

**California Regional Water Quality Control Board  
Santa Ana Region**

**Monitoring and Reporting Program No. 99-74 (as amended on February 14, 2014)**

**For**

**The County of Orange and the Cities of Santa Ana, Costa Mesa, Newport  
Beach, Orange, Lake Forest, Irvine and Tustin  
(hereinafter dischargers)**

**Monitoring and Reporting for Compliance with  
The Total Maximum Daily Load for Sediment  
In the Newport Bay Watershed**

**A. MONITORING GUIDELINES:**

1. All sampling, sample preservation, and analysis shall be performed in accordance with the latest edition of United States Geologic Survey (USGS) technical manual for water resource investigations of fluvial sediment discharges, including but not limited to "Field Methods for Measurement of Porterfield, 1972) and "Computation of Fluvial Sediment Discharge" (Guy and Norman, 1970).
2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
3. The monitoring and reporting may be done more frequently as necessary or as specified in this order. Whenever the discharger monitors any pollutant more frequently than is required by this order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharge monitoring report specified by the Executive Officer.
4. Monitoring data shall be submitted in a format acceptable to the Executive Officer. Specific reporting format may include preprinted forms and/or electronic media. Unless otherwise specified, discharge flows shall be reported in terms of daily average and monthly average discharge flows.
5. The results of all monitoring required by this order shall be reported to the Board, and shall be submitted in such a format as to allow direct comparison with the Basin Plan Sediment TMDL requirements.
6. The discharger shall deliver a copy of each monitoring report in the appropriate format to:

California Regional Water Quality Control Board, Santa Ana Region  
3737 Main Street, Suite 500  
Riverside, CA 92501-3339

7. The discharger shall assure that records of all monitoring information are maintained and accessible for a period of at least five years from the date of the sample, report, or application. This period of retention shall be extended by the request of the Board at any time. Records of monitoring information shall include:
  - a. The date, exact place, and time of sampling or measurements;
  - b. The individual(s) who performed the sampling and/or measurements;
  - c. The date(s) analyses were performed;
  - d. The individual(s) who performed the analyses;
  - e. The analytical techniques or methods used;
  - f. All sampling and analytical results;
  - g. All monitoring equipment calibration and maintenance records;
  - h. All original strip charts from continuous monitoring devices; and
  - i. Copies of all reports required by this order.
8. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
9. The flow measurement system shall be calibrated at least once per year or more frequently to ensure continued accuracy.
10. Weekly samples shall be collected on a representative day of each week.
11. Annual samples, surveys or studies shall be conducted by June 30, except as otherwise specified.
12. Multiple Depth Integrated Samples (MDIS) as described in the references cited in No. 1 above.
13. The Executive Officer is authorized to extend the due date for completion and submittal of all studies, surveys, and reports required by this monitoring and reporting program.

#### **B. Sediment Monitoring Program**

1. Pursuant to the Sediment TMDL, Requirement No.1.b for the determination of TMDL compliance, the discharger shall conduct sediment monitoring at each monitoring station specified in Table 1 at the specified frequency from July 1 to June 30 of each year. Figure 1 shows the locations of these monitoring stations.

**Table 1: Suspended Sediment Monitoring (July 1 through June 30)**

Station	Discharge/Stage (cfs/gage ht.)		Total Fluvial Sediment (mg/L)	
	Frequency	Sample Type	Frequency	Sample Type
San Diego Creek @ Culver	Weekly/Storm	Continuous	Weekly/Storm	MDIS
Peter's Canyon Wash @ Barranca	Weekly/Storm	Continuous	Weekly/Storm	MDIS
San Diego Creek @ Campus	Weekly/Storm	Continuous	Weekly/Storm	MDIS
Bonita Creek @ MacArthur**	Weekly/Storm	Instantaneous		
Santa Ana Delhi @ Irvine Ave**	Weekly/Storm	Continuous		

\* Storm samples are to be collected only during daylight hours in rainfall events forecast to be greater than 1.0 inches.

\*\*Sediment samples will not be collected at the Santa Ana Delhi and Bonita Creek stations. Sediment loads at these stations will be estimated using flow (discharge) data and the sediment transport curves that have been previously developed for these stations

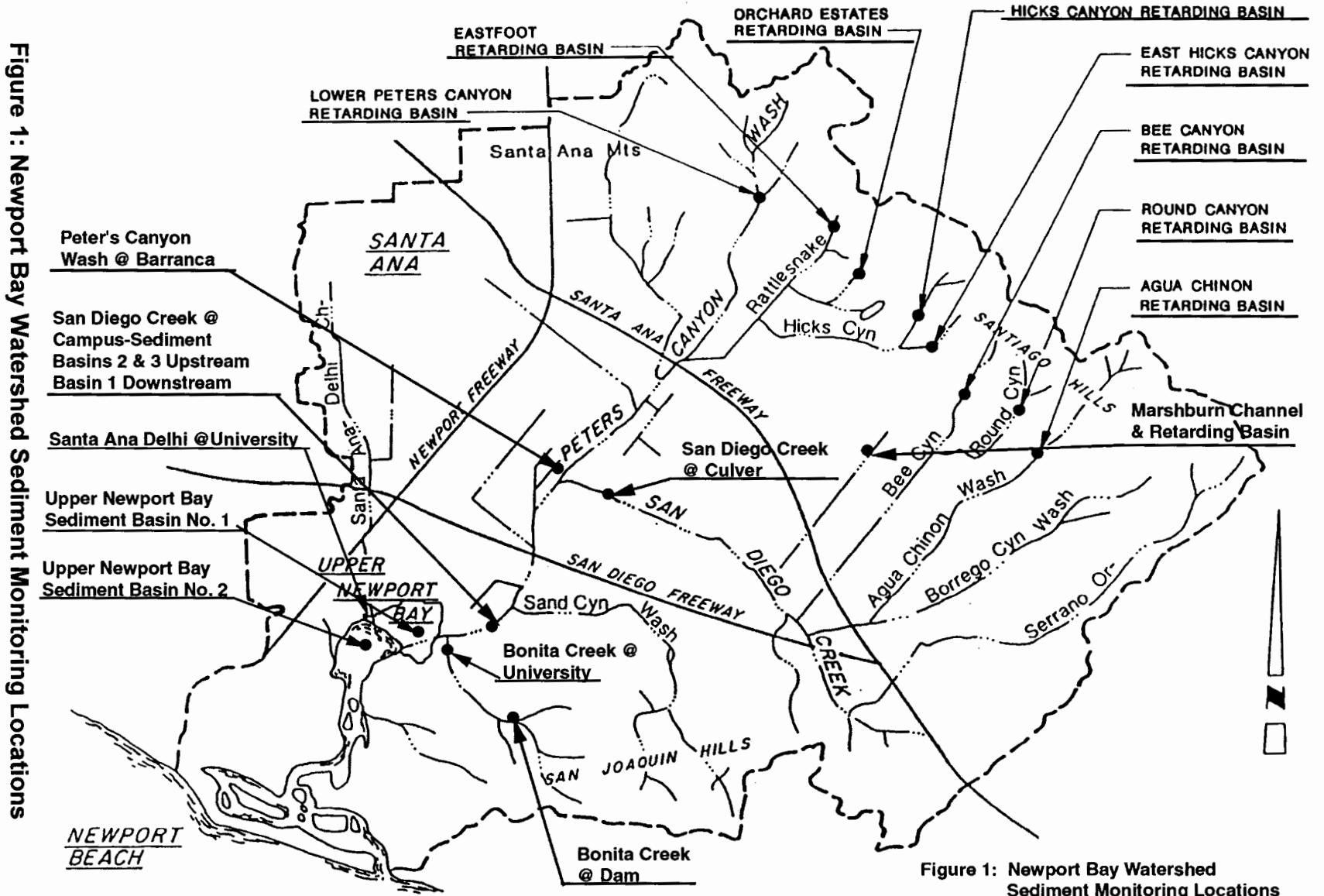


Figure 1: Newport Bay Watershed Sediment Monitoring Locations

Figure 1: Newport Bay Watershed Sediment Monitoring Locations

- Pursuant to the Sediment TMDL, Requirement No. 1.b.1 for the determination of load allocation compliance, the discharger shall conduct total suspended sediment monitoring at each monitoring station specified in Table 2 at the specified frequency during the period of July 1 through June 30 of each year. Figure 1 shows the locations of these monitoring stations.

**Table 2: Suspended Sediment Monitoring for Determining Compliance with Land Use Type Load Allocations (July 1 through June 30)**

Station	Representative Land Use Type	Discharge/Stage (cfs/gage ht.)		Total Fluvial Sediment (mg/L)	
		Frequency	Sample Type	Frequency	Sample Type
Santa Ana Delhi Channel @ Irvine Ave.	Urban	Monthly /Storm**	Continuous		
Bonita Creek @ MacArthur Pkwy*	Open Space/Urban	Monthly /Storm**	Instantaneous		
Agua Chinon Channel below retarding basin*	Open Space	Monthly /Storm**	Instantaneous	Monthly /Storm**	MDIS

\* Santa Ana-Delhi Channel will be implemented starting 1999/00, Bonita Creek and Sand Canyon Channel in 2000/01, Marshburn Channel and Agua Chinon Channel in 2001/02.

\*\*Storm samples are to be collected in the initial year at each station during daylight hours in storm events forecast to be greater than 0.25 inches of rain and in subsequent years in rainfall events forecast to be greater than 1.0 inches of rain.

- All monitoring shall be completed prior to June 30 of each year.
- The total sediment monitoring program results shall be submitted as part of the annual report.

### C. SCOUR STUDIES

- Pursuant to the Sediment TMDL, Requirement No. 1.b.2, the discharger shall conduct sediment deposition and scour studies at each monitoring station specified in Table 3 prior to July 31 of each year where studies are specified.

**Table 3: Scour Studies**

Station	Sediment Deposited (tons)	Sediment Scoured (tons)
Hicks Canyon Retarding Basin	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
East Hicks Canyon Retarding Basin	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
Round Canyon Retarding Basin	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
Agua Chinon Retarding Basin	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
Bee Canyon Retarding Basin	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
Orchard Estates Retarding Basin	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
San Diego Creek Reach 1 (Basin 1) 22 Stations Between Stations 34+00 and 76+00	Annually	Annually
San Diego Creek Reach 1 (Basin 2) 9 Stations Between Stations 82+00 and 76+00	Annually	Annually
San Diego Creek Reach 1 (Basin 3) 19 Stations Between Stations 100+00 and 135+00	Annually	Annually
San Diego Creek Reach 1 65 Stations Between Stations 10+20 and 218+00	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall
San Diego Creek Reach 2 75 Stations Between Stations 0+00 and 143+31	Once every 5 years or in years with 150% of mean basin rainfall	Once every 5 years or in years with 150% of mean basin rainfall

- Pursuant to the Sediment TMDL, the scour study results shall be submitted by November 15 of each year in which data is collected in order to verify at least 50% sediment basin capacity. The scour study results shall also be compared to previous data collected from these same stations by the County of Orange to estimate the amount of sediment deposited in tributaries and sediment control facilities in the Newport Bay Watershed.

#### **D. TOPOGRAPHIC/BATHYMETRIC AND VEGETATION SURVEYS**

- Pursuant to the Sediment TMDL, Requirement No. 1.b.3, the discharger shall conduct topographic/bathymetric surveys (Horizontal Scale 1 inch = 100 feet, vertical scale 1 inch = 10 feet) of Upper Newport Bay (from Pacific Coast Highway Bridge upstream to the mouths of San Diego Creek and Santa Ana Delhi Channel and including the Upper Newport Bay Ecological Reserve) at least once every five years beginning in 2000, and following any year at which the annual total suspended sediment load for San Diego Creek at Campus (Monitoring requirement B.1) is more than 250,000 tons.
- Pursuant to the Sediment TMDL, Requirement No. 1.b.3, the discharger shall conduct vegetation surveys of Upper Newport Bay (from Pacific Coast Highway

Bridge upstream to the mouths of San Diego Creek and Santa Ana Delhi Channel and including the Upper Newport Bay Ecological Reserve) at least once every five years beginning in 2000, and following any year at which the annual total suspended sediment load for San Diego Creek at Campus (Monitoring requirement B.1) is more than 250,000 tons. These vegetation surveys shall map habitat boundaries using color aerial photographs, at a scale of 1 inch = 100 feet, and based on ground truthing of the dominant plant species.

3. The discharger shall compare these topographic/bathymetric and vegetation survey results to previous surveys to evaluate the following:
  - a) the amount and location of sediment deposition in Upper Newport Bay and adjacent wetlands;
  - b) changes to the existing beneficial uses, including aquatic, wildlife and endangered species, habitat due to sediment deposition.
4. In any year in which these surveys are required, the surveys shall be conducted by June 30. The results of these surveys shall be submitted as part of the annual report.

#### E. REPORTING

1. The discharger shall submit a report by November 15 of each year providing the results of the scour studies and the evaluation of sediment basin capacities for the succeeding winter season.
2. The discharger shall submit an annual report by February 27 of each year providing the discharge data, total suspended solids monitoring data, the topographic/bathymetric and vegetation surveys results, and any additional sediment monitoring data collected by the discharger.
3. The annual report shall provide an assessment of compliance with the TMDL, the specified load allocations and the effectiveness of sediment control activities implemented in the Newport Bay Watershed.

Ordered by

  
for Kurt V. Berchtold  
Executive Officer

February 14, 2014