



bay restoration authority

santa monica bay restoration authority ✂ 320 W. 4th Street, Suite 200; Los Angeles; California 90013
213/576-6615 phone ✂ 213/576-6646 fax

MALIBU LAGOON – RESTORATION AND ENHANCEMENT PROJECT – MONITORING GRANT

Through a grant from California Department of Parks and Recreation to the Santa Monica Bay Restoration Authority (SMBRA), the SMBRA is organizing and performing all required surveys, monitoring, data analysis and reporting to meet the required Coastal Development Permit conditions for the Malibu Lagoon Restoration and Enhancement Project (COP # 4-07-098) as documented in Biological and Water Quality Monitoring Plan and Vegetation Assessment and Monitoring Plan. SMBRA will compile and analyze all data collected each year and produce a cumulative annual report. The report will meet the reporting requirements outlined in the Coastal Development Permit. SMBRA will also provide coordination and supervision for volunteer plant maintenance crews.

GRANT TASKS:

Task 1 – SMBRA will manage the entire project including all sub-contractors to ensure all required monitoring and reporting is completed. SMBRA will prepare a single invoice for work completed during each invoicing period. It is estimated that project management will require three days per month.

Task 2 – Conduct continuous monitoring of water quality using three Yellow Springs Instruments (YSI) data sondes to collect dissolved oxygen, specific conductivity, salinity, pH, Oxygen Reduction Potential (ORP), water temperature and depth every 30 minutes. Conduct monthly data downloading, calibration and re-deployment of YSI data sondes, data cleaning and maintenance of the project database.

Task 3 – Field surveys and water quality data collection will be conducted twice annually, except for benthic macroinvertebrate (see details below). Field surveys include the following:

- Water quality vertical profiles at multiple depths at six locations: pH, Specific conductivity, dissolved oxygen, salinity, temperature;
- Surface and bottom water quality at six locations;
- Topographic cross sectional surveys across five transects;
- Three vegetation transects;
- Vegetation photo point monitoring at three locations;
- Submerged aquatic vegetation (SAV) and algae on eight transects;
- Sediment sample collection from five locations;
- Benthic macroinvertebrates: three samples (2.5 cm core, 10 cm core, littoral sweep) from eight stations per event, five fall events during closed condition and three spring events during open condition.



Task 4 – Chemistry lab analyses will be conducted twice annually by a state-certified laboratory and will include the following:

- Surface and bottom water quality: nitrate as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen, orthophosphate, total phosphorous, and chlorophyll-A
- Sediment: grain size, total organic carbon, total nitrogen, and total phosphorous.

Task 5 – Benthic macroinvertebrate lab analyses will be conducted by taxonomic professionals.

Task 6 – Avian monitoring will be conducted by an ornithologist a minimum of three days per quarter or 12 days per year. An annual report will be produced that compares the pre-restoration and post-restoration data and changes over time.

Task 7 – None

Task 8 – The Bay Foundation will compile and analyze all data collected on an annual basis and create an Annual Report. The Annual report will satisfy the Coastal Commission's reporting requirements for this project.

Task 9 – Data Probe maintenance: the data sondes will be sent back to YSI annually for maintenance. The probe sensors for ORP, pH, and conductivity will be replaced annually. The average maintenance and replacement cost per year is \$2,000.00 per sonde or \$6,000.00 for three data sondes.

Task 10 – The two oldest probes may need replacement during the five year monitoring program. Replacement of each probe will cost \$7,500.00 or \$15,000.00 to replace two data sondes over the course of the project.

Task 11 – Mileage to travel to and from the Lagoon to conduct monitoring and field surveys. Mileage charges to and from State Certified laboratory and to acquire necessary monitoring supplies. It is estimated that these tasks will require 2000 miles per year of travel.

Task 12 – Equipment and supplies includes calibrating solutions and water quality standards to calibrate data sondes and water quality probes, glassware and plastic sampling containers, nets, waders, and miscellaneous equipment associated with sampling. It is estimated that equipment and supplies will cost \$2,500.00 per year.

Task 13 – Volunteer coordination and supervision. Advertise for volunteers on the internet, fill out volunteer waiver forms, supply and deliver tools, train and supervise volunteers, track volunteer hours and work accomplished. Three monthly events for one year.