

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU

Proposition 50 Integrated Regional Water Management (IRWM) Project Proposal Form

Detailed guidance on the Integrated Regional Water Management (IRWM) Grant Program can be found on the State Water Resources Control Board's Prop 50 Integrated Regional Water Management (IRWM) grant program web page at: <http://www.swrcb.ca.gov/funding/irwmgp/index.html>. Please familiarize yourself with the general requirements of this program before preparing and submitting a project proposal.

Completed forms should be submitted no later than December 1, 2004, either via email to jon.vanrhyn@sdcountry.ca.gov or mailed to the following location:

Jon Van Rhyn
County of San Diego
Watershed Protection Program
9325 Hazard Way
San Diego CA 92123 PHONE: 858-495-5133 FAX: 858-495-5263

SECTION A – PROJECT INFORMATION

1. Project Title	Riparian rehabilitation upstream of the Tijuana River Estuary and Tijuana River Valley wells
2. Contact Information: Katherine Comer	
? Agency/organization	Institute for Regional Studies of the Californias, San Diego State University
? Address	San Diego State University 5500 Campanile Drive, Nasatir Hall 103 San Diego, CA 92182-4403
? Phone	(619) 594-5423
? E-mail	kcomer@projects.sdsu.edu pganster@mail.sdsu.edu
? Submitted by (name & title)	Paul Ganster, Director, Institute for Regional Studies of the Californias, San Diego State University
3. Project Location (City/Community)	Campo Indian Reservation; La Posta Indian Reservation; Imperial Beach, California; Tecate, Baja California; Tijuana, Baja California
4. Watershed (if multiple or regional, please indicate)	Tijuana River Watershed
5. Amount Requested	\$1,140,110

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU

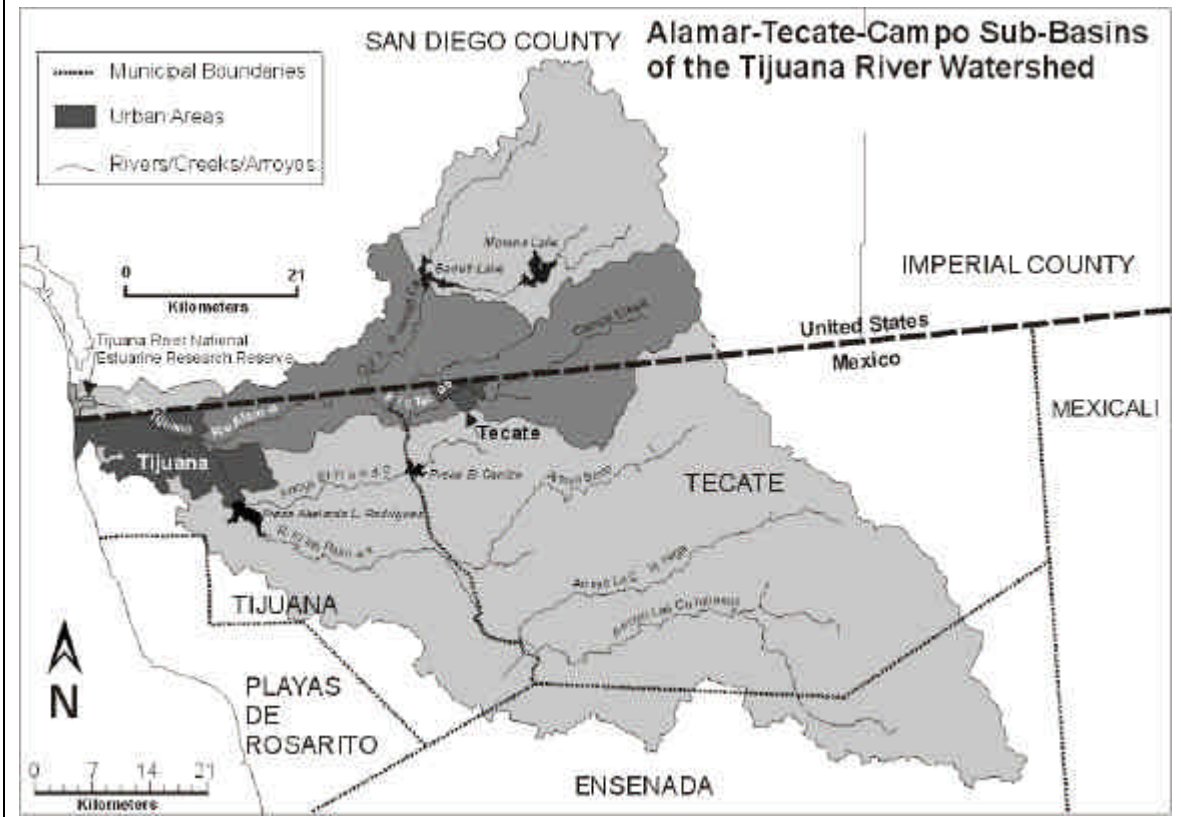
6. Match Information (a minimum 10% match is required for all projects):

? Estimated match amount	\$148,710
? Has a match been identified (y/n)?	y
? If so, please identify the source(s)	IRSC and SDSU Foundation
7. Status of Project (conceptual, designed & ready to build, CEQA completed, etc.)	conceptual

8. Project Description (less than 100 words)

The Tijuana River Watershed (TRW) is a large coastal watershed of approximately 1,750 square miles (4,465 km²), with one-third in California and two-thirds in Baja California, Mexico. A riparian restoration and enhancement green corridor will be implemented in three phases, starting on the Campo and La Posta Indian Reservations. It will involve lengthening and widening streams, installing detention basins, bioswales, rip rap, gabions, weirs, artificial wetlands, planting native species for streambank stabilization and removing exotic species. Baseline and post-implementation data will be collected through a vegetation survey, rapid stream bioassessment, engineering studies, and through the CEQA compliance process. Outreach will occur through a bilingual stream restoration manual, demonstration workshops, a website, listservs, and so forth. The project uses a synergistic, multi-benefit strategy to enhance habitat, capture storm runoff, recharge groundwater, reduce flooding, increase water quantity and quality of drinking wells, and increase water quality of streams, wetlands, and marine waters.

9. Additional information (include photo, regional map, text as needed. Please limit entire document to 3 pages or less):



Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU

Work Plan

Phase I: Baseline studies. The riparian vegetation of the corridor was surveyed and mapped in 1994 by SDSU researchers (Wright et al. 1996). This inventory will be updated and more detailed vegetation maps will be produced for reference streams and areas where restoration work will take place. The vegetation mapping will also include identification and location of invasive species. At the same time, erosion risks will be mapped. A rapid stream assessment using EPA's Rapid Bioassessment and engineering studies will be used as baseline data and to guide the implementation of bank stabilization techniques.

Phase II: Campo Creek Stream Restoration and Rehabilitation Demonstration Project. Stream rehabilitation and restoration in the Campo Creek system will be implemented as a demonstration project on the reservation lands of the Campo Band of Kumeyaay Indians and adjacent areas in San Diego County, including the La Posta Band of Mission Indians Reservation. Tribal members will be involved in all stages of the effort. Campo Indian Reservation has already begun several community projects that installed rock drops, or weirs, and revegetated Campo Creek to increase groundwater levels. The restoration will involve lengthening and widening streams, installing detention basins, bioswales, rip rap, gabions, weirs, artificial wetlands, planting native species for streambank stabilization and removing exotic species such as tamarisk (*Tamarix chinensis*), *arundo donax*, and castor bean (*Ricinus communis* L.). The physical structure and rip rap slow the pollutants course towards the Tijuana Estuary, and allow time for them to percolate into the ground and be filtered by the soil and microorganisms.

Phase III: Tecate River Stream Restoration and Rehabilitation. Based on demonstration of methods and techniques of stream restoration that have been successfully employed on the reservation of the Campo Band of Kumeyaay Indians, Campo personnel and project staff will assist Tecate authorities in identifying restoration sites and related activities in the Tecate area downstream from Campo. The restoration effort will involve reconfiguring the streambed; installing detention basins to capture sediments and retain storm water; detention basins, bioswales, rip rap, gabions, weirs, artificial wetlands, removing exotics, and planting native species for streambank stabilization. The native species will also act as a natural filters for pollutants discharged from non-point source pollutants and known point source pollutants from the Tecate Brewery and Tecate's Public Wastewater Treatment Plant. This project is synergistic with local efforts to create a Tecate River Park, which have performed engineering and ecohydrologic studies, adding to the technical feasibility of this project.

Phase IV: Alamar River Stream Restoration and Rehabilitation. The highly urbanized Alamar Creek in eastern Tijuana is a major source of contamination and sediment into the Tijuana Estuary and Tijuana River Valley. This project will increase water filtration and groundwater recharge, and decrease volumes and velocities of storm water and runoff to the concrete-lined channelized portion of the Tijuana River that feeds directly into the Tijuana Estuary. The objectives will be met through riparian vegetation protection and restoration, bank full determination, stream bank stabilization, and the creation of green areas over the recharge zone of the aquifer.

Phase V: Restoration assessment. The efficacy off this project will be determined by (1) the application and refinement of EPA's Rapid Bioassessment Protocol; (2) the Center for Watershed Protection's Rapid Stream Assessment Technique (RSAT); and/or (3) determination of beneficial uses of streams, lakes, and aquifers (see USEPA's Guidelines for 305[b] reports) (4) riparian habitat patch size and connectivity

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU

Outreach and Partnership Building Activities.

Outreach will begin immediately and involve project staff interacting with agency personnel and all other stakeholder groups on both sides of the border. The involvement of local technical experts, principally from the Campo Indian Reservation, will allow technology and methodology sharing for the installation of structures, vegetation restoration, and exotic vegetation removal. Demonstration workshops will be held for the public. SDSU will maintain a bilingual website for the project. The project will develop a bilingual manual that will enable stakeholders to conduct rapid stream assessment and monitoring of streams. Finally, milestones and results will be communicated through the SCERP network, EPA Water Task Force for the TRW, and Border Environmental Cooperation Commission list serve (BECCNET).

Budget and Timeline:

Phase	Time period	Budget
Phase I: Baseline studies	Months 1-6	\$82,200
Phase II: Campo restoration	Months 6-12	\$240,000
Phase III: Tecate restoration	Months 12-18	\$225,000
Phase IV: Alamar restoration	Months 18-24	\$225,000
Phase V: Assessment	Months 24-30	\$82,200
Outreach	Months 1 and ongoing	\$137,000
Administrative		\$148,710
In kind		\$148,710 (SDSU administrative support)
TOTAL		\$1,140,110

How the Project meets the Proposition 50 goals:

- The project uses a synergistic, multi-benefit strategy to enhance habitat, capture storm runoff, recharge groundwater, reduce flooding, increase water quantity and quality of drinking wells, and increase water quality of streams, wetlands, and marine waters.
- The project fits in well with local and regional water quality improvement plans and statutes. The TRW is recognized as an impaired watershed by the California State Water Resources Control Board. The Tijuana River and the Tijuana River Estuary are listed as 303(d) impaired water bodies for an array of problems, including pesticides, eutrophic conditions, trash, high coliform counts, organic enrichment/low dissolved oxygen, PCBs and other synthetic organics, and high concentrations of heavy metals such as cadmium, copper, nickel, lead, and zinc (<http://www.epa.gov/surf/>). Pathogens and toxins in these flows threaten human health and recreational activities, often resulting in beach closures by the County of San Diego Department of Health Services. The project is responsive to the California State Water Resources Control Board's non-point source (NPS) pollution control program. This project also fits in a project currently funded by California Proposition 13 that convenes stakeholders and authorities on both sides of the border in order to develop a consensus vision, or ideal state, for the watershed. The project fits in well with goals of the Regional Water Quality Control Board's San Diego Basin Plan. The EPA Border 2012 Water Task Force for the

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU

Tijuana River Watershed also supports this project proposal because it helps meet the water quality goals and objectives of Border 2012. The Tia Juana River Valley Authority and the Tijuana River National Estuarine Research Reserve in San Diego County have ongoing projects to reduce sedimentation and pollutant loads in the Tijuana Estuary, and would benefit greatly from restoration efforts upstream.

- The project will remove sediment and contaminants from the water entering the Tijuana Estuary, a federally listed impaired water body. Benefits include the improvement of the ecological functioning of the estuary and enhancement of wildlife habitat. The estuary is one of Southern California's most pristine coastal wetlands and was designated a National Estuarine Research Reserve by the National Oceanographic and Atmospheric Administration (NOAA) in 1991 (Desmond 1998). The Tijuana Estuary is dominated by coastal saltmarsh, an increasingly rare and threatened habitat in Southern California. The Tijuana Estuary and near shore marine habitats host at least 29 species of fish, and 398 species of birds, including 24 sensitive/threatened/endangered species, such as the California Least tern, the clapper rail, and Least bell's vireo. The estuary supports juveniles and several commercial/recreational fishes, including the California halibut (Nordby and Zedler 1991 as cited by (Desmond 1998)), although shellfish are unfit for human consumption due to high contamination levels.
- The project involves considerable stakeholder input in the planning process and involves indigenous communities as experts in a demonstration project.
- This project will remove non-point source pollution entering the Pacific Ocean at Imperial Beach California and enhance nearshore marine habitat at the mouth of the Tijuana River Estuary. The Tijuana River flows from Mexican tributaries into the Tijuana River Estuary in the United States and then into the Pacific Ocean. The water at the discharge point into the ocean contains some of the highest concentrations of suspended solids, Cadmium (Cd), Copper (Cu), Nickel (Ni), Lead (Pb), Zinc (Zn), and Polychlorinated Biphenyls (PCB) measured in Southern California. These heavy metals can bioaccumulate in people and animals, causing health problems.
- The project will help capture storm water runoff and reduce flood problems in the Tijuana River Valley and the Campo Indian Reservation. Floods in the 1980s and 1990s had devastating effects on natural habitat, structures, personal property, and transportation facilities in the Tijuana River Valley and adjacent watercourses.
- Through storm water capture and percolation, the project will enhance groundwater recharge of the Campo Creek and Tijuana River Valley aquifers. The project will also help secure and safeguard local water supplies for the Campo Indian Reservation, adjacent rural areas, and the Tijuana River Valley. In the United States, the groundwater basin beneath the lower Tijuana River Valley is part of the San Diego Formation, a large and complex coastal alluvial aquifer that extends from the Tijuana River Valley northward to the San Diego River (Fig. ___) (San Diego County Water Authority 2000). The aquifer under the alluvial fill of the Tijuana River in the United States is unconfined and can potentially store up to 80,176,320 m³ (65,000 acre-ft) of water. Recharge of the system occurs from the Alamar and Tijuana Rivers 6,198 m³/day (218,913 ft³/day) and a small amount from precipitation 1,065 m³/day (37,626 ft³/day) (U.S. Department of Energy 2003). Although groundwater in this aquifer is saline, the San Diego County Water Authority believes the San Diego formation shows promise for groundwater recharge and recovery.
- The project will remove invasive non-native species in the Campo sub-basin, and prevent entrance of invasive species into the Tijuana River Estuary through the Tijuana River outflow.
- The project will protect and improve riparian habitat corridors used by migratory birds, mammals, reptiles, and aquatic species.

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU

Literature Cited

Camp Dresser & McKee. February 10, 2003. *Environmental Assessment Tijuana and Playas de Rosarito Potable Water and Wastewater Master Plan*. prepared for U.S. Environmental Protection Agency Region 9. 88.

Desmond, J. 1998. Estuarine Ecology. In *The State of the Environment of the Tijuana River Basin, Working Draft*, ed. S. Institute for Regional Studies of the Californias, pp. 59-63. San Diego: IRSC.

San Diego County Water Authority. 2000. *Urban Water Management Plan*. San Diego, California.

San Diego County Water Authority. 1997. *Water Resources Plan: Groundwater Report (Executive Summary)*.

U.S. Department of Energy. 2003. *Ground water flow model for the Tijuana River Basin*. Southwest border project. Grand Junction, Colorado: DOE. GJO-2003-408-TAC.

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

**Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU
SECTION B – SUPPLEMENTAL INFORMATION**

1. CWC section 79561 states that eligible projects must include one or more of the water management elements listed below (see Guidance Section III.C.). Please check all that apply to your proposed project.

- Programs for water supply reliability, water conservation, and water use efficiency
- Storm water capture, storage, treatment, and management
- Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting and other treatment technologies
- Water banking, water exchange, water reclamation and improvement of water quality
- Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat
- Watershed management planning and implementation
- Demonstration projects to develop new drinking water treatment and distribution methods

2. The Dept. of Water Resources (DWR) and State Water Resources Control Board (SWRCB) have established the statewide priorities listed below for guiding the selection of projects for funding (see Guidance Section II.E.). Please check all that apply to your proposed project.

- Reduce conflict between water users or resolve water rights disputes, including interregional water rights issues
- Implementation of Total Maximum Daily Loads that are established or under development
- Implementation of Regional Water Quality Control Board Watershed Management Initiative Chapters, plans, and policies
- Meet Delta Water Quality Objectives
- Implementation of recommendations of the floodplain management task force, desalination task force, or recycling task force;
- Address environmental justice concerns
- Assist in achieving one or more goals of the CALFED Bay-Delta Program

NOTE: The eligibility requirements and statewide priorities listed above should be considered minimum screening criteria for project selection. Additional prioritization criteria will be identified once regional goals have been established for the draft IRWM Plan. In general, applicants should assume that preference will be

Project Title: Riparian rehabilitation for the Tijuana River Estuary and Tijuana Valley wells

Project Contact (name and organization/agency): Katherine Comer, IRSC-SDSU given to projects that are regional, multi-functional, and able to demonstrate multiple benefits.

NOTE: Proposals that include on-stream or off stream surface water storage facilities are not eligible.