. Since Baby Beach was placed on the 2002 303(d) List the municipalities have implemented several structural and non-structural BMPs that have apparently resulted in measureable improvement in water quality at Baby Beach. To use the water quality data from after 2002 and after the effective BMPs had been implemented, the model would have to be set up, calibrated and validated with the new BMPs accounted for in the model. This might reduce the amount of existing bacteria load that may be entering

the receiving water, but it would not reduce the TMDLs for the receiving water which are calculated based on the REC-1 WQOs.

However, as discussed in section 2.3.1, water quality data collected from Baby Beach between January 2002 and December 2006 were evaluated to confirm that the impairment continues to exist. The water quality data from this time period appears to indicate that water quality has improved since 2002, but also confirms that Baby Beach remains impaired by indicator bacteria.

Written Comment 11

(*County of Orange letter, Attachment A, Comment 7, dated April 3, 2008*)
Section 3, Numeric Target Selection, Page 17: Similar to the Bacteria Impaired Waters – Project I Beaches and Creeks TMDL, this section of the document should be revised to include reference to the pending Reference System & Antidegradation Approach (RSAA) and Natural Sources Exclusion Approach (NSEA) Basin Plan Amendment (BPA) and explain its implications to the Baby Beach and Shelter Island Shoreline Park TMDLs. In particular, the NSEA seems appropriate to the situation at Baby Beach were studies point toward birds, sediment resuspension, and other natural sources as the likely source of impairment.

Response: Discussion of the Natural Sources Exclusion Approach (NSEA) would not be appropriate in section 3, which discusses the selection of numeric targets. The NSEA would only apply after evidence can be provided that all anthropogenic sources of bacteria have been controlled and the REC-1 WQOs are still being exceeded.

The Implementation Plan in the Technical Report has been revised to provide more information about the NSEA and when it may be applicable.

Written Comment 12

(*County of Orange letter, Attachment A, Comment 8, dated April 3, 2008*)
Section 4.1.2 Waterbody Characteristics, Page 20, Third Paragraph: The hydrology component of the model developed as part of the Bacteria TMDL Project I and now utilized as part of the San Diego Bay and Dana Point Harbor TMDLs involved a calibration using thirteen USGS gages throughout the San Diego Region for wet weather and a combination of gage data from a tributary to San Juan Creek and instantaneous flow measurements from stations in Aliso Creek and Mission Bay drainages for dry weather. The use of these data sources is inappropriate for determining loading and TMDLs for Baby Beach for the following reasons:

a) The thirteen USGS gage stations are located along much larger drainages (13,632 - 462,720 acres) that have different hydrology than the small storm drain system at Baby Beach (43.4 acres). Factors such as ground water input within a creek and longer wet weather sustained flows are not components of a small, concrete lined, underground MS4 system like the one found at Baby Beach. In addition, many of the USGS gage stations used have upstream reservoirs and lakes that may regulate or

partially regulate flow. This adds another layer of uncertainly to using this data to simulate flows in a small MS4 system.

b) The instantaneous flow data used from the Aliso Creek Watershed was only "estimated" flow. Caution should be taken in using this data because the methods used to determine flow (e.g. the floating leaf method) have inherent error. The fact that these flow approximations were used to develop a regional model and that these models were used to develop TMDLs is a concern.

To address these two issues a better description of the limitations of the flow data used to develop these models should be presented in the document. In addition, some recent flow data is available from the diversion system BMP in place for the Dana Point Headlands area which drains to the west end of Baby Beach. This data could be used to calibrate model derived dry weather flows to those actually observed within the Baby Beach drainage area.

Response: Ideally, calculation of bacteria loads from a watershed would be based entirely on actual site specific data. At the time the modeling approaches were developed in 2004, there were no flow or water quality data available for the storm drains discharging to Dana Point Harbor. The County of Orange was provided several opportunities to provide more site specific data, but never provided any data. Given the lack of site specific flow and water quality data for the storm drains discharging to Dana Point Harbor, a modeling approach was required.

As with any modeling approach, there is inherent uncertainty since no model can fully represent reality. The uncertainty in using a model is acknowledged in section 6 in the Technical Report.

Even though there is a degree of uncertainty in the models, the watershed modeling approaches used have been shown to be able to estimate/simulate flows and bacteria loads well for several different watershed sizes in the San Diego Region for Bacteria TMDL Project I, as well as in the Los Angeles and Santa Ana Regions. The degree of uncertainty appears low. The watershed modeling approaches used in this project are on the high end of complexity and used large data sets from across the San Diego Region in their development. The alternative to the modeling approaches used in this project would be to use simpler models with more assumptions that would result in even higher levels of uncertainty. Given the lack of site specific data and the availability of the regionally calibrated watershed models, the uncertainty that is in the modeling approaches used is less than the alternative of using other simpler modeling approaches with more assumptions.

Written Comment 13

(*County of Orange letter, Attachment A, Comment 9, dated April 3, 2008*)

Section 4.1.2 Waterbody Characteristics, Page 21, First Paragraph: More information should be provided regarding the resolution and the date of the bathymetry data used for Baby Beach. The USGS DRG 7.5 min quadrangle map for Dana Point provides some limited data on depth curves and depth sounding locations for coastal areas, but dates back to 1975 and does not provide detailed bathymetry. The use of this data to