

University of California, Berkeley  
Strawberry Creek  
Education and Outreach- 2006 Status Report



March 2008  
Office of Environment, Health & Safety  
University Hall, 3rd Floor  
Berkeley, CA 94720

Strawberry Creek Education and Outreach - 2006 Status Report, March 2008  
Completed by the University of California, Berkeley Office of Environment, Health &  
Safety (EH&S), <http://www.ehs.berkeley.edu>, [strawberrycreek.berkeley.edu](http://strawberrycreek.berkeley.edu)  
Karl Hans, EH&S Senior Environmental Scientist  
Steve Maranzana, EH&S Water Quality Specialist

With contributions from:

Tim Pine, EH&S Specialist  
Erin Donley, EH&S Intern  
Erin Lutrick, EH&S Intern  
Robert Charbonneau, University of California Environmental Protection Services

Technical Consultation and Editorial Assistance by:

Urban Creeks Council, Berkeley, CA, <http://www.urbancreeks.org/>  
Steve Donnelly, Executive Director  
Kristen Van Dam, Outreach Coordinator  
Junko Bryant

Review and approval by:

Greg Haet, EH&S Associate Director, Environmental Protection  
Strawberry Creek Environmental Quality Committee

© 2008 The Regents of the University of California



# University of California, Berkeley Strawberry Creek Education and Outreach- 2006 Status Report

---

## Table of Contents

1.0 University of California, Berkeley Strawberry Creek Management .....	2
1.1 Education and Outreach .....	5
1.2 Strawberry Creek Walking Tour Booklet .....	5
1.3 UC Botanical Garden .....	6
1.4 Dump No Waste Stencils and Markers .....	6
1.5 Student Projects and Miscellaneous Programs .....	9
1.6 Watershed Environmental Poetry Festival .....	10



# **University of California, Berkeley Strawberry Creek Education and Outreach- 2006 Status Report**

---

## **1.0 University of California, Berkeley Strawberry Creek Management**

Strawberry Creek is a small urban creek draining the western slope of the East Bay Hills in the San Francisco Bay estuary watershed (see maps below). It is a major landscape feature of the University of California, Berkeley, and it was one of the main reasons the site was chosen in 1860 as the location for the campus. The 1163 acre (1.8 sq. mile) watershed draining the campus and upstream headwaters, is approximately 40% urbanized (residential, commercial and institutional), with the remainder consisting of undeveloped, largely natural wildlands.

Urban creeks are increasingly valued for the aesthetic, recreational and wildlife benefits they bring to a city. Strawberry Creek has been the focal point of educational activities for years. More than 3,000 university students, and many elementary and high school students from surrounding communities, use Strawberry Creek each year as an outdoor laboratory for subjects as diverse as environmental studies, biodiversity restoration, landscape design, engineering, environmental art and poetry.

The greater Strawberry Creek ecosystem, consisting of neighboring watersheds, Tilden Regional Park to the east and tidal mudflats and salt marsh at the Berkeley Marina outfall, provides important habitat for plants and wildlife in the largely urban San Francisco metropolitan area. As a source of nutrients and fresh water, Strawberry Creek supports the fisheries of the San Francisco Bay, and continued pollution prevention and restoration in the watershed contribute to the health of the fisheries.

Urban creeks also provide storm water drainage and serve as a flood control system to prevent damage to the urban environment through which they flow. Historically the creek provided sanitary sewer drainage. These uses led to historic erosion, habitat loss and water pollution. By 1987, water quality and ecosystems were degraded and the creek was considered a public health risk due to chronic sewage pollution from deteriorated sewers.

In response to campus and community concerns over the deteriorated environmental quality of Strawberry Creek, the campus Office of Environment, Health and Safety (EH&S) sponsored a comprehensive study of the creek. The results of the study completed by Robert Charbonneau were published in December 1987 as the "Strawberry Creek Management Plan" (1987 Strawberry Creek Management Plan). Implementation of the 1987 Strawberry Creek Management Plan significantly improved water quality in Strawberry Creek, as evidenced by the successful reintroduction of locally native fish

species to the creek in 1989 – the first resident fish population in the creek in approximately 100 years.

This status report provides a summary of the educational and outreach activities focused on Strawberry Creek since the implementation of the 1987 Strawberry Creek Management Plan. This is one of a series of technical reports being issued by the EH&S to commemorate the twentieth anniversary of the restoration program.

### Strawberry Creek Watershed Facts

Strawberry Creek Watershed total area = 1,977 acres (CH2M Hill, 1994)

Length of Strawberry Creek = ~ 5 miles

Watershed area under jurisdiction of UC Berkeley = ~ 800 acres

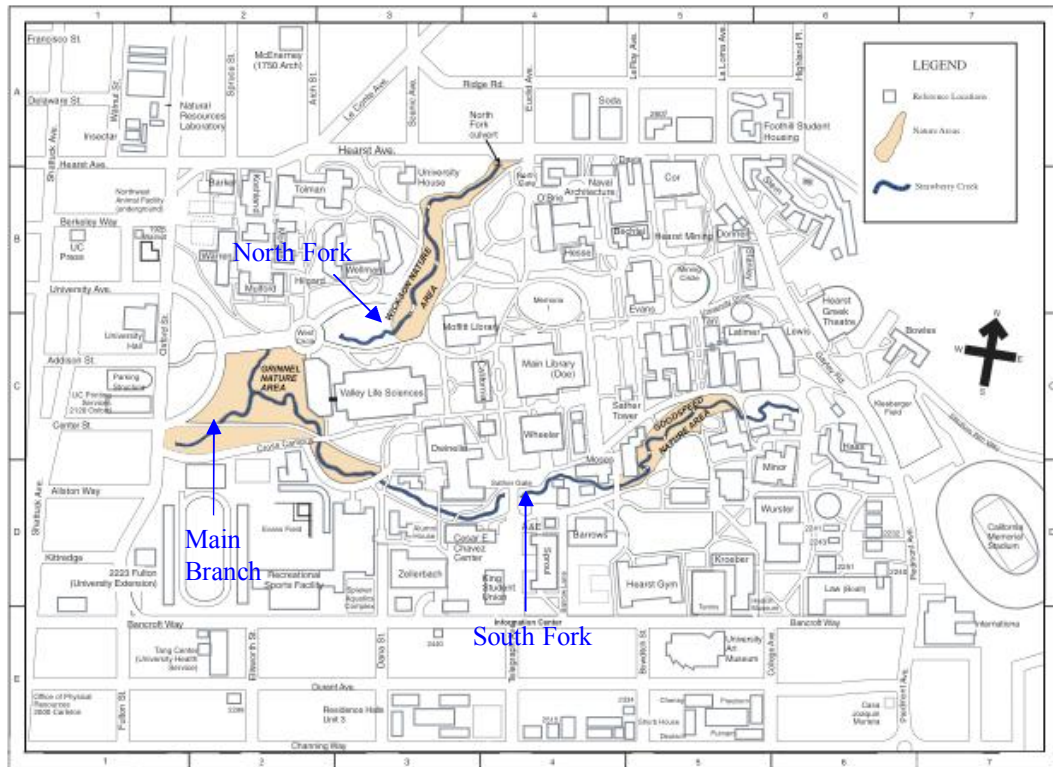
Watershed under jurisdiction of Lawrence Berkeley National Laboratory = 202 acres

Central Campus, Oxford to Gayley (base of Hill Campus) = ~ 165 acres

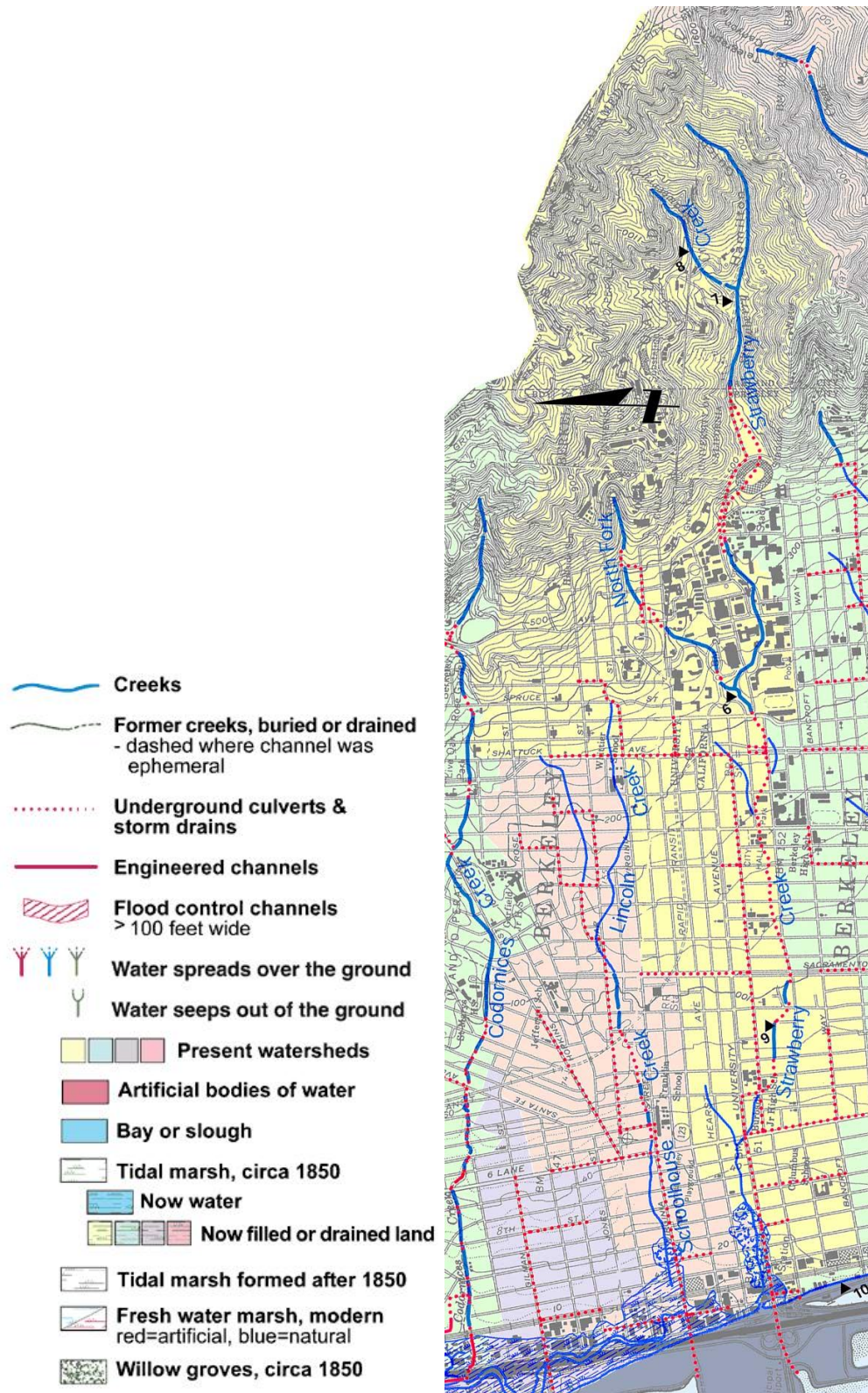
Change in elevation between headwaters and mouth (SF Bay) = 1,760 feet

Change in elevation from Grizzly Peak (1, 1760 ft) to Oxford St. (200 ft) = 1,560 ft

### Strawberry Creek on University of California Campus Park



Strawberry Creek and Natural Areas on UC Berkeley Central Campus Park



**Strawberry Creek Watershed.** *Courtesy of the Oakland Museum, [www.museumca.org](http://www.museumca.org).*

## **1.1 Education and Outreach Overview**

Since the 1987 implementation of the Strawberry Creek Management Plan, use of Strawberry Creek for environmental education has been one of the greatest benefits of the restoration program. Tens of thousands of students and visitors have been exposed to the aspects of environmental degradation and restoration, many for the first time, through educational activities associated with Strawberry Creek. Campus staff, particularly those involved in operations that can impact or improve the creek conditions, and construction contractors have been trained in storm water pollution prevention as well as the benefits of creek restoration. The creek is regularly used by local K-12 classes to study water quality and aquatic organisms. It is estimated that over 3,000 UC Berkeley students per year use the creek for educational activities in many disciplines, including biology, chemistry, engineering, landscape architecture and art.

Environmental education continues through distribution of printed material; newspaper and journal articles; class lectures and laboratory projects; staff presentations and education; creek cleanups and tours; tabling at community events and other community outreach; symposiums and workshops; stenciling of storm drains; student research projects; and website outreach. This section presents some of the highlights of the educational aspects of the restoration program since 1987 and describes some additional opportunities. More history on the educational efforts of the early restoration program can be found in the Spring 2000 Chronicle of the University of California article Strawberry Creek II Restoring the Creek, 1987-89 A Personal Perspective (Charbonneau 2000, Chronicle of the University of California).

## **1.2 Strawberry Creek Walking Tour Booklet**

In 1990, in response to enthusiasm over tours of the creek, a booklet providing a self-guided walking tour of Strawberry Creek was written. It has proven to be the most popular publication distributed by the Office of Environment, Health and Safety.

The booklet was written by Bob Charbonneau, Stephanie Kaza and Vincent Resh with numerous original drawings by Linda Cook. The tour takes you to ten locations on the creek and presents campus history and natural history.

The original June 1990 print run of around 3000 cost approximately \$1,500. It proved to be a very popular booklet in high demand and a second printing of 10,450 was completed in December 1991 for a total cost of \$3,625. When supplies became exhausted again, a second edition was prepared in 1999. It was published in January 2000 with a print run of 10,000 copies for a total of \$6,653 including \$1,200 for final editing by UC Printing Services. Additional original photographs and artwork in the second addition include the cover photo by Steve Maranzana, the Sather Gate design copied from John Galen Howard's original drawing, and the Eucalyptus globulus branch by Karl Hans. In response to a Berkeleyan article issued about the release of the second edition, EH&S

distributed around 1,000 copies. A second printing of the second edition is expected to be needed before 2010 to keep up with the demand.

### 1.3 UC Botanical Garden

In 1989 the UC Botanical Garden created a Strawberry Creek interpretive section of the garden consisting of a creek side trail, waterfall overlook deck and interpretive signs. The headwaters of Strawberry Creek can be viewed by visiting the UC Botanical Garden in Strawberry Canyon above Memorial Stadium. The creek runs through the heart of the 34-acre garden, surrounded by an impressive collection of more than 13,000 types of plants. The upper portion of the creek is landscaped with rhododendrons from China, Nepal, and Bhutan and includes the serene Japanese Pool. Dawn redwoods, Chinese peonies, and other Asian plants thrive in the moist microclimate along the stream.

The creek also flows through the California native section past oaks, bays, and buckeye trees. This area has been restored to represent the native flora along central California Coast Range creeks. A wooden walkway brings you close to many of the plants and down to a small pool and waterfall. Above the creek on the hillside is a deck with interpretive displays that overlooks the Strawberry Canyon watershed. The garden offers a quiet setting for spending time by the creek.

### 1.4 Dump No Waste Stencils and Markers

Major public information campaigns of the early Strawberry Creek restoration project were focused on pollution prevention due discharges to storm drains from dumping material gutters, catch basins and storm drains. In the late 1980s most people were still unaware of the connection between the storm drain system and creeks and the Bay, and illicit dumping of crankcase motor oil, paint rinse water and other materials was a common occurrence.



Example of Storm Drain Catch Basin Stencil

The Strawberry Creek restoration program was perhaps the first use of stencils in the Bay Area and was modeled on an earlier program in Seattle. All curbs next to gutter storm drains on campus were stenciled with "Dump No Waste, Drains to Creek" stencils. With permission of the City of Berkeley, Northside drains were also stenciled with an accompanying mass mailing to residents describing the purpose of the program.



The stencil program served as an excellent opportunity for outreach in the 1990s. Painted stencils eventually wear and need to be repainted. Once a year a "stencil day" that included UC Berkeley students and local K-12 students.

A 1994 event was attended by 80 volunteers, including Vice Chancellor Boggan and stenciling was coordinated with the City of Berkeley to include the southside, including the streets around the resident Units.

FRIDAY, JULY 30, 1993 THE DAILY CALIFORNIAN 3

## Student volunteers boost environmental awareness on campus

### Group paints curbs to protect creek

By Byron Go  
Contributing Writer

In a demonstration of the activist adage "Think globally, act locally," student volunteers recently stenciled catch basins and curbs throughout campus to increase environmental awareness on campus.

Returned Peace Corps volunteers spent their own Volunteer Day cleaning up Strawberry Creek during their annual conference, held at UC Berkeley this year.

Karl Hans, air and water project manager at the Office of Environment, Health and Safety (EH&S) coordinated the students' volunteer day as part of the UC Berkeley Stormwater Program — Strawberry Creek Restoration Project.

The students, armed with neon blue spray paint and stencils, marked their targets "DUMP NO WASTE — DRAINS TO CREEK."

Seema Sheth, EH&S student educational enhancement coordinator, said that the campus community "looked really psyched to see people involved in projects like this one."

Sandra Huang, a UC Berkeley junior majoring in environmental science, said, "You feel good. A lot of people came up to us and told us we were doing good work."

Huang said the project seemed to be succeeding in its goal of increasing public awareness of environmental issues, particularly on campus.

"It's important that students be aware of what is going on around them ... that what happens in one part of the creek affects other parts of the creek and everything it comes in contact with," she said.

Volunteer day is only one of many programs the EH&S office coordinates.

"Another of our programs is called Cal on Campus," Sheth said.

Sheth said that EH&S conducts internship programs through Cal on Campus for students interested in environment and health issues.

Under Cal on Campus, students work to meet project objectives while developing professional management skills.

Sheth said that plans are being made for future volunteer days. Those interested in participating can contact EH&S at 642-9177.



Sandra Huang (left) and Anastasia Neumeyer show off their consciousness raising tools. They and other UC Berkeley students marked campus drains to deter people from polluting the creek.

July 30, 1993 Daily Californian article



Vice Chancellor Boggan stencils first catch basin at 1994 Stencil Day

The program at one point included stencils stating “Dump No Waste” in numerous foreign languages, with stencils being cut at pizza parties by students as part of classroom environmental studies activities.



Example of non-English (Chinese) stencil

By 2000, new technology in drain labeling was being used. The campus decided to switch to new more permanent slip-proof curb markers. Over 400 oval curb markers with a stickleback silhouette and a spill response phone number were placed by campus catch basins in 2003-04.

PMS Blue 293

5.375" x 3.25"



Storm drain Curb Marker made by das Manufacturing Inc. Markers cost approximately \$5.73 each and are applied to the curb using an epoxy adhesive.

## 1.5 Student Projects and Miscellaneous Programs

The office of Environment, Health and Safety is committed to involving the student population in studies and monitoring of creek conditions and processes, both for education and data collection purposes. In addition to the original Strawberry Creek Management Plan that was completed by Bob Charbonneau as a Master's thesis, the following are examples of projects completed by paid EH&S interns or as part of class activities, such as Environmental Sciences Seminar senior thesis projects.

- Assessment of Colitag coliform analysis
- Cross section survey study using survey equipment
- Bed material size analysis
- Check dam damage and repair status
- Macroinvertebrate study of 5 sample sites
- Pesticide detection
- Fish predation by crayfish
- Coliform bacteria and water quality parameter fluctuations
- Point source (pipe outfall) evaluations

Other opportunities that continue to be used to educate students and the public about Strawberry Creek include:

- Creek cleanups- EH&S holds regular trash pickups (now twice a year- a pre-rainy season pickup and Earth Week) to cleanup the creek.
- Tabling- creek interpretive material is included at the EH&S table for various outreach events. Tabling has included a fish tank with native fish.
- Giveaways- T-shirts with creek logos, the stickleback and "Got Fish," have been awarded to volunteers over the years. Coffee mugs with the Curb Marker logo that were purchased beginning in 2004 at a cost of \$1.80 a piece, are given away at creek cleanups and other volunteer events.



Group of conference attendees pull ivy from the creek

- Fact sheets on water pollution prevention and the brochure Enjoying Strawberry Creek Safely address personal health and safety and environmental protection.
- Water Protection Policy- completed in 2004, this policy addresses protection of campus waterways and the Bay during campus operations.
- Website- a Strawberry Creek website (<http://strawberrycreek.berkeley.edu>) has been created to provide up-to-date information on the creek and to serve as a repository of historic documents.

## 1.6 Watershed Environmental Poetry Festival

Strawberry Creek has been both the backdrop and at sometimes the inspiration and focal point for an annual meeting of poets, dancers, musicians, artists, school children and the general public at the Watershed Environmental Poetry Festival. At the tenth anniversary on September 24, 2005 the festival celebrated "ten years of excellence as a grassroots event that inspires a community of poets, artists, environmentalists, school age children, families, and youth with knowledge about our natural world through poetry and the arts."

The Watershed Festival is a collaboration between Robert Hass and the UC Berkeley English Department, *Poetry Flash*, the Ecology Center/Berkeley Farmer's Market, and EcoCity Builders. Watershed was created from Robert Hass's national Watershed initiative to explore the connection between the environment and the American literary imagination during his tenure as U.S. Poet Laureate, 1995-97.

The festival includes interpretive talks and poetry reading along Strawberry Creek on the campus. The 2005 event was held on the campus along the North Fork at the Valley Life Sciences Building.

WATERSHED ENVIRONMENTAL POETRY FESTIVAL  
SATURDAY, SEPTEMBER 24 • NOON TO 5PM • FREE  
VALLEY LIFE SCIENCES LAWN • UC BERKELEY

FEATURING



ROBERT HASS

KAY RYAN

JOANNE KYGER



BRENDA HILLMAN

ALISON HAWTHORNE DEMING

KAMAU DA'OOD

© Poetry Flash 2005 (high-resolution reproductions: [mbb@poetryflash.org](mailto:mbb@poetryflash.org))

Wheelchair Accessible • Sign Language Interpreted