

## 4D Educational Tools and Resources for Public Education Program

## **Educational Tools & Resources For Public Education Program**

Compiled by Maris Sidenstecker, Monterey Bay National Marine Sanctuary.  
Phone: (408) 647-4216.

The following is a list of quality educational materials that can assist teachers, individuals, park rangers, nonprofit organizations, government, state, city and local agencies in setting up a watershed / urban runoff outreach program for their region.

### **A Stormwater Resource Guide Of Public Outreach Materials In California**

Contact: Joyce Neil  
Stormwater Management Division  
City of Los Angeles  
650 S. Spring St., Suite 700  
Los Angeles, CA 90014  
(213) 847-4842  
Fax: (213) 847-5443

To begin a city outreach program you *must* obtain a copy of the Stormwater Resource Guide. This is the most comprehensive list of stormwater related outreach materials in California. Many stormwater programs actively share public information materials. Use this guide to utilize existing materials and share products that your program has developed with others.

### **Curriculum:**

**Adopt A Watershed**  
PO Box 356  
Hayfork, CA 96041  
Phone: (916) 628-5334  
Fax: (916) 628-4212

Offers curriculum for grade levels K-12. Curriculum is divided into the following categories: Biology, Chemistry, Earth Science, Geography, Language Arts, Math, and a field manual for Water Quality Monitoring which is useful for educators monitoring the effects of urban runoff in local watersheds. Cost varies with each item. Offer a teacher workshop with a maximum of 30 teachers per workshop. Facilitator cost is \$375 / day, plus travel expenses.

### **Water Education Foundation (WET)**

717 K. Street, Suite 517  
Sacramento, CA 95814  
Phone: (916) 444-6240  
Fax: (916) 448-7699  
Contact: Judy Wheatley

Offer a Project WET curriculum / activity book for educators levels K-12. The WET workbook has several activities related to urban runoff. One of the best curriculums in terms of layout, design, and content. All water Education Foundation classroom materials are consistent with the California State Frameworks for Science and History/Social Science. In addition WET will facilitate a teacher workshop for free, in exchange for the purchase of educator activity books. If funds are unavailable you can find a sponsor and or charge the teachers \$9.50 each book. Judy Wheatley will gladly assist your organizing a teacher workshop.

In addition to offering teacher workshop training WET watershed curriculum books, WET has a catalog which has a variety of educational products: A California Water Map, Colorado River Map, Groundwater Map, Videos and slide shows on water issues, water cards, preventing pollution card, stickers, notecards, a No-Know Game - relates to urban runoff issues, Hydroexplorer Computer Games, variety of educational classroom materials.

### **Aquatic Project Wild (K-12)**

Project Wild Headquarters, Aquatic Project Wild  
Western Regional Environmental Education Council  
Salina Star Route, Colorado 80302  
Phone: 303-444-2390

WILD is an award winning interdisciplinary, conservation and environmental education program. The waters of the earth, in some form, are walking distance from any classroom on the planet. Project WILD Aquatic Education materials serve as an invitation to explore and understand the fascinating worlds of water and the aquatic habitats they support. WILD offers instructional workshops to train teachers how to use the curriculum.

### **Biological Activity Packet**

Colorado River Watch Network  
Att: Mary Gilroy H 219  
PO Box 220  
Austin, TX 78767-0220

A teachers companion to the Biomonitoring Guide with twelve classroom activities emphasizing aquatic ecosystem structure and function. Teaching activities range from traditional lab investigations to cooperative learning activities, simulations, and even a taxonomy card game, "Bug Rummy". Concepts covered in the activities include taxonomy, genetics, biochemistry and ecology. Grade levels 7-12. Fee.

### **Biomonitoring Guide**

See address above

A manual that provides citizens the necessary background and instruction to use benthic macroinvertebrates as key indicators of the health of a water body. Step by step instructions guide the reader through habitat assessment as well as a collection and identification of macroinvertebrates. The dichotomous key and pocket-size key card have simple line drawings to help with field identification of organisms. Fee.

### **Biological Monitoring Video**

See address above

This instructional video explains the use of benthic macroinvertebrates in determining the health of a water body. Field procedures are demonstrated for riffle habitat assessment as well as collection and identification of organisms. Microscopic footage of at least 20 species of benthic macroinvertebrates is included to assist with identification. Designed to complement the Biomonitoring Guide, this video is appropriate for middle school through adult. Fee.

### **Blue Thumb Project**

c/o American Water Works Association  
6666 West Quincy Avenue  
Denver, CO 80235  
Phone: 800-926-7337

Offers an assortment of products related to water. Includes pencils, magnets, stickers, brochures, erasers, project kits, flags, guides and resources.

**Channing L. Bete Co., Inc.**  
200 State Road  
So. Deerfield, MA 01373-0200  
Phone: 800-628-7733  
Fax: 800-499-6464

Offers a variety of water education materials including booklets, posters, curriculums, coloring and activity books, water week kits. Fee.

**Earth: The Water Planet** (grades 6-8) \$10.00  
The National Science Teachers Association  
1742 Connecticut Ave NW  
Washington, DC 20009

**Educating Young People About Water: A Guide to Goals and Resources with an emphasis on nonformal and school enrichment settings.**

Elaine Andrews  
University of Wisconsin-Madison  
216 Agriculture Hall  
1450 Linden Dr.  
Madison, WI 53706

A guide for professionals who design and develop water quality training programs and curricula, and for coordinators of water education programs. Coordinators can use it to make initial program decisions or to find complimentary materials for a program already in place.

**Hands On Save Our Streams (K-12) SOS Kit \$8.00**  
Izaak Walton League  
707 Conservation Lane  
Gaithersburg, MD 20878  
Phone: 800-BUG-IWLA

Is an interdisciplinary curriculum that can be used to teach social studies, biology, chemistry, math, history, language arts or english and includes all background needed to teach lessons and field studies.

**Investigating Streams and Rivers: An Interdisciplinary Curriculum Guide**  
See the address for Green under Catalogs

A collection of activities to encourage student inquiry, investigation, and action regarding local streams and rivers.

**Living In Water** (grades 4-6) \$4.00  
National Aquarium in Baltimore  
Education Department, Pier 3  
501 E. Pratt Street  
Baltimore, MD 21202

**S.T.E.P.**

Monterey Salmon and Trout Project  
 c/o Matt MacCaslin  
 2524 Parker Street  
 Santa Cruz, CA 95065

Offer curriculum binder, revised lesson packet, Science kit (slides, videos, posters). There is a fee.

**The Stream Scene:** Watersheds, Wildlife, and People (grades 6-12) \$15.00  
 Oregon Department Fish and Game  
 Office of Public Affairs  
 PO Box 59  
 Portland, OR 97207  
 Phone: 503-229-5400 Ext: 432

**Water, Water Everywhere But....** (grades 7-10)  
 Hach Company  
 PO Box 389  
 Loveland, CO 80539

This material is not intended for use as "text material". It is a reference work to be used by students while interpreting their water test results. Everything was written with the assumption that students have no background in chemistry and only a limited knowledge of mathematics and general science. Hach also offers curriculum, resource materials, resource guide, and monitoring kits (see address under monitoring kits).

### Hands-on Educational Tools:

**enviroscape Models**  
 c/o JT & A, inc. or  
 4 Herbert Street  
 Alexandria, VA 22305  
 Phone: (703) 519-2180  
 Fax: (703) 519-2190

**Terrene Institute**  
 1717 K Street, NW, Suite 801  
 Washington, DC 20006  
 Phone: (202) 833-8317  
 Fax: (202) 296-4071

Enviroscape is a **three-dimensional, hard plastic model of a miniature city.** This interactive portable model offers a hands-on approach to demonstrate water pollution of watersheds caused by various urban runoff sources. The model is (approximately 25"x 30"x5") and comes complete with a kit containing components you need to demonstrate the movement of water through a watershed. The exhibit includes scaled-down homes, shopping areas, commercial districts and industrial locations placed at different elevations. The lowest point on the model is a water body. Participants spray water on the model to simulate a rain storm which shows how various media simulating motor oil, paint, antifreeze, herbicides, and pesticides drain from upland areas to the water body. The ingredients of cocoa, powdered drink mixes, and cake decorations act as toxic pollutants.

The enviroscape base remains the same and interchangeable add on surfaces can be purchased separately, including: hazardous waste, wetlands, groundwater, and riparian, urban, coastal, and landfill. Prices range from \$299 for base only, with each add on costing approximately the same amount. This has been one of the **most effective tools** to demonstrate non-point source pollution to a variety of target audiences in the cities of Monterey and Santa Cruz. They also offer a Resource Guide for Wetlands to accompany the model which lists a variety of products, posters, programs and projects.

For approximately \$800 you will have a valuable educational outreach tool which makes the topic of urban runoff fun. In addition to the buildings supplies with your model you can purchase small plastic animals (from toy stores) found in your local watersheds. Label local watersheds on the model. Perfect the urban runoff pollutants by using different colors of koolaid and cake decorations.

The Sanctuary office checks the model out to educators and nonprofits in order to increase urban runoff awareness. This outreach effort combined with community events has reached over 5,000 children and adults in 18 months. We advertise the availability of the urban runoff model through presentations, word of mouth, newsletter articles, announcements at meetings, events, teacher workshops, and county district school office mailings. In the future we would like to acquire more models to be placed in various cities and school districts in order to expand this outreach to a regional effort.

This is a great tool to be used by schools, community groups, government agencies, nonprofit groups, park services. Due to the cost this is an item that could be shared by a few groups or by soliciting local business for funds, or getting a grant to purchase the enviroscape.

**Roving Storm Drain Exhibit (a Replica of Monterey Bay Aquarium exhibit)**

Contact: Martha Manson - Exhibit Design Manager  
 Monterey Bay Aquarium  
 886 Cannery Row  
 Monterey, CA 93940-4810  
 Phone: (408) 648-4889

To have an **interactive storm drain exhibit** built for your city like the one on display at the Monterey Bay Aquarium, Monterey, California. Please call for aquarium approval to duplicate the exhibit. These are displays that can be adapted for bilingual outreach and sturdy enough to be left unattended at libraries, DMV's, schools, and events. The display is approximately three feet tall by two feet wide and sits on rollers. The top of the exhibit is the size of a storm drain. Attached to the grate is a plastic motor oil bottle spilling plasticized oil down the storm drain. The grate lifts up to display text in English and Spanish which explains how motor oil affects water quality and marine life.

The person who built the exhibit is an outside contractor - Chris Poehlman and his phone number is (707) 886-5182. He made modifications to the exhibits built for the cities of Monterey and Santa Cruz, in order to make them more portable for a roving display. The cost is approximately \$4,300 for the entire display.

**Monitoring Kits/ Resources:**

**California Directory of Volunteer Monitoring Organizations**

Gwen Starrett  
 Water Resources Education Coordinator  
 State Water Resources Control Board  
 P.O. Box 100  
 Sacramento, CA 95812-0100  
 Phone: (916) 657-0518 Fax: (916) 657-2127

The directory is designed to identify community groups in California that are monitoring aquatic resources such as creeks, rivers, bays, lakes, estuaries, and ocean waters. This serves as an excellent source to connect interested volunteers, potential mentors, and resource managers with existing monitoring groups and increase communication between community groups in order to learn from other successes and challenges.

**Urban Watch Kit**

NAPCO Chemical Company

Contact :Marilyn Grychka

Phone: (800) 929-5976

The kit used by Urban Watch volunteers was developed jointly by City of Fort Worth staff and Lamotte company. It includes all the parameters required in EPA's NPDES permit regulations for **dry-weather storm drain monitoring** (chlorine, copper, detergents, phenols, pH, turbidity, and color), plus a thermometer and a test for ammonia-nitrogen. Kit cost \$310.00. This kit was successfully used by a volunteer monitoring program for the City of Monterey Public Works Department, California.

**Hach Company**

560 Lindbergh Dr.

PO Box 389

Loveland, CO. 80539

Phone: 800-227-4224

Fax: 303-669-2932

**La Motte**

PO Box 329

Rt. 213 North

Chestertown, MD 21620

Phone: 800-344-3100

Fax: 410-778-6394

**Minnows Monitoring Storm Water**

Brian Camp

Fort Worth DEM

5000 Martin Luther King Highway

Fort Worth, TX 76119

Phone: 817-871-5460

The Fort Worth Department of Environmental Management has produced a video and manual explaining how to construct and use the Stream Sentinel, a low cost, long term method of monitoring storm drainage outfalls using six fathead minnows in a two-liter soda bottle. Both are available at no cost from Charles Howell, EPA Region 6, First Interstate Bank Tower, Fountain Place, 1445 Ross Ave., 12th floor, Suite 1200, Dallas, TX 75202-2733. Phone: 214-665-8354.

**Chemetrics**

Route 28

Calverton, VA 22016

Phone: 800-356-3072

**Millipore**

80 Ashby Rd

Bedford, MA 01730

800-645-5476

**Catalogs:**

**GREEN**

721 East Huron Street  
 Ann Arbor, Michigan 48104  
 Phone: 313-761-8142  
 Fax: 313-761-4951  
<http://www.econet.apc.org/green/>

Offers a catalog of quality watershed education resources, international newsletter, cross cultural watershed opportunities, training and support to help you initiate or enhance local watershed education efforts.

**Compendium of Educational Materials on the Water Environment**

Alliance For Environmental Education  
 51 Main Street  
 PO Box 368  
 The Plains, VA 22171  
 Phone: 703-253-5812

A collection of broad range of topics related to water environment and emphasizes diffuse or nonpoint sources of water pollution. It is organized into three major areas: institutions, education, public involvement; pollutants; and resources. Fee.

**Terrene Institute**

4 Herbert Street,  
 Alexandria, VA 22305  
 Phone: 703-548-5473 Fax: 703-548-6299  
 e-mail: [terrene@gnn.com](mailto:terrene@gnn.com)

Offers a wide variety of valuable resources including Projects/Resources, Partnership programs, Teacher kits, Community kits (designed for use by citizen and community groups to increase awareness on watershed issues), Professional kits (assembled by professionals, academics, and government employess for local planners and stormwater issues), Brochures, Buttons, Stickers, Watershed Note Cards, Books, Fact Sheets, Posters, Models and Games, Newsletters, Data Bases.

**Water Education Foundation**

717 K Street, Suite 517  
 Sacramento, CA 95814  
 Phone: 916-444-6240  
 Fax: 916-448-7699  
 e-mail [wateredfdn@aol.com](mailto:wateredfdn@aol.com)

Offers a variety of products including one of the best watershed curriculums (see description above under curriculum) and School Programs. Layperson's Guides, Brochures and Bill Stuffers, Maps, Videos and Slide Shows, Water Awareness, Notecards, Computer Games.

**Conservation Technology Information Center**

1220 Potter Drive, Room 170  
 West Lafayette, IN 47906  
 Phone: 317-494-9555  
 Fax: 317-494-5969  
 e-mail: [CTIC@expert.cc.purdue.edu](mailto:CTIC@expert.cc.purdue.edu)



CTIC is a nonprofit information/data transfer center. CTIC is represented by an interactive ag-based partnership of individuals, corporations, associations, governmental agencies, foundations, universities, and media. Videos, manuals, directories, brochures, guides, computer disks and fact sheets give information that will help you better manage your natural resources. Manuals about manure management include open lot livestock production, composting and constructed wetlands. Information available on Nutrient, Pest, and Watershed Management, and Wetlands materia

### **Publications:**

**City of Palo Alto**  
Public Works Dept.  
Suzanne Healy  
2501 Embarcadero Way  
Palo Alto, CA 94303  
Phone: 415-329-2598  
Fax: 415-494-3531

One of the best sources of information on a wide variety of topics. Offers a large selection **Best Management Practices (BMP's)** and Program Reports on a wide range of topics including automotive, food handling services, and construction sites. Also have **Pollution Prevention Outreach Materials** - stickers, posters, postcards, magnets, buttons, utility bill inserts, door hangers, and school workbooks. **Fact Sheets** - describe program design and implementation for auto part stores, construction sites, copper installation, dry cleaners, hospital/medical facilities, metal plating, machine works, pools and spas, volunteers for stencil storm drains, zinc in floor wax. Have extensive information on the **Clean Bay Business Program** which has been successfully growing in poularity among business owners.

**Heal The Bay**  
2701 Ocean Park Blvd. Suite 150  
Santa Monica, CA 90405  
Phone: (310) 581-4188  
Fax: (310) 581- 4195  
[www.healthebay.org/healthebay](http://www.healthebay.org/healthebay)

Heal The Bay has excellent brochures including "Dirty Words Every Kid Should Know" which describes storm drain pollution in english/spanish. They also have door hangers on storm drain pollution for Los Angeles county. Provide an "**Annual Beach Report Card**" on water quality health of beaches which is publicized in local papers and the media. This is a good addition to taylor and add to your own monitoring program in order to get media attention for local monitoring efforts. Offer a variety of test kits and portable laboratories for use in the field, laboratory and on site.

**Los Angeles County**  
Department of Public Works  
Att: Hulio Fontura  
Phone: (626) 458-3531

Los Angeles county has very nice storm drain posters, BMP brochures, information brochures and stickers. If your city is on a limited budget you can purchase posters and brochures from them at a reasonable price.

**Wetlands Reading List (Pre-K -12)**

EPA  
 Office of Wetlands, Oceans, and Watersheds  
 Office of Water  
 Washington, D.C. 20460  
 Phone: 800-832-7828

Books are listed and described in sections according to reading level: Primary, Elementary, Intermediate, and Secondary.

**The Magic School Bus at the Waterworks (in English and Spanish)**

Published by Scholastic Inc.  
 by Joanna Cole \$4.95 Paperback  
 Purchase at bookstores.

A popular childrens series of books also seen on TV PBS series. This topic takes children on an adventure to find out how cities get their water through the waterworks. A fresh and amusing way to teach kids (and adults) science and concepts.

**Field Manual for Water Quality Monitoring**

William Stapp  
 2050 Delaware Ave.  
 Ann Arbor, MI 48103

**Public Opinion Surveys:**

**Public Opinions Toward Water Issues Among Residential Users Serviced by The City of Watsonville Water Division and The Aromas Water District**

February 1996

Research conducted by Pearson Research Associates; Adrian Pearson.  
 PO Box 1778  
 Santa Cruz, CA 95061  
 Phone: (408) 429-9757  
 Fax: (408) 426-7010

**Web Sites:**

Water Education Foundation's Web Site:  
<http://www.water-ed.org>

Heal The Bay  
[www.healthebay.org/healthebay](http://www.healthebay.org/healthebay)

Educating Young People about Water  
<http://www.uwex.edu/erc/ywc/index.html>

GREEN  
 WWW:<http://www.igc.apc.org/green>

EPA internet homepage with basic watershed data from around the country.  
 "www.epa.gov/surf"

For information on the State Water Resources Control Board monitoring activities.  
<http://www.swrcb.ca.gov>

**Local:**

<http://www.santacruz.k12.ca.us/~jpost/projects/Watershed/mbwat1.html>

The Wells National Estuarine Research Reserve - an educational telecommunications project that investigates non-point source pollution and supports watershed management.  
mewells@alice.terc.edu

**Newsletters:****The Volunteer Monitor Newsletter - Twice a year**

Eleanor Ely, Editor  
1318 Masonic Ave.  
San Francisco, CA 94117  
Phone: 415-255-8049

**Coastal Links**

The Water Quality Protection Program for the  
Monterey Bay National Marine Sanctuary  
299 Foam Street Suite D  
Monterey, CA 93940  
Phone: 408-647-4201  
Fax: 408-647-4250

**Coastal Watershed Council - quarterly newsletter**

Donna Meyers - Executive Director  
204 Laguna Street  
Santa Cruz, CA 95060  
Phone: 408-426-9012

**California Coast and Ocean - quarterly**

State Coastal Conservancy  
1330 Broadway, Suite 1100  
Oakland, CA 94612  
Phone: 510-286-0934

**Adopt A Watershed**

PO Box 1850  
Hayfork, CA 96041  
Phone: 916-628-5334  
Fax: 916-628-4212

**Coastlines**

Urban Harbors Institute  
UMASS Boston  
100 Morrissey Blvd.  
Boston, MA 02125-3393  
Fax: 617-287-5575

**Runoff Report**

c/o JT & A, inc.  
1000 Connecticut Avenue, NW  
Suite 802  
Washington, DC 20036  
Phone: 202-833-3380

**Wetlands Celebration**

Terrene Institute  
1717 K Street, NW, Suite 801  
Washington, DC 20006  
Phone: 202-833-8317  
Fax: 202-296-4071

**Nonpoint Source**

News Notes  
c/o Terrene Institute  
see address above

**The Riparian Zone**

Longfellow Creek Watershed Project  
c/o Camp Long 5200 35th Ave. SW  
Seattle, WA 98126  
Phone: 206-233-2046

**GREEN**

721 East Huron Street  
Ann Arbor, MI 48104  
Phone: 313-761-8142

**Biodiversity News**

1416 Ninth Street Room 1311  
Sacramento, CA 95814

**The Water Foundation**

PO Box H2O  
Brainerd, MN 56401-2000

**Outfall**

Santa Clara Valley Nonpoint Source Pollution Control Program  
5750 Almaden Expressway  
San Jose, CA 95118  
Phone: 408-265-2600  
Fax: 408-266-0271

**Visions for the Whippany Watershed**

Whippany River Watershed Project  
NJ Department of Environmental Protection  
Office of Environmental Planning  
CN 418  
Trenton, NJ 08625-0418  
Phone: 609-984-0058

**Western Water Magazine**

Water Education Foundation  
717 K Street, Suite 517  
Sacramento, CA 95814  
Phone: 916-444-6240

**Teaching Water Science Newsletter**