

SAN DIEGO REGIONAL WATER QUALITY ASSESSMENT AND OUTREACH PROJECT

MONITORING PLAN

PREPARED FOR THE SAN DIEGO COUNTY WATER AUTHORITY
BY SAN DIEGO COASTKEEPER, LOCAL PROJECT SPONSOR.

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1 Background

1.1 Introduction

The San Diego Coastkeeper is a not-for-profit organization that employs trained citizens and students from the region to conduct chemical, nutrient and microbial monitoring in creeks and rivers in the county's watersheds.

This project is located in San Diego County, California. The land area of the county is approximately 4,200 miles. The county has eleven watersheds, which extend from the San Juan watershed at the Orange County border in the north to the bi-national Tijuana River watershed in the south. Logistical considerations (spatial extent of locations, travel time to and from lab, and sample holding times) generally limit monitoring efforts by Coastkeeper and its volunteers to eight or nine of the 11 watersheds in the county. Most watersheds contain a brackish water element west of Interstate Five (I-5) due to tidal influence. Weather in San Diego County is characterized by a Mediterranean style climate (semi-arid with temperate, wet winters [median annual rainfall of 11"] and dry, warm summers). The county has an approximate population of 3 million, most of which is located within 5 miles of the coast. This equates to more intensive urban land use (commercial, residential) along the coast and more rural and agricultural uses inland.

1.2 Problem Statement

While recent regulatory programs (i.e., MS 4 Stormwater permit R9-2007-0001) and the Surface Water Ambient Monitoring Program (SWAMP) have increased the monitoring efforts and the availability of surface water quality data in the county's watersheds, there is still insufficient information to adequately assess the status of many of the rivers and streams. Additional ambient water quality data is needed to establish a baseline of water quality conditions in San Diego County watersheds, identify impaired water bodies, and provide focus for non-point source pollution prevention efforts. This data can also be used for Clean Water Act 305(b) assessment purposes, or possibly 303(d) impaired water body listings.

The following audiences will be interested in the results of this monitoring: general public, stakeholder groups of the San Diego watersheds, the Southern California Water Research Project, and the SWAMP program of the State Water Resources Control Board.

The constraints to this project may include inclement weather conditions, fire, or other issues that may make sample collection unsafe or unfeasible, and volunteer delinquency or unavailability at planned

1.3 Monitoring Questions

The study questions that this projects seeks to answer are:

- i. What are the baseline water quality conditions in San Diego County watersheds as impacted by all pollution sources (point, non-point sources, and other)?
- ii. How is water quality in the watersheds characterized, or do ambient levels of chemical, nutrient, bacterial, dissolved metals, and toxicity exceed associated water quality standards or thresholds for these parameters?

1.4 Objectives

To answer the study question, San Diego Coastkeeper (Coastkeeper) will conduct citizen monitoring to augment other monitoring efforts conducted under state programs or permits.

This monitoring will:

- i. Continue existing efforts by San Diego Coastkeeper to educate and engage community members on how to monitor water quality in local watersheds. Conduct monitoring at regular intervals (12 times a year conditions permitting) at locations that meet the site selection criteria.
- ii. Provide data to fill in the spatial and temporal data gaps (increasing the number of samples in a water body or hydrological unit for better representation). The data may also be useful in increasing the amount of surface water data for a particular constituent in order to help determine an appropriate water quality standard where none currently exists. Coastkeeper and its partners will collect samples for physical, chemical, nutrient, microbial, bio-assessment, dissolved metal, and toxicity analyses. The results from these water quality indicators will compared to water quality standards or thresholds in the San Diego Basin Plan or other state or federal standards to identify pollution impacted water bodies. Ultimately, the aim is to provide data that complies with all state quality assurance protocols to assist water quality regulators and decision makers.

- iii. Share water quality data from with the public with the goal of increasing public knowledge of water quality issues and problems in county watersheds.

2 Study Methods

2.1 Monitoring Design

On the San Diego County coastline, almost 90 locations are sampled weekly by wastewater agencies and the County Department of Environmental Health. However, these locations are only sampled for bacterial indicators.

In addition to this coastal data, many inland creeks and rivers are sampled by the municipal and County of San Diego Stormwater Programs. While these locations are tested for more types of pollutants, the testing frequency is very low (once a year for many), which limits the representativeness of the data.

The focus of Coastkeeper's Water Quality Monitoring efforts in this Monitoring Plan is the county's watersheds. The inland creek and river samples collected each month by Coastkeeper and its volunteers across the County increase the temporal resolution, or frequency, of the data available to assess the water quality in the county's watersheds.

These sites are chosen to be representative of the watershed or hydrologic area that drains to the coast. By focusing on inland water bodies, Coastkeeper monitoring efforts can gauge the health of the creeks and rivers themselves, while building a better understanding of the flow of pollution to our beaches and bays. Inland water bodies are also smaller so the pollutants in them are easier to measure (less susceptible to dilution and dispersion than coastal samples) and usually provide more informative results.

2.1.1 Site Selection Criteria

The Coastkeeper sample location selection criteria for the IRWMP Prop 50 project (San Diego Regional Water Quality Assessment and Outreach Project) are as follows:

- location is a tributary or the principal water course in the hydrologic area and receives flow from the watershed headwaters;
- location is fresh water and has minimal or no tidal influence;
- location is representative of the overall or general ecological health of the stream and hydrologic area;
- any reference sites are chosen upstream of any potential impact or discharge;
- a site chosen to reflect the impact of a particular discharge, tributary or land use is located downstream of the impact where the impact is completely integrated with the water, but upstream of any secondary discharge or disturbance;
- location has safe access;
- permission to cross private property and public land is granted;
- location complements or supplements historical data
- location can be accessed from the bank of a water body using a sampling pole that obtains a sample without collecting surface residue or benthic sediments
- sample can be taken in the main river current or where homogeneous mixing of water occurs;
- location represents an area that possesses value for fish, wildlife or recreational use.

Sampling sites may be changed if, based upon a review of data, it is determined that sufficient data has been collected to assess the water quality for that site, or the site is not providing useful data. Coastkeeper will confer with its partner organizations and Technical Advisory Committee to ensure sampling sites meet the project goals. Prior to final site selection, permission to access the stream will be obtained from all property owners. Coastkeeper will provide training for all

staff and volunteers for sample collection and field analysis per its standard operating procedures.

This Monitoring Plan will exclude sites that do not meet the site selection criteria, and therefore, do not answer the study questions. Coastkeeper will create new Monitoring Plans and associated site selection criteria to answer the study questions of future water quality monitoring projects.

2.1.2 Trash cleanup sites

For trash cleanup sites, I Love A Clean San Diego (ILACSD) will coordinate these events and collection of Rapid Trash Assessment data using SWAMP protocols and procedures.

Each area which is sampled through the RTAW will be of equal size, as volunteers will measure a 100 foot distance. This is not measured as a straight line, but of 100 feet of the actual stream or shore length, using easily-identifiable landmarks on each side. The Rapid Trash Assessment is then carried out along the 100 feet length of the creek bed, both above and below the high water line. If the high water line cannot be determined, volunteers will collect data from the upper boundary of the banks if inferred that debris could end up in the waterway through wind or rain.

ILACSD and San Diego Coastkeeper will focus on five locations and conduct at least two data assessments at each location. Data will be collected in ten categories: Plastic, Biohazard, Construction Debris, Metal, Large Items, Toxic, Biodegradable, Glass, Fabric/Cloth, and Miscellaneous. Of these categories, samples are then broken down into 56 other categories, and include a write in section for debris items not listed.

Samples will be taken in accordance with the procedures identified in the Surface Water Ambient Monitoring Program's Rapid Trash Assessment program. Sites will be identified by ILACSD and Coastkeeper staff prior to beginning the subcontractor agreement, and certain qualifications will be taken into account when looking at potential sampling locations. Locations must have water flowing through them at least a portion of the year, provide safe access for volunteers, and show some problems with trash.

Sites may become inaccessible during the winter months if creek beds flood or prove dangerous for volunteers. ILACSD will plan data collection events for times during the year when heavy

rainfall is not a factor. All sampling sites are city-owned therefore accessibility will not be affected by landowners.

2.1.3 Bio-assessment Sites

San Diego Stream Team generally follows the non-point pollution probability based sampling design, as described in the manual, “Measuring the Health of California Streams and Rivers: A methods manual for resource professionals, citizen monitors and natural resources students” second edition (Harrington and Born, 2000).

2.2 Field location of sample collection sites

Table 1 is a list of water quality sampling sites in San Diego County that may be monitored as part of this work. Meta data showing the GPS coordinates (decimal degree), jurisdiction, etc. are available from San Diego Coastkeeper.

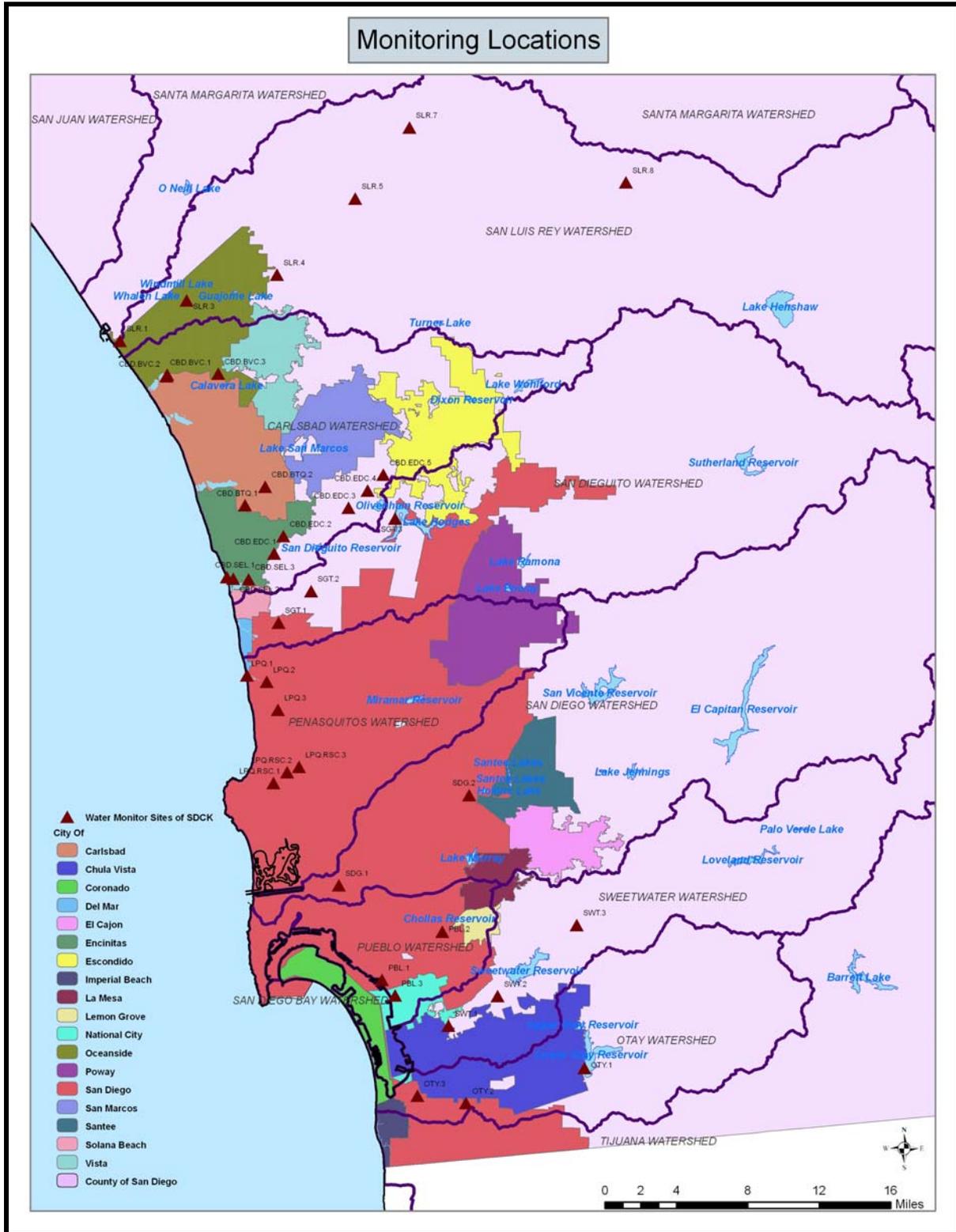
The field crew will collect samples at sites where the latitude and longitude (GPS coordinates) were previously recorded during reconnaissance of these stations. If a new station is being sampled, GPS coordinates and cross-referenced photographs will be provided for future reference. Any confusion about site location or prioritization of alternate sites will be resolved in consultation with our internal team

Table 1: List of Monitoring Locations

Watershed	Water Body	Site ID	Latitude	Longitude	Sampling Frequency
San Luis Ray Watershed	San Luis Ray River	SLR.3	33.239767	-117.322433	6 times /yr
San Luis Ray Watershed	San Luis Ray River	SLR.4	33.261367	-117.235117	6 times /yr
San Luis Ray Watershed	San Luis Ray River	SLR.5	33.324167	-117.159983	6 times /yr
San Luis Ray Watershed	Gomez Creek	SLR.7	33.382450	-117.108117	6 times /yr
San Luis Ray Watershed	Pauma Creek	SLR.8	33.339017	-116.897850	6 times /yr
Carlsbad Watershed	Buena Vista Creek	CBD.BVC.1	33.179111	-117.340444	6 times /yr
Carlsbad Watershed	Buena Vista Creek	CBD.BVC.2	33.177861	-117.341167	6 times /yr
Carlsbad Watershed	Buena Vista Creek	CBD.BVC.3	33.180194	-117.290972	6 times /yr
Carlsbad Watershed	Encinitas Creek	CBD.BTQ.1	33.073194	-117.263917	6 times /yr
Carlsbad Watershed	San Marcos Creek	CBD.BTQ.2	33.088500	-117.244750	6 times /yr
Carlsbad Watershed	Escondido Creek	CBD.EDC.1	33.033889	-117.235556	6 times /yr
Carlsbad Watershed	Escondido Creek	CBD.EDC.2	33.048250	-117.226750	6 times /yr
Carlsbad Watershed	Escondido Creek	CBD.EDC.3	33.071806	-117.164083	6 times /yr
Carlsbad Watershed	Escondido Creek	CBD.EDC.4	33.086172	-117.145500	6 times /yr
Carlsbad Watershed	Escondido Creek	CBD.EDC.5	33.099083	-117.130500	6 times /yr
Carlsbad Watershed	San Elijo Lagoon	CBD.SEL.3	33.012833	-117.259861	12 times/yr
San Dieguito Watershed	San Dieguito River	SGT.1	32.977667	-117.230500	12 times/yr
San Dieguito Watershed	San Dieguito River	SGT.2	33.003639	-117.199389	12 times/yr
Los Penasquitos Watershed	Los Penasquitos Lagoon	LPQ.2	32.929694	-117.241194	12 times/yr
Los Penasquitos Watershed	Los Penasquitos Lagoon	LPQ.3	32.906889	-117.230361	12 times/yr

Los Penasquitos Watershed	Rose Creek	LPQ.RSC.1	32.847167	-117.233917	12 times/yr
Los Penasquitos Watershed	Rose Creek	LPQ.RSC.2	32.856139	-117.220861	12 times/yr
Los Penasquitos Watershed	Rose Creek	LPQ.RSC.3	32.860583	-117.209417	12 times/yr
Los Penasquitos Watershed	Rose Creek	LPQ.RSC.4	32.863805	-117.190611	12 times/yr
San Diego Watershed	San Diego River	SDG.1	32.764333	-117.170083	12 times/yr
San Diego Watershed	San Diego River	SDG.2	32.838861	-117.045222	12 times/yr
Pueblo Watershed	Chollas Creek	PBL.2	32.727150	-117.069950	12 times/yr
Sweetwater Watershed	Sweetwater River	SWT.1	32.650500	-117.063528	12 times/yr
Sweetwater Watershed	Sweetwater River	SWT.2	32.674917	-117.016556	12 times/yr
Sweetwater Watershed	Sweetwater River	SWT.3	32.733417	-116.940722	12 times/yr
Otay Watershed	Otay Reservoir	OTY.1	32.616806	-116.932583	12 times/yr
Otay Watershed	Otay River	OTY.2	32.587528	-117.046194	12 times/yr

Figure 1: Map of Monitoring Locations



2.3 Work statement and general overview of monitoring performed

River and stream water samples will be collected during 12 events a year from approximately 31 sites located in nine of the eleven watersheds in the county to answer the Project study questions. Site selection is based on a non-judgmental sampling design to represent overall water quality in the watersheds. Samples will be collected with conditions (weather, safety, and stream flow) permitting. Sampling events will be scheduled without respect to rainfall and weather, i.e., sampling events are scheduled before weather forecasts are available. Sampling/ monitoring locations are listed in Table 1. Locations that tend to have ephemeral flow characteristics are shown with a frequency of 6 times/ year.

2.4 Selected parameters

2.4.1 Water chemistry, nutrients, bacteria, and toxicity

The role of San Diego Coastkeeper in this project is to train and equip citizen volunteers to collect water samples and perform field and laboratory analyses of multiple water quality parameters. The work to be performed is described below in Table 2.

2.4.2 Bio-assessment

Employing a non-point source sampling design, SDST will perform bio-assessment by collecting benthic macro-invertebrates (BMI's) once annually (in spring) for the duration of the project. Benthic macro-invertebrate monitoring will be performed according to the SWAMP S.O.P. for "Collecting Benthic Macro invertebrate Samples and Associated Physical and Chemical Data for Ambient Bio-assessments in California" 2007.

2.4.3 Dissolved trace metals

The SDSU School of Public Health, Environmental Chemistry Laboratory will measure dissolved trace metal levels in surface waters samples collected for this event. Dissolved metal analyses will include copper, zinc, lead, cadmium, chromium, and nickel. These samples will be collected by Coastkeeper trained volunteers in accordance with sample collection standard operating procedures and transferred to SDSU using chain of custody procedures and paperwork.

2.4.4 Trash Cleanup

I Love A Clean San Diego will conduct inland cleanup events with volunteers at five watershed locations. Volunteers will remove trash and recyclables and weigh the bags before disposing of them. ILACSD will track the total number of volunteers, number of cleanups, as well as pounds

of debris collected for each event. Selected cleanups will involve the usage of the Rapid Trash Assessment Worksheet developed in San Diego County as part of the Surface Water Ambient Monitoring Program.

2.5 Sampling and Lab Analyses

Table 2 summarizes the sample analyses by method, and type (ambient field analysis or transported for later analysis to Coastkeeper Laboratory or a professional laboratory). The Type column also includes what agency will perform the parameter analysis.

Table 2: Water quality constituents/ parameters to be monitored and measurement techniques

Parameter	Type	Method
Temperature	F (Coastkeeper)	Hach HQ40d electrometric probe
Dissolved Oxygen	F (Coastkeeper)	Hach HQ40d Luminescent Dissolved Oxygen
pH	F (Coastkeeper)	Oakton Double Junction Electrode
Conductivity (fresh water) or Salinity (marine)	F (Coastkeeper)	Hach HQ40d Conductivity probe
Nitrate	L (Coastkeeper)	Hach 8192 and Hach 10206 (TNT 835) **
Total Orthophosphate	L (Coastkeeper)	Hach 8048 and Hach 10210 (TNT 843)
Ammonia	L (Coastkeeper)	Hach 10205 (TNT 830)
Total Coliform bacteria	L (Coastkeeper)	IDEXX Colisure or Colilert 18
E. Coli bacteria	L (Coastkeeper)	IDEXX Colisure or Colilert 18
Enterococci bacteria	L (Coastkeeper)	IDEXX Enterolert

Toxicity	L (Coastkeeper)	QwikLite 200 Bio-Sensor System using ASTM E1924
Bio-assessment (Benthic macro-invertebrates)	L and P (SDST)	SWAMP Bio-assessment procedures
Bio-assessment (Temperature)	F (SDST)	Thermometric
Bio-assessment (Dissolved oxygen)	F (SDST)	Colorimetric indigo carmine Vacuum ampoules, Color Comparator
Bio-assessment (Alkalinity)	F (SDST)	
Bio-assessment (pH)	F (SDST)	Electrometric
Bio-assessment (Nutrients)	F (SDST)	Cadmium Reduction
Bio-assessment (Conductivity)	F (SDST)	Electrometric
Dissolved Metals (Cadmium, Chromium, Nickel, Lead, Copper, and Zinc)	P (SDSU)	Inductively Coupled Plasma Mass Spectrometer ICP-MS. EPA method 200.8

Codes for Table 2: Type: F: field analysis, L: in-house lab analysis, P: sample only, send to outside professional lab

3 Data

3.1 Data Quality Evaluation and Data Reporting

Data quality evaluation and data reporting will be as specified in the QAPP for this project. Quality control will include a 5% field duplicate level for all parameters. We do not anticipate needing additional special data quality evaluation or data reporting procedures.

3.2 Intended Usage of Data

The data can be used by regulators and municipal storm water agencies to better assess water quality in San Diego County watersheds. This data will be useful in providing information for watershed management and pollution prevention. The data will be made available to the public for purposes of watershed education. It will also be made available to the regulatory and resource management agencies through CEDEN to supplement their existing data collection efforts. One potential application of the data will be to provide information to the Regional and State Boards for use under Clean Water Act section 305(b) or 303(d) reporting. Data will also be available through posting on the World Wide Web for public use.

The data in this program is not designed to identify compliance issues. However, it can be used to document poor water quality when results for a particular analyte exceed or violate an associated water quality standard.

3.3 Data Management

Analytic results for these constituents will be entered into an MS 2007 Excel spread sheet or Access database with separate fields for parameter, method, site ID, site name, hydrological unit, analysis, qualifier, result, and laboratory. The data format will be SWAMP compatible. All of the data collected and analyzed for this project will be sent to, or compiled within, and maintained at the San Diego Coastkeeper. This includes Coastkeeper water quality for chemistry, nutrient, bacteria and toxicity, SDST bio-assessment including field measurements for water chemistry, SDSU dissolved metals, and ILACSD trash data. Data will be posted on the San Diego Stream Team and San Diego Coastkeeper websites (<http://sdwatersheds.org> or <http://www.sdcoastkeeper.org/content/waterWatch/monitorData.htm>) for sharing with interested parties. Data will also be collated and shared with the State Water Resources Control Board, the San Diego Regional Water Quality Control Board, in a SWAMP compatible format and upon

request to other state, federal, and local agencies and organizations. The main database will be maintained at San Diego Coastkeeper offices.

4 Collaborations

As part of its effort to engage local communities in promoting understanding of water pollution issues that face our county, San Diego Coastkeeper works with its citizen volunteers and partner organizations to collect surface water quality samples from the county's watersheds. These persons bring various talents, dedication and their time to build the capacity and value of the San Diego Coastkeeper Water Quality Monitoring Program.

This project links with a number of other projects that are already operational throughout the county:

- Tijuana Estuary Research Reserve Project
- Los Peñasquitos Research Reserve Project
- Escondido Creek Conservancy Work
- Friends of Famosa Slough
- San Elijo Lagoon Conservancy
- THINK BLUE's Chollas Creek Water Quality Protection & Habitat Enhancement Project
- San Diego River Conservancy and/or The San Diego River Park Foundation and/or San Diego River Watershed Workgroup
- Friends of the River (<http://www.friendsoftheriver.org>)
- Baticuitos Lagoon Foundation
- Aqua Hedionda Lagoon Foundation
- Golden State Flycasters

Other local or regional plans in which the project is included:

- San Diego River Watershed Management Plan:
http://www.projectcleanwater.org/html/ws_san_diego_river_plan.html
- Project Clean Water: <http://www.projectcleanwater.org>

5 Project Schedule Timeline

Table 3: Project schedule timeline

Task or Activity	Date (DD/Month/YYYY)		Deliverable	Deliverable Due Date
	Anticipated Date of Initiation	Anticipated Date of Completion		
Start project	31 Dec 2009	31 Dec 2012	None	
Task 1. Project Administration and Quarterly Reports				
1.1 Project administration (prepare project monitoring, quality assurance, and assurance and evaluation plans and subcontract MOUs, etc.)	1 Jan 2010	1 May 2010	MP, QAPP, and PAEP, Subcontractor documentation	1 May 2010
1.2 Submit Quarterly Reports detailing progress on each of the tasks and deliverables met	January 2010	July 2012	Quarterly progress reports	By the 15th day of the month (January, April, July, October) following the quarter

1.3 Attend meetings and TACs for data management, citizen monitoring and TMDL programs in the region.	1 March 2010	Life of project	Lists of meetings Attended in Quarterly progress reports	By the 15th day of the month (January, April, July, October) following the quarter
Task 2. Establish Regional Water Monitoring Training and Resource Center.				
<i>Task or Activity</i>	<i>Anticipated Date of Initiation</i>	<i>Anticipated Date of Completion</i>	<i>Deliverable</i>	<i>Deliverable Due Date</i>
2.1 Conduct outreach and education campaign and recruit project participants.	1 January 2010	Life of project	Quarterly Progress Reports with Outreach and Education Materials <u>Outcome</u> Increase public awareness and recruit and train citizens to collect water quality data in accordance to U.S. EPA/SWRCB guidelines to help support the Citizen Monitoring.	By the 15th day of the month following the quarter
2.2 Develop training materials	1 March 2010	1 May 2010	Quarterly progress reports with training materials	By the 15th day of the month following the quarter

2.3 Conduct monthly training workshops at Coastkeeper office/lab.	10 March 2010	6 x year over life of project, ending on 30 March 2012	<p>Quarterly Progress Reports with bi-monthly sign-in sheets</p> <p><u>Outcome</u></p> <p>After 2 years, more than 500 trained individuals on watershed management, water quality monitoring, data access, analysis and implementation</p>	By the 15th day of the month following the quarter
2.4 Conduct monthly citizen monitoring events at nine watersheds throughout San Diego County	13 March 2010	12 x year over life of project, ending on 30 May 2012	Quarterly Progress Reports with signed liability forms	By the 15th day of the month following the quarter
2.5 Conduct invertebrate bio-assessment sample collection	May 2010	1 x year over life of project, ending on 30 May 2012	Quarterly progress reports	By the 15 th day of the month following the quarter
2.6 Integrate monitoring data into the Coastkeeper on-line database (ArcIMS interactive mapping)	14 March 2010	12 x year over life of project, 12 x year over life of project, ending on 30 May 2012	<p>Citizen Monitoring Results posted on Coastkeeper website</p> <p><u>Outcome</u></p> <p>Posting of data on the existing Common Ground on-line data repository so that it is publicly accessible; inclusion of information on the WISE data management system to enhance management decisions</p>	By the 15 th day of the month following the quarter

2.7 Identify and implement measures to evaluate the effectiveness of Coastkeeper citizen training center	September 2010	2 x year over life of project	Measures to evaluate effectiveness of center will be included in the Project Monitoring and Reporting Plan (Submitted under Task 3).	July 2012
Task 3. Develop and Implement Public Outreach and Education Campaign				
<i>Task or Activity</i>	<i>Anticipated Date of Initiation</i>	<i>Anticipated Date of Completion</i>	<i>Deliverable</i>	<i>Deliverable Due Date</i>
3.1 Conduct Data Management Summits for water quality professionals and practitioners over the course of the project	3 rd QTR each year of project starting October 2010	1 per year in 3 rd QTR. Ending after October 2011	Quarterly Progress Reports with Summit agenda/ program & sign-in sheets, minutes from summit / other write up <u>Outcome</u> Collect feedback on how to make these tools even more effective, facilitate progress in regional data management	By the 15 th day of the month following the quarter
3.2 Inland water body trash removal events at 5 sites coordinated by ILACSD	June 2010	Twice a year ending by June 2012	Quarterly Progress Reports with assessment and analysis of trash data <u>Outcome</u> Engage community members and volunteers to participate in trash removal in watersheds to reduce impacts to surface waters	By the 15 th day of the month following the quarter

<p>3.2 Develop and distribute outreach materials at various meetings and events</p>	<p>July 2010</p>	<p>Life of project, ending after May 2012</p>	<p>Quarterly Progress Reports with copy of outreach materials; list of meetings & events attended</p> <p><u>Outcome</u></p> <p>Inform the public about water quality in San Diego County and involve interested parties by providing opportunities for involvement. The events will include World Water Monitoring Day and Coastal Snapshot Day.</p>	<p>By the 15th day of the month following the quarter</p>
<p>Task 4: Develop San Diego Region Watersheds Water Quality ‘Watersheds Report’</p>				
<p><i>Task or Activity</i></p>	<p><i>Anticipated Date of Initiation</i></p>	<p><i>Anticipated Date of Completion</i></p>	<p><i>Deliverable</i></p>	<p><i>Deliverable Due Date</i></p>
<p>4.1 Conduct 10 workshops to identify pollution trends in the San Diego Watersheds.</p>	<p>May 2010</p>	<p>Bi-monthly until November 2011 (immediately preceding monitoring events)</p>	<p>Quarterly Progress Reports with workshop agendas/minutes & sign-in sheets</p>	<p>By the 15th day of the month following the quarter</p>

4.2 Develop 'Watersheds Report' using the data collected and identify locations with poor water quality, and recommendations for community involvement to improve the health of their local waterways	March 2010	April 2012	'Watersheds Report'	April 2012
4.3 Publish, print and distribute 'Watersheds Report' through print newsletters, e-mail alert, on the website and at various meetings, fairs, events and through Coastkeeper's hands-on education programs.	March 2010	July 2012	List of how and when 'Watersheds Report' has been distributed (through the media, by hard copy and electronically) <u>Outcome</u> Information made available about the state of water quality on a watershed basis.	July 2012
Task 5. Final Report				
5.1 Submit Final Report detailing progress on each of the tasks and deliverables met	September 2014	31 Dec 2012	Final Report that tracks activities, challenges and progress through the course of the project.	31 Dec 2012

6 References

1. Ode, P.R. 2007: "Collecting macro-invertebrate samples and associated physical and chemical data for ambient bio-assessment in California". California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bio-assessment SOP 001.
2. San Diego Coastkeeper field sample collection S.O.P. 2010.