

Draft 12/18/01

California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 2
Dissolved Copper**

Summary of Proposed Action

Calleguas Creek Reach 2, at the mouth of Calleguas Creek, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the California Toxics Rule acute and chronic criteria for dissolved copper. The beneficial use that is affected by this impairment is aquatic life.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 2	Pollutants/Stressors	Copper
Hydrologic Unit	403.11	Source(s)	Non-point.
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 2
Size Affected	4.4 Miles	TMDL Start Date (Mo/Yr)	2004 – New listing for a current TMDL.
Extent of Impairment	Entire reach.	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

Reach 2 of Calleguas Creek is the end of Calleguas Creek, at the mouth of the river where it meets Mugu Lagoon, downstream (south) of Potrero Road. In periods of high flow, it contains water from all areas of Calleguas Creek, including Conejo Creek. This reach has a tidal influence. Sources of water include tile drains, and other sources in Beardsley Wash and Revolon Slough. While its bottom has an impermeable layer, Reach 2 is over the Oxnard Plain groundwater basin, which contains both unconfined and perched aquifers.

Water Quality Objectives Not Attained

- California Toxics Rule Saltwater Aquatic Life Protection, Continuous Concentration (4-day average) and Maximum Concentration (1-hour average.)

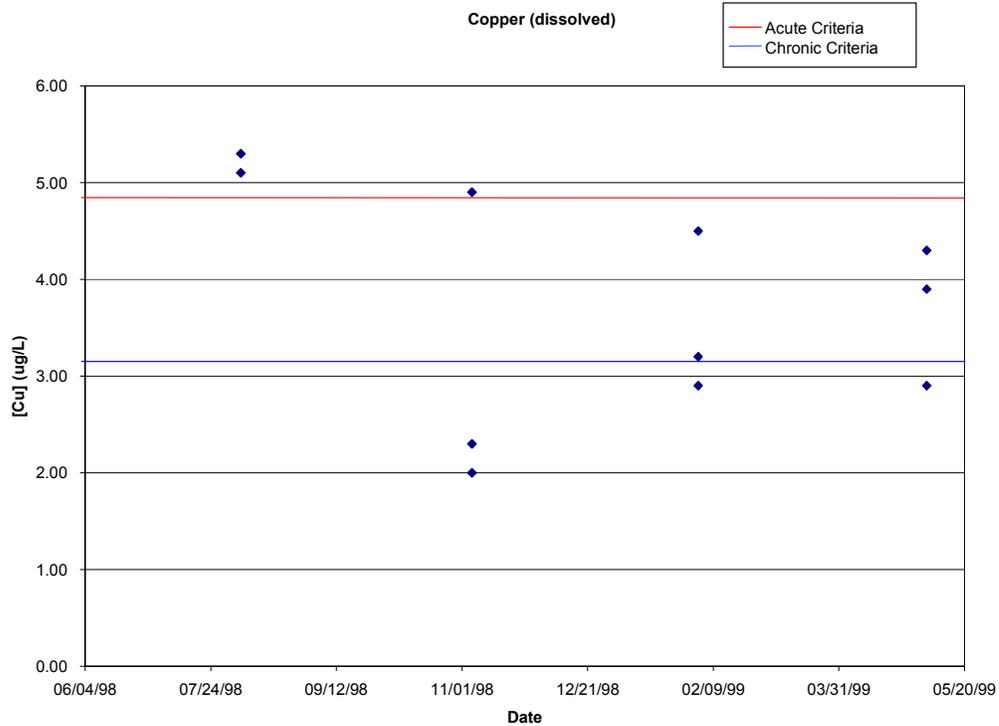
Beneficial Uses Affected

- Estuary
- Biological
- Rare
- Migration
- Spawning

Data Assessment

Table 2. Summary of Copper Data for Calleguas Creek Reach 2

Dates of Sampling	8/98-5/99
Number of Samples (n)	11
Minimum Data Value	2.0 ug/L
Maximum Data Value	5.3 ug/L
Median Data Value	3.9 ug/L
Arithmetic Mean Value	3.75 ug/L
Standard Deviation	1.16 ug/L
Number (Percent) above Objective	7 (64%) for 4 day; 3 (27%) for 1 hour salt water standard



Potential Sources

Non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Basin Plan 1994
- California Toxics Rule 2000
- Calleguas Creek Characterization Study 2000
- Watershed Management Initiative Chapter 2000

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**Calleguas Creek Reach 2
DDT in the Water Column**

Summary of Proposed Action

Calleguas Creek Reach 2, at the mouth of Calleguas Creek, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the California Toxics Rule chronic criterion for DDT in the water column. This reach is already listed for DDT in tissue and sediment. The beneficial use that is affected by this impairment is aquatic life.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 2	Pollutants/Stressors	DDT in Water
Hydrologic Unit	403.11	Source(s)	Non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 6
Size Affected	4.4 Miles	TMDL Start Date (Mo/Yr)	2004 – New listing for a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2006

Watershed Characteristics

Reach 2 of Calleguas Creek is the end of Calleguas Creek, at the mouth of the river where it meets Mugu Lagoon, downstream (south) of Potrero Road. In periods of high flow, it contains water from all areas of Calleguas Creek, including Conejo Creek. This reach has a tidal influence. Sources of water include tile drains, and other sources in Beardsley Wash and Revolon Slough. While its bottom has an impermeable layer, Reach 2 is over the Oxnard Plain groundwater basin, which contains both unconfined and perched aquifers.

Water Quality Objectives Not Attained

- California Toxics Rule Aquatic Life Protection, Continuous Criterion Concentration (4-day average).

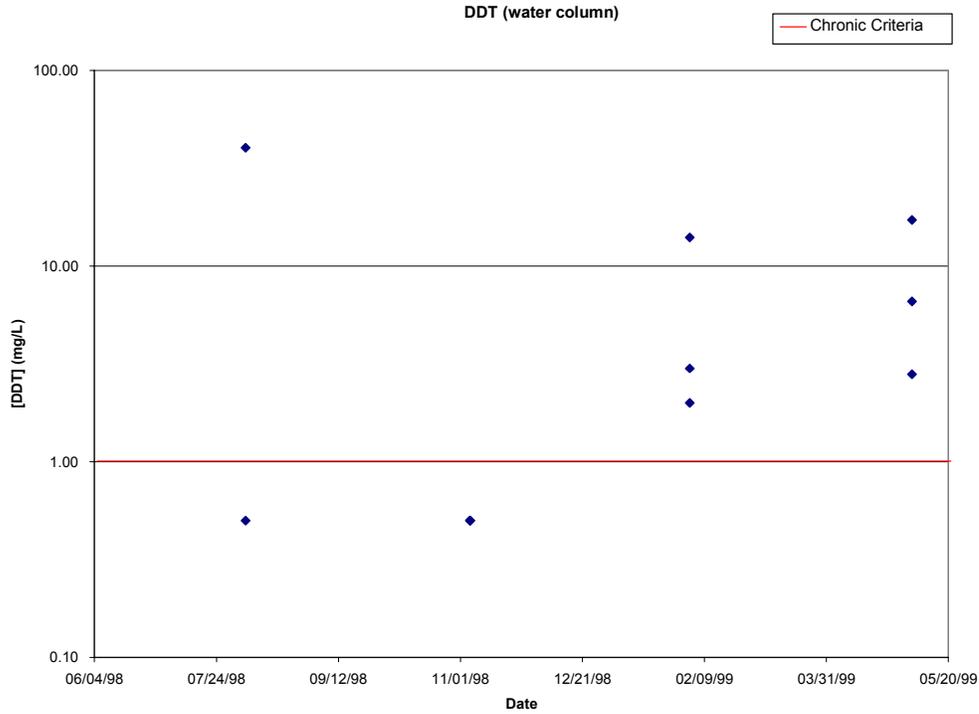
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Beneficial Uses Affected

- Estuary
- Biological
- Rare
- Migration
- Spawning

Data Assessment**Table 2. Summary of DDT in the Water Column Data for Calleguas Creek Reach 2**

Dates of Sampling	8/98-5/99
Number of Samples (n)	11
Minimum Data Value	<0.50 ng/L
Maximum Data Value	40.3 ng/L
Median Data Value	2.8 ng/L
Arithmetic Mean Value	8.0 ng/L
Standard Deviation	12.6 ng/L
Number (Percent) above Objective	7 (64%) exceed standard of 1 ng/L.



Potential Sources

Non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Basin Plan 1994
- California Toxics Rule 2000
- Calleguas Creek Characterization Study 2000

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**Calleguas Creek Reach 2
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 2, at the mouth of Calleguas Creek, is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the Basin Plan objective for fecal coliform. The beneficial use that is affected by this impairment is Water Contact Recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 2	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.11	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	4.4 Miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Reach 2 of Calleguas Creek is the end of Calleguas Creek, at the mouth of the river where it meets Mugu Lagoon, downstream (south) of Potrero Road. In periods of high flow, it contains water from the rest of Calleguas Creek, including Conejo Creek. This reach has a tidal influence. Sources of water include tile drains, and other sources in Beardsley Wash and Revolon Slough. While its bottom has an impermeable layer, Reach 2 is over the Oxnard Plain groundwater basin, which contains both unconfined and perched aquifers.

Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses

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include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan fecal coliform objective for REC-1 states that the log mean shall not exceed 200/100mL, and no more than 10% shall exceed 400/100 mL.

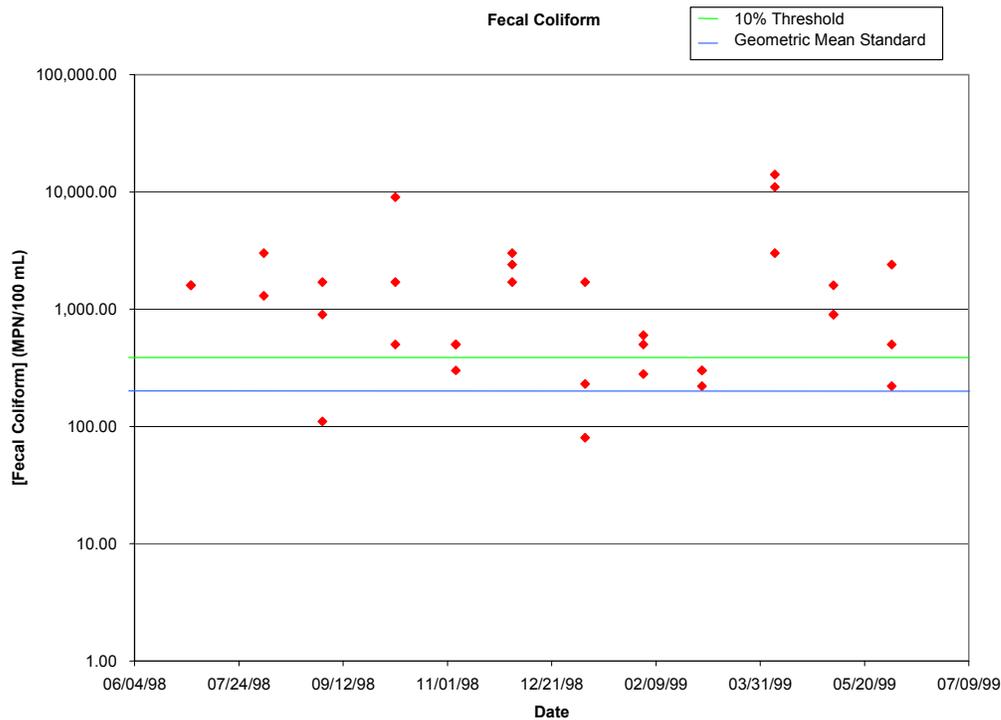
Beneficial Uses Affected

- Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform Data for Calleguas Creek Reach 2

Dates of Sampling	7/98-6/99
Number of Samples (n)	34
Minimum Data Value	80 mpn/100mL
Maximum Data Value	14000 mpn/100mL
Median Data Value	900 mpn/100mL
Arithmetic Mean Value	2016 mpn/100mL
Standard Deviation	3133 mpn/100mL
Number (Percent) above Objective	Geomean of 934 exceeds 200 mpn standard; 24 (74%) >400 mpn.



Potential Sources

Point and non-point.

References

Calleguas Creek Chloride TMDL 2001

Basin Plan 1994

Calleguas Creek Characterization Study 2000

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**Revolon Slough, Calleguas Creek Reach 4
Boron**

Summary of Proposed Action

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel, to the confluence with Calleguas Creek in Reach 2. Reach 4 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to greater than 25 percent exceedance of the waterbody-specific boron objective in Table 3-8 of the Basin Plan.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 4 - Revolon Slough	Pollutants/Stressors	Boron
Hydrologic Unit	403.11	Source(s)	Non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 4
Size Affected	6.7 Miles	TMDL Start Date (Mo/Yr)	1998 - New listing in a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2004

Watershed Characteristics

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel (Wash), to Calleguas Creek Reach 2 downstream (south) of Potrero Road. Its tributaries include agricultural drains at Wood Road and Las Posas Road, and the Hueneme Road/Nauman Road Irrigation Ditch. Reach 4 is concrete lined between Central Avenue and Wood Road, downstream from there the slough is soft-bottomed with sides of rip-rap. The lower 1.5 miles appear to have tidal influence. Sources of water include tile drains and other sources in Reach 5.

The end of Revolon Slough currently connects with Calleguas Creek south of Potrero Road. However, it previously connected north of Potrero Road, and was moved by the Ventura County Flood Control District in approximately 1986.

Water Quality Objectives Not Attained

Basin Plan Objective for Boron

The Basin Plan has a number of water quality objectives for selected constituents in inland surface waters, listed in Table 3-8. The boron objective listed for Calleguas Creek above Potrero Road is 1.0 mg/L.

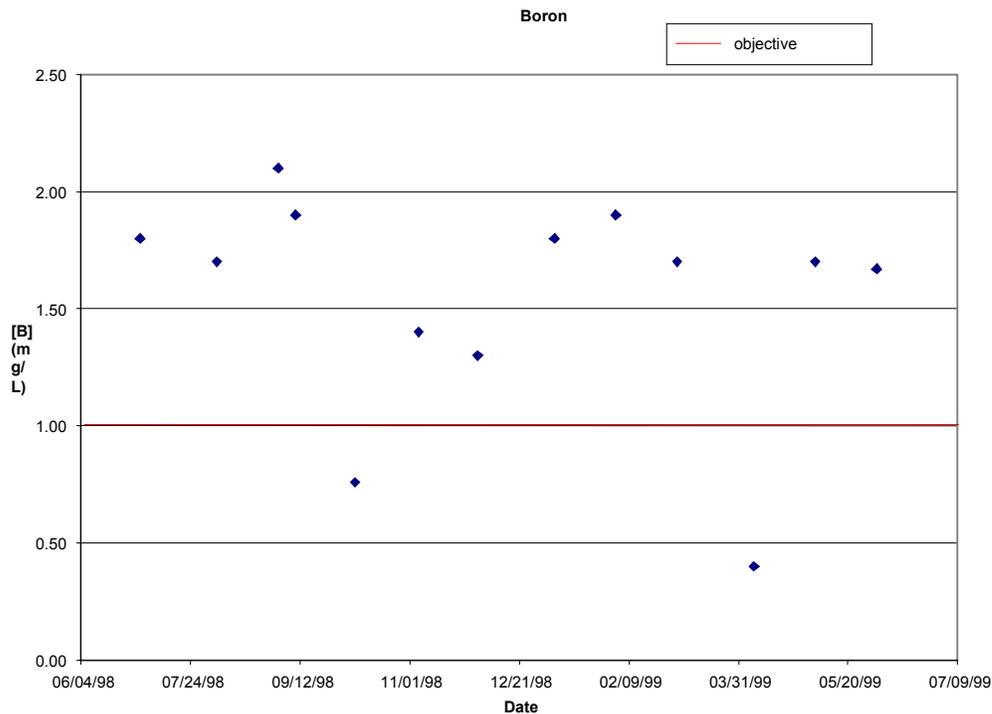
Beneficial Uses Affected

- Basin Plan waterbody specific objectives, Table 3-8.

Data Assessment

Table 2. Summary of Boron for Calleguas Creek Reach 4

Dates of Sampling	7/98-6/99
Number of Samples (n)	13
Minimum Data Value	0.40 mg/L
Maximum Data Value	2.10 mg/L
Median Data Value	1.70 mg/L
Arithmetic Mean Value	1.49 mg/L
Standard Deviation	0.48 mg/L
Number (Percent) above Objective	11 of 13 or 85%



Potential Sources

Non-point sources.

References

Personal communication with Dave Thomas and John Wikle of the Ventura County
Flood Control District, September 7, 2001

Calleguas Creek Chloride TMDL 2001

Basin Plan 1994

Calleguas Creek Characterization Study 2000

United Water Conservation District, Water Quality Data

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**Revolon Slough, Calleguas Creek Reach 4
Chloride**

Summary of Proposed Action

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel, to the confluence with Calleguas Creek in Reach 2. Reach 4 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to greater than 25 percent exceedance of the waterbody-specific chloride objective in Table 3-8 of the Basin Plan.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 4 - Revolon Slough	Pollutants/Stressors	Chloride
Hydrologic Unit	403.11	Source(s)	Non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 5
Size Affected	6.7 Miles	TMDL Start Date (Mo/Yr)	2005 - New listing in a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	

Watershed Characteristics

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel (Wash), to Calleguas Creek Reach 2 downstream (south) of Potrero Road. Its tributaries include agricultural drains at Wood Road and Las Posas Road, and the Hueneme Road/Nauman Road Irrigation Ditch. Reach 4 is concrete lined between Central Avenue and Wood Road, downstream from there the slough is soft-bottomed with sides of rip-rap. The lower 1.5 miles appear to have tidal influence. Sources of water include tile drains and other sources in Reach 5.

The end of Revolon Slough currently connects with Calleguas Creek south of Potrero Road. However, it previously connected north of Potrero Road, and was moved by the Ventura County Flood Control District in approximately 1986.

Water Quality Objectives Not Attained

Current Basin Plan Table 3-8 chloride objective of 150 mg/L.

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Upcoming TMDL reach specific objective and numeric target of 150 mg/L.

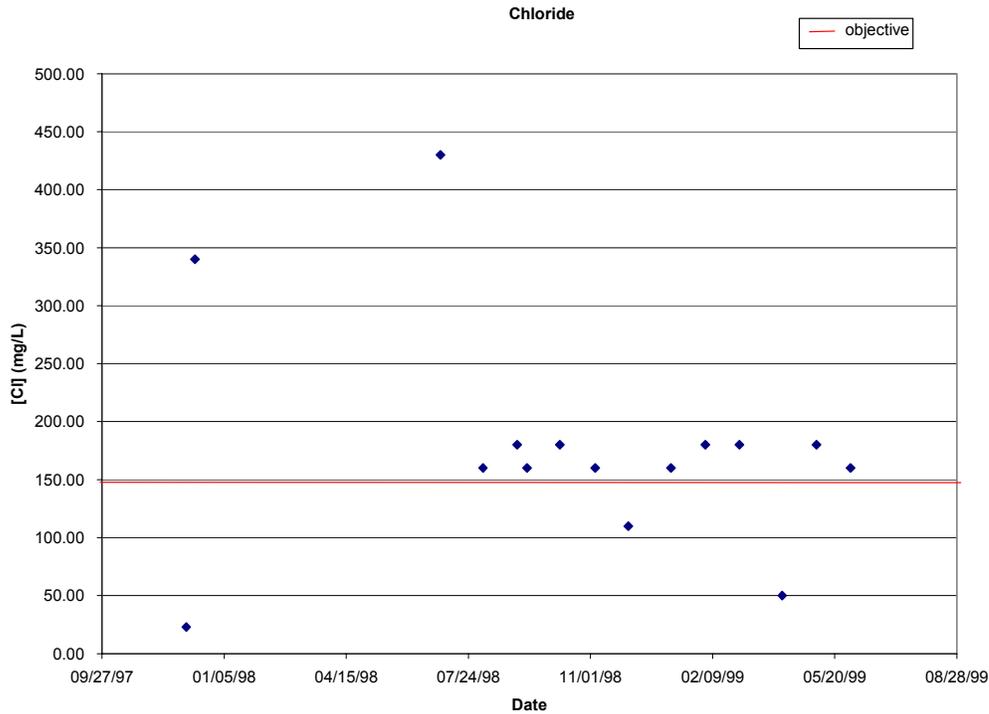
Beneficial Uses Affected

- Agriculture
- Groundwater recharge

Data Assessment

Table 2. Summary of Chloride for Calleguas Creek Reach 4

Dates of Sampling	12/97-6/99
Number of Samples (n)	15
Minimum Data Value	23 mg/L
Maximum Data Value	430 mg/L
Median Data Value	160 mg/L
Arithmetic Mean Value	177 mg/L
Standard Deviation	99 mg/L
Number (Percent) above Objective	12 or 80%



Potential Sources

Non-point sources.

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References

Personal communication with Dave Thomas and John Wikle of the Ventura County
Flood Control District, September 7, 2001
Calleguas Creek Chloride TMDL 2001
Basin Plan 1994
Calleguas Creek Characterization Study 2000
United Water Conservation District, Water Quality Data

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**Calleguas Creek Reach 4, Revolon Slough
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel, to the confluence with Calleguas Creek in Reach 2. Reach 2 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the fecal coliform objective. The beneficial use affected by this impairment is water contact recreation.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 4 - Revolon Slough	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.11	Source(s)	Point and non-point.
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	6.7 Miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel (Wash), to Calleguas Creek Reach 2 downstream (south) of Potrero Road. Its tributaries include agricultural drains at Wood Road and Las Posas Road, and the Hueneme Road/Nauman Road Irrigation Ditch. Reach 4 is concrete lined between Central Avenue and Wood Road, downstream from there the slough is soft-bottomed with sides of rip-rap. The lower 1.5 miles appear to have tidal influence. Sources of water include tile drains and other sources in Reach 5.

The end of Reach 4 currently connects with Calleguas Creek south of Potrero Road. However, it previously connected north of Potrero Road, and was moved by the Ventura County Flood Control District in approximately 1986.

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Water Quality Objectives Not Attained

Water Contact Recreation

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan Fecal Coliform limit of 400 MPN/100 mL was exceeded with a frequency greater than 10%, and the geometric mean standard was exceeded.

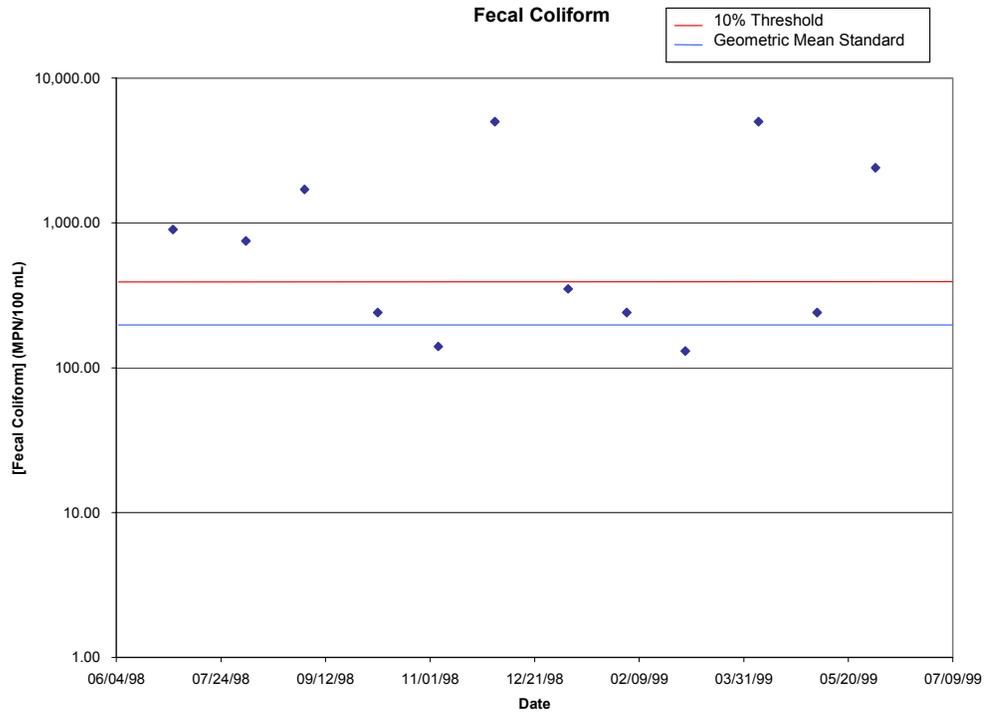
"In waters designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL."

Beneficial Uses Affected

- Water Contact Recreation

Data Assessment**Table 2. Summary of Fecal Coliform Data for Calleguas Creek Reach 4**

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	130 mpn/100 mL
Maximum Data Value	5000 mpn/100 mL
Median Data Value	550 mpn/100 mL
Arithmetic Mean Value	1424 mpn/100 mL
Standard Deviation	1809 mpn/100 mL
Number (Percent) above Objective	Geomean of 653 MPN exceeds 200 mpn; 50% exceed 400 mpn.



Potential Sources

Non-point sources.

References

- Creek Chloride TMDL 2001
- Basin Plan 1994
- Calleguas Creek Characterization Study 2000

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**Revolon Slough, Calleguas Creek Reach 4
Total Dissolved Solids (TDS)**

Summary of Proposed Action

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel, to the confluence with Calleguas Creek in Reach 2. Reach 2 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to greater than 25 percent exceedance of the total dissolved solids or TDS objective in Table 3-8 of the Basin Plan.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 4 - Revolon Slough	Pollutants/Stressors	TDS
Hydrologic Unit	403.11	Source(s)	Non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 4
Size Affected	6.7 Miles	TMDL Start Date (Mo/Yr)	1998 – New listing in a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2004

Watershed Characteristics

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel (Wash), to Calleguas Creek Reach 2 downstream (south) of Potrero Road. Its tributaries include agricultural drains at Wood Road and Las Posas Road, and the Hueneme Road/Nauman Road Irrigation Ditch. Reach 4 is concrete lined between Central Avenue and Wood Road, downstream from there the slough is soft-bottomed with sides of rip-rap. The lower 1.5 miles appear to have tidal influence. Sources of water include tile drains and other sources in Reach 5.

The end of Reach 4 currently connects with Calleguas Creek south of Potrero Road. However, it previously connected north of Potrero Road, and was moved by the Ventura County Flood Control District in approximately 1986.

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Water Quality Objectives Not Attained

Basin Plan Objective for TDS

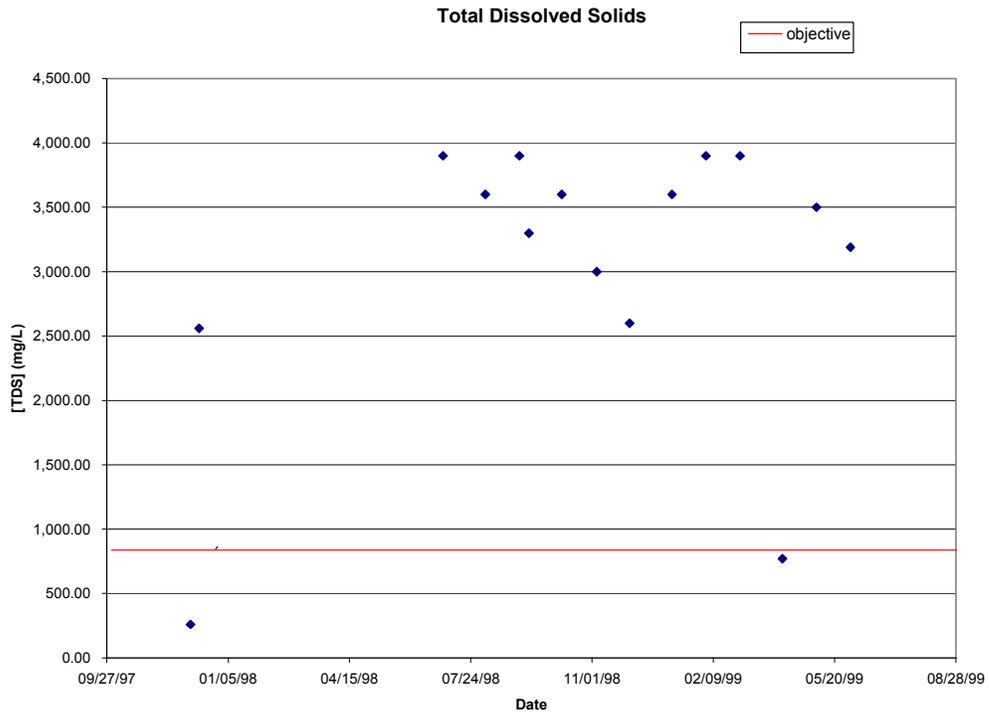
The Basin Plan has a number of water quality objectives for selected constituents in inland surface waters, listed in Table 3-8. The TDS objective listed for Calleguas Creek above Potrero Road is 850 mg/L.

Beneficial Uses Affected

- Basin Plan waterbody specific objectives, Table 3-8.

Data Assessment**Table 2. Summary of TDS for Calleguas Creek Reach 4**

Dates of Sampling	12/97-6/99
Number of Samples (n)	15
Minimum Data Value	260 mg/L
Maximum Data Value	3900 mg/L
Median Data Value	3500 mg/L
Arithmetic Mean Value	3039 mg/L
Standard Deviation	1118 mg/L
Number (Percent) above Objective	13 or 87%



Potential Sources

Non-point sources.

References

- Personal communication with Dave Thomas and John Wikle of the Ventura County Flood Control District, September 7, 2001
- Calleguas Creek Chloride TMDL 2001 Basin Plan 1994
- Calleguas Creek Characterization Study 2000

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**Revolon Slough, Calleguas Creek Reach 4
Sulfate**

Summary of Proposed Action

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel, to the confluence with Calleguas Creek in Reach 2. Reach 2 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to greater than 25 percent exceedance of the waterbody-specific sulfate objective in Table 3-8 of the Basin Plan.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 4 - Revolon Slough	Pollutants/Stressors	Sulfate
Hydrologic Unit	403.11	Source(s)	Non-point sources
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 4
Size Affected	6.7 Miles	TMDL Start Date (Mo/Yr)	1998 - New listing in a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	2004

Watershed Characteristics

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel (Wash), to Calleguas Creek Reach 2 downstream (south) of Potrero Road. Its tributaries include agricultural drains at Wood Road and Las Posas Road, and the Hueneme Road/Nauman Road Irrigation Ditch. Reach 4 is concrete lined between Central Avenue and Wood Road, downstream from there the slough is soft-bottomed with sides of rip-rap. The lower 1.5 miles appear to have tidal influence. Sources of water include tile drains and other sources in Reach 5.

The end of Revolon Slough currently connects with Calleguas Creek south of Potrero Road. However, it previously connected north of Potrero Road, and was moved by the Ventura County Flood Control District in approximately 1986.

Water Quality Objectives Not Attained

Basin Plan Objective for Sulfate

The Basin Plan has a number of water quality objectives for selected constituents in inland surface waters, listed in Table 3-8. The sulfate objective listed for Calleguas Creek above Potrero Road is 250 mg/L.

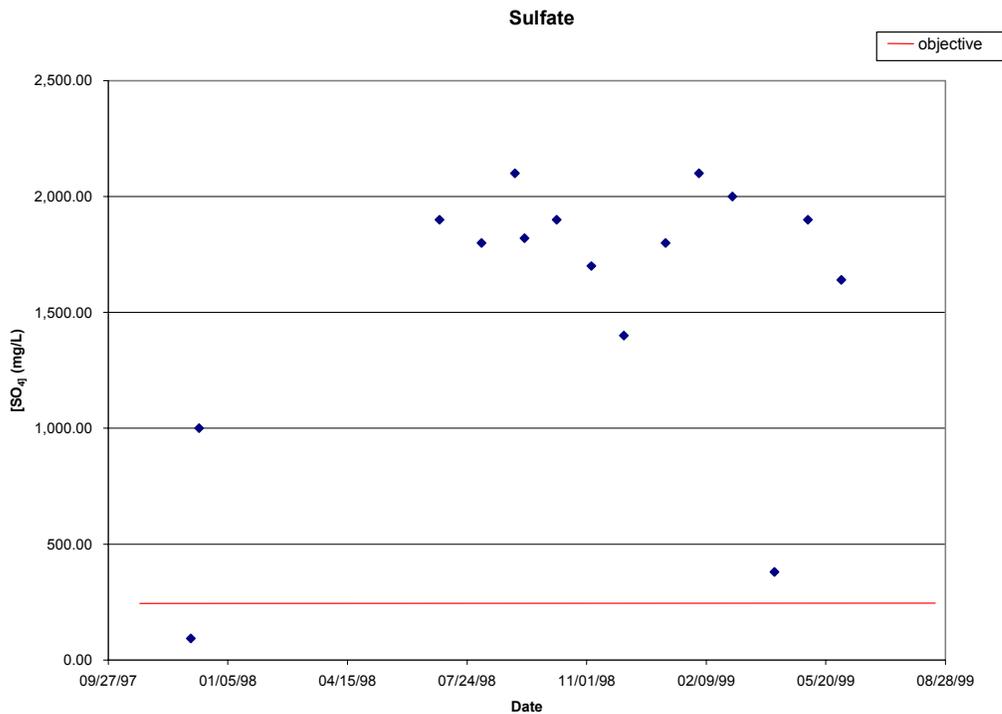
Beneficial Uses Affected

- Basin Plan waterbody specific objectives, Table 3-8.

Data Assessment

Table 2. Summary of Sulfate for Calleguas Creek Reach 4

Dates of Sampling	12/97-6/99
Number of Samples (n)	15
Minimum Data Value	93 mg/L
Maximum Data Value	2100 mg/L
Median Data Value	1220 mg/L
Arithmetic Mean Value	1204 mg/L
Standard Deviation	608 mg/L
Number (Percent) above Objective	33 or 97%



Potential Sources

Non-point sources.

References

Personal communication with Dave Thomas and John Wikle of the Ventura County
Flood Control District, September 7, 2001
Calleguas Creek Chloride TMDL 2001
Basin Plan 1994
Calleguas Creek Characterization Study 2000
United Water Conservation District, Water Quality Data

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**Calleguas Creek Reach 4, Revolon Slough
Nitrate as NO₃**

Summary of Proposed Action

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel, to the confluence with Calleguas Creek in Reach 2. Reach 2 is proposed to be listed in the 2002 305(b) water quality assessment as partially-supporting (impaired) due to the median value exceeding the nitrate as NO₃ objective. The beneficial use affected by this impairment is municipal and domestic supply.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 4 - Revolon Slough	Pollutants/Stressors	Nitrate as NO₃
Hydrologic Unit	403.11	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 1
Size Affected	6.7 Miles	TMDL Start Date (Mo/Yr)	1997 – New listing for a current TMDL.
Extent of Impairment	Entire reach.	TMDL End Date (Mo/Yr)	April 2002

Watershed Characteristics

Calleguas Creek Reach 4, or Revolon Slough, extends from the end of Calleguas Creek Reach 5, or Beardsley Channel (Wash), to Calleguas Creek Reach 2 downstream (south) of Potrero Road. Its tributaries include agricultural drains at Wood Road and Las Posas Road, and the Hueneme Road/Nauman Road Irrigation Ditch. Reach 4 is concrete lined between Central Avenue and Wood Road, downstream from there the slough is soft-bottomed with sides of rip-rap. The lower 1.5 miles appear to have tidal influence. Sources of water include tile drains and other sources in Reach 5.

The end of Reach 4 currently connects with Calleguas Creek south of Potrero Road. However, it previously connected north of Potrero Road, and was moved by the Ventura County Flood Control District in approximately 1986.

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Water Quality Objectives Not Attained

Basin Plan Objective for Nitrate as NO₃ for MUN of 45 mg/L.

The Basin Plan defines Municipal and Domestic Supply (MUN) as "Uses of water for community, military, or individual water supply systems including , but not limited to, drinking water supply." All municipal uses in Calleguas Creek and tributaries are designated under SB 88-63 and RB 89-03.

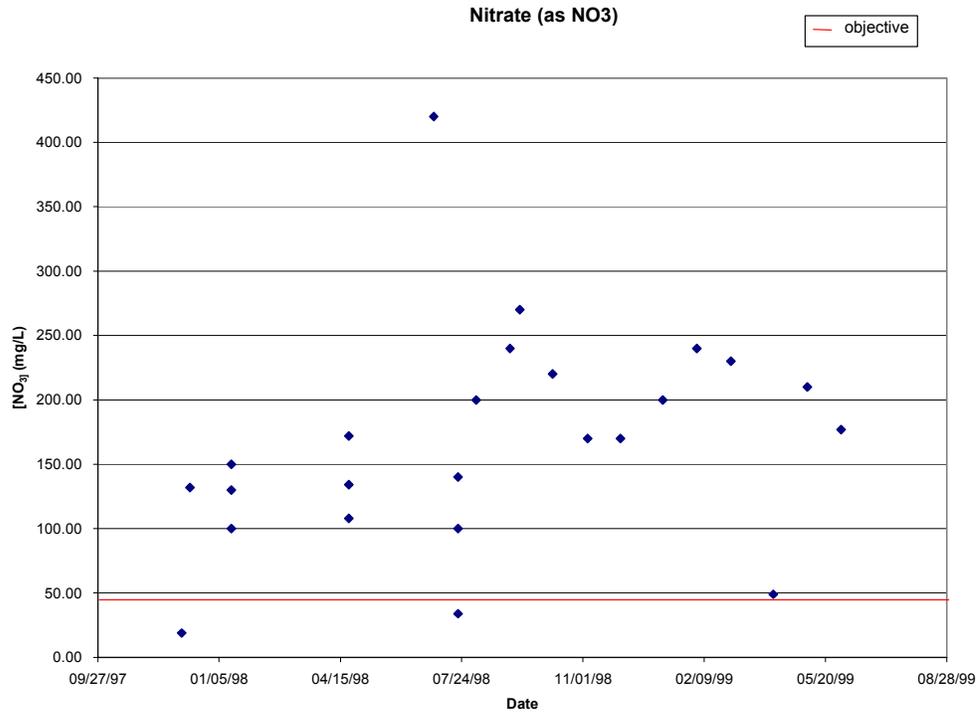
Beneficial Uses Affected

- Municipal and Domestic Supply

Data Assessment

Table 2. Summary of Nitrate as NO₃ for Calleguas Creek Reach 4

Dates of Sampling	12/97-6/99
Number of Samples (n)	43
Minimum Data Value	8 mg/L
Maximum Data Value	420 mg/L
Median Data Value	150 mg/L
Arithmetic Mean Value	144 mg/L
Standard Deviation	77 mg/L
Number (Percent) above Objective	38 (88%)



Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001 Basin Plan 1994
- Calleguas Creek Characterization Study 2000
- United Water Conservation District, Water Quality Data

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**Calleguas Creek Reach 6, Arroyo Las Posas
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 6, or Arroyo Las Posas, extends from the confluence with Calleguas Creek Reach 7, Arroyo Simi, to the confluence with Conejo Creek. Fox Barranca is a major tributary. Calleguas Creek Reach 6 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the fecal coliform objective. The beneficial use affected by this impairment is water contact recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 6 - Arroyo Las Posas	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.12 403.62 403.63	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	15 Miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 6, or Arroyo Las Posas, extends from the confluence with Calleguas Creek Reach 7, Arroyo Simi, to the confluence with Conejo Creek. Fox Barranca is a major tributary. The confluence w/ Arroyo Simi is often dry, and Arroyo

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Las Posas would be dry for most of the year except for the effluent discharged from the Ventura County Wastewater Treatment Plant (VCWWTP) at Moorpark.

Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan fecal coliform limit of 400 /100 mL was exceeded with a frequency greater than 10%.

"In waters designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL."

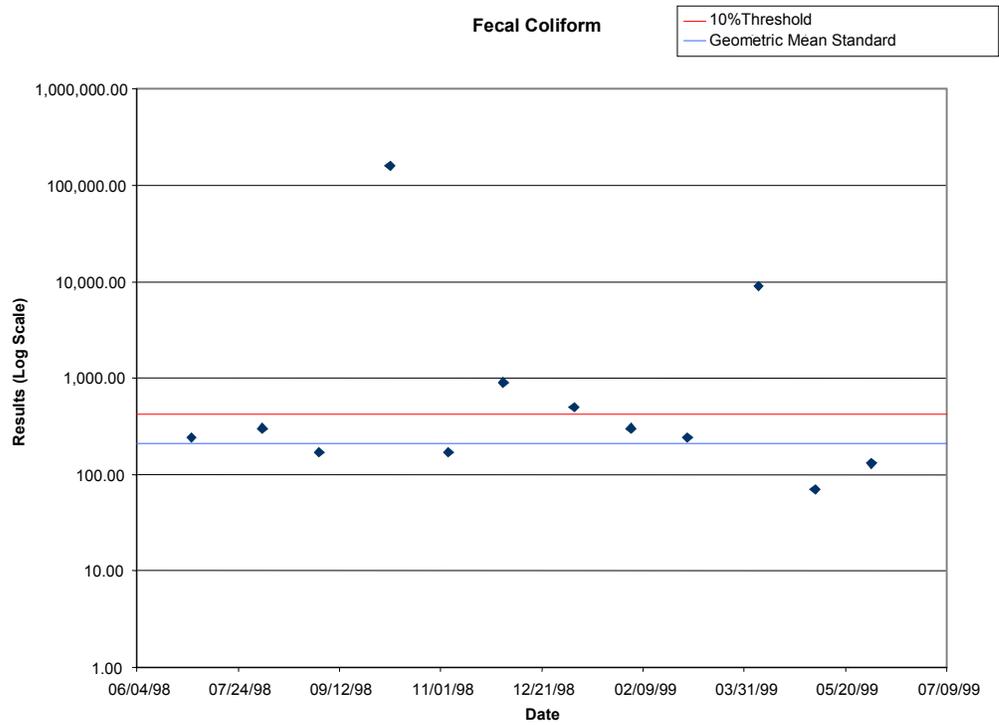
Beneficial Uses Affected

- Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform for Calleguas Creek Reach 6, Arroyo Las Posas.

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	70 MPN/100mL
Maximum Data Value	16000 MPN/100mL
Median Data Value	270 MPN/100mL
Arithmetic Mean Value	14335 MPN/100mL
Standard Deviation	45941 MPN/100mL
Number (Percent) above Objective	Geomean of 557 exceeds 200; 4 or 33 % exceed 400 standard.



Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Calleguas Creek Characterization Study 2000
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000

Draft 12/18/01

California Regional Water Quality Control Board, Los Angeles Region

**Arroyo Las Posas, Calleguas Creek Reach 6
Nitrate as NO₃**

Summary of Proposed Action

Calleguas Creek Reach 6, or Arroyo Las Posas, extends from the confluence with Calleguas Creek Reach 7, Arroyo Simi, to the confluence with Conejo Creek. Fox Barranca is a major tributary. Calleguas Creek Reach 6 is proposed to be listed in the 2002 305(b) water quality assessment as fully supporting but threatened (impaired) due to greater than 10 percent exceedance of the nitrate as NO₃ objective. The beneficial use that is affected by this impairment is municipal and domestic supply.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 6 - Arroyo Las Posas	Pollutants/Stressors	Nitrate as NO₃
Hydrologic Unit	403.12	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 1
Size Affected	15 Miles	TMDL Start Date (Mo/Yr)	1997 - New listing in a current TMDL
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	April 2002

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 6, or Arroyo Las Posas, extends from the confluence with Calleguas Creek Reach 7, Arroyo Simi, to the confluence with Conejo Creek. Fox Barranca is a major tributary. The confluence w/ Arroyo Simi is often dry, and Arroyo

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Las Posas would be dry for most of the year except for the effluent discharged from the Ventura County Wastewater Treatment Plant (VCWWTP) at Moorpark.

Water Quality Objectives Not Attained

Basin Plan Objective for Nitrate as NO₃ for MUN

The Basin Plan defines Municipal and Domestic Supply (MUN) as

"Uses of water for community, military, or individual water supply systems including , but not limited to, drinking water supply."

The Basin Plan limit for NO₃ is 45 mg/L.

Beneficial Uses Affected

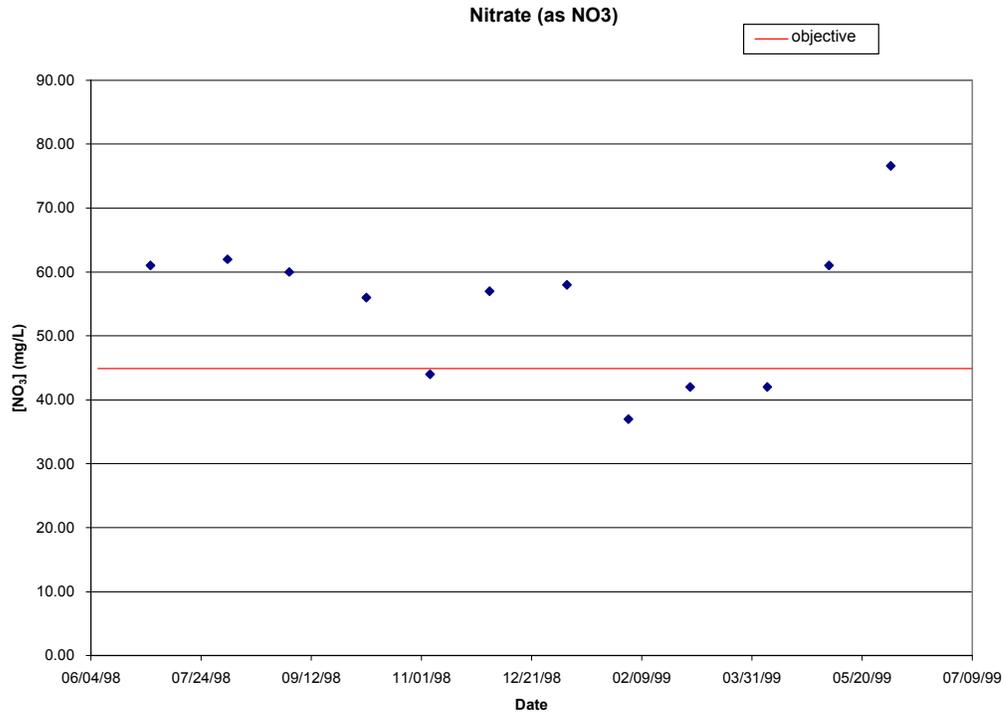
- Municipal and Domestic Supply

Data Assessment

Table 2. Summary of Nitrate as NO₃ for Calleguas Creek Reach 9A - Camrosa Diversion

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	37.0 mg/L
Maximum Data Value	76.6 mg/L
Median Data Value	55.4 mg/L
Arithmetic Mean Value	54.7 mg/L
Standard Deviation	11.3 mg/L
Number (Percent) above Objective	8 or 67%

Draft 12/18/01



Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- CWWRF NPDES Reports
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000

Draft 12/18/01

California Regional Water Quality Control Board, Los Angeles Region

**Arroyo Simi, Calleguas Creek Reach 7
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 7, or Arroyo Simi, extends from headwaters to the confluence with Arroyo Las Posas. Arroyo Simi is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the fecal coliform objective. The beneficial use affected by this impairment is water contact recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Arroyo Simi - Calleguas Creek Reach 7	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.62 403.65 403.67	Source(s)	Non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	14	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

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Calleguas Creek Reach 7, or Arroyo Simi, extends from headwaters to the confluence with Arroyo Las Posas. Tapo Canyon, Calleguas Creek Reach 8, is a major tributary. The confluence with Arroyo Las Posas is often dry, as Arroyo Simi is absorbed into the soil and replenishes the Simi Valley Groundwater Basin (SVGB) here. SVGB includes both confined and unconfined aquifers. In addition to headwaters, urban runoff, and some agricultural runoff, pumped groundwater and groundwater discharges from shallow aquifers also contribute water to Arroyo Simi. Simi Valley Water Quality Control Facility discharges into this reach. Arroyo Simi ends before the outfall from the Ventura County Wastewater Treatment Plant (VCWWTP) at Moorpark.

Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan fecal coliform limit of 400 /100 mL was exceeded with a frequency greater than 10%.

"In waters designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL."

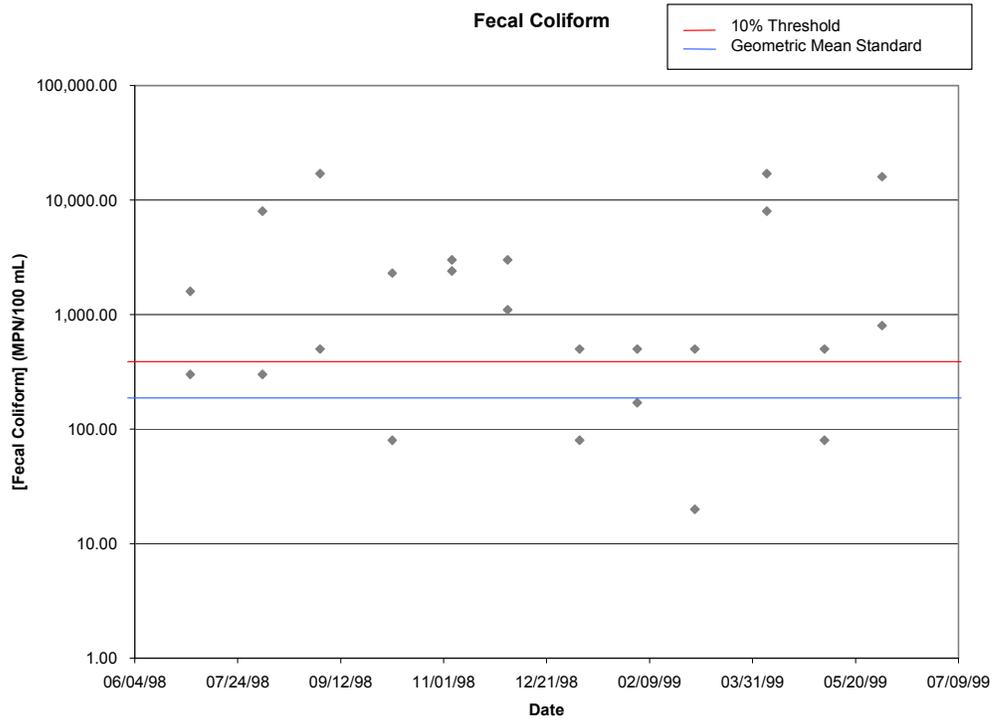
Beneficial Uses Affected

- Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform for Arroyo Simi, Calleguas Creek Reach 7

Dates of Sampling	7/98-6/99
Number of Samples (n)	24
Minimum Data Value	20 mpn/100mL
Maximum Data Value	17000 mpn/100mL
Median Data Value	300 mpn/100mL
Arithmetic Mean Value	3489 mpn/100mL
Standard Deviation	5536 mpn/100mL
Number (Percent) above Objective	Geomean of 909 exceeds 200 and 17 or 71% of samples exceed 400 standard.



Potential Sources

Non-point sources.

References

- Calleguas Creek Chloride TMDL 2001 Basin Plan 1994
- Watershed Management Initiative Chapter 2000
- Calleguas Creek Characterization Study 2000

Draft 12/18/01

California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 9A, Camrosa Diversion
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the Camrosa Diversion. Calleguas Creek Reach 9A is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the of the Basin Plan objective for fecal coliform. The beneficial use affected by this impairment is Water Contact Recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 9A - Camrosa Diversion	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.12	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	1.7 Miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the Camrosa Diversion. Camarillo WWTP discharges to percolation ponds near downstream.

Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan fecal coliform objective for REC-1 states that the log mean shall not exceed 200/100mL, and no more than 10% shall exceed 400/100 mL.

Calleguas Creek Reach 9A is listed as intermittent use for REC-1.

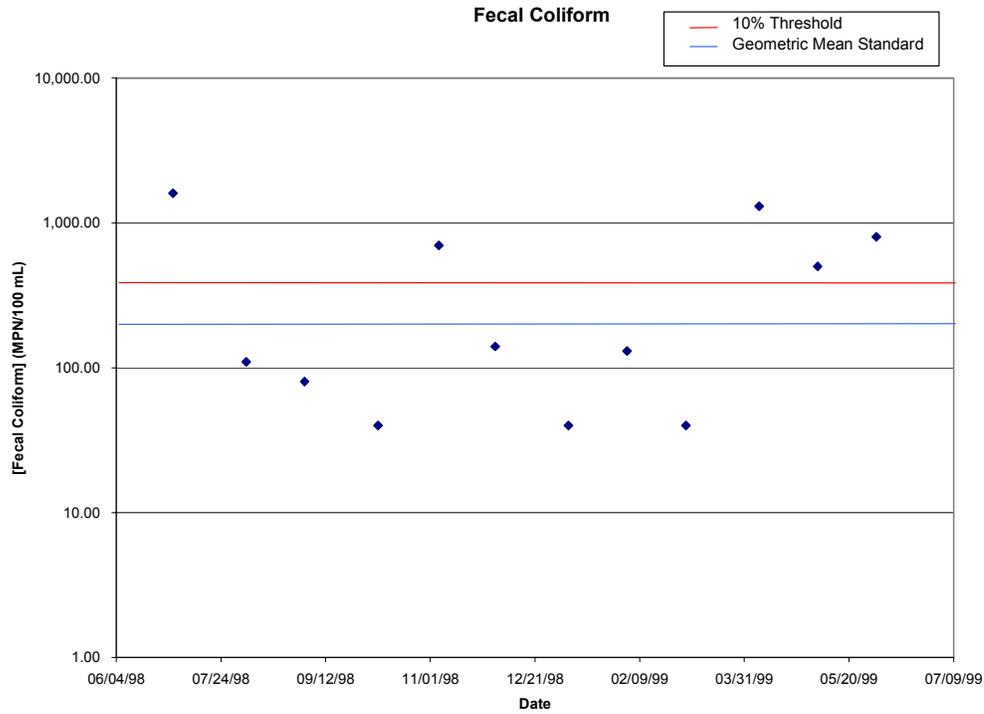
Beneficial Uses Affected

Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform for Calleguas Creek Reach 9A Conejo Creek Camrosa Diversion.

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	40 MPN/100mL
Maximum Data Value	1600 MPN/100mL
Median Data Value	135 MPN/100mL
Arithmetic Mean Value	457 MPN/100mL
Standard Deviation	538 MPN/100mL
Number (Percent) above Objective	Geomean of 206 exceeds 200, and 5 (42%) of samples exceed 400.



Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Calleguas Creek Characterization Study 2000
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000

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California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 9A, Camrosa Diversion
Nitrate as Nitrogen**

Summary of Proposed Action

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the Camrosa Diversion. Calleguas Creek Reach 9A is proposed to be listed in the 2002 305(b) water quality assessment as fully supporting but threatened (impaired) due to greater than 10 percent exceedance of the nitrate as nitrogen objective. The beneficial use affected by this impairment is municipal and domestic supply.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 9A - Camrosa Diversion	Pollutants/Stressors	Nitrate as Nitrogen
Hydrologic Unit	403.12	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 1
Size Affected	1.7 Miles	TMDL Start Date (Mo/Yr)	1997 – New listing in a current TMDL
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	April 2002

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the Camrosa Diversion. Camarillo WWTP discharges to percolation ponds near downstream.

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Water Quality Objectives Not Attained

Basin Plan Objective for Nitrate as Nitrogen for MUN

The Basin Plan defines Municipal and Domestic Supply (MUN) as "Uses of water for community, military, or individual water supply systems including , but not limited to, drinking water supply

The Basin Plan limit for Nitrate as Nitrogen is 10 mg/L.

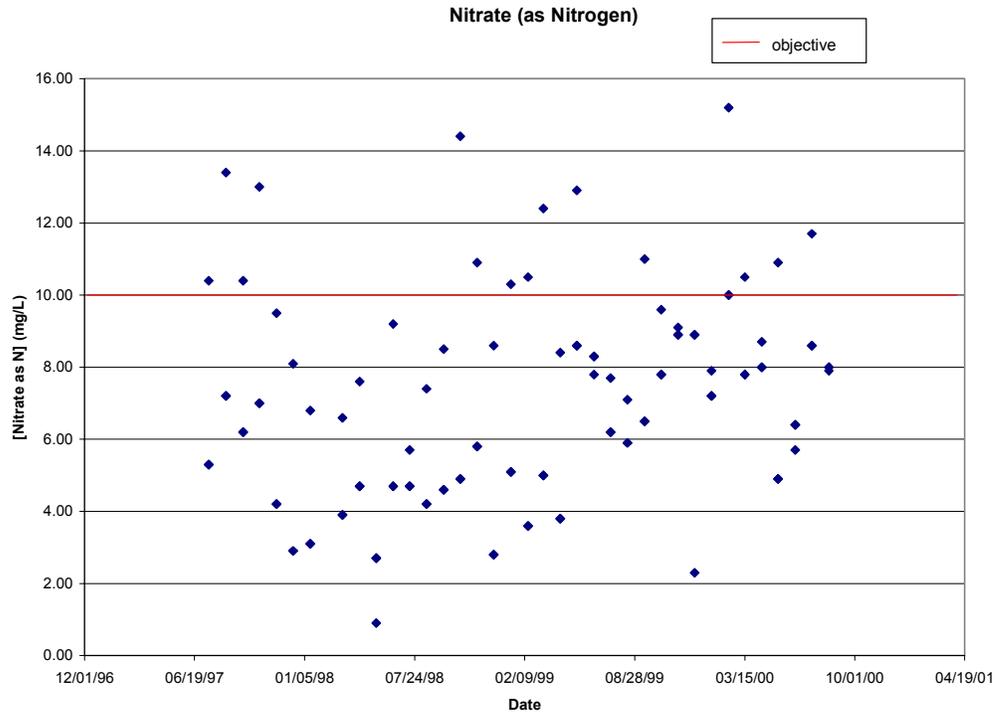
Beneficial Uses Affected

- Municipal and Domestic Supply

Data Assessment

Table 2. Summary of Nitrate as Nitrogen for Calleguas Creek Reach 9A.

Dates of Sampling	7/97-8/00
Number of Samples (n)	111
Minimum Data Value	0.90 mg/L
Maximum Data Value	15.2 mg/L
Median Data Value	7.0 mg/L
Arithmetic Mean Value	7.0 mg/L
Standard Deviation	2.8 mg/L
Number (Percent) above Objective	15 or 14%



Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Camarillo WWTP NPDES Reports
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000

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California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 9A, Camrosa Diversion
Nitrate as NO₃**

Summary of Proposed Action

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the Camrosa Diversion. Calleguas Creek Reach 9A is proposed to be listed in the 2002 305(b) water quality assessment as fully supporting but threatened (impaired) due to greater than 10 percent exceedance of the nitrate as NO₃ objective. The beneficial use affected by this impairment is municipal and domestic supply.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 9A - Camrosa Diversion	Pollutants/Stressors	Nitrate as NO₃
Hydrologic Unit	403.12	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 1
Size Affected	1.7 Miles	TMDL Start Date (Mo/Yr)	1997 – New listing in a current TMDL
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	April 2002

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the

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Camrosa Diversion. Camarillo WWTP discharges to percolation ponds near downstream.

Water Quality Objectives Not Attained

Basin Plan Objective for Nitrate as NO₃ for MUN

The Basin Plan defines Municipal and Domestic Supply (MUN) as "Uses of water for community, military, or individual water supply systems including , but not limited to, drinking water supply."

The Basin Plan limit for NO₃ is 45 mg/L.

Beneficial Uses Affected

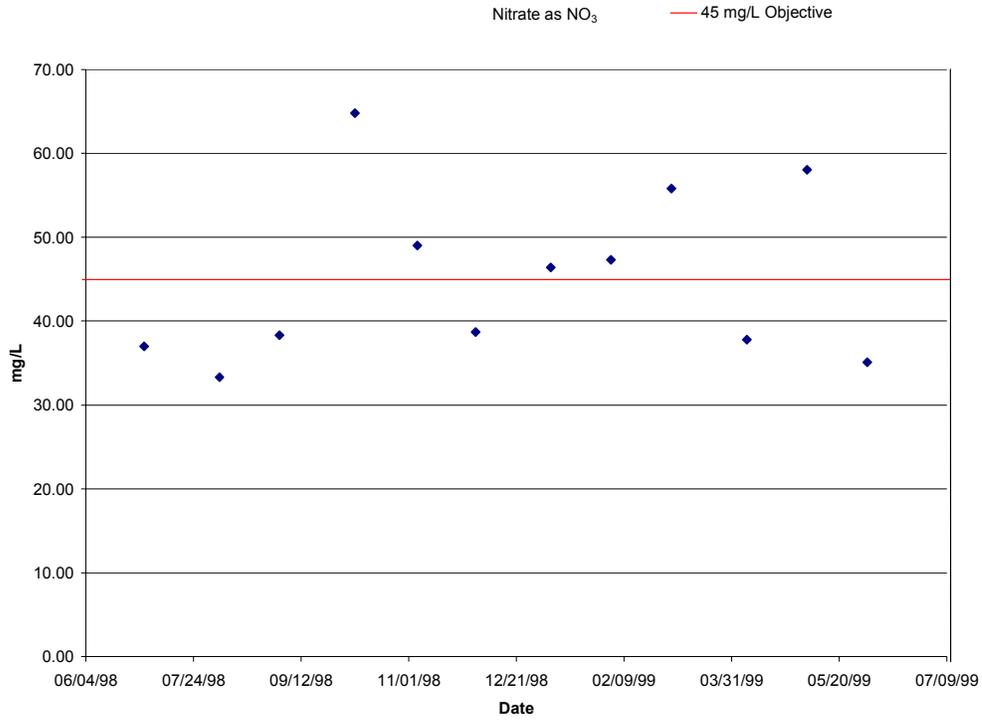
- Municipal and Domestic Supply

Data Assessment

Table 2. Summary of Nitrate as NO₃ for Calleguas Creek Reach 9A Conejo Creek Camrosa Diversion.

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	33.0 mg/L
Maximum Data Value	64.8 mg/L
Median Data Value	42.6 mg/L
Arithmetic Mean Value	45.1 mg/L
Standard Deviation	10.2 mg/L
Number (Percent) above Objective	6 (50%)

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Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Calleguas Creek Characterization Study 2000
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000

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California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 9A, Camrosa Diversion
Nitrite as Nitrogen**

Summary of Proposed Action

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the Camrosa Diversion. Calleguas Creek Reach 9A is proposed to be listed in the 2002 305(b) water quality assessment as fully supporting but threatened (impaired) due to greater than 10 percent exceedance of the nitrite as nitrogen objective. The beneficial use affected by this impairment is municipal and domestic supply.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 9A - Camrosa Diversion	Pollutants/Stressors	Nitrite as Nitrogen
Hydrologic Unit	403.12	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 1
Size Affected	1.7 Miles	TMDL Start Date (Mo/Yr)	1997 – New listing in a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	April 2002

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 9A, or Camrosa Diversion, extends from the confluence with Calleguas Creek Reach 2 to the start of Calleguas Creek Reach 9B, Conejo Creek, at the

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Camrosa Diversion. Camarillo WWTP discharges to percolation ponds near downstream.

Water Quality Objectives Not Attained

Basin Plan Objective for Nitrite as Nitrogen for MUN

The Basin Plan defines Municipal and Domestic Supply (MUN) as

"Uses of water for community, military, or individual water supply systems including , but not limited to, drinking water supply."

The Basin Plan limit for Nitrite as Nitrogen is 1.0 mg/L.

Beneficial Uses Affected

- Municipal and Domestic Supply

Data Assessment

Table 2. Summary of Nitrite as Nitrogen for Calleguas Creek Reach 9A Conejo Creek Camrosa Diversion.

Dates of Sampling	7/97-8/00
Number of Samples (n)	110
Minimum Data Value	0.03 mg/L
Maximum Data Value	1.96 mg/L
Median Data Value	0.51 mg/L
Arithmetic Mean Value	0.58 mg/L
Standard Deviation	0.41 mg/L
Number (Percent) above Objective	18 or 16%

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California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 9B, Conejo Creek Main Stem
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 9B, Conejo Creek Main Stem extends from the end of Calleguas Creek Reach 10, Hill Canyon to the beginning of Reach 9A, Camrosa Diversion. Calleguas Creek Reach 9B is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the fecal coliform objective. The beneficial use affected by this impairment is water contact recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 9B - Arroyo Las Posas	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.64	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	5.6 Miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 9B, Conejo Creek Main Stem extends from the end of Calleguas Creek Reach 10, Hill Canyon to the beginning of Reach 9A, Camrosa Diversion. There are no major point sources or new water sources in Reach 9B.

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Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan fecal coliform limit of 400 /100 mL was exceeded with a frequency greater than 10%.

"In waters designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL."

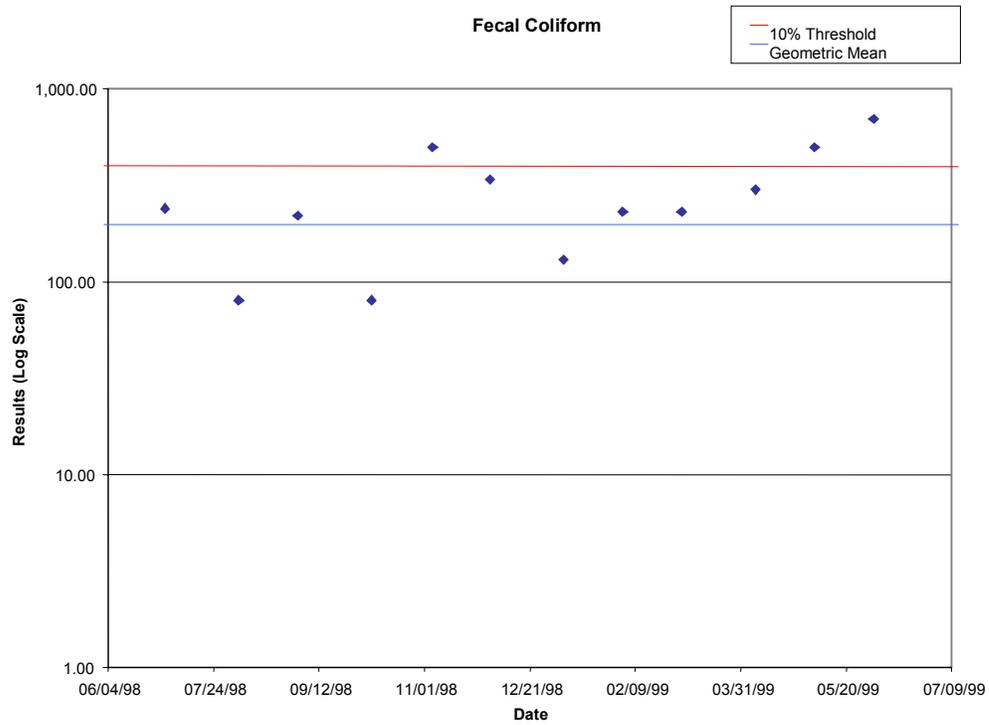
Beneficial Uses Affected

- Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform for Calleguas Creek Reach 9B, Conejo Creek Main Stem.

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	80 MPN/100mL
Maximum Data Value	700 MPN/100mL
Median Data Value	235 MPN/100mL
Arithmetic Mean Value	296 MPN/100mL
Standard Deviation	188 MPN/100mL
Number (Percent) above Objective	Geomean of 243 exceeds 200; 3 or 25 % exceed 400 standard.



Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Calleguas Creek Characterization Study 2000
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000

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California Regional Water Quality Control Board, Los Angeles Region

**Calleguas Creek Reach 10 (Conejo Creek, Hill Canyon)
Fecal Coliform**

Summary of Proposed Action

The Hill Canyon reach of Conejo Creek, also called Calleguas Creek Reach 10, extends from the confluence with Arroyo Santa Rosa to the confluence with the North Fork of Conejo Creek, and includes the North Fork to just above the Hill Canyon Wastewater Treatment Facility (WWTF). This reach is proposed to be listed on the 2002 305(b) list as not supporting (impaired) due to exceedance of the of the Basin Plan objective for fecal coliform. The beneficial use affected by this impairment is Water Contact Recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 10	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.64	Source(s)	Non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	3.4 Miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Land uses vary throughout the watershed. Urban developments are generally restricted to the city limits of Simi Valley, Moorpark, Thousand Oaks, and Camarillo. Although some residential development has occurred along the slopes of the watershed, most upland areas are still open space, however, golf courses are becoming increasingly popular to

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locate in these open areas. Agricultural activities, primarily cultivation of orchards and row crops, are spread out along valleys and on the Oxnard Plain.

Water sources for Reach 10 include water from upstream Arroyo Conejo North and South Forks, Reaches 12 and 13, urban and agricultural runoff, and effluent from Hill Canyon WWTF.

Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan fecal coliform objective for REC-1 states that the log mean shall not exceed 200/100mL, and no more than 10% shall exceed 400/100 mL.

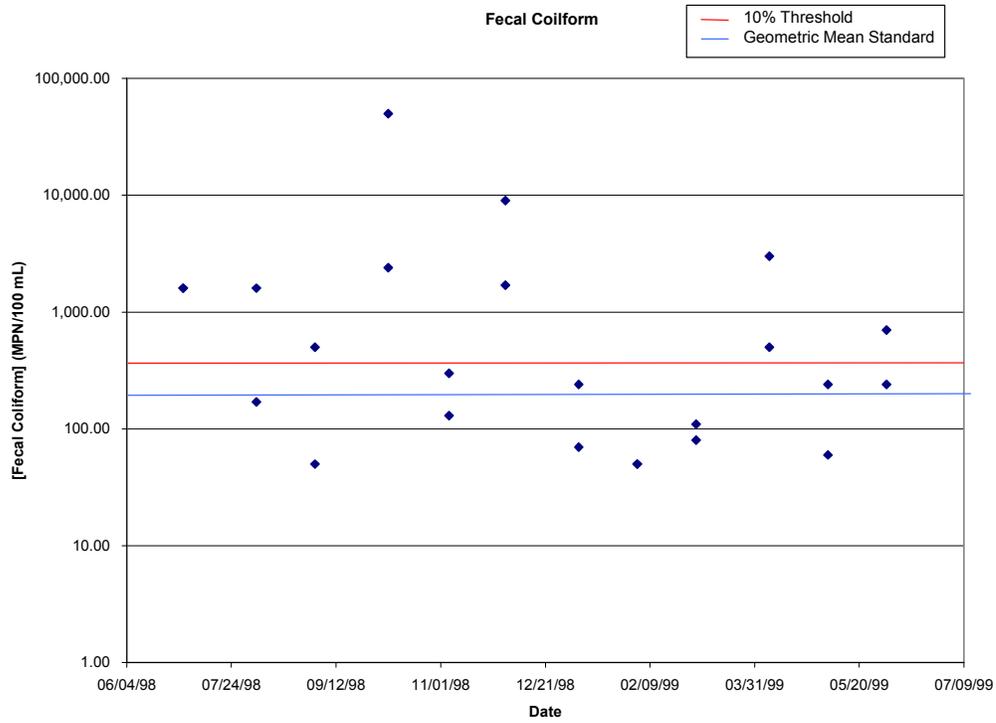
Beneficial Uses Affected

- Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform Data for Calleguas Creek Reach 10.

Dates of Sampling	7/98-6/99
Number of Samples (n)	24
Minimum Data Value	50 MPN/100 mL
Maximum Data Value	50000 MPN/100 mL
Median Data Value	270 MPN/100 mL
Arithmetic Mean Value	3100 MPN/100 mL
Standard Deviation	10170 MPN/100 mL
Number (Percent) above Objective	Geomean of 431 exceeds 200, and 11 (46%) of the samples exceed 400.



Potential Sources

Non-point sources.

References

- Calleguas Creek Chloride TMDL 2001 Basin Plan 1994
- Watershed Management Initiative Chapter 2000
- Calleguas Creek Characterization Study 2000

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**Calleguas Creek Reach 10, Conejo Creek, Hill Canyon
Nitrite as Nitrogen**

Summary of Proposed Action

The Hill Canyon reach of Conejo Creek, also called Calleguas Creek Reach 10, extends from the confluence with Arroyo Santa Rosa to the confluence with the North Fork of Conejo Creek, and includes the North Fork to just above the Hill Canyon Wastewater Treatment Facility (WWTF). This reach is proposed to be listed on the 2002 305(b) list as fully supporting but threatened (impaired) due to greater than 10% exceedance of the nitrite as nitrogen objective as set forth in the Basin Plan. The beneficial use affected by this impairment is municipal and domestic supply (MUN).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 10	Pollutants/Stressors	Nitrite as Nitrogen
Hydrologic Unit	403.64	Source(s)	Point and non-point
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 1
Size Affected	3.4 Miles	TMDL Start Date (Mo/Yr)	1997 – New listing for a current TMDL.
Extent of Impairment	Entire Reach	TMDL End Date (Mo/Yr)	April 2002

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Land uses vary throughout the watershed. Urban developments are generally restricted to the city limits of Simi Valley, Moorpark, Thousand Oaks, and Camarillo. Although some residential development has occurred along the slopes of the watershed, most upland areas are still open space, however, golf courses are becoming increasingly popular to

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locate in these open areas. Agricultural activities, primarily cultivation of orchards and row crops, are spread out along valleys and on the Oxnard Plain.

Water sources for Reach 10 include water from upstream Arroyo Conejo North and South Forks, Reaches 12 and 13, urban and agricultural runoff, and effluent from Hill Canyon WWTF.

Water Quality Objectives Not Attained

Current Basin Plan nitrite as nitrogen objective of 1.0 mg/L.

Beneficial Uses Affected

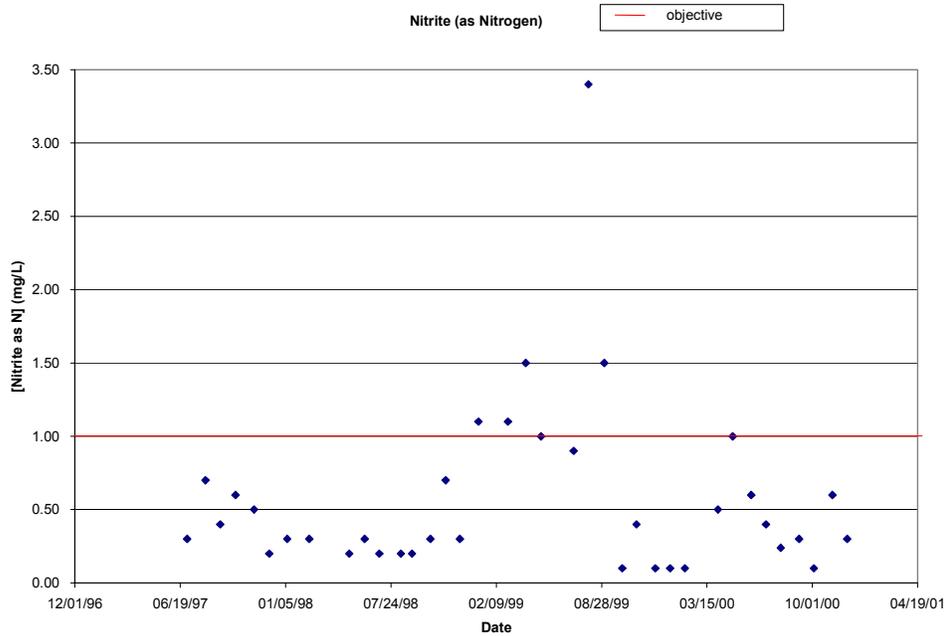
Municipal and Domestic Supply (MUN)

Data Assessment

Table 2. Summary of Nitrite as Nitrogen Data for Calleguas Creek Reach 10.

Dates of Sampling	7/97-12/00
Number of Samples (n)	42
Minimum Data Value	<0.10 mg/L
Maximum Data Value	3.4 mg/L
Median Data Value	0.30 mg/L
Arithmetic Mean Value	0.57 mg/L
Standard Deviation	0.61 mg/L
Number (Percent) above Objective	5 (12%) exceed 1.0 mg/L

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The parameters used to determine listings require that this reach be listed for nitrite as nitrogen. However, it has been noted that all of the violations occurred before Hill Canyon WWTP completed the addition of nitrification/denitrification to its plant. This will be considered in the next listing cycle.

Potential Sources

Point and non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Basin Plan 1994
- Watershed Management Initiative Chapter 2000
- Calleguas Creek Ambient Water Quality Monitoring
- Hill Canyon WWRP NPDES Report

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**Calleguas Creek Reach 11, Arroyo Santa Rosa
Fecal Coliform**

Summary of Proposed Action

Calleguas Creek Reach 11, or Arroyo Santa Rosa, extends from the headwaters to Reach 10, Conejo Creek Hill Canyon, where it connects only during periods of high flow. Calleguas Creek Reach 11 is proposed to be listed in the 2002 305(b) water quality assessment as not supporting (impaired) due to exceedance of the fecal coliform objective. The beneficial use that is affected by this impairment is water contact recreation (REC-1).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek Reach 11 - Arroyo Santa Rosa	Pollutants/Stressors	Fecal Coliform
Hydrologic Unit	403.63 403.64 403.65 403.67	Source(s)	Non-point
Total Waterbody Size	100.1 + Estuary	TMDL Priority	low
Size Affected	10.2	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach.	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Calleguas Creek Reach 11, or Arroyo Santa Rosa, extends from the headwaters to Reach 10, Conejo Creek Hill Canyon, where it connects only during periods of high flow. The

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confluence with Reach 10 is usually dry. Olsen Road WRP currently discharges to this reach, but it is scheduled to be decommissioned, with its influent diverted to Hill Canyon WWTF.

Water Quality Objectives Not Attained

Water Contact Recreation (REC-1)

The Basin Plan describes REC-1 as, "Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs."

The Basin Plan Fecal Coliform limit of 400 /100 mL was exceeded with a frequency greater than 10%.

"In waters designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL."

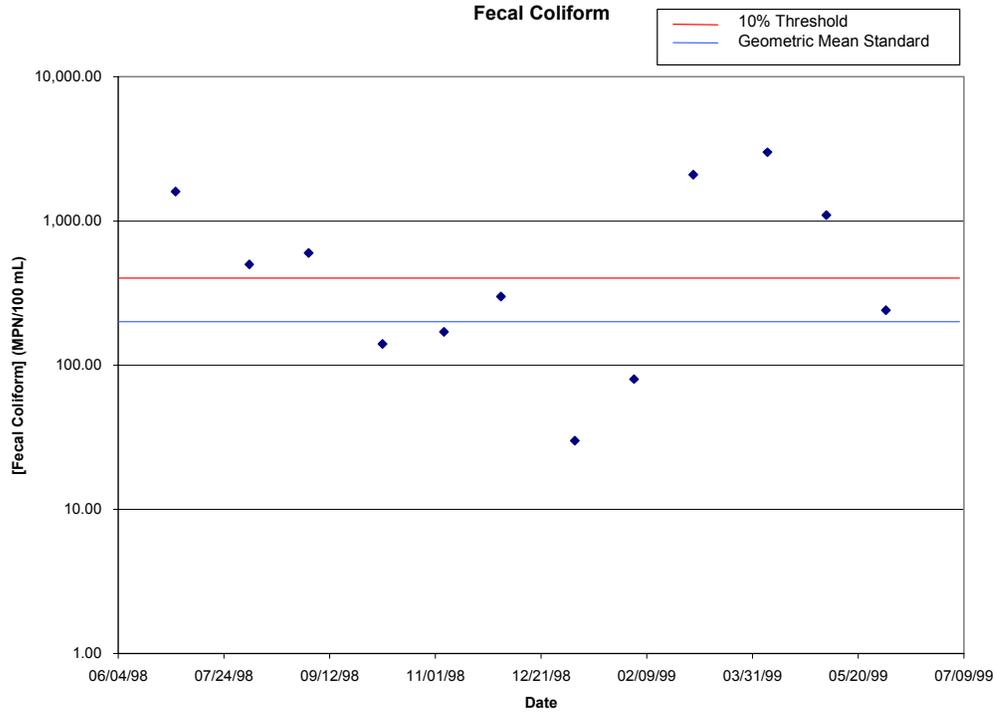
Beneficial Uses Affected

- Water Contact Recreation (REC-1)

Data Assessment

Table 2. Summary of Fecal Coliform Data for Calleguas Creek Reach 11, Arroyo Santa Rosa.

Dates of Sampling	7/98-6/99
Number of Samples (n)	12
Minimum Data Value	30 MPN/100mL
Maximum Data Value	3000 MPN/100mL
Median Data Value	400 MPN/100mL
Arithmetic Mean Value	822 MPN/100mL
Standard Deviation	948 MPN/100mL
Number (Percent) above Objective	Geomean of 393 exceeds 200, and 6 or 50% exceed 400 standard.



Potential Sources

Non-point sources.

References

- Calleguas Creek Chloride TMDL 2001
- Calleguas Creek Characterization Study 2000
- Watershed Management Initiative Chapter 2000
- Basin Plan 1994

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California Regional Water Quality Control Board, Los Angeles Region

**Arroyo Simi – Reach 7 (tributary to Calleguas Creek)
Water Column Toxicity**

Summary of Proposed Action

Listing as “Not Supporting (Impaired)” is proposed for Reach 7, Arroyo Simi, tributary to Calleguas Creek, for water column toxicity, which affects aquatic life beneficial uses.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Arroyo Simi	Pollutants/Stressors	Water Column Toxicity
Hydrologic Unit	403.62 and 403.67	Source(s)	Agriculture, POTWs, Nonpoint sources
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	TMDL Analytical Unit 2
Size Affected	14.0 miles	TMDL Start Date (Mo/Yr)	2003
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2005

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The Santa Susana Mountains, South Mountain, and Oak Ridge form the northern boundary of the watershed; the Simi Hills and Santa Monica Mountains form the southern boundary.

Land uses vary throughout the watershed. Urban developments are generally restricted to the city limits of Simi Valley, Moorpark, Thousand Oaks, and Camarillo. Although some residential development has occurred along the slopes of the watershed, most upland areas are still open space; however, golf courses are becoming increasingly popular to locate in these open areas. Agricultural activities, primarily cultivation of orchards and row crops, are spread out along valleys and on the Oxnard Plain.

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Mugu Lagoon, located at the mouth of the watershed, is one of the few remaining significant saltwater wetland habitats in southern California. The Point Mugu Naval Air Base is located in the immediate area and the surrounding Oxnard Plain supports a large variety of agricultural crops. These fields drain into ditches that either enter the lagoon directly or through Calleguas Creek and its tributaries. Other fields drain into tile drain systems that discharge to drains or creeks. Also in the area of the base are freshwater wetlands created on a seasonal basis to support duck hunting clubs. The lagoon borders on an Area of Special Biological Significance (ASBS) and supports a great diversity of wildlife including several endangered birds and one endangered plant species. Except for the military base, the lagoon area is relatively undeveloped.

Supplies of ground water are critical to agricultural operations and industry (sand and gravel mining) in this watershed.

Pollutants from nonpoint sources have impacted aquatic life in both Mugu Lagoon and the inland streams of this watershed. DDT, PCBs, other pesticides, and some metals have been detected in both sediment and biota collected from surface waterbodies of this watershed. Additionally, ambient toxicity has been revealed in several studies from periodic toxicity testing in the watershed (ammonia from POTWs and pesticides such as diazinon and chlorpyrifos are implicated). Fish collected from Calleguas Creek and Revolon Slough exhibit skin lesions and have been found to have other histopathologic abnormalities. High levels of minerals and nitrates are common in the water column as well as in the groundwater. Sediment toxicity is also elevated in some parts of the lagoon. Reproduction is impaired in the resident endangered species, the light-footed clapper rail due to elevated levels of DDT and PCBs. Overall, this is a very impaired watershed. It appears that the sources of many of these pollutants are agricultural activities (mostly through continued disturbance and erosion of historically contaminated soils), which cover approximately 25% of the watershed along the inland valleys and coastal plain, although the nearby naval facility has also been a contributor. Other nonpoint sources include residential and urban activities, which are present over approximately 25% of the watershed. The remaining 50% of the watershed is still open space although there is a severe lack of benthic and riparian habitat.

Mugu Lagoon as well as the Calleguas Creek Estuary are considered candidate toxic hot spots under the Bay Protection and Toxic Cleanup Program ([BPTCP](#)) for reproductive impairment (the endangered clapper rail), exceedance of the state Office of Environmental and Health Hazard Assessment (OEHHA) advisory level for mercury in fish, and exceedance of other tissue guidelines for DDT in fish and sediment concentrations of DDT, PCB, chlordane, chlorpyrifos, sediment toxicity and degraded benthic infaunal community.

Primary issues related to POTW discharges include ammonia toxicity and high mineral content (i.e., salinity), the latter, in part, due to imported water supplies.

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Water Quality Objectives Not Attained

New listing resulting from testing three sites (one upstream and two downstream of Simi Valley Water Quality Control Plant) for chronic water column toxicity using the fathead minnow and *Ceriodaphnia*. TIEs implicated NH_3 and diazinon downstream of the Simi Valley Water Quality Control Plant and diazinon upstream.

Narrative objective listed in Basin Plan on page 3-16

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. Use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the State or Regional Board will determine compliance with this objective.

The survival of aquatic life in surface waters, subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same waterbody in areas unaffected by the waste discharge or, when necessary, other control water.

There shall be no acute toxicity in ambient waters, including mixing zones. The acute toxicity objective for discharges dictates that the average survival in undiluted effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival when using an established USEPA, State Board, or other protocol authorized by the Regional Board.

There shall be no chronic toxicity in ambient waters outside mixing zones. To determine compliance with this objective, critical life stage tests for at least three species with approved testing protocols shall be used to screen for the most sensitive species. The test species used for screening shall include a vertebrate, an invertebrate, and an aquatic plant. The most sensitive species shall then be used for routine monitoring. Typical endpoints for chronic toxicity tests include hatchability, gross morphological abnormalities, survival, growth, and reproduction.

Effluent limits for specific toxicants can be established by the Regional Board to control toxicity identified under Toxicity Identification Evaluations (TIEs).

Beneficial Uses Affected

Aquatic Life

Data Assessment

Table 2. Summary of Water Column Toxicity Data for Arroyo Simi (Reach 7 of Calleguas Creek watershed)

Dates of Sampling	November 1998-June 1999
Number of Samples (n)	22
Minimum Data Value	0% mortality, 10 % reproduction or growth inhibition
Maximum Data Value	100% reproduction or growth inhibition
Median Data Value	
Arithmetic Mean Value	
Standard Deviation	
Percent above Objective	

Potential Sources

Point and nonpoint sources

References

State Board Toxicity study in 1998-1998 (to be published as “Causes of ambient toxicity in the Calleguas Creek Watershed of Southern California” by Anderson, B., *et al.* in scientific journal) and Calleguas Creek Characterization Study conducted by the dischargers of the area (report date September 2000).

State Board Toxicity Study covered upstream of POTW (site 1) (8 samples, 2 species) and downstream of POTW at Hwy 118 (site 3) (8 samples, 2 species).

Characterization Study covered site 2 (6 samples, 2 species), immediately downstream of the POTW.

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**Calleguas Creek Watershed – Conejo Creek/Reach 9B
Unnatural Foam & Scum**

Summary of Proposed Action

Conejo Creek (Reach 9B of Calleguas Creek) is proposed to be listed in the 2002 303(b) water quality assessment as impaired due to non attainment of the narrative objective for floating and settleable materials objective as described in the Basin Plan. The beneficial uses that are affected by this impairment relate to recreational use (contact and non-contact) and aquatic life. The portion of Conejo Creek defined by Reach 9B is located just downstream of the confluence with Arroyo Santa Rosa and downstream of the Hill Canyon Wastewater Treatment Plant.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Conejo Creek/ Reach 9B	Pollutants/Stressors	Unnatural Foam/Scum
Hydrologic Unit	403.63	Source(s)	Unknown
Total Waterbody Size	100.1 Miles + Estuary	TMDL Priority	Low
Size Affected	5.6 miles	TMDL Start Date (Mo/Yr)	2011
Extent of Impairment	Entire reach	TMDL End Date (Mo/Yr)	2013

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The Santa Susana Mountains, South Mountain, and Oak Ridge form the northern boundary of the watershed; the Simi Hills and Santa Monica Mountains form the southern boundary.

Land uses vary throughout the watershed. Urban developments are generally restricted to the city limits of Simi Valley, Moorpark, Thousand Oaks, and Camarillo. Although some residential development has occurred along the slopes of the watershed, most upland areas are still open space, however, golf courses are becoming increasingly popular to

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locate in these open areas. Agricultural activities, primarily cultivation of orchards and row crops, are spread out along valleys and on the Oxnard Plain.

Water sources for Reach 9B include water from upstream Arroyo Conejo North and South Forks, Reaches 12 and 13, urban and agricultural runoff, and effluent from Hill Canyon WWTF. Hill Canyon WWTF is scheduled to be decommissioned, but is currently in use.

Water Quality Objectives Not Attained

The Water Quality Control Plan for the Los Angeles Region (Basin Plan) states that, "Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." This objective was not attained in Conejo Creek (Reach 9B) as indicated by photographic documentation of gross impairment due to unnatural foam and scum shown below.

Beneficial Uses Affected

non-contact water recreation
water contact recreation
wildlife habitat
warmwater habitat

Data Assessment

Photographic evidence of gross impairment of water quality due to unnatural foam and scum was provided for several dates in February and April of 2001 at locations downstream of the Hill Canyon Wastewater Treatment Plant.



Figure 1:
Sample of Photographic Documentation of Gross Impairment due to Unnatural Foam and
Scum in Reach 9B
(Photo taken on 4/21/01)

Potential Sources

Unknown

References

Basin Plan, 1994

Watershed Management Initiative, 2000

Photographs provided by Howard Jones, May 2001

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**Calleguas Creek Watershed
Sedimentation**

Summary of Proposed Action

Calleguas Creek Watershed, including Arroyo Santa Rosa, Arroyo Simi, Arroyo Las Posas, and Revolon Slough, is proposed to be listed in the 2002 305(b) water quality assessment as “Partially Supporting (Impaired)” due to excessive sedimentation.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Calleguas Creek	Pollutants/Stressors	Sediment
Hydrologic Unit	403.11; 403.12; 403.62; 403.67	Source(s)	Agriculture, natural sources
Total Waterbody Size		TMDL Priority	5
Size Affected		TMDL Start Date (Mo/Yr)	2003
Extent of Impairment	Calleguas Creek, Arroyo Santa Rosa, Arroyo Simi, Arroyo Las Posas, and Revolon Slough	TMDL End Date (Mo/Yr)	2005

Watershed Characteristics

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

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Mugu Lagoon, located at the mouth of the watershed, is one of the few remaining significant saltwater wetland habitats in southern California. The Point Mugu Naval Air Base is located in the immediate area and the surrounding Oxnard Plain supports a large variety of agricultural crops. These fields drain into ditches which either enter the lagoon directly or through Calleguas Creek and its tributaries. Other fields drain into tile drain systems which discharge to drains or creeks. Also in the area of the base are freshwater wetlands created on a seasonal basis to support duck hunting clubs. The lagoon borders on an Area of Special Biological Significance (ASBS) and supports a great diversity of wildlife including several endangered birds and one endangered plant species. Except for the military base, the lagoon area is relatively undeveloped.

Water Quality Objectives Not Attained

Page 3-16 of the Basin Plan states, "Surface waters carry various amounts of suspended and settleable materials from both natural and human sources. Suspended sediments limit the passage of sunlight into waters, which in turn inhibits the growth of aquatic plants. Excessive deposition of sediments can destroy spawning habitat, blanket benthic (bottom dwelling) organisms, and abrades the gills of larval fish.

Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses."

Beneficial Uses Affected

Aquatic Life (macroinvertebrate data based on bioassessment data)

Data Assessment

The Calleguas Creek Watershed Erosion and Sediment Control Plan for Mugu Lagoon published in May 1995 by the Natural Resources Conservation Service lists the following subwatersheds as priority for sediment control treatment: Beardsley Wash, Sand Canyon, Mahan Barranca, Long Canyon, Hunt Wash, Grimes Canyon, Alamos Canyon, Runkle Canyon, Arroyo Conejo, and Arroyo Las Posas.

The bioassessment report from Fish and Game states, "The most common problems with physical habitat were associated with moderate to heavy channel alteration in the form of leveed and rip-rapped stream banks. Most sites suffered from extreme amounts of sediment (often completely covering larger substrates with heavy deposits of sand and silt). These high sediment levels were associated with high embeddedness, poor to nonexistent instream cover and low variation in velocity and depth regimes. Bank vegetation was often entirely absent, leaving no riparian zone (page 12)." The report goes on to say, "All of the sites in this watershed show typical signs of heavily sediment impacted streams. Low physical habitat scores primarily reflect the influence of heavy sediments in causing reduced habitat availability and reduced habitat quality for macroinvertebrates. The dominant taxa in these sites are all sediment tolerant, rapid colonizers which are adapted to collecting organic matter and algae in a constantly changing sandy substrate. The low diversity of substrates and simplicity of the physical

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environment are primarily responsible for the overall low bioassessment scores in this watershed. Aquatic organisms can respond as negatively to inorganic sediment as they do to other environmental contaminants (Newcombe and MacDonald 1991). Healthy communities of benthic macroinvertebrates that depend on diverse substrate particle size, available interstitial spaces and a complex habitat can be significantly affected or eliminated by sediment deposition (Walters 1995). Benthic macroinvertebrates can be killed directly by suffocation or affected indirectly through the loss of food sources and habitat (Johnson et al. 1993).” Further indications for this listing include “Site 6 [upstream of the Camrosa plant], which receives the waters of all the other sites except Site 13 ranked near the bottom in almost all the ranking criteria. This site was particularly strongly affected by sediment. Larger substrates at this site were buried by as much as 12 inches of sand and finer substrates. Site 13, in a tributary [Revolon Slough] which enters the Calleguas watershed near its mouth, receives the discharge of at least two agricultural drains and appears to be influenced by sedimentation as much as the other sites in the watershed.” The report states in the conclusion, “ The benthic macroinvertebrate communities sampled in this study are indicative of a heavily sediment-impacted watershed.”

Potential Sources

Agriculture

Natural sources (natural geology of area)

References

- Calleguas Creek Characterization Study Benthic Macroinvertebrates November 1998 by California Department of Fish and Game
- Calleguas Creek Watershed Erosion and Sediment Control Plan for Mugu Lagoon in May 1995 by the Natural Resources Conservation Service
- Basin Plan (1994)