

Training Environmental Stewards: Integrating Water Quality and Quantity Education from Mountains to Ocean

B. Gaolach, S. Kantor, P. Racette, T. Zimmerman, A. Grotta, D. Batura, and G. Cook

WSU King County Extension, 919 SW Grady Way, Suite 120, Renton, WA 98055-2980, tara.zimmerman@metrokc.gov

Situation: King County in Washington State is a model for the difficulties posed by managing water resources in a rapidly urbanizing area that encompasses diverse land-use activities including forestry, agriculture, rural lifestyles, and urban living. In order to bring education on these issues to the public, Washington State University King County Extension (WSU-KCE) utilizes a "train-the-trainer" model. In exchange for training, volunteers agree to provide an equivalent amount of volunteer service in their local communities, reaching a larger segment of the public than Extension Educators alone could reach. WSU-KCE has replicated this model in several subject areas, currently including Master Gardeners, Watershed Stewards, Forest Advisors, and Livestock Advisors.

These programs cover a diverse range of land-use options: natural areas, home gardening, forestry, and livestock ownership. Each of these train-the-trainer programs concentrates its educational message on proper resource stewardship for its intended audience, including water quality issues. However, volunteers in one training program may not be exposed to the issues in other training programs. For example, Master Gardeners are not always aware of the issues livestock owners face, nor are they aware of what efforts livestock owners are making to protect water resources. Without this integrated education, it is difficult for volunteers to provide a complete watershed picture to the individuals they work with.



Results: The completed draft curriculum modules address the major land-use impacts to water quality. These modules include:

Introduction: Watersheds, the Water Cycle, and You
Forestry and Water Quality
Crop Production and Water Quality
Livestock and Water Quality
Households and Water Quality
Recreation and Water Quality
Water Regulations and Laws

These modules were piloted during Watershed Stewardship, Livestock Advisor, Forest Advisor, and both King and Pierce Counties Master Gardener volunteer training courses, reaching 191 volunteers in 2004. Modules are now undergoing review and revision, with completion and full implementation anticipated in 2005/2006. Draft modules are available for review.

Objectives: Our goal is to train all our volunteers as "natural resource stewards" using an integrated approach. To foster this integrated training, the objective of this 3-year project is to develop a single curriculum that has both a core water quality and quantity component, and additional specialized modules to use in training volunteers to deliver water quality programming relevant across a wide variety of land-uses. Specific objectives are:

- Develop a core water quality and quantity curriculum and associated modules that relate to specific land-use concerns;
- Implement and evaluate this curriculum in volunteer training classes; and
- Disseminate the training curriculum to other agencies.

Methods: Extension Educators, staff and volunteers, assisted by local experts, drafted specific curriculum modules to cover a diverse array of land use impacts to watersheds and ways impacts can be lessened. The introductory module, *Watersheds, the Water Cycle, and You*, was designed to serve both as an introduction to the larger curriculum (the first session of a multi-session course), and as a stand-alone summary of the larger curriculum (to be used when a multi-session course is not possible). Each of the five modules that follow include learning objectives, a presentation outline, a printed copy of PowerPoint presentation slides and speaker notes (and CD-ROM), suggested activities, related assignments, a resource list, and optional enrichment lessons.

Protecting Water One Neighborhood at a Time
Suggested Activity: Watershed Stewards

Directions: Divide students into five groups and give each group one of the following scenarios. Students work in groups to come up with ways to address specific practices with neighbors. Instructor may decide to ask groups to role-play their solutions for the larger group or simply share the solutions their group came up with. *(Accompanying behavior: Talking to your Neighbors about Water Protection and Conservation)* may be assigned as homework ahead of time, or as a follow-up to this activity.

Your new neighbor is a real handy man. He always seems to have a project going, and appears to enjoy working on his car. One Saturday afternoon you happen to glance out your window just as he is pouring some dark liquid down the storm drain. The hood of his car is wet and several tools are scattered about the side.

Your long time neighbor, Janice and Tom have been working so hard this summer. When they had your family over for a barbecue last month they were going on and on about how excited they were to be updating their yard. They needed a real nice tree much larger than what they had before the sale and the dog to play on, but they seem to be a bit over-zealous with the chemicals. Tom had been out with the fertilizer spreader several times this month, and yesterday you noticed a commercial lawn care company spray truck out front.

It looks like your neighbor across the street got a new car. Typically you don't see much of her. In fact you can only recall speaking with her once a couple summers ago, but lately she has been watching games on the cable coach parked on the street out front. Most Sunday afternoons you've noticed her with a bucket of ants and a watering hose, scrubbing and spraying away for what seems like most of the afternoon.

Your neighbor Sharon loves her yard. In the summer she seems to be really concerned about it being hot, but in the winter she seems to be really concerned about it being cold. She has a sprinkler in on all afternoon, and there is often a row of water running from her front yard, down the sidewalk, and into the storm drain. You would like to suggest a soaker hose, or at least that she water at a cooler time of day, but since the dog barking issue last fall, you haven't been on very good terms.

This spring your new neighbors are putting in a swimming pool. They are doing all of the work themselves, as the pool is contained 8 miles far. They excavated the hole a while back with a rented backhoe and placed the fill dirt in the back yard. Unfortunately, your driveway was left falling and you've noticed lots of dirt and mud clogging up the creek the runs behind their home and yours.

Title: Protecting Water One Neighborhood at a Time

Learning Objectives:

1. Students will read how urbanization affects both water quality and water quantity.
2. Students will understand where water is used or conserved in and around the home and will learn ways to use water more wisely.
3. Students will understand the difference between how sunny weather creates a wetland and how sunny weather creates a drought.
4. Students will be able to identify outdoor household practices that threaten water quality and will learn the correct practices that will help protect streams and rivers.
5. Students will be able to answer the question, "What can I do in my own neighborhood to reduce impacts?" Learn ways to mitigate, reduce, or eliminate specific household impacts to watersheds.

Presentation Outline

Presentation Slides and Speaker Notes

Accompanying Materials

- USGS Publicity Story
- How to Get the Best of Both: You Don't Want or Need King County DNRSP

Suggested Activities

- Watershed Stewards

Related Assignments

- Home Audit Map

Resource List

Optional Enrichment Lessons:

- Tour low impact development neighborhood to learn about reduction and retention practices
- Cross lecture on landscape horticulture/retention/conservation
- Guest lecture on household chemicals/pesticides use (safety, label reading)
- Tour wastewater treatment facility or bio-sludge facility

Protecting Water One Neighborhood at a Time

Directions: Students work together in small groups or on their own to create a neighborhood awareness display around a practice or impact of their choice (e.g. "Money is short in the bank"). Students should create slogan, primary message, and method to get the word out to local neighborhoods.

Protecting Water One Neighborhood at a Time
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The table of contents page for the **Households and Water Quality** module entitled, *Protecting Water One Neighborhood at a Time* is shown with selected examples of content.